

TEXAS

JAN 26 1973

TEXAS PARKS & WILDLIFE



December 1972 • 50¢



PRESTON SMITH
Governor of Texas

**PARKS AND WILDLIFE
COMMISSION**

JACK R. STONE, Chairman Wells
MAX L. THOMAS, Vice-chairman Dallas
HARRY JERSIG San Antonio
PEARCE JOHNSON Austin
JOE K. FULTON Lubbock
BOB BURLESON Temple

**PARKS AND WILDLIFE
DEPARTMENT**

CLAYTON T. GARRISON . . . Executive Director

DIRECTORS

BOB E. BRADLEY Administration
JAMES E. DICKINSON Finance
ROBERT J. KEMP, JR. Fish and Wildlife
STETSON G. REED Law Enforcement
CLAYTON G. RUTTER Engineering
PAUL E. SCHLIMPER Parks
RICHARD A. McCUNE Information and
Education

**TEXAS PARKS & WILDLIFE
magazine**

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

NEAL COOK Editor
ED DUTCH Associate Editor
ILO HILLER Assistant Editor
ANNETTE MORRIS NEEL Art Editor
JIM WHITCOMB Photo Editor
ETHEL SPECK Advertising-Circulation

Published monthly by the Texas Parks and
Wildlife Department, John H. Reagan Bldg.,
Austin, Texas 78701. Republication of material
is not permitted except by special written
permission. The inclusion of advertising is
considered a service to subscribers and is not
endorsement of products nor concurrence
with advertising claims. Rate schedule available
upon request. Subscription rates: \$3.15
for one year and \$5.25 for two years. Single
copies and all back issues, 53¢. Prices include
5 percent sales tax for Texas residents. Foreign
subscription rates: \$4.00 for one year,
\$7.00 for two years.

Postmaster: If undeliverable, please send
notices by form 3579 to Reagan Building,
Austin, Texas 78701. Second class postage
paid at Austin, Texas, with additional entry
at Oklahoma City, Oklahoma.

TEXAS PARKS & WILDLIFE

December 1972; Vol. XXX, No. 12

| | |
|--|----|
| Editorial by Neal Cook (1972) | 2 |
| Editorial by William J. Tucker (1942) | 3 |
| Sow, That You Also May Reap by V. W. Lehmann (1942) Bobwhite quail management has changed little. | 4 |
| Why Deer Are Dying by Walter P. Taylor (1947) Necessity for antlerless deer seasons was apparent. | 5 |
| Rollover Pass (1955) A fishing bonanza was developed by our department. | 6 |
| Texas Tracks by Jay Vessels (1953) Interesting shorts were sometimes quite humorous. | 8 |
| Arms and Ammunition by A. S. Jackson (1944) Wartime production was expected to develop new arms. | 10 |
| El Tigre Chiquito by L. D. Nuckles (1968) The beautiful ocelot was shown by artist Nancy McGowan. | 12 |
| High, Wide and Lonely by Barbara Jaska (1967) Davis Mountains State Park was included in parks series. | 16 |
| Marksmanship (1951) Famous Texas marksman, Adolph Toepperwein, was remembered. | 20 |
| What Fer You Huntin'? by L. B. Dawson (1950) Needs for control of hunters were examined. | 22 |
| What Others Are Doing by Joan Pearsall (1965) This series included interesting newsworthy shorts. | 23 |
| Oil Field Waste vs. Streams by J. G. Burr (1944) Injection system for brine seemed to be the answer. | 24 |
| Requiem (1948) Vanishing and extinct species were paid tribute. | 25 |
| Fishing Across Texas by Conrad Fath (1959) Catching redfish and speckled trout hasn't changed. | 30 |
| Junior Sportsmen by Joan Pearsall (1966) Conservation was the subject of this quiz. | 32 |

Outside cover: It's our magazine's 30th anniversary and artist Charlie Shaw used gouache on illustration board to depict wildlife and activities in the great Texas outdoors to which we are dedicated and the changes in the department insignia during the past three decades.

Inside front: All that fur must keep the cottontail warm and comfortable even in the coldest weather. Photo by Karl Maslowski.

Inside back: Sunset is a beautiful, peaceful time in the Big Bend Country. Photo by Martin T. Fulfer.

Let's Look Back

By

NEAL COOK, Editor

We are having an anniversary and it will give us a chance to share some memories with you.

This is the 30th year that this department has published a magazine for hunters, fishermen, campers, nature lovers in general and all other conservation-minded Texans. On the opposite page is an editorial from the first edition of this magazine and many of the purposes set forth are still in effect today. We still want to give every Texan "a pleasanter place in which to live, with the invigorating influence of the out-of-doors doing its full share to cleanse their spirits and temper their character."

We hope that this magazine will help influence each of you to become better outdoorsmen, conservationists and sportsmen. We have described thousands of ways to enjoy this state's abundant natural resources. We will continue to show the beauty of Texas land and wildlife, their proper management and opportunities for recreation in our parks.

Throughout the magazine's 30 years of existence, hundreds of department employees contributed their time and expertise to make the publication possible. Writers, photographers and artists from throughout the state continually worked to upgrade the publication for your better understanding and enjoyment. Our readers have helped through complaints, compliments and suggestions. We hope that you will always consider this your magazine and let us hear from you.

Every article in this month's issue is a reprint from earlier issues and the only new information is in the advertisements. Many of the articles were chosen to show areas in which this department works but it was impossible in 32 pages to illustrate more than just a fraction of its responsibilities.

Some readers will remember when the reprinted articles in this issue first appeared. Others of you will not, but we think that you can easily see by looking through this issue that this department has been battling many years to improve our environment. Through restocking programs, deer, antelope and turkey have been returned to areas where they were absent 30 years ago. Lakes have been stocked and renovated for fishing. Many non-game species have benefited from improved land use practices and protection from exploitation. Parks have been purchased and facilities improved and built. Many polluters have been stopped.

The Texas Parks & Wildlife Department will continue to work for the people of this state and we will continue to report on the progress of this work. **

Texas Game and Fish

By

WM. J. TUCKER, *Executive Secretary*

This is Volume 1, No. 1, of "Texas Game and Fish", a monthly publication of the Game, Fish and Oyster Commission of the State of Texas. It succeeds the Monthly Bulletin which we have been publishing for a number of years and distributing to a large list of readers without cost. When wartime economies demanded that we make savings in our printing budget, instead of discontinuing our monthly publication the Commission decided to enlarge it and make a charge that would pay for the printing cost. This is not an innovation; for many years older wildlife conservation departments in leading states have found the value and the demand for such a monthly publication, delivered on a paid subscription basis, as we intend to make of "Texas Game and Fish."

The hunting and fishing public is already surfeited with wildlife fiction and romantic stories of hunting, fishing and killing exploits. We shall not invade this field, which is well supplied by excellent national and regional publications. Our endeavor shall be confined to supplying material pertaining to hunting, fishing, trapping, and wildlife conservation and restoration in the State of Texas. Hundreds of inquiries which have reached this office monthly have convinced us that there is not only a demand but a need for such information. There is nothing that will promote the cause of wildlife conservation more than a supply of adequate information to the public. The press and radio of this state have been exceedingly kind in giving a summarization of information available from this department, but they cannot allocate the space nor time that is required for a continuing record of developments in the field of wildlife conservation and restoration; neither do these mediums provide, as shall the "Texas Game and Fish", a permanent record of this essential information.

This war shall change many of our concepts and habits. One of the aims of "Texas Game and Fish" during the war period shall be to inspire in all of us the traditional love of Texans for hunting, fishing and nature. After the harshness, brutalities and sacrifices of the present conflict, the Texas man and womanhood that has succeeded in winning the war should return to a pleasanter place in which to live, with the invigorating influence of the out-of-doors doing its full share to cleanse their spirits and temper their character. The immediate endeavor of "Texas Game and Fish" shall be for a realization of this objective.

**

Sow, That You Also May Reap

BOBWHITES occur in practically every county of Texas, and quail hunting is universally popular with quail hunters having much in common. Most love a stylish bird dog, wing shooting, light guns, and physical exercise. More important, practically all sincerely love quail.

The average quail hunter doesn't advertise his true fondness for bobwhites; he wouldn't want you to call him "sentimentalist." It is easy, however, to learn the truth. Just ask a quail hunter to outline his conception of Eutopia; he will almost certainly specify a covey of quail under every bush. Usually it isn't that he wants more quail merely for the purpose of more killing. Chances are that he would like to be certain that his son and those that follow will be privileged to know and love bobwhite as he has.

Unfortunately, a covey of quail under every bush wouldn't add up to a lot of quail in much of Texas; bushes, particularly those of a type that quail prefer, are none too abundant. Consider, for example, the Gulf Coastal Prairie. With expansion of rice farming and pasture mowing, hundreds of thousands of acres, originally fair to good quail country, have no bushes at all. One can travel many miles without seeing a bush in parts of the Panhandle, and cover is likewise scarce in much of Central and Northern Texas, the cleanly farmed black-land belt. Parts of East Texas still have many bushes, red haw, yaupon, and many others, but they once had more. This was before thousands of sand hill farms were abandoned in depression years, and forestry emphasized total fire exclusion at the expense of understory cover and wildlife. Southwestern Texas has much monte and many quail, to be sure, but only during years when rainfall is above average. The same holds true for the scrub oak country in the eastern part of the Panhandle, the post oak belt, and certain other less extensive vegetative types. This is because quail cannot live by bushes alone.

The Three R's of quail welfare; i.e., food (principally weed seeds, greens, and insects), cover (tall grass as well as woody shrubs or bushes), and protection (from excessive pressure by natural enemies including man), have been re-stated so often that most hunters recite them as easily as their own names. Accurate identification of environmental deficiencies on

Texas Bobwhites and their Management

by **Valgene W. Lehmann**
Wildlife Biologist

(December 1942 issue)

particular farms and ranches, and, more important, their correction, however, present greater difficulties. Prescribing for, and doctoring quail environments, in fact, is anything but easy; uncontrollable as well as controllable factors are involved. Man can, for example, improve food and cover, control some predators, and regulate hunting, within certain limits. He cannot effectively manage many other important influences including adverse weather (drought and flood), external parasites, and disease. Compared to the hazards of quail management, in fact, production of most other land crops is indeed simple. Optimism is justified; however, research and experimental management by the Game, Fish and Oyster Commission, the Texas Cooperative Wildlife Research Unit, and interested private individuals are paying dividends.

Consider, for example, the problem of woody cover. Experimentation in South Texas has proven conclusively that an adequate winter territory for a covey of bobwhites can be built around a single clump three to 10 yards in diameter. Brush in miles-long fence rows or scattered throughout pastures, sometimes to the detriment of agricultural production, is not essential. There must be adequate grassy cover in quail range; however, grass, or preferably a mixture of grass and food-bearing weeds, should be, on the average, at least eight inches tall. Food is essential, of course, and it is probable that the natural supply must be supplemented, at least in late winter, in areas where such staples as doveweed, partridge pea, perennial ragweed, and sunflower are

uncommon. In Southeastern Texas food production has also been simplified by research; however, a combination of non-obnoxious natural food plants largely unpalatable to cattle (sesbenia, benne, and sunflower) are satisfactory when broadcast in unfenced patches one-half to two acres in size.

By all means, hunters should regulate their harvest in accordance with the number of young produced. In an average year, a take of 25 percent to 33½ percent of the known population is conservative, but the kill often should be even smaller. In Southwestern Texas, for example, little if any shooting is justified in drought years such as 1939, and little is warranted in the poorly drained Gulf Coastal Prairie when the breeding season is unusually wet as it was in 1941. Especially in farming sections where land ownerships generally are small, hunters should remember that over-shooting in territory adjoining their shooting ground is almost as serious as on their own tract; populations tend to "level out" in the interim between hunting seasons with movements of one to 10 miles frequent. Also, persistent training of bird dogs in September and October when juvenile quail are still common and the protective instincts of their parents are strong will move quail as surely as will shooting or other radical disturbance.

In spite of the difficulties attending quail management, however, sportsmen can be sure that it is worthwhile. Bobwhite increases can be successfully accomplished, as it has been to the writer's personal knowledge, on more than 100 areas in South Texas alone. Sportsmen who fail to take steps to provide for their own hunting needs simply are losing out and may soon have little if any sport.

Before embarking upon quail management, however, one should first decide the number of coveys that are desired. If you are an average sportsman, 10 to 15 will prove ample for good sport. This caution is suggested because every enterprise should have a definite goal, but a reasonable one. All too many hunters begin quail management on too large a scale, their efforts are spread thinly, and end in disappointment.

Having decided to produce and maintain a definite number of coveys, obtain shooting rights on an area sufficiently

large to support this population. In most sections 640 to 1,000 acres can be improved to carry 10 to 15 coveys without conflict to other land use if it is basically satisfactory quail range. One should be careful to select an area where clean farming and grazing are not carried to an extreme.

Unless already thoroughly familiar with the winter territories of quail occurring naturally in the area of your choice, do not begin habitat improvement the first year. Study the native coveys for a season as you work your dogs and determine where coveys range in fall and late winter as well as during the hunting season. Consider those territories which hold coveys until the spring break-up for nesting as already adequate, requiring little if any food and cover improvement, and concentrate your attentions on those ranges which birds vacate. Food and cover deficiencies are most probable in these latter areas. Thus, improve territories already partially satisfactory before undertaking the more difficult task of creating entirely new ones.

The task of deciding whether cover depreciation, food shortage, or possibly both were responsible in causing a covey to desert a particular area is not difficult to determine; your experience in recognizing "birdy" spots together with a careful comparison of vegetation in occupied as compared to vacated territories will usually suggest the answer. Good photographs of cover on the area at various seasons of the year will also prove helpful. Decisions should be weighed carefully, however, and doubtful situations may well be followed through another season before action is taken. This not only saves money, it increases knowledge and brings one even closer to the land.

In habitat improvement, one has a wide choice of effective management techniques. Woody cover, for example, may be improved by building shelters, planting cover, cutting back or pruning native shrubs, fertilizing small bushes, or by fencing. Food may be supplemented by fencing, modifying agricultural techniques, strip plowing, spot burning, food patches, and artificial feeding. This allows habitat improvement with little if any conflict to other land use. Quail find and use new ranges almost as soon as they are completed, and restocking with birds from elsewhere is usually unnecessary.

Finally, sportsmen, almost always find it profitable to maintain periodic field contact with landowner cooperators as

well as with the quail, for bobwhite crops, like all other agricultural crops, require periodic attention. Yes, successful quail management requires follow-up as well as careful planning. Unforeseen difficul-

ties often arise; the task is not easy. You too can increase quail, however, and derive new and substantial satisfaction in the knowledge that you sow as well as reap. **

Why Deer are Dying

By WALTER P. TAYLOR*

(June 1947 issue)

EIGHTY-EIGHT white-tailed deer died in six days (1947) on a 640-acre experimental track in the Edwards Plateau country of Texas, reports the Texas Cooperative Wildlife Research Unit. Apparently the deer died as a result of a severe norther which developed during the night of December 30. The reason why they perished is that there are too many deer on the particular range as well as an excess population of livestock.

Altogether, 116 dead deer were found between January 6 and January 24 on this one 640-acre track, some 28 deer dying before the norther developed. Of the 116, 14 percent were bucks, 57 percent does, and 29 percent fawns.

Die-offs in overpopulated deer yards of the northern states in winter are well known. Thus, of 448 deer found dead in northern Wisconsin one winter, 80 per cent had died from malnutrition and starvation.

While die-offs in the harsh environments encountered in the northern states are relatively well known, seemingly it is unexpected that under the apparently favorable climatic soil and food conditions of the southern country there should be anything but abounding vitality and maximum numbers of deer and invariable success in deer herds, other things being equal. As the above instances show, such is far from the case, and in parts of central Texas, at least, observations by the Texas Game, Fish and Oyster Commission and Texas Cooperative Wildlife Research Unit show that rather high mortality may be expected at all too short intervals.

Deer die-offs have occurred at irreg-

ular intervals over the last few years in parts of the Edwards Plateau country. It has been found that wherever deer are surplus and livestock over-numerous, there the die-offs will be greater.

On practically all die-off areas in Texas there were large numbers of sheep and goats, with some cows, as well as over-numerous deer. These inevitably reduce the amount of food available to wild deer as well as to livestock. There is some overlapping and competition between game and livestock under the best conditions, but when the range is depleted such competition becomes severe.

Some of the ranchmen have suggested that disease may be a cause of the deer die-off, but the field workers have never found a case where any disease was the primary cause of the deer mortality, although many deer have been examined with this in mind.

The veterinarians do explain, however, that where malnutrition takes place deer, as well as livestock, are especially susceptible to stomach worms and pneumonic infections which, as secondary factors, may play an important part in the mortality.

Trapping and removing deer from surplus areas have proved to be too slow and costly. More and more ranchmen are coming to the view that an antlerless deer season may, after all, be the one best answer to the present congestion of the range in the die-off areas. **

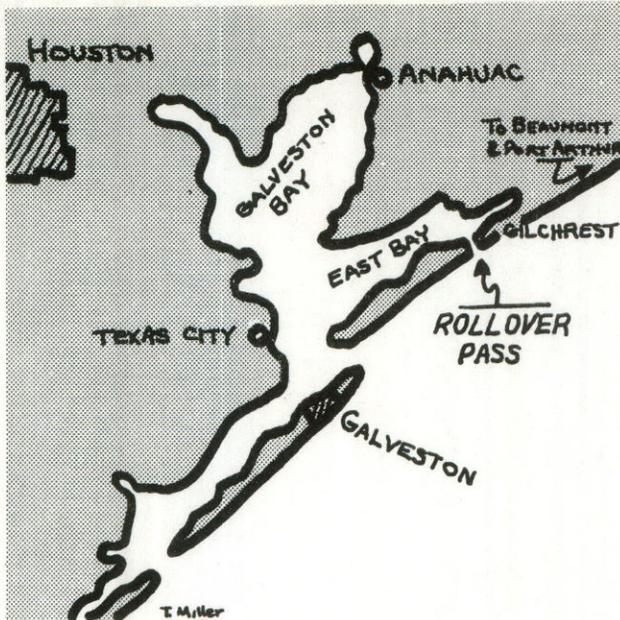
*Fish and Wildlife Service, U.S. Department of the Interior; Agricultural and Mechanical College of Texas; Texas Game, Fish and Oyster Commission; and the Wildlife Management Institute, cooperating.

**Solution May Be Season On Antlerless Deer
In Overpopulated Areas**

ROLLOVER PASS

The Commission provides fish with a chance to move freely between the Gulf and bay—a big factor in improving fishing and fish production.

(June 1955 issue)



Rollover Pass slices Bolivar Peninsula, creating a passage-way between the Gulf and the upper reaches of East Galveston Bay. This area is heavily fished by residents of Beaumont, Port Arthur, Houston, Galveston, and surrounding region.

Over the years, at the request of sportsmen and others, the Texas Game and Fish Commission has undertaken to cut strategically located passes through narrow strips of Gulf coast land to rejuvenate fishlife in the bays and shallow waters.

The latest such project, authorized in conjunction with local residents, is Rollover Pass through Bolivar Peninsula, which provides a 1,900-foot canal affecting primarily East Galveston Bay.

While the project has been an immediate success in stimulating sports fishing, the follow-through improvements not anticipated in the original specifications are pointed to as typical of such endeavors.

Whereas previous experience in such cuts emphasized the difficulty in keeping them open, Rollover promptly reacted in the opposite direction. Currents began eating against the earthen walls and the width in some places soon more than doubled the original 80 feet from bank to bank.

This called for an emergency grant by the Commission of \$166,000 to finance permanent protection against further erosion. The first allotment for cutting the pass was \$200,000. The site was donated by the Gulf Coast Rod, Reel and Gun Club of Beaumont.

But with all the extra effort and costs local residents promptly signaled the Commission's program as



Turning of the first spadeful of dirt in June, 1954, set the stage for the beginning of dredging operations.



This photo was snapped at the moment a bulldozer opened the pass by pushing away the last slender barrier separating the Gulf from the bay. Due to tide differences, water in the bay stood five feet higher than in



the Gulf when the breakthrough was made January 18. Pat Gary, Beaumont, quickly became the first of thousands of fishermen to take advantage of the pass' benefits.

successful and as a "definite contribution" to the sports facilities of the Southeast Texas fisher folks.

The final cut permitting water to flow through the Pass, which ranges in depth from three to eight feet, was made on January 18, 1955. At the formal dedication, April 23, Chairman Walter Lechner of the Commission described the Pass as a monument of the spirit of cooperation between the Gulf Coast and the Commission.

Local spokesmen called it "a landmark in the efforts by the Game and Fish Commission to work with East Coast Texans in improving fishing and hunting conditions."

Chairman Lechner went on to say that the Commission always has been sensitive to the desires of Coastal residents as well as those of other areas in far-flung Texas.

We have gone along with local influence, he said, when it seemed the results justified the investment. Thus the Commission has spent great sums of money on various projects in the Coastal area. Now, it does seem that Rollover Pass presages outstanding benefits. Our sincere wish then for all concerned is: "Good fishing". **



Rollover Pass as seen from above the Gulf, looking toward East Galveston Bay. Dredging operations were still in progress. Final cut was made through barrier on Gulf side shown in foreground. The pass is approximately 1,900 feet long. Land, scene of ancient natural pass which closed long ago, was donated to the state by Beaumont's Rod, Reel and Gun Club.



The dredging barge, still at work on the channel, passes through the lift bridge constructed by the Commission on state highway 87 between Galveston and Port Arthur.

The official dedication was held April 23. Walter W. Lechner, left, Commission chairman, urged cooperation between the citizens of Texas, the Legislature, and the Commission for proper management of marine resources, based on scientific studies by professionals and providing greatest benefit to the most people. Senator William H. Shireman, chairman of the Senate game and fish committee, praised the project and expressed the hope that Texas citizens in the near future would give the Commission greater authority to regulate hunting and fishing.



Fish Reports
Field Data

Texas Tracks

By JAY VESSELS

(December 1953 issue)

KAMIKAZE STUFF

The Associated Press reported on the same day during the recent hunting season:

From Findlay, Ohio . . . the piece about a college professor proving his presence of mind by seizing the tail feathers of a pheasant that flew straight at him.

From Memphis, Tenn . . . the items about a quail, flushed in a covey, ramming a hunter's gun barrel, breaking its neck.

Before Texas had to muster in its tall tales troops, a match came for the foregoing. It was in the Denison HERALD — about how Bub Moon threw up an oar when six mallards charged him while he was washing off his boat at Flowing Wells. Two ducks fell, one for keeps, as the others flew away.

So the day was saved for Texas, again.

WILDLIFE PARLEY

The Izaak Walton League of America has invited Texans to attend a "Young Outdoor Americans" conference in Chicago designed to stimulate interest in conservation work. Dates are March 10-12.

RARE DEER KILLED

Conservation Agent Jim Featherstone of the Missouri Conservation Commission Staff recently got a first hand report on a wildlife tragedy — death of an albino buck deer being chased by dogs. He heard the pack after the majestic creature but couldn't intervene because of the wild nature of the country. The next day he found the sordid climax to the chase. The tiring buck had caught its huge antlers in a fence and had broken its neck in a futile bid to escape. Then the hounds had ripped the rare pelt to bits.

WAY WHEN WHEN

F. M. Cowsert, who has moved from the Directorship of Law Enforcement for the Game and Fish Commission to less strenuous duties, dates back to the rugged days of protecting wildlife in Texas. Captain Cowsert began patrolling his wilderness beat horse back. Later, he got a Model T Ford. One of his favorite recollections is about how he used to park his gas buggy on a hillside with the wheels chocked so he could get a running start when and if he flushed any culprits while scouting afoot.

PIKE ALERT

Somebody is going to get a nice letter, mailed first class, when and if they report the actual catching of wall-eyed pike which were planted in Lake Travis near Austin, and Devil's Lake near Del Rio. Marion Toole, chief aquatic biologist of the Game and Fish Commission, is eager to get definite evidence of the walleyes as to where they were caught, what they bit on and what was their size. Watch out for look alikes — darters or log perch — which resemble walleyes but which have black dots in the middle of the base of their tails.

MAN-MADE CRISIS

Down at Rockport, they tell the story about the motel operator distracted by duck hunters' careless habits. They picked ducks in his cabins; they wiped rusty gun barrels on his bed linen. He finally said "No more hunters." Then he relented. So the first guy he let back in was unloading his shotgun when, BAM!, it went off, boring a very large hole in the nice floor and scaring other guests half out of their wits. So the ban is on again.

SPARE THE PIGEONS

Julian Howard, manager of the Aransas National Wildlife Refuge on the Gulf Coast, found out that other bird species are imperiled in addition to the rare Whooping Cranes which winter on the refuge. While he was in Corpus Christi getting some equipment fixed, one of the men at the Alamo Iron Works told about his own problems. He said hunters were mistaking his racing pigeons for ducks. Howard understood. Because one of the primary dangers faced by the fading Whoopers is from gunfire of hunters, presumably mistaking the giant white birds for legal game. Well, about like mistaking a pigeon for a duck.

SUCH AUDACITY

Ranch Foreman John Emmel wondered what became of a she wolf he shot and wounded. Later, he wondered what was becoming of chickens in the barn yard. Finally, he got the answer to both. His dog spotted a wolf under the ranch house. Emmel made his shot good this time. The beast had taken refuge under the house and was getting its food by sneaking out and into the chicken yard at night. Game Warden Tom Waddell relayed the details.

POLECAT PERSUADER

The Abilene REPORTER NEWS carried a Hartford, Conn., item quoting a local Humane Society agent, with a record for successfully suppressing skunks, as saying: "I just talk to it and start to move closer. When you see that tail coming up, you just stop and talk some more. There are frequent stops, but I finally pick it up and put it into a box."

Press Views

Game Notes

JIMMY'S NEW JOY

Remember Jimmy Burrows, the Kountze lad who saved some of the little broadwing hawks blasted by gunfire last fall? Well, Jimmy's a new man — that is a new boy (age 15). A local man fenced off fifty acres of pine-studded wilderness within walking distance of Jimmy's home and has given him exclusive rights to the area. Besides, the young naturalist has conquered a physical condition dating back to rheumatic fever as an infant and has been playing football.

PLEASE REPORT TAGS

The Marine Laboratory of the Game and Fish Commission at Rockport will appreciate receiving tags fishermen find on fish caught in coastal waters. These tags are needed to determine the life history, migration habits, etc., of the trout, redbfish, drum, flounder and the like. The research is designed to help make fishing even better than it is.

DEEP SEA JACKPOT

Shades of the Texas Gulf Coast! A New Hampshire fisherman caught a three and one half foot sand shark which subsequently gave birth to nine baby sharks, each one eight inches long. The United Press, reporting the event, added that the man cleaned up in a deep-sea contest.

ARCHERY HAZARD

Watch those loaded weapons, even beyond firearms! Warden Supervisor Ernest Wehmeyer of Palacios reports the case of the local archer. The man let fly with a split arrow. One part went where it was supposed to. The other part splintered low through the man's hand.

WAD HAPPENED?

Double impact came in Pennsylvania recently when a man shot an albino raccoon. Approaching the rare specimen, he noticed bits of \$20 bills scattered around the place. It turned out that his son had hidden nine bills in the gun barrel.

WHITE BASS REPORT

Bill Thompson of the Paris NEWS, reports that Lake Crook's newly installed white bass are thriving. One of those netted by biologists had tripled its length in three months.

HERD BALANCE

The Arkansas Game and Fish Commission is considering following the suit of Texas, and other states, in experimental doe harvests as a means of stabilizing the deer herds.

IT FORGOT TO DUCK

The Amarillo DAILY NEWS carried a Kalamazoo, Mich., dispatch headlined: "Boy, 14, Bags Wild Duck, 16." The duck bore a leg band dated 1936.

WAY BACK WHEN

Frontier Diary in the DENISON HERALD, quoting news item October 23, 1876: "Game was never so plentiful and cheap as now. Wild ducks and turkeys are killed almost within the city limits. A drove of seven deer crossed Main street Sunday evening near Captain Poff's residence. They were pursued into the woods and a fine doe slain."

SATISFIED CUSTOMER

A. C. Becker, Jr., sports editor of the Galveston NEWS, submits this fine testimonial on the success of the cardboard decoys described by T.D. Carroll in TEXAS GAME AND FISH magazine. Becker said the ones he made were so good that they not only attracted snow geese but also brought them right down to the ground. "Lighted in the decoys and had to shoo them away so we could shoot," said Becker.

A WOMAN'S PREROGATIVE

Modern women are ambitious to do about everything men do. So Mary Frances Bell of the Marine laboratory staff of the Game and Fish Commission decided if Marine Biologist Howard Lee could have an indigo snake for a pet, so could she. And she got Aquatic Biologist Alvin Flury of Mathis to catch her a nice four footer. But Mary Frances will have to restrict her mascot's operations to her office on the water front because her mother made the Bell household "out of bounds" for the reptile. All the explanations by her daughter about the snake being harmless and being wonderful to catch rodents were to no avail. Now, Mary Frances does just like the men do. That is, she catches her own frogs and whatever it is that the indigo eats. But unlike the men she has to keep her poor little slithering pet in a dark old office.

THAT TIME OF YEAR

The fall ugly period for "tame" deer, particularly bucks, was pointed up in Minnesota recently. A buck came at a stranger with its head down. Ordinarily, the folks playfully wrestled the deer to the ground. This time the newcomer grabbed the rack and holstered for his wife. She got an axe. The steaks and chops were sold at the state dispensary.

SAVING SEED STOCK

Game Warden Supervisor Herbert Ward of Catarina reports that H. H. Coffield, owner of the Diamond H Ranch in Dimmitt County, is among those banning quail hunting on his land until the birds recover from the drought.

BIG CAT ROUTS INTRUDERS

The Houston POST carried a Waller, Texas, news story describing a bloody fight after a female timber cat returned to its cave den while a pack of nine hounds was killing her six kittens. The enraged beast killed five of the dogs, maimed two others, and charged both hunters, knocking one down, and drove off the raiders.**



ARMS AND AMMUNITION

Edited By A. S. JACKSON

(February 1944 issue)

THE "TIE-IN" or relation between production for war and production for peace is very close in the arms and ammunition business. In peace times the makers are kept busy developing better arms and cartridges for an army of civilian shooters; the know-how is quickly turned to filling military needs in national emergencies. Our wildlife heritage and the American system of free hunting makes this possible.

NOW SEEMS A good time to speculate about what the offerings will be when civilian shooters will again share the output of the industry whose wheels they help to keep turning in peacetime.

TO BEGIN, WE shall almost certainly see the military influence in postwar designs of rifles. This has always been so. At the close of the last war there were no bolt action rifles commercially available suitable for acquainting civilian shooters with the skills which could be translated into proficiency with the Springfield. Accordingly, the War Department authorized the sale of the Springfield Sporter through the American Rifle Association. Shortly there were two commercial bolt actions in .30-06 caliber suitable for the purpose, and the Government, not wishing to compete with private industry, stopped the sale of the Springfield Sporter.

NOW THAT THE official service arms are auto-loaders, we may expect auto-loading sporting rifles in .30-06 and other powerful cartridges when war ends. Millions of men are getting their first rifle training with the auto-loading service rifles. These will, on discharge, want the kind of rifle they are familiar with for big game hunting.

IN MEETING POSTWAR demands for such a rifle, the Johnson seemingly should have the inside track. It was about to be offered to the public, indeed was being offered on special order, when threatening clouds on the international horizon led to the changing of its design for a different purpose. The Johnson is a short-recoil operated rifle suitable for

the .30-06, .270, and probably other high intensity cartridges to be developed. The rifle is unique in this respect; barrels are interchangeable in a few seconds without special tools. As about to be sold to the sportsman before the war, it could be had for the owner's favorite barrel or barrels. One action and stock would have been either .30-06 or .270, depending on which barrel was attached. The Johnson in the form of a 12½ pound machine rifle is now one of the official weapons of the U. S. Marine Corps.

THE NEW U. S. Carbine, Caliber .30, M1 seems to have made a hit with service men. A great many have been heard to express a wish for one for hunting after being mustered out. At least one buck was killed in Texas this season by a soldier armed with the little carbine.

PROBABLY WINCHESTER WILL see fit to profit by all this and bring out a sporter after the war. It is to be hoped that a cartridge better designed for deer killing will be designed; the present load, regardless of how "sweet" it shoots, is hardly in the deer class.

THE FACT THAT both service rifles are equipped with peep sights may well spell the doom of the old open rear sight when production of hunting rifles is resumed.

NEW HIGH VELOCITY cartridges in the magnum class may be expected after the war. Private experimentation in this field has not stopped. There are now in the hands of riflemen-experimenters rifles and cartridges which drive long heavy bullets up to 4000 feet per second muzzle velocities. These are of course at present strictly handloading propositions. Some of these have been thoroughly tested at target and on big game and have proved capable of consistent accuracy and flat trajectories way out beyond the possibilities of existing commercial calibers. Two commercial calibers on the fringe of this field of development are the .220 Swift and the .300 H&H Magnum.

IN SOME WAYS, the trend is to be regretted. The private experimenters who are developing these magnum long range cartridges are logically expert riflemen, not to say scientists. Their ability matches the equipment. In the hands of average hunters, use of such long range precision weapons is not likely to be either sporting or scientific. Approaching game to within reasonable distances should be one of the elements in the sport of hunting. However, since speed and progress are commonly harness mates, look for the cartridges when new calibers come out.

TWO CARTRIDGES WHICH have had tremendous publicity without benefit of commercial advertising are the 2-R Lovell and the Varminter. These were developed by custom gunsmiths Hervey Lovell and Jerry Gebby, respectively. Design of the Varminter cartridge has been patented. Both cartridges are .22 caliber. The Lovell is a necked down .25-20 Single Shot and the Varminter case is a modification of the .250 Savage. Both cartridges are superior to anything in their class but the .220 Swift and are superior to this in some important respects. In view of the popularity of these cartridges and the rifles fitting them, it is hard to see how manufacturers can resist the demand for them in commercial forms making handloading unnecessary.

A TREND TOWARD combination rifles and shotguns was in evidence when production ceased. This was shown in the little Stevens .22-.410, the Marlin Over-Under in .22-.410, including the Hornet, and the Savage Utility Gun with interchangeable rifles and shotgun barrels. Undoubtedly, many of the hunters now overseas will have opportunities to see and handle the European combination rifle-shotgun. These have long been popular over there, where a day afield may result in chances at game birds and (or) big game. An over-under with 16 or 20 gauge barrel beneath one chambered for a rimmed version of a cartridge like the

.300 Savage would find a market in this country. It would satisfy a great many sportsmen who have learned for themselves that hunting is best enjoyed as a leisurely sport; that while the law requires that the bag limit be not exceeded, it does not require that one fill it. My guess is that such a gun will be available.

WELL, THERE'RE MY predictions. While you are waiting, remember a lot of sportsmen are doing their hunting where there are no bag limits and the game shoots back. Those men are depending on us to conduct ourselves as sportsmen and support the conservation agencies, to the end that there will be game in the coverts when they get back.

Look Before You Shoot

My next-door neighbor is back from the hospital. He was hidden in a brushy cover at a pondside, waiting for a flight of ducks to return. Meanwhile, unknown to him, two hunters slipped in behind, intent on stalking the pond for a shot. The ducks came over, my neighbor started to rise and was instantly knocked down by a load of 7½'s striking him in the head and shoulders. The shooter "thought he was a duck". His other barrel contained 4's, and he did not know which load he fired. Death missed by half an inch.

It does no good to condemn such dumb gun handling. This particular hunter will be careful hereafter, and no doubt has suffered keenly.

But somewhere the incident confirms another parent's opinion that guns are dangerous and another outdoor loving boy is denied the privilege of owning a gun and learning under strict supervision how to use it with safety to himself and others. He will outgrow his parents' authority some day and buy a gun and invite his pal to accompany him hunting. Thus the cycle is perpetuated.

Do you take an interest in helping the newcomers to the shooting game, or do you, from the pinnacle of your hard won gun wisdom, leave the boys and the tyros to learn the hard way.

There are worse callings brother.

Shotgun Terms Defined

How is Gauge Determined?

Many years ago when shotguns were first developed, the barrel was bored to the same diameter from breech to muzzle. The diameters of the various guns were determined mainly by the size of the reamer the maker had on hand. Uniform borings were not important because the early guns were muzzle loaders and the hunter poured in the quantity of powder and shot he felt he could stand up against

when the piece was touched off.

Gradually standardization developed and was crystallized finally by the introductions of the early breech loaders and factory shells.

The term gauge was applied to the number of round balls which could be made from a pound of lead which were the diameter of the inside of the barrel. In other words, a 12-gauge gun was one whose inside diameter was equal to the diameter of a round lead ball whose weight was 1/12 of a pound.

What is Choke?

Choke is a gradual constriction in the barrel of a shotgun from breech to muzzle designed to control the pattern of shot over any given range.

Modern shotguns are bored thus only in or near the muzzle, usually the last two inches.

Many recent developments have been made in the degrees of choke available in shotguns. Almost any degree of choke is now obtainable either through the addition of variable choke devices such as the Weaver choke, Poly choke, Cutts Compensator, or in the barrel itself. Most authorities are no longer referring to the choke of the gun but to the percentage of pattern.

What Is Pattern?

Since some standard must be established from which to make comparison let us define what a 50 percent pattern should do. If all other factors are constant a 50 percent pattern would simply mean that at a distance of 40 yards, 50 percent of the pellets contained in a shotgun shell would be placed in a 30-inch circle.

The 30-inch circle and 40-yard range are accepted as standard by most manufacturers and gun authorities.

If you wish to pattern your gun the following steps should be of help:

First: Find a large piece of cardboard, brown wrapping paper, or newsprint and tack it to a convenient fence, or other structure.

Second: Establish your shooting point exactly 40 yards from the target. For best results fire at least two rounds through the barrel first to remove oil as frequently patterns are blown if fired immediately after the gun is cleaned.

Third: Aim as near the center of the paper as possible and fire. For a true percentage at least 10 such patterns should be made, although one would probably give you a fairly close idea, at least for practical purposes.

Fourth: Remove target and draw a circle 30 inches in diameter around the area on the paper with the most perforations. Wind, heat, humidity, and errors in aiming would not allow you to make a true pattern if you drew the circle first and

attempted to place the charge in it.

Fifth: Quarter the circle and count the perforations.

Sixth: Remove the wad from the end of a shell exactly like the one used in the test shot and count the pellets.

Seventh: Divide the number of perforations by the number of pellets in the shell and the result is the percentage of pattern your weapon will make.

The following statements have been found to be generally true:

Choke in a barrel has more effect on small shot than large.

Chilled shot makes a better pattern than soft shot.

Cylinder-bored guns often blow a pattern.

For close shots less choke is necessary.

The longer the shot the more choke required.

Although "Scatter Loads" work fairly well; best results are obtainable by the use of proper choke and standard loads.

Some shot sizes will make better patterns than others when the same gun is used.

The more even the pattern the better. A 75 percent pattern would be of little value if all perforations were to one side of the target.

In upland shooting where most shots are made at under 35 yards the length of barrel is of little importance except for balance and sighting plane.

Wind and distance have a marked effect on the action of shot especially the smaller sizes 7½ and 8's. **

NOW Set or Take up Trotline in 5 Minutes!
BOOKLET ON HOW TO 20 PAGES
Catch em!



"TROTLINE FISHING SECRETS"... written by experts.
How, when, where to set trotline, illustrated. Baits laws, tackle. Send 25¢ for mailing cost.

LAWRENZ MFG CO., DEPT. T, P.O. BOX 3837, DALLAS, TEX 75208

FREE!



BURNHAM'S NEW CATALOG
CALL YOUR GAME UP CLOSE - varmints, crows, deer, elk. Hand & electronic calls, tapes. New Red Beam & Scope Lites. Guaranteed to work or money back. 64 pages of hunting, fishing, outdoor needs! For calling story booklet, send 35¢. Catalog is FREE—write now!

BURNHAM BROTHERS

P.O. Box E-122-CT, Marble Falls, Texas 78654



El Tigre Chiquito

by L. D. Nuckles
Information Officer, La Porte
(April 1968 issue)

BEAUTIFUL, secretive, easily tamed, and vanishing from the Texas scene, just about sums up the ocelot, *Felis pardalis*. This lithe, medium-sized cat is among the most beautiful examples of Texas wildlife, and it is regrettable that the encroachment of civilization and the agricultural practices of man will probably soon make this animal extinct in this State.

The range of the ocelot extends from the southwestern United States down to Paraguay. In the more tropical habitats he makes himself at home in forests and jungles. Although quite common in Mexico, the animal is now scarce north of the Rio Grande. A band of Texas habitat along the Mexico border south from Big Bend and along the coast is considered his home range. In the very southern tip of Texas, the ocelot lives in dense, almost impenetrable chaparral thickets where the thorny vegetation offers seclusion. In Kerr County, as late as 1902, they were said to inhabit the roughest, rockiest part of the dense cedar brakes.

The ocelot usually spends his time on the ground, in dense cover, but is also fond of climbing trees. A creature of the gloomy jungle and dense brushland, this cat loves darkness—the darker the better. When living in close proximity to man he does not like to leave his lair until evening light is gone and the dusk has turned to darkness. The darker the night the farther

the ocelot will prowl. Even moonlight nights seem to impede his activities.

When hunting in pairs, as they sometimes do, they signal back and forth with soft “mews” which become louder if no answer is received. Padding along on soundless paws, they use a highly developed sense of smell to locate prey.

The ocelot feeds on nearly any kind of animal life he can master, including birds, rodents, snakes, lizards, and opossums. He would, of course, take domestic fowl, lambs, and kids if they were available within his range; however, his habit of living in the jungle and deep brushlands usually separates him from this easy prey. Once he has tasted domestic fowl, however, and learned what pushovers they are, his raids will continue until a village is almost cleaned out of chickens and guinea fowl. Although adult deer may prove too much for him, he can and will take fawns. In Central America an ocelot is reported to have killed a six or seven foot boa. When discovered he had eaten most of the head and neck.

Perhaps the ocelot is most familiar to us through the use of his fur on women's coats and collars. Because of his secretive habits, many people can live around him for a lifetime and never be aware of his existence.

He is one of the handsomest of cats. His basic color is light buff with a pearly overtone. Longitu-



dinal black stripes score his head and neck, black spots splash across his legs and tail, and dots and black rings cover the rest of his body in an attractive rather chainlike pattern. From the tip of his nose to the end of his tail he is three or four feet long and weighs 20 to 25 pounds.

For his den the ocelot selects a rocky cave, a hollow tree, or the very heart of an impregnable, thorny thicket. The home, wherever it is, is lined with great care. The animal chooses a bedding of dry grass, twigs, and the like, and chews it until it is soft and pliable, for this is a creature who likes his comfort.

The mating season is probably about June. The kittens, nearly always twins, are born in September or October. Like other young of the cat family, they are covered with a scanty growth of hair, and their eyes are tightly

closed at birth. No information is available on their rate of development.

The ocelot is highly prized by hunters with dogs. He will, like other cats, take to the trees when pressed, but doesn't leave the ground at the first yap of the hounds. With his relatively long legs, he can run like a fox and knows a thing or two about backtracking and double-crossing his trail.

Although this beautiful cat is easily tamed if taken young enough, his temper and conduct become unpredictable as he gets older. Certainly no adult ocelot should be left unattended around very young children. Another mark against him is his strong odor which is said to resemble that of a lion.

Although he is neither all "good" nor all "bad," we will all have lost something when the ocelot

disappears from the Texas scene. The clearing of dense brush in South Texas seems to signal EXIT for this beautiful cat; another wildlife species to vanish from the list of Texas fauna in the face of progress. **



Tested and proved by BURNHAM BROTHERS

Varmint callers — bring wild critters right up to you at night! Tests prove that varmints can't see red light — they'll come to your call, even with light shining. Try it! Sturdy "no-scare" lamp is mounted on adjustable headband. Has variable bright-dim switch, cord and case for 4 size D flashlight batteries. Case clips to belt. Or use 6-volt lantern battery. For new calling kicks, order now. Money-Back Guarantee. Complete with case, less batteries, only \$6.50. Without case or batteries, \$5.75. Add 35c postage.

Ask for NEW FREE CATALOG!

BURNHAM BROTHERS

P.O. Box E-122-H Marble Falls, Texas 78654



Texas State Rifle Association

Organized 1919 AFFILIATED WITH THE NATIONAL RIFLE ASSOCIATION

CALLING ALL OUTDOORSMEN — TSRA Seeks Your Membership!

In the interest of the general public, to promote better sportsman-landowner relations, to represent you in public matters, and to foster public sentiment favorable to the shooting sports, we seek your membership. Conservation, wildlife and its environment, ecology, law and order—all pressing issues of our time can be dealt with only through the unified voice and action of concerned citizens. Through your membership in the Texas State Rifle Association, you can stay informed and be represented in such matters.

Organized in 1919, the purpose of the Association, then and now, is clearly stated in our constitution and bylaws...

"...the objects of this Association shall be to educate the youth of this State in marksmanship; to encourage marksmanship throughout the State of Texas among all classes of citizens, both as a sport and for the purposes of qualifying as finished marksmen those individuals who may be called upon to serve in time of

TSRA MEMBER'S PLEDGE

I certify that I am not now and never have been a member of any organization which has as any part of its program the attempt to overthrow the government of the United States by force or violence; that I have never been convicted of a crime of violence; and that if admitted to membership in the Texas State Rifle Association I will fulfill the obligations of good sportsmanship, and uphold the Constitution of the United States and the Second Amendment thereto.

NAME _____

ADDRESS _____

CITY, STATE _____

ZIP CODE _____

war; to encourage competition in marksmanship between individuals and teams in all parts of the State of Texas; to hold one annual competition for each branch on behalf of the Texas State Rifle Association and to declare championships in all divisions; to encourage legislation for the furtherance of ideals and purposes of the National Rifle Association; to combat all unfavorable laws against such purposes and ideals; to encourage the building of suitable ranges; to secure the issuance of arms and ammunition to practice on such ranges; and to create a public sentiment for the encouragement of rifle practice both as a sport and as a necessary means of National Defense." To these principles we shall be absolutely devoted.

Each year, each member receives the "Snortin' Bull" decal with his membership, along with quarterly issues of the TSRA "Sportsman." Periodically and as required, the TSRA publishes special bulletins of interest to its members. For example, the TSRA arranged for the mailing to sportsmen throughout the state of over 70,000 bulletins concerning legislation pending before the 62nd Texas Legislature. Additionally, the TSRA encourages hunter safety programs and seeks to pass along to younger hunters the skills and high ethical standards of sportsmanship essential to a true outdoorsman. We take pride in our high standards, and our assistance to the Texas Legislature is a matter of public record.

Dues are \$3.00 annually, and memberships run from January first through the following December 31st. We urge you to join your fellow Texans and be a member of this honorable organization. You'll be glad you did.

(Please allow 45 days to process your application.)

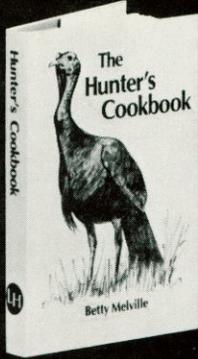
Make Checks Payable To: **TEXAS STATE RIFLE ASSOCIATION**

Mail Application and \$3.00 Membership Dues To:

TEXAS STATE RIFLE ASSOCIATION

Lafe R. Pfeifer, Secretary, P.O. Drawer 34809, Dallas, Texas 75234

(Your ZIP code is an essential part of your address. Without it, your application cannot be processed.)



The Hunter's Cookbook

By Betty Melville

Former high altitude test cook for Betty Crocker

A collection of over two hundred recipes for wild game including Barbary Sheep, Antelope, Grouse, Pheasant, Buffalo, Elk, Bear, Javelina, Opossum, and Raccoon. Dozens of new recipes for Deer, Squirrel, Rabbit, Quail, Goose, Duck, Turkey, and Dove which every cook will find delicious and easy to prepare.

Special sections on field dressing, meat processing, and carcass charts inform the hunter of the best ways to prepare wild game meat before it even reaches the kitchen. Canning methods are discussed as well as sauces, stuffings, herbs, spices, and wines, and the old style recipes for jerky and Indian pemmican are provided.

THE HUNTER'S COOKBOOK is a culinary reference book for the true sportsman which no hunter—or hunter's wife—should be without.

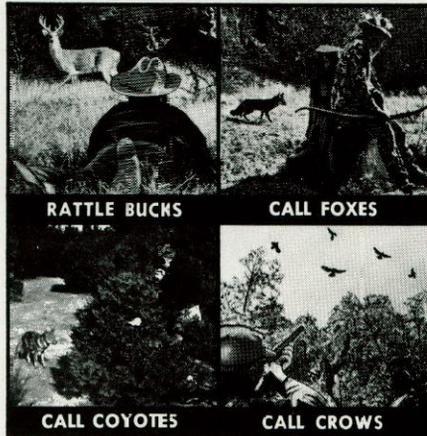
LH Little House Press
4300 SHOALWOOD
AUSTIN, TEXAS 78756

Please accept my order for _____ copies of THE HUNTER'S COOKBOOK at \$7.95 per copy. I am adding 40¢ for postage and handling. Texas residents add 5% sales tax.

NAME _____
STREET _____
CITY _____
STATE _____ ZIP _____

HUNTERS WON'T BELIEVE ME . . .

'til they try my new game calling sounds and instructions!



Call all birds and animals with the best calling sounds in the world. Make the right sounds and deer almost run over you . . . foxes, bobcats, coyotes, wolves, coons come close, day or night, year 'round! Crows, owls, hawks and other birds will fly within a few feet.

SEND NO MONEY!

I'll send FREE informat on with photos of wildlife cal ed close. Send me your name, address and zip code today. A card or letter will do.

Jchnny Stewart
Box 7594, Dept. PW122 Waco, Texas 76710



"NO GAME NO PAY"
BLACK BUCK ANTELOPE

SAFARI STYLE HUNTING

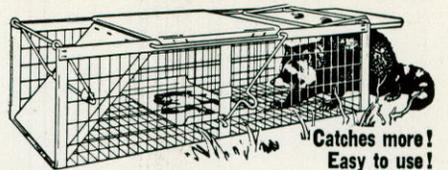
- OVER 125 SQUARE MILES
- GAME FROM FOUR CONTINENTS
- EXCELLENT MEALS, LODGING
- CUSTOMER ENTERTAINMENT PROGRAM

CALL OR WRITE TODAY

Y. O. RANCH

BOX 220, MOUNTAIN HOME, TEXAS 78058
Telephone (512) 654-2076

CATCH ANIMAL RAIDERS!



Catches more!
Easy to use!
Simple, safe HAVAHAART traps catch raiding rabbits, coons, squirrels, pigeons, sparrows, etc., without injury. Straying pets, poultry released unharmed. No jaws or springs to break. Galvanized; many in use 20 years. Open ends give animal confidence. Sizes for all needs. Write for valuable illustrated guide and price list.

HAVAHAART, 149 Water St., Ossining, N. Y. 10562

Please send new guide and price list.
Name _____
Address _____ Zip _____



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 \$12.50 plus 50¢ postage. Extra batteries, \$1.50.

Calling story booklet, 35¢ Write for Free Catalog!

BURNHAM BROTHERS
P.O. Box E-122-ML Marble Falls, Texas 78654

Bottle Collectors

WHAT ARE YOUR BOTTLES WORTH? Identify and price over 2,500 new and old collectible bottles. Beams, Avons, Fruit Jars, Medicines, Inks, Snuffs, many others. "BOTTLE COLLECTOR'S HANDBOOK AND PRICING GUIDE", by Yount is the most complete bottle book you can buy. All 18 categories. Illustrated new edition! Plus, free bonus directory: "Where To Buy and Sell Bottles" \$3.95 Postpaid. Infobooks, Box 5001 San Angelo, 15 Texas 76901

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 (78 or 45 rpm). A \$7 value, ONLY \$5.

NEW BOOKLET "Thrills of Game Calling": Rare and exciting photos. Send 35¢.

ORDER TODAY

BURNHAM BROTHERS
P.O. Box E-122-Q, Marble Falls, Texas 78654



High, Wide, and Lonely

by Barbara Jaska

Parks Interpretation Assistant

(October 1967 issue)

WESTERN TEXAS is like no other part of the State. The land west of the Pecos River opens to a broad expanse of rolling plains and hills, covered with light sand and dotted with cacti, shrubs, and stunted, yellow-green trees. Occasionally, one sees a solitary windmill, its blades whirring in the breeze, or a jackrabbit, darting through the brush on lean legs. In the distance, blue foothills rise like sphinxes to meet the metallic sky.

This is Trans-Pecos Texas—a region of scarce rainfall, swirling sandstorms, and the only mountain ranges in Texas. This is a region where ranching is the primary means of earning a living, where the nearest town may be more than an hour's drive away, and where the towns themselves are a cluster of flat-roofed stores bleached by the sun and wind.

In the center of this lonely region—in the heart of the Davis Mountains and adjacent to Fort Davis National Historic Site—is a State scenic park. The “scenic” classification means that the park encompasses an outstanding or unique segment of the Texas outdoors, and the Davis Mountains State Scenic Park does exactly that.

Unlike most of the mountains of West Texas, the Davis Mountains support an abundant growth of range grasses—sideoats grama, silver bluestem, tobosa, and many others. Except in drought years, some of these grasses reach a height of two feet or more.

The more abundant grasses may be explained in terms of higher rainfall and richer soil. The Davis Mountains receive an average of 16 inches of rain per year, most of which occurs in summer; the entire Trans-Pecos receives only about 12 inches. Moreover, the soil is richer because of its high volcanic content.

The Davis Mountains are believed to have formed

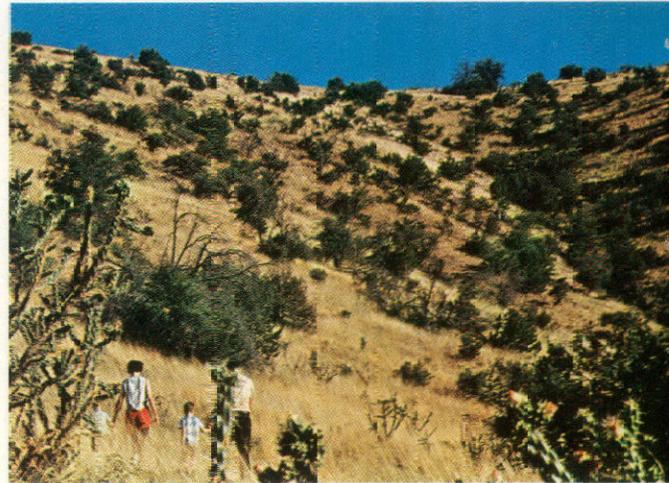
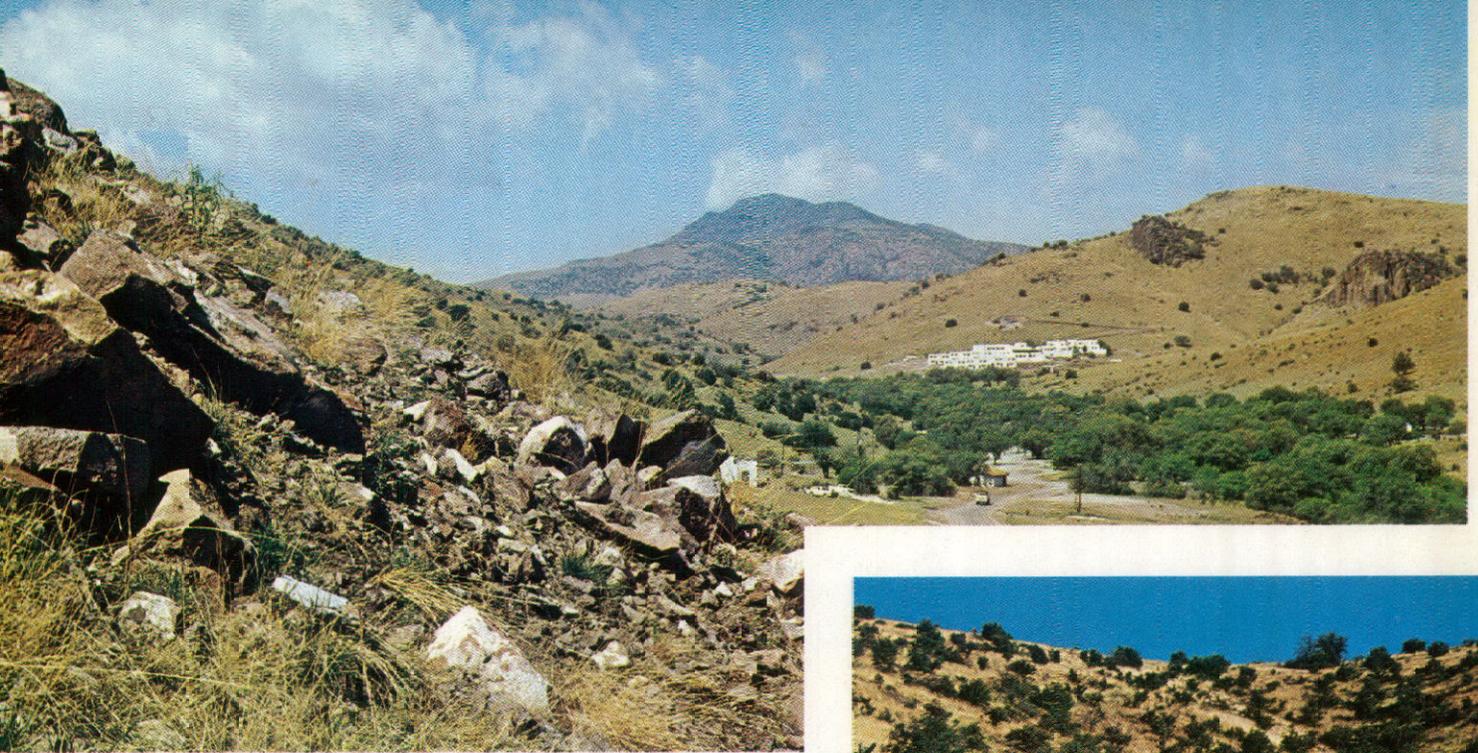
as a result of volcanic activity which occurred in the Tertiary period, a geologic age dating back as far as 70 million years. Strewed along the canyon floor of the park are basalt, rhyolite porphyry, and other rock types, which were formed from lava that flowed out onto the surface.

An interesting phenomenon that is particularly evident in the park is the difference in vegetation on northern and southern mountain slopes. Growing on southern slopes are Torrey yucca, Havard agave, Engelmann prickly pear cactus, and other desert plants. On the northern slopes and mountain crests, however, are taller range grasses, Emory and gray oaks, and one-seed juniper.

The reason for the difference is that the southern slopes receive more intense sunlight, making the ground temperature higher and enabling evaporation to take place more quickly. Thus, the more sun-tolerant and drought-resistant plants grow on the south-facing slopes; the vegetation requiring more moisture and less sunlight, on the north-facing slopes.

Other information about the geology, plants, animals, and ecology of the 1,869-acre park and surrounding areas will be available in the park's new interpretive center. The center—the first of its kind in the Texas State parks system—will house a museum, a herbarium (collection of dried plants, mounted and identified), and a special publications counter, all of which will help visitors better understand and enjoy the park's natural history.

A special feature of the center is a wildlife viewing window, through which one may observe birds, mammals, and other animals as they come to the feeding and watering stations, situated approximately 40 feet from the window. The underlying principle here is that if food and water are in con-



stant supply, animals will come to the stations frequently, and to some extent, lose their fear of man.

Leading from the center are two trails: a self-guiding nature trail, along which various plants, rocks, and other natural features are identified and described, and a 2½-mile hiking trail. The latter leads to the two overlooks atop the park's highest ridge and connects with the nature trail at Fort Davis National Historic Site. Visitors may pass freely from the State Park to the National Historic Site, a partially restored military post established in 1854 to protect travelers on the old San Antonio-El Paso Road. The fort may also be reached by driving into the town of Fort Davis, six miles west of the park entrance.

During the summer, visitors may gather around an outdoor campfire for a program presented by National or State park personnel, and slide illustrated talks, covering topics on the natural history and history of the park and surrounding area, are given nightly. The campfire circle, an activity already in use in many state and national parks throughout the United States, is another "first" among the State parks of Texas.

The park also has excellent recreational facilities, as a result of a more than one-million-dollar development program just completed there. Trailer and tent camp sites were constructed along the well shaded Keesey Creek, and trailer sites with shade shelters were built just east of the center.

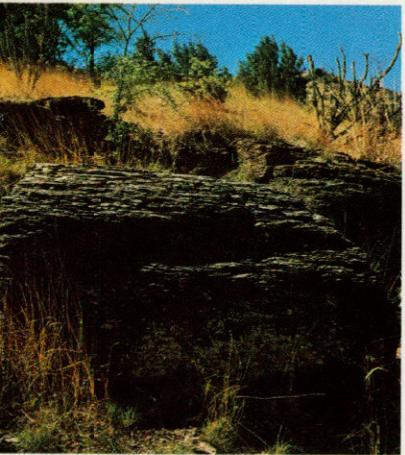
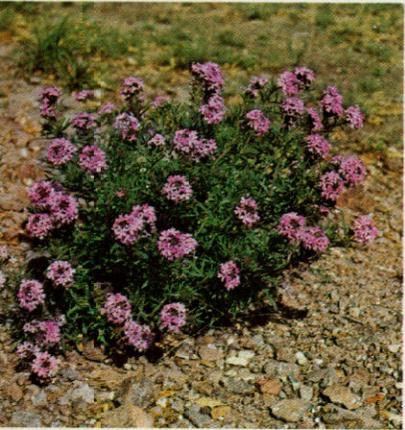
Also included in the development program was the renovation of Indian Lodge, an imposing, white pueblo-type structure which affords comfortable overnight rooming accommodations. The lodge was

first built in the 1930's by the Civilian Conservation Corps. Many of the walls of the original 15 guest rooms have adobe walls three feet thick, and each room has its own fireplace.

The lodge now has 24 additional guest rooms, a dining room, a recreation room, and a swimming pool. With its tile baths, air conditioning and heating, and carpeting, the lodge is in sharp contrast to the rocky ledges and grass-covered slopes that surround it.

A drive, winding along the side of the park's highest ridge, offers a breathtaking view of the entire park and nearby mountain peaks. From the overlook at the end of the drive (approximately 5,500 feet above sea level), one may see in the distance McDonald Observatory on Mount Locke, Blue Mountain, Mitre Peak, and Haystack Mountains, and far below, the town of Fort Davis and the site of the old fort.

The combination of interpretive and recreational facilities at the Davis Mountains State Scenic Park make it one of the finest State parks in Texas. If you're planning a trip to Carlsbad Caverns, El Paso, or the Big Bend region, the park is a must on your list of places to visit. **

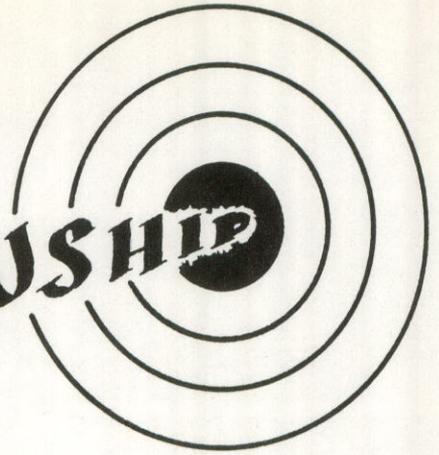


Scenic panorama of the park greets visitors as they enter Keesy Canyon. From the self-building nature trails, hikers marvel at the abundant walking stick cholla (above), blooming desert verbena (center), or the many fascinating rock formations. Campsites under shady Emory oaks are comfortably designed in scenic surroundings.



Three-Quarters of a
Century of Fine

MARKSMANSHIP



(April 1951 issue)

Adolph P. Toepperwein, aged 82, unchallenged holder of the greatest shooting record ever made at aerial targets, has retired after 50 years of professional exhibition shooting for Western-Winchester. In 76 years of shooting he never had a single shooting accident.

In company with his equally famous wife "Plinky" Toepperwein, who died in 1945, Toepperwein toured the country for half a century giving shooting exhibitions with rifles, shotguns, pistols, and revolvers which were so popular that schools and colleges frequently closed down to give their students an opportunity to witness the marksmanship of the famous Texas Triggerman.

Tall, quiet, and unassuming, he was the idol of youngsters from coast to coast. Although no accurate records were kept, it is estimated that in his lifetime Toepperwein fired accurately three million rounds of ammunition.

Toepperwein's greatest feat was performed with a .22 caliber semi-automatic Winchester rifle Model 03 at the San Antonio Fair Grounds in 1906 when in ten days or 68½ hours of actual shooting time he broke 72,491 out of 72,500 aerial targets, beating the greatest previous record of 60,000 out of 60,650 targets made by Dr. W. F. Carver, marksman of Buffalo Bill's Wild West Show. No one since has ever attempted to try for Toepperwein's record which will probably stand for all time.

Son of a Texan frontier gunsmith,



Although he shoots no more, Mr. Toepperwein is still active and has for a few interested Texas marksmen, a 2,500-acre ranch near Leon Springs where they may practice unhindered.

Toepperwein was born in 1869 at Boerne, Texas. Before he was ten he became a marksman with a crossbow, a 14-gauge shotgun and a .22 caliber rifle. By the time he was 21, he had become a cartoonist for the San Antonio Daily Express and had become a local celebrity as a sharpshooter. After several years in big-time vaudeville performing a shooting act in B. F. Keith theatres, Toepperwein became chief exhibition shooter of the Winchester Repeating Arms Company of New Haven, Conn. In 1932 when Winchester was acquired by the Western Cartridge Company, Toepperwein continued as chief exhibition shooter for both Western and Winchester.

With his skill as a cartoonist Toepperwein originated the "bullet" drawing. In this feat he used his pet .22 caliber Winchester pump gun and approximately 300 bullets to produce a "picture" in about three minutes of rapid-fire marksmanship.

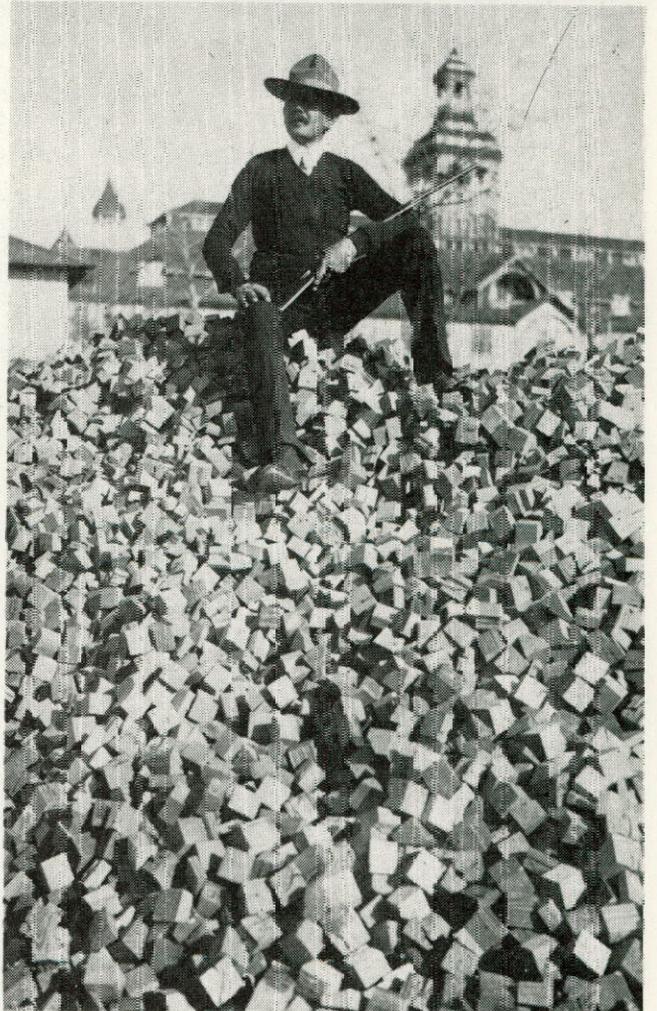
Toepperwein found his wife to be loading ammunition at Winchester. Elizabeth Servaty had never fired a gun until she met Toepperwein. Three weeks after he had begun her instruction in the use of a rifle, his wife had become so skillful that she was shooting chalk from between his fingers. This feat was later abandoned as a bad example to inexperienced shooters.

Under her husband's tutelage Mrs. Toepperwein became the greatest woman trapshooter of her time. Her greatest feat has never been equalled by either man or woman and consisted of breaking 1,952 out of 2,000 clay targets in three hours and 15 minutes of actual shooting time.

Mrs. Toepperwein was popularly known as "Plinky" from her habit of saying "Plink" when she pulled a trigger, and invented the word "Plinking" to describe the practice of shooting at random targets.

Toepperwein's last exhibitions with his wife were held during World War II in training camps in the South and Southwest. **

Toepperwein, in company with his equally famous wife, "Plinky," toured the country for half a century. Mrs. Toepperwein was the greatest woman trapshooter of her time.



Taken at the San Antonio Fair in 1906, this picture shows a small portion of the blocks which A. P. Toepperwein used to set the world's record in aerial target shooting. Young Toepperwein is seated atop the blocks.

Editor's note: Adolph Toepperwein died March 4, 1962, at the age of 92.

WHAT FER YOU HUNTIN'?

By
LEIGHTON B. DAWSON
(September 1950 issue)

LAST YEAR more than 12,750,000 citizens of the United States took out hunting licenses. That is an army comparable to the one that our country had in the field during the last war. Every one of these people is out to kill some form of game. Obviously there won't be enough game to go around, unless the hunters themselves help solve their problem.

It would be impossible to examine the motives of every one of these 12,750,000 hunters. Some of them perhaps go hunting to get away from it all. Some of them go to "escape" business worries or domestic trouble. Some of them go just because they plain love to hunt. But regardless of what motivates them, the effect is very much the same, insofar as the game is concerned. A deer is just as dead whether it gets shot by a hunter who is trying to get away from it all, or by somebody else.

Every now and then you hear somebody say, "I like to go hunting whether I get anything or not." That's all very well and good, and the person who says that may be perfectly sincere. At the same time, if anything crosses that person's path, brother, he's going to shoot it if he can. The result is that regardless of what we might have in mind when we go hunting, the game

supply takes a terrific wallop each year.

The attitude of the average hunter is pretty well summarized by the title to an article that appeared in one of our national magazines not long ago. This article was written by a very noted author, and was entitled, "I Just Like to Kill Things." That is stating it rather badly, but reduced to the very simplest terms, that's about the way it is, whether we admit it or not.

However, this very fact puts a terrific pressure on our wildlife. Here is a vast army of hunters, every one of whom is out to get his share of the game. It's a wonder there is any game left at all.

The fact that there is any game left is certainly a tribute to our game departments, our wildlife services and other related agencies. The word is CONSERVATION. That is the main thing that stands between us and total extermination of our game.

But the pressure is not only on our game, it's on our game departments, too. Not long ago one of the officials in the game department of another state was talking about the antics of some of our so-called sportsmen, and in a moment of temporary disgust, said something like this:

"What we ought to do is divide our hunters into two groups. Line one group up on the eastern border of the state and the other group on the western border. Then let them both advance, simultaneously, shooting everything before them as they go, until they both reach the middle, and have annihilated everything. That would save them a lot of time and trouble, because that is what it appears they want to do anyway."

He might have added that the two groups might just as well finish the whole thing off by shooting it out with each other.

That is almost what they did up in Colorado two years ago. The game commission of Colorado had managed to build up a very nice surplus in their deer herds, through carefully managed conservation projects. They decided to open up what is known as the Uncompahgre plateau for a special season of two weeks before the regular season opened, and thereby "harvest a surplus of deer." Licenses were issued which read two

animals regardless of age, sex or appetite.

The result was that seventeen hunters were killed and thirteen seriously wounded, along with the 72,000 deer that were slaughtered. Not to mention an unknown number of deer that were left to the blowflies and coyotes.

It is clearly evident that regardless of how fine the work of our game departments may be, or how successful they are in building up a plentiful supply of game, wildlife simply cannot stand against the ever increasing onslaught of our modern army of gunmen.

Even the game in the "good old days" could not stand up against the unrestricted use of the gun. Witness the decimation of the buffalo herds, and the antelope herds, the latter being slowly built up now through conservation methods.

But we are not living in the "good old days." We are living in A. D. 1950. A time when the borders of game-land have been so pushed back that the areas where game can thrive is now very limited. We have scarcely any true wilderness left in this country. Most anywhere you go, you will find that "Kilroy was there" already, in numbers.

The result is that our game departments are hard put to carry out their plans of conservation and restoration. It must be remembered that any given area in a given time will support only so much wildlife.

When we realize how slow and tedious is the work of building up our reserve of wildlife, we would think a lot longer about tearing it down. The guns and the gunners are on the increase but the game is not and can never increase fast enough to supply the growing army of hunters. For instance, Ithaca, one of our famous makers of shotguns, is currently turning out 1,200 guns per week. If you don't think that's a lot of guns, just lay them all end to end and see.

The other arms manufacturers are mass producing them too. But our game is not being mass produced. Not at the rate of hundreds and thousands a week anyway.

Our game departments and wildlife agencies are doing their part. But there's not enough money or game range in this country to produce the

free and unrestricted shooting they had back in the 80's. It's just up to us hunters, that's all.

Sure, we like to kill things. To pit our wits against something wild and wily. Something that is animated and moves in ways that are unpredictable. That's what makes hunting one of the grandest sports in the world. But unless we can take the pressure off our game and our game departments, we are going to all meet some day in the center of our state, and find out there's not any game left.

One way to take the pressure off our game supply is to hunt something besides game that is strictly edible. We have had it ingrained within us from time immemorial that a hunt is no good unless we bring back something to eat.

That was true perhaps in the early days when hunting was an absolute necessity in order to produce food. But nowadays hunting is downright uneconomical, if we look at it from the standpoint of getting food. And yet we continue to try to justify our hunting on the basis of what we bring home to eat. At the rate of \$5.00 to \$10.00 per pound that ought not to be the test any longer.

What about fox and wolf hunting? Or 'coon hunting? You'll get a thrill there you never had before. Sitting around a camp fire on a cool, crisp autumn night, listening to old "Ring" put it on out there in the dark.

And don't overlook the small game either. Some of our hunting is getting so high-powered and highly publicized, that we are inclined to lose sight of the good old stand-bys like rabbits and squirrels, which have always provided good hunting. A rabbit or a squirrel is sometimes a lot harder to hit than a deer. And if it's sport you want, just try going after them with a rifle—where there's plenty of room and no danger.

Oh yes, there's still a lot of game left in this country. Not enough, however, if we concentrate on just a few of the species and always try to bring back a full bag of game. A good sportsman recognizes that the law says you may kill up to so many game birds or animals; it does not require you to kill a full limit. Nor does the true sportsman have to kill a limit of game every time he goes hunting.**

What Others Are Doing

by JOAN PEARSALL

(May 1965 Issue)

PELTED WITH SUCCESS: Last summer, the New Mexico Department of Game and Fish neatly put to good use a trio of hard-working beavers. They were livetrapped in one area as a result of complaints that they were damaging private property. Just at that time, the department was taking part in filming a TV show, called "Wild Kingdom." The beavers fit right into that project. Next came a call from the Atomic Energy Commission for several beavers to be placed on a creek near Los Alamos, with the idea of their improving the stream and possibly creating fishing pools. The three beavers went to work there and did so well that the department was asked for a few more for the same area.

BRAINSTORM: One of nature's unsolved mysteries—moose sickness—may be a step closer to solution. A sick moose shot in Minnesota this spring was found to be infested with a long, thin, white worm—*pneumostrongylus tenuis*. A study team of the Minnesota University College of Veterinary Medicine examined the moose. The discovery of the parasites in the brain of the animal is of major importance in the search for the cause of moose sickness—a condition wherein the animal loses weight, wanders about aimlessly in circles and loses its fear of natural enemies, including man. Moose sickness has puzzled wildlife researchers since the 1930's and results in occasional losses in moose populations throughout North America.

TROUT VIRTUOSO: Australia has a very distinctive Border Collie sheep dog, by the name of Whisky.

He is the best trout dog in New South Wales. He lives at a Government fish hatchery and rounds up trout just as easily as his relatives round up sheep. The hatchery produces some two million trout annually, which are raised in a dozen shallow ponds, each containing trout of different sizes. Whisky's job is to assist in the "trout round-up" for stripping, health inspection or transfer to another pond. To catch the fish, his master wades into a pond, a large scoop net in his hand. The dog leaps in after him and, on command, drives the trout into the net. Instead of barking, he lowers his mouth under water and blows bubbles to encourage the fish to go into the net. He has become so skilled that his master doesn't even have to go in the water: when the net is dropped into the pool, Whisky does the rest. Tourists visit the hatchery by the bus-load to watch the dog work. Whisky has appeared on television and before an audience of international fishery experts of the Food and Agriculture Organization of the United Nations.

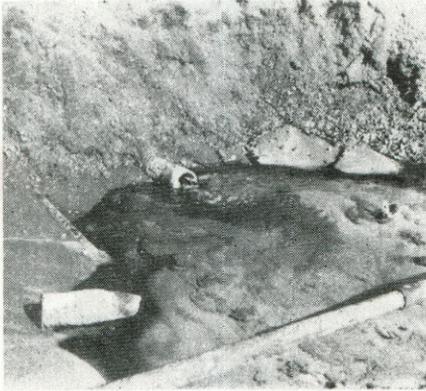
DWINDLING WETLANDS: Waterfowl need a special kind of land, mostly wet, and it's no secret that these wetlands are being destroyed at a rapid rate. A recent Game Commission survey showed what is happening to waterfowl production areas in one Nebraska county. During the past several years, 9,276 acres of wetlands have been drained in this county, including areas ranging from 30 to 2,300 acres in size. Only 249 water areas remain there, with 7,253 acres of wetlands left for duck production. Of this total, over 75 percent is made up of deep freshwater marshes and lakes. **

Oil Field Waste vs. Streams

By J. G. Burr
Aquatic Biologist

(January 1944 issue)

ONE OF THE early students of oil field pollution went out to California to see what could be learned of their methods of waste disposal. He was told to go back



Uncontrolled salt water . . .

to Texas and visit Spindletop where the brine was held in storage and released in the stream at flood stage.

THIS METHOD HAS been followed generally over the State with varying degrees of success. Injury to the stream has resulted when the stream was too small to adequately dilute the brine, or when drought so reduced the flow that it could not carry the load.

WITH THE EXPANSION of oil fields the problem of disposal became acute in many cases. One of them was the giant East Texas oil field which spreads over five counties with only the Sabine and Neches River watersheds to carry away the waste.

AT THE LOWER reaches of these streams are located vast industrial plants whose boilers can not use salt-contaminated waters. Also there are large areas of rice farms equally intolerant of chlorides, and besides there are populations of large cities which must have a potable water supply.

IN THE NECHES watershed the potential danger of the situation prompted riparian owners along the watershed and the cities of Beaumont and Port Arthur to petition the Attorney General for action. Accordingly, the State filed suit against 155 East Texas oil field operators in January, 1940, charging violation of the pollution statute.

Pollution of Texas Rivers Decreasing Where Well Operators Resort to Injection System

AT THE REQUEST of the operators trial was temporarily postponed to allow construction of impervious storage pits. Some twelve of the operators chose to fight the case, and after two years of the law's delay the State won out against the twelve operators.

MEANWHILE, OTHER OPERATORS were cooperating with the State and the danger to the water supply stored at Evadale was abated, not only by the storage of brine but by the use of injection wells. Nearly one-half of the brine production in the Neches watershed was put



from oil wells . . .

back in the Woodbine sands and later, more than one-half in the entire East Texas field.

FOR THE DISPOSAL of brine in the Neches and Angelina Rivers there had been formed by State agencies a salt water control committee with a field office in Tyler headed by M. F. Granvillee. With gauging stations along the streams to determine the seasonal flow it was possible to calculate the probable dilution of

the brine when mixed with the fresh water of the streams. The chloride of the oil field brine was approximately 40,000 parts per million. Down stream as far below as the town of Alto it was ruled that the chloride content of the streams must not exceed 500 parts per million. From Alto to the Evadale reservoir is approximately 75 miles, and at this reservoir the chloride content must not exceed 17 grains per gallon, or 291 parts per million. This limit was set by the Texas Public Service Company which supplies water for the rice farms of that region.

THE DILUTION MARGIN called for at the Alto station was safe and conservative and in line with studies of other watersheds where approximately 50 percent of the chloride disappeared by leaching and by dilution about fifty miles of the river, when the initial chloride was not over 2,000 parts per million in the ordinary stages of the river. Therefore, the 500 parts per million allowed at Alto could be expected to drop below 250 p.p.m., at the Evadale reservoir. Such apparently has been the case ever since the control program was started in 1940.

CITY CHEMIST BURNHAGEN of Beaumont has kindly furnished the record for three and a half years from January, 1939, to June, 1942. The average chlorides in the reservoir at Evadale were respectively for the four periods: 60.4, 56.6, 41, 33.7 p.p.m., and the maximum in 1941 was 138.7. The maximum for 1943, notwithstanding the dry summer, was 43.5 p.p.m.

EXPANDING FROM THE nuclear*



spells disaster for fish . . .

operation in the Neches watershed much headway has been made the past year by a salt water company embracing much of the East Texas field. A \$2,000,000 company was formed with a view to injecting all the brine back into the ground. The purpose was not only to protect the streams from contamination but to halt the decreasing bottom-hole pressure and thus considerably extend the life of the field.

THIS COLOSSAL INJECTION work is carried on by the East Texas Salt Water Disposal Company of Kilgore which, with other operators had a total of 56 injection wells last May. For that month the field produced 305,930 barrels of salt water daily, 177,607 of which was injected back into the ground. This left 128,323 barrels daily to be turned into the Neches and Sabine watersheds. Such an amount of salt water containing about 38,000 parts per million of chlorides would require an average of 1641 second feet flow in the combined watersheds properly to dilute the brine. In average years the flow is sufficient to carry the load if storage pits are used. But drought years, such as occurred in 1925, the combined average second feet flow at Logansport and Rockland was only 652 second feet which is less than half the required amount for proper dilution. In such a year, continued storage is imperative. The injection system, which began in June, 1938, got well under way early in 1943 in time to relieve a crisis that would have resulted from the drought of the past summer.

THE SABINE WATERSHED has not been seriously menaced by chlorides but there were times when rice growers along the Louisiana border perhaps felt some uneasiness when the rivers were carrying the entire output of brine. At Orange a checking of the Sabine chlorides showed an excess at times but the average had been good. The highest figures recorded at the Orange pump station was 513 p.p.m., on August 1, 1939, but in a series of tests in 1939 and 1940 the combined average was 101 p.p.m. (Record of the Orange County Reclamation District.) In 1941 the average for the month of August was 185 parts per million.

NO LATER REPORTS on chlorides at Orange are available to the writer and he has heard no complaints from there, but at Carthage, below the oil field, fishermen complain that fish are killed in the Sabine by the black rises which come down when the rains begin in the fall of the year.

THAT SO LITTLE of the chlorides reach Orange it is difficult to believe that salt is an important factor in killing the fish. Chlorides in a swollen stream are highly diluted. But at the same time, particles of sludge, which are impregnated with oil, are also washed in causing the black rises which doubtless are harmful to fish. This coloration has been charged

to the salt, but dissolved chlorides have no color.

WIEBE HAS SHOWN that crude oil contains a water-soluble fraction which is very toxic to fish, but so long as there is a concentration of sludge pits and earthen reservoirs for oil, there will be seasonal losses of fish in the adjacent streams when the initial rains clean up the mess.

THE LULING FIELD is being well cared for with a giant reservoir and the same is true of the Mexia field, though part of the waste water goes into Tehuacana Creek where a right-of-way was obtained by the oil companies.

BRECKENRIDGE IS THE greatest sufferer, being on the border of the semi-arid west where oil field waste is sometimes supplemented by chlorides coming from the Permian Basin.

OPERATORS HAVE OFTEN complained at the cost of storage reservoirs but the injection method which is even more expensive may yet prove to be far more economical if it prolongs the life of

the field, and preserves the purity of Texas streams.

THE WRITER IS indebted for much of his information to Mr. W. S. Morris, General Manager of the East Texas Salt Water Disposal Company who states that "The proper maintenance of pressure (by injection wells) in the East Texas field will increase the recovery between 350 million and 625 million barrels of oil", and his conclusion is that "the salt water injection program is believed to be the most outstanding conservation program ever attempted in the oil industry." **

***Of course, by looking at the date you can tell that this refers to the center of the operation rather than to nuclear fission.**

ELECTRONIC GAME FEEDER

Build your own game feeder with our pre-assembled electronic Motor/Control. Control operates once or twice a day with adjustable run time. Motor/Control and construction plans only—\$39.50 plus tax, post. Brochure available.

JACKSON MANUFACTURING
P.O. Box 1216,
LaPorte, Texas 77571

REQUIEM

(December 1948 issue)

FROM the magic pen of Donald Culross Petrie, one of the world's foremost nature writers, came these prophetic words:

"The species man has long had his place in this life, a part of it, keeping the age-old balance. The red man never dammed a stream, never drained a swamp, never exterminated an animal. What ground he cleared for his primitive agriculture was negligible . . . In no way did the Indian break the charmed circle of the wildlife community.

"One can but dimly picture today that great biota, the prodigal abundance with which this continent was originally stocked. It beggared even the expletives of the pioneers. What they say of the passenger pigeon sounds like the tall tales of tall woodsmen, save that the accounts agree . . .

"On the prairies thundered the wild cattle of that continent, the bison, whose footsteps made the earth tremble . . .

"In veracious recordings we have glimpses of deer, elk, antelope, and bear, raccoon and fox, waterfowl and salmon, whose profusion at the time of the white man's coming made this virgin land the richest in wildlife he had known within the memory of his race. But when the white chips flew out of the first tree he

assaulted, the ring of steel on living timber was the sound of doom for an immemorial order."

Thus, when "the white chips flew out of the first tree," the "sound of doom" rang out for another of America's magnificent birds, the Ivory-billed Woodpecker.

Word has been received recently that despite desperate efforts by the National Audubon Society to save the pitiful remnant of this bird in the Louisiana swamps, there are no more. They are gone completely. A specialized feeding habit of eating only certain grubs from a certain tree spelled the end for it as those trees upon which this woodpecker was dependent fell before the woodsmen's axes.

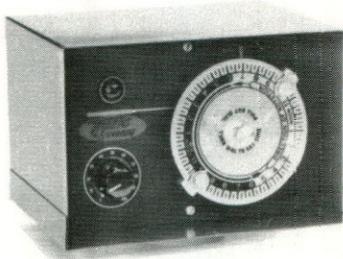
During the war, no feeling could compare with that of listening to the names of comrades as they were read slowing and softly from the casualty list—"Adkins, Allen, Brown, Borowski, Dean, Etheridge, Jones, Luigi, MacGregor, Smith, Wilson, Young."

A kindred feeling might be experienced as we hear the names of species exterminated from this continent intoned from the ever-lengthening roll—"Great Auk, Labrador Duck, Passenger Pigeon, Eskimo Curlew, Carolina Parakeet, Heath Hen, Ivory-billed Woodpecker."***



**AUTOMATIC FEEDER
MODEL DF-1**

It's square—not round like a barre—because it is designed and fabricated for one specific purpose. Model DF-1 holds 300 pounds of corn and stands on four legs. Constructed of heavy gauge galvanized steel. Lockable door to controls and battery. Feed the amount you want when you want. DF-1 comes complete with 12 volt dry battery and the DFT-1 Automatic Timer. Extension pipe legs are not included.



**AUTOMATIC TIMER
MODEL DFT-1 (PAT. PEND.)**

Hundreds of feeders already in the field do not function properly because of inefficient and unreliable timing mechanisms. The DFT-1 Automatic Timer can rejuvenate these feeders and make them dependable, easily operable units. Jeweled 24 hour clock movement. Electronic circuitry for precise feeding cycles. Up to eighteen operations per day. No flashlight batteries or photo cells. Adjustable from 0-30 seconds. Twelve volt D. C. Automatic or manual operation. Simple to program. By far the finest battery powered timer made.

12 months warranty. Free brochure. Dealer franchises.



SWEENEY INSTRUMENTS
WELFARE, TEXAS 78036
(512) 537-4244

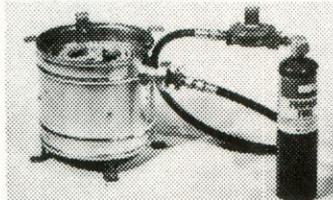
AUTOMATIC GAS

Portable Stove

Up to 27,000 BTU's...weighs 8 lbs.
Cast iron burner, galvanized jacket.

- FRY FISH IN MINUTES •BOIL CRABS-
- COFFEE •IDEAL FOR COOKOUTS

STOVE ONLY-\$19.95



- Use on any size LP gas cylinder
- or natural gas. Air shutter
- makes clean flame.

COMPLETE UNIT: Stove-3 Ft. Hose-Regulator-
Special Adaptor and Valve for 14 Oz. Bottles.

Only **\$34.95** (No Bottles)
(Add \$2.00 Tax and Postage)

Ask Your Local Dealer or Order Direct:

FRANCIS ENTERPRISES
P.O. Box 120 Tyler, Tex. 75701

**LIVE-
CATCH
TRAPS**



Write for
FREE CATALOG

Low as \$4.95

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

**MAKENS' GUIDE TO U.S.
CANOE TRAILS**



By
*James C.
Makens, Ph.D.
LeVoyageur,
Paper
\$4.95*

Alphabetical, descriptive list of about 900 canoe trails, from Brushy Creek, Ala., to Snake River, Wyo., with 14 waters in Texas; a bibliography of references, also names and addresses of guides, professional and amateur. The first of other editions promised by Dr. Makens. Recommended by *Wilderness Camping*.

Order from:

KEYMARK BOOK SERVICE
P.O. Box 5126
Austin, Texas 78763
Please send _____ copies of
**MAKENS' GUIDE TO U.S.
CANOE TRAILS**
at \$4.95 plus 50¢ for
tax & mailing cost.

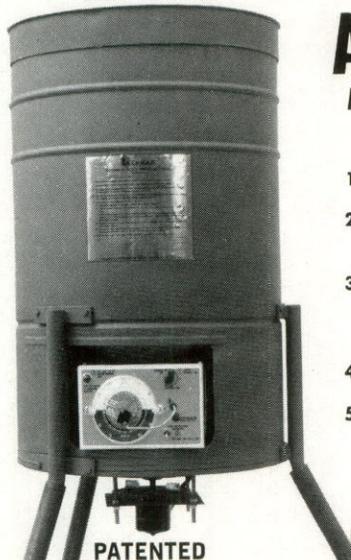
Name _____
Address _____
City, Street, _____
Zip _____
Enclosed is \$ _____, check or
money order, or charge to
 Bank Americard
Account No. _____

BIRD DOGS

Chandler Kennels, one of the largest in the business offers to you for your selection over 100 top trained POINTERS, SETTERS & BRITTANIES. These dogs are all registered out of top blood lines. We guarantee all our dogs as advertised to suit you, the Hunter. Also puppies & started dogs.

Call, write, or come by:
CHANDLER KENNELS
P.O. Box 1011, La Porte, Tex.
Call: Area Code 713-GR 1-4023
Hollen Chandler—Owner

NEW LEHMAN



AUTOMATIC FEEDER

Fishermen • Hunters • Birdwatchers
Time Tested—Over 3,800 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 EQUIPMENT CO.
Route 3, Box 53, Corpus Christi, Texas 78415

Minton

FISHING ROD HOLDERS

For all boat fishermen! Clamp-on model, screw-on model. Two sizes, for rods up to 3/8" or 5/8". Cast aluminum. Holds firmly, releases instantly. At your dealer's or order direct postpaid.

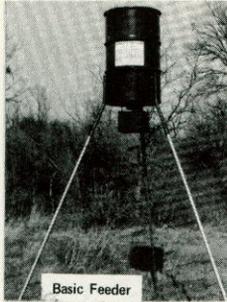


Model A \$5.95

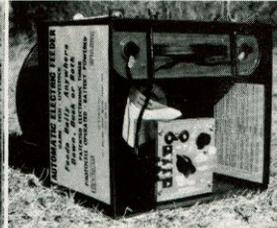


Model B \$5.95

R. M. MINTON,
BOX 824, SAN ANGELO, TEXAS 76901



Basic Feeder



AUTOMATIC ELECTRIC FEEDERS for GAME • FISH • LIVESTOCK



Feeder Kit

Feeds daily anywhere at Dawn or Dusk or Both. Patented electronic timer, photocell operated, battery-powered. Feeds at optimum times regardless of the seasons for greatest effectiveness and feeding efficiency. Adjustable dispensing rate and time. 110 volt A-C powered models also available.

| | Shipping Weight | Price |
|---|-----------------|----------|
| Basic Feeder — Model PTF (Includes battery) | 85 lbs. | \$139.50 |
| Feeder Kit — Model PTFK (includes battery, universal funnel for 5 gal. cans and larger, complete except for feed container) | 20 lbs. | \$89.50 |
| Pipe Leg Suspension — Model PLS (As shown) | 38 lbs. | \$10.00 |
| Tripod-Winch Suspension—Model TWS (Not shown) | 140 lbs. | \$69.50 |

Send for free brochure of complete line.



SPENCO Inc.

SPECIALTY PRODUCTS AND ENGINEERING

5911 Bullard Drive, Austin, Texas 78731 Phone 512/454-3355

SNAKE REPELLENT

4 POUND BAG TREATS 1400 SQ. FT.
\$4.95 POST PAID (NO C.O.D.'s)
USE ON CAMPSITES, BLINDS
UNDER MOBILE HOMES
SATISFACTION GUARANTEED

VICKERS INDUSTRIAL COATINGS

5607 RANSOM HOUSTON, TEXAS 77017

LLANO COUNTY LEASES

Excellent hunting available for season, week, or weekend. Individual pastures with cabins and/or campsites for each group. Deer, Turkey, Dove, Quail, Hogs. Reservations accepted now at reasonable prices.

BEN A. WALLIS & SON
LLANO, TEXAS 78643
(915) 247-5207



The Electric Winch, perfected.

The Electric Winch fits neatly on existing Jeep bumper—bumper does not have to be extended—winch does not protrude. (Model 48112)

For 35 years, Koenig's automotive PTO winches have been rated tops in the industry. Now we have perfected The Electric Winch. It's The Electric Winch by Koenig.

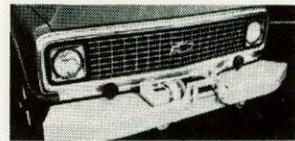
It provides you with sound construction and all the desirable features you would specify, such as 8,000 lbs. of dependable pulling power, reversible 12-volt DC operation—all in a completed package

including 150' cable and hook.

We invite you to compare The Koenig Electric Winch with others. You'll find that Koenig, as always, provides a lot of extra design features. There's positive action touch control for forward, off and reverse. There's a drum clutch for free spooling cable combined with an optional worm brake for your hoisting operations. There's a double-solenoid

assembly, mechanically interlocked to prevent damage due to sticking contacts.

And to insure complete dependability, battery connections are furnished for bolted cable connections—instead of the standard clamp-on adapters for both positive and negative cable.



Complete winch assembly includes EC100 winch with 150' of 3/16" cable with hook, channel bumper with splash plates, 4-way cable guide roller assembly, bolts and electrical hardware. (Model 48100 for Chevrolet)

Write for complete details on The Electric Winch by Koenig. It's available for all trucks, please include make and model of your vehicle.



Koenig Iron Works, Inc.
P. O. Box 7726, Dept. TP-9
Houston, Texas 77007

LIMITED EDITION OF ORIGINAL PRINTS BY CHARLES BECKENDORF

The term original print means that the artist that did the original drawing must also make the plates for printing. In this edition I have also done the printing.

Many prints today are called limited editions when there may be several thousand prints made. This edition is highly limited to only 300 impressions, and no more will ever be done. Each print is given a number, identified and signed by me.



1 BALD EAGLE



2 GOLDEN EAGLE



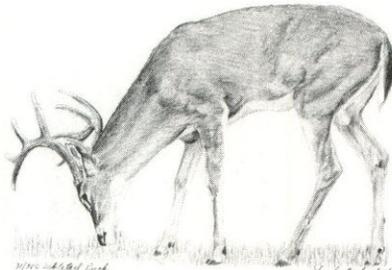
3 GREAT HORNED OWL



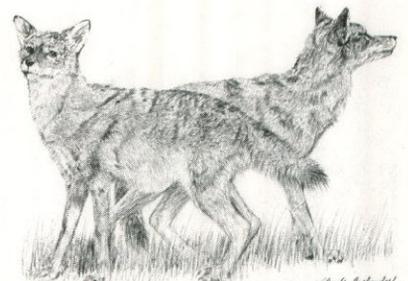
4 RED TAILED HAWK



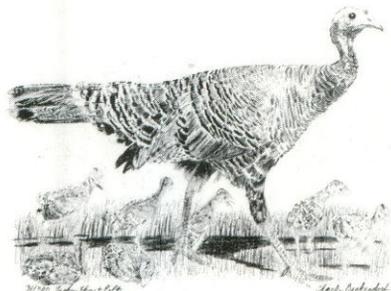
5 WHITETAIL DOE & FAWNS



6 WHITETAIL BUCK



7 COYOTES



8 TURKEY HEN & POULTS



9 WILD TURKEY GOBBLER



10 BASS



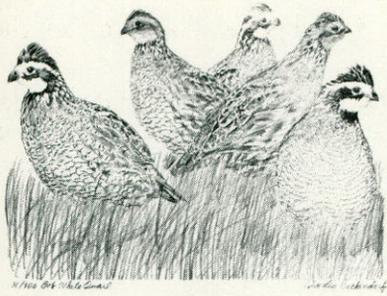
11 MOURNING DOVE



12 WHITEWING DOVE



13 ROADRUNNER



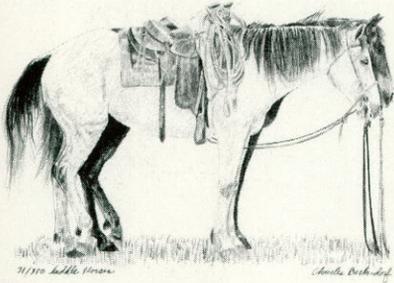
14 BOB WHITE QUAIL



15 BLUE QUAIL



16 BISON



17 SADDLE HORSES



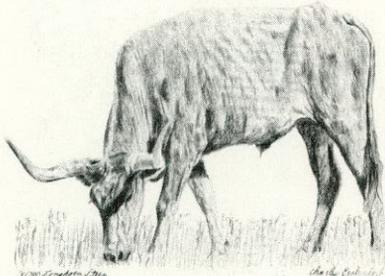
18 MARE AND COLT



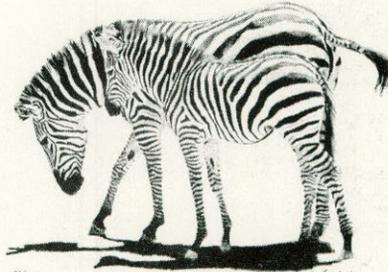
19 LEOPARD



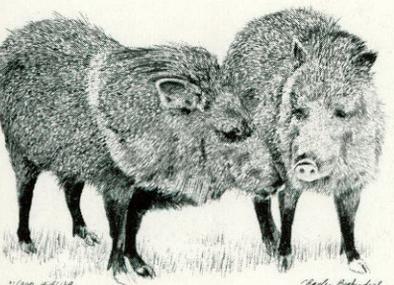
20 LONGHORN COW & CALF



21 LONGHORN STEER



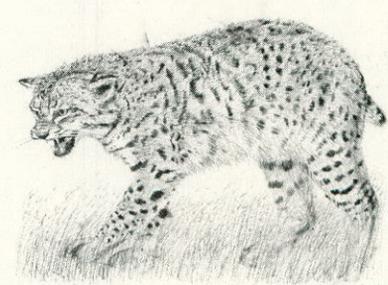
22 ZEBRA



23 JAVELINA



24 RACCOON

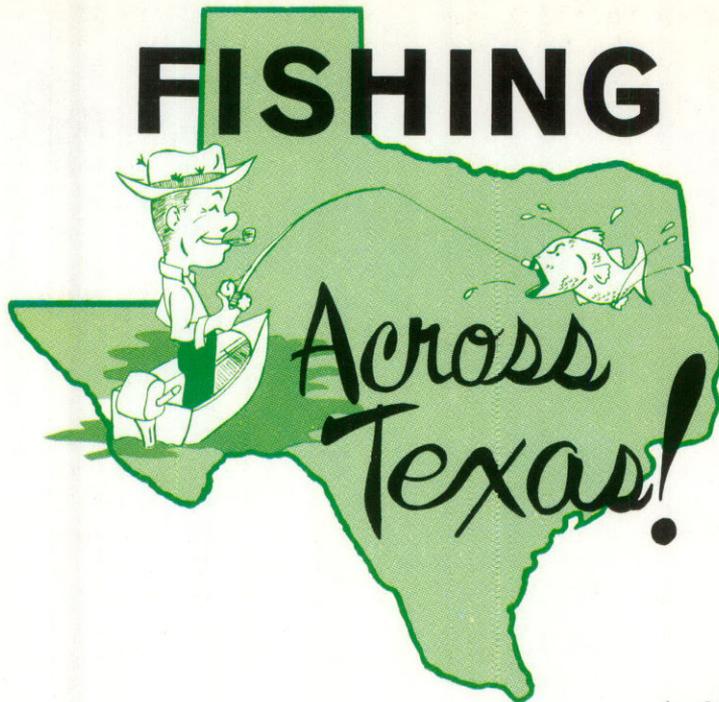


25 BOBCAT

The original prints are black & white, 11 x 14 inches, standard size, and cost \$6.00 ea. the first thirty prints of each subject are individually hand colored by me using permanent pigment water-colors, and cost \$30.00 ea. Texans please add 5% sales tax. All prints are mailed the same day of receipt of order in a hard cover folder, postage paid. Satisfaction of print and condition of package is fully guaranteed. Simply put the number corresponding to the print or prints you select on a sheet of paper with your complete return address. Enclose check, cash, or money order and mail to:

CHARLES BECKENDORF — P. O. BOX 728 — FREDERICKSBURG, TEXAS 78624

When in the Texas Hill Country, come see our Wildlife Art Gallery at 519 E. Main Street in Fredericksburg next to the Sunday House Restaurant. We have drawings, watercolors and paintings of the animals of the world as well as Texas animals and scenes. Open every day.



Trout and Red Fishing . . .

by CONRAD FATH
(February 1959 issue)

WHERE TO FIND trout and reds on the Texas Gulf Coast was discussed in the January issue of TEXAS GAME AND FISH. Now I will talk about how to catch them. When I get my tackle together for a trip to the coast I always include a supply of Tony Accetta No. 5 spoons and some yellow bucktails. This is one of the all-time favorites for catching trout. I learned how to use this spoon from such masters as Hart Stilwell and Felix Stagno. Here are some of their tricks:
Skipping A Spoon:

Attach the bucktail on the ring holding the hook, but place it below the hook. This will make the spoon ride on top easier. Tie a leader about 24 inches long on your line, and tie the leader directly to the spoon. Do NOT use a snap swivel. Be sure that the leader is started through the hole in the spoon from the bottom and that the knot is on the bottom. This will help the spoon to ride on the surface.

Now, make a cast, and just as the spoon reaches the surface of the water draw the rod tip backward smoothly. This action starts the spoon sliding along the surface of the water. Hold the rod tip straight up with the reel on level with your face. Reel in fast enough to keep the spoon skipping

in a straight line toward you. To make it skip you must lower the rod tip, take two quick cranks on the reel, then stop reeling and pump the rod twice. Repeat this action constantly until the spoon is in. This rod-and-reel action must be accomplished very fast and smoothly without any jerks. The spoon will skip from side to side on the surface in a zig-zag pattern that will drive trout crazy. I have had trout follow a spoon being played in this manner for a hundred feet, chopping at it all the way, and finally grabbing it right at the rod tip.

This is the only way to play a spoon when fishing shallow waters; that is, water from six to 18 inches deep, or water that contains a lot of floating sea weed or grass. If the grass condition is very bad, replace the treble hook with a single hook. This will allow you to fish longer without fouling your spoon.

The skipping technique takes a lot of practice and hard work, but it really pays off. It will fool a big sow trout when nothing else will.

Jigging A Spoon:

When you fish water three feet deep or more, use the jigging method. This is accomplished by using the rod and reel exactly the same as you do in skipping a spoon, the only difference

being that you let the spoon sink as soon as it hits the water. After the spoon has sunk about three feet, start the pumping action with the rod tip and go through the same procedure as in skipping a spoon, but don't let the spoon come to the surface. Do not jerk the rod tip while jigging. Be sure you slow down the procedure and use gentle pumps and longer pauses between reel cranks.

There is a variation to this method that is very similar, but it is not as effective. Lower the rod tip until the rod is parallel to the water and very close to the surface. The rod should be at a 90 degree angle to the line. In other words, if you cast the spoon directly in front of you, then the rod should be pointing directly to your left or right, as you prefer. As the spoon sinks give it a fast, sharp jerk with the rod tip, reel in the loose line rapidly, and repeat the jerk. Continue this until the spoon reaches the rod tip. Other lures such as a Plugging Shorty, Fisherman's Friend, and Pico Perch, may be used with these jigging methods.

Other variations can be productive such as the slow, steady crank and the fast, steady crank. These are simple and easy. The slow steady crank should be done by holding the rod tip straight up in the air, to reel in the lure. Usually this method is used with lures that have a lot of action built in, those that wiggle easily when retrieved slowly.

The fast, steady crank should be done with the rod tip close to the surface of the water and pointing at the lure. As the lure enters the water let it sink about two feet deep, then reel in steady and very fast. A spoon works fairly well fished this way, but may have a tendency to twist the line when retrieved. A wiggle diver type of lure or a lure with very little built-in action is the type to use for this method of fishing.

A good combination to use with the slow steady retrieve is a Dixie Jet Spoon with about 14 inches of leader tied to the hook ring and a yellow bucktail and triple hook tied to the end of the leader.

One of my favorite ways to fish for trout is to use a floating, topwater lure like a Heddon Zara Spook or a Creek Chub Darter in a white or

silver flash color. The action to be used with top-water lures is just the opposite we use in black bass fishing. Fishing for bass we try to splash water with the lure; fishing for trout we do NOT splash water with the lure, just jiggle the lure or make it dart from side to side with quick erratic movements. But be sure to let the lure rest for a few seconds after each jiggle. I usually fish a top-water lure when I fish the flats in shallow water while wading.

I hesitate to mention color when talking about lures for trout and reds. Such a variety of colors is available in all lures that it is hard to choose. My many experiences while fishing for trout convinced me that no one color is best. What is good today might not be good tomorrow. The color good at one place on the Coast might not be good at all 50 miles away. I have seen the time when a silver spoon with a yellow bucktail was the only thing to use one day, and the next day a gold spoon without a bucktail was the best lure. I saw a clear plastic lure take trout every cast in one place where a red plastic or brown plastic lure exactly like the clear one wouldn't catch a thing. A week later the red plastic lure took trout when the clear one would not. The best advice I can give about color is to take a good variety of lures of different colors when you go fishing and try them all until you start catching fish. When you catch a trout on one lure stay with that particular lure. Don't change. Then again I have seen the time when trout would hit anything I threw in the water, but this is the exception, not the rule.

When fishing for reds with a spoon I do not use a bucktail. I use a heavy spoon that sinks fast and I try to fish the spoon as close to the bottom as possible while using the jigging method.

Popping Corks:

Most fishermen use a popping cork when fishing with shrimp. It also is very effective when used with lures. I like to use the weighted popping cork with about 18 inches of 20-pound leader. I fish spoons, artificial shrimp, or just plain bucktails with a treble hook on the end of the leader. However, I try to use small lures with a popping cork. This rig should be

fished just opposite from a top-water lure. When the cork hits the water, let it sit still for a minute, then tighten up the line and jerk the rod hard and sharp. The louder the noise and the bigger the splash the cork makes the better. Be sure to let it sit still for a long time between jerks. However, I have seen some fishermen use a cork fast; they jerk and reel as fast as they can all the way in. I have also used a yellow fly rod jig with a popping cork for trout and a white fly rod jig with a popping cork for white bass.

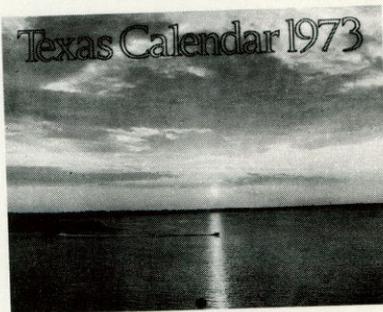
Using live shrimp with a popping cork is probably the best combination of all for catching any kind of fish on the Gulf Coast. I like to use a No. 10 treble hook on my popping cork rig with shrimp. But I have seen Coast fishermen use single hooks all the way from a No. 6 to a No. 5/0 on this same rig. Fish this type rig very slowly and leave it in the water as long as possible. Be sure to keep a tight line and hold the rod tip straight up in the air ready to strike hard and fast the moment the cork bobs from a trout strike. You never know what you are going to catch with the rig. I have seen everything from piggy perch to tarpon strike a live shrimp, so don't be surprised at what you catch with this combination. Variety is the spice of life, and, Boy! this rig is spicy!

Another way to use shrimp is to free shrimp. Now if you really want to put meat on the table, or fill your deep freeze, this is it. Use a spinning

rod and reel with 20-pound monofilament line with a No. 10 treble hook on the line. Hook a live shrimp through the horn and chunk him as far as you can. When the shrimp hits the water, give him line and let him swim where he wants to go. Don't try to play him or retard his movements, just leave him out in the water until something gobbles him up; that usually doesn't take long. This kind of fishing should be against the law; it is too deadly. But I love it.

When live shrimp is not available, don't pass up dead shrimp. Frozen shrimp is usually available at all times on the Coast. You can peel the shrimp, split it in half length-wise and fish it with a popping cork or on the bottom. If you happen to run out of shrimp while fishing, cut the belly from a trout or red into small strips and use this for bait. Bottom fishing rigs are the same in salt water as the ones used in fresh water. The main difference is the type of sinkers. Pyramid sinkers weighing from three to six ounces are used in salt water because these sinkers will hold on a sand bottom where the round types will not hold.

Don't overlook piggy perch and mullet for bait. Squid is good bait, too, but it is hard to find. Sand crabs make fine bait, but I'm not fast enough to catch them; also try fiddler crabs. If you really want to have some fun, just ask your wife to bait your hook with a live squid or sand crab. This is more fun than fishing! **



Texas Calendar 1973

This beautiful calendar contains 13 full color Texas Scenics printed on heavy gloss stock. The monthly calendar portion provides daily note space, and listings of all holidays. It is plastic bound for easy use TEXAS CALENDAR 1973 MAKES A LOVELY GIFT ITEM. Ask for them at your stationers or order direct.

Printed in Full Color 10 5/8" x 8"

ORDER TODAY

Please send _____ (quantity) TEXAS CALENDARS 1973 ONLY \$2.80 each (includes postage & applicable sales tax.)

Enclosed is \$ _____ Check _____ Money Order in full payment _____ Gift List enclosed _____

Name _____

Address _____

City _____ State _____

Zip _____

TEXAS CALENDAR INC.

P.O. Box 9812, Austin, Texas 78757



Junior Sportsmen

by Joan Pearsall
(November 1966 issue)

Conservation Quiz

“Conservation can be defined as the wise use of our natural environment: it is, in the final analysis, the highest form of national thrift—the prevention of waste and despoilment while preserving, improving and renewing the quality and usefulness of all our resources.”

These are the words of our late President, John F. Kennedy, in a message to Congress in 1962. This “highest form of national thrift” that he referred to—appreciating and taking care of the country’s vast natural wealth—is something that deeply concerns all junior sportsmen, as well as their elders. What is done today has a tremendous effect on the heritage of the future.

Alert young conservationists can do much for this cause. Many get involved in helpful projects through Boy Scouts, 4H Clubs, and so on. Also, there’s a lot of things just one person, on his own, can do, such as being on the lookout for litter, feeding birds, obeying game laws. Perhaps the most important thing is to *learn* as much as possible, about nature and how to conserve it.

You young outdoorsmen already have a fine head start. To show yourselves just how much you do know—and to get an idea of all there is yet to learn—give this conservation quiz a try.

Place a check beside the answer that is most nearly correct for each question:

- Conservation is the responsibility of:
 - The state government
 - The Federal government
 - The 4H, Boy Scout, and Audubon societies
 - Everyone
 - The United Nations
- Soil, water, forests, and wildlife conservation means to:
 - Store up resources so they will not be used at all
 - Make laws about our natural resources
 - Keep these resources and use them only in an emergency
 - Study nature at home and in the country
 - Use these resources wisely so the most people benefit for the longest time
- Most forest fires in the U.S. are caused by:
 - Campfires
 - Brush burning
 - Lightning
 - Logging operations
 - Careless smokers
- Woodlands are often good places for deer and bear because they provide:
 - Protection from disease
 - Shelter from lightning
 - Food and shelter
 - Protection from snakes
 - Sleeping places
- Forests help to control floods by:
 - Slowing down water run-off
 - Reducing rainfall
 - Lowering air temperatures
 - Increasing snowfall
 - Increasing water run-off
- The first step in conserving our saltwater resources is to:
 - Stock fish in the ocean
 - Decrease saltwater sport fishing
 - Kill sharks, whales, and other fish eaters
 - Stop using fish for fertilizer
 - Find out more about saltwater life and its needs
- Conservation of water must be practiced:
 - Only during floods
 - Only during dry periods
 - Only by professional workers
 - Only during the summer months
 - All the time
- Lands around reservoirs are often kept in trees because forests:
 - Keep soil from washing into the water
 - Supply good picnic areas
 - Improve the climate
 - Stir up the air
 - Grow big trees
- Soil erosion is:
 - A movement of soil by wind and water
 - A type of soil
 - A measure of the water in soil
 - A conservation practice
 - A way of improving soil
- Top soil is a very important part of the soil because:
 - It is very dark in color
 - It washes less easily
 - It washes more easily
 - It protects insects and small animals
 - It contains more of the foods needed by plants
- Overgrazing is poor practice because:
 - It is hard to control
 - Ruins the scenery
 - Leads to soil erosion
 - Increases fire danger
 - Loosens the soil
- Knowing how much rain usually falls is important to the farmer because it tells him:
 - How fast his trees will grow
 - What kind of machinery to use
 - When to expect floods
 - If ducks will use his farm pond
 - How to get the best use of his land
- The fact that birds eat weeds and insects show us that birds:
 - Are of no value
 - Are valuable to man
 - Need bird feeders
 - Do not have enough to eat
 - Do not eat crops or helpful insects
- Hawks and owls are usually helpful because they:
 - Kill rats and mice
 - Scare away harmful birds
 - Eat weeds and unwanted plants
 - Help spread plant and tree seeds
 - Eat waste grain and seeds
- The stocking of fish in lakes and streams should mainly depend on:
 - Number of fish and amount of food present in the water
 - The kind of farming done in the area
 - The number of wildlife around the water
 - The number of fish-eating snakes and birds around the water
 - The distance from the hatchery

ANSWERS: 1-d; 2-c; 3-b; 4-c; 5-a; 6-b; 7-c; 8-a; 9-a; 10-c; 11-c; 12-c; 13-b; 14-c; 15-a.





10
STATE
GAME
WARDEN
165

20
TEXAS
GAME & FISHERIES

Charles Shaw