

TEXAS

PARKS & WILDLIFE

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**TEXAS PARKS & WILDLIFE
magazine**

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

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Front Cover: The hook-billed kite has paid another rare visit to Texas from Mexico. The only other recorded sighting of this bird in our state occurred in May 1964. Photo by Ed Dutch.

Inside Front: On those warm October days in East Texas, a hiker could come across just such a creek scene as this one located near Nacogdoches. Photo by Leroy Williamson.

White-tailed deer by Ed Dutch



Thanks to the Hunter



Mule deer by Larry Ditto



White-tailed deer by Ed Dutch

Indiscriminate slaughter by commercial meat and hide hunters and ignorance of habitat requirements almost caused the deer's extermination around the turn of the century. Establishment of bag limits and closed seasons and protection by landowners, sportsmen and the newly hired game wardens helped the herd recover. Research and management programs financed by the sportsmen's licenses have enabled the herd to reach its present estimated level of 3,100,000 whitetails and 150,000 mule deer. Last year's harvest, estimated at 349,000 whitetails and 11,000 mule deer, could be increased substantially without endangering the present population. In addition to the recreational aspects of deer hunting, the activity has a definite economic impact on the state. Hunters spent around \$113,800,000 on whitetails and \$2,394,000 on mule deer in 1974.

Since there is a direct correlation between the availability of hardwood mast in the fall and reproduction the following spring, destruction of this type of habitat is a major limiting factor on squirrel populations. There is at least a 55 to 60 percent turnover each year, regardless of hunting pressure, so hunters could, theoretically, harvest this number. Best estimates place the harvest at 20 percent. Squirrel hunters spent more than \$7,000,000 in 1974.



Fox squirrel by Neal Cook

Javelina by Jim Whitcomb



Javelina by Ed Dutch

Records from wardens and ranchers throughout the area of heaviest javelina concentration indicate that the animal's population has been on the increase since it was designated as a game animal in 1939 and given the protection of a hunting season.

Choice habitat contains large, unbroken tracts of chaparral-type cover. In these areas the javelina harvest could be substantially increased without endangering the species. In areas where populations are decreasing, habitat destruction, not hunting, is responsible. Hunters spent \$2,200,000 on this sport in 1974.





One of the easiest big game animals to locate because of its plains habitat – yet one of the hardest to shoot after sighting – is the pronghorn. Its speed and keen eyesight make it a worthy opponent. Pronghorn numbers fluctuate greatly, but drought and fences are the major reasons for reduction. Pronghorns are harvested by permits issued according to the animal's population. Attempts to restore the desert bighorn to its native range have been in progress since 1956. Limited success has been achieved in the management area's predator-proof enclosure, but the sheep have not attained huntable numbers yet.



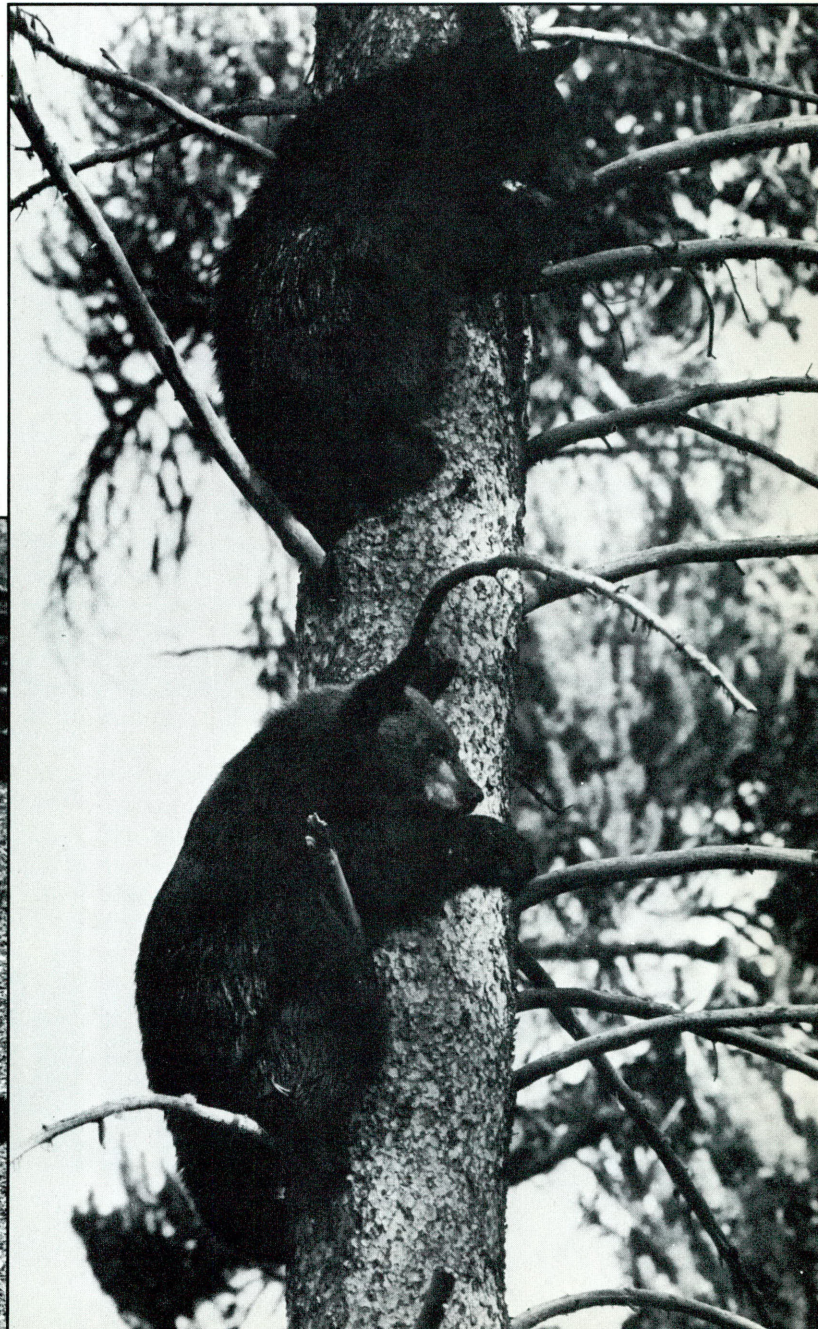
Desert bighorn by Ed Dutch

Desert bighorn by Reagan Bradshaw



Although black bears were once common over most of Texas, they are now so few in number that they are of virtually no importance as a game animal. A few remain in the Davis, Chinati, Chisos and Guadalupe Mountains and possibly the more remote bottomlands of southeast Texas. A rash of sightings in southeast Texas from 1965 to 1971 were a result of a transplanting effort in Louisiana. Few secluded areas exist in Texas that would afford protection for the black bear and insure its survival. Past experiences have shown that bears and humans cannot live in harmony.

Black bears by Leonard Lee Rue III



“DANGER!” Poisoned cartridges in the area! These cartridges are dangerous. They contain deadly cyanide. Stay away and keep your dogs away.”

So warns the signs posted by the U.S. Fish and Wildlife Service where M-44s are deployed for coyote control.

Fred Marlman, a resident of Wyoming, invented the predecessor of the M-44 in the 1930s. It was called the trap gun, explosive coyote getter, humane coyote getter or simply getter. Government hunters hailed Marlman's device as a first-rate coyote control tool; field tests by the U.S. Fish and Wildlife Service in the 1940s bore them out. The getter was more selective and humane than the steel trap, and it was also highly effective. A trapper working Maverick County, Texas, removed several hundred coyotes in one year solely with getters.

But operating the coyote getter was dangerous. Because it used a blank .38 cartridge to expel the cyanide salts, the wadding shot out with considerable force. The death of a surveyor in West Texas dramatized this problem. He mistook a coyote getter for a survey marker and pulled it. The wadding and poison penetrated his hand, and he died several hours later.

Jim Poteet of Midland, Texas, developed a safer device, the M-44, in the late 1960s. It uses a spring-loaded ejector to expel the cyanide salts. Otherwise, it operates on the same principles as the original getter.

The M-44 consists of a casing, a spring-loaded ejector, a capsule holder and a cyanide capsule. The casing is driven into the ground; the ejector is cocked with a specially made tool and dropped into the casing; and the capsule holder, with cyanide capsule inserted, is screwed onto the ejector. When set, the device looks like a cylinder — about the size of a spool of thread — rising from the ground.

M-44s are set at coyote sign (tracks or droppings), and a bait is painted thinly on the capsule holder. Baits may be fresh, such as ground beef liver, or rotten, such as putrefied rattlesnake, but they must be palatable to coyotes. The coyote assumes the M-44 is a morsel of food, grasps the capsule holder between its incisors and pulls. This fires the device, a plunger rams upward through the capsule and a cyanide compound is ejected into the animal's mouth.

The poison, which resembles powdery table salt, undergoes a chemical reaction when it contacts saliva. Hydrogen cyanide, an extremely lethal gas which inhibits an enzyme system necessary for transporting oxygen to body cells, is liberated. The coyote is asphyxiated within a few seconds to a few minutes.

Since its invention, the M-44 has had an on-again-off-again history. Former President Nixon banned poisons, including cyanide, from the federal predator control arsenal with Executive Order 11643, issued in 1972.

Environmentalists lauded Nixon's decision. They regarded the M-44 as an indiscriminate, hazardous, unnecessary killer. They assumed salts of cyanide, like strychnine, produced chain reactions of poisoning (secondary poisoning), and they questioned the need for any predator control.

The M-44 does have shortcomings. It kills nontarget species such as bears, raccoons, skunks and badgers. It also kills calves, sheep and dogs. The extreme toxicity of cyanide salts precludes their use in areas of high human activity. Moreover, certain endangered species, such as the red wolves of southeastern Texas, are susceptible to M-44s.

But the hazards in using M-44s have been somewhat overrated. Dr. Samuel L. Beasom and his graduate students at Texas A&M University have conducted predator control experiments in the Coastal Bend, Brush Country and Trans-Pecos areas of Texas. Their findings indicate the M-44 is highly selective for coyotes. More selective, in fact, than any methods of coyote control except calling and helicopter gunning.

“From what we have found,” Beasom says, “I suspect the device would have relatively little effectiveness at alleviating depredations if used alone. Nonetheless, if population suppression of coyotes is the management goal in any given situation, the device probably would add to the success of the overall program, especially where natural foods are in short supply. It would at least be a relatively harmless control tool because of its high degree of selectivity.”

Unlike some other poisons, sodium cyanide breaks down rapidly. The hydrogen cyanide gas dissipates into the atmosphere and the danger of secondary poisoning is slight.

Beasom's work, and other studies in the West, also highlight the seriousness of coyote depredations on some sheep and goat ranches. Coyotes yearly destroy thousands of lambs and kids and, to a lesser extent, mature animals. The M-44 is a useful tool when coyote control is indicated, and it can be applied broadly and economically. It is easy to set, operate and maintain.

Recognizing the M-44s redeeming features, state agencies, federal agencies and stockmen's groups began moves to have the device reinstated. President Ford issued Executive Order 11370 in the summer of 1975, relaxing somewhat the restrictions on using

CAUTION: COYOTE



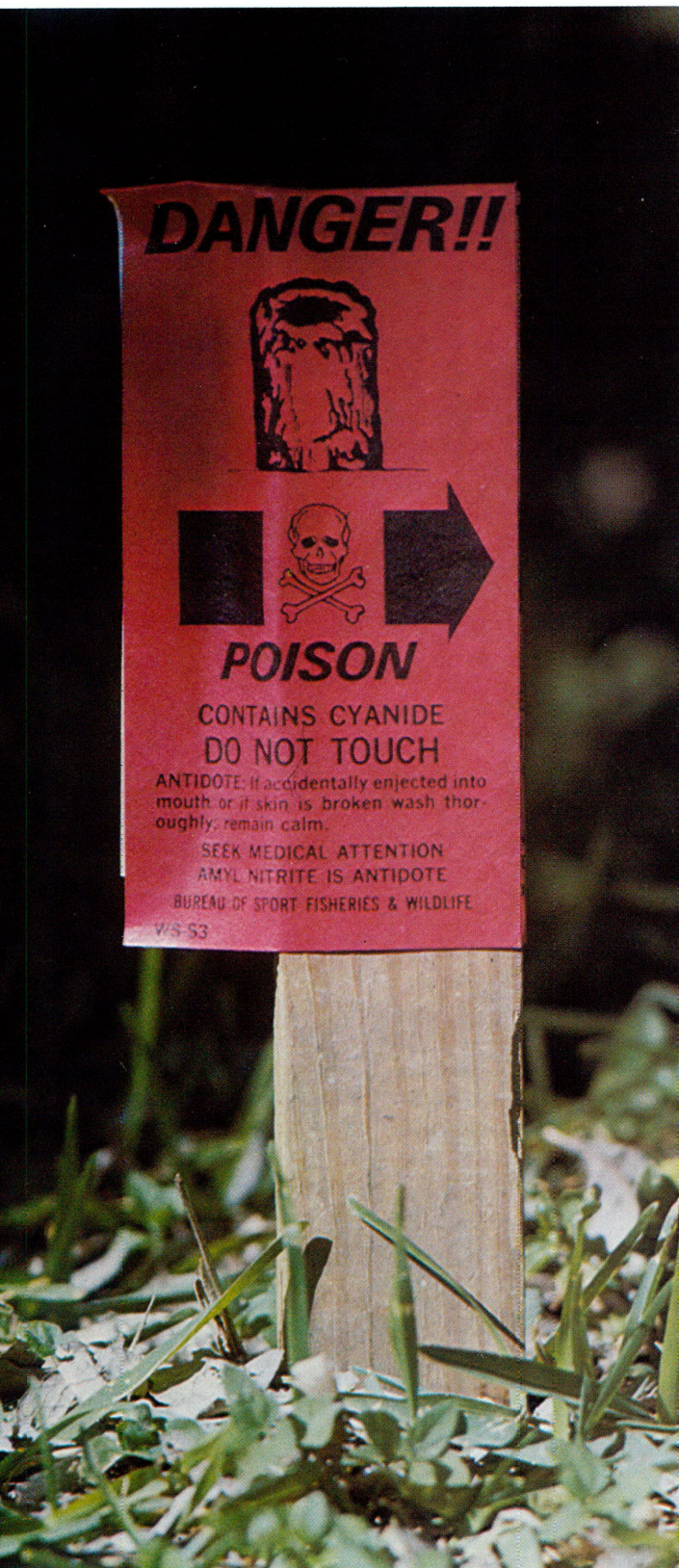
Cotton gloves and a long-sleeved shirt provide protection against accidental contamination from the cyanide salts used in the M-44. To set the M-44, the casing (below, right) is driven into the ground; the ejector (below, middle) is cocked with a specially made tool and dropped into the casing; and the capsule holder (below, upper left), with the cyanide capsule (below, lower left) inserted, is screwed onto the ejector. The pocketknife is included to give size perspective.



GETTER

Article and photographs by Fred S. Guthery, Wildlife and Fisheries, Texas A&M University





When set, the M-44 looks like a cylinder, about the size of a spool of thread, rising from the ground. Since potassium cyanide and M-44s can be purchased and set by the general public, outdoorsmen should be able to recognize the device when they happen upon it, especially if warning signs are absent. M-44s deployed for coyote control by the U.S. Fish and Wildlife Service are marked with warning signs (left).

sodium cyanide. Subsequently, the U.S. Fish and Wildlife Service petitioned the Environmental Protection Agency for registration of sodium cyanide under the Federal Insecticide, Fungicide and Rodenticide Act. Presently, the M-44 is on again.

Thus, it seems likely some Texas outdoorsmen will encounter M-44s in future outings. If they recognize areas where the device is in use, the dangers are minimal.

Watch for the bright orange signs described in the first paragraph of this article. They give bilingual (Spanish/English) warnings. A second, smaller sign, bright red is staked within a few yards of each device.

The staked signs describe the antidote: "If accidentally injected (sic) into mouth or if skin is broken wash thoroughly; remain calm. Seek medical attention. Amyl nitrite is antidote."

Amyl nitrite is an inhalant which comes in small glass pearls. It is a prescription drug that ties up cyanide in the blood stream, causing it to form a harmless compound. When the victim is taken to a doctor, he is injected with sodium thiosulphate and sodium nitrite to completely purge the body of poisonous residues.

Even though effective antidotes for cyanide poisoning are available, they must be administered rapidly. The warning signs offer sound advice: "Stay away and keep your dogs away." To this add children. Besides the obvious danger, tampering with government property is a violation of federal law.

But on the other hand, the hazards posed by M-44s should not be exaggerated. The chances of a human being receiving a lethal dose are extremely remote. As Milton Caroline, state supervisor of federal animal damage control programs in Texas, points out, M-44s "are applied in compliance with the EPA Use Restriction Bulletin that is part of the FWS (U.S. Fish and Wildlife Service) registration and FWS policy statements."

These complex and complete-use restrictions are designed to protect the environment and assure human safety. **

OUTDOOR BOOKS

THE BIRD WATCHER'S BIBLE by George Laycock; Doubleday & Co., Inc., 245 Park Ave., New York, N.Y. 10017, 1976; 207 pages, \$2.95 paperback.

Who are bird watchers? What do they do? Why is bird information important? These and many other questions are answered by one of the country's foremost outdoorsmen and conservationists. The pleasure of field observations, the importance of studying the habits of birds attracted to your own yard or a hobby to take with you as you travel on business or vacation, are all varied approaches to birding.

Included in Laycock's book are guidelines for the beginning bird watcher. What to do and not do is discussed. Photographs of bird-watching equipment you may want to purchase and diagrams of bird houses and feeders you can construct also are provided.

One whole section is devoted to activities for bird watchers and covers such items as bird song recording, bird photography, bird banding, movies and slide shows and the Christmas Bird Count.

Another section tells the beginner where to see birds. Included is information on 10 special vacations to birding areas, conducted bird tours and bird watching by states. — Elaine Byrne

PARENT BIRDS AND THEIR YOUNG by Alexander F. Skutch; University of Texas Press, P. O. Box 7819, Austin, Tex. 78712, 1976; 503 pages, \$27.50.

Probably the most complete, up-to-date, worldwide survey of the family life and reproduction behavior of birds can be found in Alexander F. Skutch's new book *Parent Birds and Their Young*.

Based on over 40 years of field study by the author and on a wide survey of ornithological literature, the thoroughness of its coverage makes it a valuable reference source for the ornithologist. However, Skutch has avoided technicalities and presented his information in a style that is easily understood by the general reader.

Everything from the formation of pairs to the young's attainment of independence is covered. Discussed in de-

tail are such subjects as: age at first breeding, pair formation, duration of pair bond, territory and its significance, nesting seasons and controlling factors, nest types, eggs, methods of incubation, how chicks escape their shells and how the young are fed, educated and protected by their parents.

In connection with protection, one chapter is devoted to the stratagems the parent bird may use to divert an enemy from the nest. Injury simulation is one such method. The parent bird drags its supposedly battered body slowly across the ground and beats its widespread wings in apparent helplessness to draw the attention of the predator away from the nest. Once the nest is relatively safe, the parent bird "recovers" and escapes, leaving behind a bewildered, distracted predator.

More than 100 illustrations accompany the text, and the contents are supported by a bibliography of more than 800 titles. *Parent Birds and Their Young* should have no difficulty in answering every question you've ever had about bird reproductive behavior. — Ilo Hiller

FORT DAVIS AND THE TEXAS FRONTIER: PAINTINGS BY CAPTAIN ARTHUR T. LEE, EIGHTH U.S. INFANTRY, by W. Stephen Thomas, published for Amon Carter Museum of Western Art, Fort Worth, by Texas A&M University Press, College Station, Texas 77843, 1976; 109 pages, \$20.

Collectors of Texana and fanciers of western art will be pleased with the appearance of this fine volume of watercolors and pencil sketches by Captain Arthur Tracy Lee, who spent 13 years, 1848-61, on the Texas frontier in service with the U.S. Army. Lee's work surfaced in Rochester, New York, in 1961, when his granddaughter gave 154 sketches to three institutions in that city. Author W. Stephen Thomas is director emeritus of the Rochester Museum and Science Center, one of the repositories for Lee's sketches.

Of the 59 works reproduced, 29 are immaculate full-color facsimiles of Texas or Mexican border scenes. Five of the black-and-white reproductions are also Texas-related. Subjects range from

landscapes and river scenery to buildings and military outposts, particularly Fort Davis. Lee's only known oil painting, a portrait of the Comanche Chief, Yellow Wolf, also appears.

Included is a 35-page biographical sketch detailing Lee's Army career, with emphasis on his tour of duty in Texas. While in Texas he participated in the establishment of Fort Croghan, at Burnet; Fort Chadbourne, near Bronte; and Fort Davis.

Lee rendered many of his watercolors after retirement from the service in 1872, basing them on his memory, old pencil sketches and the works of other artists, such as Seth Eastman and Arthur Schott. This may have resulted in a few very minute historical inaccuracies, such as the appearance of an Indian tepee in a scene of Brownsville; but whatever the minor errors, they certainly do not detract from the beauty and importance of his work or this book. — Jerry M. Sullivan

MAMMALS OF THE SOUTHWESTERN UNITED STATES by Vernon Bailey; Dover Publications, 180 Varick Street, New York, N.Y. 10014, 1971; 412 pages, \$3.95 paperback.

Published in 1971 as a Dover edition reprint, this is an unabridged republication of the work originally published in 1931 by the United States Department of Agriculture Bureau of Biological Survey as *Mammals of New Mexico*, No. 53 in the series *North American Fauna*. The text is aimed primarily at New Mexico species, but does include descriptions of mammals from surrounding areas.

Under each species the distribution, habits and economic status are treated as fully as the knowledge existing in 1931 permitted.

Among the species covered are armadillos, peccaries, bison, mountain sheep, pronghorns, deer, elk, furbearers, rats, mice and bats. — Elaine Byrne



PHOTO AND ART CREDITS

Front Cover—Ed Dutch; Nikon F2, 560mm Leitz Telyt; Kodachrome 64.
Inside Front—Leroy Williamson; Nikon F2, 35mm Nikkor; Kodachrome 64.
Page 2—Dutch; Nikon F with motor-drive, 560mm Leitz Telyt; Kodachrome 64.
Page 3 (top)—Larry Ditto; Canon FTb, 500mm lens; Kodachrome 64.—(bottom)—Dutch; Nikon F with motor-drive, 560mm Leitz Telyt; Kodachrome 64.
Page 4—Neal Cook; Nikon F with motor-drive, 400mm Leitz Telyt; Kodachrome 64.
Page 5 (top)—Dutch; Nikon F with motor-drive, 560mm Leitz Telyt; Kodachrome 64.—(bottom)—Jim Whitcomb; Nikon FTN, 80-200mm Nikkor Zoom; Kodachrome II.
Page 6 (top)—Martin T. Fulfer; Nikon F with motor-drive, 400mm Leitz Telyt; Kodachrome 64.—(bottom)—Dutch; Nikon F, 400mm Leitz Telyt; Kodachrome II.
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Pages 9-10—Fred S. Guthery; Pentax Spotmatic, 55mm Super-Takumar; Ektachrome.
Page 11—Guthery; Pentax Spotmatic, 135mm Bushnell with extension tubes; Ektachrome.
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Page 18—Nancy McGowan; watercolors on illustration board.
Page 24—Benny J. Simpson; Canon FTb, 35mm Canon; Ektachrome.
Page 25 (left)—Whitcomb; Nikon F2, 55mm Micro Nikkor; Kodachrome 25.—(right)—Simpson; Canon FTb, 35mm Canon; Ektachrome.
Page 26—Simpson; Canon FTb, 35mm Canon; Kodachrome 25.
Page 27—Simpson; Canon FTb, 35mm Canon; Ektachrome.
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Pages 30-31—Reaves; Nikon F with motor-drive, 80-200mm Nikkor Zoom; Plux X.
Inside Back—Dutch; Nikon F with motor-drive, 560mm Leitz Telyt; Kodachrome 25.
Back Cover—Whitcomb; Nikon F2, 55mm Micro Nikkor with ring light; Kodachrome 25.

LONG SHOTS SHORT CASTS

compiled by Neal Cook

Michigan Will Vote: Add Michigan to the list of states that are giving voters an opportunity to consider a "bottle bill." The Michigan United Conservation Clubs secured far more than the 212,000 signatures necessary to place the initiative on the November ballot. The anti-litter bill is aimed at cleaning up Michigan's countryside by emphasizing returnable containers.

Life Jackets: Wearing a life jacket while boating is like wearing a seat belt when riding in a car. Both make good safety sense.

Eagle Transfer: In an effort to bolster New York State bald eagle populations to their former numbers, two young eaglets have been transported from their home in Wisconsin to a site in northern New York. The experiment is a cooperative venture of the U.S. Fish and Wildlife Service, the New York State Department of Environmental Conservation and Cornell University. Because levels of toxic pesticides, particularly DDT, appear to be declining in the area, it is hoped the pair will successfully nest and produce healthy offspring in several years. Before the transplant, only one pair were known to be still nesting in the state.

Père David's Deer: This Chinese deer probably became extinct in the wild sometime in the second century B.C., but a small herd lived in the Imperial Hunting Park near Peking. No foreigners were allowed to see this herd until 1865 when a young French priest secured, through bribes, the bones and skins of two animals. This deer was known by the Chinese as "the animal with four unusual features" because they considered it had the antlers of a deer, the hooves of a cow, the neck of a camel and the tail of a donkey. By 1874 several animals had been sent from China to zoos in Europe, but after that no more animals were brought out of China. In the early 1900s the animals in European zoos became the last of the species. The animals in the Imperial Hunting Park were killed by peasants when floods washed away the walls and the animals escaped the protection of the park. Other animals were killed during revolutions of 1900 and 1911. In 1898 the 11th Duke of Bedford in England had foreseen the problems the remaining animals faced and acquired the zoo animals from throughout Europe. With 18 animals he began a herd that would save the species from extinction. By 1971 there were more than 600 animals in zoos throughout the world, including some in China thanks to a group of four animals that had been given to the Peking Zoo in 1957 to reestablish the animal after nearly a 60 year exile.

by Ed Dutch,
Information Officer, Edinburg

Pirates in tall-masted brigantines no longer sail the seven seas. But their modern counterparts, illegal Gulf shrimpers, still provide a need for law enforcement on the Texas Gulf of Mexico.

As designated by the Shrimp Conservation Act of the 56th Legislature in 1959, the Texas Parks and Wildlife Department has the responsibility of enforcing the laws regulating the taking of shrimp from the waters of this state. The act states "... that the shrimp resources of the State of Texas be conserved and protected from depletion and waste in order that the people of Texas and their posterity may enjoy the most reasonable and equitable privileges in the ownership and taking of such shrimp resources ...".

Also required is that the department have "... an adequate number of deputies and wardens of patrol vessels or aircraft ... in enforcing the provisions of this Act ...".

The Law Enforcement Division of the department utilizes both vessels and aircraft manned by state game wardens in what is known as the Gulf shrimp patrol. This patrol is primarily operational during a closed shrimping season usually from sometime in May through early July of each year.

Closure of the Gulf shrimping season is determined by biological research and regulated by provisions of the Shrimp Conservation Act. For a period not to exceed 60 days each year, the department closes the waters within nine nautical miles of the entire Texas coast to normal shrimping operations during the annual migration of juvenile shrimp from the bay nursery areas into the Gulf. This period allows the shrimp to disperse into the Gulf and reach legal harvestable size before being taken.

With nearly 4,000 square miles of the Gulf within the jurisdiction of the Parks and Wildlife Department, the patrol responsibility is a seemingly impossible task. The size of the area combined with the rapidly

changing Gulf weather and the fact that much shrimping is done at night, make the job difficult. Long, mostly uncomfortable hours are spent by game wardens on patrol boats and in aircraft in search of illegal shrimpers operating within the temporarily closed waters.

Modern electronic equipment and the acquisition of a fully equipped, all-aluminum patrol vessel by the Parks and Wildlife Department have increased the effectiveness of the wardens on patrol. The offshore patrol fleet supplemented by aircraft now includes three vessels, the largest being the new 65-foot *Captain Sprott*. Equipped with everything from radar to a digital Loran locator that will electronically mark the exact location of the boat in the Gulf, it is also capable of running at more than twice the speed of former boats temporarily leased by the department for the shrimp patrol. Apprehension of illegal shrimpers before they can maneuver into open water is now possible. That in turn may decrease the number of attempted violations and aid in conserving and protecting the shrimp resources.

Speed and exacting electronic equipment are necessary for the patrol. To arrest a boat that is operating illegally, wardens must actually see the shrimpers trawling with their nets in the water and have unquestionable proof of location since there is no line on the Gulf marking the open and closed waters.

The patrol boats must locate, either by coordination with departmental aircraft or by radar, shrimp boats trawling in closed waters and "run" on them to get alongside and record the location. It is not as easy as it sounds since shrimpers also have radar and are on the lookout for the patrol boat.

The procedure is to notify the captain of the shrimp boat, usually with a bullhorn, that the boat is under arrest and must immediately hang its nets and proceed to the nearest port. Once in port, other state game wardens confiscate the catch and file charges in a justice of the peace court.

During this year's closed season

To arrest illegal shrimpers, wardens must pinpoint the exact location of the boat and actually see the shrimpers trawling with their nets in the water. Radar and aircraft aid the wardens.

from May 15 to July 15, 85 Gulf shrimping vessels were apprehended by the game wardens on shrimp patrol. More than half this number, 52 boats, were caught illegally shrimping by the *Captain Sprott* on the lower Texas coast from near Port Aransas to the mouth of the Rio Grande River below Port Isabel. The remaining 33 boats were apprehended by the other patrol boats on the upper coast. The *Captain Gentry*, caught 20 boats, the *Captain Cowser* five boats and the smaller 30-foot boat caught eight.

Modifications to the Shrimp Conservation Act now require the entire shrimp cargo on board the arrested vessel be confiscated and sold by the department in addition to the fine, which is not less than \$50 nor more than \$200 for the first offense. More serious penalties are imposed upon successive violators.

The confiscated shrimp is sold to the highest of three bidders and the money received is held in the state treasury pending the outcome of the court proceedings. If the defendant is found not guilty, then the money is returned. If found guilty, then the money is deposited in the department's Special Game and Fish Fund.

From the 85 boats apprehended, the sale of confiscated shrimp for the 1976 closed season totalled \$50,599 and the fines levied amounted to \$10,646. An additional 15 cases were still pending at press time.

Gulf shrimp landings in recent years indicate that the Texas Gulf shrimping industry now can be valued at nearly \$100 million annually. A current average of just under 70 million pounds of shrimp per year is being taken from Gulf waters.

Such a harvest of the shrimp resources of this state creates an ever greater need to protect and conserve this valuable resource. The Parks and Wildlife Department will continue to fulfill its responsibility. **



GULF SHRIMP PATROL

Rare Visitor

Article by Ilo Hiller,
Photographs by Ed Dutch

Once again the rare hook-billed kite, *Chondrohierax uncinatus*, has left its home south of the border and paid a visit to the Santa Ana National Wildlife Refuge in South Texas.

On December 16, 1975, four hookbills — two adult males and two adult females — were sighted. May 1964 marked the first and only other time this bird species has been sighted in the United States. Then, too, a nesting pair was discovered and photographed at Santa Ana. Their nest, discovered on May 3, 1964, contained three, off-white downy young about a week old. However, on May 5, all birds had disappeared. The empty nest was collected on May 14 and sent to the United States National Museum.

This year's hookbills have been observed by thousands of birders, some of whom traveled from all over the United States to the refuge for the expressed purpose of viewing these rare visitors. As many as 25 to 30 enthusiastic birders were there each morning to watch as the birds flew from their roosting site on the refuge to a nearby wooded tract to feed.

By the end of April, only one pair was still being sighted. Speculation has it that the other pair either returned to Mexico or moved to another part of the refuge.

On May 6, a nest containing two eggs was discovered, and the newly hatched young were noted on June 6. The fate of one of them is unknown, but the remaining young hookbill survived and was about one month old when our photographer took these



pictures on July 4. On July 10 the adults were observed and the young was heard, but could not be spotted. None of the birds have been sighted since then. It is thought they dispersed, possibly to return to Mexico. If this young hook-billed kite fledged, and it is assumed it did, it ranks as another first for Texas and the United States.

In its native South America and Mexico, this solitary, reclusive hawk inhabits dense tropical and subtropical forests but, occasionally, the bird occurs in open woodlands. Choice of habitat may vary from swampy areas to dry vegetation.

A pile of empty snail shells on the ground marks the bird's regular feeding perch or nest. Although its heavy bill is not specialized for removing snails from their shells, as are the slender, decurved bills of some kite species, land and arboreal snails rank as the hookbill's preferred food. Snail shells found at the Santa Ana nest site had been bitten off at the ends. Frogs, salamanders and insects, including caterpillars, also figure in the hookbill's diet.

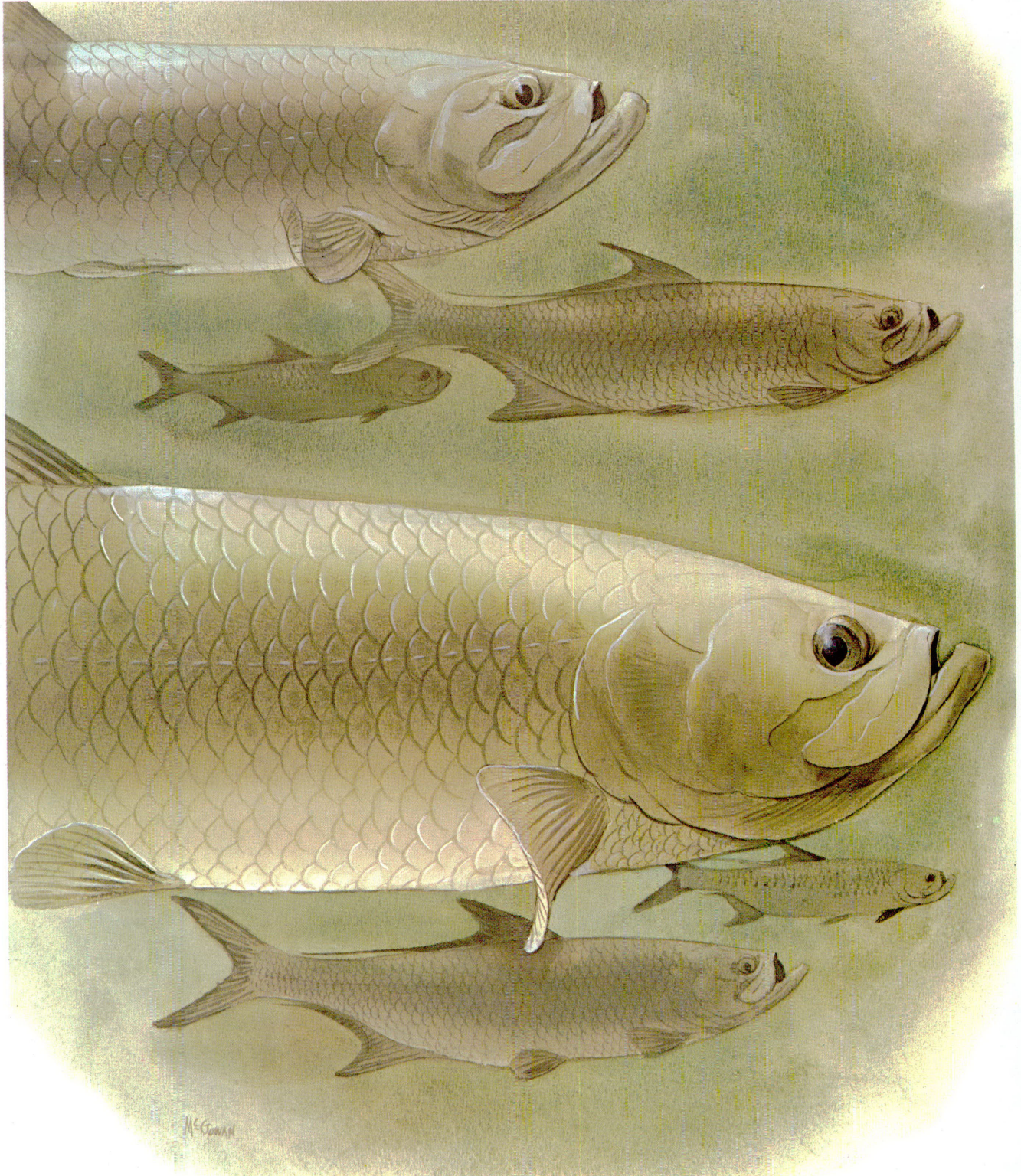
Birders and refuge personnel will be watching for the hookbills again next year, but it could be another dozen years before these birds again nest in Texas. **



Last December two adult pairs of hook-billed kites paid a rare visit to Texas, marking the second time this bird species has been sighted in the United States. One of the visiting pairs (female, extreme left; male, left) successfully nested at the Santa Ana National Wildlife Refuge in South Texas and hatched two young, one of which survived. When the month-old hookbill (below) was photographed last July, it was almost ready to fly. If it fledged, and it is assumed that it did, it ranks as another first for Texas and the United States.



Tarpon A Coastal Mystery



1966 Abbeville Kiwanis Tarpon Rodeo when 110 tarpon were landed.

Good tarpon fishing to the east suggests that two races of tarpon live in the Gulf: a troubled western contingent and a thriving eastern contingent. This concept, which is only speculation, tends to support the opinion of many fishermen that tarpon migrate northward along the coast from Mexico and Florida during warm weather and return as waters cool in the fall. If this is true, the success or failure of tarpon fishing in Texas depends upon the well-being of tarpon in Mexico. But such migrations remain to be proved.

Since publication of the earliest description of tarpon in 1648, much has been written about this fish without supporting facts. This practice continues as fishermen, outdoor writers and biologists try to explain what has happened to Texas tarpon. Some of the factors reviewed here were discussed more thoroughly in Gary Einkauf's article, "Tarpon-the Silver King," in the *South Jetty*, May 1975. Although thought-provoking, these factors are based on little or no scientific information.

There has been increased pollution, including pesticides, in coastal and inland waters; however, young and adult tarpon often dwell in "dirty" water that other fishes avoid. In fact, the once highly polluted Hillsborough River in Florida was a great tarpon fishing spot. After modern sewage treatment methods were introduced in the late forties and the river's water quality improved, the tarpon left. Since tarpon have the capacity to survive in such waters, I doubt that the decline is related to nontoxic pollutants.

Pesticide contamination, however, may have rendered waters used by young tarpon uninhabitable. Einkauf reports that mortalities of the young have occurred after mosquito-control measures were taken in Florida. The habitat of young tarpon, or the so-called nursery grounds, are marshes, brackish pools, streams and other small bodies of water usually connected

with the sea only during highest tides. Waters of these areas often are stagnant, smelling of hydrogen sulfide gas and depleted of dissolved oxygen. In Texas, such waters are subject to pesticide contamination because they are mosquito-breeding areas and are exposed to farmland water drainage containing pesticides.

Commercial and sport fishing practices probably can be dismissed, because the incidental catch of tarpon in commercial fish nets is the exception, not the rule, and most sportsmen release captured tarpon alive unless they plan to have the fish mounted or entered in a rodeo.

As described by Einkauf, the commercial use of tarpon along with trash fish in Mexico to make nutritious fish meal for the poor is disturbing. This venture, begun in the fifties, utilized dynamite to kill large schools of tarpon. Later, the Mexican government prohibited taking tarpon by this method. Tarpon in the United States always have been considered a sportsman's fish and it is doubtful that they have ever occurred in commercial abundance.

Scientists report that fish populations of coastal Texas are subject to destruction by winter freezes. This particularly may be true for tarpon because they are always among the first fish to die during cold waves. In January 1951 a hard, cold freeze destroyed 60 to 90 million pounds of fish in coastal Texas. I have no evidence that tarpon were killed, but I doubt if the young in shallow water survived. Damage to fish in the Laguna Madre was reflected in gamefish catches for the next three years. Although tarpon recovered from earlier freezes, the fact that fishing for them has been poor since the 1951 catastrophe may be more than coincidence.

Many populations of fish and wildlife are cyclic with long periods of low abundance and long periods of high abundance. These cycles have been determined for some commercial fishes from historical catch statistics but, since accurate catch information is not available

by A. W. Moffett,
Environmental Biologist, Seabrook

For some mysterious reason, one of the world's finest trophy fishes, the tarpon, has avoided Texas coastal waters since the early fifties. One occasionally is caught in the middle and upper coastal areas, and tarpon still come to Port Isabel each year, but fishermen at Port Isabel and in the Gulf Coast of northern Mexico also have felt the effects of this decline.

All in all, the great sport of tarpon fishing has been poor for many years.

When fishing was good, sportsmen came to Texas from all parts of the United States to compete in the famous tarpon tournaments held at Port Aransas and Freeport. They helped coastal communities by patronizing local restaurants, hotels and shops. They also chartered fishing boats and hired tarpon guides.

The Port Aransas Tarpon Rodeo, sponsored by the local Chamber of Commerce during the thirties, forties and early fifties, was discontinued as tarpon catches failed along the south Texas coast. The Deep-Sea Round-Up, which replaced the Rodeo in the late fifties, still retains a tarpon division, but no trophy tarpon has been entered since the early sixties.

On the upper coast, the Freeport tarpon contest was discontinued several years ago. The Chamber of Commerce always gave a trophy to the first fisherman to catch a tarpon; however, the last trophy was awarded in 1970.

Tarpon continue to thrive along the other Gulf states. According to McFadden Duffy's article, "King of the Coast" in the *Louisiana Conservationist*, July-August 1975, they are plentiful in Louisiana, and more tarpon fishermen seem to arrive each year. He reports the all-time rodeo catch for a Louisiana tarpon tournament occurred during the

for the tarpon, we cannot determine if its decline represents a low period in the fish's abundance cycle or not.

The drought of the late forties and the fifties often is blamed for the tarpon decline. Dr. John C. Briggs (University of South Florida, Tampa) believes it is possible that the raised salt content in inland waters may have affected some phase of the tarpon's life history.

These same drought years also have been blamed for the white shrimp and blue crab declines of the fifties. The well-known fact that shrimp and blue crab are favorite foods of tarpon poses an interesting question. Did they forsake the Texas coast because blue crab, shrimp or some other favorite food item was not readily available during the drought?

Many factors could have contributed to the decline. Nobody really knows what happened but everybody hopes the tarpon will return.

Sportfishermen became excited when tarpon sightings increased along the coast in 1974. However, since sightings usually increase after a wet year, and 1973 had been a very wet year, biologists did not believe this indicated the fish were returning. Prospects for the tarpon's return to Texas continued to look bleak, but this was before the summer of 1975, when a significant series of events began.

In July 1975, two anglers fishing for Spanish mackerel in the Gulf off Galveston jumped, but did not land, several large tarpon.

On September 19, 1975, biologists seined a drainage ditch at Seabrook, Texas, which connects a large slough with Galveston Bay at high tides. When they dumped the catch into a wash tub they saw, among the usual minnows caught in such places, three small fish with silvery bellies. Upon closer inspection they realized that this was a very rare catch. The small fish with the silvery bellies were young-of-the-year tarpon, about four inches long.

Indeed, the discovery of small

tarpon in waters of coastal Texas is a rare event. Dr. Henry Hildebrand, associate professor of biology, Texas A&I University, Kingsville, has always been surprised that so few young tarpon are caught in seine hauls on the Texas coast. He had no specimens as small as the Seabrook juveniles but, in years past, he found a small tarpon in frozen bait which had been caught in a tidal creek of Mustang Island near Port Aransas. He seined the creek with no results. He also saw a very small tarpon from Port Aransas but this specimen was lost during Hurricane *Celia*.

In a 1936 publication, Louis Babcock reported the capture of a small specimen from Port Aransas, but the year of capture is not available. There is only one other record of small tarpon from Texas waters.

These two specimens were captured 23 years ago within the Aransas National Wildlife Refuge near Austwell, by Donald Simpson.

On September 22, 1975, two more small tarpon were collected in another Seabrook ditch, but efforts by departmental biologists at Seabrook to find more were futile.

The significance of this find was underscored when, in October 1975, an employee of the Houston Lighting and Power Company discovered a large school of tarpon, some no longer than four inches, milling near the company's Pasadena Deep Water Power Plant's thermal discharge in the junction of the Houston Ship Channel and Vince's Bayou. Apparently, they were attracted by the warm water from the discharge.

A few years ago, ecologists listed this ship channel as one of the most polluted bodies of water in the world. The channel water still is highly polluted, but water quality gradually is improving since stringent pollution controls have been imposed during the past decade.

How can tarpon live in the water of the Houston Ship Channel which often may become oxygen-depleted? Providing the pollutants

are not toxic, they can do this quite easily because they have a specialized air or swim bladder that contains a vascular, lunglike tissue. This enables them to breathe atmospheric oxygen when they roll at the surface. In fact, they must take in atmospheric oxygen to survive in any habitat.

The tarpon that appeared in the Seabrook ditches and Houston Ship Channel probably were born in the shallow Gulf during the summer of 1975. Throughout winter and spring 1976, they remained in the channel near the plant's thermal discharge where water temperatures remained 10 to 16 degrees warmer than average Galveston Bay temperatures.

The sudden appearance of young tarpon in coastal Texas does not mean they are back to stay, but certainly this species is trying to make a comeback. The best way to help a fish that nearly has been depleted is to set a very low catch quota. The fun of tarpon fishing is in the fight, not in the possession. Therefore, all fishermen can help by releasing caught tarpon in good condition.

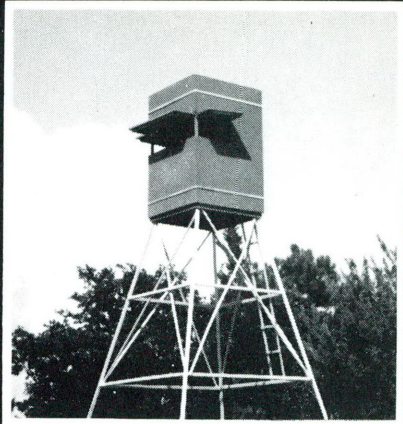
The customary catch-release method used by tarpon fishermen is to bring the fish close to the boat so a release hook can be slipped quickly into its large mouth. A scale is then removed as a memento for the fisherman, the hook is removed with pliers, and the tarpon is allowed to live to fight again another day.

The silver king has existed for many millions of years. During its long history it has survived numerous natural catastrophes. Some day, tarpon fishing may be revived in coastal Texas so tarpon fishermen again may return to challenge the big ones. **

Editor's Note: The author is grateful for information supplied by Cathy Ousley of the Port Aransas Area Chamber of Commerce, P. S. Burris of the Brazosport Chamber of Commerce, Gary Einkauf of Port Aransas, Charles R. Futch of Tallahassee, Florida and Dr. Gordon Gunter of Ocean Springs, Miss.

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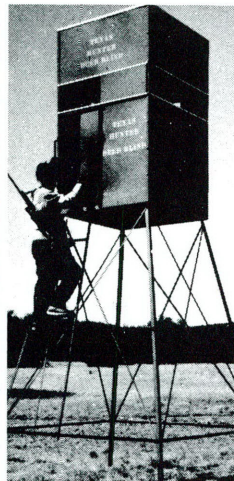
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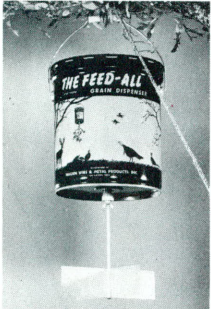
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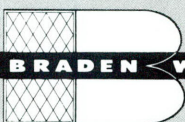
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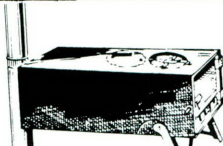
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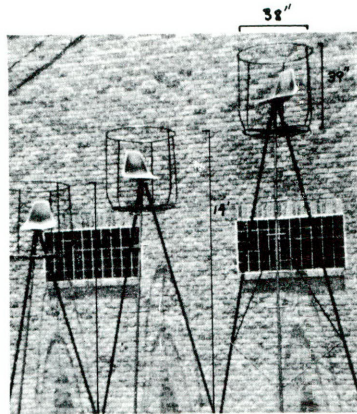
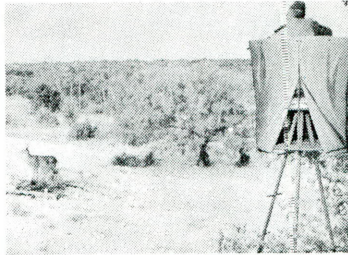
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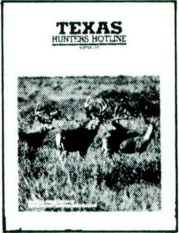
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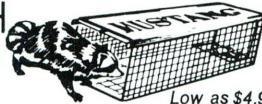
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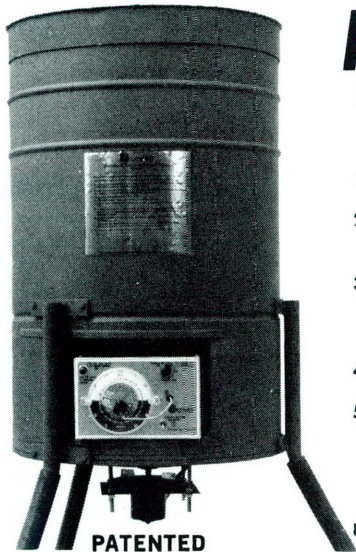
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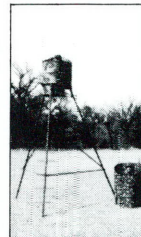
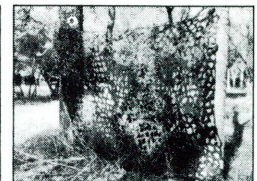
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Cenizo

***Summer showers
trigger the blooms
on these colorful
western plants.***

by Benny J. Simpson and James C. Read

Two years ago we made a collecting trip to the Chisos, Davis, Eagle, Franklin and Guadalupe Mountains. Our main purpose was to collect acorns from the remaining oaks needed to complete the "Oaks of Texas" in the arboretum at the Texas Agricultural Experiment Station in Renner. This ambitious project's goal is to have every oak native to Texas growing in one location.

Lack of rain for almost 18 months across southwestern Texas, however, turned this particular trip into a bitter disappointment for us as far as acorn collecting was concerned. Thanks to the drought, there wasn't



Leucophyllum minus by Benny J. Simpson

a syrup bucket of good acorns in all that lofty, lonely land.

An almost statewide rain broke the drought during the first part of August. A week later our startled gaze met one of the most beautiful sights in Texas — one that occurs only with widespread rainfall, perhaps every six to 10 years. The cenizo were spectacularly in bloom by untold millions across thousands of acres from the southern Rio Grande Plains, across the Trans-Pecos to Big Bend National Park, Black Gap Wildlife Management Area, Stockton Plateau, Marathon Basin and on to El Paso.

In years of normal rainfall “this

patch” of cenizo blooms today and “that patch” blooms tomorrow because that’s the way the rain, which in some mysterious way triggers the bloom, usually falls. We have heard of innumerable cases where gardeners have tried irrigation to cause blooming on cenizo during a drought, but to no avail. Perhaps the trigger is the change in humidity preceding the rain, or maybe cenizo is truly the “barometer bush” as some people call it.

In addition to its beauty, cenizo also serves wildlife by providing cover and nesting space for birds. Bighorn sheep and mule deer occasionally eat it, but it is not one of

their preferred foods. The whitetails of South Texas are not known to eat cenizo, so it is assumed that cenizo does not provide food for this wildlife species.

As we left the secluded timbered hills of the Edwards Plateau and came out on the relatively flat Rio Grande Plains, the very first cenizo we saw was a brilliant, glowing red with not a hint of purple or blue. It was the only red of that purity we saw. Several came close, but none matched it.

Every cenizo bush was in flower, with the vast majority either the light, pinkish-violet with which most of us are familiar, or a very



Leucophyllum frutescens by Jim Whitcomb

Leucophyllum candidum by Benny J. Simpson



Occasionally, when widespread rainfall occurs, Texans are treated to a truly beautiful sight. Untold millions of cenizo burst into spectacular bloom on thousands of acres from the southern Rio Grande Plains across the Trans-Pecos to Big Bend National Park, the Stockton Plateau, Marathon Basin and on to El Paso. Rainfall, in some mysterious way, triggers the blooming. Attempts to irrigate cenizo during times of drought to produce the flowers have proven unsuccessful. Perhaps the change in humidity or the rise or fall of the barometer is the key. Cenizo is locally known as the “barometer bush.”

beautiful, dark purple. The purple form might be due to weather, temperature, etc., as most of the natives of cenizo country were of the opinion that the blooms were darker in hue than in the past.

At the second stop we found two pure whites, of great beauty. The great trusses of white flowers perfectly complemented the grey foliage of the mother plant. White cenizo is commercially available, but rarely seen blooming. The two little bushes from which we took seed could stand proudly in any landscape; however, we didn't see another white after those first two.

The sight was so beautiful — millions of cenizo in all shades of purple — that finally we almost became surfeited, so much so, we almost missed two shell-pink flowered plants on either side of Del Rio. As far as the eye could see, "clear into Mexico," cenizo was in bloom.

Texas is blessed with not one, but three of the cenizos or silver-leaves. Perhaps to avoid confusion, we should clarify these three. They are:

(1) *Leucophyllum frutescens* (Berl.) I. M. Johnst. — cenizo, purple sage, Texas silver-leaf, Texas ranger (in California and Arizona), senisa and barometer bush. These are located in the Rio Grande Plains, the southern portion of Trans-Pecos and in Mexico.

(2) *Leucophyllum minus* Gray. — Big Bend silver-leaf. This appears to have an almost pure blue color, also two white-flowered bushes were found. This little plant occurs with both Texas silver-leaf and violet silver-leaf, but primarily it grows on the much poorer, dryer sites. This plant also is found in Mexico and climbs the high country of northern Trans-Pecos to New Mexico.

(3) *Leucophyllum candidum* I. M. Johnst. — violet silver-leaf. An absolute beauty. A small plant that only grows in Brewster County and Mexico. In that vast county, which is larger than some states, it is found only in Big Bend National Park and the Black Gap Wildlife Management Area. It generally has a very dark violet flower. Not only is this a

very beautiful plant, but it is also intriguing in other ways.

This little plant is a tetraploid, having twice the chromosome count (68) of *L. frutescens* and *L. minus* (34), which are diploids. This could cause some very interesting effects in a breeding project. Its specific name is also of interest. Francis W. Pennell, Curator of Botany, The Academy of Natural Sciences of Philadelphia, started delineation of this plant in 1927 and noticed the "snow" (candidum) on the leaf, but this was an herbarium specimen. Then on September 2, 1937, (10 years later), Barton War-nock collected one in full flower and sent it to Dr. Pennell. The plant was then named *Leucophyllum violaceum* Penn. for the flower color (Proc. Acad. Nat. Sci. Phila. Vol. XCII-1940). I.M. Johnston of the Arnold Arboretum found the plant in Mexico and like Pennell was struck by the silvery leaves and named it *Leucophyllum candidum* I. M. Johnst. (Journ. Arn. Arb. Vol. XXII-1941).



As we left Del Rio, *L. frutescens* was still at its peak beauty through Comstock and Langtry and didn't begin to diminish until we were past Sanderson. From there on to Alpine and vicinity they were not as overpowering.

Big Bend silver-leaf was at its prettiest on U.S. 385 from Marathon to Big Bend National Park. It seemed taller, more robust and a brighter blue in the high country before coming in to Persimmon Gap. This was probably due to rainfall and soil more than temperature. In this area it approached three to four feet in height, while on the low desert around Terlingua it was only six to 12 inches high, but with a profusion of blooms. Two little plants with white flowers were found on the low desert.

In the park itself where violet silver-leaf occurs, probably the most beautiful one is planted in a bed just outside the headquarters building at Panther Junction. Either park personnel selected this one in flower and then moved it or

were superbly lucky with chance. But once again we were able to see hundreds of little plants in bloom at one time. This cenizo is probably the smallest in stature of the silver-leafs.

At the present time we have the following species and color forms planted at the Texas Agricultural Experiment Station at Renner.

(1) *Leucophyllum frutescens* — cenizo or Texas silver-leaf

Red color form

White color form

Pink color form

Dark purple color form

(2) *Leucophyllum minus* — Big Bend silver-leaf

(3) *Leucophyllum candidum* — violet silver-leaf

These are here for all Texans to enjoy and observe. Our primary purpose, however, is to try to duplicate the various color forms. Once we obtain the colors wanted under domestication, then cuttings may be obtained by professional nurserymen so that all Texans may have them to enjoy. At the same

time, breeding between colors and species will be carried out.

We would make this appeal to the readers of this article — if you know of a superior flower color in cenizo, please let us know. We do know that in the Del Rio area there is a bright orange cenizo. There probably should be a yellow form (we are seeking a bright yellow desert willow in the Dead Horse Mountains). There may even be bi-colored flowers. We are convinced, however, that these color forms will be very isolated and will be seen only by ranchers and their employees. **Please do not dig up the plant** when you find it because, if it dies, that superior flower color may be lost forever. Either send us seed or let us collect seed and/or cuttings ourselves.

Help us assure that the many beautiful color forms of cenizo will be preserved for the future enjoyment of all Texans. Contact us at The Texas Agricultural Experiment Station, Renner, Texas 75079, 214-235-7108. **



Leucophyllum frutescens by Benny J. Simpson

Colors in cenizo range from deep purple to white. Red, yellow and orange varieties have also been found, and there may be even bi-colored specimens in isolated areas. To insure that none of the color forms is lost to future generations, personnel at the Texas Agricultural Experiment Station at Renner are gathering and cultivating as many different ones as possible. Once the different color varieties are under domestication, cuttings may be obtained by professional nurserymen for cultivation for the public. Experimentation with breeding between colors and species also will be carried out at the station.

Young Naturalist

Safe Gun Handling

Article by Ilo Hiller, Photographs by Bill Reaves

Although safe gun handling is a subject we tend to emphasize more strongly at this time of the year with the deer hunting season just ahead of us, it is something we should be aware of all year long.

Gun accidents are not confined to the hunting season and the outdoors. Statistics compiled and maintained by the National Rifle Association in the early 1970s revealed that more than 70 percent of Colorado's firearm deaths actually occurred in the home. These statistics also revealed that over half of the nation's gun casualties are caused by persons under 21 years of age and, unfortunately, 40 percent of the accident victims are in this same age group. Is it any wonder that we try to aim our safe gun handling message at our young sportsmen?

Any time you pick up a loaded weapon, whether it is a deer rifle, shotgun, handgun, pellet gun or BB gun, you must keep in mind that you are holding an object that can inflict pain and, in some instances, death. Never forget that, **improperly handled**, all guns are dangerous and any gun can kill.

Safe gun handling is not something the beginner does automatically. It is something that must be learned. As a young hunter, it is your responsibility to be sure you know how to handle a loaded gun properly before you try to use one. To help you develop the basic safety techniques and prevent hunting tragedies, the Texas Parks and Wildlife Department, with the help of its many volunteer instructors, offers a hunter safety course that is available to anyone.

For a \$1 registration fee, which pays for the classroom handbook, you can enroll in one of these statewide volunteer hunter safety courses and, if you are 12 years of age or older, you will receive certification as a Texas safe hunter upon successful completion of the course. You will receive instruction in safe gun handling, the mechanics of firearms, hunter responsibility in the field, basic game laws, game identification, basic survival techniques and hunter-landowner relationships.

Marksmanship is not the intention of this short course. In fact, unless the instructor has the facilities and equipment, no actual shooting is done. The purpose of this course is to teach you how to hunt without accidents. Ability to hit your target is something you should develop on a target range before you start shooting in the wild.

When you complete the course, you will receive an attractive safe-hunter patch to sew on your hunting jacket, a safe-hunter decal and a safe-hunter certificate to carry in your billfold. You also will be allowed to keep your classroom handbook for future reference and study.

Only a few weeks remain before the opening of this year's deer hunting season, so don't delay enrolling yourself in one of our hunter safety courses. To find out the name of your local volunteer instructor, contact your game warden or write: Hunter Safety Coordinator, Texas Parks and Wildlife Department, John H. Reagan Building, Austin, Texas 78701.

Learning how to handle a gun safely is important, but it is worthless unless you take this knowledge and put it into practice every time you pick up a gun, **loaded** or **unloaded**. Accidents don't just happen; they are caused by individuals who fail to practice safe gun handling.

The following rules, known as the "Ten Commandments of Firearm Safety," should be learned and practiced until they become second nature to you. Once they become an automatic habit, you can truly say you are a safe hunter.

Ten Commandments of Firearm Safety

1. **Treat every gun with the respect due a loaded gun.**
2. **Watch that muzzle!** Be able to control the direction of the muzzle even if you should stumble.
3. **Be sure barrel and action are clear of obstructions** and that you have only ammunition of the proper size for the gun you are carrying.
4. **Be sure of your target before you pull the trigger;** know identifying features of the game you hunt.
5. **Unload guns when not in use.** Take down or have actions open; guns should be carried in cases to the shooting area.
6. **Never point a gun at anything you do not want to shoot;** avoid all horseplay with a firearm.
7. **Never climb a fence or tree or jump a ditch with a loaded gun;** never pull a gun toward you by the muzzle.
8. **Never shoot a bullet at a flat, hard surface or water;** at target practice be sure your backstop is adequate.
9. **Store guns and ammunition separately** beyond the reach of children and careless adults.
10. **Avoid alcoholic beverages before or during shooting.**

Perhaps it would be a good idea to also add "Avoid the use of drugs before or during shooting" to the 10th commandment.

How you carry your loaded gun in the field will quickly tell your hunting companions whether or not

Whenever you are hunting with a friend, be sure that you select gun carrying positions that do not endanger each other. Watch that gun muzzle and be sure you can control its direction even if you should stumble.





you are a safe hunter. There are several recognized safe carrying positions, but you must be able to select the proper one for each situation.

The **double-hand** or **ready carry** keeps the gun ready for instant use and, at the same time, gives you control of the direction in which the muzzle is pointing. The small of the stock is gripped with the trigger hand and the forearm of the gun with the other hand. For a right-handed hunter, the muzzle points to the left. This is an excellent carrying position when hunters are walking single file; however, if two or more hunters are walking beside each other, only the right-handed hunter on the left can use this carry safely. His gun is the only one that will not point its muzzle at another hunter.

The **cradle carry** also is a favorite. Again, the trigger hand grips the small of the stock, but the barrel of the gun is cradled in the crook of the other arm, and the other hand helps support the gun. As in the double-hand carry, only the right-handed hunter on the left can safely use this carry if the hunters walk beside each other.

In the **elbow carry**, the gun is hooked over the elbow of the trigger arm and the muzzle points at the ground. This carry should never be used when walking behind another hunter, but it is a good one to use when walking beside another hunter.

In the **shoulder carry**, the gun is held at the small of the stock and rests on the shoulder with the muzzle pointing into the air. This carry should never be used when walking in front of another hunter, but again is good when walking side by side.



Never cross a fence while carrying a gun. If there are two of you, hand your unloaded gun to your companion before attempting to cross. Once you are on the other side, both unloaded guns can be passed over the fence to you. When hunting alone, put your unloaded gun under the fence first. It should be placed flat on the ground with the muzzle pointing away from you.

Some hunters prefer the **trail carry**. The gun hangs along one side, muzzle down, held by a hand around the small of the stock. This carry should not be used when walking behind another hunter, but is considered safe when walking to the side.

The **sling carry** allows you to hang the gun on your shoulder by a sling with the muzzle pointing into the air. Although this is considered a safe carry, the gun should never be left in this position when crossing an obstacle such as a fence. Another disadvantage of this carry is the fact that the gun is not considered ready for use.

Whichever way you carry your gun, remember to keep the safety on until you are ready to shoot. Also keep your trigger finger outside the trigger guard.

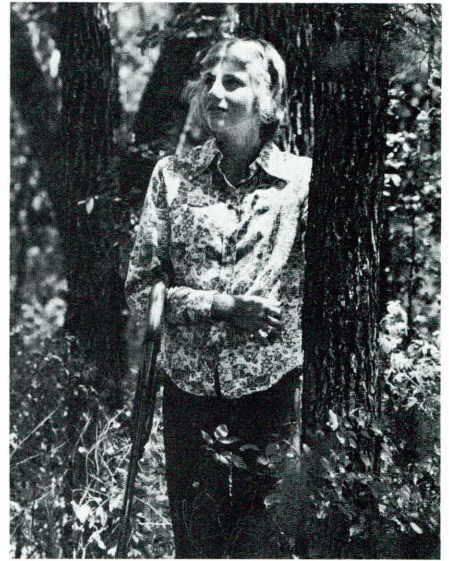
Common Carrying Positions



Double-hand Carry



Cradle Carry



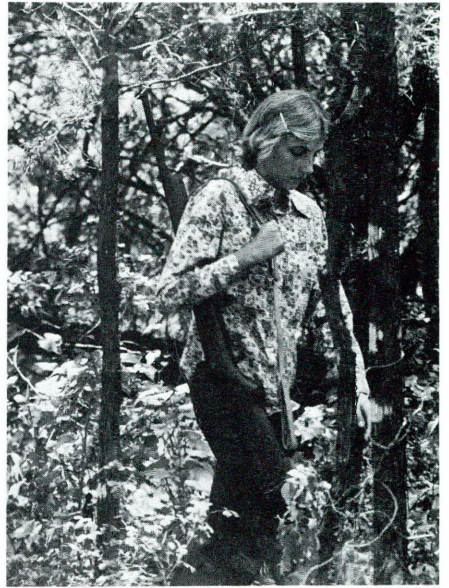
Elbow Carry



Shoulder Carry



Trail Carry



Sling Carry

Except when you are actually hunting game, leave the gun unloaded when walking, such as to or from the hunt area.

You must always be watchful when carrying a loaded gun while hunting, but there are special times when you should be doubly alert.

One is when you are carrying a gun over rough country. Since it is so easy to slip, trip or fall under these conditions, you must be doubly sure you can control the direction of your muzzle at all times.

Another is when you first spot game. It is so easy to get overexcited and swing your gun around to shoot without first making sure of your target and the objects behind or beside it. What first looked like a deer may be another hunter.

Reflexes become dulled and gun carrying relaxed at the end of a long day of hunting, making this another time to be especially alert. Don't let tiredness become an excuse for carelessness. If you feel you are too tired to carry your gun safely, unload it before proceeding any farther.

Still another time requiring special alertness is when a hunting buddy ignores safety rules. It's your life he is being careless with, so don't let friendship stop you from telling him that whatever he is doing is unsafe. It's better to lose a friend than a life.

These are but a few of the things you should know if you are to be a safe hunter. Enroll in a volunteer hunter safety course and prepare yourself properly for the upcoming hunting season. **

LETTERS TO THE EDITOR

Edible Jacks

For years I have been looking for something on the edibility of the jackfish or jack crevalle. To date I have found nothing, so this year, when my husband went Gulf fishing, I asked him to immediately clean, behead, bleed and place in an ice chest any jackfish he caught. My theory was that if this were done, the fish should be edible.

Upon returning home, he filleted the jackfish and I cut the fillets into pieces about three inches square. These pieces were then soaked in a strong salt brine for about four hours, rinsed, placed in fresh cold water and allowed to soak overnight in the refrigerator.

The next day I took a piece from the tail section and a piece from the middle section (these pieces are darker than the collar section next to the head) and marinated them in soy sauce and fresh lemon juice for about four hours.

When I was ready to fry the fish, I took one piece from the collar section, which had not been marinated, and the two pieces that had been. I rolled them in crumbs and fried them fairly slowly.

The meat was firm, like that of a bull redfish, and absolutely delicious. Has anyone else tried the jack crevalle?

Mrs. Raoul M. Roy
Dickinson

■ If any of our readers have tried the jackfish, we would appreciate hearing from them concerning the methods used to prepare the fish and their opinions concerning the edibility.

Kooky Baits

The following item appeared in the *Field & Stream* magazine:

"Last year the Texas Parks and Wildlife Department ran some tests involving baits used on saltwater trotlines. You might be interested to learn how well some of the ingenious and seemingly preposterous baits worked.

"For example, it was found that though live perch and cut mullet were still the best baits for trotlines, pieces of carrots and whole cranberries were at least half as productive. Live perch took 609 fish during the study — 58 percent of them redfish — but carrots and cran-

berries caught 330, 52 percent of them reds.

"Of all kooky offerings, oleander leaves took 88 fish, and seemed to have the greatest appeal to black drum. All three vegetable baits are legal for saltwater trotlines."

Is this information correct?

If pork rind is legal for freshwater fishing, why is it considered illegal for saltwater trotlines?

C. Kinnison
Bellville

■ The definition of natural bait for use on saltwater trotlines now stands as: "... a whole or cut-up portion of a fish, shrimp or crab, or a whole or cut-up portion of plant material in its natural state provided that none of the above may be altered beyond cutting into portions."

Oleander leaves, carrots and cranberries meet the requirements of this definition. Baits other than animal substances were outlawed by the Parks and Wildlife Commission in May 1974 when it was found that plastic strips in particular were selective for small redfish.

The natural bait law came about because some fishermen were setting miles of saltwater trotlines baited with plastic strips. These lines killed many undersized redfish, and were not run regularly enough to prevent waste of the catch. In some instances these untended lines created a hazard to navigation.

Pork rinds are not approved for saltwater trotlines because they last for an indefinite period.

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BACK COVERS

Inside: You might look as startled as this raccoon if you climbed a tree for safety, only to discover that something called a photographer had followed you. Photo by Ed Dutch.

Outside: Blending into the ground covering of October leaves, this Woodhouse's toad, *Bufo woodhousei*, is well camouflaged to all but the close observer. Adults range in size from 2½ to four inches. Photo by Jim Whitcomb.



