

INDUSTRIAL WILDLIFE MANAGEMENT IN ARKANSAS AND TEXAS

by

NOEL S. YOHO

International Paper Company

Camden, Arkansas 71701

ABSTRACT

Response in hunter opportunity, use, and success to user-fee wildlife management systems are examined on International Paper Company lands in Arkansas and Texas during 1970-74. During 1972-74, 28,500 published hunting guides to open lands were distributed. One permit per 26.5 acres of management area was sold during 1974. Membership in Texas club leases increased from one member/124 acres to one member/57 acres during 1970-74. Lease members averaged 7.7 days squirrel hunting and 3.0 days deer hunting. Use of permits varied between management areas. Success ratios were 0.8 squirrels/day and 0.08 deer/day on leases and 3.0 squirrels/day and 0.04 deer/day on management areas. Hunter attitudes and management implications are discussed.

INTRODUCTION

International Paper Company owns about 1.3 million acres of forest land in Arkansas and 0.5 million acres in Texas. This paper evaluates hunter opportunity, use, and success on selected units of these lands.

About 80 percent of company lands occupy upland sites managed for pine pulpwood and small logs on a 35 year rotation. Since 1969, pines normally have been regenerated by site preparation and planting. Natural regeneration and a longer rotation have been employed for bottomland hardwood management.

By opening forest lands to public hunting, International Paper Company established good relations with hunters following land acquisition activities in the 1920's (Moody 1969). As sportsmen became more knowledgeable about game management, they demonstrated a willingness to pay for quality hunting. Company activities therefore evolved toward financing habitat and hunter management practices with user-fees.

The merits of increasing wildlife management activities on private lands through the profit motive have been appreciated for decades (Hahn 1945, Howard and Longhurst 1956, Berryman 1957, and Kimball 1963). However, only in recent years has user-fee wildlife management developed on private lands in the South.

I wish to thank Lowell K. Halls and Dr. Carroll Perkins for reviewing the manuscript.

PROCEDURES

Silviculturally compatible wildlife management techniques were employed on International Paper Company lands. Techniques described by Halls (1973) consisted of prescribed fire, thinnings, and planned size, shape, and distribution of cutting units. Drainageways within stands to be clearcut were managed as separate stands, primarily by individual tree selection or shelterwood cutting.

For hunting purposes, International Paper Company lands were classified into three categories: open land, wildlife management areas, and land leased to hunting clubs. A majority of company lands are open to unregulated hunting. Specific wildlife management practices are seldom employed and access to these lands is not restricted. Selected maps of open land were published in free hunting guides. Various media advertised these booklets.

About ten percent of company lands are suitable for wildlife management areas. Four management areas have been developed to provide better hunting than might be expected on open land (Figure 1). Management was financed primarily from permit fees. Other management areas are proposed on certain tracts larger than 10,000 acres.

Hunters on management areas received various services as Gilbert (1971) suggested. Roads to desirable hunting areas were improved. Camping and picnic facilities were developed. Hunters received coffee and doughnuts at manned check stations.

Deer habitat management was emphasized on management areas. Differing state and county laws dictated separate enforcement plans for each area. Of 27 complaints filed by company patrolmen or enforcement officers on management areas since 1972, 26 convictions resulted.

On the North Woods and Tyler Areas non-specific permits entitled the holder to hunt all game during open season. Cherokee and Lafayette Area deer permits were specific for short period hunts. Squirrel hunting permits, valid during October, were issued for the Cherokee Area.

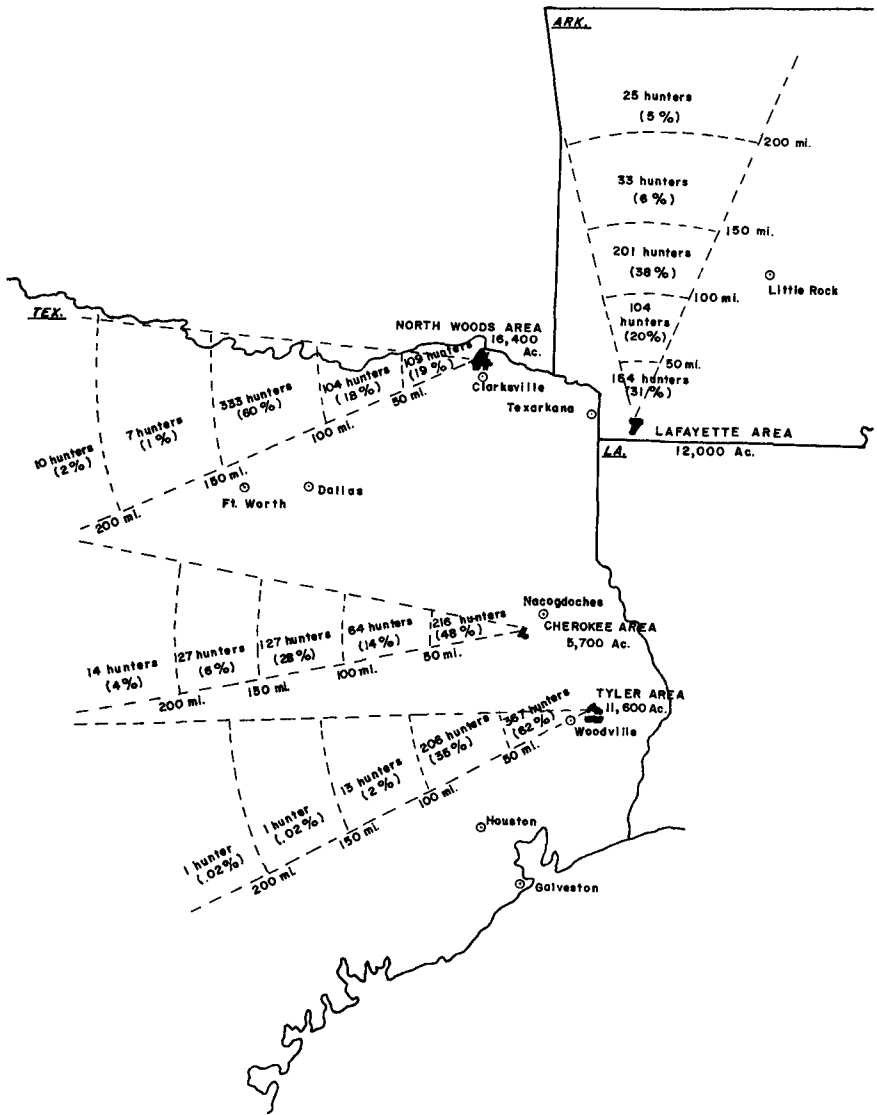


Figure 1. Location of wildlife management areas and distances permit holders traveled to hunt during 1974.

Permits were advertised and sold on a first-come, first-served basis. Sales were restricted to provide a density of about one hunter/40 acres during the first day of deer season.

During 1972, solicited newspaper articles contributed 23 percent of permit sales, game management area features in hunting guides 16 percent, newspaper ads 15 percent, and letters sent to previous permit holders 14 percent. Approximately 32 percent of permit purchases were made by hunters who had discussed the availability of permits with other hunters.

In 1974, 19 to 62 percent of the permits were sold within a 50 mile radius of management areas (Figure 1). Remaining permits were sold without difficulty, mostly to urban residents within a 150 mile radius.

Remaining lands are available for lease to organized hunting clubs. To insure optimum utilization of resources, clubs were required to develop a minimum membership, usually one member/40 acres. Lease charges were occasionally increased to encourage larger memberships.

Excepting silvicultural habitat management, each club was responsible for wildlife management on leased land. Club officers were provided a manual explaining habitat improvement, law enforcement, and club management techniques. Company personnel met with each club periodically to foster improved club management.

During the 1972 deer season, questionnaires were distributed to 587 hunters on company land in Arkansas to find which factors contributed most to the acceptance or resistance of hunters to management areas and club leases. A census was not made in Texas because regulated hunting was common.

During 1972-1974, questionnaires were distributed to 842 hunters on the four wildlife management areas to determine which factors were important to hunters' enjoyment. Permit receipts provided hunter addresses, and hunting success was recorded at check stations.

In 1973, questionnaires were sent to 128 Texas clubs with hunting leases on company land; 73 were completed and returned. Data collected included days of use for non-hunting recreation and for hunting each legal species during 1972 and 1973. Total legal kills were reported for both years. Addresses of members were submitted by each club.

Questionnaires were discarded if International Paper Company owned less than 75 percent of the leased land. Analysis was completed on 43 clubs representing 766 members.

RESULTS

Of 587 interviewed hunters who hunted on International Paper Company lands in Arkansas during 1972, 68 percent favored creation of management areas, and 30 percent favored creation of club leases. Most complaints concerned "outlaw" and "outside" hunters. "Too few deer" was also of concern. Unfavorable behavior by other hunters contributed to 61 percent of the complaints (Table 1).

Wildlife Management Areas

Hunters considered efficient management and courteous attitude of personnel, the aesthetic quality of campsites and forests, and a belief that game was abundant as important to the enjoyment of management areas (Table 2). These finds support those of Peterle (1961) and Klessig and Hale (1972). More than 90 percent of the hunters on each management area in 1973 indicated a desire to return the following year.

The number of permittees hunting varied between management areas and between days on the same area. Permits for a specific game species or for specific dates were used by hunters more than permits providing seasonal access to all legal game in a management area.

On the North Woods Area, 261 permits were issued in 1973 prior to squirrel season, and 65 (25 percent) were used to squirrel hunt (Table 3). Permittees hunted 167 days (0.6 days/permit) and checked 758 squirrels (4.5 squirrels/day).

Of 350 eligible hunters, 200 (57 percent) deer hunted 416 times, 1.2 hunts per permit. Six men hunted a total of 41 days, thus 1.7 percent of the permittees accounted for 10 percent of the deer hunting.

Permits were sold for squirrel hunting on the Cherokee Area. During the 1973 season, 117 hunters recorded 574 days of hunting (4.9 days/permit), and checked 684 squirrels (1.2 squirrels/day).

Daily permits reserved one of nine specified dates for deer hunters on the Cherokee Areas. An average of 80 percent of these permits were used (Table 4). Seasonal permits permitted hunting during each of the nine specified days. Permittees used each of these permits at least once. Average use was 4.5 days of hunting.

Table 1. Complaints of 587 hunters interviewed during the 1972 Arkansas deer season.

<i>Complaints</i>	<i>Number</i>	<i>Percent</i>
Outlaw Hunting	124	21.1
"Outsiders" hunting in club territories	116	19.7
Too few deer	73	12.4
"Outsiders" killing deer being chased by dogs and refusing to share meat with dog owner	31	5.2
People hunting by driving roads	27	4.6
Too many hunters	24	4.1
Clearcutting of timber	23	4.0
Nothing limits the pleasure of hunting	21	3.6
Not enough time to hunt	19	3.2
Extensive timber cutting	18	3.1
Hardwood control	17	2.9
Dog thefts	13	2.2
Drunk hunters	11	1.9
Harassment by deer camps	9	1.5
Use of dogs to deer hunt	8	1.4
Unpleasant weather	6	1.0
Factors listed by less than 5 hunters	47	8.0

Table 2. Reasons deer hunters enjoyed hunting on game management areas, 1973.

<i>Enjoyment Factors</i>	<i>Cherokee</i>		<i>Lafayette</i>		<i>North Woods</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Efficient management and courteous attitude of personnel	50	35.5	21	28.4	8	19.0
Aesthetic qualities of area	33	23.4	14	18.9	12	28.6
Abundance of game	29	20.6	7	9.5	10	23.8
Camping areas	9	6.4	2	2.7	—	—
Uncrowded hunting	2	1.4	1	1.4	6	14.3
Killing a deer	4	2.8	5	6.8	1	2.4
Refreshments provided	3	2.1	3	4.1	—	—
Reasonable charge	1	.7	—	—	1	2.4
Food Plots	3	2.1	—	—	—	—
Size of deer	2	1.4	—	—	—	—
Weather	1	.7	—	—	—	—
Freedom to hunt anywhere	1	.7	—	—	—	—
Firewood provided	3	2.1	—	—	—	—
Good roads	—	—	—	—	3	7.1
Getting away from home	—	—	—	—	1	2.4
Killing a bonus deer	—	—	10	13.5	—	—
Pre-season hunt	—	—	6	8.1	—	—
Weekend hunt	—	—	2	2.7	—	—
No dogs used	—	—	3	4.1	—	—

Table 3. Number of days spent hunting by permit holders on the Cherokee and North Woods Wildlife Management Areas, 1973.

<i>Number of Days Hunted</i>	<i>Number of Permit Holders</i>		
	<i>Cherokee</i>	<i>North Woods</i>	
	<i>44 Day Squirrel Season</i>	<i>39 Day Squirrel Season</i>	<i>15 Day Deer Season</i>
0	18	196	150
1	17	40	110
2	18	7	62
3	12	8	15
4	8	4	7
5	7	2	3
6	5	1	2
7	9	2	0
8	4	0	0
9	1	0	1
10	1	0	0
11	2	1	0
12	3	0	0
13	3	0	0
14	2	0	0
15	1	0	0
16	0	0	—
19	1	0	—
20	1	0	—
21	1	0	—
22	1	0	—
24	1	0	—
28	1	0	—

Table 4. Attendance by deer hunters on the Cherokee Wildlife Management Area, 1973.

<i>Date of Hunt</i>	<i>No. of Season Permits Sold</i>	<i>Attendance of Seasonal Permittees</i>		<i>No. of Daily Permits Sold</i>	<i>Attendance of Daily Permittees</i>	
		<i>No.</i>	<i>%</i>		<i>No.</i>	<i>%</i>
Nov. 16	44	36	82	89	71	80
Nov. 17	44	39	89	88	71	81
Nov. 18	44	27	61	74	65	88
Nov. 23	44	20	45	58	54	93
Nov. 24	44	17	39	68	51	75
Nov. 25	44	11	25	32	18	56
Dec. 28	44	16	37	52	45	76
Dec. 29	44	21	48	45	38	84
Dec. 30	44	14	32	31	19	61

Permits were sold for a specific two-day deer hunt on the Lafayette Area in 1973. Of 305 permits sold, 262 (86 percent) were used. The Tyler Area was not operational in 1973.

Hunters with permits to squirrel hunt on the Cherokee Area hunted more than hunters who purchased a permit to hunt all legal game on the North Woods Area where squirrel hunting success was higher (Table 3). While 80 percent or more of hunters who purchased one or two day deer hunting permits on the Cherokee and Lafayette Areas attended, 57 percent of hunters with non-specific North Woods Area permits hunted during deer season. Use of daily deer hunting permits tended to be higher on the Cherokee Area than use of less specific nine day permits (Table 4).

Daily hunter attendance during deer season was highest on opening day and higher on weekends than on weekdays on the North Woods Area during 1972 and 1974 and on the Tyler Area in 1974 (Figure 2). Murphy (1965) also related hunter attendance to day of season.

Adverse weather reduced hunter attendance. No obvious relationship existed between hunting success and attendance.

On the North Woods and Tyler Areas hunter aggregation and failure of most hunters to depart from roads created a feeling of congestion among hunters during the first of season. Hunter aggregation was reduced by having each hunter peg a map of the management area in the place he planned to hunt. Many hunters elected to move to less crowded portions of management areas through this process.

On the Cherokee and Lafayette Areas, permits were issued for specific short-period deer hunts. Desirable hunter densities were maintained by limiting the number of permits for each hunt.

Preliminary results of management practices have been encouraging. Legal deer kills on the Lafayette and North Woods Areas have increased (Figure 3). Legal kills on the Cherokee Area exhibited no definite trends during 1971-74.

Club Leases

Club members confined most of their hunting (64 percent) to leased lands. Club leases offering high quality deer and squirrel hunting, established for several years, or composed of elderly members were used more frequently than club leases not conforming to these characteristics.

Squirrel hunting was the most popular sport of club members (Table 5). During the 1972 season, members hunted squirrels 6,617 days and killed 6,491 squirrels. Members averaged 8.6 trips each and killed an average of 1.0 squirrels per hunt. During the 1973 season, squirrel populations were lower following a poor mast crop. Squirrel hunting trips declined to 5,228, an average of 6.8/member, and kills dropped to 2,777, 0.5 squirrels/hunt.

Club members hunted deer an average of 3 days per year, less than half as much time as was spent squirrel hunting (Table 5). Squirrel and deer hunting represented 98 percent of all hunting on club leases during 1972 and 1973.

Hunter success on club leases was 0.08 deer/day in 1972 and 1973 (Table 5). Deer hunter success increased with age of lease, although rate of increase was not rapid (Table 6).

More non-hunting recreation than deer hunting was reported. Club leases provided 2,963 days of non-hunting recreational activities such as family outings, fishing, and club events.

The relationship between illegal hunting and hunter success on leased land was explored for counties where four or more club questionnaires were received. Except in Liberty County, hunter success averaged 3.5 times higher where illegal hunting pressure was light, than in counties where illegal hunting was heavy (Table 7). There was no geographic relationship between counties and hunter success. While similar forest management techniques were employed throughout these lands, the relationship between habitat quality and hunter success was not explored.

Hunting Opportunities

Hunting guides have increased hunting opportunities. In Texas, 17,000 copies of a hunting guide mapping 124,000 acres of open land have been distributed since 1972. In Arkansas, 11,500 copies of a similar guide mapping 575,000 acres of open land were distributed during 1974.

During 1974, permits were sold out on three of the four management areas. Permits were sold to 1,723 individuals, one hunter/26.5 acres.

From 1970 to 1974, average club membership density increased from one member/124 acres to one member/57 acres. During this period, leased acreage doubled from 69,270 acres to 140,047 acres while total membership increased 440 percent from 558 members to 2,457 members. Most clubs provided additional hunter opportunities by offering family and guest hunting privileges.

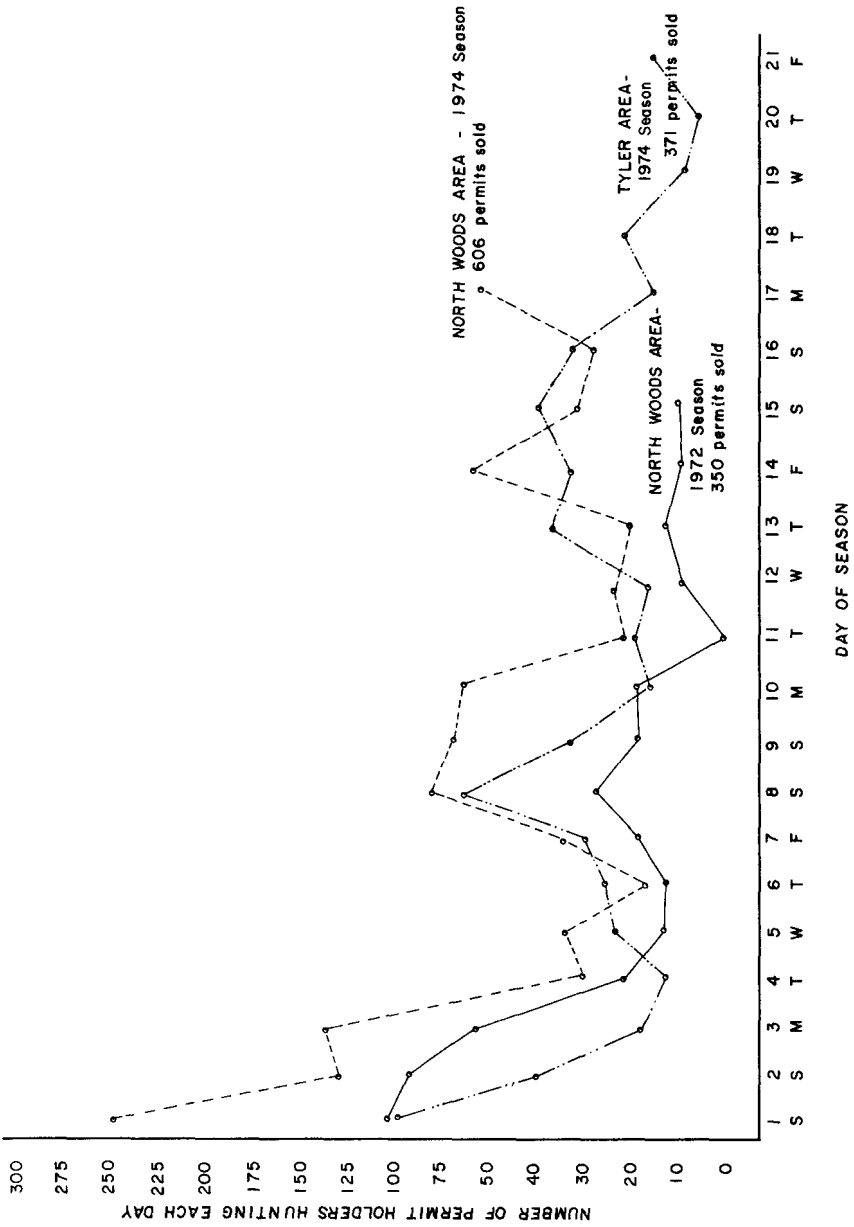


Figure 2. Daily use of season permits during deer season on North Woods and Tyler Wildlife Management Areas.

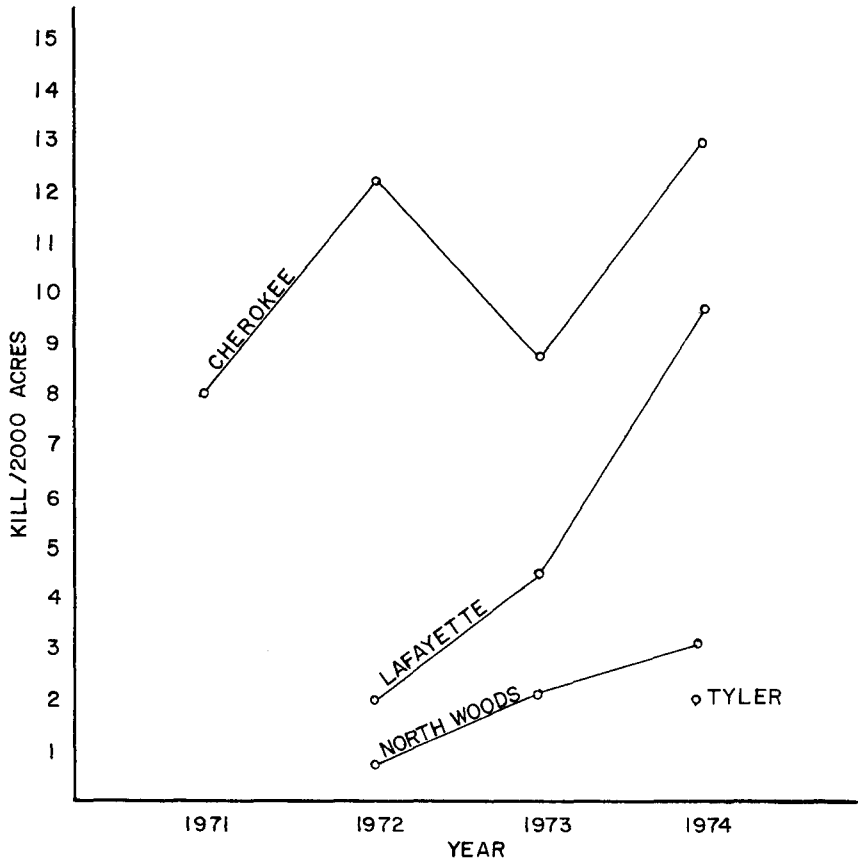


Figure 3. Relative legal deer kills on wildlife management areas.

Table 5. Man days hunted and the species and number of game killed by members of 43 club leases in Texas.

Species	1972				1973				No. of Clubs Reporting Use
	Man Days Hunted	Hunts Per Member	Total Kill	Average Kill/Man Day	Man Days Hunted	Hunts Per Member	Total Kill	Average Kill/Man Day	
Squirrel	6617	8.6	6491	.98	5228	6.8	2777	.53	33
Deer	2391	2.9	192	.08	2500	3.2	200	.08	40
Waterfowl	60	—	114	—	85	—	145	—	4
Coyote	60	—	15	—	20	—	17	—	2
Coon	53	—	30	—	56	—	34	—	3
Deer (bow hunt)	14	—	0	—	5	—	0	—	2
Rabbit	10	—	75	—	—	—	0	—	11
Quail	8	—	66	—	3	—	25	—	2
Fox	0	—	0	—	0	—	0	—	0

Table 6. Relation of lease age to hunter success and man-days of hunting for deer in Texas.

Age of Lease (Years)	1972 Season		1973 Season ¹	
	Deer Kill Man Day	Man-Days of Hunting	Deer Kill Man Day	Man-Days of Hunting
1	.05	441	.04	275
2-3	.08	552	.04	432
4-5	.08	336	.07	295
>5	.09	1092	.11	532

¹ 1st three days of season.

Table 7. Illegal hunting pressure and hunter success on club leases in different counties of East Texas.

County Location of Hunting Leases	Extent of Illegal Deer Hunting ¹	Hunter Success during 1972 and 1973	
		Man-Days Hunted	Kill/Man Day
Tyler	Heavy	413	.02
Panola	Heavy	120	.04
Trinity	Moderate	421	.04
Liberty	Light	391	.05
Marion	Moderate	94	.07
Nacogdoches	Moderate	105	.07
Cass	Light	150	.14
Cherokee	Light	475	.15

¹ Consensus estimates of illegal hunting pressure from officials of the Texas Parks and Wildlife Department.

DISCUSSION

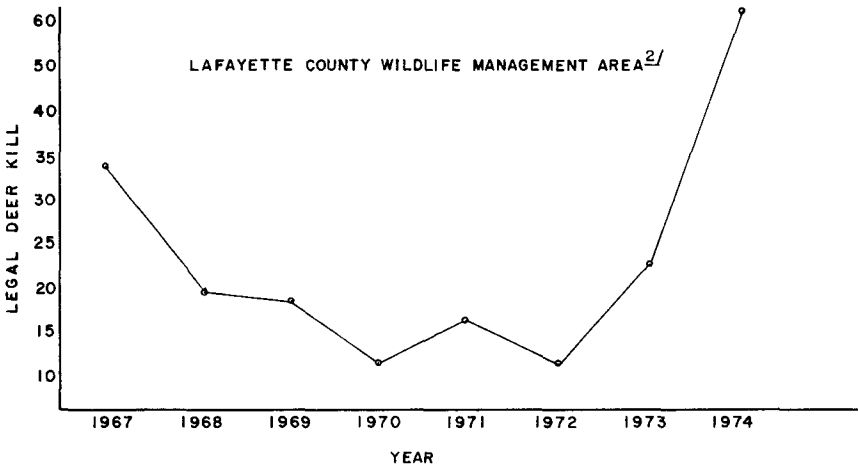
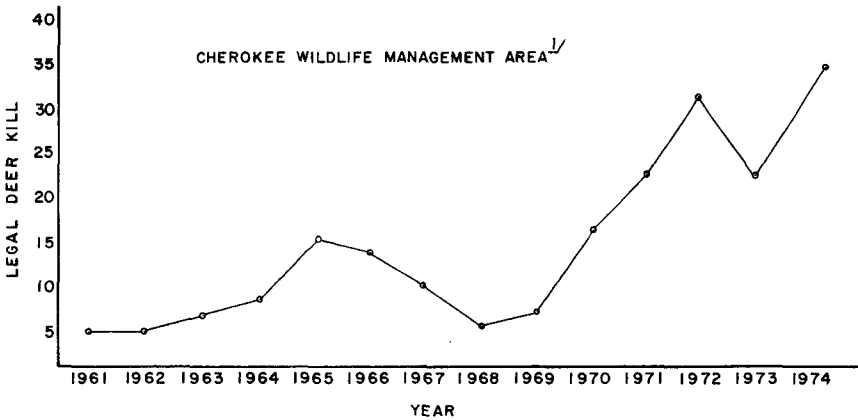
The Cherokee and Lafayette Management Areas were developed from lands leased to state wildlife agencies. International Paper Company assumed total wildlife management responsibilities of the Cherokee Area from the Texas Parks and Wildlife Department in 1970 and habitat management responsibilities on the Lafayette Area from the Arkansas Game and Fish Commission after 1971. Present check station procedures resemble those employed in the past by the state agencies. Deer kills increased substantially on both areas after the company assumed greater management responsibilities (Figure 4).

Legal deer on the Cherokee Area must have at least three antler points. Less restrictive regulations could result in a higher sustained kill. Special season and legal game regulations passed by the Arkansas Game and Fish Commission insured a desirable harvest each year on the Lafayette Area. Results on these areas underscore Bullock's (1964) conclusion that only through better cooperation of the landowner and the state agency can maximum yields be achieved.

Comparison of Club Leases and Wildlife Management Areas

Hunters purchasing permits for management areas differed in several ways from hunters in hunting clubs during 1973. Club leases attracted hunters in rural communities near company lands, whereas management areas usually appealed to urban hunters. In Texas, 252 (59 percent) of 426 lease members lived in communities of less than 25,000. Of 695 Texans who purchased permits for management areas, 539 (77 percent) lived in cities of 25,000 or more.

Squirrel hunting success was higher on management areas (1.2-4.5 squirrels/hunt) than on hunting leases (.5-1.0 squirrels/hunt) since management areas included substantial bottomland timber. Also, heavy squirrel hunting pressure on leased land (6.8-8.6 hunts/member) resulted in low bag averages after the first few weeks of season. Deer hunting success ratios averaged twice as high on leases (.08/day) as on management areas (.03-.04/day).



^{1/}The Cherokee Area was reduced in size during 1970. Kill figures during 1961-69 were extrapolated to reflect the kill on the comparable land base.

^{2/}Legal kill during 1974 included 10 doe deer.

Figure 4. Legal deer harvests on Cherokee and Lafayette County Wildlife Management Areas.

Hunting of species other than squirrels and deer was unimportant on leases and management areas. While non-hunting recreation contributed to use of club leases, non-hunting use of management areas by permit holders was incidental.

Management Implications

Yearly estimates indicated the number of sportsmen hunting on company lands in Arkansas and Texas doubled during 1960-1973. Observations during this study support Davis' (1974) conclusion that in Arkansas, hostility between "local" and "outside" hunting groups has been frequent during deer season. Continued increases in hunting pressure on company lands are expected.

Efforts to decrease antagonism included distributing published hunting guides to hunters living in urban areas and leasing hunting rights on lands not included in the guide to "local" hunting groups. Informal reports from field personnel suggest that hunter confrontations may have diminished.

Regulated hunting offers several advantages to International Paper Company. User-fees from management areas and hunting leases financed wildlife management to provide better hunting. Also, wildlife management activities have generated predominantly positive public relations.

Club leases, game management areas, and open lands probably appeal to different hunter types. Thus, more enjoyable hunting and toleration for a higher hunter density may be realized as hunters segregate themselves.

LITERATURE CITED

- Berryman, J. H. 1957. Our growing need: A place to produce and harvest wildlife. *J. Wildl. Mgt.* 21(3):319-323.
- Bullock, K. E. 1964. The joint venture of private and public management of our wildlife resources. 44th Conf. West. Assoc. G & F Comm. Proc. 44:106-109.
- Davis, Levi. 1974. The hunter dispersion problem in Arkansas and possible solutions. *Ark. Game and Fish* 7(2):10-14.
- Gilbert, D. L. 1971. Natural resources and public relations. The Wildlife Society, Washington, D. C. 320 pp.
- Hahn, H. C., Jr. 1945. The white-tailed deer in the Edwards Plateau region of Texas. Austin: Texas Game, Fish and Oyster Comm. 51 pp.
- Halls, L. K. 1973. Managing deer habitat in loblolly-shortleaf pine forest. *J. For.* 71(12):752-757.
- Howard, W. E. and W. M. Longhurst. 1956. The farmer-sportsmen problem and a solution. 21st Conf. N. Am. Wildl. Trans. 21:323-330.
- Kimball, T. L. 1963. For public recreation: Private development of hunting and fishing. *J. Soil Water Conserv.* 18(1):44-53.
- Klessig, L. L. and J. B. Hale. 1972. A profile of Wisconsin hunters. *Wis. Dept. Nat. Res. Bull.* 60. 24 pp.
- Moody, R. D. 1969. The goals of private forest holdings in deer management. Pages 90-92 in L. K. Halls, ed. white-tailed deer in the southern forest habitat.
- Murphy, D. A. 1965. Effects of various opening days on deer harvest and hunting pressure. 19th Conf. SE Assn. G & F Comm. Proc. 19:141-146.
- Peterle, T. J. 1961. The hunter—who is he? *Trans. N. Am. Wildl. and Nat. Res. Conf.* 26:254-266.