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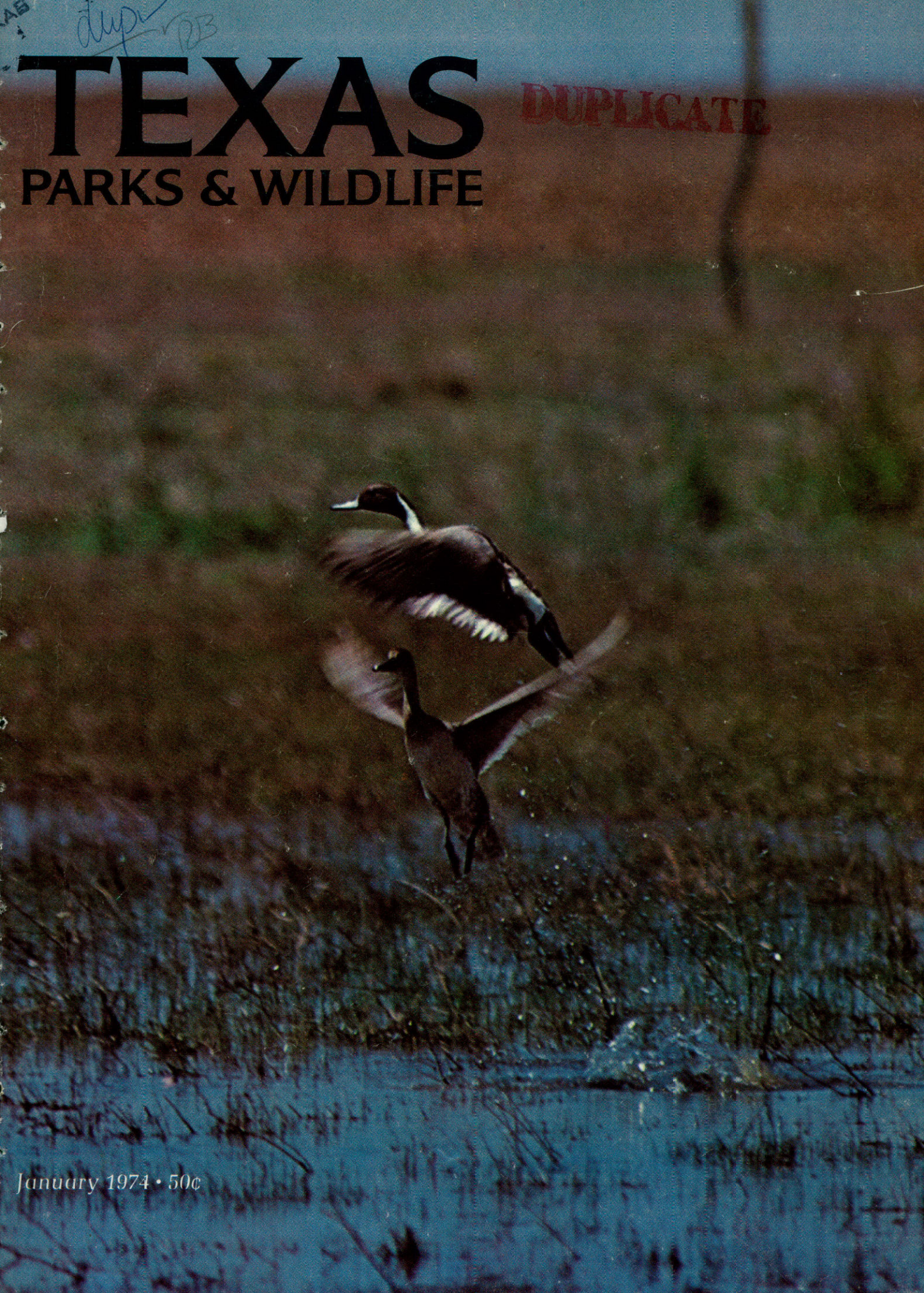

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TEXAS PARKS & WILDLIFE

Front Cover: Trailing sparking droplets of water, this rising pintail drake and hen provide a beautiful sight for the lucky observer at any time of the year. Photo by Bill Reaves.

Inside Front: This fleet-footed coyote may provide an exciting evening for a group of hound-dog owners as they sit around the fire and listen to the wily coyote leading their pack of dogs on a chase around the countryside. See related story on page 6. Photo by Martin T. Fulfer.

Outdoor Education in Texas

Schools are finally recognizing the need for teaching conservation and life-time sports.

Article by Ilo Hiller
Photography by Martin T. Fulfer

Today's youth are aware of the ecological problems facing our nation and they are interested in their environment. However, interest is not enough—they must be educated. They must learn not only how to preserve our natural resources, but how to enjoy the outdoors since recreational activities such as hunting, fishing, boating, camping, hiking, archery and bicycling will play an even larger role as our nation is faced with expanding leisure time.

Recognizing the need to teach our young people to appreciate the outdoors and its recreational potential, many farsighted schools throughout the nation are organizing accredited, elective courses in outdoor education for their students. Pioneering this type of education in Texas is the Sunset High School of Dallas where the first accredited outdoor education course was taught in the spring semester of 1972.

It all began four years ago when Coach Ray Myers was approached by a group of boys who wanted him to act as a sponsor for a high school woods and waters club. Controlling 25 boys in a gym or classroom situation is not too difficult, but it can be an entirely different situation on a lake or in the field with live firearms. Taking all this into consideration, Myers, with the approval of his principal, accepted the responsibilities and the Sunset High School Woods and Waters Club was organized.

Through the activities of this club 25 high school

boys were able to fish most of the lakes in North and East Texas, go dove hunting, go camping, make canoe trips and earn enough money by washing cars, selling candy and mowing lawns to charter a bus to take them on a summer fishing trip to Manitoba, Canada.

Members of the Sunset club have also been successful in helping organize other clubs in the Dallas area, but their greatest accomplishment was creating enough interest and enthusiasm in outdoor activities to point out the need for outdoor education classes at Sunset High School.

In order to obtain accredited status for such a course, Coach Myers and interested supporters from the Sportsmen's Clubs of Texas, Texas Outdoor Writers Association, Texas Parks & Wildlife Department and Dallas School Board met with the executive director of the Texas Education Agency in the fall of 1971 to present the proposed outdoor education program. The results of this meeting were favorable, and in October 1971, the course and a tentative curriculum guide were presented to and accepted by the Dallas School Board.

Outdoor education was added to the Sunset High School curriculum as a one-half credit elective in the spring semester of 1972. Since that time, the elective has been expanded to a full-year course and upon completion of "Outdoor Education in Texas" the student is granted a full credit toward graduation.

Outdoor Education in Texas is a coeducational course designed for those students who enjoy the outdoor activities of hunting, fishing, boating, camping, hiking, bicycling and archery as well as the conservation of our natural resources. Emphasis is placed on gun safety, water safety, first aid, conservation, courtesy, good sportsmanship and a knowledge of the state and federal laws governing all outdoor recreational activities.

During the first six weeks of study, the students are introduced to the terminology of the outdoors and provided with a brief overall statement about the wildlife of Texas. They then enter into a regional study of the state covering such subjects as the national forests, state parks, lakes and major rivers, as well as the major game and non-game species of mammals, birds and fish found in each region.

Intensive courses in hunter safety and beginning archery are presented during the second six weeks.

Through the hunter safety program the students receive a basic knowledge of guns and ammunition and how to clean and care for these sporting firearms. Safe handling in the field, at home and while in transit is stressed as well as safe hunting methods. Daisy air rifles are used in live firing to teach accuracy in aiming and positioning the gun. Shotgun techniques are also taught, and upon successful completion of

By learning the techniques of archery, casting and target shooting as well as game and fisheries management, students are acquiring skills which will provide them with hours of recreational pleasure in the life-time sports of field archery, camping, fishing, hunting and related activities.

the hunting safety portion of the program, the students are issued certificates and patches of competency from the Texas Parks and Wildlife Department and the National Rifle Association. Permanent records of graduates of this Hunter Safety Program are maintained by the Parks and Wildlife Department.

The archery program, designed to encourage a relaxing sport which may be enjoyed for a lifetime, begins with instructions on how to select a bow of the proper size and weight and the types of arrows designed for the type of archery desired—target shooting, field archery or bowhunting. Techniques of shooting which include the stance, draw, anchoring, aiming and release are all explained in this section of study. Actual shooting is done on the school's range.

The final six weeks of the first semester cover the broad subject of hunting in Texas. During this section the student learns the requirements concerning the various types of hunting licenses required; the hunting laws of the state; where, what and how to hunt in Texas (with special sections on deer and varmit hunting); and acquiring a lease.

The second semester begins with a standard first aid course with instructions concerning wounds; shock; artificial respiration; injuries to bones, joints and muscles; burns; heat exhaustion, strokes or cramps; frostbite; and common emergencies such as a heart attack, apoplexy, fainting, epileptic convulsions, unconsciousness and foreign matter in the eye or throat.

Once the students have acquired three weeks of intensive first aid instruction, they are ready for their three-week unit on survival. This unit takes into consideration the knowledge acquired concerning first aid as well as how to acquire food and water, build shelters to protect themselves from the elements and how to build fires for warmth and cooking.

By the time the second six weeks of the second semester roll around, the students are introduced to the study of water in Texas—pollution, reuse and wildlife needs.

Recreational boating is also included in this section along with instructions on the United States Coast Guard course in boating safety. In this course students are taught boating safety, proper boat handling, nautical terms, legal requirements, rules of the road and what to do in case of bad weather.

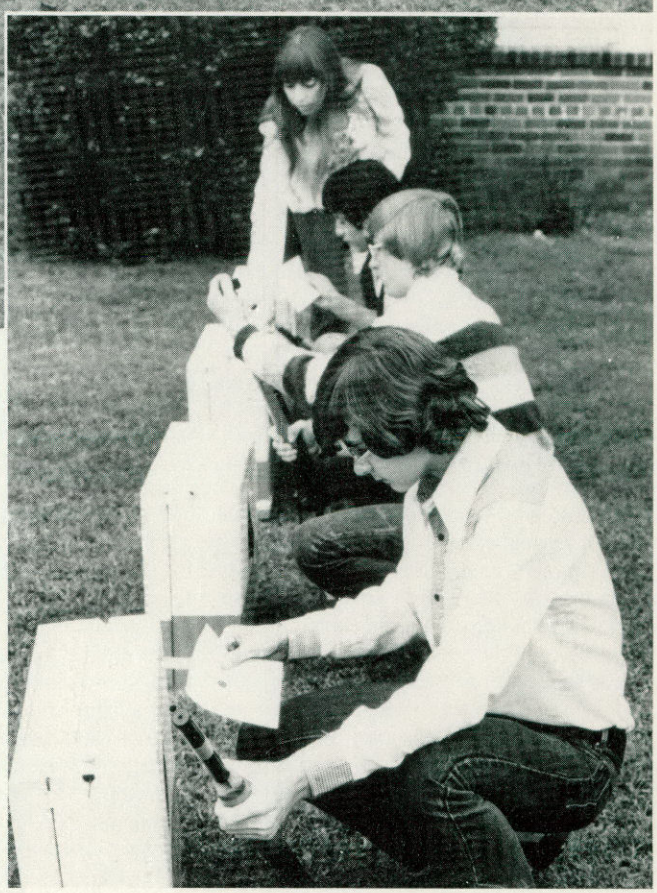
Skiing, skin diving and canoeing are also taught in the section on boating with main emphasis, again, on safety.

Coach Myers rounds out the first part of the final six weeks of the course teaching the beginning fisherman the techniques of spin-casting equipment, bait casting and trotline fishing. To make things easier for the novice, information is also included on where and how to fish for the various species such as black bass, crappie, sand bass, bluegill and chain pickerel.

Last, but not least, is a section on camping with suggestions on where to go, how to select a campsite, building a fire, camp cooking, camping manners and disposing of waste.

Upon completion of the outdoor education course, the students should have been exposed to such activities or manipulative skills as map reading; use of a compass; outdoor living techniques; outdoor cooking; survival techniques; casting and angling; shooting and hunting; boating and small craft navigation; water activities such as skiing, swimming, skin diving and scuba diving; archery; hiking; bicycling; and outdoor photography.

In addition to teaching students physical skills, advocates of the outdoor education curriculum have seven broad-based goals for their program. They hope that through this course students will develop a life-time interest in outdoor life, and learn the value of preserving our natural resources. It is also hoped they will learn to make use of leisure time, develop a positive attitude toward the importance of good health, learn the value that society places on ethical character, learn to place high value on inherent or



acquired citizenship and learn to be considerate in relationships with others both in vocational and avocational activities.

Since Myers strongly believes that young people must be educated in practical conservation (not taught by Bambi and other animal fables to hate guns, hunters and hunting), his personal goal is to see that outdoor education courses are taught in every public school possible. To accomplish this goal, he has traveled to schools all over Texas to give informal lectures on how to establish the course or organize an outdoor club. His efforts have been rewarded as several schools throughout the state have added an outdoor education course to their curriculum of study this fall.

Individuals may obtain additional information by writing to Ray H. Myers, 100 Melody Lane, Forney, Texas 75126, or Outdoor Education, Sunset High School, 2120 West Jefferson Blvd., Dallas, Texas 75208. **

The Forks of the Creek

by Joe T. Stevens, Wildlife Biologist, Clifton

In 1967 the Oklahoma Department of Wildlife Conservation found that the wily coyote provided over a million man days of recreation per year in the state. To the surprise of many, this was a far greater number than any other animal in the state could boast. Furthermore, it was estimated that the 22,100 coyote hunters in Oklahoma spent over 23 million dollars that year on their sport.

No such survey has ever been taken in Texas, and few people other than the coyote hunters themselves are aware of the popularity and magnitude of this pastime. Wherever the exciting howls of this wild relative of the dog can be heard in the Lone Star State, these sportsmen abound, enjoying their favorite hobby as only they can.

Coyote hunting at the "forks of the creek" with a good pack of hounds is far more than a sport. It is a passion born of love for the hounds and love of the chase. For the died-in-the-wool hunter it is a way of life. From his earliest memories the sad eyes of a long-eared hound have penetrated his soul as nothing else can. He has discovered the one absolutely unselfish friend in this world that will never desert him or prove ungrateful. The musical note in that melodious voice "flings a charm upon him" forever that makes the lure of other hobbies seem insignificant.

Most hound men are born in the quiet countrysides where there are rolling hills, winding streams and an occasional thicket so matted with briars and thorny bushes that even in winter, furry coyotes can lie in snug retreat. Sometimes these hunters are born in rugged houses up where the valley is narrow and the clear streams run swifty. Or, as often, the scene of their nativity is in a sturdy house back from the road among the singing pines where the pork sausage is smoked with real hickory.

Coyote hunters are generally happy fellows who find life pleasant and get a great deal out of living. Possibly one reason for this is that the cost of their sport is elastic and can fit any purse. A poor man can keep at least one hound, and it has been wryly observed that some are so poor that they can keep four or five. However, most coyote hunters are middle-class gentlemen and run a pack numbering from seven to 10 hounds; while those who can afford it maintain a large kennel. Yet when these men load their pack in the pickup and assemble on the hill at the forks of the creek, build that traditional campfire, put on the coffee pot and discuss which way to cast for the night, monetary worths are forgotten, all are as one and an atmosphere of equality reigns.

They have a language of their own. To hear a veteran of many races describe the mystery of "The Chase" is to begin to understand and appreciate the joy that fills the heart of a hunter when his hounds are in full cry after a fleeing coyote. These men have ears so well trained that they can tune in on a race and distinguish the voice of their hounds from all others. When their favorite is heard leading the pack, there is an indescribable satisfaction that possesses them. They are caught up into an atmosphere of elation and a new song is forever written in their hearts.

The individual merit of a hound is all that some hunters desire, while others must know the pedigree of their family of hounds for many generations. If a great producing sire is developed somewhere, brood matrons are sent to him from places so remote that it is a day's journey out to a paved road. Hounds are bred for speed to drive a coyote to his den without sacrificing the endurance to withstand the rigors of a long race.

The majority of men in this hunting fraternity view the coyote as one of the most remarkable animals in the world. They are fully aware that he is a predator and stand ready to help provide reasonable control when necessary. Many are farmers and ranchers who possess intricate knowledge of his daily habits. At dusk they have watched him leave his secret hiding place, stop for awhile and consider where he will go for his daily meal. They cannot tell what has made him do so, but it is obvious that he has decided. He trots or breaks into short gallops, with very preceptible pauses to look up and down for landmarks, altering his direction a little, looking forward and back to steer a proper course.

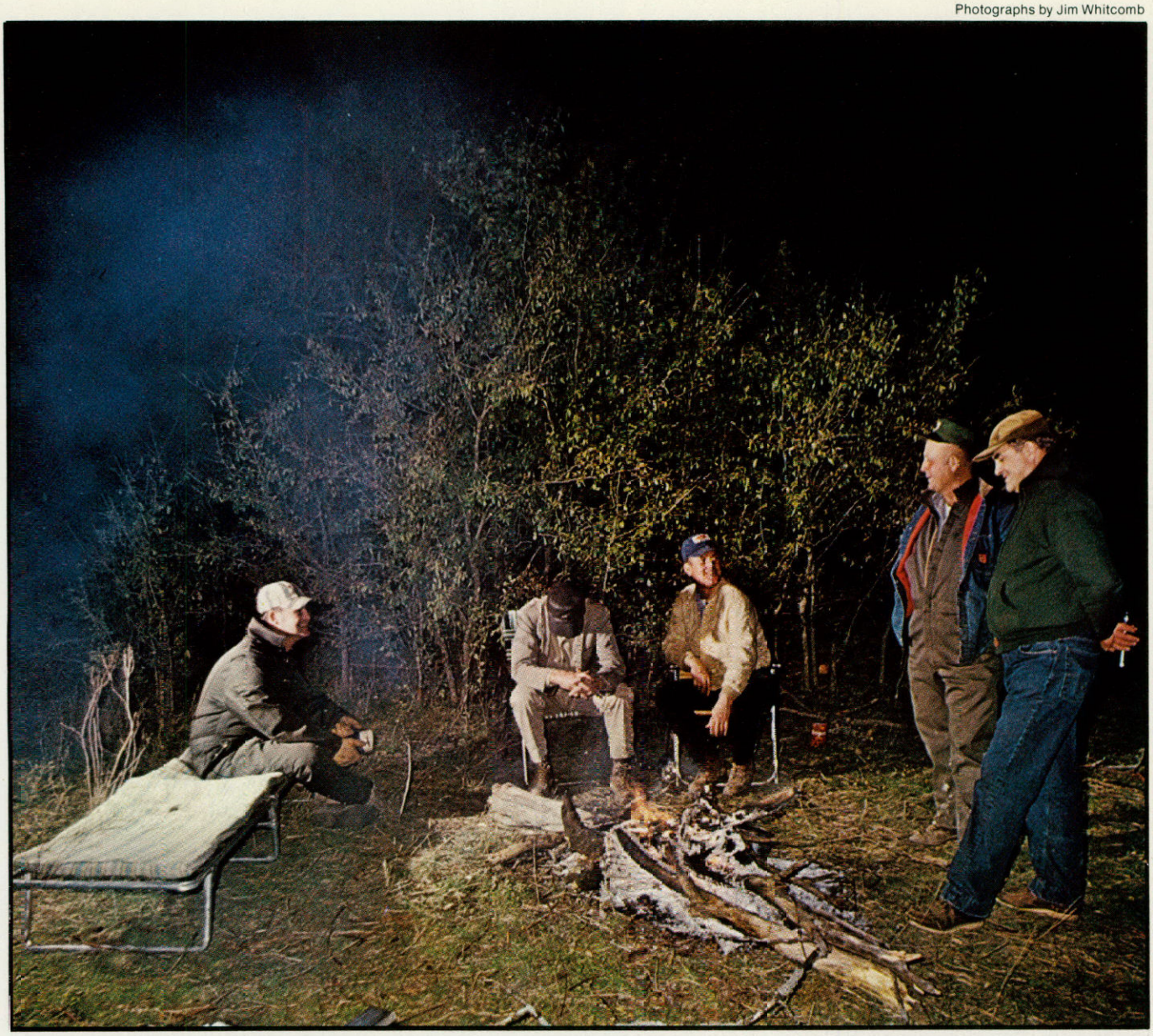
When there is no threatening gun visible, he appears as unconcerned as a neighborhood dog, but let one move be made toward a firearm and he vanishes like the wind.

Occasionally he is observed chasing a dodging cottontail or a fleet jackrabbit, but more frequently digging for his favorite delicacy, the field mouse. His familiar tracks along trails, around fence corners, under gates and at crossroads are under the constant scrutiny of the hound men.

The hunters learn his travel patterns and mark the direction of his howls in order to cast their hounds for a quick strike and an early race. Every hunter and his hounds brace for the conflicts around the dens in the springtime when the pups are young. At this time, the voice of coyote parents becomes a vicious warning bark. It is an unmistakable battle cry and anyone will readily admit that few animals the size of a 35-pound coyote can strike as much terror into a pack of hounds. Only a few hounds will stand their ground and many have been known to run over almost anything to get back to camp!

Therefore, a good coyote hound must of necessity be a warrior. His life is full of desperate adventure, high speed, the tumult of camp, the roar of battle and

Photographs by Jim Whitcomb



The hounds cast about for the scent, and once the chase is on, the coyote hunters leave the fire's warmth to listen to the hound music. To an experienced hunter, the cry of the hounds will tell the whole story of the chase.

hours of painful recuperation from injuries and exhaustion. The omnipresent barbed wire, the chance of being struck by a speeding automobile, and the threat of poison and traps threaten his every step. He lives, not for the lust of killing, but dedicated to one great purpose—The Chase.

The breeds in this sporting arena are the Walker, July, Goodman, Trigg and Hudspeth strains. Nose, speed, drive, stamina, voice, "coyote sense" and homing instinct are the essential qualities that a coyote hound must possess. The challenge of breeding for all these characteristics in proper balance is one that faces few other sporting-dog breeders.

Hounds must depend upon their noses to follow the line of coyote scent and a hound is in reality no faster than his nose. The better the nose, the faster the hound and the closer he will stay behind the coyote. The onrushing pack that can drive its game across the country "like-a-bird-aflying" is sure to be one whose individuals excel in this respect.

A coyote crossing a field or trotting down a trail leaves a track of scent oil. The hound doesn't smell these particles of oil from his foot, but smells the air that has come into contact with them. Since hot air rises, scent will be best when the temperature of the ground is warmer than the air. A few days of warm weather followed by a sudden cold spell will create the right conditions, and hound performance on such a night will attest to the fact.

The physical speed of a coyote hound is actually not entitled to the prominence that some hunters give it, since its worth is dependent upon nose and stamina. Since a coyote can "skip the dew" at 24 miles an hour, the value of a fast hound can't be ignored. Essentially all pack hounds should be nearly equal in speed. Failure to recognize this need is a common mistake of coyote hunters. Just as a man can ignore faults in a beautiful woman, so the coyote hunter overlooks faults in a fast hound. Speed is the number one quality in most coyote hunters' minds. They excuse a hound of most weaknesses if he can get out in front of the pack and stay there for awhile.

"Drive" in a coyote hound is the desire to get forward as fast as the scent and terrain permit. While body conformation and good physical condition are contributing factors, drive cannot be determined by appearance. A pack must have it to be tops in the mind of the true "forks of the creek" crusader.

When the pack comes into hearing in full cry, each one trying honestly to drive to the front, chills run up and down the hound-man's spine and he may toss his hat into the air and give a war whoop of joy.

A kindred trait to drive is "gameness," the quality given priority over all others by the breeders of the ancestors of modern fox and coyote hounds. It has been perpetuated by those who are thoroughly convinced that a hound is worthless without it. For when "heart, nerve and sinew" are gone a game hound will stay in the race and exhaust his last ounce of physical energy in hopes that he may outlast his quarry. His indomitable spirit rises above the physical, and neither pain nor wounds can deter him from his single purpose. The true coyote hound runs and, if needs be, dies for the chase rather than quit, which to many is the one unpardonable sin.

The average coyote hound spends most of his hunting time out of the sight of his master and a considerable portion of it out of the sight of his fellow hounds. Thus, the hunters are dependent upon his cry if they are to continue to follow the chase, and the pack is mutually dependent upon cry if it is to function as a team. When hounds are spread out as skirmishers, each with his nose to the ground searching to find the trail of a coyote, they lose sight of one another. So, the first hound to catch the scent must tell the others about it if they are to harken to him and enter the chase.

Many things enter into the composition of the coyote hunting fraternity, but the main attraction that causes the hunters to return again and again to their favorite camps is the musical voices of their favorite hounds. Consequently, the quality of the hound's voice is very important. The ideal is one so distinctive in tone that you never mistake it, and one with such volume that it can be heard in a large pack for great distances, In the woods and among the hills the sound waves roll and recoil against the trees and canyons with great accent, but in open country more volume is essential in a fast-driving pack. The ability to accurately interpret the progress of the swift drama of the unseen chase by the sound effects produced by baying hounds is a skill which is developed after many patient hours of careful listening in the dead of the night. When the cast is made, hunters wait for the strike in silence. Then far down the creek one hound cries and says no more.

"That's R. D.'s young white hound. He ain't sure if he smells a coyote or not," observes a silhouette in the edge of the glow of the small crackling fire. Time passes and conversations break the silence. And then, like a trumpet call from the woods just ahead, comes a great challenging cry. There is no indecision about this hound's note. Like a warrior announcing that he has found the enemy, the old black spotted hound sounds the challenge.

"Be quiet boys—be still," comes a low whisper enclosed by the darkness just beyond the fire. Now the woods are alive. From every direction is heard the patter of feet upon the leaves, the grunt and whine of anxious hounds hurrying to the assembly. Another hound begins to cry.

"It's a coyote all right," draws a hitherto silent statue. "Old Lou is true blue and will not lie." The volume of cry increases as hound after hound joins in.

"Boys, they are headed up Wolf Creek," Dal exclaims. Suddenly there is no sound.

"The coyote has left the woods and hit that plowed field and that is what is bothering them," another voice advises. The cry is soon resumed as Lucky, Rose, and Doug's little Gyp find the track to the west. Presently these three leaders are joined by a dozen other hounds, whose voices leave no doubt that the race is on.

"That coyote is going down Brushy and out by the Old French House toward the lake," Allen surmises as his dog Blackie issued a bloodcurdling squall as if she would catch the coyote any minute. And so it goes on through the night. Once you graduate from this backwoods academy, you can follow the hounds in any state or country on a horse, in a vehicle or on foot, and the cry of the hounds ahead will be telling you chapter, book and page of the story.

Yet, even upon the most favorable scenting night 'Mr. Coyote' may vanish into thin air. Therefore, unless a good nose is accompanied with "coyote sense" that particular race comes to an abrupt end. "Coyote sense" is not some mystical fantasy, but just plain intelligence. Some families of hounds have a more abundant supply than others. Experience, of course, is necessary, but any veteran of the chase can sense the difference. When a hound with coyote sense comes to where the scent has been lost, he does not nervously hunt all over the area for the line, but raises his head, surveys the terrain and heads for the most likely place that the coyote would go. He finds the trail and cries, "Here it is—come on boys!" Furthermore, he carries the line in true fashion

Neal Cook

Morning arrives and the excitement of the night's chase is relived as the hunters wait for the return of their dogs. Once the chase is over, the pack of hounds may be miles from their starting place but their homing instinct will bring them back to the camp. Inexperienced young dogs are sometimes called in with a horn until they develop their own homing instinct.

and does not waste time barking out of place.

Combined with intelligence, is that sixth sense called "homing instinct." When the race is over, sometimes miles from the camp from which the cast was originally made, a true coyote hound will return to camp. If in proper condition and well-trained he will not lie down, or stop by a strange house for food, but will find his way back to the spot where his master put him out. A good blowing horn is very effective to encourage older hounds to return promptly and to give direction to the young and inexperienced while they are developing their age-old homing instinct.

Apparently coyote hounds have inherited the packing characteristics in chasing their game from their ancient ancestor, the wolf. Fortunately, this desirable trait has been perpetuated through the breeding programs of houndsmen. Hounds work as a team and therefore should be about equal in speed and drive for the most successful performance. This type of balanced pack will run their coyote as a unit, and at a check, will fan out as skirmishers. Then, when one regains the scent line, the rest of the pack will close upon him without hesitation and be off again. The more evenly the hounds are matched, the better they will perform to the joy and satisfaction of the owner and his friends.

The hunter in this modern world who meets most frequently with his friends at the "forks of the creek" for the fastest and most exciting of all hound races is not just another man. He is truly an amateur geneticist and a skilled artist; for the development of a great pack of coyote hounds is not merely an accident. He is a knowledgeable breeder, a compassionate caretaker, a patient trainer and a discerning "culler" for those individuals with undesirable traits such as "babbling" or barking unnecessarily all over the woods, continuously running "trash" or undesirable animals and those that are too fast or too slow.

His hobby is both time-consuming and expensive and not for the weak-hearted. If he had 100 lives he would without question invest part of them in this sport, for to him this is the ultimate in recreation. **

OUTDOOR BOOKS

THE DEAF SMITH COUNTRY COOKBOOK: Natural Foods for Family Kitchens by Marjorie Winn Ford Susan Hillyard and Mary Faull Koock; Collier Macmillan Publishers, 866 Third Avenue, New York, N.Y. 10022, 1973; 352 pages, $3.95 in paperback.

Farewell to processed and commercial foods on the family dining table and welcome to the natural goodness, textures and nutrients of whole foods. From Deaf Smith County, the land that has become famous for its grains and oils, comes this long-awaited cookbook; and it is full of robust recipes. Natural foods are unrefined products in the most pure form manageable for human needs and consumption and in this state can be properly assimilated by the body. They contain no chemicals or additives and have not been sprayed with poisons. The rediscovery of good flavors and health are the rewards of eating whole foods.

The book offers an alternative from the "fast" foods which have been stripped of real nutritional value in order to bring them quickly to the table. Natural foods do take longer to prepare, but that is because there is more to them. It is the quality of life that is emphasized.

The recipes focus on foods that come from the soil, and except for dairy products, animal-derived products are not mentioned. The bread chapter is the crowning triumph of *The Deaf Smith Country Cookbook*, and drooling over such baked surprises as alfalfa sprout spread or dilly bread, one is once again reminded that bread rather than hamburger is the staff of life. The full range of menu planning from hors d'oeuvres to baby foods is given, plus a special section "Tengo Hambre" for Southwestern dishes. For the cook who is beginning to switch to this philosophy of using whole foods, there is a substitution list of basic staple supplies to begin using in old favorite recipes.

This paperback is completely indexed and each recipe is easy to read and follow.

This reviewer has tried some of these taste treats and is now a convert to fresh cranberry juice, homemade tomato sauce and mayonnaise. There is a personal bond between grower and consumer and it is a pride to serve the very best that nature's abundance can offer.—*D'Arcy James*

THE SAGA OF THE BUFFALO by Cy Martin; Hart Publishing Co., Inc., 719 Broadway, New York, N.Y. 10003, 1973; 190 pages, $10.00.

The buffalo—the mighty beast that is almost a fairy tale but is real enough to occasionally be seen on the backside of an old nickle or penned up in a zoo—how is it that it has disappeared from the American plains?

We are told that in pre-Europeanized America the buffalo population was estimated to be between 70 and 80 million; the tales of their eradication are legion; and *The Saga of the Buffalo* tells the brutal and terrible story of this native animal's slaughter. Now, in 1973, thanks to protective laws and care, the animals have built up to several thousand in number.

It is difficult to identify only one specific cause for the growth and decline of the "Wild West," but Cy Martin lays a heavy responsibility to the presence of the buffalo. To him it was grounds for the Indian's wrath and uprisings, the basis for the creation of new towns, a factor in the development of the railroads and a savior to homesteaders who survived hard years by selling off graveyards of bleached bones for fertilizer. The frontiersman's attitude was reckless, "Only when the Indian becomes absolutely dependent upon us for his every need, will we be able to handle him. Every buffalo you kill now will save a white man's life."

The book recounts the bison's history and the men and civilization that destroyed them. Chapter headings such as "The Dudes Come West," "Slaughtered for His Hide," and "Showdown in the Texas Panhandle" are a sample of the contents. The text is complemented by many wonderful pictures that are vivid and sometimes unpleasant glimpses into our American past. The pictures have been gathered from collections from all over the country and make the book an excellent pictorial account. *The Saga of the Buffalo* cannot help but inform and leave an indelible impression of this important period in America's early growth. —*D'Arcy James*

THE NEW WAY OF THE WILDERNESS by Calvin Rutstrum; Collier Books, 866 Third Avenue, New York, N. Y. 10022, 1958, reissued 1973; 275 pages, $2.95 in paperback.

In trying to appeal to a wide audience interested in wilderness exploration and camping, the author misses many priorities that might apply to Texans, and includes such sections as dog-sled teams and riding horseback in the mountains that serve no importance to this area. Rutstrum does offer sound, practical advice in some areas, but he does not say any more than other authors on the same subject.

The author excels in what appears to be one of his favorite areas, canoeing. This is one of the more complete and comprehensive subjects covered in the book which many persons might find helpful. The subject of canoeing is complex, and the author handles it well; however, it is difficult to supply enough information to make a novice into an expert.

By inserting light humor in places, Rutstrum breaks the monotony of reading page after page of facts. His satire in handling controversial camping tips makes the transition to other topics smooth and light.

At times the book is redundant, but the points stressed are important. Apparently the author feels that these passages merit repetition, The book is adequate in that it covers most of the major headings of camping in the wilderness, but the two most outstanding chapters are on canoeing and the cooking and preparing of foods.

Chapters in the book on tying knots, compass navigation and knife sharpening might also be helpful to the reader, depending on his experience and familiarity with the subjects.—*Terrie Whitehead*

PHOTO AND ART CREDITS

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Page 29 (top) — Bradshaw; Nikon F, 300mm Nikkor plus M-2 ring; Kodachrome II. — (bottom) — Whitcomb; Nikon F, 55mm Micro Nikkor plus rings; Kodachrome X.

Page 30 — Carson Baldwin Jr.; Technical information not available.

Page 31 — Cook; Nikon F, 300mm Nikkor; Kodachrome II.

Inside Back — Henry Compton; colored ink, pencil and gouache on illustration board.

Back Cover — Fulfer; Nikon F2; 55mm Micro Nikkor; Kodachrome II.

LONG SHOTS SHORT CASTS

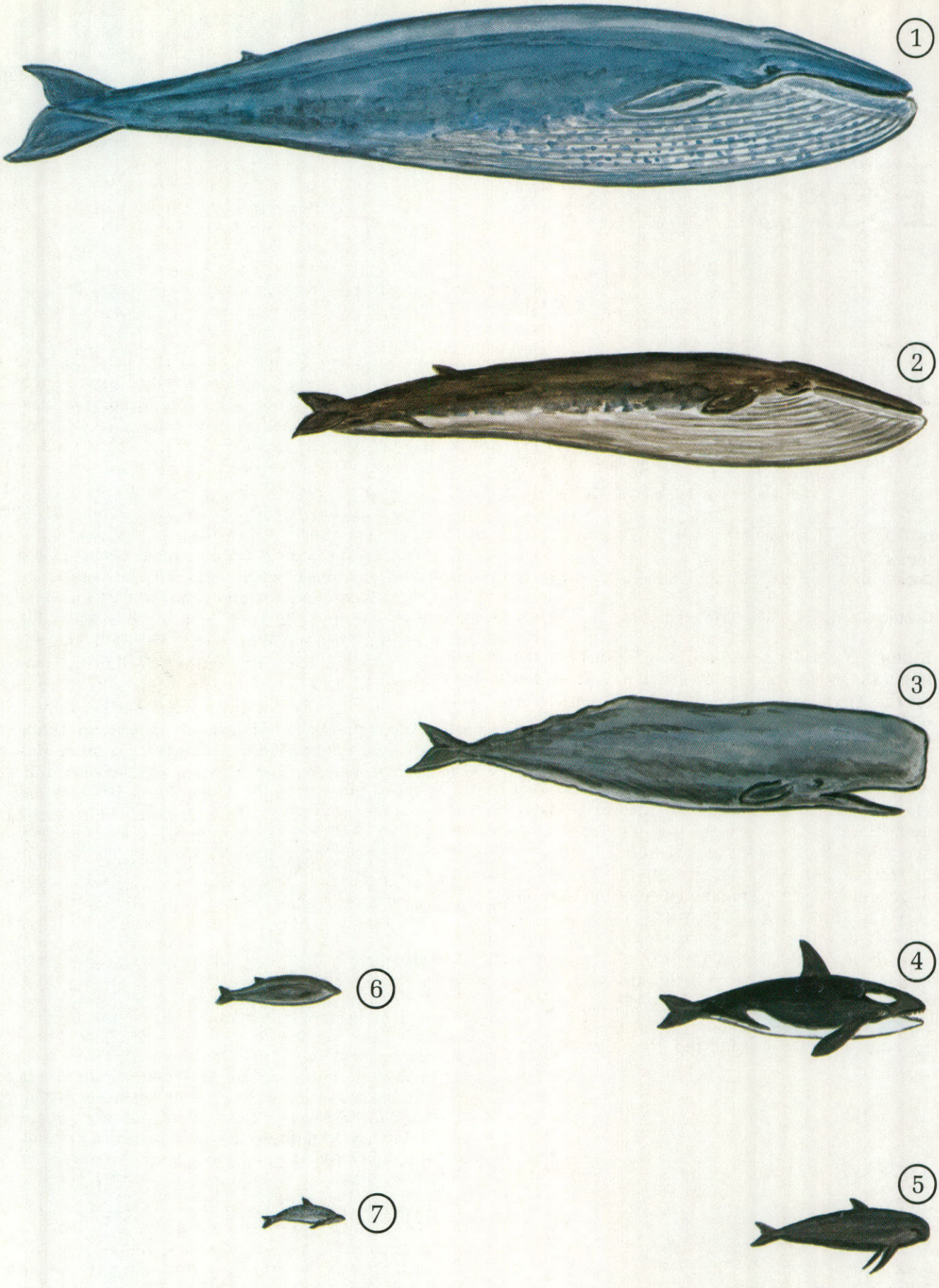
compiled by Neal Cook

Big Stack: Have you ever wondered how many *Texas Parks & Wildlife* magazines are sent out every month? If you put the 92,000 magazines into one stack, it would be about 640 feet high. For comparison, a modern building would have to be about 64 stories tall to match this stack; the San Jacinto Monument and museum is 570 feet tall; and from the basement floor of the state Capitol building to the highest point of the statue on top is only 390 feet. We hope you will help this stack grow by giving our magazine to your friends.

Tigers for Their Tanks: The World Wildlife Fund announced a contribution of $50,000 from the Exxon Corp. for the Fund's "Operation Tiger" campaign. This campaign was undertaken to purchase and improve tiger sanctuaries in India where a 1969 census revealed less than 2,000 Bengal tigers, a 95 percent decline since World War II. While commercial harvesting of the animals for their pelts has been partially responsible for the decline, the biggest problem has been the destruction of the forests for agriculture and the reduction of the numbers of prey species which the tigers eat.

Environmental Saint: The Vatican has announced that St. Anthony the Abbot may now be "officially invoked" as the patron saint of the environment. St. Anthony's papal appointment was apparently awarded because of the 11th century conservation practices of the monks in the order later named for him, rather than for the saint's own good environmental deeds. Anthony was an Egyptian of the third century who spent most of his 105 years living in caves. On the other hand, the Hospital Brothers of St. Anthony were once widely famed for their zeal in planting trees and their tenacity in land reclamation.

Grizzlies Threatened: In Yellowstone National Park, grizzly bears had a protected area from man's destruction, but the park service has changed this over the past few years and the entire population of this rare animal in the park is now threatened. In 1967 the park service decided to close the open dumps within the park. These were a primary source of food for the bears and without this food they began to move into the campgrounds looking for something to eat. Injuries to campers then increased over 40 percent during 1968–72. To control the bears, the rangers then began killing more bears to protect the campers—an average of about three times as many bears were killed during this period than the average in the preceding nine years. An estimated minimum of 175 and a maximum of 250 bears lived in the Yellowstone area in 1967; a total of at least 118 grizzly bears were killed during 1970–72.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Whales, Porpoises and Dolphins of Texas

by David J. Schmidly and Betty A. Melcher
Illustrations by C. O. Martin
Department of Wildlife and Fisheries Sciences, Texas A&M University

Contribution No. TA 10778, Texas Agricultural Experiment Station

Editor's Note: This is the first of a three-part series about the marine mammals which have been reported off the Texas coast. Next month the toothed whales will be discussed and the third section will cover the rough-toothed dolphins and ocean dolphins.

Texas possesses approximately 373 miles of coastline along the Gulf of Mexico, but including major bays and estuaries, there are actually about 1,980 miles of shoreline. These waters are the homes for many kinds of warm-blooded mammals which bear their young alive and nourish them through a period of infancy.

At one time, 18 different kinds of marine mammals inhabited Texas coastal waters and were classified into three major groups or orders of mammals: the earless seals (order Pinnipedia), the manatees or sea cows (order Sirenia), and the whales, dolphins and porpoises (order Cetacea). Since sirenians and pinnipedians have not been reported from Texas since the 1930's, there is reason to believe they are now extinct from our waters. However, cetaceans sometimes beach along Texas shores and are often observed by fishermen in the offshore waters.

Most cetaceans are large in size, ranging in length from seven to 100 feet. They have many unique features which enable them to live in the ocean and which make them seem unusual in appearance when compared to their terrestrial relatives. Their bodies are streamlined, with the external ears absent and the front limbs modified into flippers. Beneath the skin they have a thick layer of fat, called blubber, which provides protection from heat loss in the water and energy at times when food is scarce.

In addition to their anatomical adaptations, cetaceans have many specialized physiological and behavioral adaptations. The rate of their heart beat is slowed to aid in deep dives and prolonged underwater activity. At the same time, most of the blood supply is cut off from much of the musculature and external parts of the body to insure a sufficient supply of oxygen for the heart, brain and other vital organs. Some species have been recorded at depths of 1,000 to 3,000 feet where they are known to stay without breathing for as long as an hour. They are able to do this because the ability of their blood to carry oxygen is greater than that of a land mammal and their tolerance to carbon dioxide is higher.

Cetaceans are an important part of the life found in our oceans. Many of them are commercially valuable and have been hunted to the point that they are in danger of becoming extinct. Today they are protected by law in all coastal waters of Texas. They provide a good example of what mankind's greed can do to the animal life that surrounds him. Since most cetaceans are at the top of oceanic food chains, they are the last organisms to receive the energy and materials circulating in the ecosystem. Because they can be drastically affected by harmful changes in earlier steps of their food chains, they can serve as important indicators of these harmful changes. For these reasons, and for aesthetic ones too, it is important to conserve our marine mammals for future generations.

The term whale is generally restricted to large cetaceans (over 12 feet) and the smaller ones are called dolphins and porpoises. Dolphins and porpoises, however, are not the same animals. Dolphins have a visible snout and cone-shaped teeth; whereas, porpoises have a blunt, rounded head with flat, spade-shaped teeth. There are no true porpoises known from the Texas coast, dolphins being the most common marine mammals known from this area. A fish, bearing the names dolphin or dorado, also inhabits the Texas coast but should not be confused with "true dolphins" which are mammals.

Many cetaceans have teeth in their jaws and are commonly called toothed whales. Instead of teeth, others have plates of baleen, a horny material that is fringed along the edge and hangs from the roof of the mouth. These fringed plates serve as strainers for the hundreds of gallons of water taken into the

1. 100 feet—Blue whale
2. 70 feet—Finback whale
3. 55-60 feet—Sperm whale
4. 28-30 feet—Killer whale
5. 18-20 feet—Pilot whale
6. 12-15 feet—Beaked whale
7. 6-8 feet—Spotted dolphin

mouth in one gulp when the animals feed. As might be expected, baleen whales feed on small organisms strained from the water, while toothed whales feed on larger animal life such as fish, seals or even other whales.

All cetaceans have a blowhole or spout on top of their head through which they expel air from their lungs. Toothed whales have a single blowhole and baleen whales two. Cetaceans do not blow liquid water out of their lungs. The visible spout formed when the animal exhales is from the condensation of water vapor from the lungs as it enters the air.

There are 16 kinds of cetaceans known from the Texas coast. Of these, only three are baleen whales—the finback, the blue and the black right. The other 13 are toothed whales, and seven of these are dolphins. The largest of the cetaceans inhabiting the Texas coast is the blue whale which reaches a length of 100 feet; the smallest are the spotted dolphins, dwarf sperm whales and rough-toothed dolphins which reach a length of six to eight feet. Baleen whales are larger than their toothed cousins.

BALEEN WHALES

Baleen whales, called mysticetes by scientists, are among the largest creatures ever to inhabit the earth. They have lost their teeth completely and have developed instead peculiar structures of baleen or whalebone. Baleen is a horny substance, growing in independent plates from two to 12 feet long, which is attached in two rows along the upper jaw of the animal. The outer borders of the baleen are smooth, but the inner borders are frayed into brushlike fibers. These baleen plates act as sieves or strainers. Water containing floating organisms is taken into the mouth and is then ejected by the piston action of the huge tongue, leaving the aquatic food entangled in the plates.

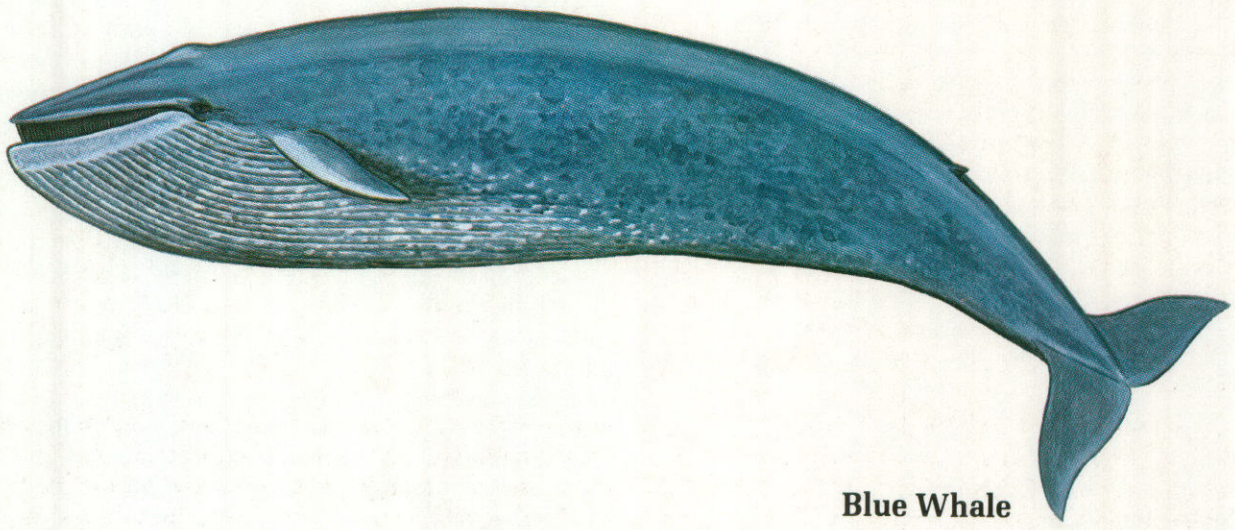
Only three kinds of baleen whales have been sighted in the coastal waters of Texas. They are the common finback whale, *Balaenoptera physalus,* the blue whale, *Balaenoptera musculus,* and the black right whale, *Balaena glacialis.*

Rorquals or finback whales, of the family Balaenopteridae, are all characterized by the presence of a dorsal fin and numerous parallel pleated grooves on the throat and belly. These furrows increase the capacity of the mouth when opened. Their diets consist largely of shrimp, copepods and amphipods.

Members of this family are the fastest swimmers among the baleen whales, and they have been known to attain speeds of up to 30 m.p.h. when pressed. These whales travel singly, in pairs or in larger groups. Several hundred may congregate where food is abundant.

Two methods of obtaining food are employed—swallowing and skimming. In the swallowing method, the animal turns over while feeding and often has part of its head above water when it swallows. In the skimming method, the whale swims through a swarm of zooplankton with its mouth open and its head above water to just behind the blowhole. When a mouthful of organisms has been filtered from the water by the baleen plates, the whale dives, closes its mouth and swallows the food.

All baleen whales that are hunted commercially at the present time belong to this family. Two species, the blue whale and the finback whale, have been sighted in Texas waters.



Blue Whale

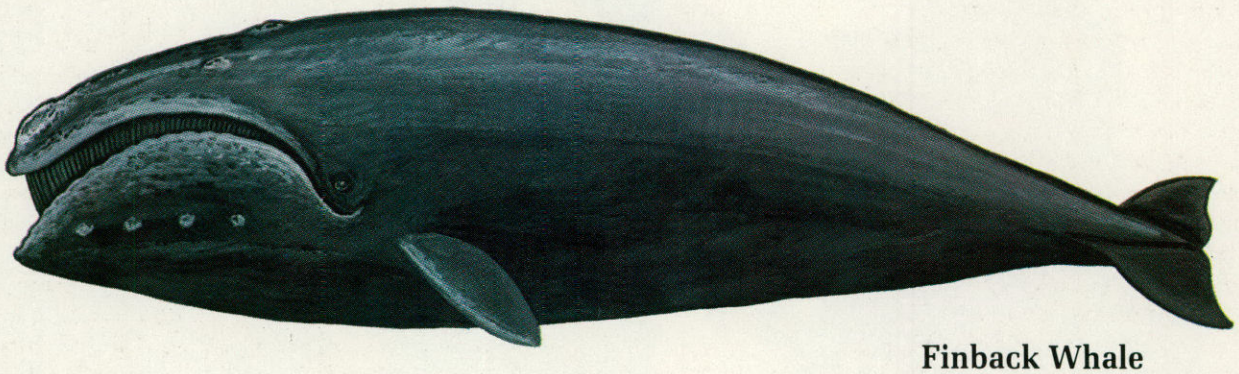
The **blue whale** is the largest animal ever to inhabit the earth. Adults may measure more than 100 feet in length with a weight of 150 tons. Although wide-ranging, they rarely occur along the Texas coast. A specimen washed ashore at Velasco in 1939 and others have been reported near Aransas Pass.

The upper parts of these animals are bluish in color with patches of gray; the underparts range from white to yellow. The name "sulphur-bottom" whale, which is sometimes given to the blue, refers to the yellowish

film of microscopic algae, called diatoms, that occasionally forms on the undersurface of this animal.

Blue whales migrate from arctic to temperate or tropical waters where a single calf is born which measures from 23 to 26 feet at birth. It doubles its length and is weaned by seven months. The life span normally will not exceed 30 to 40 years. The blue whale, usually observed singly or in pairs, is seldom found in large schools. Their food consists wholly of small organisms they strain from the water with their cavernous mouths.

These whales were formerly the leading commercial baleen whale, and as many as 70 to 80 barrels of oil were taken from a single individual. The depressing fact is that of the estimated 100,000 blue whales which were in the oceans before they became victims of modern whaling methods, less than 1,000 are left today.

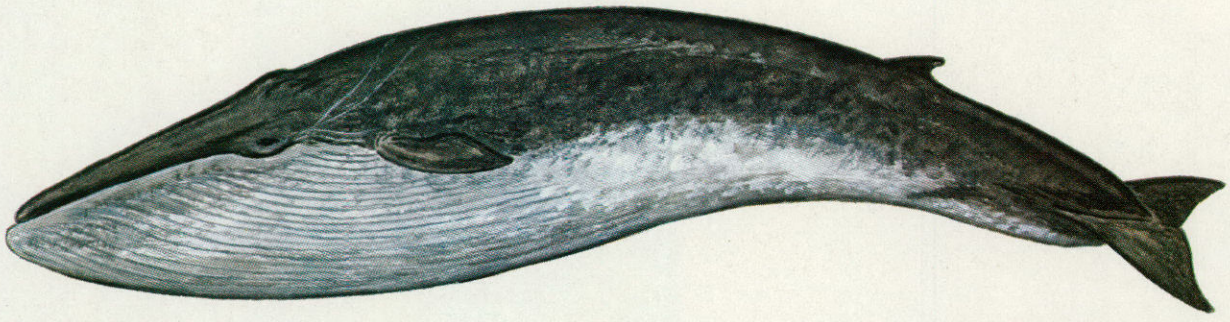


Finback Whale

The **finback whale** is a slightly smaller and more slender version of the blue whale. It can be distinguished from the blue by the bluish-gray color pattern of its baleen plates. The lower jaw on the right side is also whitish rather than pigmented.

The modern whaling industry has provided excellent opportunity for intensive research on these animals, and as a result, their biology is in some respects better known than most other large cetaceans. Female finback whales give birth to a single young which is about 21 feet long at birth and is weaned after about six months. These whales migrate into warmer waters during the winter where mating takes place. Their food consists of plankton, crustaceans and small fish.

When antarctic whaling began there were an estimated 200,000 finback whales in the southern hemisphere alone. They, too, were greedily hunted, and today only a small remnant of this population remains.



Black Right Whale

Right whales, of the family Balaenidae, have only recently been reported from the Texas coast. A single specimen beached in February 1972 at Freeport. Normally, Atlantic right whales inhabit the more temperate waters from Newfoundland south to Bermuda and the South Carolina coast. They occupy the southern parts of their range only in winter.

These animals are characterized by the lack of a dorsal fin. They have a large head which may equal a third of the total body length, and a horny prominence, called a "bonnet," on top of their snout. Adult right whales may reach a length of about 60 feet and are black in color. They skim the water for food.

The Atlantic right whale was hunted as far back as the tenth century and was once the mainstay of the whaling industry, hence the name "right" whale. It is now depleted almost to the point of extinction as a result of continued killing. Right whales are solitary, a fact which may have saved them from complete extermination. **

Hunters ar
Best Con

Bill Reaves

he rvationists

by Warren Page, President
National Shooting Sports Foundation, Inc.

Reprinted from ARGOSY Magazine

You self-righteous animal lovers—don't scorn the hunter! He's done more than just talk to save our wildlife. So far he's spent $2.3 billion on conservation. Mighty hunter Teddy Roosevelt established twenty-one forest reserves, five parks, four game reserves, fifty-one bird reservations and a national Bison range. Even James Audubon was an expert wingshot and buffalo hunter.

Roughly one-tenth of our American citizens, which is to say some 20 million, are at this stage thoroughly fed up, and are approaching a pinnacle of annoyance rare in the history of American minorities. They won't march on Washington; they may not even stage sidewalk demonstrations and sign-wavings; but in the process of doing a slow and steady burn the chances are they'll upset some politicians and certain lobbying groups in the next few years.

The reason is crystal-clear. That sizeable fraternity of American outdoorsmen who call themselves hunters are finally achieving a blend of outrage and annoyance at being the butt of every instant ecologist, of every consumer of roast beef who hates the idea of animal death, of every do-gooder who means to reverse the proven facts of biology. Long enough, they feel, have hunters been damned and blasted as murderers. Practitioners of a human

activity as old as man, one celebrated by the Neanderthals on the walls of their caves, they understandably resent being called kooks and perverts by folk who are sometimes a trifle odd themselves. And the bitterness of their reaction is compounded by one simple fact: the hunter *is* a conservationist, in the correct sense of that word.

For the first two centuries or so of this nation's development, hunting was a matter of simple survival, of economics. In a land of seemingly inexhaustible wildlife riches, man took what he thought he needed. The Plymouth Colony feasted on wild turkey; Daniel Boone slew and steaked fat berry-eating black bears; frontier towns bought passenger pigeons by the barrelful; plainsmen dined on prairie chickens, mountain men and prospectors on bighorn sheep; professionals shot off the elk to feed silver miners or to decorate lodge men's watch chains; and so on and on. Little or none of this pioneer slaughter was done in the name of sport. All of the long and miserable litany of early-days killing was done, basically, for economic reasons.

To be sure, a handful of Russian archdukes and mustachioed Britishers brought their engraved hunting arms to the romantic lands of the West, but they were a pitiful few, and the farm boy who in early colonial Virginia or later in Illinois or still later in Nebraska crawled up to resting mallards to blast out a family supper was killing for survival, not for sport, even though he, like any other atavist may have crudely thrilled at the experience.

But, as we are now learning with oil and coal and have long since learned with timber, such natural riches are not inexhaustible, and some seventy years ago, at the century's turn, a coterie of influential outdoorsmen with names like Theodore Roosevelt, George Grinnell, William Hornady, James Audubon and Gifford Pinchot, saw clearly the handwriting on the wall. At the time of game's absolute lowest ebb in the United States—by 1900 Pennsylvania was virtually free of deer; antelope and elk had disappeared in some western states; not only the passenger pigeon but even more adaptable fowl had shrunk to the point of rarity—it was gentlemen like these who realized that the key to restoration of our once great game resources was management. Simple protection was needed at first, perhaps, to give the species another start, but thereafter control of habitat and predation, with authorized hunting activity a primary tool would follow.

Theodore Roosevelt, himself a strenuously active hunter, author of half a dozen books about hunting adventure in the Rocky Mountain West and in Africa, set the theme. In the constitution of the Boone & Crockett Club, which he founded in 1887, he wrote as its purposes: "To promote manly sport with the rifle . . . to promote travel and exploration in the wild . . . to work for the preservation (conservation) of the large game of this country and as far as possible to further legislation for that purpose . . ." And again in 1908, during the last year of his Presidency, he expressed the theme more familiarly in a letter: *"The encouragement of a proper hunting spirit, a proper love of sport, instead of being incompatible with a love of nature and wild things, offers the best guaranty of the preservation of wild things . . ."*

The world had changed. Killing for economics was out; the sportsman-conservationist had been born. In 1900 the Lacey Act, which shrank market hunting from an interstate wave to a local trickle, was passed. By 1910 some 33 states required hunting licenses. Crude local laws on bag limits and seasons proliferated. Perhaps more important, the early conservation associations were formed, to be of vast influence in shaping policies in the next generation. Some of these outfits were The American Game Association, the Bison Society, the Boone & Crockett Club, The Campfire Club of America, The Explorers Club, the New York Zoological Society, later the Audubon Society, and in a second generation as it were, the National Wildlife Federation, the Wildlife Management Institute, and the Izaak Walton League.

Note that the first generation of these uniquely powerful associations, potent in their day because of the personal influences wielded by their members, was in every case founded by a group of confirmed hunters! Yes, Virginia, even James Audubon was a hunter. Today regarded as the patron saint of birdwatchers, Audubon was in his own time a superb wingshot and a hunter of buffalo, even considered by some of his contemporaries a bit of a butcher. Game was his favorite meat. It is a hard fact that even today, despite the proclivities of some of its members and certain executives, the Audubon Society has no constitutional objection to hunting under rational controls. It would appear, then, that as Roosevelt expressed it, the idea that devotion to hunting was the best guaranty of conservation of wild species would become truth for at least seventy years.

Such associations of sportsmen went beyond the Lacey Act, pushed for the establishment of the Forest Service, jammed through the Newlands Reclamation Bill in 1902, helped Theodore Roosevelt in the establishment of 21 new forest reserves of sixteen million acres, joined in the saving of Yellowstone Park and the establishment of five new parks, four enormous game reserves, 51 bird reservations in 17 states, a National Bison Range, and so on. It was such hunter-founded and hunter-supported groups that provided for the restoration of the bison and rammed through the Migratory Bird Treaty, the creation of Glacier and Mount McKinley National Parks, the Pribilof Island Seal treaty, and later such milestone acts as Pittman-Robertson and Johnson-Dingell, which today provide the primary funding for all wildlife conservation.

It was a duckhunter, cartoonist Ding Darling, who fathered an Iowa law, an important spearhead in game history, removing the Iowa fish and game department from politics. It was this hunter who eventually—with primary financing one-third from that Iowa department, one-third from the college itself, and one-third *out of his own pocket*—established the nation's first game management programs at Iowa State. And when that spearhead program ran into financial troubles, it was of all people the firearms manufacturers, the Sporting Arms and Ammunition Manufacturers' Institute, who ponied up a needed $81,000. Not much money, perhaps, but it came at a critical time, because it ensured the wildlife management training in land grant universities, which is the basis for all our practical conservation of game and fish today in this country and in many nations abroad.

Programs of any sort take hard cash, but self-professed conservationists (by which we mean preservationist in almost every case) are notoriously poor at putting their dough where their noise goes. Sportsmen, on the other hand, have in the past fifty or so years anteed up 2.3 *billion* dollars for practical wildlife conservation.

It is not difficult to add that up. First, Pittman-Robertson money—without which no state game department could operate the kind of game and non-game wildlife research and wild land acquisition they find necessary today—started in at a 10 percent trickle in 1937, rose to 11 percent during World War II, hit over 31 million in 1970, and with the first two quarters of 1972 going over 10 million apiece passed 40 million dol-

lars that year. That dough buys winter range for deer, sets up laboratories to control wildlife disease, saves duck marshes from becoming oil tank farms and holds wild areas for songbird and small animals. By the time you read this, the Pittman-Robertson total will have hit 480 million dollars!

That money comes from excise taxes on the sportsman's arms and ammunition, a tax desired by both the sportsman and the firearms industry so long as it remains earmarked for conservation. It is desired enough so that when President Johnson sought the political glory of removing all excise taxes after the last war, the industry and sportsmen's groups sent representatives to Washington to keep Pittman-Robertson alive.

And it'll go even higher. Now in the law are similar taxes on handguns and their ammunition and on archery gear. Soon to come is a tax on reloading components. All were sought by their user groups and makers alike, speaking through Rep. John Dingell, D-Mich., and all were earmarked for wildlife projects or hunter safety-ranges and instruction. So long as hunters can still hunt, over half a billion dollars of conservation money from such taxes alone is a safe bet by 1975.

Licenses? At this stage in time, with hunting license sales increasing at a faster rate than the population, they bring in over $100 million a year. And that's still going up. My guess is, since tag costs are on the rise everywhere, 1975 will bring in $125 million a *year*.

Individual efforts? No end to them, and always hunter-financed. Ducks Unlimited is the prime example. This 35-year-old group of duck hunters has collected well over $22 million since 1937 and has spent virtually all of it in Canada, largely in the prairie provinces of Saskatchewan, Alberta, and Manitoba, the pothole country, to provide duck breeding grounds. That's where 80 percent of our ducks and geese come from, and if you want ducks in the sky, reasons DU, you have to leave water on the land so as to make nesting areas for the hen ducks to raise ducklings in. Simple. Self-interest? Perhaps, but certainly it's enlightened self-interest, since without Ducks Unlimited and similarly funded Delta there'd be damned few ducks or geese for the New Canaan Garden Club ladies to worry over.

You never heard of Delta? Few have, but from the Delta Marsh 75 miles outside Winnipeg it has provided more graduate-level study on the nature of waterfowl than any other institution, and it is learning that makes practical conservation possible, not emotional ignorance. And guess who manages Delta? The Wildlife Management Institute. And who finances that? Right the first time, Waldo.

How about the trophy hunters, do they do anything? Perhaps not as much as their collective incomes might produce, but consider these quickly remembered points: the Game Coin meetings pull a thousand hunters to San Antonio, Texas, every second year for a week, make enough out of registrations, painting sales, and such so that sending a hundred grand to Africa to buy new game department equipment is peanuts. They have a handful of projects going—desert sheep-for-antelope swaps between New and Old Mexico to restore both species, for example. The Mzuri Safari Club of San Francisco throws a convention annually and picks up enough cash to buy anti-poaching helicopters for emergent African countries. The Safari Club International group's first gathering held over 400 people away from the gambling tables at Las Vegas long enough last winter to make comparable inroads on their spare cash, with every excess nickel headed for practical conservation. The African Safari Club of New York buys scholarships for the school at Mweka to train native Africans as game wardens. Where'd the school come from? Well, the African Wildlife Leadership Foundation which supports and sponsors it and a similar warden-training layout in West Africa was the brainchild of a bunch of hunters from Washington, D.C. After sitting around telling each other lies about their hunting exploits for a meeting or three, they moved to do something serious for African game. This same foundation brings selected Kenyans or Tanzanians over here for full degree training in wildlife management.

It seems to be the common element in all hunter-financed conservation that it's practical, that it accomplishes something measurable. Not content to vaporize and dream about unattainables, they do what can be done right now. It was the hunter, you'll recall, who brought the pheasant into the United States. How many millions are there now? Was the chukar a native bird? No, but now they exist in quantity in 10 states, in desert areas where no native game bird could cut the mustard. And how did the chukar get here? Right again, Waldo.

The turkey, which many consider a better prospect for our national bird than the bald eagle, was just about gone at the century's turn. Roast turkey was too tasty. But as a classic instance of management skills, and despite the growth of civilization in much of his range, the turkey had snapped back well beyond the million bird mark by 1970. Elk? They were down below 50,000 at one point, but there must be well over a quarter million head today, the annual harvest being about 85,000—and both could go higher with a mite better co-operation from the cattle interests. Antelope? Rare animals at one point, but Wyoming can now take, without harming the herds, more antelope than existed in the whole world in 1920! Deer? Too many for their own good in most areas, even though they were largely blanked out seventy years ago. Texas alone boasts 3 million, and there are something over 10 million in the country. That means that whitetail, for example, are now found in virtually every state, including some where they were unknown until recently. With a harvest of over 2 million deer a year of both species, they're still spreading. And remember that each and every one of these increases has come about, not because of handwringing and moaning, but because hunters did something about it and paid for the doing.

Sure, there are bums in the hunting fraternity. There are in every large group of humanity. There are thieves in the stock market, murderers among the medics, and womanizers among the choir leaders. It seems to be an inevitable facet of humanity that a certain few are low-lifers doomed to outrage everyone else. Yet oddly enough—and I offer it as no defense—the bulk of these bloody boors raise no objection to putting their dollars into the enlargement of wildlife, wildlife for everyone, not only for the meat-hunter but also the gentle deer-feeder.

That seems to be the real difference between the professional handwringers and the true practical conservationists of the hunting fraternity.

The hunter is clearly another breed of cat. He has sense enough to know that just as too many cows on a pasture spell ruin, too many deer in a woodlot find starvation and disease; that nothing much gets done in this world without effort and considerable cost; that on the record the management policies he has sponsored for the past two generations have been the salvation of this nation's wildlife.

And, knowing all of this, I suspect, is why at the moment the hunter is more than a little teed off. **

Larry R. Ditto

The Caracara

by Larry R. Ditto

Although classified by scientists as a member of the family Falconidae, Audubon's caracara, *Caracara cheriway,* is unique both in looks and behavior from other falcons.

"Caracara" is a Brazilian word which describes the high-pitched cackling cry of the bird. "Mexican eagle," another common name, is equally descriptive because the bird displays a color pattern similar to that of the bald eagle. Its notable features include a red face, white neck and breast, dark brown or black body and white tail tipped with black. In flight the bird displays conspicuous white wing bars.

Though primarily a Latin American bird, populations are found in southern Texas, Florida and Arizona. In Texas the caracara ranges along the coastal prairie and inland to Austin and Waco. Within this range it is most often associated with open pasture lands, prairies and mesquite brushland.

The caracara's feeding habits are varied, but unlike the other falcons, it is primarily a carrion eater and a close ally with the vulture. When it comes to finding food, several heads are always better than one, so the two species are often seen feeding together. The next time you see vultures soaring in the South Texas sky, look closely to see if you can recognize a caracara accompanying them.

But caracaras do not always associate with vultures and are not bound to feeding on decaying animal remains. In fact, the bird spends a great amount of time on the ground. Insects, rodents and other small mammals, snakes and lizards constitute the bulk of its live prey, some of which the long-legged bird actually runs down. His predatory technique, however, is not always above reproach because his bag of tricks also includes a little thievery. There have been many reports of other birds of prey having to abandon a meal to avoid the determined harrassment of a Mexican eagle seeking an easy tidbit.

Since the bird spends much of its day surveying the countryside and resting, the selection of a perch is most important. Usually the perch offers a commanding view and a good avenue of escape. In open country this may be anything from a fence post to a highline pole or isolated treetop. One pair near Refugio used the same roadside perch day after day for over three months in 1973, and in doing so, provided many birders with the opportunity to observe these birds in the wild.

As the nesting season approaches, the birds select a site with requirements similar to those of the surveying perch. In most cases, the nest has some concealment as in a liveoak mott. However, such is not always the case as caracaras have been noted to nest atop windmills, tall cacti and isolated trees. The nest is usually constructed of sticks, weeds and grass piled in a heap with a deeply-cupped interior. Caracara nests tend to take on a shabby and bulky appearance with time since successive layers of material are added year after year.

The nesting season is somewhat variable but it is certainly ahead of most other Texas birds. Nests have been reported from January through June. The female lays two or three eggs which have a buff or cinnamon brown color blotched with brown. Incubation takes

about 28 days and ordinarily one brood is raised per season. In cases where the eggs or nest are destroyed, a pair will often make additional nesting attempts.

The young remain at the nest for about three months and are fed fresh meat and carrion garnered by their parents. During this time the juvenile birds replace their thick covering of natal down with a brown juvenile plumage which they will retain until the following winter or spring. The birds will be two years old before they develop their adult plumage.

When fully grown, this bird has few natural enemies except man, but as early as the 1880's the caracara in Texas was reported declining in numbers. At present the population status of the species is listed as "undetermined." A better understanding of this unique scavenger-predator, along with its habits and needs, will help us preserve it as part of the legacy of Texas wildlife. **

Texas State Rifle Association

Founded 1919 AUTHORIZED STATE ASSOCIATION OF THE NATIONAL RIFLE ASSOCIATION

TEXAS SPORTSMEN, HUNTERS, FIREARMS OWNERS . . . TSRA SEEKS YOUR MEMBERSHIP!!

Since 1919, the Texas State Rifle Association has served the best interests of Texas sportsmen, hunters, and firearms owners — law abiding citizens who enjoy and pursue the shooting sports in a lawful manner. This is your invitation to join and be a member of this honorable organization. TSRA is the authorized state association of the National Rifle Association, and is sanctioned by the U.S. Army Director of Civilian Marksmanship. TSRA is also a member of the National Shooting Sports Foundation, the American Defense Preparedness Association, and the National Muzzle Loading Rifle Association. Its members are composed of thousands of individuals like yourself, and affiliated sportsman and shooting clubs throughout Texas.

Every year, each member receives the famous "Snortin' Bull" decal with his Membership Card, and quarterly, the Association's Bulletin, the TSRA Sportsman, containing timely information on the latest hunting regulations, game limits and seasons, legislative information, and vital aspects of the shooting sports at national, state, and local level. To assure the accuracy and timeliness of information, TSRA subscribes to the Texas Legislative Bulletin Service and maintains direct liaison with the Texas Legislature, the Texas District and County Attorney's Association, the Texas Criminal Justice Council, and the Texas Parks and Wildlife Department. As required, TSRA publishes special bulletins of interest to its members. Over 70,000 such bulletins were mailed concerning legislation before the 62nd Texas Legislature.

Additionally, TSRA encourages and sponsors junior training programs, hunter safety programs, home firearms safety, competitive marksmanship, state championships, and selects teams to represent the State of Texas at the annual National Championships. Annual dues are $3.00, and memberships run from January 1 through the following December 31st each year. We urge you to join your fellow Texans and become a member of this honorable Association. You'll be glad you did!

(Please allow 45 days to process your application.)

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

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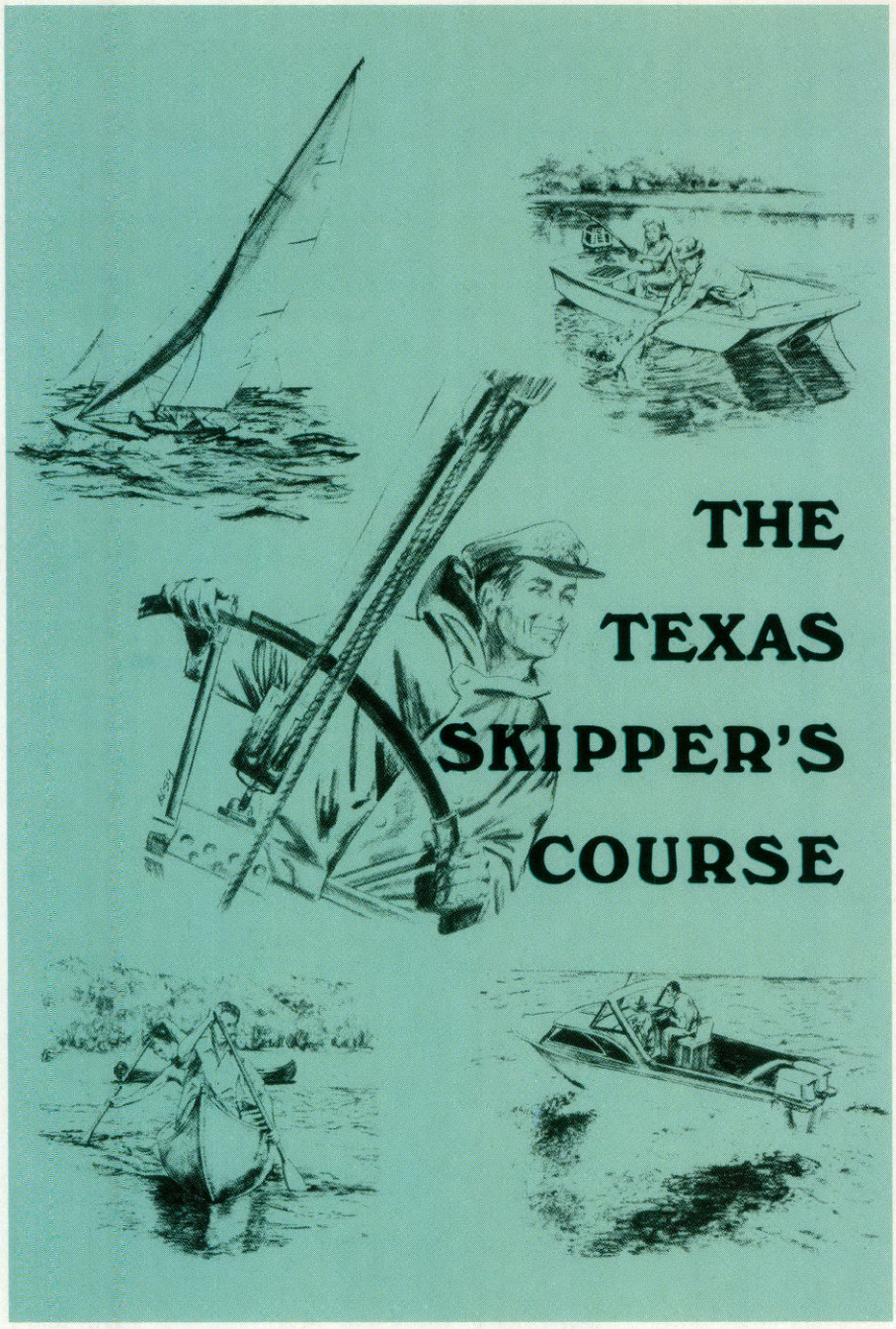


by Ilo Hiller

Recreational boating has never been more popular, and by the time this summer arrives even more individuals will be getting out on the water in some type of boat.

The only problem with this trend is the fact that, unlike driving a car where an operator's license is required to protect fellow motorists, no training at all is required to operate a boat. All the owner needs is a boat, gasoline and a place to get into the water.

To help educate these inexperienced boaters as well as long-time boaters who may need to change some old habits, the Water Safety Education Section of our department has prepared a 104-page, home-study program entitled "The Texas Skipper's Course" which became available on January 1, 1974. This free booklet is a self-instruction program which can be read and absorbed in your leisure time at your own particular speed. Those cold evenings in January and February should be perfect times to curl up with your "skipper's manual" and prepare yourself for the summer's boating pleasure.

Part I of the booklet is devoted to telling about the various classes of boats and the legal requirements with regard to numbering and necessary equipment such as lighting, personal flotation devices (life preservers), ventilation and fire extinguishers. There are also tips on safe boat trailering. To be sure you are not missing the important parts in each section of the booklet, a summary is given at the end of each which help you recognize the most important parts.

Information concerning the weather, launching, fueling, loading the boat and safety equipment which may be needed, but not required, are covered in Part II of the booklet.

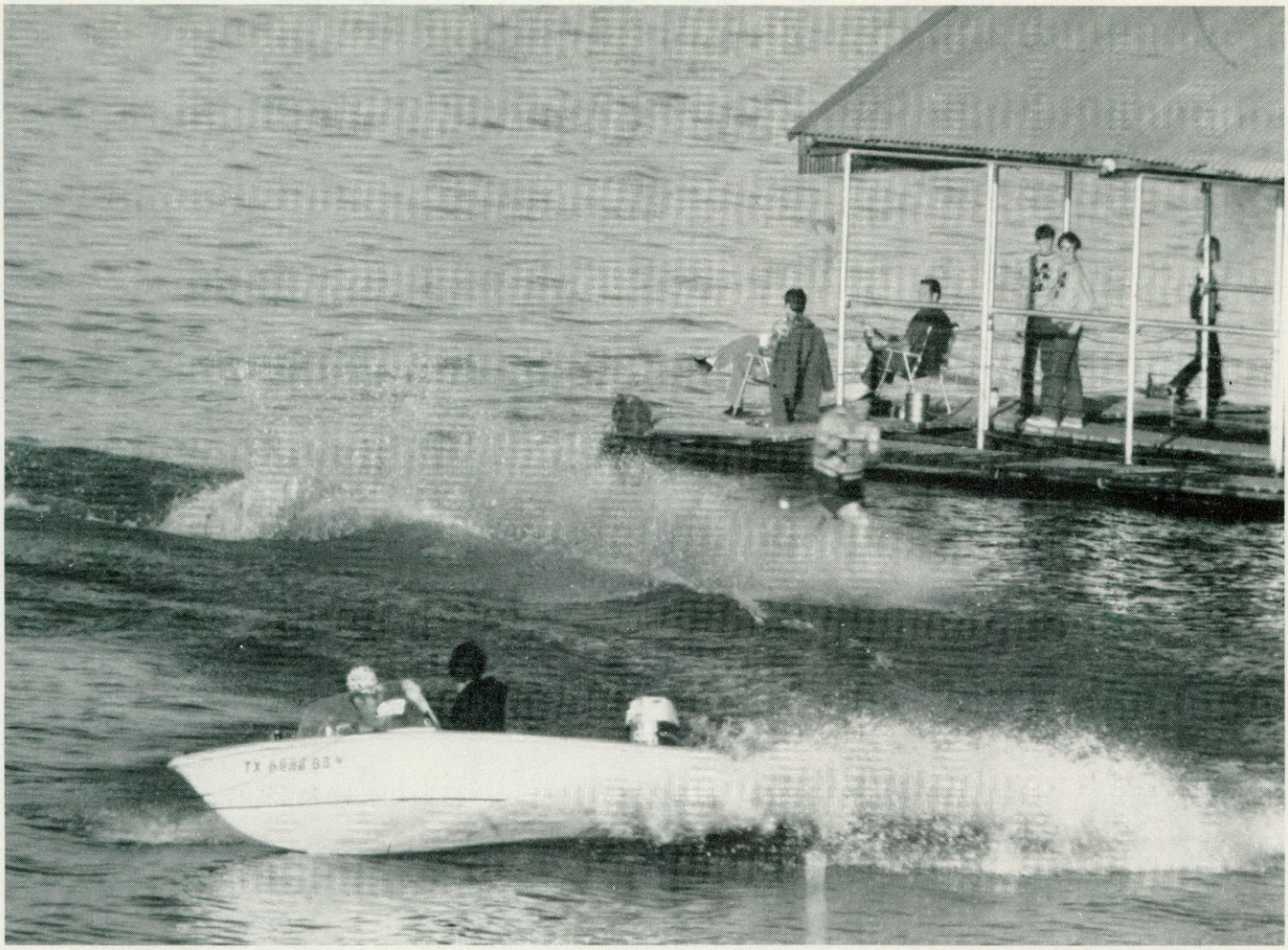
In Part III you learn the rules of operation, how to recognize hazardous areas, how to spot a skin diver's flag to avoid that area, how to anchor and what to do in case of an emergency such as capsizing or a fire while afloat. Distress signals, foul weather handling and what to do if lost or disabled are covered in the section on emergencies.

Once you have mastered the first three parts of the booklet you should know how to leave the dock and have a good time. Techniques for returning to the dock are in Part IV. Remember a boat is not a car; it will not respond like one, and it has no brakes. After a successful docking, the equipment is secured and the boat loaded on the trailer for the trip home.

Part V, which is entitled "Aids to Safe Boating" is the final part of the program and probably the most confusing since it must cover the "Rules of the Road" which are not the same all over the nation. For our booklet, the information included is for the INLAND RULES OF THE ROAD which are used by most skippers. Rules of the road, navigational lights and aids to navigation and safe boating are all discussed.

Following these five sections is an appendix of quick quizzes. No one is required to take any of the quizzes contained in "The Texas Skipper's Course" booklet. However, for those who are interested in learning just how much they have benefited from the information contained in the book, an "End of Course Test" is printed in the back of the book. Take the test, mail it in for checking and, if you have missed no more than five questions, you will be awarded a "Certificate of Successful Completion of the Texas Skipper's Course" and a permanent record of your achievement will be maintained by this department. **

Ed Dutch



Reagan Bradshaw

When studying The Texas Skipper's Course, you should learn that it is extremely dangerous to tow a skier too close to a hazardous object such as the stationary dock above. Hopefully, too, the chapter on boat launching will teach you the proper way to launch your boat without launching your car as well. The poor boater on the left could have used this information.

WANTED

Information Leading to the Location of:

Tympanuchus cupido attwateri

Alias: Attwater's Prairie Chicken, Prairie hen, Prairie grouse

John L. Tveten

Description: Weight—2 to 2½ pounds; 18 inches long; short, rounded tails (black in males, barred in females); body barred feathers on lower leg; Males have orange air-sac and blackish neck feathers or pinnaes on side of neck.

Operates along the Gulf Coastal Prairie of Texas. Has been seen from Chambers County west to Colorado County and south to Aransas County. Usually been seen in fallow rice fields or native prairies.

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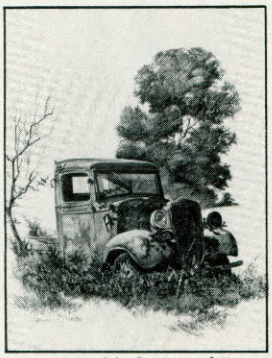

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Young Naturalist

Camouflage

by Ilo Hiller

During World War I, military experts discovered that by using certain colors and patterns on ships, tanks, equipment and clothing, they could make the object blend into their backgrounds and seem to disappear. To describe this new technique, they borrowed from the French word *camoufler* (which means "to disguise") and created the word "camouflage."

Although the word was new, the principles involved were not. They have been used in the animal kingdom since the beginning of time by both the hunting and hunted species. Even primitive man learned to camouflage himself in the skins of animals so he could get close enough to kill his quarry without giving alarm.

Natural coloration is probably the simplest and most effective type of camouflage found in the animal kingdom. You will find that most creatures match or blend with the colors of their surroundings and are most difficult to see as long as they remain still. However, if they are moved from their natural habitats, their protective coloration no longer camouflages or hides them.

For example, the white coat of the polar bear blends with the ice and snow of this animal's natural habitat making the bear almost invisible; but if the bear were moved to a woodland area, its white coat would be quite obvious against the woodland browns and greens. Likewise, if a woodland bear with its dark coloration were taken to the white habitat of the polar bear, it would not blend into its new surroundings.

Some animals such as the snowshoe hare actually change colors to match the seasonal color changes. The hare's late spring and summer fur is made up of shades of brown which blend into its woodland and prairie background. As its summer coat wears out, the brown fur is replaced with new white fur. This part-white, part-brown period occurs during autumn when early snow flurries often leave patches of white on the landscape and the hare continues to blend with its surroundings. By the time the snows of winter arrive and the ground turns white, the hare's brown coat has been completely replaced with white fur and only its dark eyes show up against the snowy background. As

Leroy Williamson

Reagan Bradshaw

Whether the animal is a bobwhite quail and its mate nestled motionless among the ground covering of grasses and twigs (extreme left), a male rusty lizard blending with the coloration of tree bark and waiting for an unsuspecting insect to venture by to provide its lunch (left) or a sargassum fish swimming through the seaweed it so closely resembles (below), nature's camouflage protects and disguises both the hunted and the hunting species.

Jim Whitcomb

the white winter coat is shed, it is replaced with brown fur and the hare is again ready for the browns of summer.

Rapid color changes can be accomplished by some animals when their background colors suddenly change. The anole lizard, which is mistakenly called a "chameleon," is one of these quick-change artists. Its body coloration can range from pale green to dark brown. If a green anole lizard is placed on a dark tree trunk, within two or three minutes the creature can change its body color to match the color of the tree bark. However, color changes also occur in response to temperature and light changes.

Another quick changer is the flounder. This fish is not only able to match the color of its background but also the textured look of mud, sand or gravel as well. To test the flounder's changing ability, scientists have placed the fish in an aquarium with a glass bottom and then inserted various patterns beneath the glass. Whether the pattern contained stripes, polka dots or even a checkerboard, the flounder changed its coloration to resemble as closely as possibly these unusual backgrounds.

Some members of the animal kingdom are not only camouflaged by their color but by their shapes as well. They may look like dead leaves, twigs, vines, seaweed or other types of vegetation.

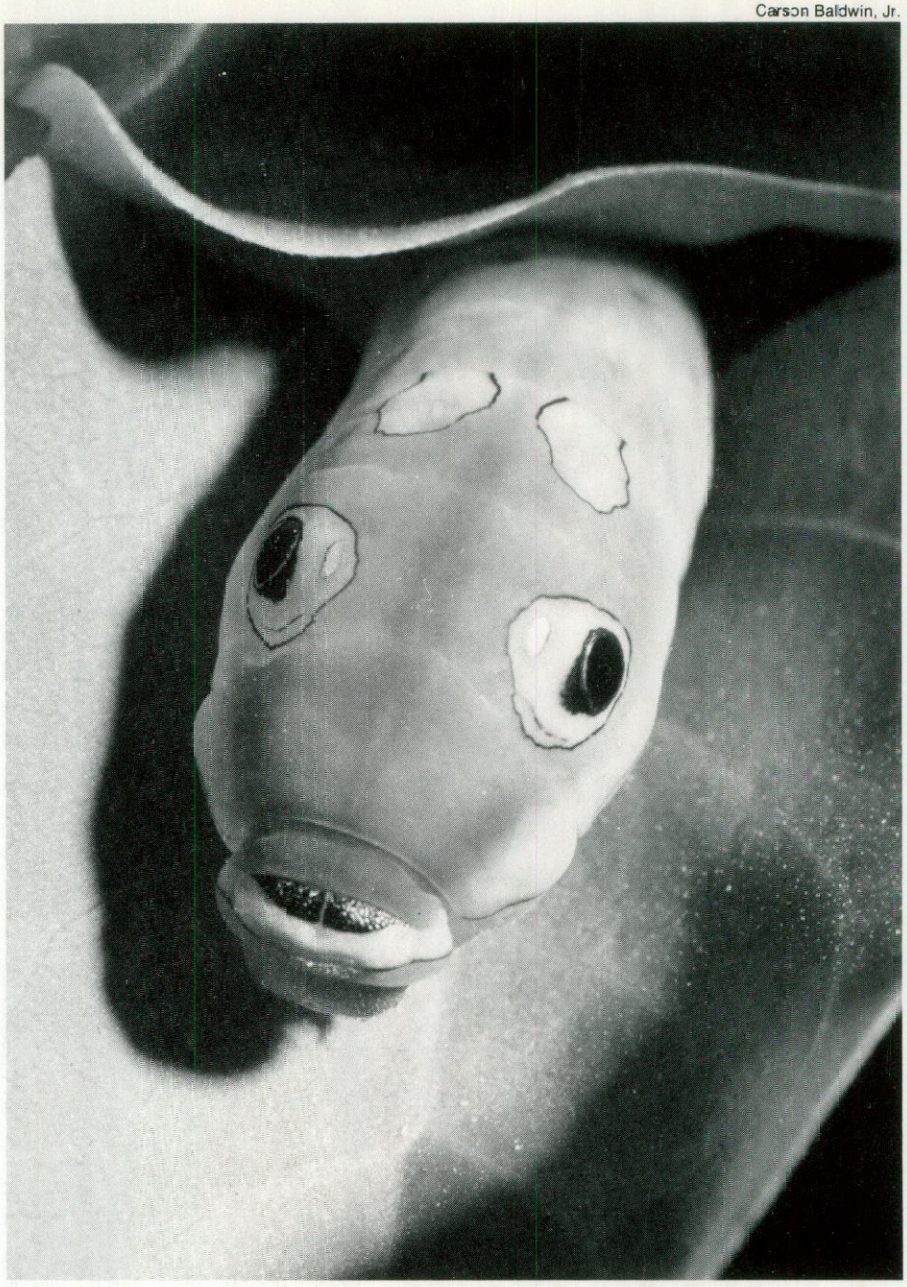
One insect, the walking stick, so closely resembles a twig that it is possible for you to look directly at a motionless one and not be able to see that it is not a twig. The insect's long, slender body actually has spines and knobs which look like the buds and bumps on a small twig.

The brown caterpillar stage of many kinds of moths feed at night and rely on their color and shape to camouflage them from enemies during the day. All day long they stand rigid on a limb looking like small twigs. Irregular bumps along the body and a bud-shaped head complete the disguise. To rest while in this awkward position, the caterpillar sometimes spins an almost invisible thread around the twig to support its body at the correct angle.

Also camouflaged by color and shape is the sargassum fish. Spines and leaflike growths cover its body, and as it crawls through the sargassum seaweed with its fins, only its blue eyes can be distinguished from the seaweed itself.

Animals also have defensive camouflage which serves to deceive, distract or startle their enemies.

Carson Baldwin, Jr.



The deceptive camouflage may take the form of vicious-looking head spines (which are really quite harmless) like the ones on the hickory horn devil caterpillar. To complete the deception, this caterpillar even makes menacing backward jabs with the useless spines to fool his enemies.

Large, startling eyelike spots appear on the thorax region of the swallowtail butterfly caterpillar to make the creature look like a small dragon. These fake eyes lead enemies to believe the caterpillar is larger and stronger than it really is and cause them to leave the defenseless caterpillar alone.

Another type of deceptive camouflage is mimicry in which a harmless animal looks like a not-so-harmless or bad-tasting species. Birds quickly learn that monarch butterflies have an unpleasant taste and do not eat them. So, the viceroy butterfly, which is marked almost exactly like the monarch, benefits from its "copycat" coloring and is avoided by birds even though it has no bad taste and would make a nice meal for them.

Mimicry appears in the reptile world too, and some of the best known examples are the imitators of the poisonous coral snake. These imitators have the red, yellow and black markings, but the color bands do not appear in the same order as those of the coral snake. As a result, to identify the coral snake, the rhyme "red and yellow, kills a fellow" is repeated to remind the observer that if the red and yellow bands of color touch each other the reptile is indeed a poisonous coral snake. The other rhyme "red and black,

Neal Cook

Bluffing its way along with big fake eyespots which make it look like a miniature dragon, this harmless spicebush swallowtail butterfly caterpillar (extreme left) fools many a predator into leaving it alone. Since the poor rabbit (left) provides food for so many different animals, it must rely not only on its camouflage but on its ability to sit motionless for long periods of time so that it blends into the background and becomes almost invisible.

venom lack" points out that the mimicking snakes such as the Mexican, Louisiana and western milk snakes which have their red and black bands of color touching are not poisonous.

Distracting camouflage can be quite varied. For instance, the large eyespots on the lower wings of moths and butterflies serve to draw their enemies' attention to these areas and away from the soft body parts. A bird's beak jabbed into the wing's eyespot damages the wing, but the moth or butterfly may still be able to escape with only a tattered wing for the experience.

Certain types of lizards have colorful tail segments to catch the eyes of their enemies. As the predator strikes at the colored tail, the tail breaks off and the lizard is able to escape. With time the lizard will grow a replacement tail.

Distracting camouflage is also used by the hunter. Some species of young copperhead snakes have a bright yellow tail segment which they twitch and wriggle to resemble a worm. When an unwary frog or lizard slips up to catch the yellow worm, the frog or lizard ends up being caught itself.

These are but a few examples of how camouflage is used by the hunted and hunter species to hide, frighten or deceive each other as they attempt to survive from one day to another in nature's eat-or-be-eaten world.

For additional reading you might be interested in *Animal Camouflage* by Adolf Portmann, University of Michigan Press, Ann Arbor, Mich., or *Animal Camouflage* by Dorothy Shuttlesworth, Doubleday and Company, Garden City, N.Y. **

LETTERS TO THE EDITOR

Marina Locations

We are curious about the location of the fishing marina featured in the "Rain or Shine" article in the October issue. It looks like a picturesque spot from which to fish and admire the scenery at the same time.

Mrs. S. E. Moxley, Jr.
Dallas

The photographs for this article were taken at the marina located in Inks Lake State Recreation Park. A $1 park entrance fee is charged for access to the park. Fishing on the marina is divided into two 12-hour periods—6 a.m. to 6 p.m. and 6 p.m. to 6 a.m.—with a $1 charge made for each 12-hour period.

We originally planned to include the locations of fishing marinas around the state, but responses from the chambers of commerce were not complete. However, we did discover that marinas are located on Cedar Creek, Lake Somerville, Rayburn Lake, White River Lake, Lake Whitney, Lake Waco, Lake L.B.J., Lake Travis, Lake O' the Pines, Lake Brownwood, Stillhouse Hollow Reservoir and Possum Kingdom Lake. For further information may we suggest that you contact the chambers of commerce in the major cities located near the lakes in which you are interested.

Wildlife Young

Last week a rattlesnake got under the washhouse porch and turned loose 10 young snakes from six to eight inches long, each with a little bud-type rattle. The young snakes were all lying next to the mother. Does she feed her young?

Also, does the armadillo lay eggs or are its young born alive?

Mrs. George Zinsmeyer
LaCoste

The female rattlesnake does not nurse or care for her young in any way. Young rattlers are born with fangs and poison glands, and are quite able to take care of themselves without mother's help. They begin eating insects, lizards and small rodents.

Armadillo young are born alive, and the unique thing about their birth is that almost invariably there are four in number which are always of the same sex.

Carp and Crappie

Is it true that carp or any rough fish will keep crappie away from a fishing dock? The last few weeks the water has been muddy and the crappie quit hitting; so I put on a piece of dough bait to try for catfish, but caught nine carp in three hours. My neighbor thinks the carp are the reason the crappie aren't biting.

Mike Bartell
Fort Worth

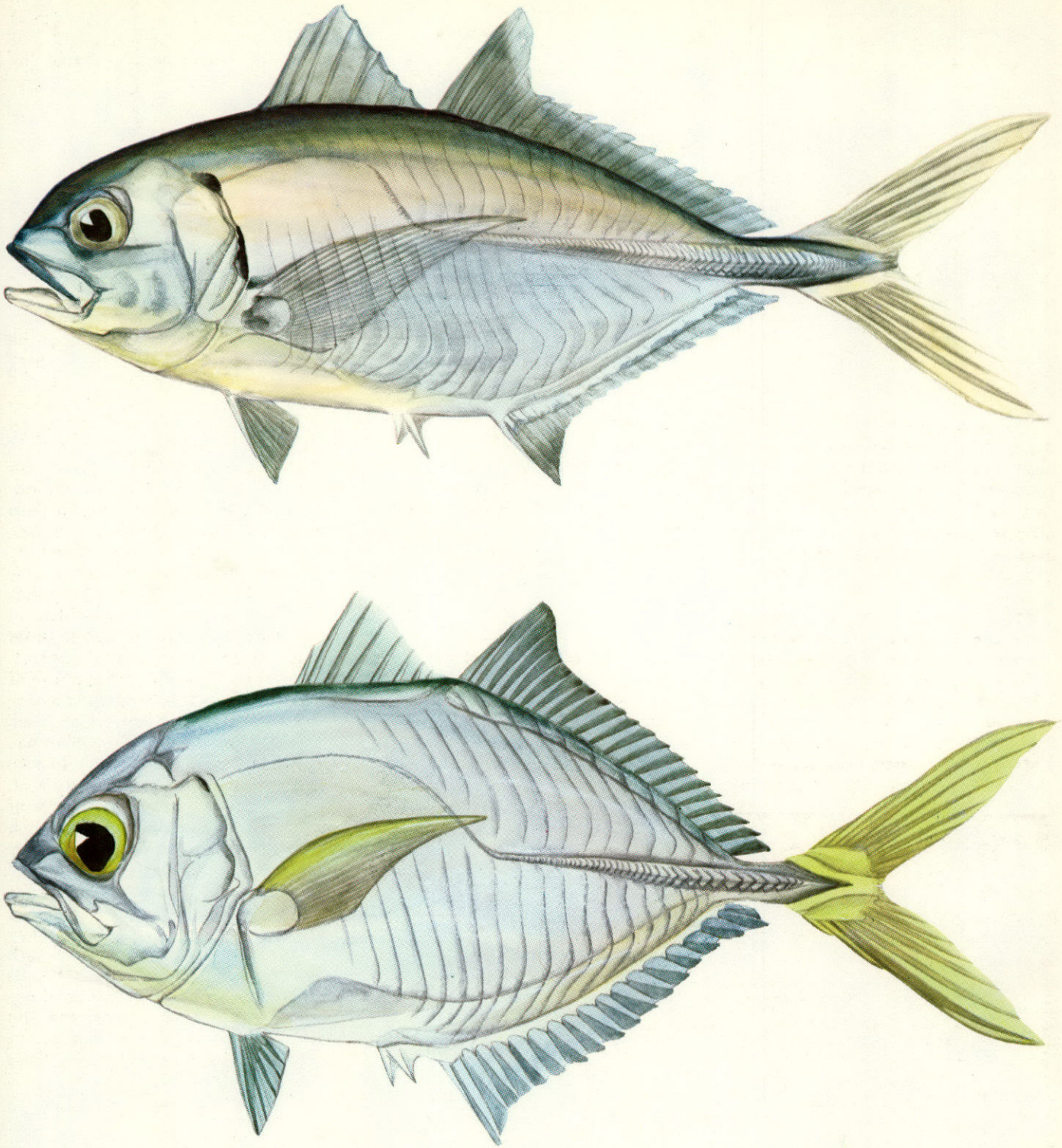
According to our biologists and reference sources, crappie and carp are compatible fish, so the presence of carp around your dock should in no way frighten away your crappie population. However, a predator fish such as a gar would make the crappie scatter if sufficient brushy cover is not provided.

Occasionally when the water turns muddy, crappie move out into deeper, clearer areas. Also, the temperature of the water may be changing, causing them to seek a different water level. When this happens, the fisherman has to go looking for them or try to lure them back to the dock area with bait. Fish are attracted by weighted bales of alfalfa hay, range cubes or other such material along with extra brushy cover if enough is not already present.

Always remember, when fishing for crappie, that the baited hook must be presented to them at their level. They will usually ignore bait that is beneath them and will rarely rise more than a foot to take bait above them. Find their level in a good crappie hole and you should be able to fill your stringer in no time at all with these delicious pan fish.

BACK COVER

Trips on the ground are usually quite brief for this eastern tree lizard, *Urosaurus ornatus*, and trees located near streams and rivers are especially attractive to this climbing species. The lizard feeds on insects and spiders, and when motionless, blends almost perfectly with its background. See related story on page 28. Photo by Martin T. Fulfer.



TEXAS SALTWATER FISHES

The blue runner (top), also called the yellowjack, hardtail and yellow mackerel, inhabits the Atlantic from Cape Cod to Brazil. It schools around reefs and jetties and eats small fish, shrimp and crabs. Average weight runs two to five pounds, and the fish is considered a hard fighter when hooked.

With food and habitat preferences similar to those of the blue runner, the horse-eye jack (bottom) also inhabits the tropical Atlantic and Indo-Pacific areas. Commonly known as the goggle-eye jack, the horse-eye usually runs around two pounds. The young of this species have dark vertical bars.

Artwork by Henry Compton.