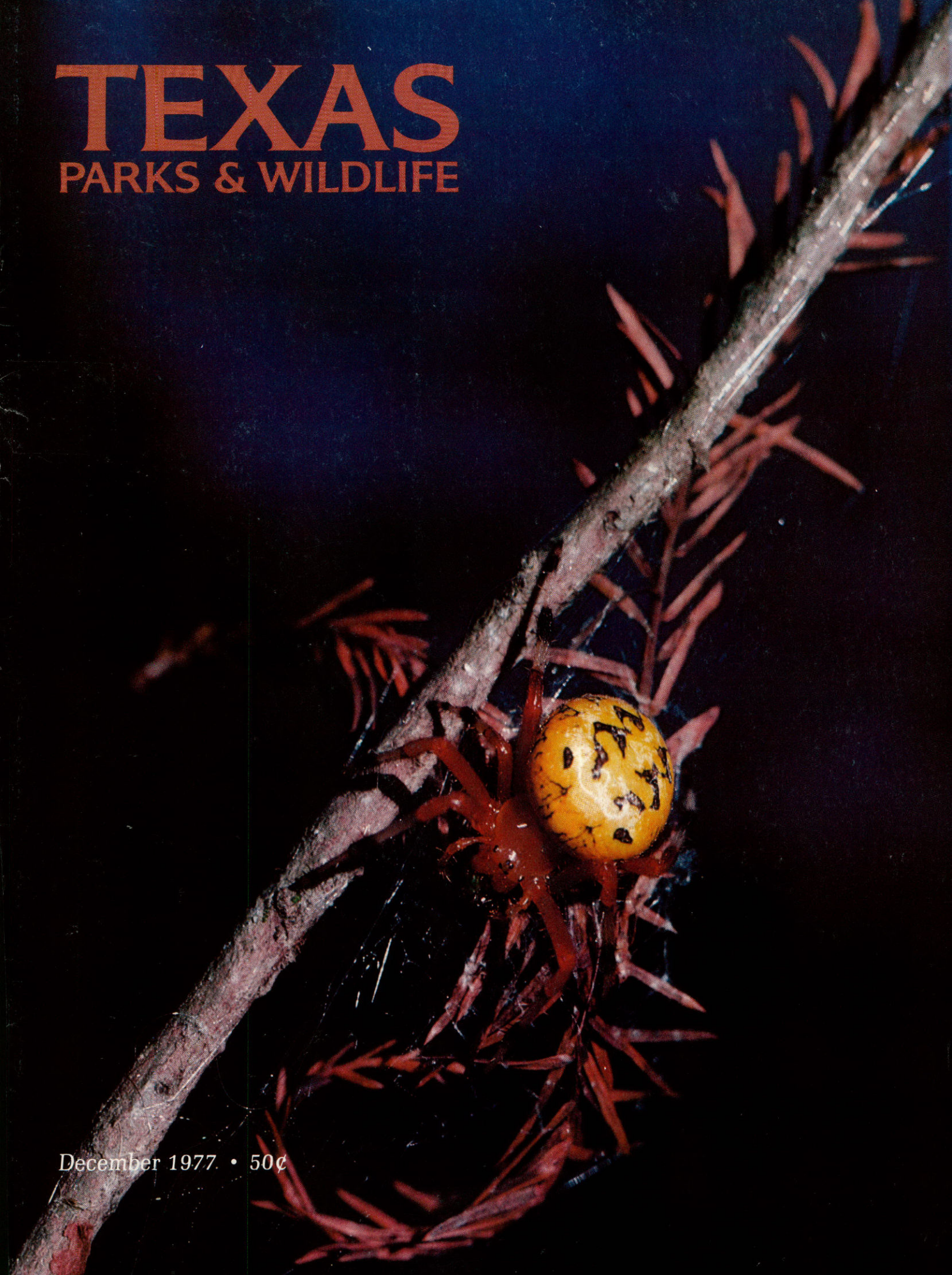


TEXAS

PARKS & WILDLIFE

December 1977 • 50¢





DOLPH BRISCOE
Governor of Texas

**PARKS AND WILDLIFE
COMMISSION**

PEARCE JOHNSON, Chairman Austin
JOE K. FULTON, Vice-chairman ... Lubbock
PERRY R. BASS Fort Worth
JOHN M. GREEN Beaumont
JAMES R. PAXTON Palestine
LOUIS H. STUMBERG San Antonio

**PARKS AND WILDLIFE
DEPARTMENT**

HENRY BURKETT Executive Director

DIRECTORS

BILL ANDERSON Data Processing
JOHNNY L. BUCK ... Design & Construction
TED CLARK Wildlife
JAMES E. DICKINSON Finance
DEXTER C. HARRIS Law Enforcement
ROBERT J. KEMP Jr. Fisheries
PAUL E. SCHLIMPER Parks
PERRY SPALDING Administration

**TEXAS PARKS & WILDLIFE
magazine**

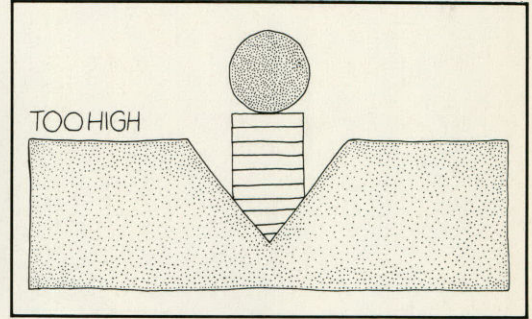
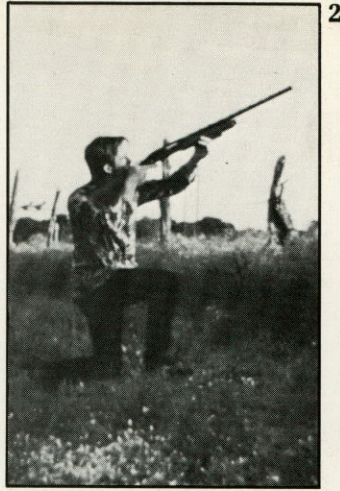
Dedicated to the conservation and enjoyment of Texas fish, game, parks, waters and all outdoors.

JOHN JEFFERSON Director, Information
and Education
DAVID BAXTER Editor
ILO HILLER Associate Editor
DIANNE RICHARDS Art Editor
BILL REAVES Photography Editor
RUTH PERRY Advertising-Circulation
LAVERNE MOCCIA Office Manager

Published monthly by the Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744, AC 512 475-4891. Republication of material is not permitted except by special written permission. The inclusion of advertising is considered a service to subscribers and is not an endorsement of products nor concurrence with advertising claims. Rate schedule available upon request. Subscription rates: \$5 for one year and \$9 for two years. Single copies and all back issues, 52¢. Foreign subscription rates: \$6 for one year and \$11 for two years.

Postmaster: If undeliverable, please send notices by form 3579 to 4200 Smith School Road, Austin, Texas 78744, Second class postage paid at Austin, Texas, with additional entry at Oklahoma City, Oklahoma.

Publication Number 541360



TEXAS PARKS & WILDLIFE

December 1977, Vol. XXXV, No. 12

Where Do They Come From and Where Do They Go?

by Jim Dunks

2

Banding studies over an eight-year period provide information about doves from other states and their impact on Texas hunting.

Learn Your Lake by John Moczygemba and William C. Provine 6

A general knowledge of physical, chemical and biological characteristics of a lake can improve your fishing success.

'77 Fish Records by David Baxter

10

Successful anglers set 18 new state fish records, one of which established a new world record.

Spare That Tree by Gary E. Spencer

13

Many species of wildlife depend upon slow-growing, cavity-filled trees for survival.

Too Many People by Tom McGlathery

16

Increased usage of state parks is causing problems that must be solved.

Around the State

20

News briefs compiled by department's news service.

Whistling Ducks by Don Delnicki

22

These birds, once known as tree ducks, are unique among the waterfowl.

Wanted: Bald Eagle

26

Report sightings to assist department wildlife biologists.

Young Naturalist: Gift with Responsibility by Ilo Hiller

28

That BB gun under the Christmas tree is not a toy.

Letters to the Editor

32

Front Cover: Small spines on the hind legs of the comb-footed spider are used to help cover its prey with the silk from its spinnerets. This nonpoisonous member of the black widow family spins a rather weak, irregular web. Photo by Leroy Williamson.

Inside Front: Buck or doe? It's a game of nerves between hunter and deer — hunter hoping the deer will move to a more open spot, deer trying to decide if he is in danger. Photo by Neal Cook.



Where do they come from and where do they go?

by Jim Dunks, Program Leader, Doves

Less than half of the Texas mourning dove population survives from one year to the next. Death comes from a multitude of causes — diseases, predation, poisoning and hunting. Of the causes, hunting is the one best controlled, but only 10 to 13 percent of our dove population is killed by hunters each year, minor compared to other mortality factors.

Effects of hunting on mourning doves in Texas, movements of birds into the state, from where, when and how many were questions answered by a recent analysis of an eight-year mourning dove banding program.

The program, conducted from 1967 through 1974, entailed nearly 3,000 band recoveries from more than 46,000 doves trapped and banded throughout Texas, and 2,000 recoveries in Texas from nearly 900,000 doves banded throughout the United States. All of these doves were banded during the summer while breeding activity was in full swing to reflect the movements of the breeding population.

Dove hunters often wonder where their birds come from. Each hunter has his own theory about migration of doves; unfortunately, not all of them are well-founded.

The band-recovery analysis tells us about doves from other states and their impact on our hunts. The analysis, which measured the amount of contribution each state provides for Texas hunters, was done on a statewide basis, by the two hunting zones (North and South), and by smaller divisions within the state with similar habitat. The origin of doves harvested by 10-day periods and by monthly intervals was estimated for each zone so as to determine approximately when doves from other states begin entering Texas.

The North Zone, which comprises approximately 75 percent of Texas' land mass, offers a wide variety of dove hunting areas. It consists of pine forests in the east, rolling grasslands and scattered woodlands in the central portion and mountains and basins to the west. It

also includes the Edwards Plateau to the south and the Panhandle to the north.

The North Zone has a traditional 60-day dove season beginning on September 1. Three to four million doves are harvested during an average season with the bulk of the hunting activity in the north-central portion. Hunter success is relatively poor to the east and improves as one moves west. Hunting activity is in-



C. R. Wilkins

Banding efforts were conducted during the summer while the breeding activity was in full swing to reflect the movements of the breeding dove population.

tense as the season begins, but tapers off quickly as the season progresses. About 45 percent of the statewide harvest occurs in the North Zone during the first 10 days of the season.

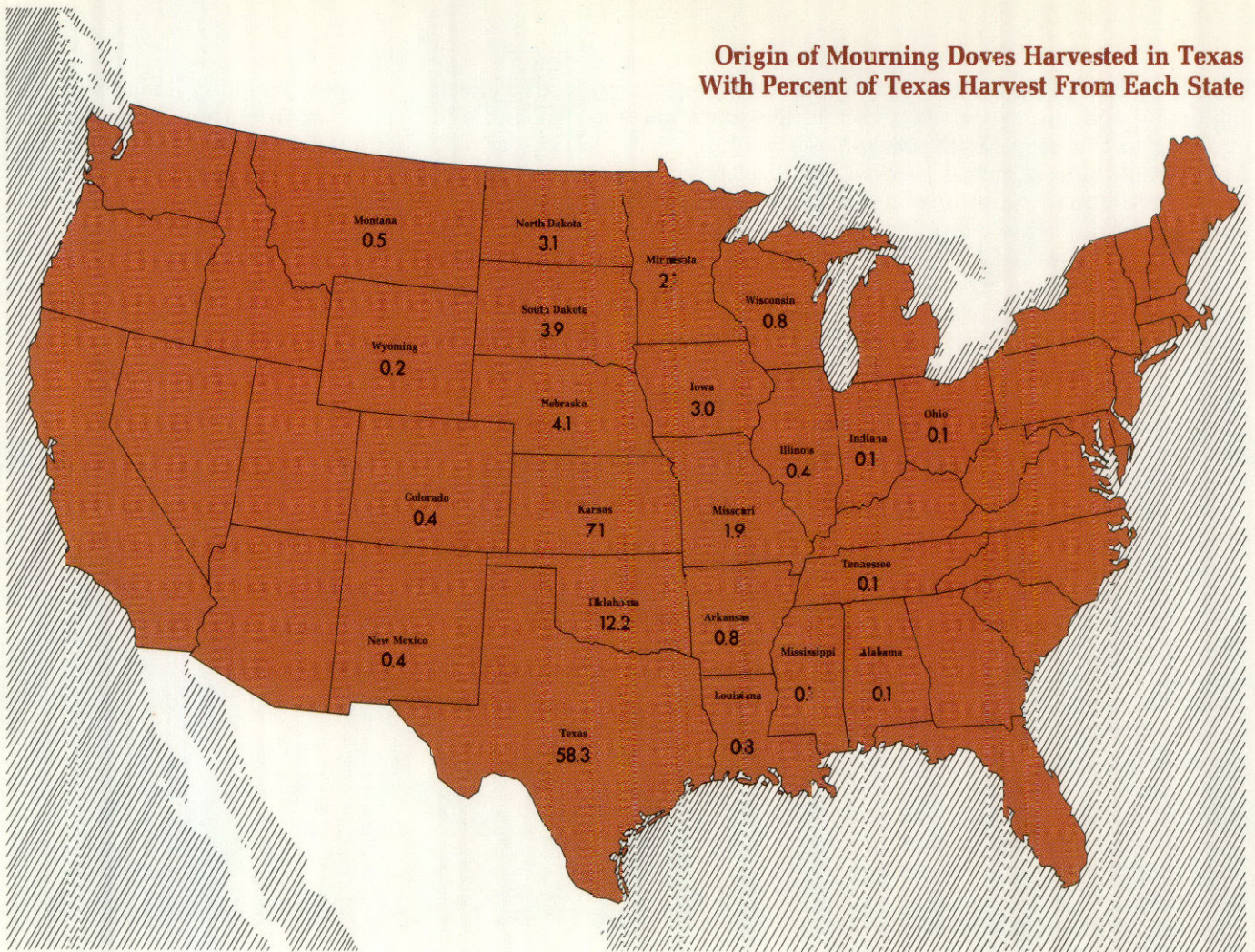
The banding study shows that of the total doves harvested in the North Hunting Zone, 59.1 percent originate from within Texas. Oklahoma contributes the most out-of-state birds (16.9 percent), followed by Kansas (6.0 percent), Nebraska (3.3 percent), South Dakota (3.0 percent), North Dakota (2.9 percent), Iowa (2.1 percent) and Missouri (1.1 percent). Other states contributing less than one percent are Montana, Wyoming, Colorado, New Mexico, Arkansas, Wisconsin, Illinois, Ohio, Mississippi and Louisiana. It is interesting to note that states which contribute the most doves to our harvest are those directly north of us.

Some variation to this pattern of states contributing doves occurs within the North Zone. One area that is an exception to this rule is the Pineywoods of East Texas. Of the total doves harvested in this area, 86.4 percent originate from within Texas, leaving only 13.6 percent to be supplied from other states. Arkansas and Louisiana supply the largest amount of out-of-state birds in this area. Migrating doves seem

to avoid the Pineywoods portion of the state and dove hunters in East Texas must rely heavily on locally produced doves for hunting.

Another interesting area is that west of the Pecos River. Hunters there are dependent on migrating doves to enhance hunting opportunities, more so than any other area in the state. Of the total doves harvested in the Trans-Pecos, only 28.7 percent originate from within the state. Seven out of 10 doves killed come from outside Texas. Those states contributing are Oklahoma (20.0 percent), Nebraska (16.1 percent), Kansas (12.0 percent), New Mexico (6.2 percent), Colorado (5.1 percent), South Dakota (3.9 percent), North Dakota (3.7 percent), Wyoming (2.2 percent) and traces from two other states. This area seems to lose its breeding population of doves before the season begins and hunters rely heavily on

**Origin of Mourning Doves Harvested in Texas
With Percent of Texas Harvest From Each State**



migrant birds from the north.

The South Zone, which contains about 25 percent of the land mass of Texas, offers some excellent dove hunting. The northern edge of the South Zone contains a cross section of several different habitats, but much of the zone is dominated by the brush-rangeland typical to South Texas. The 60-day dove season generally begins around the third weekend in September, and one to two million doves are harvested annually. Unlike the North Zone, South Zone hunting activity does not decline rapidly after opening week of the season. Hunting during winter months is popular and productive.

Of the total doves harvested in the South Zone, 48.9 percent originate from within the zone and 7.9 percent from the North Zone for a total of 56.8 percent from within Texas. Kansas contributes the most (8.9 percent), followed by Nebraska

(5.5 percent), South Dakota (5.3 percent), Oklahoma (4.5 percent), Iowa (4.3 percent), North Dakota (3.5 percent), Minnesota (3.3 percent), Missouri (3.1 percent) and Wisconsin (1.4 percent). Other states contributing less than one percent are Montana, Colorado, New Mexico, Arkansas, Illinois, Indiana, Ohio, Tennessee, Alabama, Mississippi and Louisiana. The states east of Texas are more important to the South Zone than to the North Zone.

Considering the two hunting zones as one unit provides an estimate of the importance of other states to our dove harvest on a statewide basis. Of the total doves harvested in Texas, 38.2 percent come from the North Zone and 20.1 percent from the South Zone for a total of 58.3 percent from within Texas. The state contributing the most is Oklahoma (12.2 percent), followed by Kansas (7.1 percent),

Nebraska (4.1 percent), South Dakota (3.9 percent), North Dakota (3.1 percent), Iowa (3.0 percent), Minnesota (2.1 percent), Missouri (1.9 percent) and several other states, each with less than one percent.

Now that we have determined where our doves come from, let's look briefly at when the migrants arrive in our state.

Band recoveries indicate doves from Oklahoma are available to North Zone hunters in good numbers by September 1, and increase until mid- to late-September. Doves from Kansas and Nebraska start arriving during mid-September and peak during early October. Doves from South Dakota and North Dakota do not start arriving until late September and peak in October.

In the South Zone, migrant doves from all areas start arriving during late September, but do not arrive in good quantities until October. It is

Location of Mourning Dove Band Recoveries by Mexican State of Doves Banded in Texas From 1967 Through 1974 and Recovered Through 1974-75 Hunting Season



interesting to note that in the North Zone during the first 10 days of September, 73.6 percent of the doves killed are Texas-reared birds and 26.4 percent are migrants; whereas during the last 10 days of September, only 37.3 percent are Texas-reared birds and 62.7 percent are from other states. It is clear that Texas has a moral responsibility not only for the welfare of its own breeding population of doves, but also for the breeding population of other states.

So much for doves coming into Texas. Now let's look at where doves produced in Texas go for the winter and when they leave.

First of all, the breeding population of mourning doves in Texas does not significantly contribute to the harvest in any areas other than Texas and Mexico. Texas accounted for 92 percent of the bands recovered during the first hunting season after banding and Mexico

accounted for 6.3 percent. The major wintering area outside of Texas is located in west-central Mexico.

The timing of the southward movement of Texas-reared doves is not clearly defined because there are so few recoveries in Mexico. However, the study does show doves in the North Zone are more apt to migrate south than doves in the South Zone and immature doves are more apt to migrate outside their breeding area than adults.

The study also indicates there are four population segments of doves in relation to Texas. There are doves that nest in Texas and never leave Texas; doves that nest in Texas and migrate to points south of Texas; doves that nest in northern states and terminate their migration in Texas; and doves that nest in northern states and migrate through Texas to southern wintering areas.

The relationship of the size and

timing of migration of each of these segments may explain the fluctuation between areas and years of mourning doves available to hunters. If all four segments are present in a given area during the same time, the number of doves would be impressive. However, if migrational patterns are such that only portions of the dove population are present during the span of migration, the evaluation of the size of the dove population would be less impressive. The abundance of doves for the hunters in Texas during September and October may be affected more by factors such as land-use practices and weather that change the acceleration of migration rather than the actual number of doves involved.**

Contribution of Federal Aid Pittman-Robertson Program: Texas Project W-95-R, Statewide Mourning Dove Research.

Learn Your Lake and Improve

by John Moczygmba, Biologist, Pottsboro; and William C. Provine, Fisheries Regional Director, San Angelo

One of the key factors in finding fish is a thorough knowledge of the body of water you are fishing. To become familiar with a particular lake requires detailed topographic maps and a great deal of experience. But a general knowledge of physical, chemical and biological characteristics of lakes also can be a great help when trying to locate fish. The study of these characteristics is called limnology.

Lakes may be divided into zones according to the amount of light they receive. The littoral zone includes those parts of a lake where enough sunlight penetrates to the bottom to allow growth of rooted plants. Usually this is a belt around the lake, but may include shallow areas in the middle of the lake. In clear, shallow bodies of water this zone may include the entire lake.

The littoral zone is by far the richest in the lake community. This area has the greatest number of plant and animal species. Because the littoral zone is a transition area between land and water, many fishes found here rely on the land for their food. Sunfish eat land insects entering the lake or aquatic immature forms of land insects. The most abundant large predator usually found here, the largemouth bass, feeds mainly on small fishes in the littoral area as well as land-dwelling insects and animals. Many open-water fishes, such as walleye, move into this region after dark for food.

Three flowering plant types are associated with the littoral area. Closest to the shore is the emergent plant zone. It is characterized by plants rooted to the bottom with stems and leaves above the surface. Grasses, rushes and sedges are typical of this zone.

The floating-leaf plant zone is farther out from shore and contains such plants as water lilies, lotus or water shield. Because dense mats of floating leaves shade out the sunlight, few submerged plants are found here. Fishermen may take advantage of this vegetative area by knowing that while cover is provided by the floating leaves, the shading effect eliminates the problem of hook-fouling, submerged vegetation.

The third vegetative band, the submerged plant zone, is found in deeper water. Pondweeds, coontail and naiads are typical of it. This zone has excellent cover for many species of game fishes but fishing is usually limited to its perimeter. In some cases, when the vegetation does not quite reach the surface, the area just above the vegetation provides excellent fishing.

The limnetic zone of a lake is that area of open water outside the zone of rooted vegetation. Shallow bodies of water where rooted vegetation extends across the basin lack a limnetic zone. The limnetic zone extends from the surface to the bottom and has two levels. There is an upper level of light penetration with a community based on phytoplankton (microscopic free-floating plants), which produces its oxygen. Because of the absence of sunlight, little food is produced



Your Fishing



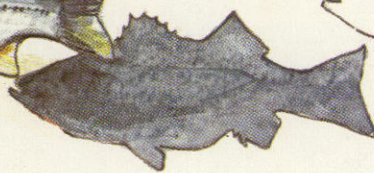
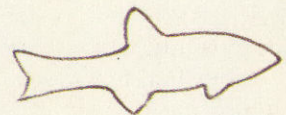
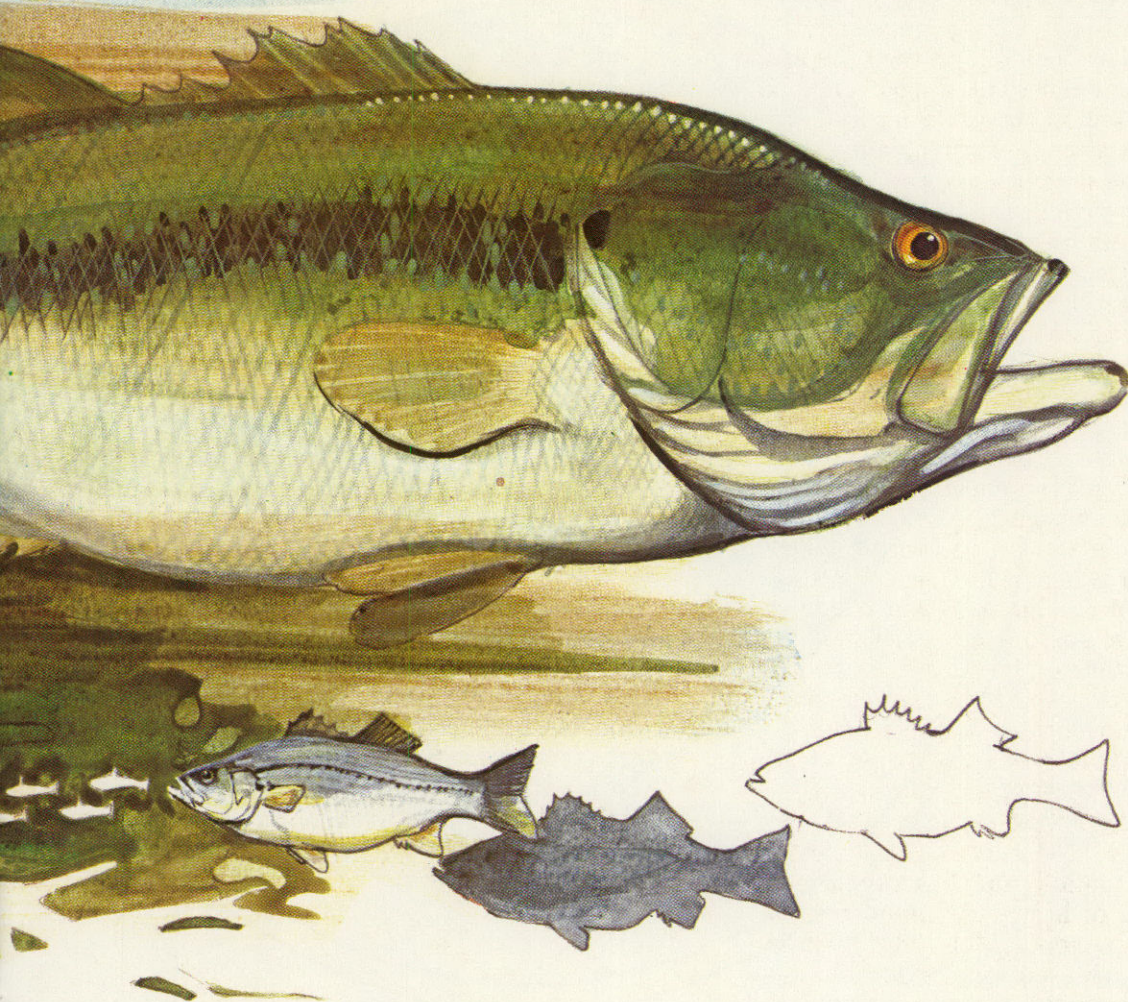
in the lower level. Life in this area depends on the decomposition of material filtering in from other zones.

Fishes normally found in the limnetic zone include numerous shad, feeding on drifting plankton; large open-water predators, such as a striped bass, white bass and walleye, foraging on the shad; and other fishes, such as carp, feeding upon decomposing organic material.

Lake waters also may be divided and characterized by temperature regimes. These regimes change according to season and can be expected to recur each year in a given lake. This annual temperature cycle in lakes is due to the relationship between water temperature and density. Fresh water is densest and heaviest at 39.2°F. (4°C.). Water above or below this temperature becomes lighter and rises.

Farther north, there are four distinct seasonal changes in the temperature cycles of a lake — winter

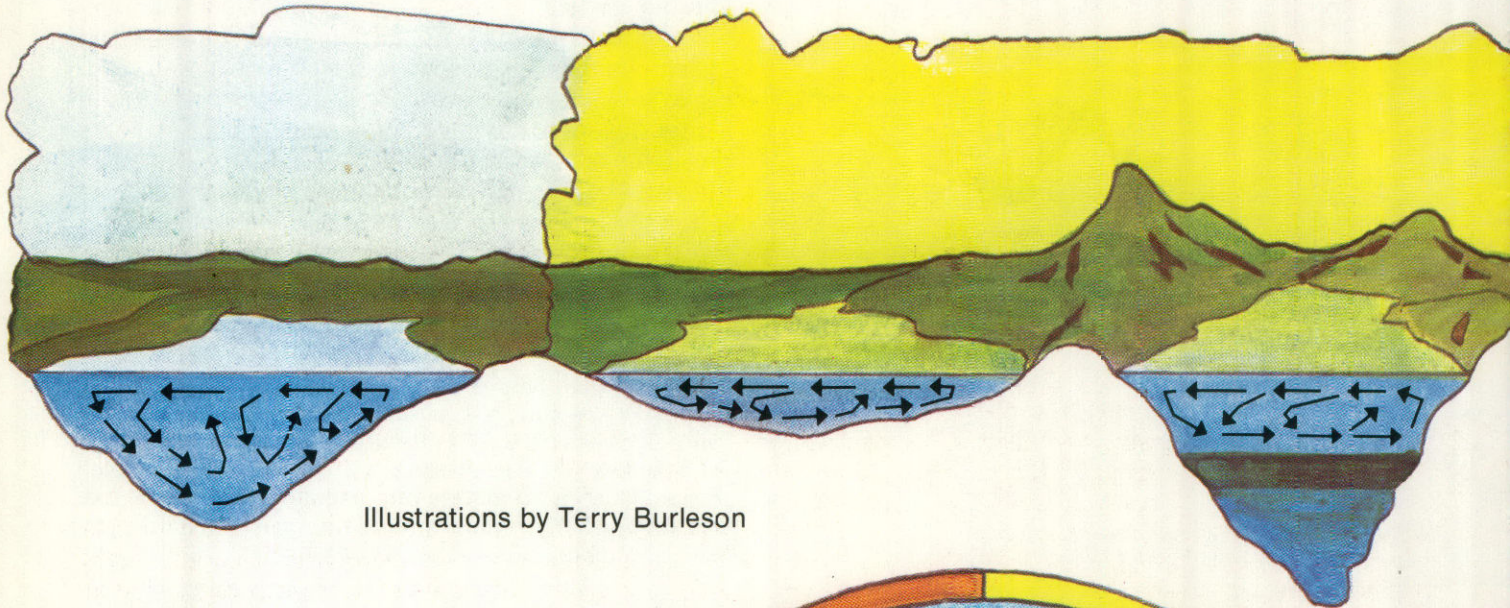
The largemouth bass is the most abundant predator in the littoral zone of reservoirs, a transition area between land and water. This zone of rooted vegetation is the richest community of the lake. The limnetic zone is open water with no rooted plants. White bass, walleye and striped bass live here and feed on shad. With this in mind an angler can tailor his fishing techniques to suit the fish he's after.



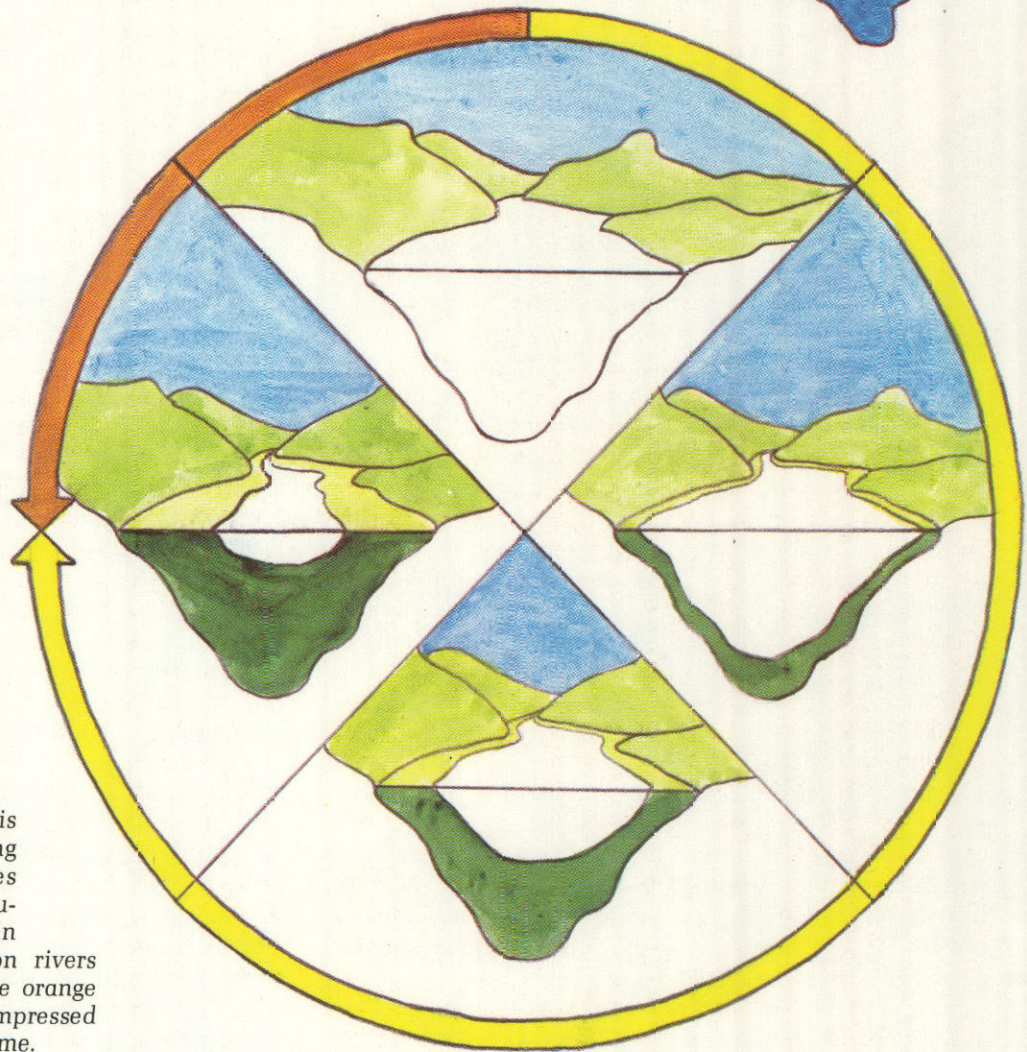
Winter – Cold surface water sinks forcing bottom water to the top. The lake is well oxygenated from top to bottom.

Summer – Shallow, unprotected lake, wind action prevents formation of layers. Water still is cooler on bottom and well oxygenated throughout.

Summer – Deep or protected lake, upper layer is the epilimnion with warm, oxygenated water. Thermocline marks an abrupt temperature change and prevents mixing of waters. Hypolimnion is below the thermocline with cold water and little or no oxygen.

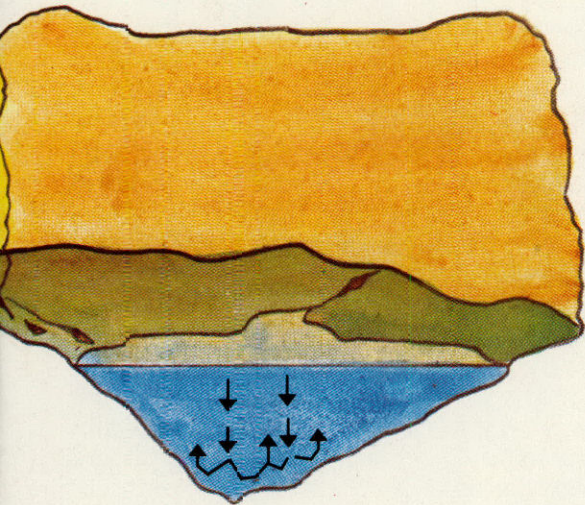


Illustrations by Terry Burleson



Aging in natural lakes is represented by the long yellow arc. This takes place over tens of thousands of years. But in man-made lakes built on rivers with heavy silt loads, the orange arc shows how aging is compressed into a shorter period of time.

Fall — As surface water cools it sinks to the bottom, forcing bottom water to the top.



stagnation, spring turnover, summer layering or stratification and fall turnover. Most Texas lakes are free of ice in the winter and there is no break in mixing caused by wind and cold air. In winter, surface waters, constantly cooled by air temperatures, increase in density and sink to the bottom of the lake, forcing warmer water to the surface. Because of this mixing, temperature and oxygen remain constant from the surface to the bottom.

Surface waters begin to warm during spring. Now wind is the factor which determines if the lake will form layers in the summer. In shallow lakes with little or no wind protection, wind will force the warmed surface water to circulate throughout the lake. Although the entire lake is warmed, the colder water still has a tendency to remain on the bottom.

In deeper lakes or in those well-protected from the wind, warm surface water is not forced all the way to the bottom of the lake, resulting in an undisturbed layer of cold water in the deeper areas. As air temperature increases and warms surface waters, the density of the surface waters is so different from the bottom water that an almost impenetrable barrier is formed; this blocks further mixing of water and some of its chemicals, including dissolved oxygen.

This area of extreme temperature change is called a thermocline. The warm layer above the thermocline is called the epilimnion. This layer has warm waters which rapidly change temperature according to that of the air, and is well oxygenated by wind action and production of oxygen by plankton and higher aquatic plants.

The layer below the thermocline is the hypolimnion and contains colder water and little or no dissolved

oxygen. Not enough light penetrates to this layer in most lakes for plant growth and the thermocline prevents a mixing of oxygen-rich waters from above. Also decomposition of organic debris in this layer reduces any oxygen there. In lakes having unoxygenated hypolimnions, nearly all fishes and other animals live at or above the thermocline where food and oxygen are plentiful.

Temperature and plant zones are slowly but constantly changing. This change is related to natural succession or lake aging. The trend is for a lake to become more fertile, contain more aquatic vegetation, and slowly fill in with dirt from runoff and from plant decomposition. In natural lakes this succession may take thousands or hundreds of thousands of years. By comparison, the life expectancy of man-made reservoirs can be extremely short. Most reservoirs are built on rivers which carry a tremendous silt load — this alone limits the life of a reservoir. Sedimentation increases the area which is shallow enough to support rooted plants. Municipal and industrial pollution dangerously fertilize reservoirs, further increasing plant growth.

Year after year, sedimentation from runoff and decay of luxuriant plant growth decreases the depth of the reservoir and blankets important bottom structures (usually rocks and tree stumps) until the lake bottom is smooth. The reservoir eventually fills to a point where once good fishing areas are choked with vegetation or even filled in with sediment.

Lake succession or aging affects more than plants. As a lake becomes more fertile (a process called eutrophication), the fish community in it changes to one more adapted to feeding lower on the food chain. Predator fishes become outnumbered by ones which feed on plankton, higher plants or decomposing organic material because most of these rough fishes have enormous reproductive capacities and their food supply is almost unlimited. Since a body of water can only support a finite amount of life, the increasing rough fish populations greatly reduce the chances of sport fish survival. Large populations of rough fishes may directly compete with sport fish populations by feeding on eggs or fry of game fishes, destroying spawning habitat and feeding heavily on food organisms needed for food of sport fish fry. And it is suspected that extremely crowded populations of certain rough fishes can secrete a chemical which actually prohibits the spawning process of some sport fishes.

The fisheries biologist and angler both can draw upon limnology for their purposes. The biologist uses the science to manage lakes for sportsfishing. The angler can use it to harvest fish. Knowing something about the littoral and limnetic zones helps the fisherman go after the fish inhabiting these areas. Being conscious of the temperature at different depths he can know where not to look for fish during the warm months. Anglers may find a catch by investigating the vegetative areas around the lake. Understanding lake aging may explain why a favorite bass hole no longer produces. In other words, knowing that body of water you are fishing can be a key factor in finding fish. **

'77 FISH RECORDS

by David Baxter

The year 1977 will go on the books as a banner one for Texas fishermen. During the past 12 months 13 new state fish records have been set, including two records broken twice and a world's record. Fishermen along the Texas coast were the most successful, or most persistent, with 12 of the records set for saltwater fish.

Marks were established for barracuda, bluefish, dorado (dolphin), king mackerel, Spanish mackerel, blue marlin, rainbow runner, mako shark, stingray, broadbilled swordfish and bluefin tuna. At 691 pounds, the blue marlin taken by Donald Dashiell is far and away the largest fish caught by a Texan during the year. As a matter of fact, the record for blue marlin was broken twice in 1977. Pat Hawn landed a 560-pound marlin during the spring. For a time Miss

Hawn held three state records — blue marlin, mako shark and bluefin tuna — and her 540-pound bluefin tuna still is the one to beat.

One of the most significant freshwater fish records to be set in 1977 was the five-pound nine-ounce white bass taken by David S. Cordill from the Colorado River in Austin. Cordill's bass has been certified as not only a Texas record but a world's record for the species.

Lake Nasworthy near San Angelo continues to produce state record hybrid white/striped bass. Most recent is a 11-pound one-ounce fish. Department fish records officials first established a category for the hybrid stripers at the first of the year. The record was broken once after the first entry was certified back in March. All of the fish came from Nasworthy.

Two other new categories were opened to fishermen in 1977, one for black bullhead catfish and the other for stingray.

The record set for flathead or yellow catfish came as a surprise for Jack Diezi. He was fishing on Lake Livingston in July for white bass when he snagged what he thought was a sunken log. As he was backing the boat away to free the line, the line started off and began circling the boat. After a while, and with cut fingers and skinned knuckles, Diezi rolled a 70-pound catfish into the boat.

Texas fishermen in 1978 have far to go if they expect to surpass or even come close to the success of state anglers this year. There are, however, a few open categories still waiting for record fish to be caught which include:

—blue catfish, minimum 50 pounds, and must be taken by rod and reel;

—black crappie, minimum of four pounds;

—striped bass taken from saltwater on rod and reel, minimum of 10 pounds;

—blue runner, five-pound minimum.

Various species of shark also will be considered for records as they are caught and reported to the Parks and Wildlife Department. **

Freshwater Fish

Bass, largemouth: 13 pounds, 8 ounces; length 28¾; H. R. Magee of Kingsland; Medina Lake; Jan. 16, 1943.

*Bass, hybrid-white/striped: 11 pounds, 1 ounce; length 27; girth 20; Ronald W. Miller of San Angelo; Lake Nasworthy; Aug. 29, 1977.

Bass, spotted: 5 pounds, 9 ounces; length 21; girth 17; Turner Keith of Austin; Lake O' the Pines; March 13, 1966.

Bass, striped: 27 pounds, 5 ounces; length 38½; girth 26¼; John M. Smith of Pottsboro; Red River below Denison Dam; Dec. 29, 1974.

+Bass, white: 5 pounds, 9 ounces; length 20¾; girth 17; David S. Cordill of Spicewood; below Longhorn Dam; March 31, 1977.

Bowfin: 17 pounds, 3 ounces; length 32; girth 21¾; R. M. Speir of Fort Worth; Toledo Bend; Aug. 15, 1972.

Buffalofish: 58 pounds; length 41; girth 32½; Bobby Thompson of Arlington; stock tank near Wilkerson; April 6, 1969.

Carp: 41 pounds; length 37; girth 32½; Scott Helsley of Richardson; Pure Oil Lake; May 14, 1972.

*Catfish, black bullhead: 2 pounds, 12 ounces; length 16; girth 12; Judy Sutherland of Leander; stock pond, Porter; June 4, 1977.

Catfish, blue: Open (minimum 50 pounds).

Catfish, channel: 36 pounds, 8 ounces; length 38; Mrs. Joe L. Cockrell of Austin; Pedernales River; March 7, 1965.

*Catfish, flathead: 70¼ pounds; length 50½; girth 34; Jack Diezi Jr. of Brookshire; Lake Livingston; July 10, 1977.

Crappie, black: Open (minimum 4 pounds).

Crappie, white: 4 pounds, 9 ounces; G. G. Wooderson of Corsicana; Navarro Mills Lake; Feb. 14, 1968.

Drum, freshwater: 25 pounds, 9 ounces; length 32; girth 27¼; Larry Joe Thomas of Bedford; Eagle Mountain Lake; April 29, 1976.

Gar, alligator: 279 pounds; Bill Valverde of Mission; Rio Grande; 1951.
 Gar, longnosed: 50 pounds, 5 ounces; Townsend Miller of Austin; Trinity River; 1954.
 Paddlefish: 7 pounds, 1.6 ounces; length 41; girth 14; Gene Rader of Paris, Texas; below Pat Mayse Lake; April 7, 1973.
 Pickerel (chain or grass): 4 pounds, 7 ounces; length 24½; girth 11¾; James R. Pyle of Marshall; Caddo Lake; March 27, 1976.
 Pike, northern: 18 pounds, 2 ounces; length 41¾; girth 17; Buster Dorrrough of Kress; Greenbelt Lake; June 11, 1975.
 Redfish: 26 pounds; length 37⅞; girth 23½; Jack Kimbrough of Clute; Chub Lake; May 11, 1971.
 Sunfish, bluegill: 3 pounds, 4 ounces; length 14; girth 16; Winfred Hoke of North Zulch; farm pond; April 25, 1966.
 Sunfish, green: 2 pounds, ¾ ounces; length 12; girth 14½; Alex Short of Texarkana; farm pond near Commerce; May 18, 1969.
 Sunfish, redear: 2 pounds, 8½ ounces; length 13¼; girth 14¼; Kenneth Owen Wortham of San Marcos; private pond in San Marcos; June 13, 1974.
 Sunfish, others: Open, to be considered as record species are proposed.
 Trout, rainbow: 4 pounds, 12 ounces; length 21½; girth 13; Ron Sharp of San Antonio; Guadalupe River; 1968.
 *Walleye: 10 pounds, 4 ounces; length 29½; girth 16½; H. M. Brandon of Borger; Lake Meredith; April 7, 1977.

Unrestricted

*Barracuda: 54 pounds; length 4 feet, 9 inches; Kenneth J. Richards of Houston; Buccaneer Riggs out of Galveston; May 29, 1977; taken with speargun.
 Bowfin: 19 pounds; length 32½; girth 21; George E. Lord of Hemphill; Toledo Bend Lake; Jan. 3, 1975; by trotline.
 Carp: 41 pounds, 12 ounces; length 36; David E. Smith of Austin; Town Lake; April 21, 1970; bow and fishing arrow.
 Catfish, blue: 70 pounds; Tolbert Crowder Jr. and Bob Crowder, both of Port Arthur; Marsh Lake near Big Hill Bayou; 1965; by trotline.
 Catfish, flathead: 114 pounds; length 56½; Charles J. Booth of Houston; Lake Livingston; Oct. 15, 1976; by trotline.
 Drum, freshwater: 55 pounds; Asa Short of Fort Worth; White Rock Lake; 1924; by trotline.
 Gar, alligator: 302 pounds; 7 feet, 6 inches; T. C. Pierce Jr. of Montalba and Arthur Lee Wooley of Dallas; Nueces River above Cotulla; 1953; by trotline.
 Jewfish: 660 pounds; length 8 feet; girth 77½; James A. Frith of Corpus Christi; off Malaquite Beach; taken with pneumatic speargun; July 4, 1975.
 Paddlefish: 16 pounds, 1 ounce; length 50½; girth 19½; John T. Echols of Karnack; Oct. 31, 1974; by trotline.
 Pike, northern: 14 pounds, 4 ounces; length 37¾; girth 17¾; Ernie Berry of Groom; Greenbelt Reservoir; Feb. 12, 1972; by trotline.
 Spadefish: 11 pounds, 5 ounces; length 21½; girth 25; Bryan Gulley of Corpus Christi; offshore oil rigs north of Bob Hall Pier; May 4, 1974; taken with speargun.

Saltwater Fish

Amberjack: 71 pounds, 8 ounces; length 56; girth 33⅝; C. B. Fitzpatrick of Fort Worth; 52 miles south of Freeport; April 13, 1974.
 Barracuda: 45 pounds; length 4 feet, 1 inch; Mark E. Johnson of Houston; 30 miles southeast of Freeport; July 4, 1974.
 Bass, striped: Open (minimum 10 pounds).
 *Bluefish: 10 pounds, 9 ounces; length 30½; girth 18; Thad M. Warren of Galveston; west beach, Galveston Island; March 5, 1977.
 Bonefish: 2 pounds, 9 ounces; length 21¾; girth 8½; Griffith H. Evans Jr. of Bellaire; Aransas Rock off Port Aransas; Sept. 17, 1974.
 Bonito: 27 pounds; Eddie Groth of Lake Jackson; Freeport; July 1969.
 Cobia (ling): 90 pounds; length 5 feet, 2 inches; girth 32; John H. Walker of Beaumont; Freeport; June 7, 1969.
 Croaker: 5 pounds, 2 ounces; length 20¼; girth 16½; Earl Merendino of Port Arthur; East Galveston Bay; July 10, 1971.
 *Dorado (dolphin): 62.5 pounds; length 69; girth 33; Jeff Carey of Portland; off Port Aransas; July 13, 1977.
 Drum, black: 78 pounds; Marvin McEachern of Nederland; Sabine; June 25, 1964.
 Flounder: 13 pounds; length 28; girth 24½; Herbert L. Endicott of Groves; Sabine Lake; Feb. 18, 1976.
 Gafftop: 9 pounds; Fabian Koroncok of Houston; Matagorda Bay; 1965.
 Jack crevalle: 50¼ pounds; length 52½; girth 30¼; Francis Lyon of Leander; Port Aransas; June 26, 1976.
 Jewfish: 551 pounds; Gus Pangarakis of Jasper, Ark.; Galveston; June 29, 1937.
 Ladyfish (skipjack): 3 pounds, 6¼ ounces; length 25; girth 10; John Thomas Parker III of Georgetown; Espirtu Santo Bay out of Port O'Conner; Sept. 29, 1973.
 Mackerel, cero: Open (minimum 10 pounds).
 *Mackerel, king: 71½ pounds; length 66½; girth 27½; L. F. Higdon of Spring; three miles south of Buccaneer Oil Field; May 27, 1977.
 *Mackerel, Spanish: 8.74 pounds; length 34½; girth 13⅞; Bobby Tarter of Bridge City; Sabine Pass; Aug. 15, 1976.
 *Marlin, blue: 691 pounds; length 12 feet, 9 inches; girth 68; Donald D. Dashiell of Houston; Freeport; July 19, 1977.
 Marlin, white: 106 pounds; 7 feet, 9 inches; Dale F. Dorn of San Antonio; Port Aransas; May 23, 1970.
 Pompano: 6 pounds, 1 ounce; length 19¼; girth 16; Mrs. Jerald Feldman of Dallas; Port Aransas; April 23, 1971.
 Pompano, African: 19 pounds; length 39¼; girth 13; Dr. B. L. Payne of Austin; Port Aransas; Dec. 9, 1972.
 Redfish: 51½ pounds; Johnny (Shorty) Cizmar; Padre Island surf; Jan. 1967.
 Runner, blue: open (minimum 5 pounds).
 *Runner, rainbow: 8 pounds, 13 ounces; length 33; girth 14¾; Mrs. Dan Harris of Fort Worth; off Port Aransas; June 28, 1977.

- Sailfish: 95 pounds; length 8 feet, 1½ inches; girth 32; Morton Cohn of Houston; East Breaks off Port Aransas; July 12, 1972.
- Sawfish: 736 pounds; Gus Pangarakis of Jasper, Ark.; Galveston; 1939.
- Shark, blacktip: 136 pounds; length 6 feet, 8¼ inches; girth 35¾; Robert A. Cline of Harlingen; Port Isabel; Aug. 25, 1973.
- Shark, bull: 497 pounds; length 9 feet, 2 inches; girth 65; Dale Harper of Houston; Galveston; July 3, 1971.
- Shark, dusky: 530 pounds; length 10 feet, 9 inches; girth 61; Raymond E. Hein of Corpus Christi; oil rig platform; March 1, 1975.
- Shark, hammerhead: 870 pounds; length 14 feet, 5 inches; girth 6 feet, 1 inch; Ross Havard of Portland; Port Aransas; July 14, 1973.
- Shark, lemon: 322 pounds; length 9 feet, 8 inches; girth 53½; Michael Gibbs of Corpus Christi; Port Isabel jetty; May 12, 1972.
- *Shark, mako: 388 pounds; length 109; girth 56; Robert Hada of Port Aransas; Port Aransas; May 1, 1977.
- Shark, sand, tiger: 520 pounds; length 9 feet, 11 inches; girth 63; Joey Vermeulem of Corpus Christi; southeast of Port Aransas; April 4, 1976.
- Shark, sandbar: 226 pounds; length 7 feet, 8 inches; girth 43; James S. Wilson of Corpus Christi; Padre Island; March 21, 1975.
- Shark, silky: 556 pounds; length 11 feet, 8 inches; girth 59; Wolfgang Buschang of Corpus Christi; oil platform off Padre Island; July 23, 1973.
- Shark, spinner: 165 pounds; length 7 feet, 7 inches; girth 39; O. E. Ballard of Ft. Worth; Port Aransas; Sept. 3, 1973.
- Shark, tiger: 815 pounds; length 12 feet; girth 74; Steve J. Thomas of Texas City; Galveston jetties; Aug. 30, 1975.
- Shark, others: Open, to be considered as species are proposed.
- Sheepshead: 11 pounds, 9 ounces; length 25½; girth 20¼; Dave Huddleson Sr. of Galveston; Galveston West Bay; Oct. 23, 1974.
- Snapper, dog: 128 pounds; Chris Page of Port Aransas; Port Aransas; 1962.
- Snapper, red: 29 pounds; length 40; girth 26½; Jim Ehman of Port Aransas; off Port Aransas; Dec. 3, 1974.
- Snook: 57½ pounds; Louis Rawalt of Corpus Christi; Padre Island; 1937.
- Spadefish: 7 pounds, 12 ounces; length 18½; girth 23¼; Durrell Hyatt of Austin; offshore out of Port O' Connor; July 7, 1971.
- *Stingray, southern: 184 pounds; Barry Anderson of Galveston; Seawolf Park, Galveston; June 16, 1977.
- *Swordfish, broadbilled: 99 pounds; length 95¼; girth 32½; Skip Martin of Cleveland; East Breaks off Port Aransas; July 30, 1977.
- Tarpon: 210 pounds; length 7 feet, 2¼ inches; girth 45¼; Thomas F. Gibson Jr. of Houston; South Padre Island; Nov. 13, 1973.
- Tripletail: 28 pounds, 8 ounces; length 38⅞; girth 34; Theodore C. Flick of Houston; Port O' Connor; July 3, 1971.
- Trout, sand: 6 pounds, 4 ounces; length 23½; girth 16; Dennis C. Herrick of Houston; Texas City; Feb. 26, 1972.
- Trout, speckled: 13 pounds, 9 ounces; length 33¾; girth 19; P. M. (Mike) Blackwood of Corpus Christi; upper Laguna Madre; March 16, 1975.
- Tuna, blackfin: 36 pounds; John E. Walker of Galveston; Port Isabel; Aug. 1968.
- *Tuna, bluefin: 540 pounds; length 101½; girth 66½; Patt Hawn of Port Aransas; off Port Aransas; April 23, 1977.
- Tuna, yellowfin: 155½ pounds; 5 feet, 8½ inches; girth 41½; Joey McCarty of Port Aransas; Port O' Connor; June 19, 1976.
- Wahoo: 112½ pounds; length 6 feet, 1½ inches; girth 35¼; Mrs. Billie Loden of Rockport; southeast of Port Aransas; May 17, 1975.
- Whiting: 2 pounds, 12 ounces; length 17; girth 11¼; Mike J. Walker of Houston; Gulf Coast Fishing Pier, Galveston; March 11, 1972.

*Denotes new record

+Denotes world record

Instructions for Reporting Records

All fish submitted as state records must be documented as follows, preferably on the standard "Form for Submitting Record Fish" available from waterfront businesses or the Texas Parks and Wildlife Department; species; weight; length; where caught; tackle used; other details of catch; name of angler; permanent address; home and business telephones; location of scales; type and capacity of scales; Texas Department of Agriculture certification number and date; weighmaster's name and signature; names, signatures and addresses of two disinterested witnesses to weighing; notarized statement signed by angler that the fish described was hooked, fought and landed by him personally without assistance and that all other information submitted is true and correct, and a clear photograph showing full length of fish in relation to a recognizable object, preferably a yardstick. Fins should be spread as much as possible. An additional photo of the angler and fish is also desirable.

NOTE: Fish weighed on vehicle, axle-load or motor truck scales and registering **under** 400 pounds are not acceptable for certification.

All specimens submitted for freshwater and saltwater divisions must be taken on rod and reel **ONLY**. Spotted bass and sunfish specimens, only, must be examined (may be frozen) and verified by a Parks and Wildlife Department fish biologist. Shark record submissions must include teeth, patch of skin or other verification of species.

Unrestricted division includes the heaviest of those species taken by any legal means (archery, spear, gig, handline, trotline, cane pole, etc.) other than rod and reel **EXCEEDING** the weight of existing rod and reel records.

Send proposed record entries to: Texas State Fish Record Committee, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744.



Many species of wildlife depend upon trees to provide nesting cavities and shelter during severe weather. Den trees, such as oaks, cypress, sweetgum and hickory, are being removed and replaced by young pine trees which have less value to wildlife.

In your travels have you ever come across some large oak tree and wondered how old it is, how it got there and what changes it has experienced over the years? Also, what will be its fate?

The fate of that tree and others like it is determined by the value placed on it. To some people it has economic value as a source of wood products. To many it is a thing of beauty, a place where people can rest or play in its shade on a hot summer day. To some it has ecological value as a benefactor to wildlife and the environment. Still others place no value on it at all and merely regard it as an obstacle.

The value you place on this tree depends upon your point of view. You may think a valuable tree is one that grows fast, has a uniform shape and has a trunk and limbs free of diseased areas or cavities. But for wildlife, a slow-growing, cavity-filled tree is one of the most desirable. These cavity-ridden trees often are called den trees by hunters throughout Texas.

As trees grow older they are subjected to a variety of environmental dangers. Storms rip off large limbs, fires scar their trunks and insects eat away at their bark. As wounds open, fungi invade to cause a slow decay of the heart wood. These wound

Spare That Tree

by Gary E. Spencer, Wildlife Biologist, Silsbee

Appearance of cavities may announce the start of a slow death for a tree, but they mean life for many generations of birds and mammals. Next time you are inclined to cut down an old hole-filled tree, remember those depending upon it for survival and leave it standing.

Carolina chickadee by John L. Tveten



Flying squirrel by John L. Tveten



cavities gradually become larger as disease spreads, until after many years the weakened tree dies.

While the appearance of cavities may mean a slow death for the tree, it means life for many generations of mammals and birds. Through hundreds of years many species of birds and mammals have become dependent upon tree cavities for rearing young and for shelter during severe weather.

Birds such as house wrens, purple martins, blue birds, woodpeckers, tree swallows, titmice, screech owls and wood ducks require cavities for nesting. Cavities also are important to mammals such as raccoons and squirrels.

Some species, such as the wood duck, are so adapted to nesting in cavities their numbers would be sharply reduced or completely eliminated without them. The importance of cavities to squirrels was demonstrated in one study where

population levels increased by 65 to 100 percent two years following the provision of man-made cavities on a study area.

But the den tree is becoming a rarity in today's forest. Prompted by a demand for more production, the forest-products industry is replacing slow-growing den trees with younger more vigorous trees that can be harvested before cavities develop.

The best den trees, such as old oaks, cypress, sweet gum and hickory, are being removed and replaced by young pine trees which have less value for wildlife.

Two of the state's most important game species, the wood duck and the gray squirrel, are threatened by these practices, not to mention various cavity-nesting song birds and furbearers.

What will be the future of cavity-nesting species in our state? Will progress eliminate the habitat

essential for their survival? Hopefully, losses of some species can be partially offset by the construction of man-made cavities, which most cavity-nesting species will readily use. But such structures are expensive to build and maintain, and cannot possibly replace the thousands of natural den trees lost each year through man's timber management practices.

So the next time you are inclined to cut down an old hole-filled tree, remember the many species of wildlife that are dependent upon it for survival. Your action could decide whether or not that woodpecker will come to your bird feeder each morning or those wood ducks and squirrels will still be there for you to enjoy hunting each fall. **

A contribution from Pittman-Robertson Project W-77-R, Southeast Texas Game Management Survey.



Glen Mills



Inks Lake State Park by Bill Reaves

TOO MANY PEOPLE

by Tom McGlathery, Regional Park Director, Kerrville



In the year 1980 an estimated 21 million people will visit Texas state recreation and historical areas. Park officials base that figure on visitation trends in state parks during the past few years. In fiscal year 1977 (August 1976 — September 1977) 16¼ million people visited parks. Just since 1971 there has been a 50-percent increase in visitation to parks.

Three factors are believed to be the cause of this increased visitation. The main one is that Texans, as well as society as a whole, have more leisure time. Since the majority of the state's population resides in metropolitan areas, there is an exodus from the cities to the state's recreation and historical areas on weekends and during vacations.

Another reason for increased park

Even though the department has a continually expanding park system, demand often exceeds the facilities in many state parks. A campsite reservation system is currently under study to give all park visitors an equal opportunity to obtain a campsite.

usage is the overall increase in the population of the state.

Finally, northern visitors are coming to Texas in ever-increasing numbers during the winter months to escape harsh weather, and many of them visit state parks.

Although the department is continually expanding its park area resources to meet the demand, problems of heavy visitation during the past 10 years have generated new concepts and procedures to guide the development of new parks and the improvement and addition of facilities in older existing ones.

The first procedure change was initiated in 1975 in several new and redeveloped parks with a program called controlled visitation. In parks where demand exceeds the number of facilities available, visitors are assigned campsites. When all sites are filled, the park is closed to additional overnight visitors.

This not only protects the parks' resources but provides a more enjoyable experience for those visitors who are able to obtain campsites.

Controlled visitation has had problems. Since campsites are rented on a first-come, first-serve basis, many park visitors who have traveled for hundreds of miles hoping to get a site often find the park full. These visitors either have to find another park, public or private; stay in the park's overflow area; or go home.

One new program is a campsite reservation system initiated by the department this past summer at selected state parks to test the feasibility of developing a statewide campsite reservation system. This system, which is under study to supplement the controlled visitation program, gives all potential park visitors an equal opportunity to obtain a campsite and should reduce the need for overflow camping areas and the number of disappointed campers.



Visitation in Texas state parks has increased 50 percent since 1971, with 16¼ million people utilizing them from August 1976 to September 1977. If this trend continues at its present growth rate, 21 million people will visit our state parks in 1980.

The Texas State Park System includes state parks, recreation and natural areas, historical areas and state fishing piers.

The state parks that were developed during the 1930s by the Civilian Conservation Corps, such as Caddo Lake, Garner, Inks Lake and Bastrop, contained adequately designed facilities to accommodate the number of visitors that used them at that time. But as park visitation increased, facilities in these older parks deteriorated to a point that major problems began to develop.

Some problems of overuse include: (1) soil compaction in heavy-

use areas which causes trees to die; (2) inadequate restroom facilities and associated septic systems that fail to function properly; (3) roads and parking areas not adequate to handle the larger recreational vehicles; (4) park congestion which causes safety and health hazards; and (5) destruction or disturbance of wildlife habitats.

State historical areas, which include historical parks, historic sites and historic structures, also have seen a recent increase in visitation. Some problems caused by heavy usage of historical areas include: (1) wear and tear on delicate historical and archaeological structures; and (2) overcrowded conditions hindering the effectiveness of some of the sites' interpretive and educational programs.

In other words, state park usage often exceeds what many park planners have referred to as the recreation carrying capacity. A good

definition of carrying capacity is "the capacity of any recreation resource to sustain recreation use over a stated period of time without deterioration of the quality of the resource or the experience of the user."

To overcome the problems of congestion, overuse and deterioration of natural features and facilities faced by heavy visitation at both state recreation and historical areas, the department started a program of redevelopment of older park areas and development of new ones.

In 1970, park planners also began to develop master plans that considered the biological aspects of the park area, as well as the physical and aesthetic aspects. Consequently, as the master plan is put into effect and parks developed and opened to the public, they begin to take on a new look.

Camping areas are located so as not to encroach on other essential park facilities and they contain numbered campsites designed to accommodate up to eight people. Restrooms are located and designed to handle the optimum number of visitors that should be in any given camping area. Roads and parking areas are designed to handle today's recreational vehicles and to eliminate off-road parking.

In 1971 the 62nd Texas Legislature passed laws that created enforceable rules and regulations for park operation. This action was the beginning of the state park peace officer program that allowed the department to protect the park resources and to give visitors quality recreation and educational experiences.

In order to retain the character of parks, the department's goal is to develop and operate them so that over an indefinite period of time the maximum number of visitors can enjoy parks with the least impact on the environment. **



Encore For The Roadrunner

Some time back we offered a free roadrunner print with each two-year subscription to TEXAS PARKS & WILDLIFE magazine. By popular demand we again make the offer.

Send us \$9 for a two-year subscription and we'll send you an 11 x 14 full-color print by wildlife artist Nancy McGowan. Already have a subscription? Give a two-year subscription to a friend and you'll still get a print. Please allow six weeks for us to process new subscriptions; however, we'll put the roadrunner print in the mail as soon as we receive your order.

Enter subscription as follows:

Name _____

Address _____

City & State _____

Zip Code _____

This is a new renewal gift subscription

Sign gift card _____

Send roadrunner print to:

Name _____

Address _____

City & State _____

Zip Code _____

around the state...

News of the Texas outdoors from the Parks & Wildlife Department's news service.

FIRST STRIPER SPAWN CONFIRMED IN TEXAS

AUSTIN—Texas Parks and Wildlife Department biologists feel like passing out cigars to celebrate the official confirmation of the first-ever natural striped bass spawn in the state's waters.

When biologist Chuck Mulford gathered in his gill nets from 15 feet of water in the Cedron Creek Park area of Lake Whitney, he found six "young of the year" stripers—proof of a successful spawn in the Brazos River between Lake Whitney and Lake Granbury.

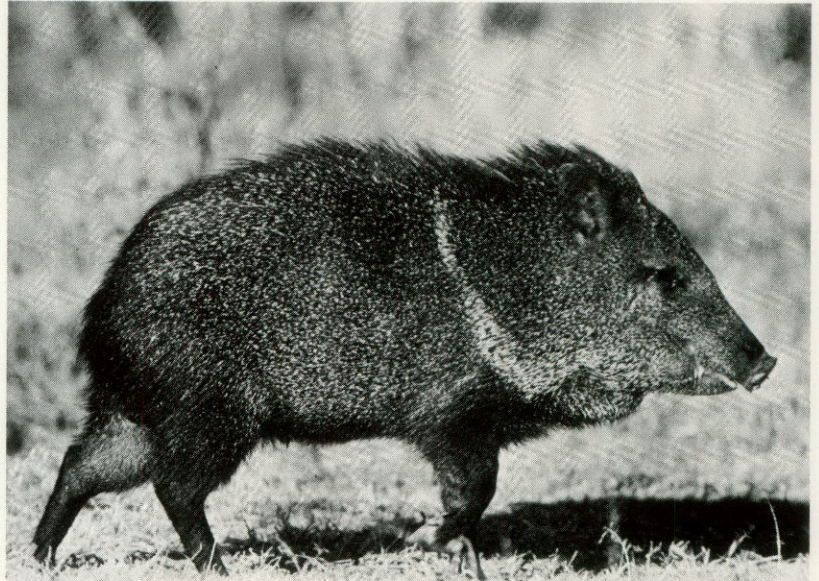
The four male and two female stripers ranged in size from 8½ to 10½ inches in length.

Striped bass are a saltwater species which can adapt readily to fresh water. However, natural reproduction in inland waters occurs only when conditions are just right. One of the primary needs is a flowing river to allow the fertilized eggs and newly hatched fry to drift for miles.

The Lake Whitney find was not a surprise to department biologists, since fertilized striped eggs were found in the Brazos River 28 miles below Lake Granbury last spring. By calculating age of the fertilized eggs and the water flow rate, biologists determined the spawn occurred just below Granbury Dam.

Mulford noted, however, that confirmation of spawn below Lake Granbury doesn't mean chances necessarily are good for the same results upriver, between Lake Granbury and Possum Kingdom Dam. "We have a reduced river flow in that section of the river," he said, "and this is a possible factor in not finding evidence of a spawn there."

Stripers first were stocked in Lake Granbury in 1972, and in Lake Whitney in 1973. Since that time, the tailrace below Granbury has become a popular area for striped fishermen and this year it provided most of the adult stripers necessary for egg production for the statewide striped bass and hybrid striped bass stocking programs.



Not nearly as fierce as its looks or reputation, the javelina or collared peccary provides recreation for thousands of hunters each year in Texas.

DRAWING SLATED FOR PUBLIC JAVELINA HUNT

AUSTIN—Deadline is 5 p.m. Dec. 12 for applications to hunt javelina on the Black Gap Wildlife Management Area in Brewster County.

The Texas Parks and Wildlife Department will hold a drawing at 10 a.m. Dec. 15 at Austin to select the 84 hunters who will participate in the Jan. 14-19 hunt.

The 100,000-acre Black Gap Area is located in the rugged Big Bend country about 55 miles south of Marathon on FM 2627.

Instructions and application cards are available from department regional and district offices or from the headquarters at 4200 Smith School Road, Austin, Texas 78744.

Successful applicants will be required to pay a \$3 fee to defray the cost of conducting the hunt. Hunters must be at least 12 years of age to participate, and those between 12 and 17 must apply as a member of a party and not as a single applicant.

Department officials point out that the public hunt is not necessarily indicative of a high javelina population, and the department retains the right of cancelling permits, altering bag limits, or stopping the hunt at any time the recommended quota is met to prevent the reduction of javelina below desired numbers. Bag limit for the hunt will be one javelina per hunter, and hunters will be limited to two days hunting.

Between the Granbury Dam and Lake Whitney there is a 69-mile stretch of river which, combined with some 30 miles of water in Lake Whitney proper, gives plenty of elbow room for the striped spawn.

Adequate rains last spring apparently were the key factor in assuring there was

a continuous flow of water all the way from below the dam at Granbury clear to and through Lake Whitney itself.

Biologists hope the successful spawn is an indicator of a viable, reproducing striped population which will be an added bonus for the state's anglers in the future.

OUTSTANDING P&W WARDENS CITED FOR SERVICE

AUSTIN—Two outstanding game wardens of the Texas Parks and Wildlife Department have been honored by conservation organizations.

Presentation of the Wildlife Officer of the Year Award was made to Jack Gregory, of Temple, at a recent meeting of the Parks and Wildlife Commission by the Shikar-Safari Club International, a worldwide organization of sportsmen and conservationists.

Commissioner Louis Stumberg, a member of the club's board of directors, officiated in presenting the certificate of merit. Also as part of the award, a

donation of \$50 was made in Gregory's name to a fund for survivors of conservation and law enforcement officers who died in line of duty.

The other warden recognized was Robert W. Johnson, of Burnet, who received the Outstanding Officer Award of the Southeast Association of Game and Fish Commissioners. Presentation of this award was made during the association's convention in San Antonio.

Johnson was honored for his heroic action last spring when he saved another game warden and the sheriff of Lampasas County from drowning.

SHOOTING PRESERVE RECORD BOOKS REINSTATED

AUSTIN—Texas landowners who lease their property for hunting will be required to maintain a "shooting preserve record book" this season, due to a law passed by the 65th Legislature.

Dexter Harris, director of law enforcement for the Texas Parks and Wildlife Department, said the requirement had been dropped after the law was repealed in 1973.

Landowners who buy or renew hunting preserve licenses for this hunting season will automatically receive one shooting preserve record book, good for keeping records on 250 hunters. Any additional books needed may be obtained from department regional offices, the headquarters in Austin or in some cases from local game wardens.

The record books require such information as name and residence of the guest, his hunting license number and the number and type of game animals and birds killed each day by the guest. The books must be turned in to the department by March 1 of each year, reporting on the previous year's hunting activity on the preserve.

The hunting preserve licenses are graduated in cost depending on acreage.

TEXAS GETS MOST FEDERAL FISH & WILDLIFE MONEY

AUSTIN—Texas will receive more federal money for sport fish and wildlife restoration and hunter safety programs during fiscal year 1978 than any other state, according to Department of the Interior statistics.

Texas' share of the wildlife restoration fund is the largest, at \$1,317,000. The fish restoration total is \$490,000, which is matched only by Alaska.

Alaska, California, Pennsylvania and Michigan join Texas as the largest recipient states dividing up the total \$37 million fund distributed through the U.S. Fish and Wildlife Service.

Funds for fish restoration programs come from a 10 percent excise tax on fishing tackle and artificial lures. Wildlife restoration and hunter safety funds come from excise taxes on sporting arms and ammunition and certain archery equipment.



TP&W Warden Jack Gregory (left) receives Shikar-Safari award from P&W Commissioner Louis Stumberg.

NO EXEMPTIONS FOR NONRESIDENT LICENSES

AUSTIN—The Texas Parks and Wildlife Department reminds visitors and new residents that there are no age exemptions for nonresident hunting and fishing licenses.

Texas residents (those who have lived in the state six months or more) who are over 65 years of age or under 17 don't have to buy a hunting or fishing license, but they are required to obtain an "exempt" license to hunt deer and turkey, according to P&WD law

enforcement director Dexter Harris. But all nonresidents, regardless of age, are required to have a license.

Harris pointed out that a person moving to Texas from out of state still must purchase a nonresident license to hunt or fish until he or she has been a resident of the state for six months.

Nonresident fishing licenses sell for \$10.50, and a special five-day license is available for \$4.50. For hunting, the general nonresident license costs \$100.75, but a small game license is available for \$37.50 and a five-day migratory bird license is \$10.50.



Whistling Ducks

by Don Delnicki,
Santa Ana National Wildlife Refuge

Whistling ducks are unique among waterfowl. Although they resemble ducks in appearance, the birds are more closely related to swans and geese.

Whistling ducks have such unducklike characteristics as single annual moult, nonoverlapping leg scales and no sexual differences in plumage, voice and mating displays. They also form a life-long pair bond unlike diving and surface-feeding ducks that mate seasonally.

Their wingbeat is intermediate in speed between that of true ducks and geese. In flight, their legs extend beyond their tails, similar to egrets or herons. Whistling ducks feed in the dabbling manner of puddle ducks, in the grazing fashion of geese and occasionally make short dives.

Until recently, whistling ducks were known as tree ducks. Reclassification has eliminated the latter term since not all species use trees as nest or perch sites. However, the entire group vocalizes by whistling

Perching on a fence is just one of the unducklike characteristics displayed by the black-bellied whistling duck. Slow flight and the tendency to circle the area where one of their number has fallen could cause an entire flock to be eliminated if these birds were not protected from hunting.

rather than quacking. Only two species, the black-bellied and fulvous, are found in the United States; both occur in Texas. The black-bellied duck is a bird of lakes and savannahs, while the fulvous usually inhabits rice fields and marshes. Six additional species are found in various tropical and subtropical portions of the world.

Black-bellied whistling ducks are common in South and Central America and Mexico, but in the United States occur regularly only in South Texas. In recent years this species has been extending its range northward in the state. This expansion has coincided with the increased number of stock ponds built by cattlemen and the enlargement of Lake Corpus Christi, which provided more suitable nesting habitat. Banding returns have indicated some of the black-bellied whistling ducks that nest in South Texas spend part of their winters in Mexico, mainly the states of Tamaulipas and San Luis Potosi. Others overwinter near Lake Corpus Christi and along the Lower Rio Grande.

The fulvous whistling duck is found in parts of North and South America, Africa and Asia and is probably the most widely distributed bird in which subspecies do not occur. Its normal range in North America is Mexico, Central America, portions of California and Florida, the Texas Gulf Coast and the marshlands and rice fields of Southwest Louisiana. It is believed

the development of rice farming practices made possible the extension of its range into Louisiana since much of that region had been previously dry prairie. Also, this nomadic species has been observed in some 20 states and Canadian provinces.

Whistling ducks migrate north from Mexico during March and April. Although paired, they remain in flocks until breeding dispersal. The birds usually spend the day loafing and sleeping and forage at night. Bermuda grass, corn and sorghum are among the black-bellies' favorite foods, while rice is the mainstay for fulvous whistling ducks when weed seeds are scarce in spring and early summer. As autumn approaches, the importance of rice in the fulvous' diet decreases as seeds of aquatic plants such as millet, sedge, spikerush and watergrass increase.

Unlike puddle and diving ducks that mate seasonally and engage in sexual displays before mating, whistling ducks have a prominent display after mating. Both birds tread water side by side in the shallows. With their bodies above the surface, they arch their necks, puff out their breasts and each bird lifts its "outer" wing. Displays such as these reinforce the bond in species which mate for life.

The nesting season for both species is a long, drawn-out affair, lasting from April until October. Consequently, some young-of-the-



Whistling ducks feed in the dabbling manner of puddle ducks, in the grazing fashion of geese and occasionally make short dives. Rice is the mainstay in the fulvous' diet in spring and early summer when weed seeds are scarce. However, the importance of rice decreases as seeds of aquatic plants such as millet, sedge, spikerush and watergrass increase as autumn approaches.



year will have reached flight stage before all adult females have commenced egg laying. Black-bellies use a variety of nest sites such as tree cavities, chimneys, large cans placed in trees, nestboxes and, occasionally, the ground. Fulvous whistling ducks nest on the ground or over water. Many old-time naturalists believe the fulvous nested in trees, but this is not true. Possibly this confusion existed due to the similar appearance of eggs of the black-bellied whistling duck, which occupies some of the same range as the fulvous whistling duck.

Predators of whistling duck nests include dogs, opossums, raccoons, skunks and snakes. The bullsnake and Texas rat snake are particularly important predators of black-bellied whistling duck nests in nestboxes because they can circumvent metallic shields on nestbox poles which repel four-legged predators.

Most waterfowl lay eggs between early and midmorning. Whistling ducks are an exception as their egg laying takes place in late afternoon and early evening. Due to their nocturnal habits, it is thought this practice evolved to relieve females from carrying almost fully developed eggs during their nightly activities. Both male and female whistling ducks incubate the eggs. This is a rarity among waterfowl and only occurs in one other species, the Australian black swan. The incubation period has been variously reported as 26 to 32 days. Eggs are laid at the typical waterfowl rate of no more than one per day. Clutch size of a single hen is usually 12 to 16 but dump nests, in which more than one female lays her eggs, have been found to contain over 100 eggs. As many as 17 hens have been known to lay their eggs in one nest in a single day. Eggs in these dump nests may or may not be incubated, depending upon the broodiness of the birds involved.

Rarely do all eggs in a dump nest hatch. Often the earliest laid eggs lose their viability before the onset of incubation; some eggs may be laid after incubation begins and are only partially developed when the other eggs hatch. Egg numbers can

be so large the incubating bird is physically unable to cover the entire clutch with its body. In addition, high temperatures in South Texas often cause unattended eggs to self-incubate. Within a few days, probably due to the nightly decrease in temperature, the embryos die.

Despite these adversities, some dump nests have a high degree of success. Hatches of more than 30 ducklings are not uncommon, but often many of them are lost within their first few days of life due to the inability of the parents to properly brood such a large number. The family remains together even after the young reach flight stage, which takes about nine weeks.

Black-belly populations have increased steadily during the last several decades, and fulvous whistling ducks are just now increasing after their numbers reached a severe low. Thousands of fulvous whistling ducks were observed in the Gulf Coast area in the early and mid-1950s. By the late 1960s, their numbers had dwindled to only several hundred. This decline was attributed mainly to the use of aldrin-treated seed by rice farmers, beginning about 1960. Aldrin is a chlorinated hydrocarbon used to combat the rice water weevil. But this nonselective pesticide killed many other organisms, including fulvous whistling ducks soon after they ate the newly planted seed. Drilling rice seed into dry ground and flooding, as opposed to aerial seeding, greatly reduces the loss of birdlife, as the former method leaves relatively little treated seed available as food. Once again, thousands of fulvous whistling ducks can be found in the rice prairies and coastal marshes of Texas.

Whistling ducks are not as wary as most other wild waterfowl. Their slow flight and inclination to circle the area where one of their numbers has fallen can ultimately lead to the extirpation of entire flocks by hunters. Because of their relatively low numbers and limited distribution, whistling ducks have been protected from hunting in Texas for a number of years. **

WANTED

Information Leading to the Hideout of:

Haliaeetus l. leucocephalus

Alias: Southern bald eagle; American eagle; white-headed sea eagle



Immature bald eagles by Jim Whitcomb

DESCRIPTION: Hideouts thought to be in tall trees near large streams, creeks, rivers and lakes. Nests made of large and small sticks, lined with moss, roots and grass. Usually six to 10 feet across. Fugitive has heavy yellow beak, unfeathered legs, dark brown above and below with snowy white head and tail. Operates along the Gulf Coast area and inland from Nueces County north to the Red River.

CAUTION: Considered endangered. If seen, do not disturb, but notify your local game warden or —

Bill Brownlee
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744
(512) 475-4971

Please supply information as to date and place observed.

REWARD: Satisfaction in knowing you will be helping to perpetuate our National Emblem.

NEW!



CORDLESS SHOOTING LIGHT

FOR NIGHT VARMINT HUNTING

Tilt gun to side, light is off — raise it to shoot and automatic mercury switch turns on bright, aimed beam. Unit mounts on scope, single barrel shotgun, rifle. No clumsy cord. Powerful 9-volt alkaline battery included. Manual switch also. Light, rugged—stands recoil. Great for varmints—helps farmers protect stock. Money-Back Guarantee. Send **\$15.49** plus 50¢ postage. Extra LONG-LIFE Mercury Batteries, **\$2.50**.

Calling story booklet, 50¢. Write for Free Catalog!

BURNHAM BROTHERS

P.O. Box E-127-ML Marble Falls, Texas 78654

CALL QUAIL

for the best shooting you ever had



MONEY-BACK GUARANTEE

Exciting way to bag Bob White Quail. Call and locate coveys and singles with this easy-to-use call. Guaranteed to work in any part of the country or your money back. Free instructions and catalog included. SEND NOW.

SPECIAL OFFER FOX CALL KIT: Long and close range call, instruction record (45 rpm). An \$8 value, only \$5.50.

NEW BOOKLET "Thrills of Game Calling": Rare and exciting photos. Send 50¢. Ask for FREE Catalog.

Q-5 ONLY
\$2.00
PPD.

ORDER TODAY!
We Pay Postage

BURNHAM BROTHERS

P.O. Box E-127-Q Marble Falls, Texas 78654

**ELK-DEER-ANTELOPE-BARBARY SHEEP
SPRING AND FALL LION AND BEAR
WITH TOP NOTCH DOGS**

New Mexico high country's finest, top-quality hunting at its best at a hunter's price. For the hunt of a lifetime for you, your son, wife or party hunt with real mountain men "WHO DELIVER!" Now booking limited number of hunts for 1978 seasons. Horses, vehicles, lodging and meals furnished on all hunts. Plenty of happy hunters for references upon request.

MORENO VALLEY OUTFITTERS

Box 244

Eagle Nest, New Mexico 87718

Phone: 505-377-2412

**KEEP NOISE
TO A MINIMUM.**

Respect the rights of fellow campers to enjoy the sounds of nature.



**CALL
VARMINTS
UP CLOSE!**

BURNHAM'S NEW CASSETTES GET ACTION.

Enjoy new hunting thrills! Coyotes, foxes, cats come running — just plug cassettes into portable player. No rewind — simply turn cassette over. 20 different subjects. Order Grown Jackrabbit, Yellowhammer Woodpecker or Crow Fight. Only \$7.50 ea. or 3 for \$19.95 (SAVE \$2.55). Postage Paid. Results Guaranteed or Money Back. **FREE CATALOG.**

BURNHAM BROTHERS

P.O. Box E-127-C Marble Falls, Texas 78654

AUTOMATIC GAME FEEDER

Feeds up to 12 times a day. You select time and amount. 300 lb. capacity. 12-volt dry battery included. Thousands in use nationwide.

WRITE FOR

FREE BROCHURE TODAY

SWEENEY ENTERPRISES, INC.

ROUTE 2, BOX 145G • Dept. TP
BOERNE, TEXAS 78006 (512) 537-4244



**LIVE-CATCH
TRAPS and
CAGES**



Write for FREE CATALOG

Traps without injury squirrels, chipmunks, rabbits, mink, fox, raccoons, stray animals, pets, etc. Sizes for every need. Also traps for fish, sparrows, pigeons, turtles, quail, etc. Save on our low factory prices. Send no money. Write for free catalog and trapping secrets. MUSTANG MFG. CO., Dept. N-37, Box 10880, Houston, Tex. 77018



Been Stuck Lately?

Long walk? Ruined trip? Be out with ease in seconds! Bolt onto stuck wheel with tire tool. Specify make, model, year, lug number & ton rating. \$49.95 F.O.B. (cable not included) - SO. TEX. HUNTING CLUB, FIRST NATIONAL BANK BLDG., DEPT. A, SAN ANTONIO, TEXAS 78201



BUSHWHACKER

COMPARE!

- professionally designed
- simplified assembly
- sturdy and quiet

SAVE MONEY!

ground blind \$126.00
with 10' tower \$205.00

+5% sales tax/f.o.b. Houston
P.O. Box 42233, Hou., Tex.
713/783-0133

**THE ORIGINAL LEHMAN
AUTOMATIC FEEDER**

Fishermen • Hunters • Birdwatchers

Time Tested—Over 7,500 Sold!

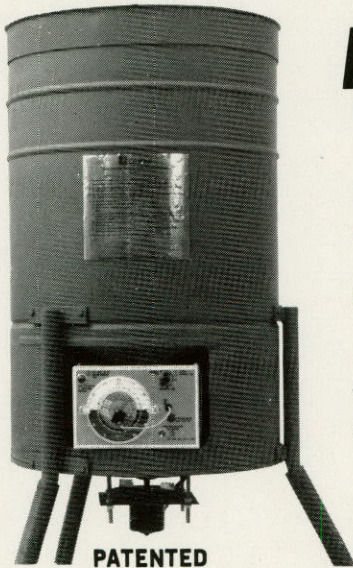
1. New 24-hour 4-jewel movement.
2. Feed one or more times day or night any selected time regularly unattended.
3. Distributes feed 25 to 75 ft. — depending on installation height. Install suspended — or on pipe legs.
4. Operates on 6 volt dry cell — 2 to 6 mos.
5. Capacity 250 and 1,000 lb. sizes.

Write for Free Brochure

LEHMAN H FEEDER & PLOW, INC.

Route 3, Box 53, Corpus Christi, Texas 78415

(512) 855-0049



PATENTED



Young Naturalist

Gift with Responsibility

by Ilo Hiller

Excitement is in the air as December begins its day-by-day countdown to Christmas.

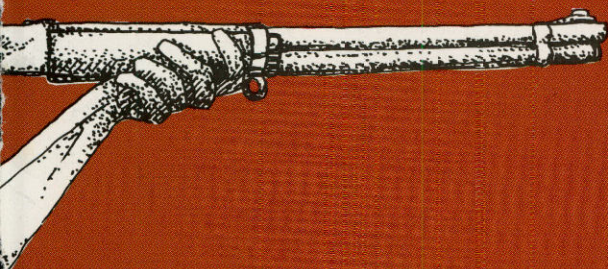
Finally, the long-awaited morning arrives and, as you eagerly unwrap your presents, some of you may find a BB gun among your gifts. When you take it from the package and put it to your shoulder, keep in mind that you also shoulder the responsibility for its safe handling. A gun of any kind is not a toy and should never be treated as one.

Before you load that new BB gun and shoot it for the first time, become familiar with it and the way it works. Read all of the instructions that come with it and, if there is something you don't understand, let an adult explain it to you.

If your new BB gun is a Daisy model, you probably

will find a copy of the *The Code of the Daisy Rifleman* printed somewhere in the literature. These rules, which are very similar to the *10 Commandments of Snooting Safety* taught in safe gun handling courses, are:

1. Treat every gun as if it were loaded and ready to shoot.
2. Never carry a gun into your home, camp or public place loaded or cocked.
3. Always be sure your gun barrel is clean and not plugged.
4. Carry your gun so you can control the direction of the muzzle, even if you stumble.
5. Be sure of your target before you pull the trigger.
6. Never point a gun at anything you do not want to shoot.
7. Guns not being used should always be unloaded.
8. Never climb a tree or fence or jump a ditch with a loaded gun.
9. Never shoot at a flat, hard surface or the surface of water.
10. Respect other people's property.

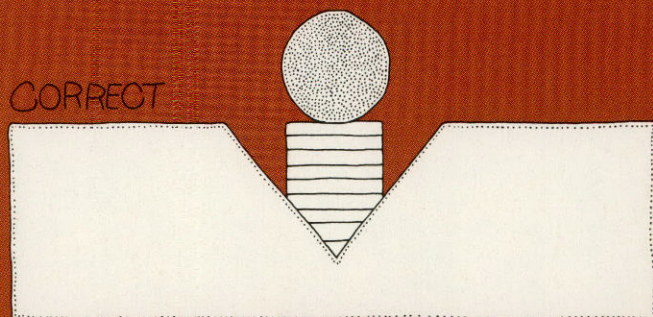
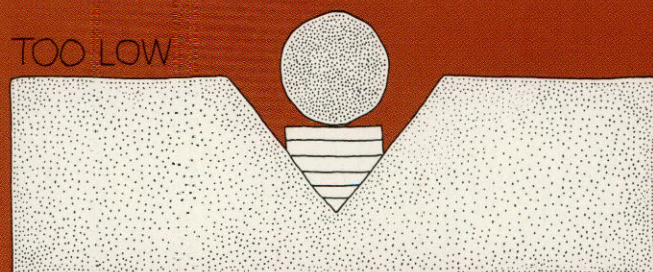
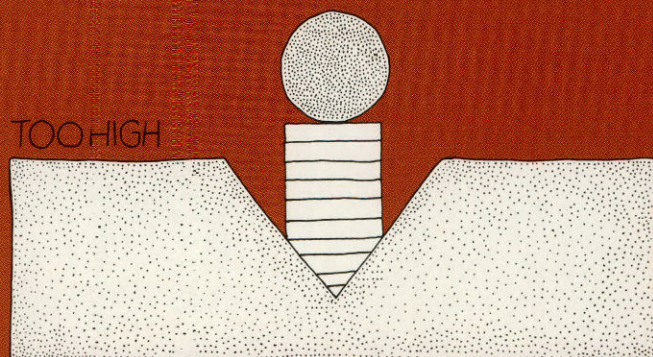


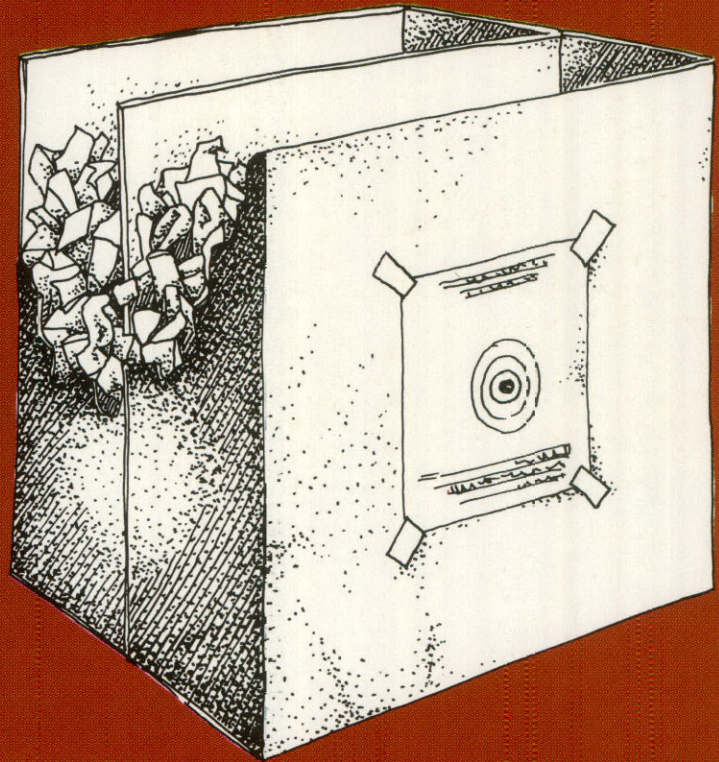
The last rule is just another way of saying you are responsible for your targets. Too many young people think that owning a BB gun gives them the right to take potshots at whatever they please. Your neighbors' dogs, cats, garbage cans, car windshields or house windows are not things on which to test your shooting skill.

Neighborhood birds, probably the most common targets, also are off limits to the BB gun shooter. Almost all birds are protected by either a state or federal law. (In fact, the only ones not protected are the English sparrow, European starling and feral pigeon.) Fines for killing or wounding protected birds range from \$10 to \$200.

The best way to become a skilled BB marksman is to spend a lot of time shooting at a prepared target. When that hole appears in the target, you know exactly where the shot hit and whether or not it is hitting where you are aiming. When properly aimed, the tip of the front sight, as seen through the notch of the rear sight, should be on the bottom edge of the bulls-eye. The tops of the two sights should be aligned (see illustration).

To be sure, your target should have a backstop capable of stopping the BB shot, which has a range of 200 to 300 feet. Guns which can be pumped up have a greater range. A 12-inch deep cardboard box with a front surface of at least two square feet can be used.





Gift with Responsibility

Packed full of crumpled newspaper, it will trap the BB shot.

Some shooters hang a blanket or piece of canvas behind their targets, but such material serves only as a backdrop to retard, not necessarily stop, the flight of the shot. Shots from a BB gun that can be pumped up to a higher velocity can pass through a backdrop.

Commercial targets are sold in most sporting goods stores, but you can make a simple one by drawing a large "X" on a piece of plain paper. The object is to hit as close to the center of the "X" as possible. Those who prefer targets other than bullseyes may want to fasten a balloon to the backstop or attach black construction paper animal silhouettes. Discarded playing cards also make excellent targets as you aim your shots at the center of each variedly spaced heart, diamond, spade or club.

As shooting skill improves, fasten a candy mint

with a hole in the center to the backstop. The object is to shoot through the hole without breaking the candy.

Those who enjoy competing against other shooters might enjoy the baseball game. Just draw one like the one illustrated. Each player shoots for an inning, advancing runners around the bases and scoring runs until three outs are made. The game goes on for nine innings and the shooter with the most runs wins.

Tic-tac-toe also can be played with BB guns. Draw the proper lines for the game on a target. Two shooters take turns and the game is played according to regular tic-tac-toe rules. After each shot, the square hit is marked with the shooter's "X" or "O" unless already marked. Shooting accuracy is a must. Without it the players cannot hit the empty squares needed to win the game. Reduce the size of the target as skill improves.

Vary all your target shooting by using the four basic shooting positions — prone (lying down), sitting, kneeling and standing. In all positions, the right-handed shooter grasps the small of the stock with the right hand and squeezes the trigger with the first joint of the index finger. The BB gun rests in the palm of the left hand with the left elbow as much

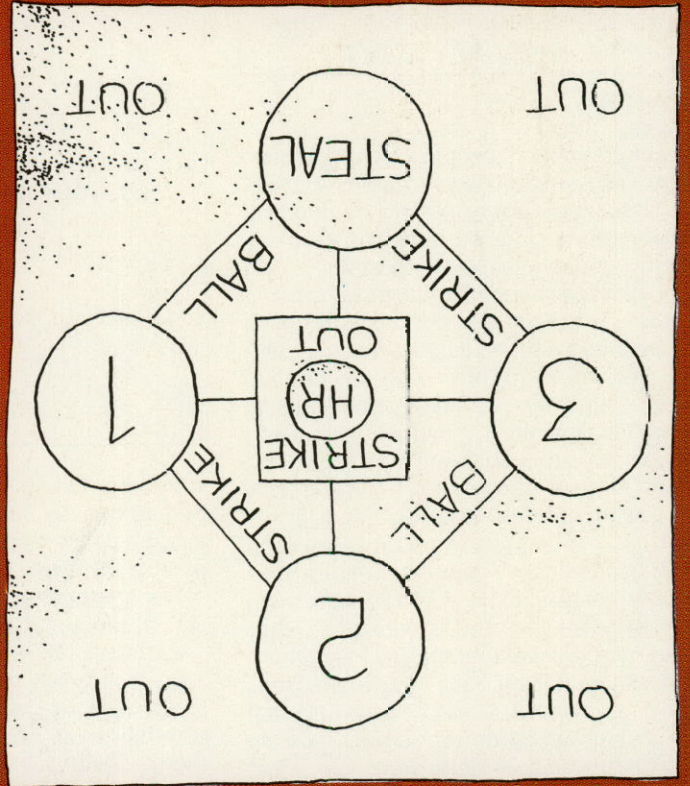
Note: Many cities have laws against snooting a BB gun within the city limits. Check with your local police department to be sure you are not violating your city's ordinances.

target, five feet behind the firing line for the shooter and five feet behind the target for a backstop and the added safety of a backstop for any stray shots. Competition with other shooters is fun, but your responsibilities for gun safety increase when others are present. You not only must be sure you are handling your gun safely, but you also must see that your friends do not behave in a dangerous manner. Target practice can be an entertaining pastime for you and your friends, but never forget that BB guns are not toys.



under the rifle as is comfortable. The cheek is pressed firmly against the stock as far forward as possible without straining so the eye is as near as possible to the rear sight.

Bad weather need not stop your shooting activities if you have room for a range in your garage or game room. The recommended length of the indoor range is 25 feet. This allows 15 feet from the firing line to the



LETTERS TO THE EDITOR

New Film Available

A new, 10-minute color film, "Drowning: Facts and Myths," is available from the Parks and Wildlife Department's film library. It's a water safety film for general audiences that explains how people drown and shows actual drowning and rescue scenes filmed at Orchard Beach in New York.

"Drowning: Facts and Myths," and 41 other films are available to Texans for only the cost of return postage to the department. Bookings should be made as early as possible but no more than six months in advance.

Requests should be mailed to: Film Library, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin 78744. A catalog of all department films also is available.

Coot Query

I have been a waterfowl hunter for many years and have been living in Texas for the last four years. I had never seen a coot until I moved to Texas. In fact I had never heard of the species. They are no where to be found in the Eastern United States.

I have searched waterfowl books and have been unable to come up with a description of this species. I would be interested to know if it is a waterfowl, where it's found, where it nests, where it spends its winters and is it edible?

Richard H. Reed, M.D.

Conroe

■ Classified as an undesirable by most hunters, the coot combines slowness of flight, drabness of feather and highly questionable table characteristics to earn it a spot on the bottom rung of the waterfowl ladder. If the coot falls short of the glory of wild ducks as a game bird, it's probably because the coot is not even a member of the duck family. It belongs to the same family as rails and gallinules. Its feet are not webbed like a duck's; rather, the toes have flattened lobes to aid swimming. The beak, unlike the duck's, is pointed. The coot's white bill is unique among waterfowl. Whether walking or swimming, the coot's head has a characteristic back-and-forth pumping motion lacking in ducks. Coots are medium-sized birds of some 15 to 18 inches in length and weigh about a pound. The coloration is

dark blue-gray over most of the body. Males and females are practically identical. For habitat almost any lake with a little vegetation will do. The coot's appetite allows it to thrive on a variety of water plants, insects, snails and other small life forms. This broad taste for food may be the reason for the coot's apparent unpopularity as table fare. But our friends in Port Arthur tell us that handled properly, potboiled coot is every bit as good as duck. Clean four coots just like chicken and soak them overnight in a solution of vinegar and seasoned salts. Pour off the vinegar the next day and fry the birds in an iron skillet until brown. Cut up bunches of green onions and a couple of white onions, add the coots, salt and black pepper to a pot with about a half gallon of water. Stir in a little oil and flour and let the pot simmer for two hours. Serve the coots over a big plate of rice.

Not a Sucker

In the September 1977 Young Naturalist, "Identifying Fish Silhouettes," the author states, "Two whiskers on each side of the upper jaw identify the carp from other members of the sucker family." This statement leaves the reader with the impression that the carp, *Cyprinus carpio*, is a member of the sucker family, Catostomidae. However, the carp is actually a member of the minnow family, Cyprinidae.

Although the carp superficially resembles the suckers, there are other features that ally the carp with the minnows and separate it from the suckers. One major difference between the suckers and the carp (and all minnows) is that suckers never have maxillary barbels (whiskers) while minnows frequently do. Also, two bones border the upper jaw in the suckers, whereas only one does in the minnows. There also are differences between these two groups in skull structure, tooth patterns and caudal fin ray numbers, among others.

Edie Marsh
Austin

TEXAS PARKS & WILDLIFE

Send check or money order to:
TEXAS PARKS & WILDLIFE
4200 Smith School Road, Austin, Texas 78744

Check one

- RENEWAL**
Paste your last magazine address label into space indicated and mail with payment.
- CHANGE OF ADDRESS**
Paste recent magazine label into space indicated, show change on form and mail.
- NEW SUBSCRIPTION**
Fill out form at right and mail with payment.
- GIFT SUBSCRIPTION**
Show recipient's name and address in form, indicate gift signature and mail with payment.

Attach recent magazine address label here for renewal or change of address.

Name _____

Address _____

City _____

State _____

Zip Code _____

Sign Gift Card _____

CHECK ONE 1 yr. \$5 2 yrs. \$9

Out of U.S. (except APO and FPO) 1 yr. \$6. 2 yrs. \$11.

BACK COVERS

Inside: Bright red fruits, covered with a coating of ice, give this possumhaw a festive, just-decorated appearance. Photo by Jim Whitcomb.

Outside: Elm leaves edged with sparkling crystals of ice occasionally greet winter's early morning risers. Frost forms on bushes, trees and other objects when very moist air is cooled below 32° F. (0° C.). With the coming of the morning sun, the icy crystals melt away. Photo by Linda Brothers.



