

Texas Game and Fish

NOVEMBER 1950 TEN CENTS



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PICTURE OF THE MONTH



Texas Game and Fish

A MONTHLY MAGAZINE DEVOTED TO THE PROTECTION AND CONSERVATION OF OUR NATIVE GAME AND FISH; AND TO THE IMPROVEMENT OF HUNTING AND FISHING IN TEXAS.

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COVER—By Orville O. Rice


★ In This Issue ★

November, 1950 • Vol. 8, No. 12

CONTENTS

Why Turn in Bird Bands?	2
By WENDELL G. SWANK How far and in what directions do doves go? Help determine this information by sending in returns on all bands.	
Deer Movements in the Edwards Plateau	4
By HENRY C. HAHN, JR., and WALTER P. TAYLOR In order to accurately trace the movements of native deer in two distinct vegetative types in this region, 62 white-tailed deer were ear-tagged and released on two 640-acre experimental tracts.	
They Fly By Night	10
By EARL WALLACE Many people have never seen a whip-poor-will, yet they can readily identify it by its distinctive song.	
Whitewings Across the Sky	12
A picture story by Eugene Plummer covering the three-day whitewing hunt in the Rio Grande Valley.	
Coastal Currents	16
By A. W. ANDERSON The Game, Fish and Oyster Commission Marine Laboratory and the Corpus Christi Naval Base are working together to determine the surface currents of the Gulf of Mexico and the bays of Texas.	
Accent on Youth	18
By AL PARKER The Northwest Texas Field and Stream Association is an organization that believes boys and girls can do much toward the conservation of game and fish.	
State Game Wardens and Their Districts	20
Do you have any questions pertaining to hunting and fishing, or a problem in wildlife conservation? Ask your local game warden; he will be glad to help you.	
Mission: Antelope	22
By LEIGHTON B. DAWSON They sped along Highway 90 and behind them lay weeks and months of preparation for this hunt with antelope as the objective.	
Here's A New Method of Fishing	24
All the equipment you need with which to go "doodle-socking" is a sixteen foot cane pole, fourteen inches of line, hook, and artificial bait.	
Marine Fishes of Texas	25
By J. L. BAUGHMAN Seventh in the series about the marine fishes of Texas.	
What Makes a Lake Turn Over?	26
By KENNETH C. JURGENS An explanation of that part of the cycle of rhythmic breathing of any large body of water in the temperate zones of the earth.	
Fishes of Texas	27
By MARION TOOLE Ninth in the series about Texas fish.	
Letters	28
Books	32

ROBERT G. MAUERMANN
Editor



The Cover

Portrayed on this month's cover is a vanishing American, the lesser prairie chicken. Formerly found in great numbers in the rolling prairie region of western Texas, only scattered remnants are found there today. The slightly larger Attwater chicken is found in limited numbers on the coastal prairie. The greater prairie chicken, once abundant in northeastern Texas, has disappeared completely from its former range.



How far and in what direction will this dove go? Help us determine this information by sending in returns on all bands.

HAVE you ever knocked down a sprig from among a bunch of high-flyers, gone out and picked it up, and been surprised to see a metal band on its leg? Or perhaps one evening last fall you killed a dove over your favorite water hole that had a band on its leg. What did you do about that band? You probably sent the number to the U. S. Fish and Wildlife Service, or perhaps you are like a fellow I talked with last fall. This man—shall we call him Bill Jones—back in 1941, killed a bluebill carrying a band. He was quite surprised when he picked up the bluebill and said to himself, “I’ll write to the Fish and Wildlife Service when I get home because they want to know about this.” So he pried off the band and stuck it in the pocket of his hunting coat. He got home rather late that evening and after cleaning his game

and gun he was too tired to write the letter. But he hadn’t forgotten about the band. No sir! He would write the first thing tomorrow evening when he got home from work.

The next evening as he came into the house his wife met him at the door with the information that the trout were running so he grabbed a bite to eat, his fishing rod, and hurried down to his favorite spot. About two weeks later as Bob Smith, his neighbor, was telling him about the good shooting he had had last Saturday, Bill remembered the band. This time he was not going to put it off. After all, the Fish and Wildlife Service needed the information that was on that band, and he was going to do his part by seeing that they got it. As soon as Bob finished talking, Bill went in the house and got the band out of his hunting coat — then the telephone

Why

rang. Ray, his hunting partner, wanted him to come over and help overhaul the outboard. He put the band on top of the dresser and went over to help Ray. The next day his wife dusted and the band was dropped among a few knickknacks in the dresser drawer. A month later as Bill was getting a tie clasp out of the dresser drawer he happened to see the band and

By **WENDELL G. SWANK**

thought to himself, “I’d better write a note to the Fish and Wildlife Service one of these days.” Well, until May 1950, in the Section of Distribution and Migration of Birds of the U. S. Fish and Wildlife Service at Patuxent Research Refuge, there was a blank space beside the number on that band in Bill’s dresser drawer. Long ago he had given up the idea of writing. “That band is too old now. They have probably forgotten all about it. (That duck was probably banded near the place I killed it, so the band is of very little value.) What good are bands anyway?” These and other excuses had been used until last May the band was still in the drawer and had become just another knickknack.

Last February, Bill was one of those selected to attend the Game Warden School at A. and M. College. One of the topics discussed in his classes was “Why Turn in Bird Bands,” and after that discussion Bill dug out the old band and sent the needed information to the U. S. Fish and Wildlife Service. What made him finally return that old band? Let’s ask a few questions and maybe we can draw our own conclusions.

First, what information can we get from a solitary band turned in by you? Well, we know where, when, and at what age the duck or dove was

T U R N I N B I R D B A N D S ?

banded. Let's say that the scaup killed by Bill Jones was banded in Manitoba, as a young bird, in the summer of 1939. This means that ducks hatched and raised in the marshes of Manitoba winter on the Texas coast; therefore, nesting conditions in that part of Canada this summer are going to affect your duck hunting this winter. If there is plenty of water,

*Texas Cooperative Wildlife Unit**
A. and M. College, College Station

no fires, and biologists there find most females are successfully raising broods, the bag-limit may be raised in Texas. On the other hand, a drouth in Manitoba may cause a curtailment in bag-limit. None of us like to see a cut in bag-limits, but, on the other hand, if there is a reduced population this year, we want to send back to the northern marshes sufficient breeding stock to produce a shootable surplus next year. So from bands we can tell where our ducks and doves are raised, and from conditions there during the nesting season forecast what can be expected in the way of duck populations during the hunting season.

Why does the Fish and Wildlife Service want to know when you killed that duck? "Let's see now, the bluebill mentioned above was banded as a young bird in the summer of 1939, and killed in the winter of 1941, which means it was about 2½ years old." That's interesting, isn't it? But what good is it? "Perhaps not much from this band alone, but when we take several bands, combine the information and come out with the average age for bluebills, we are beginning to get something of value. For example, the above mentioned duck had reached an 'average age'—that is, 2½ years.

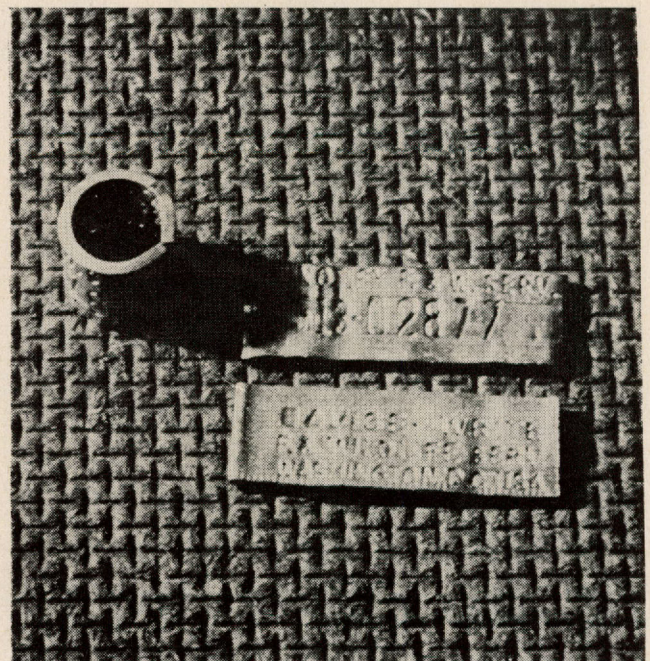
This means that if our bluebill population is to stay at its present level every female bluebill must produce and be able to return to the breeding grounds one pair of adult ducks every 2 years. If the average age of our ducks goes down to 1½ years, which can be determined from bands, we are reducing our breeding population. On the other hand, if the average age jumps to 3½ years, our population is increasing and bag-limits can be enlarged. So that is another use from our band."

Why is it important to know the age of the bird when it was banded? "If we go back to our original band we see that the duck was banded as a juvenile, and checking back on the Fish and Wildlife Service records we find that, that same year, 95 percent of the ducks banded were young and the other 5 percent were adults. From returns we find that 30 percent of the bands received for that year were from adult birds and only 70 percent were

from juveniles. We see that there is a 25 percent discrepancy between the percent of juveniles banded and the percent returned. This means then that at least one out of every four ducks that are old enough to band never reach the huntable age. They are taken by drouth, turtles, or other predators or reach an untimely death from some other reason. Therefore, you can see that we cannot figure that every duck hatched is going to furnish sport for some hunter.

"Many other reasons could be given why bands should be returned, but don't you think these few are important enough to warrant a few minutes of your time and a penny post card? When you pick up that duck from the marsh or that dove near your favorite water hole and it has a band on its leg, don't put off writing because much of the value of the band is lost if the return is not made as soon as possible; and the longer you put it off the harder it is to write."

Bands carry complete instructions. Will you follow them? Outside of band, top, says "Notify F. and W. Serv." and gives number of band; inside of band, bottom, says "Advise — Write F. and Wildlife Serv. Washington, D.C., U. S. A."



* Wildlife Management Institute, Texas Game, Fish and Oyster Commission, Texas A. and M. College, U. S. Fish and Wildlife Service cooperating.

Deer Movements in

MIGRATIONS among white-tailed deer have not been recorded in Texas, but seasonal drifts among individuals over distances of several miles are believed to occur. It is confidently asserted by some ranchmen and sportsmen that deer will move in response to drouth or to the supply of mast.

To obtain more definite information on deer movements in the region, a program was instigated in 1945 to trap and mark a number of deer.

Two experimental tracts of 640 acres, one mile on each side, were selected. One area was located in the southern part of Mason County and the other in the western part of Kerr County. The boundaries of the experimental sections were defined by a strip 4 feet wide, cleared of all brush. The vegetative types on the Mason County experimental section included (1) brush hillside with tall bunch grass (*Andropogon*), yucca, acacia, persimmon, shinoak; (2) gulch bot-

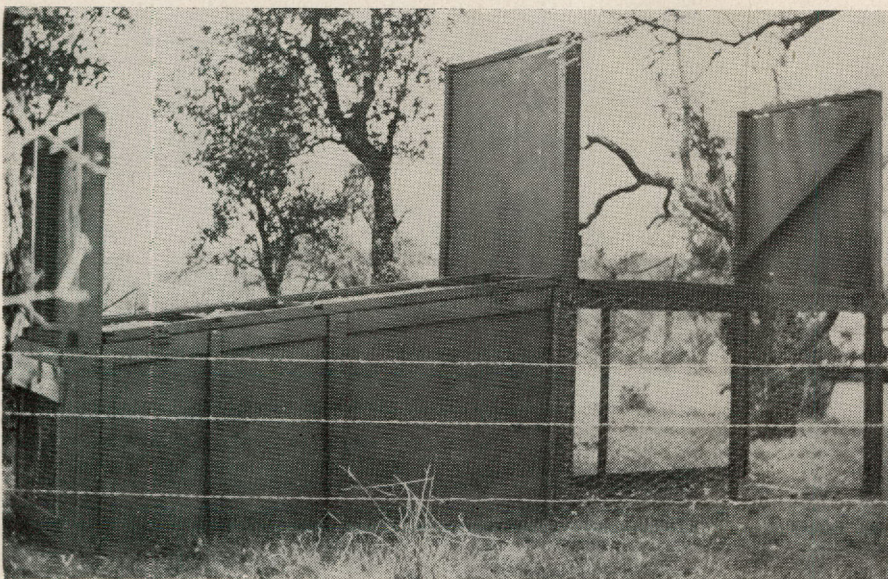
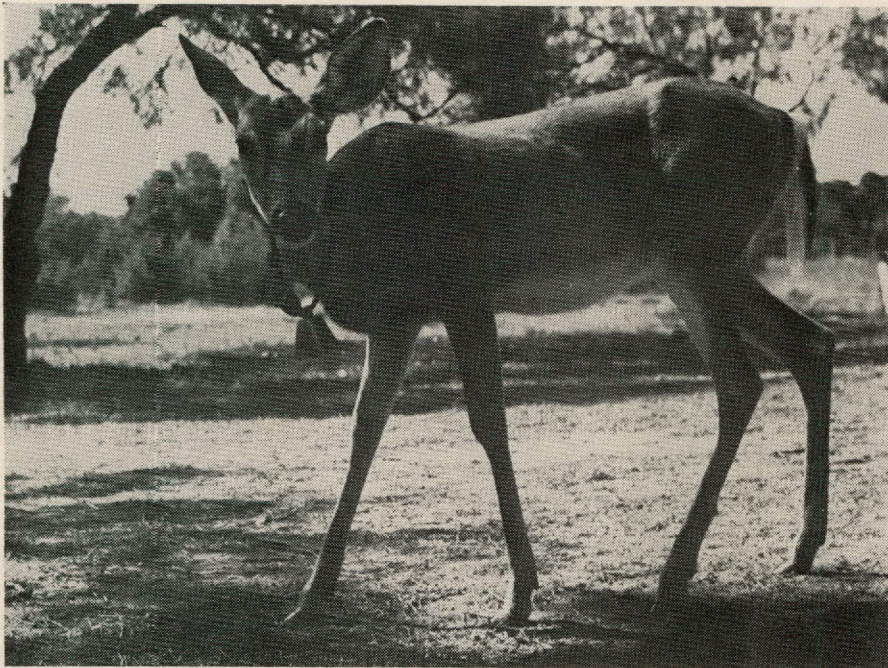
By HENRY C. HAHN, JR.,
Federal Aid to Wildlife Restoration, Texas Game,
Fish and Oyster Commission, Austin, Texas, and

tom, characterized by elm; (3) grassy flats (liveoak savannah); and (4) prickly pear ridgetop. The Kerr County section was characterized by (1) liveoak savannah, (2) liveoak-shinoak ridgetop, (3) riparian (including elm bottoms), and (4) mesquite flats. Deer range regularly through all of these types. In most instances the boundaries of the types are irregular and one type merges almost imperceptibly into another. Often the vegetative types are characterized more by small extensions or restricted areas than by large acreages.

The experimental tracts were normally stocked with cattle, sheep, goats and horses. Both are characterized by a generous supply of game, including wild turkeys. Cruise counts showed that the number of deer on the Kerr County section in 1946-47 was approximately 73, while on the Mason County section the number of deer was approximately 160. These results were based on 164 counts one mile or more in length, involving observations of 1,547 deer counted on 10,594 acres.

Seven deer traps of the modified Pigsaw type used by the Texas Game, Fish and Oyster Commission were set approximately 200 yards apart on each section, and a net wire fence 4 feet in height was built around each trap to keep livestock from entering the traps. Cottonseed cake and mistletoe (*Phoradendron spp.*) were used for bait. Sheep bells on one-inch straps were buckled around the neck of each trapped deer. Small bells were placed on does and slightly larger bells with a lower tone on bucks to facilitate identification of sex. On clear, windless nights the bells could be heard at a distance of approximately 600 to

Aluminum ear tags and small bells were placed on trapped deer to facilitate field identification. The deer were taken in the type of trap depicted in the lower left photo. Cottonseed cake was used for bait.



the Edwards Plateau

and WALTER P. TAYLOR

Oklahoma Cooperative Wildlife Research Unit,
Stillwater, Oklahoma.

700 yards. A numbered tag was attached to the ear of each trapped animal.

J. D. Bankston, assistant field biologist with the Texas Cooperative Wildlife Research Unit, spent approximately two weeks per month on each one of the experimental tracts. His work consisted of making continuous counts of the deer present, trapping deer, and checking on any deer deaths, parasitism, malnutrition, predatory animals, or other factors which might affect deer numbers, distribution, or condition. Careful observations were continuously made of the occurrence and movements of the marked deer. Resident ranchmen and their employees also reported observations of belled deer.

Some Details of Studies on the Mason County Experimental Section

Deer trapping on the Mason County experimental section was begun October 11, 1945, when one adult doe was caught and belled. At that time only a few deer were taking the bait in the traps so trapping was deferred.

During the winter of 1946 trapping was continued for three separate periods, namely: January 5-13, January 31-February 9, and March 5-9. In 58 trap nights during the first period, 44 deer were trapped, including original catches and retakes. In the second period (January 31-February 9), 30 deer were taken in 55 trap nights. In the third period (March 5-9), 11 deer were taken in 35 trap nights. The number of deer taken decreased steadily as the season advanced. At a time when the food is plentiful, trapping is ineffective.

Nineteen individual deer were trapped and belled on the experimental tract in Mason County. Of the 19 deer, 2 were bucks, 14 does, and 3 were fawns. Seventeen of these deer had been trapped by January 13, 1946. The other two were not taken until

January 29 and February 28, 1947. The total number of deer trapped, including retrapped deer on the Mason County section, was 94, including 85 does, 4 bucks, and 5 fawns.

One of the belled bucks trapped January 6, 1946 was killed by a hunter in an adjoining pasture on November 18, 1946. The only other buck, also trapped on January 6, was found dead on the experimental section about November 15, 1946. Of the 14 does belled, 4 died. Two of these does, trapped and belled in January 1946, were found dead on the 640-acre area in March, 1946, and January, 1947, respectively. The other two does which were trapped on January 6 and 8, 1946 were found dead near the traps on March 7, 1947. Thirteen

belled deer (10 does and 3 fawns) were all that remained of the marked deer after March 7, 1947.

On each visit to the experimental section the number of belled and non-belled deer seen coincidentally was recorded (see Table 1). In January 1946, 100 deer were recorded and 10 (10%) were belled deer. The highest possible number of belled deer on the area on January 13 was 17. In February 1946, 81 deer were observed and 10 (12.3%) were belled deer. In March, 67 deer were seen and 10 (14.7%) were belled. In April 1946, 95 deer were seen and 8 (8.4%) were belled. In March 1947, the highest possible number of belled deer on the section was 13 since 4 of the original 17 had been found dead. However,

It is highly probable that this white-tailed deer fawn will remain near its birthplace for the remainder of its life.



during April, 7 belled deer (18.4%) were seen coincidentally with 31 non-belled deer. Throughout the summer and fall of 1946 and the winter and spring of 1947, deer counts consistently revealed from 9 to 18 percent of the deer each month to be belled deer. A total of 98 belled deer (12.4%) were seen coincidentally with 691 non-belled deer from January 13, 1946, to June 24, 1947. During this period belled deer were seen 98 times. If all the belled deer had been seen each time, 242 would have been observed. At the same time 691 non-belled deer were seen. If all the non-belled deer had been seen each time, the total would have been 1,706. A grand total of 789 belled and non-belled deer were observed during the 18-month period. It is readily apparent from these data

that a majority of the belled deer (13) remained on the 640-acre tract. There were no records of belled deer seen coincidentally with unbelled deer off of the experimental section in Mason County. Neighboring ranchmen were interviewed occasionally for information which might lead to the discovery of some of the belled deer away from the study area. Numerous trips were also made into various parts of the ranch, at greater or less distances from the experimental section, to search for belled deer. However, only 5 records altogether were obtained of belled deer off the experimental section. On March 29, 1946, Bankston found a belled doe about 1/2-mile north of the experimental section trapping site. A range rider reported seeing a belled doe deer on

several occasions over a period of 30 days in a pasture northeast of the traps. On August 21, 1946, Bankston investigated this report and found the doe to be approximately 2 1/2 miles northeast of the trapping site. Taylor saw this belled doe again on June 11, 1947, and it was in the same area in which Bankston had observed it in August. A belled buck with 5 antler points was killed November 18, 1946 on an adjoining ranch approximately one mile east of the trap site. This buck was seen on numerous occasions in the eastern part of the experimental section prior to the hunting season which began November 16.

A belled doe which stayed in the northeast corner of the section was found consistently within a half-mile radius.

TABLE 1. Belled and Non-Belled Deer Seen Coincidentally, Mason County Experimental Section (640 Acres), with Computation of Deer Probably Present.

DATE	Number of Deer Belled	Belled Deer Seen and Percent of Total Deer Seen That Were Belled	Non-Belled Deer Seen at Same Time	Total Deer Observed	Assumed Total of Non-Belled Deer Present, Based on Those Seen*	Grand Total of Deer, Belled and Non-Belled Probably Present on Section
1946						
January.....	17	10 (10.0%)	90	100	153	170
February.....	17	10 (12.3%)	71	81	120	137
March.....	16	10 (16.4%)	57	67	91	107
April.....	16	8 (8.4%)	87	95	174	190
May.....	16	11 (13.1%)	73	84	106	122
June.....	16	2 (9.1%)	20	22	160	176
July.....	16	2 (9.0%)	19	21	152	168
August.....	16	7 (12.3%)	50	57	114	130
September.....	16	4 (9.3%)	39	43	156	172
October.....	16	6 (11.1%)	48	54	128	144
December.....	14	1 (14.3%)	6	7	84	98
1947						
January.....	14	3 (17.6%)	14	17	65	79
March.....	13	2 (18.2%)	9	11	58	71
April.....	13	7 (18.4%)	31	38	58	71
May.....	13	4 (18.2%)	18	22	58	71
June.....	13	11 (15.7%)	59	70	70	83
	242	98 (12.4%)	691	789

* These figures were worked out as follows: E.g. for January, 1946.

$$\frac{\text{Belled Deer Seen}}{\text{Belled Deer Present}} \text{ as } \frac{\text{Non-Belled Deer Seen}}{\text{Non-Belled Deer Present}} \text{ or } \frac{10}{17} \text{ as } \frac{90}{x} = 153$$

153 = probable total of non-belled deer present.

Add 17 belled deer known to be present and one gets 170 = grand total of deer, belled and non-belled, probably present on section.

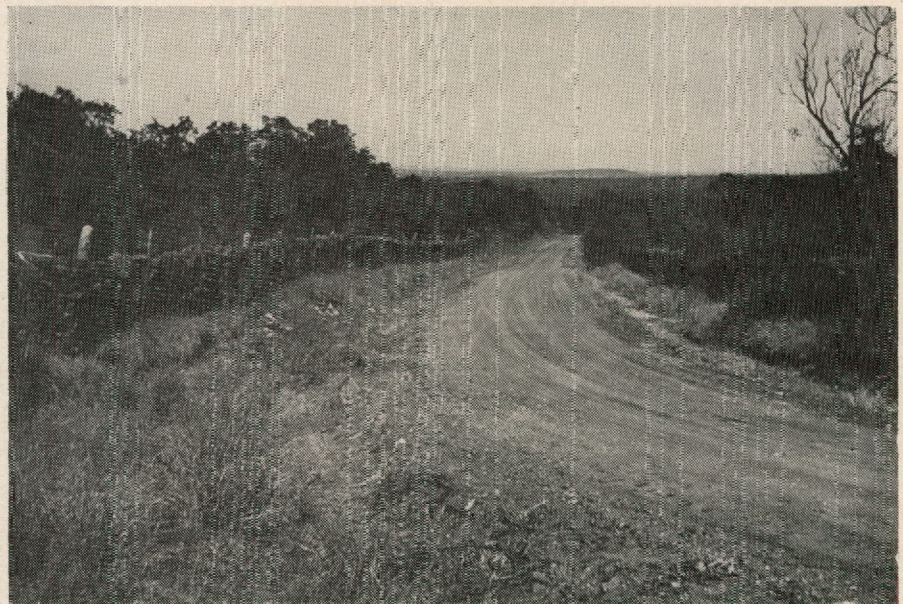
Severe drought conditions apparently failed to drive the deer from their range. As the range forage on the experimental section became depleted, a large number of the deer died of malnutrition. On December 30, 1946, a severe "norther" developed throughout the state and after several days of continuous cold weather the food supply on the experimental area was seriously impaired. From this date to January 24, 1947, no less than 88 deer, by actual count, died on the experimental section (Taylor and Hahn, 1947). In addition 28 deer were found which had previously died on the section. Altogether this makes a total of 116 dead deer actually found on the 640-acre experimental tract during the fall and winter. Although the deer were suffering from starvation, a high degree of localization was noted. This is reminiscent of the situation with the mule deer on the Kaibab Plateau in northern Arizona in the 20's, when, in spite of shortage of food, the deer remained in a relatively circumscribed area and died rather than move to better conditions a few miles distant.

Table 1, page 6, shows a drop from 170 deer on this section, according to our figures on January, 1946, to 79 in January 1947. These figures agree well with the counts of dead deer found. Of course there were some fawns in 1946, so the losses were made up in small part.

Seemingly, in this region, a drastic reduction in both deer and livestock is called for, if the range resource is to be maintained on a sustained yield basis. Further evidence gathered from this study showed that trapping is a very ineffective, expensive and laborious method for controlling deer popu-



One hundred and sixteen deer mortalities were recorded on one of the experimental sections, proving that deer will not leave their home range even during periods of critical food shortage.



Typical county road in Mason County, Texas. The range here has a high carrying capacity for deer.

lations even under favorable trapping conditions.

Some Details of Studies on the Kerr County Experimental Section

Trapping was begun September 15, 1945, on the Kerr County experimental section. Seven deer traps were erected on the area about 200 yards apart (see Fig. 1). By October 1, 1945, 21 deer had been trapped in 77 trap nights, marked with a numbered ear tag, belled and released on the 640-acre tract. One of the deer died through injuries suffered in the trap. In addition to the 21 deer trapped in September, 19 belled deer were re-trapped.

In 49 trap nights in January (January 20-26, inclusive), 34 deer were taken, including both original catches and recatches—10 bucks, 16 does, and 8 fawns. In the same number of trap nights in March (March 13-19, inclusive), only three deer were taken—2 does and 1 buck. Apparently as the vegetation and food conditions improved, the bait in the traps became less attractive and the deer were harder to catch. Trapping was therefore discontinued on March 19, 1945.

In February 1947, 3 additional deer were caught and belled on the area. No further trapping was done. The total number of deer trapped, tagged

TABLE TWO
Deer Trapped and Belled on Kerr County Experimental Section (640 Acres).

Trap No.	Original Catch	Males	Females	Original and Recatches
1	5	2	3	20
2	4	3	1	22
3	9	6	3	25
4	10	6	4	24
5	6	2	4	23
6	4	2	2	21
7	5	2	3	18
	43	23	20	153

and belled on the section was 43 individuals, including 21 bucks, 15 does, and 7 fawns. One of the bucks was killed by a hunter on November 27, 1945, leaving 20 belled bucks in the wild. Of the 15 does, 2 died, leaving 13. Therefore, on May 10, 1946 there were not more than 40 belled deer on the area.

Recatches on the Kerr County experimental section totaled 108 deer. Counting trapped and retrapped deer some 153 individuals were handled. Fifty-four (35.3%) of these were bucks, 69 (45.1%) were does, and 30 (19.6%) were fawns (see Table 2).

Records obtained throughout the investigation of the number of belled and non-belled deer seen coincident-

ally on and off the experimental section are tabulated in Table 3. The number of belled deer recorded each month from September, 1945, to April, 1947, varied from 5 to 71, an average of 29.6 belled deer per month. A total of 774 deer was recorded on the experimental section from September, 1945, to April, 1947, 270 of which were belled deer and 504 were non-belled deer. During this period belled deer were seen 270 times. If all the belled deer had been seen each time, 612 would have been observed. At the same time, 504 non-belled deer were seen. If all the non-belled deer had been seen each time, the total would have been 1,142.

Systematic overnight camping at

the various windmills at some distance from the experimental section permitted the observers to listen for belled deer during the night. The bells could be heard better during the hours of darkness. Deer were usually active at this time and during the drought, deer were compelled to water at windmill troughs, which were the only water supply in this section of the Edwards Plateau.

Out of the 40 deer which were banded and belled on the Kerr County experimental section we have 45 imperfect records of 56 deer (15 males, 16 females, and 25 undetermined), which have been recorded away from the section. These deer seem to have wandered in different

TABLE 3. Belled and Non-Belled Deer Seen Coincidentally, Kerr County Experimental Section (640 Acres).

DATE	Number of Deer Belled	Belled Deer Seen	Percent	Non-Belled Deer Seen at Same Time	Total Deer Observed	Assumed Total of Non-Belled Deer Present, Based on Those Seen On or Near Section*	Grand Total of Deer, Belled and Non-Belled Probably Present On or Near Section
1945							
September.....	21	10	52.6%	9	19	19	40
October.....	28	54	43.2%	71	125	36	64
November.....	27	2	28.6%	5	7	67	94
December.....	34	30	49.2%	31	61	35	69
1946							
January.....	39	24	38.1%	39	63	63	102
February.....	39	17	37.7%	28	45	64	103
March.....	39	13	37.1%	22	35	66	105
April.....	39	9	47.7%	10	19	43	82
May.....	38	19	38.0%	31	50	62	100
June.....	38	19	30.1%	44	63	88	126
July.....	38	18	30.3%	41	59	87	124
August.....	38	7	18.4%	31	38	168	206
September.....	38	4	21.1%	15	19	142	180
October.....	38	19	23.5%	62	81	124	162
December.....	38	8	32.0%	17	25	81	119
1947							
March.....	40	8	21.1%	30	38	150	190
April.....	40	9	33.3%	18	27	80	120
	612	270	34.9%	504	774	Avg. 88	Avg. 117

* The figures in the last two columns were worked out as follows: E.g. for September, 1945.

$$\frac{\text{Belled Deer Seen}}{\text{Belled Deer Present}} \text{ as } \frac{\text{Non-Belled Deer Seen}}{\text{Non-Belled Deer Present}} \text{ or } \frac{10}{21} \text{ as } \frac{9}{x} = 19$$

Thus 19 = the probable total of non-belled deer present.

Add the 21 belled deer known to be present and one gets 40 = grand total of deer, belled and non-belled, probably present on section.

directions from the section. They were found all the way from one-fourth mile up to 6 or 7 miles (see Fig. 1) away from the section.

It is apparent that the belled deer spread out considerably more than those on the Mason County section. There is no convincing evidence regarding any reason for the deer movements. They may have been due to less favorable feed conditions on the Kerr County section. The deer observed away from the section were found south and east more than north and west, possibly because of slightly better feed conditions due to local rains. There was one record of a belled deer 2 miles northwest of the section. All other records north of the section were within one mile of the section line.

The total number of belled deer recorded on and off the section from

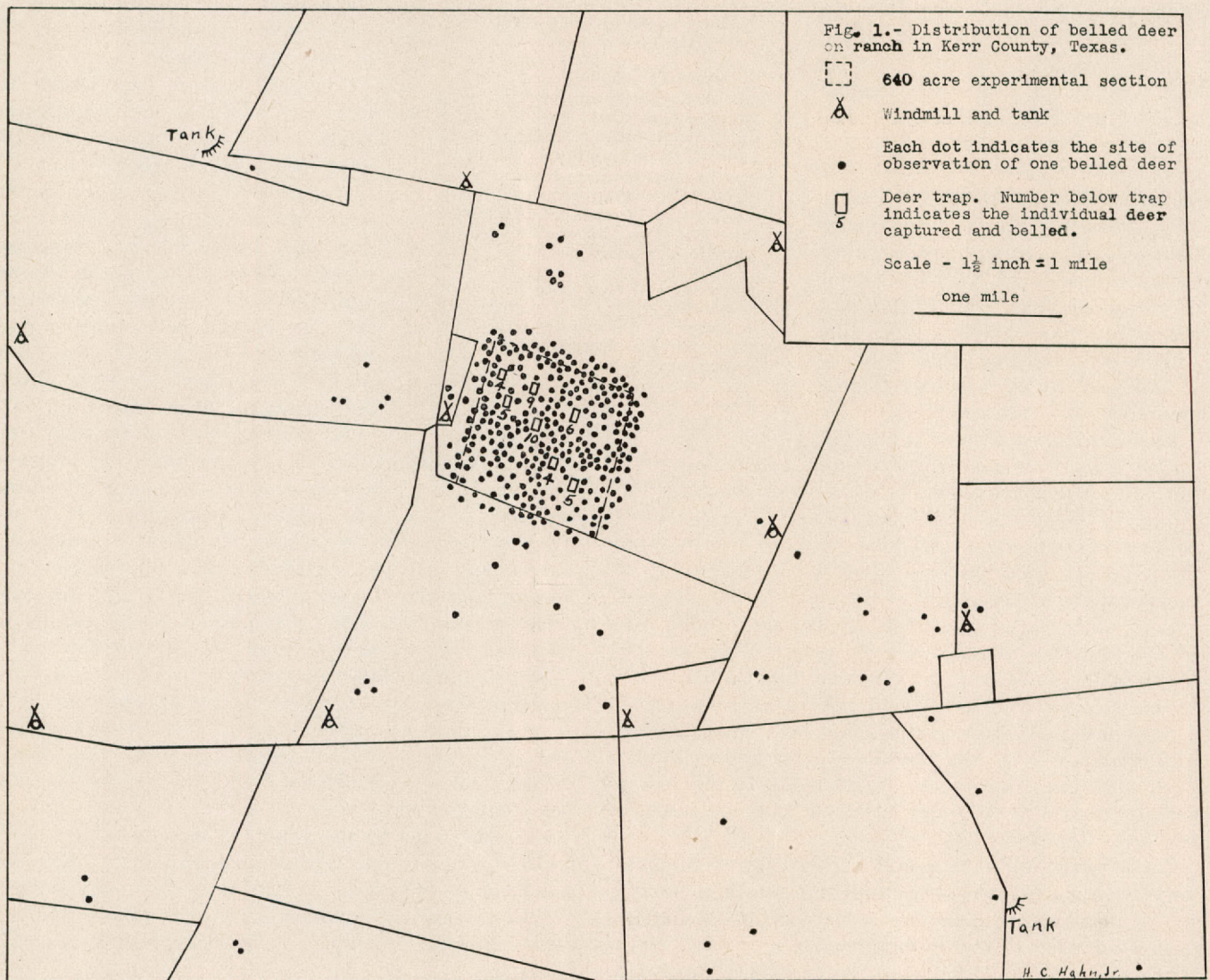
September, 1945, to April, 1947, was 335. Greatest recorded distance traveled by a belled buck killed on an adjoining ranch, was approximately $6\frac{1}{2}$ or 7 miles from the section. Another belled deer was seen 5 miles south and east from the center of the section. Four deer (1.2%) were recorded between 4 and 5 miles away from the center of the section. Twelve deer (3.9%) were observed between 3 and 4 miles from the center. Twenty-eight deer (8.4%) were recorded beyond a 2 mile radius from the center and 52 belled deer (15.5%) were between 1 and 2 miles from the center of the section. Two hundred and eighty-three belled deer or 84.5 percent of the total number were recorded within a one-mile radius. The maximum distance record of belled deer (approximately 8 miles) was received from a local ranchman. This ranchman reported that two men

working on his ranch told him they saw two doe deer with bells on. It is highly probable, however, that these deer were some local ranchman's pets, and not wanderers from our experimental section, since bellling deer for identification is a common practice among the local people.

While obviously there was more wandering from the Kerr County section than from that in Mason County, 84.5 percent of the belled deer were recorded within a one-mile radius of the section. While there is nothing absolute about the figures given in Table 3, it is believed they are suggestive as to the actual number of deer on or near the section.

Persistent search of the Kerr County experimental section was made so as to reveal any dead or sick deer. Fifteen dead deer were found, including 3 bucks, 7 does, and 5 fawns. Two

• Continued on Page 31



They Fly By Night

By EARL WALLACE

THERE are few American birds known as well as the whip-poor-will. People within its range are more acquainted with its song than the bird itself. As a matter of fact, many have never seen one in their lives, but can readily identify it by the song which speaks its name.

The whip-poor-will is truly nocturnal and is seldom seen during the day unless frightened away from its hiding place. Though it prefers the seclusion of the wooded country where it breeds, it frequently ventures into the open country and even into cultivated lands. Apparently, it avoids human populations, but sometimes its nightly song is heard from the shade tree in the backyard or even from the housetop. The hill country seems to hold its favor and its notes seldom come from the bottom lands, but rather from the wooded ridges.

The whip-poor-will sings only at night and its call is probably familiar to more people in this country than the utterance of any other night bird or animal. "(Chuck) Whip-Poor-Will (Chuck) Whip-Poor-Will (Chuck) Whip-Poor-Will" he calls rapidly an hour or so after sunset, and continues to just before dawn. Very few people ever hear the faint "Chuck" that precedes the three whistled notes and still fewer know that each "Chuck" is followed by a peculiar bowing motion.

Each bird seems to have a peculiar singing style of its own. Even the tone and tempo differ but the greatest variation is the number of times the "(Chuck) Whip-Poor-Will" is uttered by various birds without stopping for a rest. Some only call two or three times, while others go on calling for several hundred times without a stop.

Like other members of the goatsucker family, the whip-poor-will is most likely to be found on the ground or low limb in the daytime. Wherever he chances to be, he is almost invisible, so perfectly does his plumage blend in with lichen-covered branches and bare earth flecked with shadows from low plants or overhanging leaves. Even when one is sure of the whereabouts of this phantom, it takes a trained eye to locate him, even when only a few feet away.

The whip-poor-will is migratory, making its summer home from southern United States to Canada; however, the greatest nesting populations are probably found in the northern tier of the southern states.

As soon as warm days are a certainty, the whip-poor-

wills begin their northern journey, traveling only at night and resting during the day. It is pretty well established that a pair will return to the same locality for several years, even placing the nest on the same spot. The nest itself is only a slight depression on the ground, merely smoothed out on pine needles or leaves, and, usually, under the sheltering branches of a woodland or thicket. Both birds assist in the incubation which requires about 18 days.

If the nest is approached by some unwelcome intruder, the bird will flutter rapidly along the ground for a few yards and begin a series of struggles with flapping of wings as if it were badly crippled. This performance is to lure the intruder away from the nest. This accomplished, complete recovery is instantly achieved and the bird vanishes in some hiding place.

The bird subsists very largely on insects, most of which are night-flying kinds, which are captured on the wing. Any insect is readily taken but the chief diet is made up of moths, gnats, potato beetles, mosquitoes, June bugs and members of the grasshopper family. The mouth of the whip-poor-will is large, stretching from ear to ear, and equipped with long bristles. This is kept open when in flight over the fields after sunset, and makes an ideal insect trap.

Of course, much of its food consists of insects that are pests to the orchardist and farmer, and for that reason, this dweller is among our most valuable. It has been said that, when this Will O' the Wisp deserts a certain locality, he never returns. That is, perhaps, because environmental conditions are destroyed and never re-established. There are, however, many places that were once frequented by the whip-poor-will that are now destitute of their presence.

Some contend that their numbers are decreasing even in the places where they were once most numerous.

As the quietness of night settles over the world, the call of the whip-poor-will breaks the monotony of the darkness with a friendliness known to all that love the wild things of the Universe.

His song adds to the peace of those who rest after the labors of the day, and companionship to those who toil through the night. A bird of the common people, the whip-poor-will occupies a singular place that no other attempts to fill.—Kentucky Happy Hunting Ground.

WHIP-POOR-WILL

Antrostomus vociferus vociferus
(Wilson)

Other names: Night Bird, Night Jar, Night Hawk.

Description: Length 9-10 inches. About the size of the robin, but with wider wingspread. General color of upper parts, brownish grey, streaked and flecked with dusky black. Shoulders have large irregular blotches of black. Three outer pairs of tail feathers white on the ends. Head flat with short bill. The male has an irregular white band across heart.

Range: Eastern United States and Southern Canada, ranging westward to Great Plains. Winters in Gulf States and southward to Mexico and Central America.





Whitewings Across the Sky





Hunters entering shooting grounds stop at a Game Department checking station to secure instructions.



Concentrations of hunters like this were common in the lower Rio Grande Valley during the three-day shoot.



A flight of whitewings coming in to a feeding area.



Plucking feathers from a dove her daddy killed, Susie Gunther of McAllen, waits for him to return as the evening sun nears the horizon.



A successful hunter picks his birds while waiting for his friends to get their limits. Below, a hunter cooperates with the Game Department by leaving information at a checking station.



LATE at night in the radio tower of a navy air station the operator listens intently as the call comes in. "Corpus Tower." Corpus Tower. "Mayday!" "Mayday!" At once the gulf coast radios go into action plotting the distress call of the flying craft.

"Mayday!" "Mayday!" "This is Flapper Red going down two hundred miles off—Silence—" Thus the only clue to the position of the craft in trouble is received by the control tower.

The pre-dawn search briefing gives the probable emergency landing position of the distressed aircraft as two hundred miles east of Brownsville, Texas. At dawn the search planes are in the air half-way to the position of the distress signal. Another thirty minutes and the planes should be over the point where the plane is believed to have crash-landed the night before.

"Eyes open fellows," flows over planes' intercoms! "The strong southeast wind last night may have put them in this vicinity." All men are alert for a yellow raft with five lost men.

The third search day passes without results. As the currents in the Gulf of Mexico are relatively unknown, it has not been possible to forecast their drift. The position of the small raft is still unknown, and the matter of finding it has become pretty much a matter of luck. On the fourth day five weary men are sighted on the small yellow raft, far from the expected point of discovery.

A patched report of the five surviving men ran as follows: Aircraft down 1:13 a.m. about two hundred miles off Brownsville, Texas. Landing good in rough water. Wind—south-east—twenty miles an hour. Drift first twenty-four hours apparently north. Drift second twenty-four hours east of south-east. No drift six hours. Drift next twelve hours north of east.

Had the currents been known and understood the search could probably have been completed during the first day. Money and time could have been saved. Suffering of the five men could have been reduced or eliminated.

The flyer and the fishermen battle the unknown over and over on the gulf. What are the surface currents like? Why are they important to the fishermen, the flyer and the off-shore drilling operator?

The Game, Fish and Oyster Commission Marine Laboratory and the Corpus Christi Naval Base are working together to determine the surface currents of the Gulf of Mexico and the bays of Texas. Both groups are constantly watching to learn more about Texas waters.

The instruments in this study are simple and inexpensive. Unpaid, volunteer workers help supply the needed information.

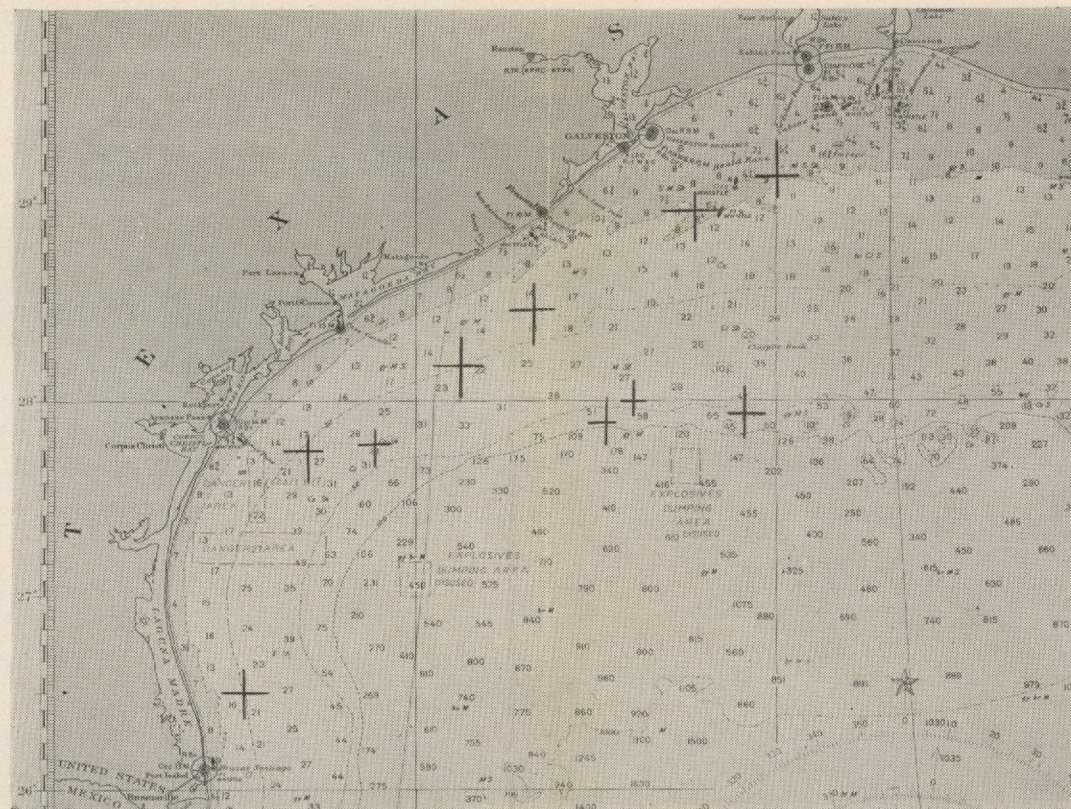
The instruments used are plastic encased post cards. Each card has its individual number, and contains directions for its use upon being found. These cards, Current Test Cards, have been released in the gulf and bays along the Texas coast from Brownsville to Sabine Pass. Card releases have been made both by the men of the laboratory and the flyers of the navy base. The navy has released many during routine flights at sea.

As current test cards are released their numbers, time of release and point of release are recorded. When cards are recovered along the shores of Texas the fisherman, swimmer, or beachcomber need only remove the plastic cover, fill in the re-

Coastal Currents

By A. W. ANDERSON

Marine Biologist



Cross marks indicate current test card releases in the Gulf of Mexico.

quired information as to place, time and date of recovery. If the finder adds his name and address in the space provided he receives by return mail a card showing the time, place and date of release.

As cards reach the laboratory they are answered and plotted on huge charts showing the resultant vectors indicative of currents. Naturally best results can be obtained if a high percentage of each series of released cards are returned. An over-all high percentage of returns on all cards certainly increases the accuracy of the resultant vectors.

In all, fifteen hundred current test cards have been released. The percentage return of the total released has reached 8.2%. For some releases in the bays along the Texas coast there have been no returns. Other releases in bays have yielded a return of 42%. Only one major release in the Gulf of Mexico has not shown any returns. This release point, 25 miles east of Brownsville, Texas, on May 18, 1950, has been the only release to fail to date. There may be several reasons for the failure. Padre Island, extending from Corpus Christi to Brownsville, was seldom used by the general public until June 16, 1950, when the new causeway connecting the island to the mainland was completed. The cards may be lodged along the Padre Island shore and may be discovered at a later date.

It is also possible that the cards may have been carried east and away from the shore. A third possibility is a south-west current action which would place the cards south of the border possibly along the Mexican shore. Because of the language barrier and postal regulations cards from below the border may not be recovered.

Four releases made from the U. S. Fish and Wildlife ship Oregon along the 100 fathom curve, from 50 to 60 miles off shore, have, as yet, given no returns. Moreover, it is not probable that any immediate results should be expected from such releases, as these cards may drift for days or even months before being recovered.

One release of 100 cards, 25 miles south of Sabine Pass, has given a 27% return. Most of these cards came ashore, very evenly distributed, along the 50 mile stretch of coast between Sabine Pass and Port Bolivar.

It is interesting to note that for two near release points the resultant vectors crossed. Cards released on May 16, 1950 twenty-five miles off Freeport, Texas, traveled north while cards released twenty-five miles off Galveston April 27, 1950 traveled in a westerly direction. Many of the Galveston cards were recovered on Matagorda Island.

The relatively unknown currents of the Gulf of Mexico must be charted before many fish movements can be explained. The geologic history of the gulf bottom can be better understood after surface currents are determined. Particles of silt, sand and food are ever existent on the surface of the water. Their settling rate is greatly influenced by currents. Thus food in one position may be moved away from an area inhabited by fish and therefore reducing its ability to produce fish. A great area of turbidity may be broken up by currents. The formation of sandy bottoms is often accelerated by a change in currents.

This problem of surface currents is of vital importance to all for the Gulf of Mexico provides food, transportation and pleasure for many people in Texas.

Marine Laboratory Cooperates in Study of the Gulf Currents

Accent on Youth

By AL PARKER

THE Northwest Texas Field and Stream Association with headquarters in Wichita Falls is an organization that believes in game and fish conservation with an accent on youth.

A three-year-old program of quail food and cover promotion among Four-H Club boys and girls of three counties, Wichita, Clay and Archer, is perhaps the apple of its eye. In the early spring, multiflora rose plants obtained from the Texas Game, Fish and Oyster Commission were allotted all entrants in the feed and cover competition, and this was augmented by distribution without charge of substantial amounts of seeds of several

varieties. Experimental plantings are studied each year in the hope that eventually the association will learn the identity of those best adapted to this area.

Working through the farm agents in the three counties, Max Carpenter and his assistant, Bill Pallmeyer, in Wichita; C. W. Wilhoit in Archer, and John Miller in Clay, the youngsters compete for county honors and a tri-county championship. Cash awards posted by the association are made late each fall.

As another example of the group's interest in starting out the youngsters on the right foot, the first annual

Lake Wichita Rough Fish Rodeo provided separate competitions for boys and girls. It did not fail to attract plenty of interest among the small fry.

The field and stream association's project attracting the widest interest was the establishment of 11 acres of rearing ponds, devoted exclusively to bringing black bass fry to fingerling size before they are stocked in the lakes of the Wichita Valley—Kemp, Diversion and Wichita. Here again the cooperation of the State Game, Fish and Oyster Commission was necessary. The Dundee state hatchery furnishes the fry, and 30,000 of the little fellows were stocked in the four ponds a few weeks ago by Haskell White, hatchery superintendent. In two past seasons he has harvested fine "crops" or fingerling bass, from three to six inches long, and of sufficient size to make a go of it after being placed in the fishing lakes.

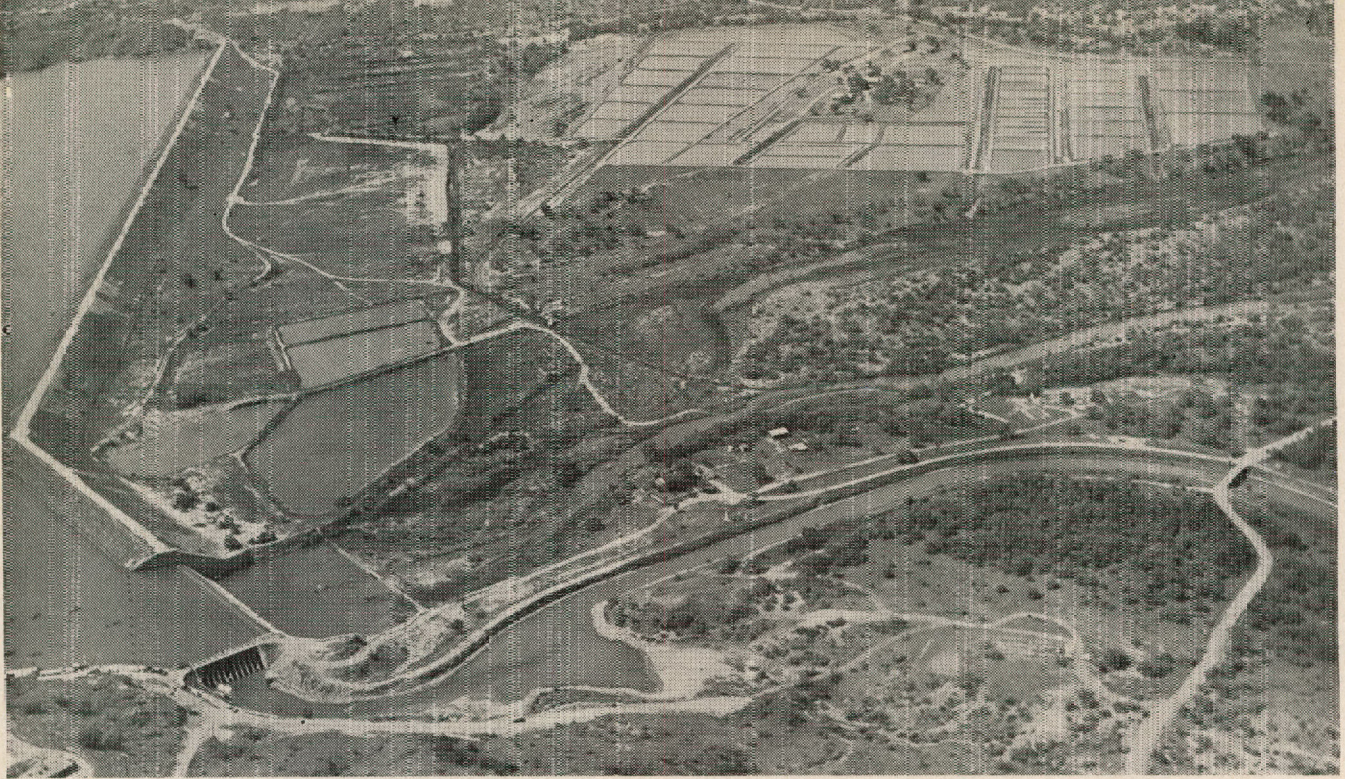
The field and stream association has an investment of several thousand dollars in the rearing ponds in the form of intake lines, concrete outlet boxes, tile drains, valves, etc. Two of the ponds were formed from excavations made when Diversion Dam was built. Two others have been added, largely through the help of the Wichita County irrigation districts, which furnished heavy dirt moving machines and manpower. A substantial financial lift was given, too, by the Lake Kemp Anglers Club when the latter turned over part of its profits from the 1948 Kemp-Diversion fishing rodeo.

Officers of the Northwest Texas Field and Stream Association are Ben E. Hausler, president; M. H. Thomason, first vice president; Duane McBride, second vice president; H. M. Feather, secretary and treasurer. These officers, along with Charles King, Wymore Downing, B. G. Oneal, J. R. Martin, Irving J. Vogel and Mrs. Roger H. King make up the board of directors.

YOUNG CHAMPIONS—

Joyce Elanc Sparkman and A. W. Scarlett are shown with their prize won in the girls and boys divisions of the first annual Lake Wichita Rough Fish Rodeo, sponsored by the Northwest Texas Field and Stream Association. The young lady took her prize-winning carp on a hook baited with caramel candy, while Scarlett's heaviest carp was from a dough-baited trotline.





FRY TO FINGERLINGS—This aerial view shows the location of the black bass rearing ponds of the Northwest Texas Field and Stream Association in relation to Diversion Lake and the Dandee state fish hatchery. The four ponds are clearly shown in the left center of the picture, and in the bend of the Diversion Lake Dam. Upper right is the spread of ponds at the state hatchery, which serves all of Northwest Texas and the Panhandle. The grill-like structure at extreme lower left is the Diversion Lake outlet into the irrigation system, and immediately above it the lake is running several inches of water over the spillway and into Wichita River. About 30,000 bass fry have been stocked in the rearing ponds to grow into fingerling size for planting this fall in Lake Kemp, Diversion Lake and Lake Wichita.—Photo by Arch Greenwood, Wichita Falls. **MULTIFLORA DISTRIBUTION**—Four-H Club boys and girls of three counties are competing for the third straight year in the Northwest Texas Field and Stream Association's quail food and cover program. Shown below, Bill Pellmeyer, assistant Wichita County farm agent, distributes multiflora rose plants to Benny Rogers, left; Jack Hodgkins, center, and Cucky Hood, all members of the Valley View grade school club. The plants were furnished the association by the Texas Game, Fish and Oyster Commission.



State Game Wardens

THE following list of Warden Supervisors, Game Wardens, their districts and addresses, will be helpful to sportsmen, landowners and others interested in wildlife.

The Game Department fieldman in your home county or in the county in which you hunt is a trained conservationist and is always ready to help you in every way he can with local wildlife problems. If he does not know the answers, he knows where to get them.

Supervisor	Warden	Address	Counties
Austin Office	Gene Ashby	Star Rt. B, Box 65-A, Austin	Travis
	Paul Bogusch	Brenham	Burleson, Lee, Washington
	E. D. Edmondson	708 E. Main, Cuero	DeWitt, Karnes
	J. E. Ferguson	Lytton Springs	Bastrop, Caldwell
	Ben Gaddy	408 E. Monroe, Austin	Travis
	Travis Gilbreath	Johnson City	Blanco
	O. G. Gustavsen	County Courthouse, Corpus Christi	Kleberg, Nueces
	T. A. Harris	Sinton	Aransas, Bee, Refugio, San Patricio
	W. T. Harris	Box 531, Woodsboro	Aransas, Bee, Refugio, San Patricio
	A. E. Hitzfelder	County Courthouse, San Antonio	Bexar
	F. E. Hollamon	Seguin	Guadalupe, Wilson
	Claude Keller	Box 7, Victoria	Calhoun, Goliad, Jackson, Victoria
	E. A. Marth	New County Jail, Victoria	Calhoun, Goliad, Jackson, Victoria
	Grover Simpson	5402 Sunshine, Austin	Travis
	W. F. Sumbling	New Braunfels	Comal
	Alton Willmann	County Courthouse, San Antonio	Bexar
Charles G. Jones Weslaco	Cob Carpenter	Falfurrias	Brooks, Jim Wells
	John Crow	Riviera	Kennedy
	Wm. H. Gooch	Box 653, Raymondville	Willacy
	George Holbein	Hebbronville	Duval, Jim Hogg
	J. L. McDougald	Kingsville	Kleberg, Nueces
	B. C. Peebles	George West	Live Oak, McMullen
	Marvin Pullin	Rio Grande City	Starr, Zapata
	Harvey Schoen	Box 393, Falfurrias	Brooks, Jim Wells
	Wm. R. Stewart	Box 998, Edinburg	Cameron, Hidalgo
	G. M. Stricklin	411 E. Johnson, Kingsville	Kleberg, Nueces
	James Worthington	1847 Branard, Kingsville	Kleberg, Nueces
A. W. Lewis 1st Floor Court- house, 6245 Martel, Dallas	Harley Berg	2316 Lasker, Waco	Coryell, Falls, McLennan
	Harold A. Bierman	2933 Malcom, Ft. Worth	Hood, Johnson, Parker, Somervell, Tarrant
	T. O. Bobbitt	418 Stroud; Box 734, Denton	Denton
	D. W. Bowers	2206 Dry; Box 275, San Saba	Mills, San Saba
	C. L. Boynton	510 W. 10th; Quanah	Foard, Hardeman, Wilbarger
	Hubert Brooks	Rt. 4, Box 200; Box 1623, Waco	Coryell, Falls, McLennan
	Joe B. Brower	2913 Anderson; Box 952, Greenville	Collin, Hunt, Rains
	J. F. Carter	Rt. 2, Box 489, Fort Worth	Hood, Johnson, Parker, Somervell, Tarrant
	W. C. Cave	2014 Elizabeth, Wichita Falls	Archer, Clay, Wichita
	Louis H. Clymer	801 Ave. B., Box 634, Lampasas	Lampasas
	Maurice S. Dry	512 S. Connellee, Eastland	Eastland, Erath, Stephens
	Floyd Gaby	908 S 43rd; Box 3127, Temple	Bell, Williamson
	M. B. Hopkins	Kaufman	Kaufman, Van Zandt
	J. W. Hudson	Gainesville	Cooke, Montague
	H. B. Iverson	Box 176, Throckmorton	Haskell, Throckmorton, Young
	C. H. Johnson	Box 237, Meridian	Bosque, Hamilton, Hill
	Clarence T. Jones	Trenton	Fannin
	Ed M. Lacy	Box 361, Llano	Llano
	Hill Lawrence	Pottsboro	Grayson
	A. Noles	Throckmorton	Haskell, Throckmorton, Young
	C. T. Pittman	Seymour	Baylor, Knox
	James S. Smith	1500 Glenwick, Fort Worth	Hood, Johnson, Parker, Somervell, Tarrant
	A. A. Stein	326 Geneva Rd., Irving; also Dallas office	Dallas, Ellis, Kaufman, Rockwall
F. M. Stovall	Box 153, Jacksboro	Jack, Wise	
Leon Stowe	Graford	Palo Pinto	
John Taylor	Box 204, Marble Falls; deer camp	Burnet	
John R. Wood	Box 223, Brownwood; Lake Brownwood	Brown, Coleman, Comanche	

and Their Districts

Supervisor	Warden	Address	Counties		
J. H. Maggard Rt. 1, Box 283-B Amarillo	Guy P. Davis Pat Donnelly	Box 326, Shamrock Box 149, Littlefield	Collingsworth, Donley, Gray, Wheeler Bailey, Castro, Cochran, Hockley, Lamb, Parmer		
	Jess Felts Cecil Fox Verna Grady	Box 727, Dalhart Box 295, Spur Lamesa	Dallam, Hartley, top of Oldham Dickens, Kent, King, Stonewall Borden, Dawson, Howard, Martin, Mitchell, Scurry		
	Noel J. Head J. D. Jones	Box 991, Seminole Box 401, Abilene	Andrews, Gaines, Terry, Yoakum Callahan, Fisher, Jones, Nolan, Shackel- ford, Taylor		
	Charles F. Keller Calhoun Lovelace	Gen. Del. or 405 4th St., Childress Rt. 2, Canyon	Childress, Cottle, Hall, Motley Armstrong, Briscoe, Deaf Smith, Potter, Randall, Swisher, lower part of Oldham		
	Billy Sprott	Box 442, Stinnett	Carson, Hansford, Hutchinson, Moore, Sherman		
	Starkey V. Whitehorn Grady Canter	Box 126A, Canadian Lubbock	Hemphill, Lipscomb, Ochiltree, Roberts Crosby, Floyd, Garza, Hale, Lubbock, Lynn		
Frank Mebane Alvin	W. C. Childress A. F. Cook R. Z. Finchum C. B. Rohden Don A. Troutt	Box 181, Pearland Rt. 1, Box 82, La Porte 2304 Strand, Galveston 211 2nd St. N., Texas City 95 C. Island City Homes, Galveston	Brazoria, Fort Bend Harris Galveston Galveston Galveston		
	Lewis Morris County Courthouse, Beaumont	C. E. Beezley Garth Christopher Robert Cross, Jr. Mac L. Davis R. O. Davis E. E. Hargett C. Paul Jones Don Keller Geo. B. Killebrew Harold W. Martin H. T. Mayne Joe Murphy C. F. Ray Clyde L. Renfro T. T. Waddell Jack Woodford	Hallettsville Box 344, Liberty 630 1st Nat'l. Bank, Houston County Courthouse, Beaumont Conroe Bellville Kountz Box 313, Jasper High Island County Courthouse, Beaumont Angleton, Box 37 Buna 2605 10th, Bay City County Courthouse, Beaumont Eagle Lake County Courthouse, Beaumont	Gonzales, Lavaca Liberty Harris Chambers, Jefferson, Orange Montgomery Austin, Waller Hardin Jasper, Newton Galveston Chambers, Jefferson, Orange Brazoria, Fort Bend Jasper, Newton Matagorda, Wharton Chambers, Jefferson, Orange Colorado, Fayette Chambers, Jefferson, Orange	
		E. M. Sprott Box 801, Lufkin	Hugh Ashford Bill Belote Brent E. Bergstrom Geo. E. Berry Thos. C. Browning Vernon Burgess R. H. Burks Gus Cothran Olan H. Davis Rix Duke H. A. Ellis Fred Gilliam Robert Goss Lewis Hallum Robt. B. Jessee Leon Jones J. C. Manning Wardlow Northam W. H. Pratt J. O. Puckett Oma Puckett Ross Seale John Shaddix Seth Taylor	Big Sandy Jefferson Fairfield Rt. 2, San Augustine Rt. 6, Palestine Paris 718 S. E. 12th, Paris Box 1131, Longview Nacogdoches Center Karnack Bryan Box 651, Kilgore Box 973, Huntsville Box 302, Carthage Lufkin Rt. 1, Box 554, Livingston Mount Pleasant Athens 1024 S. Donnybrooke, Tyler Annona 207 E. Evans, Hearne Box 783, New Boston Normangee	Camp, Upshur Marion Freestone, Limestone Sabine, San Augustine Anderson, Cherokee, Houston Delta, Hopkins, Lamar Delta, Hopkins, Lamar Gregg, Rusk Angelina, Nacogdoches, Trinity Shelby Harrison Brazos, Grimes Gregg, Rusk San Jacinto, Walker Panola Angelina, Nacogdoches, Trinity Polk, Tyler Franklin, Titus Henderson, Navarro Smith, Wood Red River Milam, Robertson Bowie, Cass, Morris Leon, Madison

• Continued on Page 29

Mission: ANTELOPE

By LEIGHTON B. DAWSON

THE stars were shining with a pre-dawn intensity that morning in mid-October as we sped along U. S. Highway No. 90, one hundred and sixty miles west of the Pecos, in the Davis Mountains of West Texas. Behind us lay weeks—yea months—of preparation for this hunt, with antelope as our objective.

My companion on the trip was James Cerf, and between us there was a rivalry in respect to shooting that was almost as deep as it was friendly. Heretofore, however, our rivalry had been confined to the target range. Now it was to be extended to the open range, where the antelope thrive.

James and I have had some heated arguments about the relative merits of our guns, and these arguments have been carried over onto the target range, where we have consumed many, many rounds of high priced ammunition, trying to prove our points.

As a result of our experience on the target range, James had decided to use his .220 Swift for antelope. Now, he has a 30-06 besides his .220, but figured it might be a little on the heavy side for antelope. So it was to be his .220 Swift against my one and only—a .270 Winchester.

On the target range the performance of his .220 was remarkably similar to my gun. In fact, James had shaded me a little bit shooting at a target with his .220. Would it top my .270 when it came to the real thing?

I had seen James operate on a jack-rabbit at about 150 yards with his .220, and after having observed the effects of the bullet, it sure looked as if it ought to do a deadly job on antelope. However, we both considered that there could be quite some difference between jack-rabbits at 150 yards and antelope at 300.

The curtain of darkness was just rolling up as we approached the little town of Valentine, where we were to

turn off to go to the ranch. There before us, embraced by a backdrop of lofty mountains, lay the open range of the pronghorn country. The ranch on which we were to hunt contained 64,000 acres, and it sprawled over a good part of the intervening territory between Valentine and the Davis Mountains.

Early the next morning we began our hunt. We had ridden only a few minutes when we caught sight of a fairly large herd of antelope to our left possibly three-quarters of a mile away. We started over toward where they were, but someone else must have done the same thing, because the antelope promptly headed for "the cool out yonder."

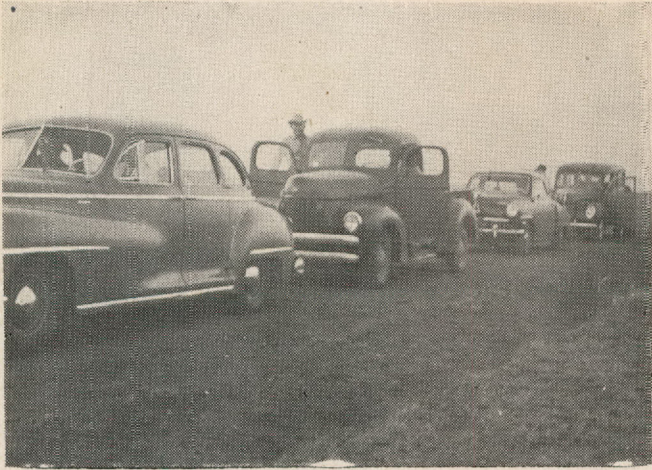
We got back into the car, and started stalking them again. Whenever they would stop James would exhort me to get out and take a shot. There was always a fine point, though, at which the antelope would start running if we went any further; and we were both afraid to go too far, and scare them out of the country. Every time they would move, we would ease up a bit in our car. But they always seemed to stay just the right distance ahead of us.

After we had stopped about three times, and I had jumped out of the car equally as many times, in a vain effort to get a shot, James told me he was just about as close as he could get. It was just up to me, that's all.

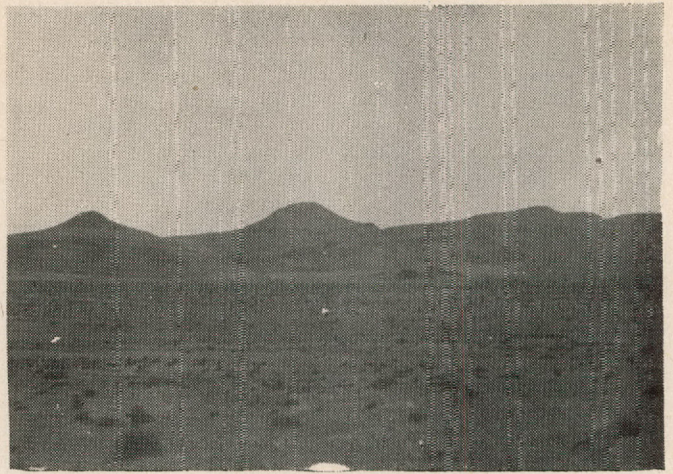
I have a 2½ power Lyman Alaskan scope on my rifle, but I did not feel particularly consoled about the distance, for the cross hairs on my scope looked awfully coarse against the antelope that I had picked out. Or rather, I should say that James had picked out for me, as he was looking through his binoculars, talking me into right where to shoot. He would say "second from the left"—"now he's third"—"wait a minute, there's a doe coming up" and "now he's in the clear;" and all the time I was trying to get set to shoot.

Leighton B. Dawson, the author, and a pronghorn.





These hunters are waiting to get checked in at the gate.



The author and his party hunted here.

The distance was great but it looked like we would be able to get no closer. When I got the big buck in my cross hairs, there was so much light behind him from the sun that he looked like a silhouette and I began to have some very real misgivings about hitting him at all.

By this time James couldn't stand it any longer. He began to holler "go ahead," "go ahead," "let him have it." When I felt like for sure I was on him, I squeezed off. James promptly ejaculated, "you got him," "you got him!"

The whole herd immediately began to put some distance between us—and my buck with them. It appeared that what James, as well as my sight, had told me, wasn't true. But that antelope did not kid anybody long. Within about twenty yards he faltered, and then the whole herd poured past. His hind quarters sagged and he crumpled.

It measured a good 350 yards to where he was, although it had seemed further than that in the early morning light, looking against the sun.

My part of the hunt was thus over pretty quickly. But the hunt itself was still not over, in respect to what my gun would do in comparison with James'. And, of course, it had hardly started for him.

We cruised around the rest of the morning, sighting three or four more scattered herds of antelope through our glasses, but not being able to get within range of any of them.

Meanwhile we had a mishap with our car that almost spelled the end of our hunt, or so we thought at the

time, as we hit bottom on a sharp rock that made our engine sound as if its insides had fallen out. Our three day permit did not allow any time out for car repairs and James had not yet had an opportunity to demonstrate the effectiveness of his .220.

We headed back for the entrance gate, and were just in the act of checking out to try and get our car fixed, when we turned to give the country one last going over with our glasses. That little gesture was very rewarding, because on a chance that was perhaps 1000 to 1, we picked up some flashes of white within about a mile of the gate that proved to be antelope. They must have drifted up that far to get away from the hunters.

We could not possibly tell at that distance whether there was a buck in the group, but we nevertheless took out after them, despite the fact that the motor of our car sounded like it was full of canaries. It would still run, however, and that was all that we asked at the moment.

The antelope started running long

Howard D. Dodgen, Executive Secretary of the Game, Fish and Oyster Commission, reports that 375 antelope were killed during the recent nine days' open season in the Trans-Pecos region of Texas. The Game Commission issued 422 permits which included 85 landowner permits or twenty per cent of the total number issued. The season lasted from the second of October through the tenth.

before we got to them. The noise our car was making did not exactly resemble the mating call of an antelope. We must have trailed these antelopes five miles and when I say "trailed," I mean we were way behind them.

They finally began to slow up when they reached a small promontory, and with the car sounding like it was breathing its last we eased up as close as we could. James hopped out for one of those "now-or-never" shots. In the excitement of the moment he did not even bother about a rest for his gun. Or rather he probably did not even think about it. Just piled out and with such slight help as I could give him with my binoculars, he began to shoot off-hand at the buck I had singled out for him. The range? Well, in the brightness of noonday that antelope did not look as far away as the one I got early that morning. But James' first shot was low by a matter of several inches.

The antelope was going away all the time at an angle, and so James raised his sights to where he was holding over horn-high, and let go with his second shot, still standing up shooting off-hand. I would not advise anybody to shoot in such a position at antelope, especially at that distance, but James vaccinated his antelope somewhere with that second shot, and it looked like it took, too, the way he reacted. The impact from that little 48 grain soft-nosed bullet sorta spun him around half-way and he just stopped and sat down with his head up, still looking at us.

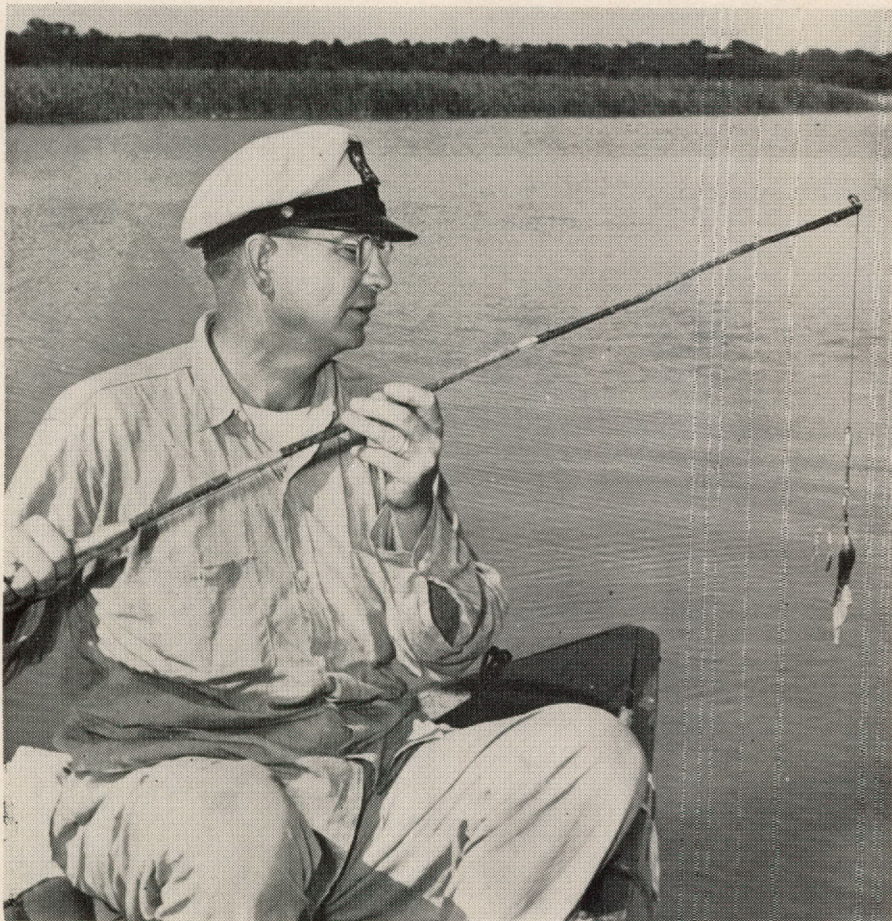
Continued on Page 30

HERE'S A NEW

METHOD

OF

FISHING



Lloyd H. Taylor of Lorena, Texas, (left photo) has a new method of fishing that he is teaching fellow-members of the Waco Anglers' Club. It's called "doodle-socking." The correct equipment consists of a sixteen foot cane pole, fourteen inches of line, hook, and artificial bait. This type of fishing is particularly advantageous where the water is heavily infested with aquatic vegetation, because ordinary casting equipment when retrieved through reeds and lily pads is easily tangled and becomes ineffective. Mr. Taylor, who is the Lorena high school coach, says it is "strictly Arkansas and Louisiana river fishing."

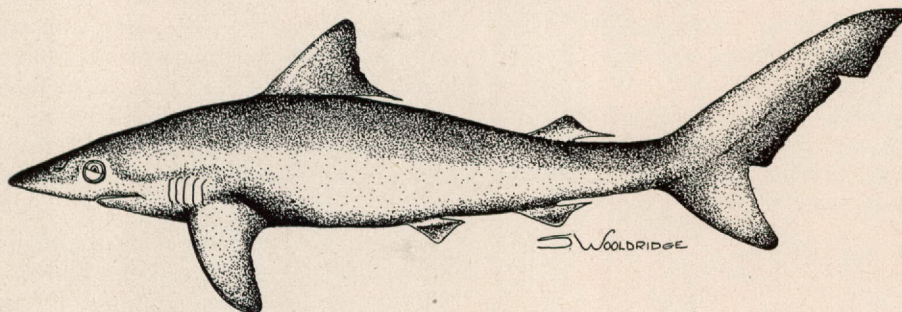
In the above photo, Mr. Taylor and Bill Draper (left) of Waco, display fish caught on catalpa worms. These green worms with black stripes are obtained in Arkansas where they grow on catalpa trees. Only fly rod, flyline and hook are needed when using the worms as bait. They are very tough and may be used more than once. Mr. Taylor has caught as many as five fish on one catalpa worm.

The Marine Fishes of Texas

*The Sharp-Nosed Shark, Newfoundland Shark**

Scoliodon terra-Novae

By J. L. BAUGHMAN
Chief Marine Biologist



THIS shark was originally described by Richardson (1886) from a specimen taken off Newfoundland. Subsequently it was discovered that it was extremely widely distributed, being known from the Bay of Fundy south to Brazil (Miranda-Ribiero, 1918) and Uruguay. However, Breder (1929), considers it only a straggler north of New Jersey. It occurs as far east as the coast of Africa (Fowler, 1936) and is one of the more common fish throughout the West Indian-Caribbean complex, being so plentiful locally as to be a nuisance in some sections because of its habit of taking baits intended for more desirable fish. Meek and Hildebrand (1923) obtained a number of specimens at Panama.

Nineteen specimens collected by me are now in the U. S. National Museum at Galveston, Texas. This is, as far as we can determine, the first mention of the species from this state, although Weed collected a specimen in the Laguna Madre at Point Isabel in August, 1924. A specimen in the British Museum was collected by Brandt in 1852, "from Texas." Mr. Buell obtained 8

averaging 14.5 lbs. each at Galveston.

In color it is generally brownish to olive gray above, with the dorsal and caudal fins more or less dark-edged; white below.

About 11 to 16 inches long at birth; adults commonly reach 26 to 30 inches; the maximum recorded length is about 36½ inches.

Scoliodon is often taken right along the beach. It is also found in enclosed bays, sounds, harbors, and occasionally in brackish and even in tidal fresh water (Gunter, 1942). It has never yet been taken over a mile or two out at sea. The food of this species consists largely of fish and crustaceans, and the stomachs of specimens examined by Radcliffe (1914) in July contained hog fish, silversides, Irish pompano, shrimp, and the feet of mollusks. Linton (1904) obtained fragments of fish and shrimp, pieces of sea lettuce, crabs of various species, crustacea, annelids, menhaden, and toad fish from other specimens taken at the same locality. Another specimen (Gudger, 1910) had in its stomach "3 eels (*Anguilla rostrata*)."

The young are born chiefly in the late spring and summer in the northern part of their range, but the season is not well known for tropical waters,

although Springer (1938) states that new born young are frequently caught in the Mississippi sounds during August. With this species, as with other littoral sharks, the males and females apparently separate during the bearing season.

These sharks have little commercial value, their small size at maturity, about 3 feet, militating against their use as a source of food. The Mexican Servicio de Pesca lists them, under the name of "Cazon," among the food fishes of Merida, Yucatan, and Mr. J. H. Martinez of that place, informs me that they form a staple food. He says:

"The 'Cazon,' a small sized fish, that belongs to the shark family, commands the highest price, because it keeps for days when dried over fire. . . They come about October, in large schools along the Yucatan shores, are readily caught in large numbers. . . In Campeche it is the staple food for families rich and poor."

It should be noted, however, that there are at least six or seven species of shark which come under the generic heading of "Cazon," and it is not definitely known how large a proportion of the catch is actually represented by *Scoliodon*.

* This article is abridged from Baughman, J. L., and Stewart Springer, Biological and Economic Notes on the Sharks of the Gulf of Mexico. Amer. Midl. Nat. July, 1950.

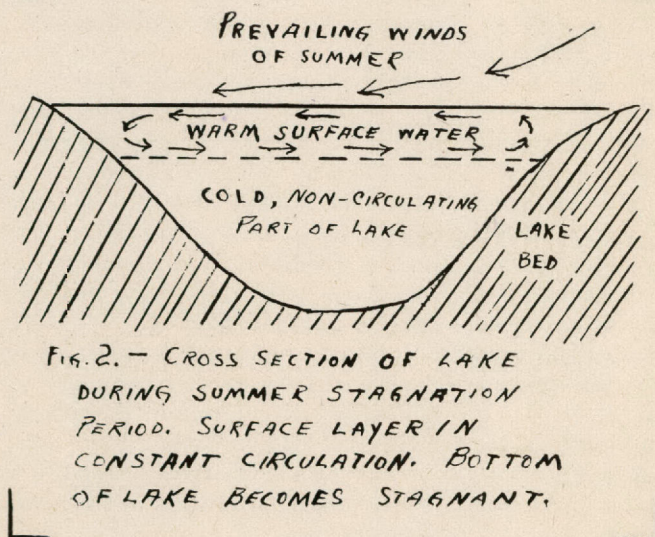
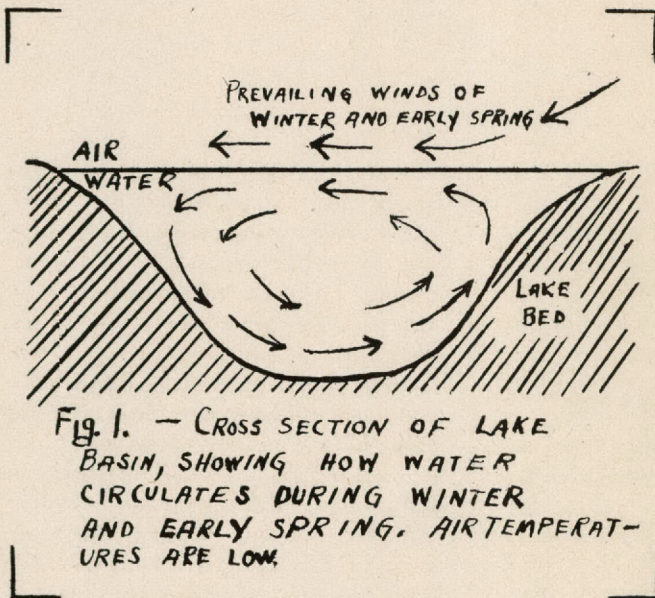
What Makes a Lake Turn Over?

By KENNETH C. JURGENS

Aquatic Biologist

IN TALKS with local sportsmen, as well as with people who live near some of the larger lakes, one of the most frequently asked questions is: "What makes a lake 'turn over'?" The fact that so many people ask this question indicates that an explanation of this phenomenon is in order now, just after the lakes have "turned over."

This turnover might simply be described as a part of the cycle of rhythmic breathing of any large body of water in the temperate zones of the earth. It is the giving up of waste products and the taking on of oxygen by every particle of water in the lake. It is much like a person taking a deep breath of fresh air. Few creatures could live in lakes if this turnover did not regularly take place. To explain the turnover, it is necessary to describe what happens to a deep body of water throughout the course of a year.



Starting with winter and early spring, the water in a lake basin is uniformly of the same temperature and is in constant circulation. This is due to the force exerted on the surface of the water by the high winds of the season. Generally, at this time of year, air temperatures are lower than water temperatures. However, as spring progresses, air temperatures begin to warm up and wind velocities diminish. As the air temperature rises, the surface layer of water is warmed. Because warm water is lighter than cold water, the warmer water tends to remain at the surface. In time, the water at the surface becomes so warm and so light that the strength of the wind which would be required to mix this water with the colder water below, exceeds the strength of the winds which exist in late spring.

When this situation occurs, thermal stratification of the lake begins. Thus, instead of a body of water which is all the same temperature, there now exists in the lake a layer of warm at the surface and a larger layer of colder water below. The warm water remains in circulation throughout late spring and all summer. It is constantly mixed by the wind and keeps a good supply of oxygen. The lower, colder levels of the lake no longer circulate and are cut off from a source of oxygen by the warm layer above. These lower levels slowly but surely lose their supply of oxygen due to the respiration of fishes and other aquatic organisms, as well as through the use of oxygen in the decay of dead organic materials which continuously settle to the bottom all summer long. Toward the end of the summer there are two extremely different zones in the lake. The bottom of the lake is cold, stagnant and nearly, if not completely, depleted of oxygen. It is also full of decomposition gases which are toxic to aquatic life. The surface layer of the lake is warm and, since it remains in constant circulation and in contact with the air, keeps a good supply of oxygen.

With the coming of cooler air temperatures toward late summer and early fall, the surface water begins to cool. As the water of the extreme top layer is cooled, it sinks to the level at which there is other water of the same temperature. This process continues until the entire lake is either of the same temperature, or the strength of the wind becomes great enough to mix the surface water with the water below. When this happens, the entire body of water goes into complete circulation and the lake is said to turn over.

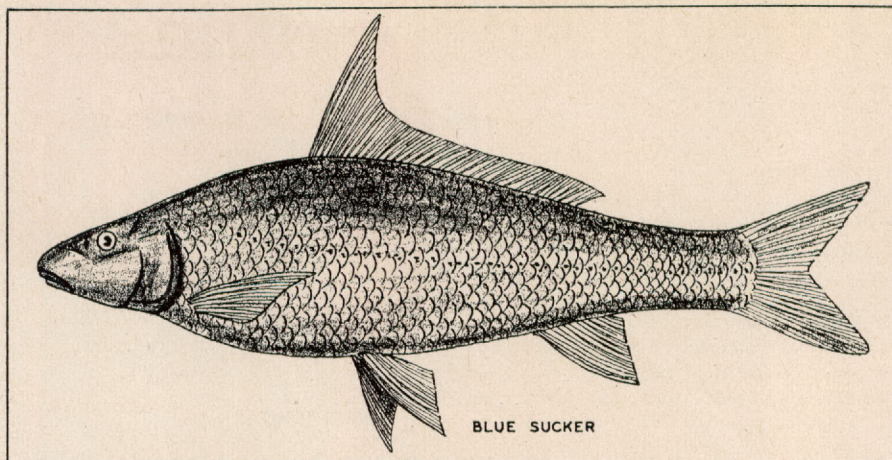
When the lake first begins to turn over in the fall, there is generally noticed a characteristically foul odor to the water. This odor is caused by the toxic decomposition gases which are present in the water. As water from the bottom reaches the surface and comes in contact with the air, there is an exchange of gases: the decomposition gases are released to the air and the water takes on a fresh supply of oxygen from the atmosphere.

Fishes of Texas

The Blue Sucker

By MARION TOOLE

Chief Aquatic Biologist



SEVERAL years ago I was informed that many mullet were being found below the Lake Austin dam on the Colorado River. Since mullet are essentially salt water fish, I was interested in finding out if the fish observed below the dam were salt water mullet. Their presence there would indicate a deep penetration of salt water fishes into fresh water, as this dam is about 190 miles from the Gulf of Mexico.

However, upon catching some of these so-called mullet, they proved to be blue suckers. The common names for blue suckers, like all other fishes, change with their location. Some of their other names are gourd-seed sucker, suckerel, shoemaker, and sweet sucker. Students of fishes know this fish by *Cycleptus elongatus* (Le Sueur).

The blue suckers belong to the only species of *Cycleptus* found anywhere. These fish occur mainly in the Mississippi River and its tributaries, but they are also found in some of the rivers in Texas.

Their bodies are elongated, little compressed, and the backs are not highly arched. These fish are dark in color, their heads being bluish black, and their bodies and fins being almost black. Blue suckers have very small, short, and slender heads.

The dorsal or top fin found on blue suckers is long in comparison to the other suckers, with the exception of buffaloes and river carp. The rays found on the front end of the dorsal fin form a high point. This is also true in the case of buffaloes and river carp, but the differences between the buffaloes, river carp, and blue suckers are sufficient to make easy identification possible. The river carp are light in color in comparison to the blue black color found on the blue suckers and the only species of buffalo that has a head small enough to be confused with the blue sucker has a high arched back not found on the blue sucker.

Little is known about the habits of these fish. They are apparently inhabi-

tants of large rivers and like to live in deep channels that are supplied with swift water.

The specimens I have collected measure about 1½ feet in length, but other writers have found specimens in the Mississippi River that reach a length of 2 or 2½ feet and a weight of sixteen pounds.

These fish spawn in May and June. In the spring, males can easily be distinguished from the females since small tubercles appear on the males' heads prior to and during their spawning period.

Blue suckers are seldom taken by the average fisherman since dough bait, the only bait they take, is seldom used by fishermen. Of course, most of these fish are taken in fyke and gill nets for market use.

Blue suckers are highly esteemed as a food fish, rating far ahead of any of the other suckers, such as buffaloes, carp, and redhorses. It is probable that the sweetness and high quality of the flesh of these fish cause them to be called sweet suckers in some localities.

Plant Woody Shrubs Now

Although most hunters at this time of year are eagerly awaiting the red-letter opening day, they could make the time pass more quickly and contribute to the future of their favorite sport by doing a little cover planting during the next few weeks, the Wildlife Management Institute believes.

Fall is one of the best seasons of the year in which to set out multiflora rose hedges, trees, and shrubs, since successfully established plants at this time will obtain the full advantage of spring growth next year. Many state conservation departments make fall transplanting stock available to sports-

men at cost or without charge. Sportsmen, who work with landowners in making improvements for wildlife on lands they expect to hunt this fall, will not spend half of each hunting day looking for gaps in the "No Hunting" signs.

Letters

THANK YOU!

Dear Sir:

I have received your kind letter of July 11 and the publications with great pleasure. I have no words to thank you enough for your kindness in giving me the valuable printed materials.

I am very glad to have an opportunity of being informed of the activities of your commission through these fine prints, and I cannot help wondering at the vivid activities and remarkable progress made by your commission. Of these publications, TEXAS GAME AND FISH, two papers on conservation education and papers on Lepus, Antilocarpa, Callipela, Colinus and Dasypus are especially very interesting and instructive to me.

My hearty desire is to digest these valuable prints presented as best I can and to diffuse widely in our country the information on the conservation in your country.

Again thanking you for your kindness.

KAZUO KOBA

Ministry of Education, Tokyo

DOVE BANDING

Dear Sir:

I want to express my appreciation . . . for the weekly news releases we have been receiving from the Game Commission.

I have long felt that we should carry such items and am certainly glad that you have instituted such a policy. We generally run all of the articles that pertain to our section of the country and quite often use some of the others.

I felt it might be of some interest to you to see that we had followed up an early dove banding story you had, by using a picture of Warden Adolph Heep.

My wife is a great bird lover and student of birds, and when she found we had a nest of young birds on our place she just couldn't resist having me snap a picture of the banding operation.

ART KOWERT, Editor
Fredericksburg Standard
Warden Heep



SEPTEMBER ISSUE

Dear Sir:

In your September issue, your picture of the month, is a picture of our son fixing his fishing pole. His father has been called back to service and is on a destroyer. I know he would enjoy seeing this picture. Could it be possible for you to mail me a copy of the magazine?

MRS. W. C. GREEN
1810 Alhambra
San Antonio, Texas

KEEP UP GOOD WORK

Dear Sir:

I would like to subscribe to your magazine. You are doing a wonderful job, and if I can't be a part of it, at least I want to keep posted on the latest news regarding game conservation and the swell tips on fishing, hunting, and care of equipment, without the magazine being crammed with advertisements and disgusting back stabbing editorials. Keep it up.

JOHNNY F. McARDLE
1119 W. Gardner
Houston 9, Texas

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J. E. Brantly P. O. Box 2, Station H
President Los Angeles 44, Calif.
State Game and Fish Commission
Austin, Texas
Gentlemen:

Some six months ago I completed a small pond or lake, fed by springs, on my place eight miles southeast of Athens, Texas, in Henderson County. I would like to stock the lake and would very much appreciate such information you can give me as to how this should be done.

The dam end of the lake covers approximately two acres with a maximum depth of 18 feet of water. It then extends up a narrow, deep stream channel for about 1,000 feet, giving a total water area of between 3½ and 4 acres. I am enclosing a very rough sketch in area and profile.

Near Abilene, Texas, on the Taylor-Callahan County line I have a place on a small lake that was stocked some years ago. The fish are all very small and rarely is a perch or a catfish exceeding three or four ounces in weight caught. Also many of

these small perch have roe, indicating that they are mature and breeding.

Will you please give me such suggestions that you can on this condition and possibly you have pamphlets and publications that will give some idea as to how to handle a stock pond or lake.

J. E. BRANTLY

Dear Sir:

Ordinarily we have a bulletin on hand that gives all the information that you are asking for but unfortunately it is out of print. However, it is now in the hands of the printer. We will be glad to send you a copy as soon as this bulletin is again available.

The main trouble we have found with stocking small lakes and ponds is that when too many fish are placed in them in the beginning it will jeopardize future good fishing. It has been found that bodies of water are exactly like land insofar as production is concerned. In other words, an acre foot of water will produce only so many pounds of fish just as an acre of pasture will produce only a given amount of meat or a field will produce only a given amount of corn, cotton or grain.

Some of the fish that are stocked in lakes, such as sunfish and white perch, or crappie, are very prolific and will soon over-populate a body of water after they are introduced. Of course we always try to stock with bass, which theoretically should be able to eat some of the offsprings from the reproduction of the more prolific species. We have found, however, that bass are extremely poor predators and that in a few year's time the bass population of a lake will decrease and the sunfish or crappie population will increase until they are present in huge numbers and as a consequence will become stunted.

Your statement regarding the small size of spawning fish is true. Sunfish and crappie will reproduce although they are extremely small in size.

To combat this, we have been stocking ponds with bass only and early indications on results from these experiments show that this might be one of the answers to our problems. In any event, we do not recommend that white perch or crappie should be stocked in any lakes less than 2,000 acres in size and we feel that the bass-sunfish ratio should be 150 bass to 100 sunfish per acre in order to prolong the time that the sunfish will ultimately take over a lake.

MARION TOOLE
Chief Aquatic Biologist

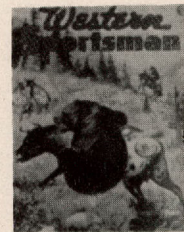
Supervisor	Warden	Address	Counties
Herbert Ward Catarina	Henry B. Burkett	Sonora	Crockett, Sutton
	W. G. Craig	Menard	Concho, Menard, Schleicher
	J. J. Dent	Box 293, Kerrville	Kerr
	Bill Garrett	Comfort	Kendall
	Jack Gregory	319 Lincoln, Kerrville	Kerr
	John Hearn	Cotulla	LaSalle
	Adolph Heep	Fredericksburg	Gillespie
	Joe Matlock	Junction	Kimble
	C. M. McBee	Box 427, Uvalde	Kinney, Uvalde
	L. D. Nuckles	Mico	Bandera, Medina
	J. B. Phillips	Box 255, Del Rio	Val Verde
	James Pond	Carrizo Springs	Dimmit, Zavala
	Carl Putnam	Eagle Pass	Maverick
	Malcolm Reinhardt	Rocksprings	Edwards
	Frank Smith	Pearsall	Atascosa, Frio
R. L. Stevens	Leakey	Real	
August Timmerman	Hondo	Bandera, Medina	
C. E. Whitenton	417 Matamoros, Laredo	Webb	
D. V. Williams	Mason	Mason, McCulloch	
Ernest Wehmeyer Palacios	Silberio Falcon	Co. Courthouse Corpus Christi	Nueces
	James E. Hudson	Port Lavaca	Calhoun, Goliad, Jackson, Victoria
	George Johnson	Port Lavaca	Calhoun, Goliad, Jackson, Victoria
	Max Kluge	County Courthouse, Corpus Christi	Kleberg, Nueces
	M. B. Mullinax	Rockport	Aransas, Bee, Refugio, San Patricio
	John Phelps	Raymondville	Willacy
	Wm. V. Riddle	County Courthouse, Corpus Christi	Kleberg, Nueces
	Cecil A. Sanders	Aransas Pass	Aransas
	Earl Sloan	Box 247, Aransas Pass	Aransas, Bee, Refugio, San Patricio
	W. W. Zimmerman	Port Isabel	Cameron, Hidalgo
A. R. Williams Alpine	R. S. Evins	610 S. Marienfield, Midland	Crane, Ector, Glasscock, Midland, Reagan,
	Fred Moore	Sierra Blanca	Upton, Hudspeth
	Lester Foster	Box 533, Pecos	Loving, Reeves, Ward, Winkler
	N. L. Chamberlain	Box 1423, El Paso	Culberson, El Paso, Hudspeth
	W. A. Gentry	Box 921, Sanderson	Pecos, Terrell
	J. W. Gilbreth	Alpine	Brewster
	Clarence Vann	Box 1101, Marfa	Jeff Davis, Presidio
	J. J. White	1415 S. Van Buren, San Angelo	Coke, Irion, Runnels, Sterling, Tom Green

Recipes For
Wild Doves

- 6 wild doves
- 1/4 cup seeded, green-diced peppers
- 1/4 cup chopped, peeled onion
- 4 tablespoons butter
- 2 cups cooked wild or brown rice
- 1/2 cup chopped, stoned olives
- 1/2 cup canned mushrooms
- 1/2 cup hot water
- Paprika

Dress and clean the doves. Cook the green peppers and onions in 2 tablespoons of butter until tender. Add rice, olives, mushrooms and paprika. Mix well. If mixture is not sufficiently moist, add additional melted butter. Stuff the doves with this mix-

ture, placing them in an uncovered roasting pan and roast in an oven at 450 degrees for 5 minutes, then reduce heat to 350 degrees and roast for 30 minutes or until tender. Baste the doves frequently with a mixture of 2 tablespoons of the butter and the hot water. At the end of the roasting time, sprinkle each dove with flour and brown lightly for about 3 minutes in a hot oven.



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Louis W. Botary
BOX 133 Phone 2-6234
PALESTINE, TEXAS

When this second shot hit, I jubilantly sang out "you got him, pal," but I really should have told James to shoot again. What was apparent to me looking through binoculars might not have been so plain to James through a rifle scope.

And so James started stepping off the distance to see how long his shot was, thinking his antelope was down for good. But when he had stepped off 207 yards, and still wasn't halfway to the antelope, it got up and started to calmly trot away. James raised his gun and hurriedly threw the remaining three shots at him but none of them took effect. And then he was out of cartridges, as the rest of them were back where I was in the car.

James feverishly signalled for me to come on up there, but by the time

I got there the antelope was gone. We scouted the entire area thoroughly, but no antelope was to be seen. Finally James caught sight of something that made him happy again. It was his antelope. He was sneaking along through some small brush, practically under our noses, trying to make a quiet get-away. James started shooting again, and the antelope stopped with his first shot but did not go down. We could hear the second shot slam home, though, and with that the antelope dropped for the count.

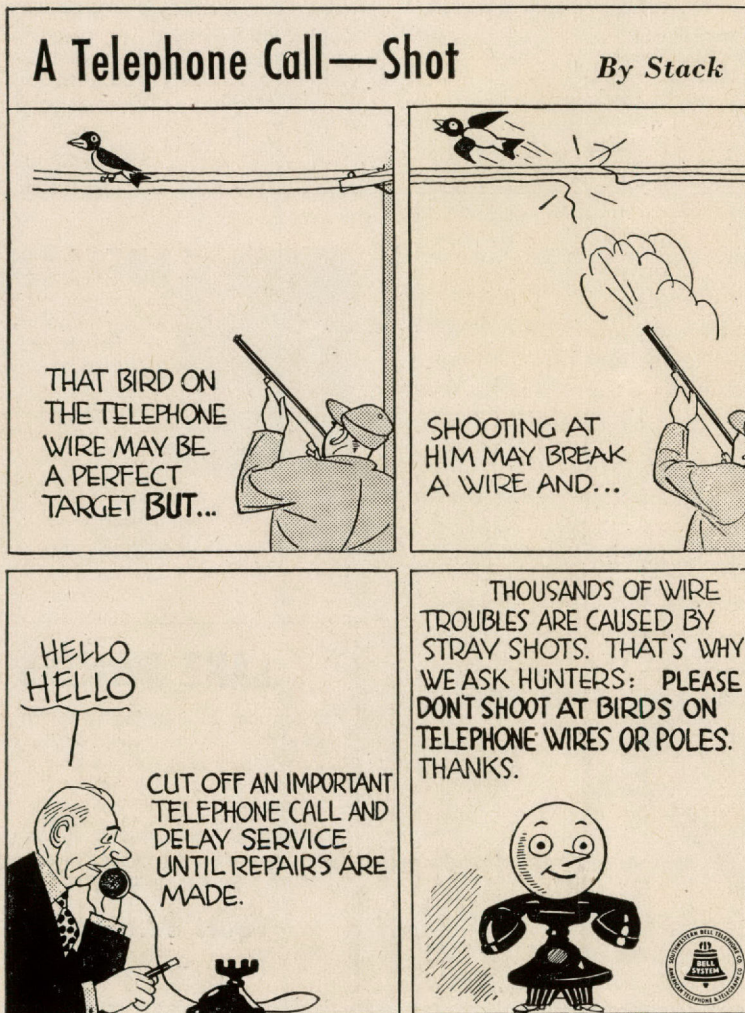
This last shot, made at about 150 yards, had hit him in the right hind-quarters and had really torn into him—not penetrating too far, but doing a great deal of damage. However, it was not meat that James was after—it was horns, and that antelope had

them. About the same size as mine, but the tips had been broken off in some "duel in the sun." And as for weight, he was every bit the equal of mine. About 85 lbs. field dressed.

When we cleaned James' antelope we found that his first bullet had hit in the left hindquarters and ranged up 6 or 8 inches to the loin, where it stopped without doing too much damage. The antelope had just gotten up and walked away, after the initial shock had worn off. On the other hand, the bullet from my .270 had anchored my antelope within twenty yards of where he was hit, and this despite the fact that it did not go into the vital area in the chest.

And so our experience would indicate that when it comes to antelope the .220 Swift is effective enough up to 150 yards, but beyond that it takes something more nearly equal the .270 to produce clean kills.

I realize, however, that what two men did with two guns on two antelope cannot afford anything like conclusive evidence as to what the rule should be on antelope hunting. And I realize further that I cannot win any arguments with James simply by writing a story. And so you may be sure that when it comes to antelope, our feud over the .220 vs. the .270 will continue. But let me get in this one parting shot for those of you who someday plan to go antelope hunting with a .220 Swift. James had that old trusty 30-06 in the back seat all the time—just in case.



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of the dead does found on the section had been trapped and belled. One fawn which was marked on December 9, 1945, was found dead on the section on May 10, 1946. Consensus of opinion of the veterinarians who examined deer specimens from the area (Dr. I. B. Boughton, Sonora; and Dr. R. D. Turk, College Station) was that the weakened condition and deaths were due to starvation.

SUMMARY

To accurately trace the movements of native deer in two distinct vegetative types in the Edwards Plateau region, 62 white-tailed deer were trapped, belled, ear-tagged and released on two 640-acre experimental tracts. On each visit to the experimental sections, the number of belled and non-belled deer seen coincidentally was recorded. Nineteen individual deer were trapped and marked on the granitic soil section of Mason County, Texas. Deer counts from January, 1946, to June, 1947, consistently revealed from 9 to 18 percent of the total each month to be belled deer. The number of belled deer recorded on the area was 98 in addition to 691 non-belled deer seen at the same time. The calculated population on the 640-acre tract was approximately 160 deer.

Only five records were obtained of belled deer away from the Mason County experimental section. The most distant record was of an adult doe approximately 2 1/2 miles from the

section. A belled buck was killed approximately one mile from the survey tract, and 3 deer were observed about one-half mile away. Weather conditions during the summer of 1946 were drouthy and unfavorable for game as well as livestock. Range conditions were unusually poor on the experimental section during the fall and winter of 1946-47, but even under these adverse conditions, a high degree of localization among the deer in this section was noted. Whether or not it is significant to deer movements or food habits, it is a fact that this part of the plateau is prevailingly granitic.

The period covered by this report is notable for the occurrence of the greatest total number of dead deer (116) on a small area (640 acres) ever recorded in Texas.

Deer on the limestone soils of Kerr County spread out considerably more, but there is no clear evidence regarding any reason for the deer movements. The grazing pressure on the experimental section and in the adjacent pastures remained fairly constant throughout the investigation. Of the 43 deer which were trapped and belled on the Kerr County section, 45 imperfect records of 56 deer were recorded away from the experimental section. A buck killed 6 1/2-7 miles from the section was the greatest distance a belled deer was recorded. The total number of belled deer recorded on and off the section from September

1945, to April 1947, was 335. Two hundred and eighty-three belled deer (84.5%) were recorded within a one-mile radius.

The records show that for the most part deer remain in an extremely restricted area. Where conditions are less favorable a few may range as much as five to seven miles, although adverse conditions in Mason County did not result in any appreciable spreading out.

The proper carrying capacity for all livestock under a little lower than average forage conditions should be determined, and the stocking rates for the various species—cows, goats, sheep, horses, and wild deer—based on this. One of the difficulties is to know how many deer are on the ranch. The present article is a contribution to knowledge of the sedentary habits of the deer as well as to a method of counting these animals. But practical and inexpensive method of enumeration remain to be discovered.

Daily and seasonal movements of white-tailed deer in the Edwards Plateau region in general are so limited that it would be well for landowners to consider the existing deer populations as resident. The deer population should be taken into account to assure proper range stocking.

REFERENCES CITED

Taylor, Walter P., and Henry C. Hahn, 1947. Die-offs among the white-tailed deer in the Edwards Plateau of Texas. Journ. Wildlife Management, 2 (4): 317-323, October.



Field Trial To Be Held

On November 11th and 12th, the Fort Worth Pointer and Setter Club will hold its annual shooting dog stake on the T. B. Saunders ranch near Weatherford. Plenty of quail have been reported and officials of the organization predict an interesting and successful trial.

The annual field trial will be held at Bethel, Texas, beginning November 25th. There will be three amateur stakes, all age, open derby, and open all age. This trial is expected to be completed in four days.

The Fort Worth Pointer and Setter Club has been holding field trials in north Texas for more than 25 years.





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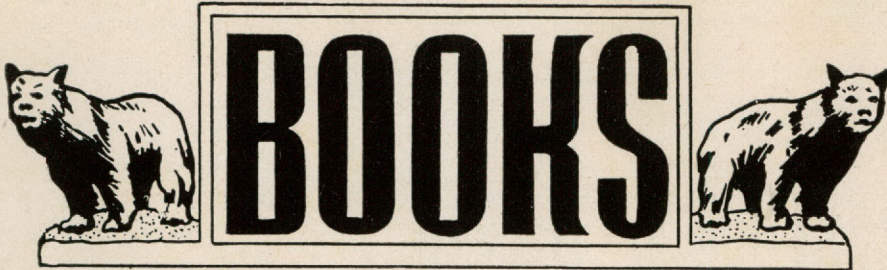
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BOOKS

AN ANNOTATED CHECK LIST OF THE REPTILES AND AMPHIBIANS OF TEXAS, by Bryce C. Brown. Baylor University Studies. Baylor University Press. 1950. 259 pp.

One of the first things apparent to anyone studying the natural history of Texas is the lack of knowledge of the various phyla and the vast and disorganized mass of notes and short papers that must be consulted in any attempt to gain an integrated view of the subject.

Where various other states have made it a point to encourage, either through research at their universities or through their academies of science, publication of complete natural history surveys, Texas has long been woefully wanting in this department. There is no book on the birds of Texas, there is no book on the fishes, and the only material so far published on the animals that is even partially comprehensive, is Davis and Taylor's bulletin on the mammals. Mr. Brown's 'Annotated Check List' is all the more welcome then in that it presents the first comprehensive and detailed list on any of the fauna of the state.

To quote from the foreword by Hobart Smith, "no larger and more significant step of statewide proportions may be hewed in this country than that unveiled here. Texas has almost double the known herpetofauna of any other state, yet lags far behind its nearest competitor, California, in the completeness with which its population are known. The herpetological frontier, as indeed many others, has shifted from the far West to the hastily by-passed Southern Midwest.

"Two important and far-reaching results of this work are apparent. For one, the vast, poorly-organized, and incompletely recorded information concerning the multifarious species of reptiles and amphibians of Texas are

for the first time in history collected with a considerable degree of completeness in one place. For the other, the extraordinary inadequacy of knowledge concerning geographic variation of these animals in Texas and adjacent areas is made painfully apparent."

An interesting comparison is made of the difference in status of Texan reptile and amphibian families, genera and forms in 1915 and 1948. Mr. Brown's check list has added 3 families, 10 genera, 44 actual forms and 22 hypothetical ones to our knowledge. All species known to occur in the geographic boundaries of Texas have been included in this check list. There are certain other species which are believed to occur, or on reasonable grounds may occur, within the state, which have also been included. There is a list of 29 species of the reptiles and amphibians which have been reported previously but which Mr. Brown has omitted from his check

list for lack of sufficient evidence of their normal and natural occurrence in the state. He discusses the diverse natural conditions occurring in Texas and gives an extensive table on the ecological distribution of the reptiles and amphibians in the natural regions of the state. For the 225 species which Mr. Brown lists, representing 26 families and 86 genera, he gives a synonymy that "includes first a reference to the original description of the form; a citation of the first appearance of the names used, including the intermediate references leading to the use of that particular combination; references to the original descriptions of all synonymies with type localities in Texas; a reference to all available plates or photographs where possible; and reference to any pertinent work the nature of which is usually indicated."

In the annotations Mr. Brown has given a complete list of locality records that should be exceedingly valuable to any student.

One new subspecies *Thamnophis sirtalis annectens* is described from Travis County.

Students of herpetology in Texas will welcome this work, as will workers elsewhere. It is extremely valuable in that it gives the first collected picture of the reptiles and amphibians of the state.

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The Key to Game Increase

ANY state wildlife conservation department can only encourage the production of upland game and regulate its harvest. The key to this resource is the private landowner whose methods of land management can destroy or increase wildlife more effectively than shooting or protection. The license and tax money from hunters and fishermen is spent on regulating the hunters themselves, studying the species involved, and increasing them by restocking, habitat improvement or other practical forms of management. However, the direct effect of this management is negligible compared to the good or ill effects of the landowner's program.

Species, like quail, that are more sensitive to food and cover conditions than to hunting pressure can receive only slight benefit from habitat conditions improved by planting bicolor lespedeza distributed by the state. It would take many millions of the plants and a much greater interest in quail management to significantly benefit the several million quail in the state.

The point is that a game department alone cannot put into effect programs that will directly and significantly improve wildlife conditions throughout the state. It can only take the lead. Success or failure depends more upon what happens to the land—private land.

Real power to do good for wildlife lies in the sportsmen themselves. Many of them are also landowners or could be if they wished. If they were to exercise the full power of their influence with landowners and with programs that affect the land, more wildlife would result than a state department could produce with a tenfold increase in its budget.

Most sportsmen do not belong to an organized group; and most of the organized groups lack a full program of action. Yet everywhere there is leadership, workers who are willing to devote their efforts toward the conservation of wildlife for the public welfare.

They can profitably expend great energies on pollution control. They can watch for marsh drainage or brush clearing and other habitat destruction and question their necessity. They can extoll the virtues of the landowners who recognize their land as a biological balance of resources to be used wisely, not mined for every immediate dollar. They can suggest habitat improvements where interested landowners do not realize the possibility of increasing their fish and game. They can offer to assist with habitat improvements such as fencing cattle out of small marshes and ponds and by planting bicolor lespedeza and other food and cover plants for game.

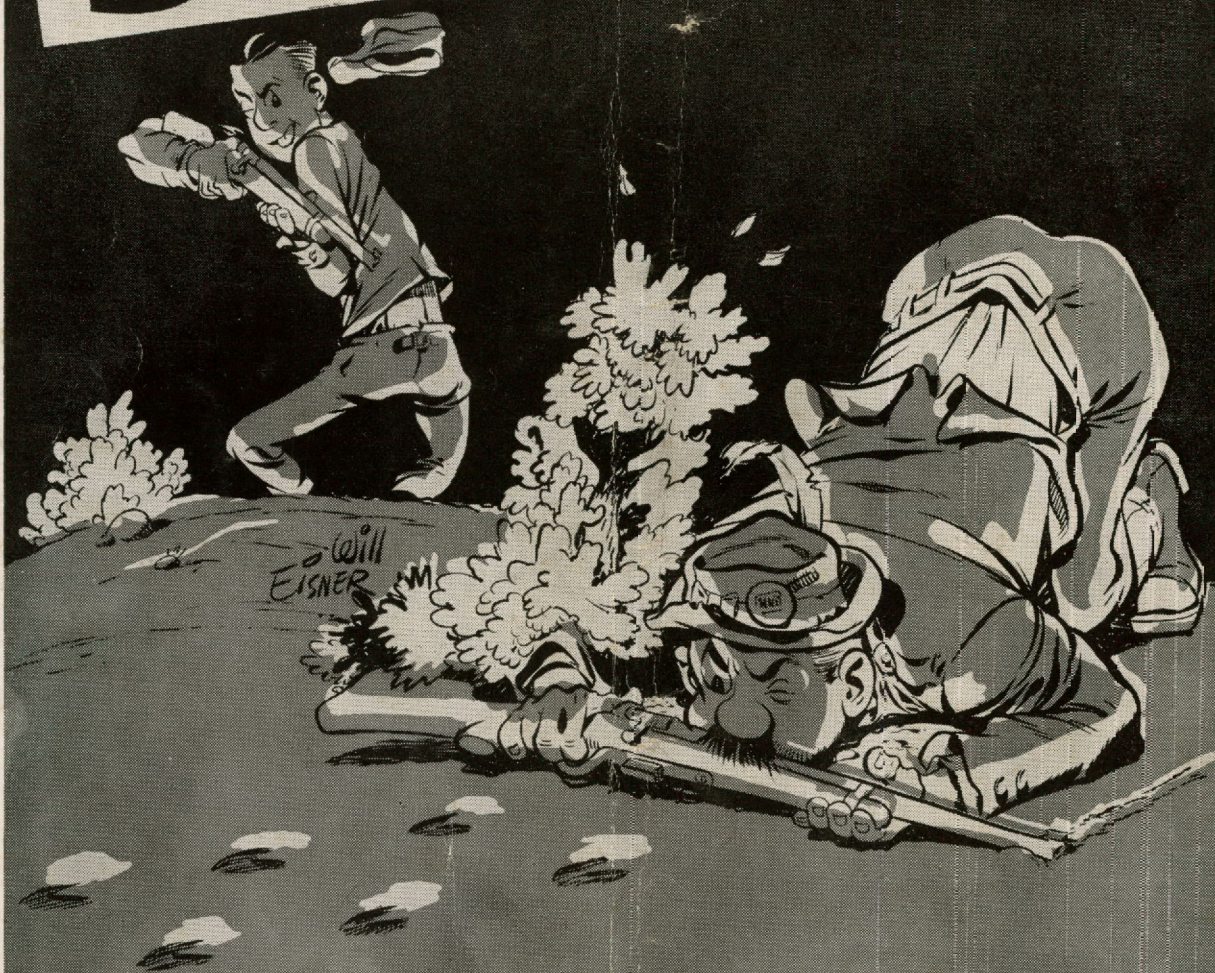
They can make friends for wildlife by conducting themselves in such a manner that landowners will not consider wildlife a liability. They can work with youngsters to teach them the techniques of safe hunting and fishing, at the same time instilling the basic respect for sound land management that is so essential to wildlife production.

If, in time, each licensed hunter could use his means or his influence to improve the wildlife habitat on 100 acres of private land, the results would be dramatic. And this does not mean taking 100 acres out of crops or livestock range. It means supplementing the existing land use to benefit wildlife.

Such action on the ground, in the forks of every creek, is the greatest need of wildlife and it cannot be accomplished without the influence and action of all sportsmen.

✧ ✧ ✧ DAN LAY
Wildlife Biologist

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