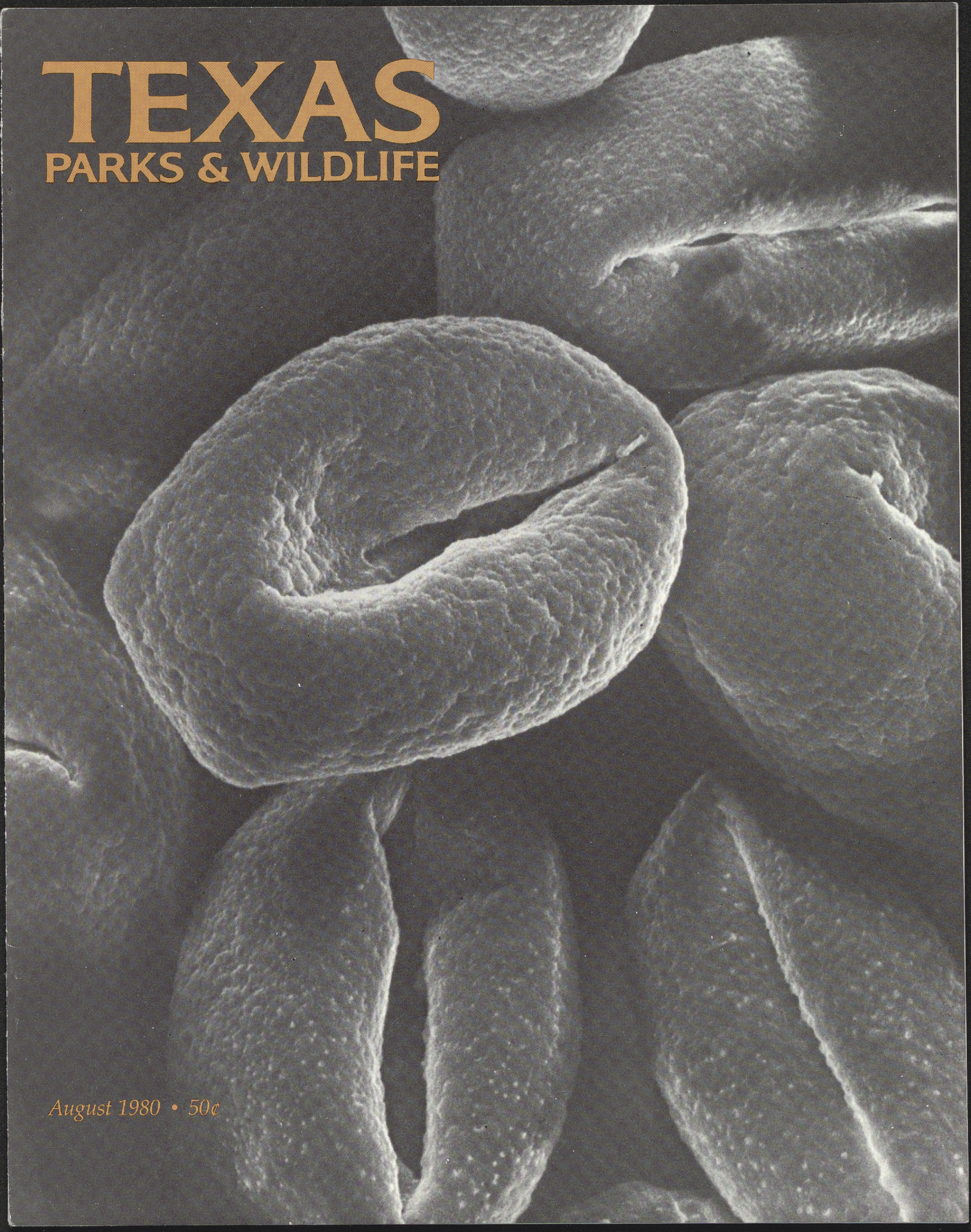
TEXAS
PARKS & WILDLIFE



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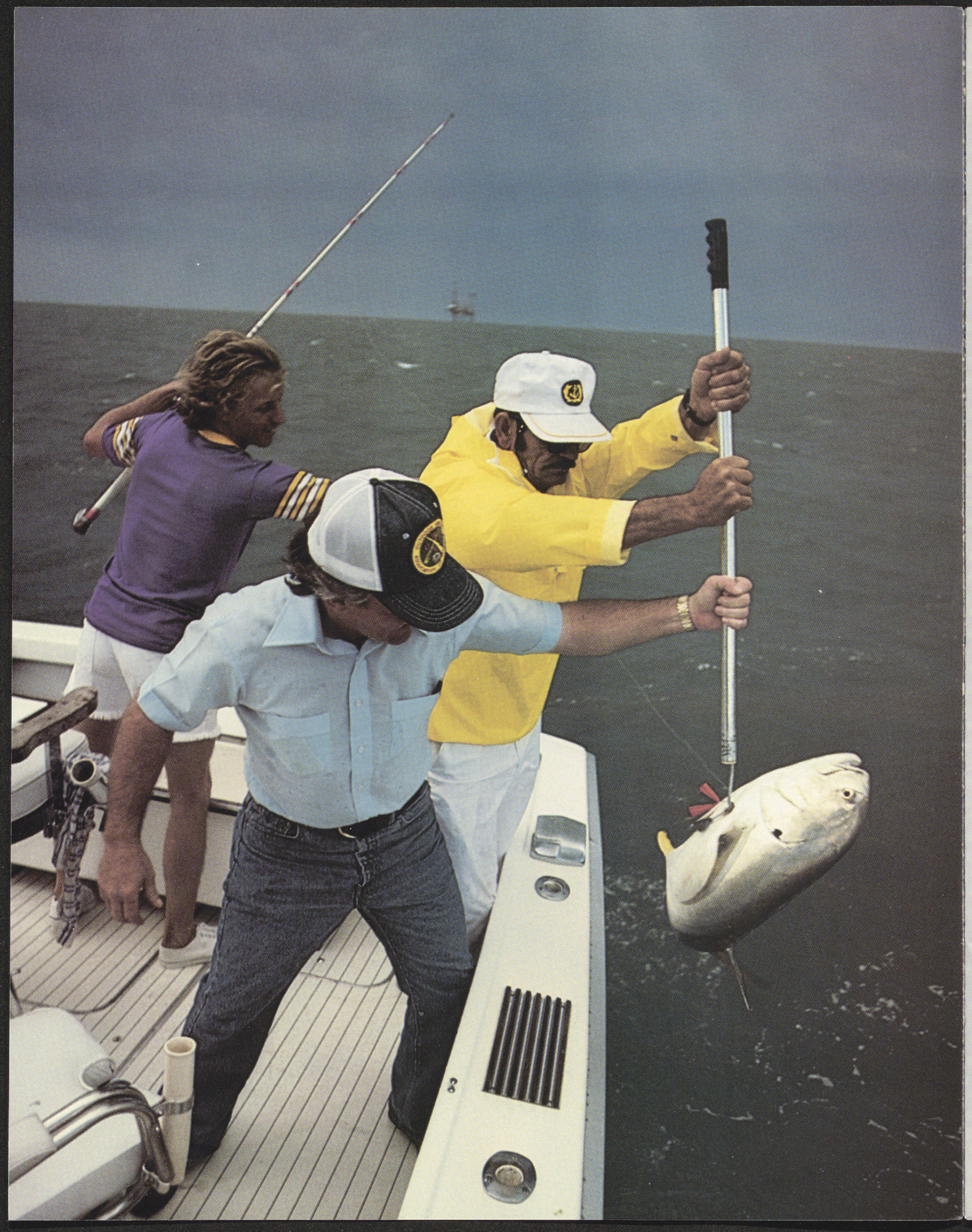

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(ISSN 0040-4586)

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

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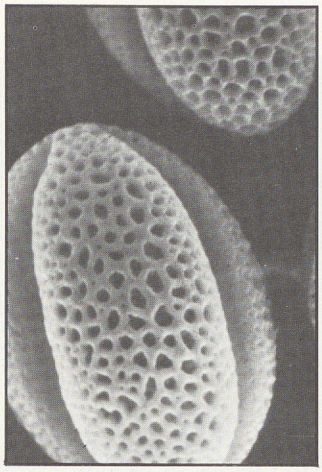

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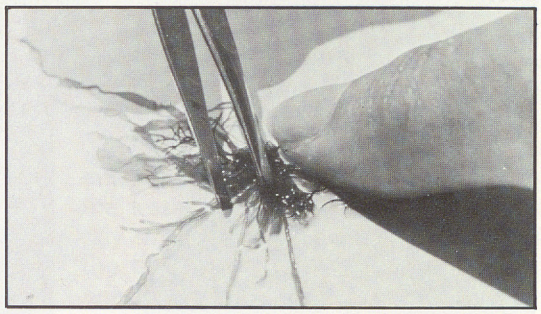

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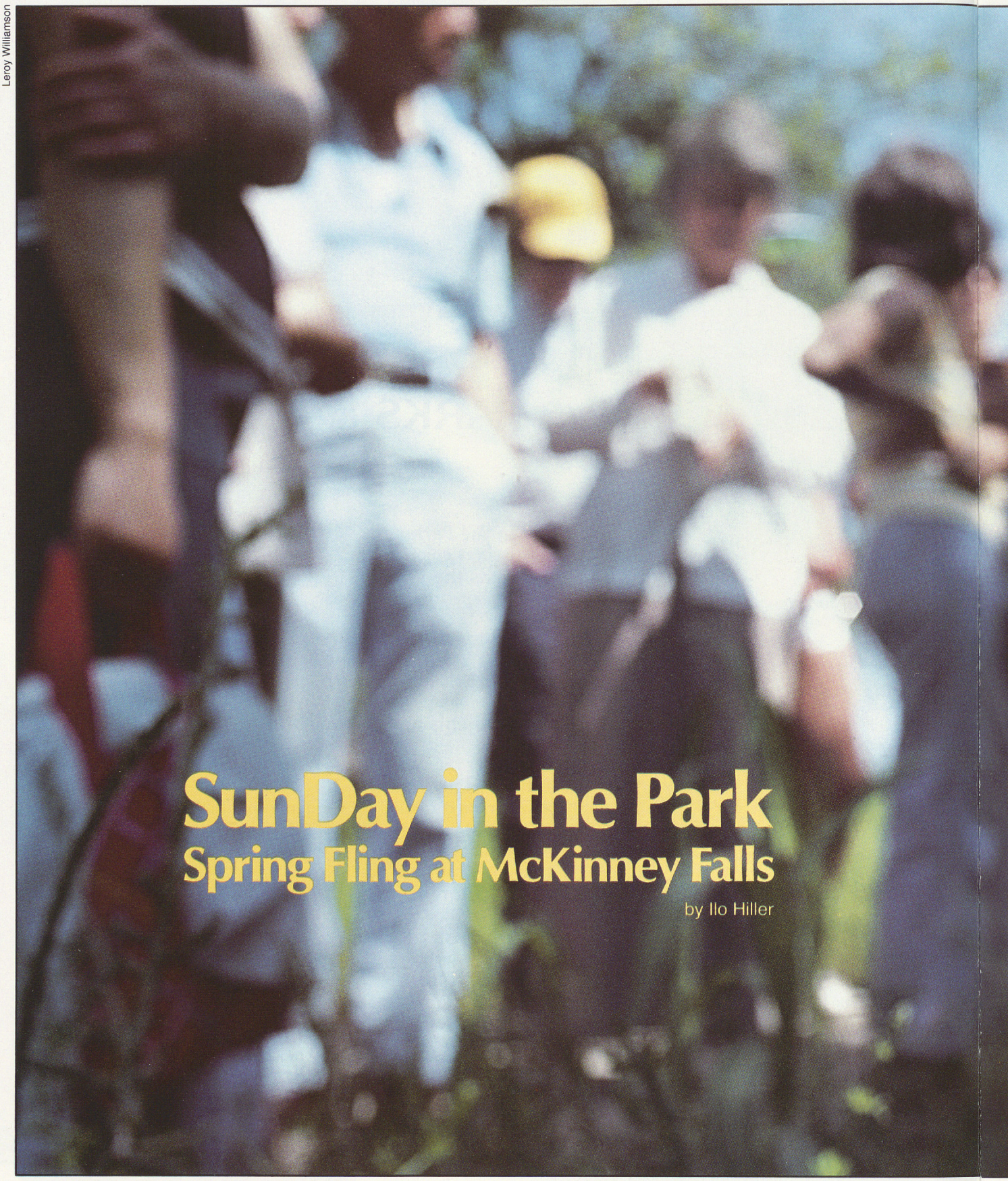
TEXAS PARKS & WILDLIFE

August 1980, Vol. XXXVIII, No. 8

Front Cover: Airborne pollen causes misery for countless numbers of people each year; however, this oak pollen, magnified thousands of times by a scanning electron microscope, seldom produces allergic reactions. (See story on page 12.) Photo courtesy A&M University Anthropological Research Laboratories.

Inside Front: An exciting, exhausting and successful day of offshore fishing could result in landing a large jackfish. Photo by Bill Reaves.



Leroy Williamson

SunDay in the Park

Spring Fling at McKinney Falls

by Ilo Hiller

During the summer there is never a shortage of visitors in our state parks, and weekends produce capacity crowds. But during the fall, winter and spring, use of these facilities often is reduced drastically. For some reason, many summer visitors fail to see that state parks can be enjoyed on a year-round basis. When was the last time you drove the short distance to that park near your home during the less-popular seasons and spent the day strolling the nature trails, watching the birds, studying the vegetation and enjoying the outdoors? Many residents of Austin and the surrounding area did just that when they participated in "Sun-Day in the Park" last April at McKinney Falls State Park. Although the activities were planned, they were designed to show visitors how to enjoy what their local state park has to offer and how to sharpen outdoor skills for future outings. Wild honeysuckle (left) was just one of the many species of wild flowers identified for those who participated in the planned nature walks along the park trails. Spring always produces lavish color as the different wild flowers begin to bloom, but each season has something to offer the visitor who takes the time to look closely at the vegetational variety that grows in any park. Whether you carry guide books and make an effort to identify the flowers, trees, insects and birds encountered on your nature walks, or just enjoy looking at them, you should find plenty of things to observe at any time of the year you decide to visit your local state park. You also may find the cooler temperatures of fall, winter and spring more conducive to walking.

Leroy Williamson

Leroy Williamson

Bill Reaves

Opal Washington, Travis County Extension Agent, used the excellent cooking facilities at McKinney Falls State Park during "SunDay in the Park" to demonstrate how to prepare outdoor meals (top left). Recipe handouts were distributed and observers sampled the food when it came off the grill. Many who came to the park that Sunday purchased barbecue, nachos and soft drinks from the Austin Sertoma Club's concession (left). Proceeds were donated to nonprofit organizations. Musical entertainment for those who spread their blankets and towels on the grassy area beside the visitors' center was provided by several local groups. Each group entertained for about 45 minutes on the shaded stage (above).

Leroy Williamson

Bill Reaves

Free silk screening of the "SunDay in the Park" logo made it possible for many visitors to take home a memento of their outing at McKinney Falls State Park (left). Some, who did not have an extra shirt for screening, took off the ones they were wearing. By participating in the statewide Junior Ranger Litter Program, 142 children earned their junior ranger helmets at McKinney Falls. Thanks to the many sacks of litter they picked up (bottom left) only routine maintenance was required at the end of the day. Budding young artists were given a chance to express themselves by freely applying paint to large pieces of butcher paper creating colorful murals (below). Occasionally as much paint ended up on the child as on the paper, but no one seemed to mind, including the parents.

Leroy Williamson

El Paso Leads the Way

Border City Promotes National Hunting & Fishing Day

Article and Photos by Darrell Holt

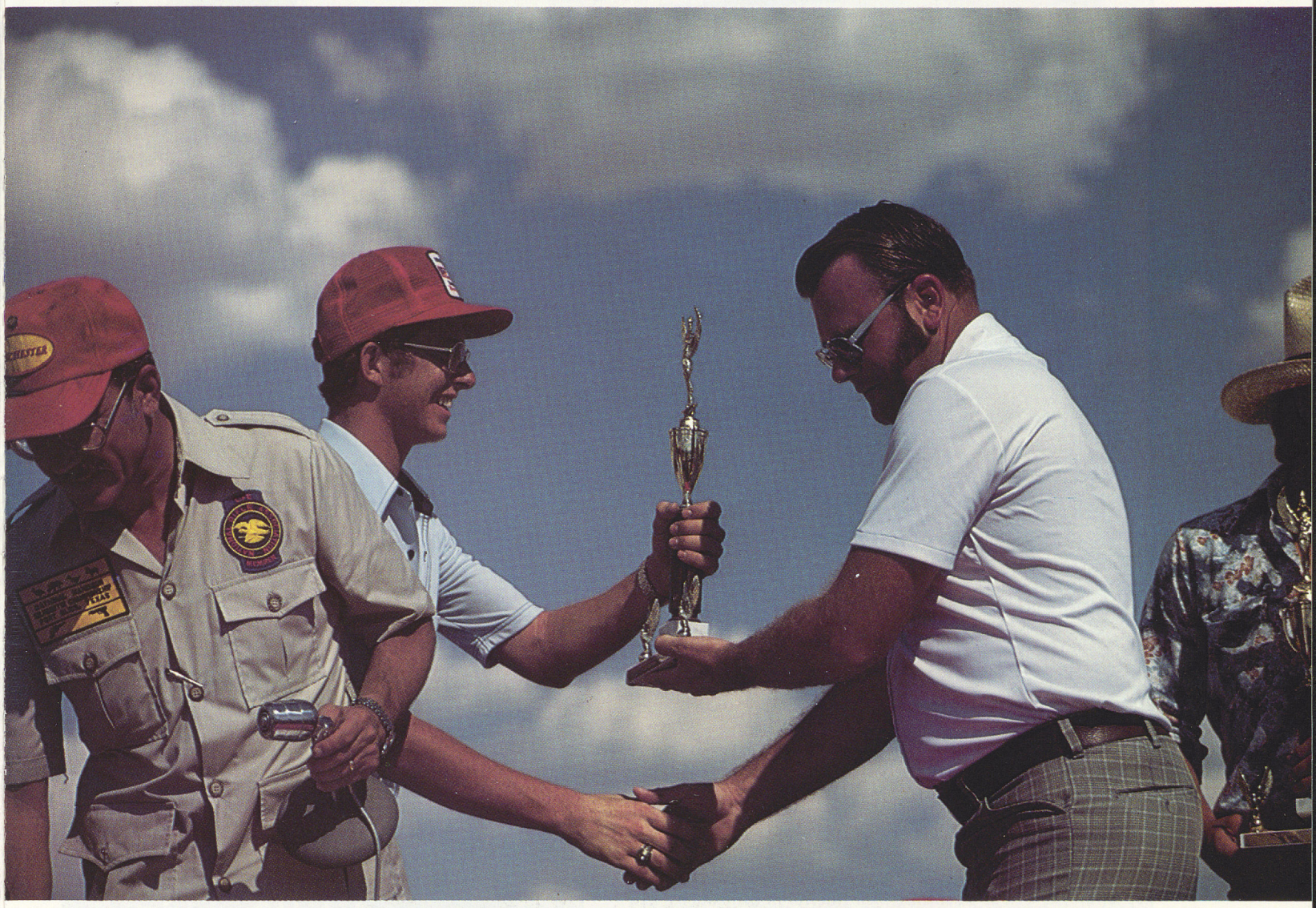
Since its national debut in 1972, National Hunting and Fishing Day has become one of the most widely accepted and most effective means of promoting the sportsman's role in conservation.

The nationally recognized platform endorsed by presidents, governors and mayors has been successful in reaching more than 75 million citizens in seven years. However, Texas has been slow to establish an organized statewide program. Even though there have been successful National Hunting and Fishing Day activities in Wichita Falls, Houston, Denison and Harlingen, a concentrated effort has not been made in the state's 24 standard metropolitan areas. Some communities or sporting groups have sponsored open-house activities or displays, but were discouraged by lack of public interest, poor timing or inclement weather.

Such is not the case in El Paso, where interest in the outdoors and shooting sports is widespread. Add to that good climate, perfect timing and excellent participation by support groups, and you have a showcase for National Hunting and Fishing Day activities in Texas. Usually, the program is held at the Fort Bliss Rod and Gun Club in late August so as not to coincide with the fall hunting seasons and rampant football fever.

Dave Zang, a member of the Coalition of Sportsmen, took advantage of youngsters' competitive nature and organized the activities and scoring in such a manner as to give everyone an opportunity to compete and win. The rules and scoring are simple. Anyone can participate, but awards are limited to 12- to 17-year-olds. Winners of awards in each age category are those who accumulate the most points from 17 different activities, with a maximum of 20 points for each one. Scoring is based on the student's display of interest and skill. Skill activities include pistol and rifle silhouette shooting, pistol and rifle target shooting, trap and skeet shooting and muzzleloader shooting.

The youngsters also participate in a field course on gun safety and handling. They are given demonstrations in tomahawk and knife throwing, fishing techniques and shotgun and rifle reloading, and they may

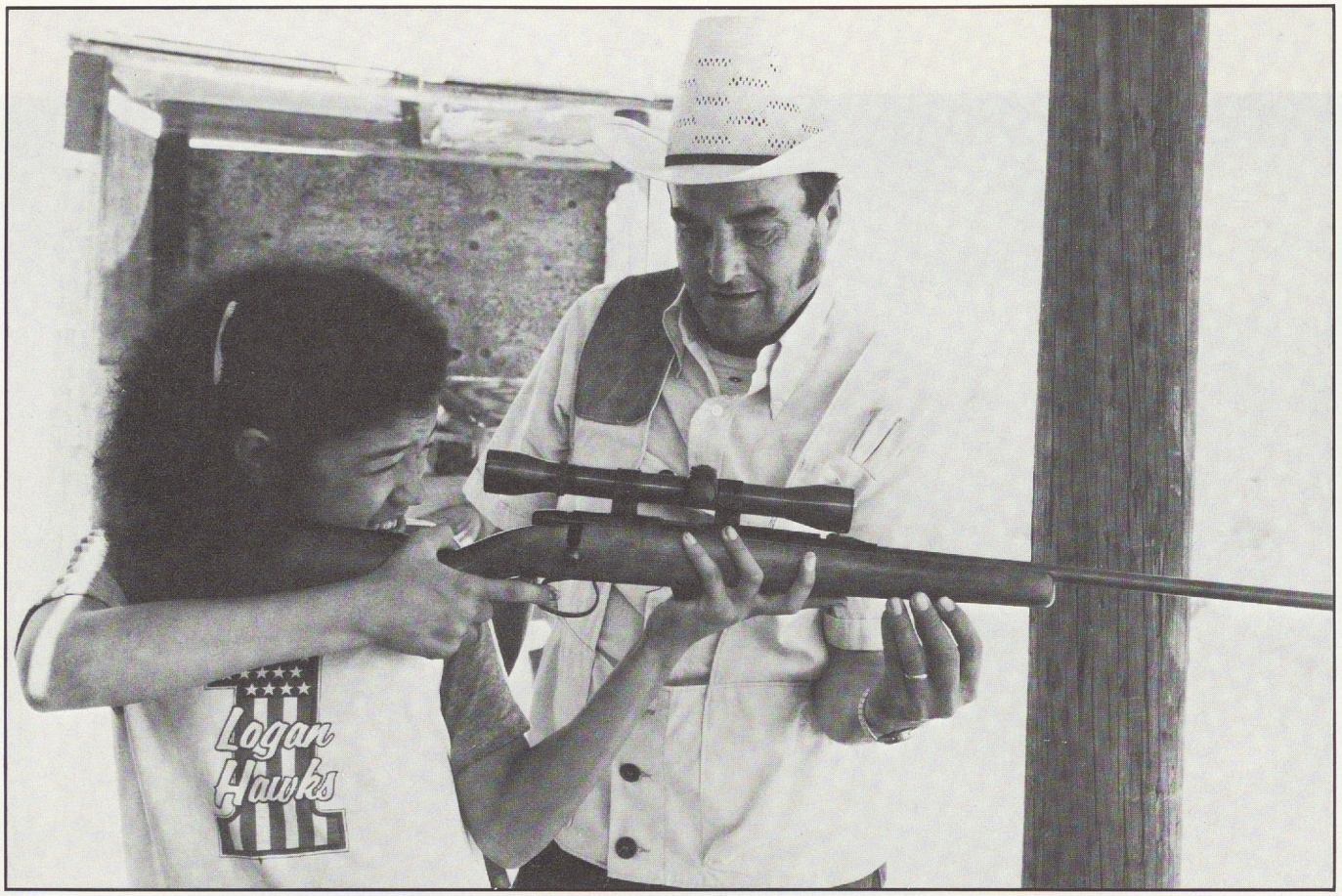


After a full day of activities during El Paso's National Hunting and Fishing Day, the winner in each age class is recognized and presented a trophy in the closing ceremonies. Although anyone can participate in the competition, awards are limited to 12- to 17-year-olds who accumulate the most points in each age category. As many as 800 youngsters and their parents take part in the annual event.

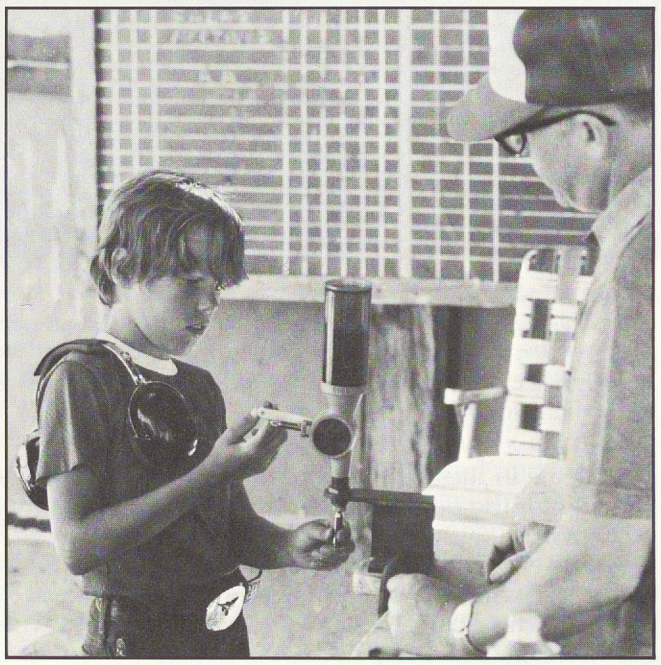
participate in these activities if they wish. Contestants arriving for the opening ceremonies are given a bonus of 20 points.

At the end of the day, the scores are added for each age category and in the event of a tie, an oral test is given. In the closing ceremonies, each age-class winner is recognized and presented a trophy.

Two state agencies usually participate in the event. The New Mexico Game and Fish Department has a booth manned by a representative from the Las Cruces regional office who provides literature and answers questions about New Mexico wildlife and hunting seasons, since many El Paso residents hunt in the "Land of Enchantment."



Scoring for each activity is based on the youngster's skill and display of interest. The students can earn a maximum of 20 points in each of 17 different activities such as rifle shooting and pistol shooting. Demonstrations include shotgun and rifle reloading, as well as fishing techniques and knife throwing, and the youngsters may participate in these activities if they wish. The events and scoring were planned carefully in order to give everyone an opportunity to compete and win. El Paso's National Hunting and Fishing Day organizers believe the activities take advantage of youngsters' competitive nature, as well as enhancing their interest in the outdoors and shooting sports.



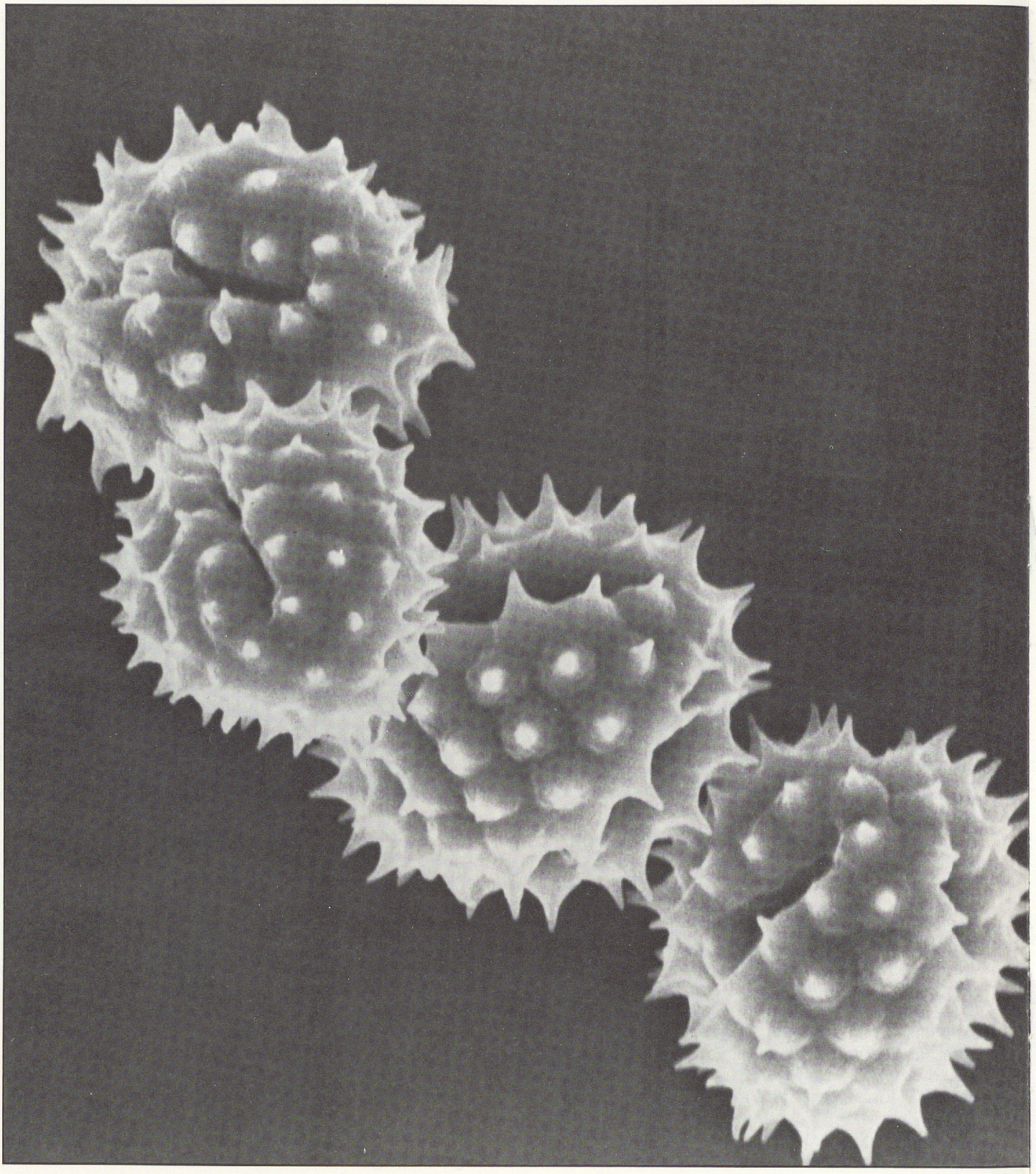
The Texas Parks and Wildlife Department is represented by local game wardens and an employee from Austin headquarters. Last year the department displayed its "blown gun" exhibit, a collection of firearms which have been damaged by some malfunction or incorrect use.

According to Glenn Voorhees, coalition member and local National Hunting and Fishing Day chairman, "The success of National Hunting and Fishing Day in El Paso has to be credited to everyone. When you have as many as 800 youngsters plus their parents participating, then you know we've received excellent cooperation from local merchants, sporting clubs and the news media." He said merchants donated as many as 20 door prizes for the event.

"Local clubs such as Paso Del Norte Muzzleloaders, Paso Del Norte Gun Club, Fort Bliss Rod and Gun Club, Paso Del Norte Gun Collectors, Cactus Bass Masters, El Paso Skeet and Trap Club and Bell Pistol and Rifle Association have never turned us down," said Voorhees. "But most of all, the local news media have supported this program by giving us free television, radio and newspaper coverage. This amounts to thousands of dollars of free advertising. The most important thing, however, is that it shows the civic pride that exists in the largest United States-Mexico border city."

His advice to individuals interested in organizing a local National Hunting and Fishing Day for their community is to obtain the support of such local groups. You'll be doing hunting, fishing and the shooting sports a big favor. **

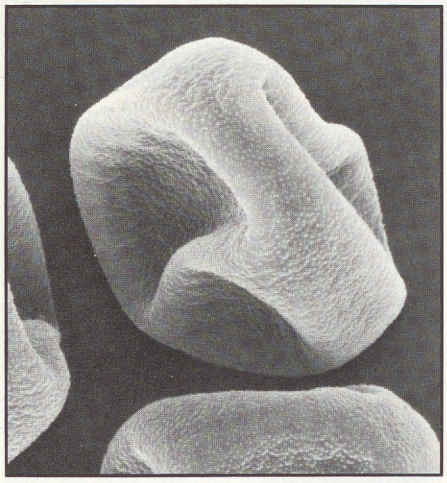
Goldenrod pollen, courtesy A&M University



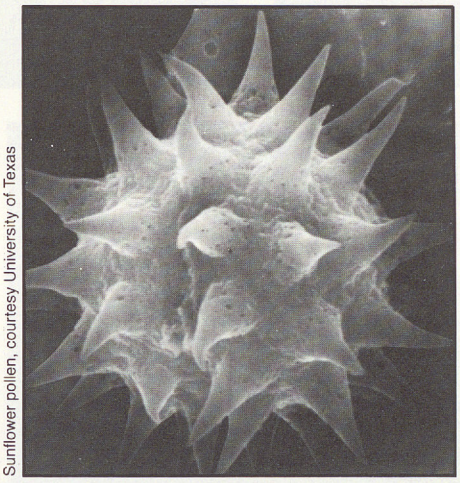
WHAT MAKES YOU SNEEZE

Airborne Pollen Brings Misery to Many

by Ilo Hiller



Grass pollen, courtesy A&M University



Sunflower pollen, courtesy University of Texas

It is easy to see how the spiky surface of these magnified sunflower and goldenrod pollen grains could irritate sensitive nasal linings, but the natural secretions of the nonallergic person quickly whisk them away with no noticeable symptoms. It is the chemical response, not the surface shape, that causes allergies. Smoother grass pollen can produce a dramatic reaction in one who is allergic to it.

Allergic reactions to pollen cause untold misery for thousands of people each year. In fact, it is estimated that almost 10 percent of the United States population suffers as a result of the seasonal pollen occurrence, and many of these victims are outdoor recreationists.

Watery eyes, a runny nose, itching membranes, sneezing and congestion are the usual physical symptoms of the allergy. Although these allergic reactions to different pollens are lumped together under the collective term hay fever, the culprits are not limited to hay and related grasses. Nationwide, ragweed is responsible for more instances of hay fever than any other plant. Many Texans probably would designate cedar (Ashe juniper) as the second-highest source of pollen irritation and misery.

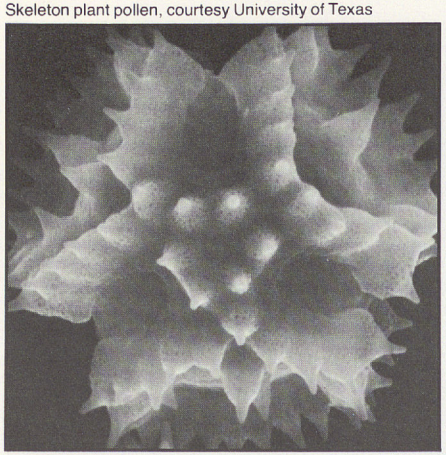
Most allergists separate the pollen producers into three main categories—trees, grasses and weeds. In some areas of the United States, the pollen season for each occurs at different times of the year with only slight overlapping. However, in our moderate climate, with its long growing season, pollen production takes place almost year around with much overlapping of the three categories. Fortunately, not all pollen produces allergies. Most hay fever victims face peak periods only when cedar (Ashe juniper), ragweed and a few grasses pollinate.

Pollen grains are the tiny, yellow, dustlike particles found inside flowers. They vary in size, shape and structure and, under a microscope, may display such features as knobs, spikes, craters, ridges or any number of combinations. Average size of allergy-producing pollen is 25 microns (one micron equals .000039 inches), but some may be as small as 2.5 microns or as large as 200 microns. Since each plant species produces its own unique pollen, each grain can be identified. The spiky ragweed pollen is about 1/25,000 of an inch in diameter, which means it would take 25,000 of them lying side-by-side to equal an inch.

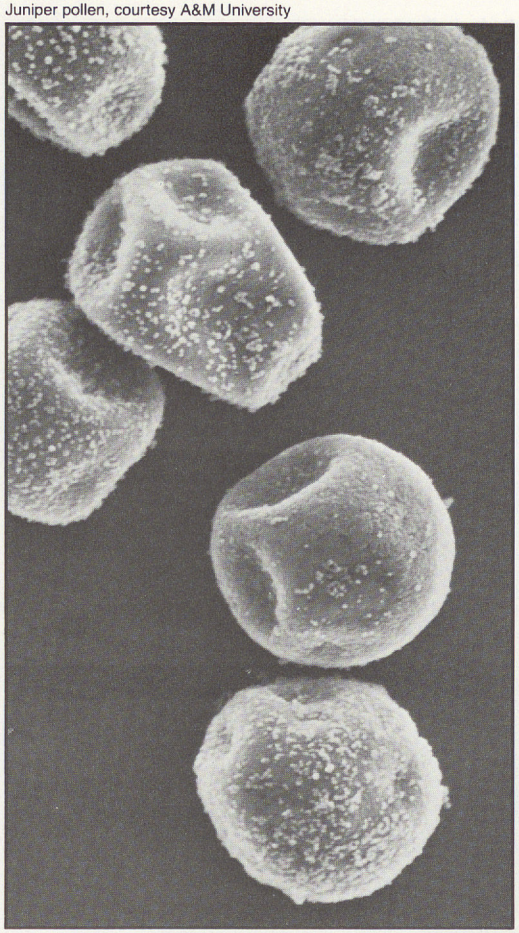
Formed in the anthers of the flower, pollen functions as the male fertilizing element of the plant. In order to produce its own type of plant, the pollen must be transported from one plant to another. This task, called pollination, usually is accomplished by insects, birds or the wind.

Airborne pollen, which is responsible for most of the hay fever

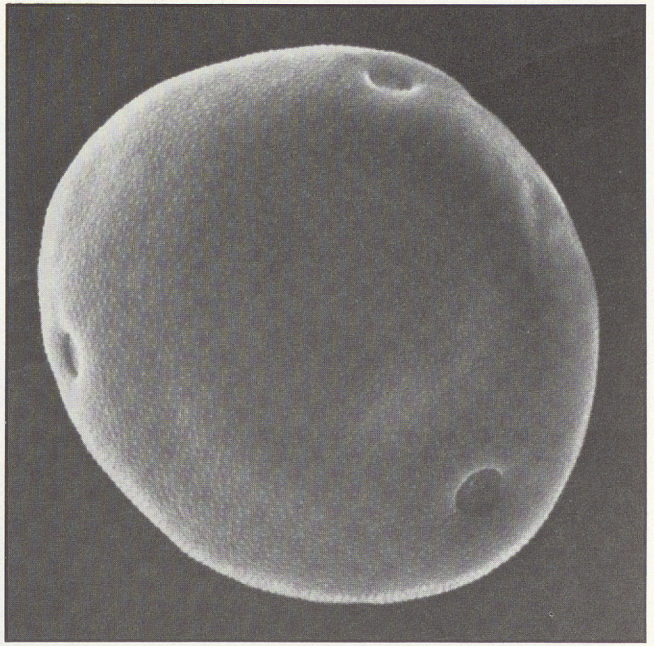
Skeleton plant pollen, courtesy University of Texas



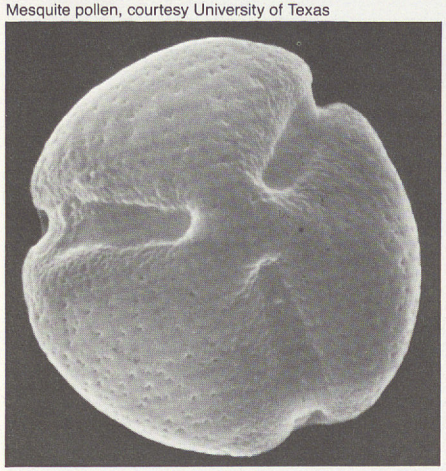
Juniper pollen, courtesy A&M University

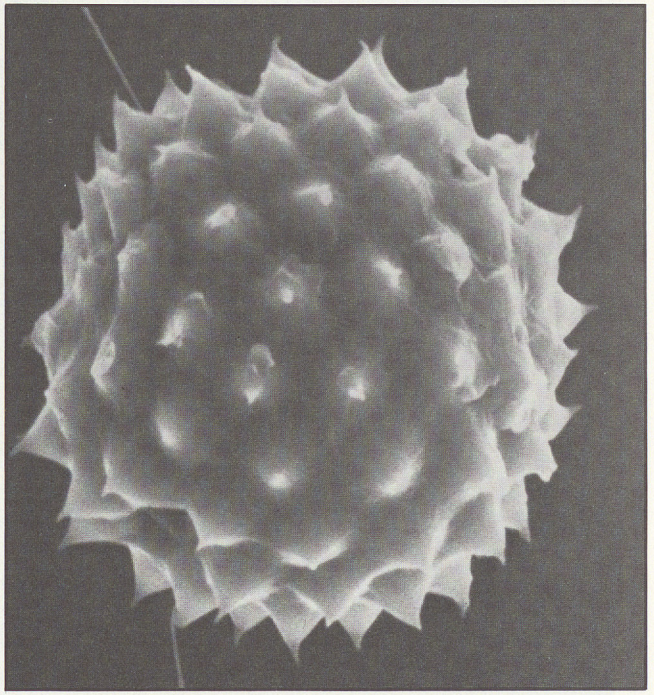


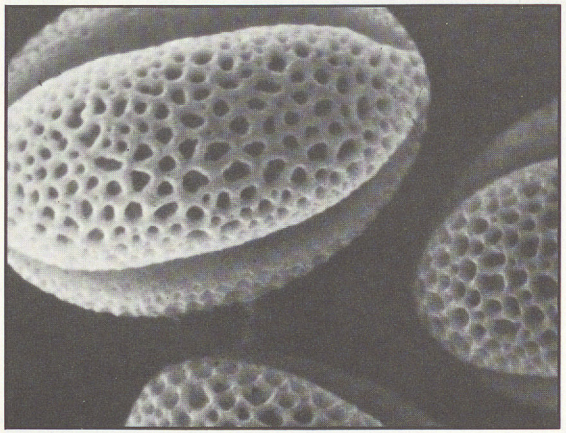
Pecan pollen, courtesy A&M University



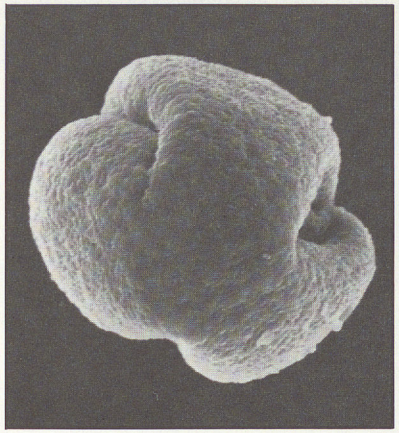
Mesquite pollen, courtesy University of Texas







Willow pollen, courtesy University of Texas



Oak pollen, courtesy A&M University

Ragweed pollen, courtesy A&M University

Nationwide, pollen producers are divided into three main categories—trees, grasses and weeds—because of their growing seasons, but in our moderate climate there is much overlapping of the three. Pollen production occurs almost all year. Fortunately, not all pollen causes allergies. Ragweed causes more instances of hay fever than any other plant, and takes its toll in Texas; however, many Texans probably would designate cedar (Ashe juniper) as the second-highest source of pollen irritation and misery.

symptoms, is extremely light and produced in large quantities. A single ragweed plant can yield billions of pollen grains in one season. During the height of the blooming season, large quantities of pollen are released into the air and the grains often settle as a golden layer on the ground or on the surface of a puddle or pond. You also may find your clothing covered with the fine yellow dust following a walk at this time of year.

Some pollen travels only a short distance, but it can be lifted by air currents and carried great distances when conditions are right. Ragweed pollen has been found more than 15,000 feet in the air and has been carried as many as 400 miles out to sea. When the air cools at night and the wind dies, the high-flying pollen drifts back to earth, landing miles from the plant in which it was produced.

Those who study the way pollen is discharged from plants have found the majority of this yellow substance is released early in the morning if conditions are right. Between 4 a.m. and 6 a.m. a pollen sac opens, exposing sticky clusters of pollen. As the fluid dries, the individual grains separate and are blown away by the wind. Within the first four hours, 60 percent of the pollen contained in the sac is discharged. The remaining pollen is released slowly during the rest of the day and night. All of the pollen sacs contained in a flower do not open at the same time.

No pollen is released if the humidity is more than 80 percent, so those who have hay fever do not suffer as much on damp days unless they also are allergic to fungi and mold spores which thrive under these conditions. Rain also washes pollen grains from the air, providing some relief during and immediately following a shower.

Whenever pollen enters the nose, it acts as an irritant, but the natural secretions of the nonallergic person whisk it away with no noticeable symptoms. However, the situation is not the same in the case of an allergy victim. When pollen grains contact the eyes and nose linings of a hay fever sufferer, they join with special allergic antibodies that break down the pollen and release a chemical substance which is known as histamine.

The results of this chemical's presence are dramatic. Small blood vessels in the nose and eyes dilate and release fluid, causing watery eyes and a runny nose. The mucous membranes swell and also release fluids into the nasal passage. Attacks of sneezing occur as the body attempts to expel the moisture accumulating in the nose. Stuffiness and congestion may alternate with a seemingly endless flow of the thin, watery secretion.

Constant nose blowing and wiping produce the typical red, swollen nose of the hay fever victim, and the eyes often itch, burn, water and become red and swollen. When sneezing begins, the nose, roof of the mouth, throat and ear canals also may develop an itch. Sinus headaches frequently occur when swelling membranes and mucus block the sinuses. Breathing through the mouth, necessitated by the condition of the nose, eventually irritates the throat and upper windpipe, resulting in soreness and coughing. As the hay fever season progresses, the allergy may worsen to include the bronchial tubes. Wheezing, difficulty in breathing and other asthma symptoms usually occur. Fatigue and depression are side effects that result from not being able to sleep, obtain relief or function normally.

Antihistamines, allergy shots and other medical treatments provide some relief, but the outdoor enthusiast who suffers from hay fever still may need to curtail outdoor activities throughout the pollen season or wear a dust filter or surgical-type mask. Keep in mind that damp, rainy weather, although not the choice time to be outdoors, is the best time for the hay fever victim to venture forth.

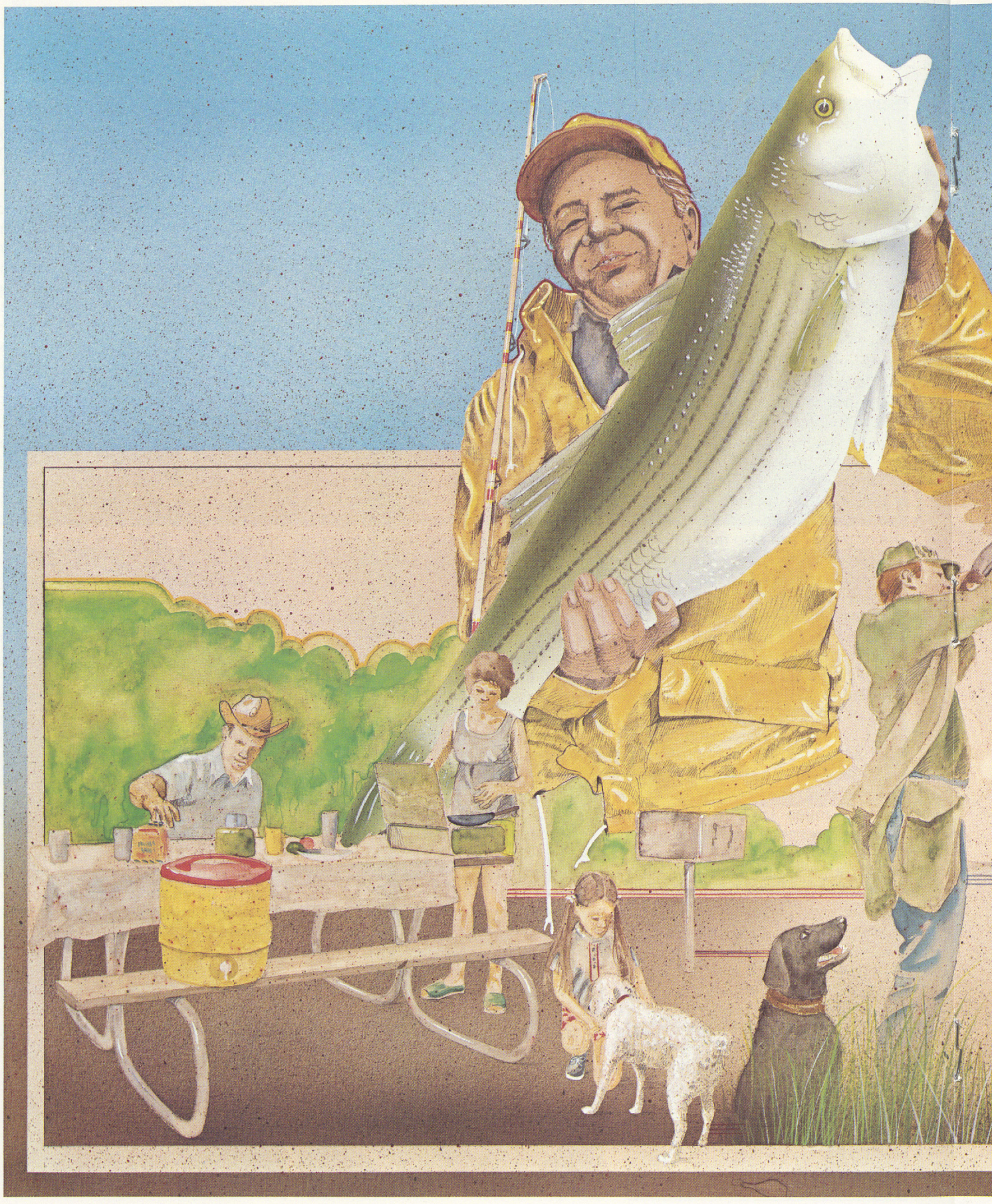
When suffering from the miseries of hay fever, it's hard to appreciate the wonders of pollen and its importance to the continued existence of the earth's vegetation. However, you always can console yourself with the thought that pollen production eventually slows and hay fever symptoms might disappear until the blooming of a new crop. **

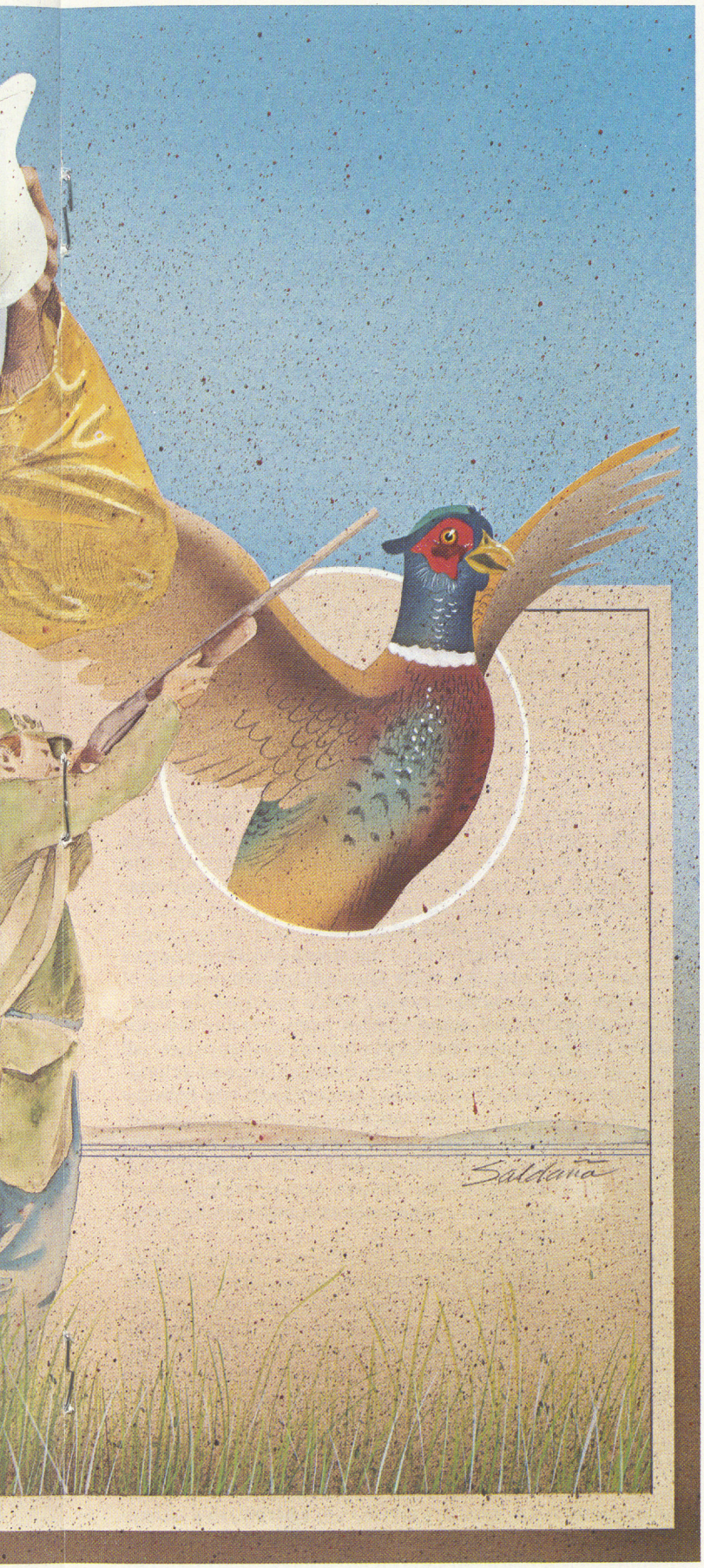
Editor's Note: The pollen photographs illustrating this article and the front cover have been magnified thousands of times their normal size through the use of a scanning electron microscope, commonly called SEM. The photos were taken at the A&M University Anthropological Research Laboratories and the University of Texas Department of Botany.

Ragweed pollen, courtesy A&M University

Oak pollen, courtesy A&M University

Willow pollen, courtesy University of Texas





ACCOMPLISHMENTS AND EXPECTATIONS

What happened in the '70s and outlook for the '80s

Article by Mary-Love Bigony
Artwork by Andrew Saldaña

By the time the decade of the 1970s ended, there had been a number of milestones for Texas outdoorsmen. Anglers had caught fish—many of them trophy-sized—that were not native to Texas waters; sportsmen had hunted pheasants along the Gulf Coast; and there were more than 75,000 acres of new state parks, recreation and natural areas added to the state park system where visitors could pursue their favorite outdoor activity.

These developments and other equally significant ones were not a matter of chance or luck. They were the result of years of research, planning and experiments at a time when wildlife habitat was dwindling, fish production was slowing in many reservoirs and the state's increasing population made land protection more urgent than ever. Here is a look at some of the most significant accomplishments of the Texas Parks and Wildlife Department during the past decade, and the outlook for hunting, fishing and outdoor recreation in the next 10 years.

PARKS

Accelerated acquisition and development of new state parks highlighted the 1970s for the Parks Division, with 41 sites totaling 78,830 acres added to the system at a cost of $29.9 million.

Prior to 1972, the state acquired parks primarily from donations or through the sale of bonds. The bonds that were sold are repaid by park entrance fees. Therefore, sites purchased with funds received from bond sales were developed so that they would generate high recreational use. In 1971, the legislature established a special dedicated fund for acquisition and development of state parks, based on a one-cent-per-pack tax on cigarettes. The fund amounts to approximately $16 million per year which W. M. Gosdin, head of the Parks Division's Special Studies and Systems Planning Branch, says finances an ongoing program that includes major state park acquisitions and developments as well as necessary major repairs and park expansion projects.

Once money was available for park acquisition, increased emphasis was directed toward preserving historically significant places in the state. Through the Historic Sites Program, organized efforts are made to determine which areas are historically significant and establish themes for these parks, as well as to assure proper staffing. During the 1970s, the department acquired 14 historic sites totaling 3,134 acres. The Historic Sites Program, along with the implementation of an interpretive program for individual parks based on the area's natural and cultural history, recognized the importance of state parks' educational function.

With parks located in every geographical region of the state, each has specific qualities worthy of preserving. During the 1970s, the division created a resource management section to study these often unique qualities and advise park superintendents about proper use and protection of these resources.

In the coming decade, high gasoline prices inevitably will

affect state parks. Fewer people will be using recreational vehicles, so future park development will place more emphasis on economical camping than on campsites with full-utility hookups. In an effort to allow Texans access to state parks despite the high cost of travel, the division already is concentrating on development of parks near large cities and preservation of open areas close to urban settings. The 4,897-acre Hale Ranch Park Site near Houston should be open in 1984, and division officials are in the initial planning stages for the new Lakeview project near Dallas.

The need for economical energy sources will be even greater in the 1980s, and Gosdin points out that state parks could play a part here. By using wind and solar power in their facilities, the parks could be natural settings for demonstrations of these alternative energy sources.

Passage of appropriate legislation could result in the establishment of a Natural Heritage Program. Such a program would concentrate on the protection of significant and unique areas, whether by government or private ownership.

In 1979, the legislature took steps to assist the 104 existing parks with increased operation and maintenance costs during the coming decade. As of September 1, 1979, one-fourth of the cigarette tax fund may be used for that purpose.

FISHERIES

During the 1970s, the Fisheries Division started work which has led to a recent fishing boom. Early in the decade, biologists began stocking species of nonnative sport fish, led by what Fisheries Division Director Bob Kemp calls the "big three"—striped bass, Florida largemouth bass and smallmouth bass.

The striped bass is a fish which already has grown to trophy size in dozens of Texas reservoirs and rivers and has rejuvenated fishing in some older reservoirs with faded reputations as producers of native species. The state record for striped bass was broken numerous times during the 1970s, by fish from Lakes Texoma and Toledo Bend. The two border reservoirs have alternated in producing the record, with Toledo Bend currently in the lead with a 33-pound, 3½-ounce striper caught last February. Rather unexpectedly, stripers have begun to reproduce on their own in Texoma, Whitney and Amistad Reservoirs, or in the tributary rivers above the reservoirs. However, most Texas stripers are produced in hatcheries by stripping brood fish of eggs and milt and raising the larvae to stockable size.

Introduction of the Florida strain of largemouth black bass into Texas lakes has been equally successful. Prior to the 1970s, it was assumed that the State of Florida produced huge largemouths simply because of a longer growing season and other environmental factors. But as other states began experimenting with the fish, it was discovered that Floridas may grow faster and live longer although they look almost identical to the more northern strains. This proved to be true in Texas as well, as Floridas stocked in several reservoirs outgrew the natives and maintained a higher standing crop per acre.

The highlight of the Florida bass program came on February 2, 1980, when Jimmy Kimbell of Pittsburg, Texas, caught a 14-pound, 1½-ounce Florida bass at Lake Monticello in Camp County. The event broke a record which had been on the books since 1943, and it erased any doubt that the Florida fish were something special.

Rounding out the big three nonnative fish is the smallmouth bass, which Kemp calls the sleeper of the trio since it has received less fanfare than the striper and the Florida largemouth. But for Texans who live near deep, rocky lakes or flowing rivers, the smallmouth bass may be the most important introduction of the past decade. Smallmouths have survived in virtually every impoundment where they have been stocked and have reproduced in several. Their growth rates have been so superior to smallmouths in the northern United States that officials of some fisheries agencies in the north have contacted the department for official documentation of this growth. A high school student fishing at Town Lake, virtually in the heart of Austin, caught the state record smallmouth on March 16, 1980. Grant C. Hartman's fish weighed five pounds, 2½ ounces, a hefty smallmouth in any state.

A landmark in saltwater fishing research is the first major hatchery production of red drum (redfish) ever accomplished anywhere in the world. After extensive light-photoperiod experiments with brood fish held in indoor tanks at the department's Palacios research facility, biologists found the right combination and tricked the reds into spawning. Workers collected the fertilized eggs, and the result was 1.4 million one- to two-inch fingerling redfish and 16.8 million tiny fry for stocking in selected bays along the Texas Gulf Coast. It is hoped these stockings, augmented with reproduction by wild fish, will boost the redfish population which has been declining for almost the entire decade.

During the 1980s, Kemp believes the boom stimulated by the introduction of nonnative species will continue. He expects the striped bass record to be well into the 40-pound-plus class in a very short time, and predicts a 20-pound Florida largemouth bass will be caught by 1990.

Kemp believes the state record smallmouth bass eventually will pass the eight-pound mark and most likely will be caught from Canyon Lake near San Antonio, which produced all the previous state record fish before the current one from Town Lake. Other top smallmouth lakes that should produce well in the 1980s include Meredith, Amistad, Travis, LBJ and Stillhouse Hollow.

Another game fish species which has been slower to develop, but holds promise for the 1980s, is the walleye. It is surviving and reproducing in a number of reservoirs, but Texas anglers who are not used to pursuing the deep-running fish find the walleye difficult to catch.

WILDLIFE

More efficient management of the state's wildlife resources was achieved during the 1970s through implementation of the species management concept, which involves the management of individual game species from a statewide perspective. This is in contrast to the former system where all species in a geographical area were managed by one individual in that area. Wildlife Division Director Ted Clark believes the species management concept has provided for the comprehensive needs of wildlife by allowing the division to set priorities on a statewide basis and develop an operational plan for the entire state. The system also provides greater economy by standardizing data collection and making better use of available personnel.

Another major accomplishment of the past decade was establishment of a technical guidance program aimed at habitat preservation, a factor Clark believes will determine the future of wildlife populations in the state. Through the program, wildlife biologists assist landowners with habitat and harvest management techniques to enhance the carrying capacity of the land. These biologists advise landowners on several million acres every year, and there is no way of knowing how many million acres of wildlife habitat the program has been responsible for saving.

In 1974, the department began studies at the Kerr Wildlife Management Area which proved conclusively that spike-antlered bucks are inferior animals that never will attain the same body weight or antler development as deer with forked

antlers as yearlings. The incidence of spike bucks is due to a combination of poor nutrition and heredity, and although other states had done nutrition studies, Texas was the first to investigate the genetic influence. Proof that genetics is a factor is the basis for recommendations that spike bucks be harvested instead of protected.

One of the more dramatic restocking successes of the decade involved the eastern turkey. These birds had been extirpated from their native East Texas range for more than 50 years, partly as a result of uncontrolled hunting. Turkeys used in the restocking were obtained from other states, either in exchange for other species or as outright gifts. The birds adapted well to their surroundings, and in 1977 the first turkey season in 36 years was held in portions of Polk and Tyler Counties.

Ring-necked pheasants were the subjects of another successful stocking effort. When pheasants first were released in Matagorda County in 1963, many people believed it would be impossible to establish huntable populations along the Texas Coast. But releases continued, first with wild-trapped Chinese ring-necked pheasants from the Sacramento Valley in California and later with a hybrid cross between Chinese ringnecks and Western Iranian black-necked pheasants from Oklahoma and Missouri. By the early 1970s, biologists were encouraged by the significant expansion of pheasant populations, and in some areas the birds existed in huntable numbers. In 1977, the first pheasant season was held along the Texas Gulf Coast.

For the 1980s, Clark sees emphasis shifting from the population dynamics of animals to habitat preservation. He points out that if a species disappears because of overhunting, it usually can be restored in a relatively short time, but if the cause is loss of habitat, restoration of the species likely will take many years, possibly generations.

Clark sees expansion of the turkey stocking project, and says pheasant stocking may extend into the Blacklands and the Lower Rolling Plains. He points out that the coming decade should show whether species which have been stocked in certain areas of the state have the ability to cope with severe weather and other adverse conditions, and continue to expand their populations.

The Kerr Wildlife Management Area has begun studies on fawn growth and development and on factors which may affect a doe's fawning date. Results of these studies should be available during the 1980s, and Clark says the fawning date information will be important when deer are transplanted for restocking to prevent does from dropping their fawns at a harsh time of year.

White-tailed deer overpopulation continues to be a problem in many parts of the state, and Clark says this can be resolved only through an innovative approach to deer management. An adequate harvest of antlerless deer is essential, but the present system of antlerless harvest—issuing permits to landowners—has been in practice for the past 30 years. He believes the department needs to educate both the hunters and the landowners, since the conservative attitude of both these groups actually wastes deer. He would like to see a significant increase in sportsmen who limit their hunting to antlerless deer.

There is a critical need for more public hunting land in Texas, since two percent of the present public hunting land supports 18 percent of the state's hunters. Clark is interested in the state acquiring hunting rights to large tracts of land in order to give as many people as possible who wish to hunt the opportunity to do so. This is important to maintain a commitment to hunting, since people who are denied the right to hunt because of prohibitive lease prices could become neutral on the subject, or even negative. Clark believes sportsmen are the backbone of conservation in this country.

Clark also expects more emphasis on nongame wildlife during the 1980s. In 1973, the legislature passed a bill creating the Nongame Wildlife Program to be funded from general revenue. Through this program, the department develops management plans for all nongame species in the state, especially those threatened or endangered.

In general, Clark sees the 1980s as a decade devoted to the quality of wildlife rather than quantity. It will be important to recognize a problem before it becomes critical, and everybody must accept the responsibility for use of our wildlife resources.

HUNTER SAFETY

As more and more people take up the sport of hunting, the potential for hunting accidents increases. Concern over hunter casualty reports during the 1960s led to creation of the Texas Volunteer Hunter Safety Program in 1971, and since that time more than 68,000 students have been certified as safe hunters. Although the program is designed for youngsters 12 to 17 years of age, Texans of all ages have completed the course.

When the program began, its work was carried out strictly by volunteers such as game wardens, biologists and sportsmen who were interested in seeing young people become safe, knowledgeable and responsible hunters. Now, in addition to these volunteers, 50 schools and school districts include hunter safety training in courses such as outdoor education, vocational agriculture and physical education. There now are some 1,200 instructors across the state. The curriculum of the hunter safety program has expanded, too. Once limited to firearms safety training, it now encompasses conservation, wildlife management, survival and first aid and hunter ethics.

Hunter casualties have decreased, and although it is impossible to determine to what extent the hunter safety program is responsible, it has been a factor, says Theron Carroll, hunter safety coordinator. For example, from 1967 to 1970, there was one hunting accident for every 10,000 licenses sold in Texas. From 1971 to 1976, this decreased to one accident for every 14,100 licenses sold, and from 1977 to 1979 decreased further to one accident for every 15,300 licenses.

The hunter safety program receives federal funds on a three-to-one matching basis from taxes on handguns and archery equipment. Federal funding is based on a state's area and population, and Texas is eligible to receive the maximum apportionment awarded to any state.

During the 1980s, Darrell Holt, assistant hunter safety coordinator, would like to see the program made available to every youngster in Texas who wishes to participate. He says there are 250,000 young people in the state between the ages of 12 and 17 who like to hunt and shoot, and each of them could benefit from this training.

In 27 states, completion of a hunter safety course is required before a hunting license is issued. A recent survey conducted by the department showed that most Texas sportsmen are willing to accept a mandatory program. Making hunter safety training mandatory would require action by the legislature, and the subject already has been discussed in legislative committees. There undoubtedly will be more discussion in the coming decade.

During the 1980s, Texans may feel an even greater need for a temporary escape from the stress of urban life. Many will turn to fundamental forms of recreation, such as hunting, fishing or camping, and the importance of these accomplishments of the past decade will be even more apparent. **

AROUND the STATE

NEWS OF THE TEXAS OUTDOORS FROM THE PARKS & WILDLIFE DEPARTMENT'S NEWS SERVICE

FEW STRIPERS AVAILABLE FOR STOCKING THIS YEAR

Dry spring weather almost spoiled the Texas Parks and Wildlife Department's efforts this year to produce striped bass in hatcheries for stocking in Texas reservoirs.

A last-ditch effort at obtaining brood fish finally succeeded below Denison Dam at Lake Texoma in late May, and biologists were able to collect about eight million eggs. This is expected to produce about a million fingerling stripers for stocking in selected reservoirs, or about half last year's total.

Striped bass are a nonnative species which have been stocked successfully in dozens of Texas lakes, but continued stocking is necessary to keep populations up in most reservoirs because of a lack of natural reproduction.

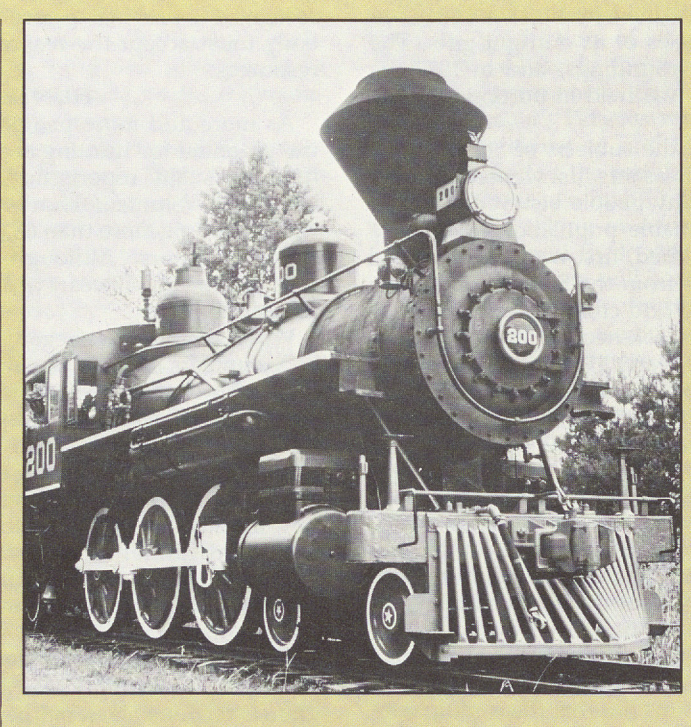
"We just failed to get rain when we needed it the most," Fisheries Director Bob Kemp explained. "The mature fish never concentrated in any numbers in the areas where we usually collect brood fish."

Normally, biologists are able to use electroshocking devices below dams such as the Lake Granbury tailrace during the striper spawning period in February and March to collect the brooders. The fish are taken to hatcheries and stripped of eggs and milt, and the fertilized eggs are then reared to stocking size in ponds.

Kemp said this year's low production may not be too detrimental, since it follows three outstanding years of striper production in the hatchery system. "The striped bass fishery generally is in good shape, so I don't think one bad year will be too big a setback," said Kemp.

The hotspots for big stripers are Lakes Whitney, Texoma and Toledo Bend, but other lakes are not far behind. These include Falcon, Buchanan, Amistad, Travis, Canyon, Livingston, Spence, Granbury and Sam Rayburn. Reproduction has been well-documented in Whitney and Texoma.

Although striper propagation hit a low ebb this year, about two million striped/white bass hybrid fry were produced earlier in the spring and biologists hope about half the fry will survive to be stocked as fingerlings in selected lakes. The hybrids do not attain the maximum size of pure stripers, but they grow rapidly and provide a good sport fish for smaller reservoirs.



NEW MOVIE FEATURES EAST TEXAS SEQUENCES

Some familiar East Texas scenes and faces are included in the recently released movie "The Long Riders."

Portions of the $8 million film were shot on location at the Texas State Railroad, the Parks and Wildlife Department's popular excursion train between Rusk and Palestine.

The plot centers around the Jesse James-Cole Younger outlaw gangs, who robbed big banks and land-hungry railroads in Robin Hood style. Starring in the movie are David Carradine, Keith Carradine, Robert Carradine, James Keach and Stacy Keach.

"The hard-riding, exciting train robbery sequences were all filmed at the Texas State Railroad last fall," United Artists spokesman Larry Schumach said. Other portions of the movie were shot in Georgia and California.

The term "longriders," according to Old West dictionaries, is defined as outlaws who, after robbing a town's bank, rode day and night, using stashed horses as fresh mounts to escape pursuers.

For reservations or information on the Texas State Railroad, write to P.O. Box 39, Rusk, Texas 75785, or call 214-683-2561.

SHELL PROJECT ATTEMPTS TO REHABILITATE REEFS

Texas Parks and Wildlife Department crews have spread 52,000 cubic yards of oyster shell in Galveston Bay in a project aimed at enhancing oyster reproduction in the flood-damaged bay.

Flooding in early 1979 not only caused mortality in some portions of the bay, but also inhibited reproduction, which has been poor in four of the past five years. As a result of the spring and summer floods the Federal Disaster Assistance Administration funded $624,000 for the shell project.

Department biologists cooperated with federal agencies in spreading clean shell over about 800 acres of the bay's major harvest areas.

The shell is expected to provide a favorable place for the spat (free-swimming oyster larvae) to attach and grow. "Weather conditions were favorable during shell distribution, and some spat setting already has been documented," said C.E. Bryan, shellfish program leader.

"The flooding slowed oyster growth and kept them from attaining market size and in poor condition by the normal oystering season opening date, so the Parks and Wildlife Commission delayed the opening date until Dec. 15, 1979," said Bryan.

The few oystermen working Galveston Bay had moderate success during the season, and the catches held up fairly well through April, when the season closed.

Galveston Bay's importance in the state's oyster production is obvious, as each year about 80 to 90 percent of the Texas coast's total oyster poundage comes from that area, Bryan said.

FISHERMAN LANDS LARGE TARPON

One of the largest tarpon taken from Texas' coastal waters in recent years was caught May 30 off Port Aransas.

Texas Parks and Wildlife Department Biologist Karen Thompson said Lee Spencer of Dallas caught the 148½-pounder about three miles offshore. The tarpon was six feet, five inches in length and was boated after a 45-minute battle. Spencer said he used a ribbon fish for bait on 20-pound-test line.

The fish is considerably smaller than the current state record tarpon of 210 pounds caught in 1973, but it nevertheless is an unusual catch for the Port Aransas area.

Tom Moore, coastal fisheries director, said tarpon were quite numerous along the Texas coast in the 1940s, but for unexplained reasons the fish virtually disappeared. "Like the snook, tarpon are a true tropical fish, and very likely our waters border on being too cold to support high populations continuously," Moore said. He added that small tarpon occasionally are caught in the bays, and some are taken in the Port Isabel area at the state's extreme southern tip.

SOME COUNTIES DISAPPROVE TP&WD HUNTING REGULATIONS

A number of Texas county commissioners' courts have disapproved changes in hunting regulations adopted by the Texas Parks and Wildlife Commission.

Under special provisions of the Uniform Wildlife Regulatory Act there are 30 counties where the commissioners' courts have the power to approve or disapprove regulations adopted by the commission.

One of the key changes for the upcoming hunting season is an either-sex deer hunting season in which antlerless deer could be harvested without a permit.

The change was proposed in an effort to increase the harvest of antlerless deer in areas of chronic overpopulation. Of the 21 "commissioners' court clause" counties offered the change, the regulation was disapproved by all but three.

Opposing the measure were Bandera, Comal, Crockett, Edwards, Gillespie, Hays, Kendall, Kerr, Kimble, Kinney, Lampasas, Llano, Mason, Real, San Saba, Sutton, Uvalde and Val Verde Counties. Approving the either-sex hunting regulation were Coke, Menard and Schleicher Counties.

Of the five commissioners' court clause counties which were offered the opportunity to redefine spike bucks as legal bucks, only Bandera County accepted the change. Opposing the change in regulations were Comal, Kendall, Kerr, Medina and Real Counties.

Department studies show that spike bucks (yearling or older bucks which have only single antlers protruding through the skin without prongs or forks) are inferior animals which never attain the antler or body size of bucks that have forked antlers as yearlings.

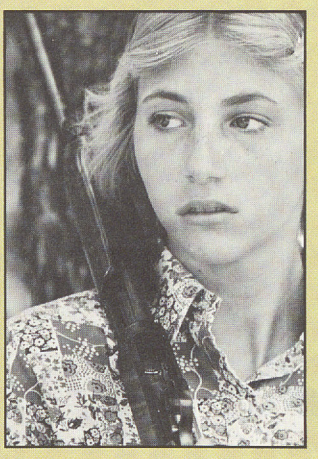
Another regulation designed to increase harvest of antlerless deer was an early 16-day antlerless-only season coupled with a buck permit system during the regular season. This deer herd management package was proposed for six counties in South Texas.

Maverick, Webb and Zapata Counties, which are not county commissioners' court clause counties, will have the early season and buck permit system. However, none of the county commissioners' court clause counties adopted the full package of regulations.

Voting to disapprove the complete management package were Dimmit and Frio Counties, although Dimmit and Zavala Counties did approve the early antlerless-only deer season.

County commissioners in Edwards, Frio, Gillespie, Kendall, Kerr, Kimble, Medina, Reagan and Real Counties disapproved a regulation which would have established a spring turkey gobbler season in those counties. Coke, Kinney and Mason Counties approved the spring gobbler season for April 18–May 3, 1981.

A number of other regulations involving various game species also were disapproved by commissioners' courts. Persons should consult the department's 1980–81 Guide to Hunting and Sport Fishing Regulations booklet to determine specific county regulations. The booklet will be available this August where hunting licenses are sold.



HUNTERS SHOULD CHECK SAFETY TRAINING LAWS

Hunters who plan to travel outside Texas this fall should check nonresident license requirements in advance.

Many neighboring states like Colorado and New Mexico have mandatory safety training requirements for certain age groups before licenses will be issued.

The Texas Voluntary Hunter Safety Training Program administered by the Texas Parks and Wildlife Department is recognized in all states which have mandatory requirements, said T. D. Carroll, P&WD hunter safety coordinator.

"Summer is the best time to enroll in one of the classes," he said, "because many instructors are involved in hunting activities themselves after September."

The class, taught by volunteers certified by the department, generally consists of eight classroom hours. Some instructors with access to target ranges include shooting and sometimes archery in their classes.

The cost of enrollment is only one dollar, which includes a student textbook, shoulder patch and window decal. For information on how to contact a volunteer instructor, call the nearest department office or 1-800-252-9327.

EAGLE MOUNTAIN LAKE PARK SITE ACQUIRED

A major new park site has been acquired by the Texas Parks and Wildlife Department on the shores of Eagle Mountain Lake at the northwestern outskirts of Fort Worth.

The Parks and Wildlife Commission approved the purchase of approximately 410 acres on Farm Road 1220 at East Peden Road in Tarrant County, for $3.8 million.

The rolling, wooded tract features high bluffs overlooking the 9,000-acre reservoir. It has approximately 3½ miles of shoreline which will be developed for water-oriented recreation.

Department officials said the tract is basically undeveloped except for one large brick residence which probably will be used as a park superintendent's residence.

The site is only 15 miles from the Tarrant County Courthouse in Fort Worth.

As with most recreation park sites, development at Eagle Mountain probably will take three to four years before opening to the public.

Officials said development is expected to include campsites and boat ramps for full usage of the lake's recreation potential.

TP&WD BUYS HABITAT FOR WHITE-WINGED DOVE

The Texas Parks and Wildlife Commission has authorized the purchase of 56.3 acres of prime white-winged dove habitat in the Rio Grande Valley.

In a June public meeting the commission approved the expenditure of $50,000 from white-winged dove stamp funds for the J. S. McManus tract in Hidalgo County.

Whitewing Program Leader Jim Dunks told the commission the tract is one of the few remaining native South Texas brush tracts which are highly productive nesting areas for the migratory game birds.

Dunks said the area also has been a source of broodstock of chachalacas for restocking in other valley areas.

No hunting will be allowed on the tract, which will be maintained as a whitewing sanctuary.

The newly acquired tract is located in Hidalgo County just north of the Rio Grande and south of State Highway 281 near Donna.

Angler's Guide:

White River Lake

by Jim Cox

White River Lake, nestled just below the caprock flatlands east of Lubbock, is a good fishing lake that may be even better in the future.

Located just south of Crosbyton, it is one of the better largemouth bass and catfish lakes in West Texas. Add to this the promise of walleye and smallmouth bass through stockings and you have the potential for an outstanding sport fishery.

Walleyes, in particular, are expected to give the lake's fishery a boost. The department stocked more than 2.5 million tiny fry in the lake during 1979 to augment a standing population of walleyes resulting from stockings in 1975 and 1976. Biologists believe the lake has enough depth and rocky areas to provide habitat for a self-sustaining walleye population.

Smallmouth bass are newcomers to White River Lake, with initial stocking in 1979. They also are expected to do well in the lake's deeper, rocky areas.

Anglers have plenty of native species to catch while these nonnative fisheries develop. The reservoir has ample largemouth bass habitat, with numerous shallow shoreline areas containing flooded mesquite, cottonwood and brush. Aquatic vegetation also has spread in many areas to provide food and cover for sport fish.

Largemouth bass fishing is best from May through August, and the prime spots are coves, creek channels, brushy areas and along the edges of weed beds, according to biologist Joe Kraai of Canyon. Many largemouths are taken on topwater lures early and late around weed beds, and crankbaits and worms are effective in the deeper areas.

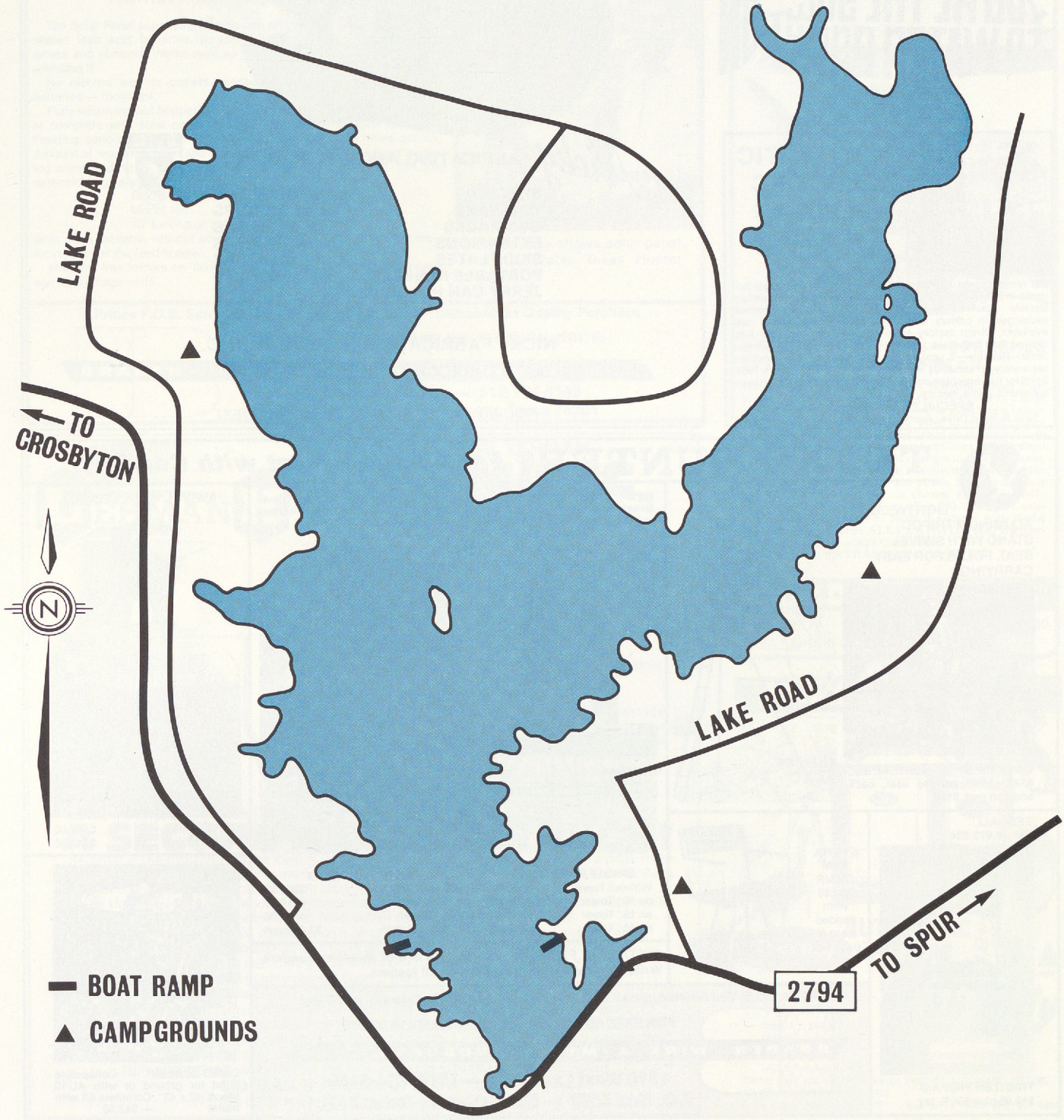
White crappie also are an important sport fish at White River, found in many of the shallow areas at the mouths of tributaries and wherever there is submerged brush. They are caught still-fishing with minnows, and on small jigs and spinners. Spring usually is the best time for crappie.

Channel catfish are caught in virtually all parts of the lake on a wide variety of baits. The warmer months are best for catfish, Kraai said.

Walleyes are caught most easily in the spring when they are in shallower waters, Kraai said, but they can be caught the year around in fairly deep water. Live minnows fished close to the bottom and small jigs and spinners also fished deep and slowly are effective when the fish are located.

White River Lake is controlled by the White River Municipal Water District, and access fees are charged. The lake serves as water supply for Crosbyton and several other area cities.

To reach the lake, drive south of Crosbyton on Ranch Road 651 and turn east on Ranch Road 2794, or drive west from Spur on 2794. **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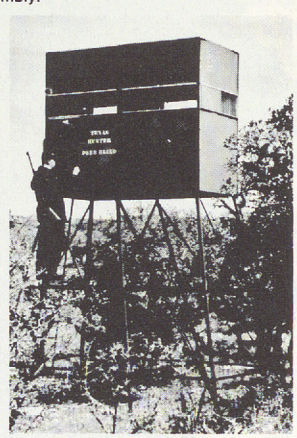

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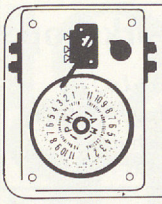

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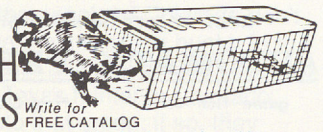

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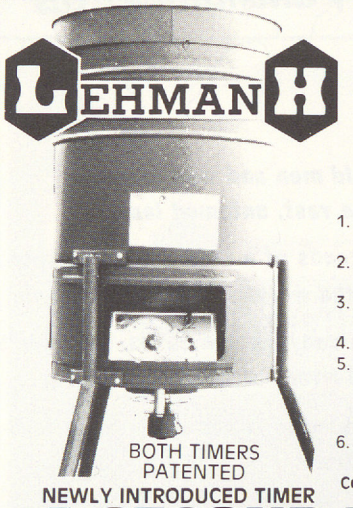

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5. This ORIGINAL Lehman feeder is **not** of simple, barrel-type or square construction. It is **specially made from galvanized metal and fully weatherproofed. Even quality timer housing, although ventilated is not exposed to the weather.**
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LONG SHOTS SHORT CASTS

compiled by David Baxter

Texas Hunters in Colorado—We receive most state wildlife publications in the office and it's a rare issue of *Colorado Outdoors* which does not contain an irate letter to the editor about Texas hunters in that state. The latest is from a Pennsylvania hunter who decries the condition some Texas hunters left their camp. The campsite in question was in Battle Park in the Muddy Basin Area and was left littered with sheets of plastic, foam mattresses and cans. In closing, the letter said: "I surely hope the people of Colorado don't put every nonresident hunter in the class with this group." We hope not every Texas hunter in Colorado falls into that group; if so, they ought to stay home where Texas game wardens and ranchers will be happy to teach them manners before letting them out of the house again.

Color a Sportsman—This fall youngsters will have a chance to compete in the third annual National Hunting and Fishing Day Poster Contest. "America's Sportsmen are America's Conservationists" is the theme this year, with national awards totaling $3,700. A grand prize of a $1,000 savings bond will be awarded to the youngster whose poster best illustrates the idea that sportsmen are our leading conservationists. The contest is open to all students in grades five through 12. Deadline for submission of posters is November 1, 1980. For detailed rules and more information contact NHF Day Poster Contest, 1075 Post Road, Riverside, Connecticut 06878.

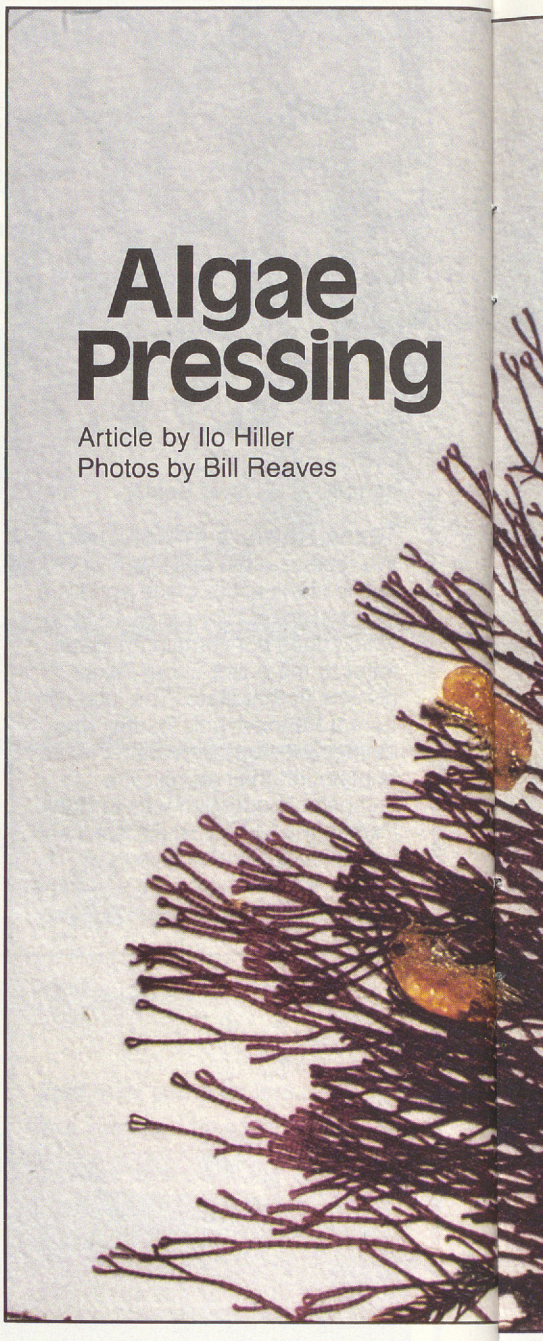
Compound 1080 Draws Fire, Research—The National Wildlife Federation has come out against congressional passage of a bill that would legalize the use of Compound 1080 against coyotes and other predators. The NWF claims that since 1080 was developed in 1944 it has killed thousands of dogs and animals other than coyotes, while coyotes continue to flourish. Meanwhile, the U.S. Fish and Wildlife Service and Texas A&M are working out a cooperative agreement for research into the effects of 1080 as used in toxic sheep collars. The Secretary of the Interior has agreed to relax a federal ban on 1080 research solely for this project. The coyote, or other animals, will not be poisoned by the 1080 in the sheep collar unless it attacks the sheep wearing the collar.

Raptor Legislation to Congress—The Interior Department has sent legislation to Congress which would establish a 600,000-acre Snake River Birds of Prey National Conservation Area in Idaho. The area has the most concentrated nesting density of raptors in North America, including eagles, falcons, hawks and owls. South of Boise, the area flanks some 75 miles of the Snake River, whose canyon walls are ideal for nesting.

Young Naturalist

Algae Pressing

Article by Ilo Hiller
Photos by Bill Reaves



Green scum floating on the surface of a stagnant pond; the slimy growth that causes your foot to slip off the rocks as you try to cross a shallow creek; or the slick, green coating that forms on the inside of an aquarium may come to mind when you hear the world algae. True, these growths are types of freshwater algae, but all algae are not green, slimy or limited to fresh water.

Many species of algae grow in salt water and they range in size from microscopic one-celled plants to massive, complex specimens several feet long. Their colors include various shades of green, red, brown and golden-brown.

If you have been around salt water, you probably have seen several different kinds of marine algae, but you may not have known them by that name. They commonly are called seaweeds. Unlike the sea grasses, which many people incorrectly call seaweeds, algae have no roots, stems, leaves, flowers or seeds.

Instead of roots, most algae have holdfasts that anchor them to rocks, shells, wood, bottles and other such surfaces. Those that become detached join the free-floating species. Since algae get all their nutrients directly from the water, they may continue to live in this suspended state until they are washed ashore. Some, such as sargassum, have air-filled bladders that aid them in floating.

Creatures of the sea depend on algae in their food chain the way land animals depend on grass and other vegetation. Those that eat the algae later become food for the flesh-eaters. In addition to food, algae also provide shelter for many marine animals. An interdependent colony of different species, which feed on the plant or each other, live and reproduce within the confines of a single clump of floating sargassum. It is their whole universe.

Algae also have commercial uses. The Japanese have been cultivating some of the edible species for hundreds of years. Seaweeds are an important part of their diet. Derivatives of algae are used in food, cosmetics, medicines, paper, textiles, varnishes, paint thinners, cement, ceramics and many other products manufactured in the United States. Whenever you eat ice cream or pudding, you probably are eating some algae since one of the derivatives is a smoothener used in these foods.

Since the days of the Vikings, algae have been used as fertilizer. Records indicate the early Romans and Spaniards used the plants to enrich their soils. Today, seaweeds washed ashore often are gathered by coastal residents, washed thoroughly to remove the salt and used as a rich mulch for flowerbeds and gardens.

Next time you visit the beach, you might like to see how many different kinds of algae you can find. The specimens can be pressed and kept in a notebook as a botanical collection; however, with a little extra time and effort, you can create artistic pressings suitable for framing and display.

Occasionally small marine creatures, living within the branching parts of algae, are pressed and dried along with the plant (large photo). Instead of roots, algae have holdfasts that anchor them to rocks, shells, wood, bottles and other such surfaces (top inset photo). Color may vary within a single plant as in this Gracilaria folifera *(bottom inset photo). Specimens have been found that range from dark green to a brownish red.*

The first step is to acquire the necessary materials—a plant press, herbarium paper or scientific paper, newspapers, cardboard, nylon cloth, a shallow pan, tweezers, a squeeze bottle and, of course, the algae.

Plant Press

There are many different kinds of plant presses. The simplest one can be made by merely strapping

two varnished boards together with webbed, beltlike straps.

Another more elaborate version of this simple press consists of two pieces of varnished wood about 12 inches wide, 18 inches long and three-eighths of an inch or more thick; two long, threaded rods about three-eighths inch in diameter; and two hexagon-shaped nuts, four washers and two wing nuts to fit the rods.

A hole, large enough for the rod to pass through, is drilled through the two pieces of wood about 1¼ inches in from either end and centered. The rods are inserted through the holes and secured at the bottom with washers and hex nuts. The other two washers and wing nuts are added to the rods on top. After the specimens to be pressed are inserted between the boards, the wing nuts are tightened down so the two pieces of wood are held firmly together. Standing on the boards while tightening the wing nuts, or fastening the straps on the simpler model, insures a tight press.

Do not attempt to press algae between books. The water content of the plants will ruin the books, and the algae probably will mildew before they dry.

Paper

The paper on which algae are pressed should have a 100 percent rag content so it will not yellow with time. Herbarium paper meets this specification and can be purchased from any biological supply house. Stores with a good selection of school supplies may sell a product called scientific paper or botany pa-

When gathering algae for pressing, it is best to collect specimens from beneath the water's surface. Exposure to the sun and air quickly dries the plants and causes them to deteriorate. If you follow the simple steps for pressing algae, taking time to arrange the specimens artistically with the help of tweezers or a squeeze bottle of water, you should be rewarded with framable algae when the drying process is done.

per that also is suitable for pressing algae.

Another paper that gives a more artistic pressing is *Chiri*; however, it definitely is not for the beginner. Once it becomes wet, it tears easily and probably will come apart in your hands. When you get more experienced at algae pressing and want to give this special art paper a try, slip a piece of glass beneath the paper and algae before lifting them from the water. Careful handling in this manner may prevent the expensive paper from tearing.

Newspapers

Use only old newspapers to absorb the water since the ink on new newspapers is not completely dry and may transfer to your herbarium paper during the pressing process. Also, make sure no colored inks appear on the newspapers you select because these colors sometimes bleed onto the finished pressing.

Cardboard

Cardboard is one of the layering materials used in your plant press. Two or three pieces of corrugated cardboard are placed between the wood and the plant pressings. Additional pieces are layered into the stack after every third or fourth plant.

Nylon Cloth

A piece of white nylon cloth placed directly over the plant helps protect it and keep it clean during the pressing process. Nylon, which can be purchased in most fabric stores, dries quickly and aids in the transfer of moisture from the plant to the newspaper. If you happen to have some old parachute material, it is excellent for this purpose.

Shallow Pan

Any pan or dish large enough for arranging the floating seaweed and deep enough to hold an inch or two of water can be used. A pan with a white bottom clearly defines the structure and shape of the plant and allows quite a bit of artistic arranging before the paper is slipped into the water and under the plant.

Tweezers

When arranging the plant on the pressing paper, tweezers are quite helpful for separating the branching parts and moving them to the proper angle. Do not scratch the surface of the wet paper with the tweezers.

Squeeze Bottle

A squeeze bottle full of water is helpful for arranging algae in artistic shapes. Once the plant has been lifted from the pan with the paper, water from the squeeze bottle can be directed onto the various parts causing them to separate or flow in a desired direction. This technique works well with the more fragile algae that are hard to handle.

Algae

Gather the amount of algae you intend to press during the early morning hours while temperatures are still cool. A small bucket containing a bit of salt water should hold all the different species you find. A plastic bag can be used for collecting, but if algae are allowed to remain in the bag in the sun for too long, they will be cooked or damaged by the heat.

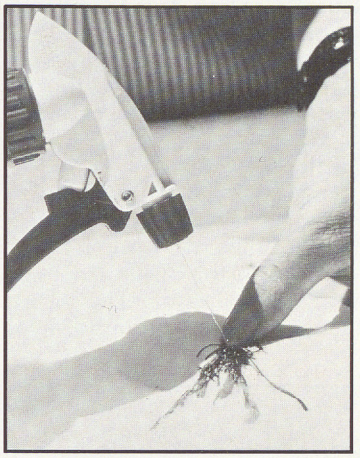
Since the rocks on which algae grow can be quite slick, be careful when you are climbing around. It is wise to crouch down and use your hands to help as you scramble from rock to rock. Wearing tennis shoes will help protect your feet from sharp shells and other debris in the water or on the rocks.

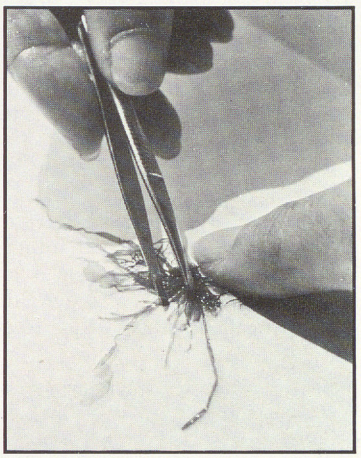
Once the algae are gathered, you are ready to start pressing. Get all your materials together. Take a piece of seaweed from your collecting bucket and place it in the pan of water. Separate it so its various branching parts lie flat. Don't try to press a clumped mass because it won't dry properly. If you cannot get the plant to lie flat, clip off some of the excess parts and try again.

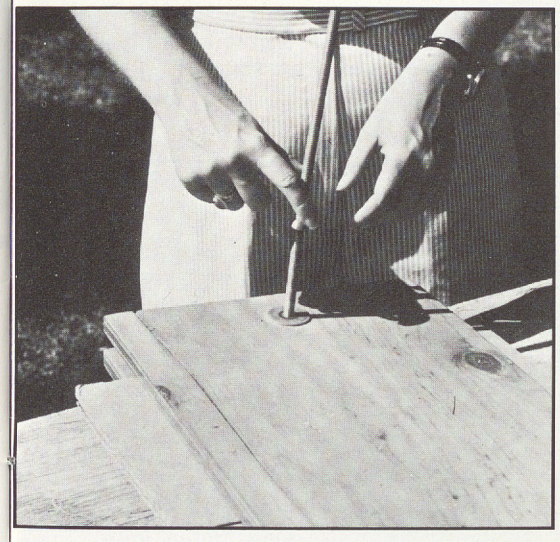
When you are satisfied with the way it is arranged, slip a piece of herbarium paper beneath the plant, lift it carefully from the pan and allow the water to drain off. If additional arranging is necessary, use the squeeze bottle of water or the tweezers. Lay the paper and plant on a piece of folded newspaper, several pages thick. Cover the plant with a piece of nylon and then add another layer of folded newspaper. Place the sandwiched plant in the press on a base of several pieces of cardboard and folded newspapers.

Now prepare another pressing, layering it in the same way. Stack the second sandwiched plant on top of the first. When three or four algae have been placed in the press, put another piece of cardboard on the stack. Three or four more algae can be added before another piece of cardboard is necessary. Continue layering in this manner until all of the algae you gathered are prepared or until the stack reaches the limits of your press. More newspaper and cardboard finish off the stack as it was begun. Tighten the boards together and leave the press alone for 24 hours.

After this time passes, the newspaper must be changed to prevent mildew. Open the press and remove the stack of pressing material. Working in reverse, take off each layer. Put fresh cardboard and a few layers of newspapers in the press as before. Replace the wet pieces of newspaper sandwiching the first specimen in the stack. Handle the herbarium paper, seaweed and nylon covering carefully so the plant is not disturbed. Work your way through the stack until all of the wet newspapers are replaced and the plants are back in the press. Top the stack off with more newspapers and cardboard and tighten the press again. Two days later the newspapers must be changed again. Afterwards the algae can be left in the press for a week or more. At the end of that time, they should be dried thoroughly. Since the algin in freshly col-







lected algae dries somewhat like glue, the majority of the pressed plants will be stuck to the herbarium paper. However, the dried specimens can be dislodged if they are not handled carefully.

At this point the pressed algae can be framed and hung on the wall, or the individual specimens can be placed between protective plastic sheets and kept in a notebook.

Harsh light causes the color in algae to deteriorate, so don't hang your pressings in direct sunlight. Greens fade the fastest and dark reddish specimens may bleach to a deep pink. Those protected from light in a notebook or folder should retain their coloring for years. **

Editor's Note: The pressed algae, which appear on the preceeding two pages (28 & 29), are part of a collection belonging to James Bowman and Dave Jensen, biologists with the Department of Water Resources, District 12. The pressed algae in this collection are used for identification purposes by the biologists and were prepared by James Bowman, Dave Jensen and Dinah Bowman. For additional information on algae pressings or the framing of artistic algae pressings, contact Dinah Bowman through her studio and gallery at 312 Fifth Avenue, Portland, Texas 78374.

LETTERS TO THE EDITOR

Red Eye

I read in your April issue the article about why animals' eyes shine at night, and the part about human eyes not having the membrane that reflects the light back toward the light source.

For a number of years now, I have been living with something I have called a wife—also son, daughters, grandsons and a granddaughter. I am wondering now what kind of critters they might be. Their eyes shine a beautiful red color when I take their pictures with a flash bulb. My wife's ancestors on the paternal side were from Texas.

All joking aside, could you enlighten me as to what causes the eyes to appear red?

Dale W. Gustin
Morganza, Louisiana

■ The beautiful red color that sometimes shows in the eyes of your subjects when you take flash pictures is a condition photographers call "red eye." It results when the flash is too close to the lens, and is quite common in pictures taken with the small, cartridge-type cameras. To overcome red eyes, some manufacturers have come out with extenders to raise the flash cubes farther away from the lens.

Some 35mm cameras with attached flash devices also occasionally produce red eye. A separate, hand-held flash attachment, one that is mounted on a bar away from the lens or one that can be directed to bounce the flash off a wall or ceiling should eliminate the red eye problem.

Since human eyes do not shine in response to any other type of light, red eye is not true eyeshine.

Tennis Shoes

I would like to call your attention to the error made in describing the photo on the inside front cover of your May 1980 issue. The picture shows a man wading through a stream while carrying a pair of hiking boots in his hands. The caption says: "Cool water and mud between the toes can be a relief from the confines of hiking boots." How can the man in the photo have mud between his toes when he is wearing tennis shoes? It is a good idea to wear tennis shoes when wading through any stream since there is a threat of stepping on foreign objects, such as broken glass and rusty tin cans.

John E. Scherlen
San Antonio

■ Captions for the covers are written before the color transparencies are enlarged to cover size. When the slide was viewed with a hand magnifier and the hiker was observed carrying his shoes and socks, the journalist assumed the man was wading barefoot. The tennis shoes went unnoticed. In the future, cover slides will be projected prior to writing the captions so details such as the tennis shoes will not be missed. Sorry for the error.

A Touch of Home

I was delighted when a friend from Texas brought me a large box containing copies of *Texas Parks & Wildlife* magazine dating from October 1968 through April 1979. The following week I did little else but enjoy them.

As a native Texan, I find they make me quite homesick. They are beautiful magazines.

Marion Crawford
Oshawa, Ontario, Canada

■ We appreciate your one-year subscription and hope our magazine will continue to keep you in touch with the beauties of your home state.

BACK COVERS

Inside: Sand dollars are one of the beachcomber's favorite finds. When alive, this flat sea urchin was covered with small, movable spines that feel like velvet. The mouth on its underside had five tiny teeth which rattle around inside when the sand dollar's skeleton is found along the water's edge. Photo by Glen Mills.

Outside: Bobcat populations are decreasing in many states, but in Texas they appear to be thriving. These agile cats have sensitive vision and an acute sense of hearing, and they have learned to adapt to the many changes that limit other wild cat populations. Photo by Glen Mills.