

Special Staff Report

HUNTING DEER WITH DOGS



Texas Parks and Wildlife Department

Wildlife Division

March 1990

Abstract

The status and current effects of hunting deer (*Odocoileus virginianus*) with dogs were evaluated in 10 East Texas counties as a follow-up to a study conducted in 1984-85. Methods used were hunter and landowner questionnaires, mapping dog-hunted lands and investigations of deer population characteristics on 4 paired study areas. Deer movement investigations on dog-hunted areas conducted in 1984-85 were not repeated.

A mailout of 50,578 questionnaires to rural boxholders in the 10 dog-hunted counties revealed that 83.4% of landowners do not hunt with the aid of dogs and 75.2% are opposed to the practice. These data compare to 79.8% and 73.8% respectively in 1984. A questionnaire mailed to 5 forest industries owning 1,997,080 acres (44.1% of the deer range) indicated that deer hunting with dogs was prohibited on 68.4% of corporate holdings, but permission to hunt deer with dogs had been granted to only 3.3% of the holdings. A mailout of 1,783 survey cards to licensed hunters revealed that 73.3% of respondents were opposed to hunting deer with dogs compared to 69.1% opposed in 1984. A total of 3.6% of hunters reported that they exclusively hunt deer with dogs and 10.9% hunted both with and without dogs. Reported responses for 1984 were: with dogs (6.1%) and both with and without dogs (10.1%). All tracts 1,000 acres or more in size were mapped to show where deer hunting with dogs was permitted by landowners. The mapping disclosed that 4.6% of the available deer range in the 10-county area is being hunted with dogs compared to 14.6% in 1984.

Studies of deer populations on 4 paired study areas indicated that dog-hunted areas continue to have lower deer densities (4 deer per 1,000 acres) compared to non-dog-hunted areas (28 deer per 1,000 acres). The 1984-85 survey on the same study areas showed a similar difference in deer populations between the 2 types of areas. Results of the previous survey revealed 6 deer per 1,000 acres on dog-hunted areas compared to 46 deer per 1,000 acres on non-dog-hunted areas. Browse utilization indices were lower (16-5-1) on dog-hunted areas compared to non-dog-hunted areas (32-12-5) suggesting lower stocking rates on dog-hunted areas.

The following is a summary of significant findings:

1. The percentage of hunters who hunt deer with dogs in the 10 dog-hunted counties has declined from 6.1% in 1984 to 3.6% in 1989. The percentage of hunters who hunt both with and without dogs has not changed significantly since 1984 (10.1% compared to 10.9% in 1989).
2. The percentage of hunters and landowners opposing hunting deer with dogs in the 10 dog-hunted counties increased slightly since 1984. A total of 69.1% of hunters expressed opposition in 1984 compared to 73.3% opposed in 1989. In 1984, 73.8% of landowners were opposed while 75.2% expressed opposition in 1989.
3. The acreage available for hunting deer with dogs by landowner permission has declined from 661,668 acres in 1984 to 206,391 acres in 1989, a reduction of 68.8%. Only 4.6% of the available deer range in the 10 dog-hunted counties remains open for hunting deer with dogs.
4. The number of tracts of land open to hunting deer with dogs has declined from 92 in 1984 to 28 in 1989. Only 4 of the 17 tracts 10,000 acres or larger available for deer dog-hunting in 1984 were available in 1989.
5. Ten of the 14 paired areas involved in deer population studies in 1984 were disqualified for study in 1989 because dog-hunted areas had changed to non-dog-hunted status.
6. Deer herds on dog-hunted study areas within the Sabine and Sam Houston National Forests remained suppressed and fragile in 1989 at 4 deer per 1,000 acres. Non-dog-hunted areas on the same National Forests support a moderate, vigorous herd of 28 deer per 1,000 acres. The same comparative 7:1 difference in deer numbers was observed on similar study areas in 1984-85 with 46 deer per 1,000 acres on non-dog-hunted areas and 6 deer per 1,000 acres on dog-hunted areas. Browse surveys show that range conditions are not limiting deer herd growth on dog-hunted lands.
7. The results of this investigation have documented that a danger of depletion of the deer resource exists on lands where deer hunting with dogs is permitted and that this danger of depletion is directly related to some factor or combination of factors associated with the practice of hunting deer with dogs.

INTRODUCTION

In 1984, the Texas Parks and Wildlife Commission directed the staff to conduct a study to determine the effects of hunting deer with dogs. This study was in furtherance of the Commission's duty to investigate wildlife resources under the Parks and Wildlife Code, §61.051. Subsequently, the study was implemented and results were published in a special staff report (Spencer, 1986). As a result of the study, the Commission limited the period in which deer could be legally hunted with the aid of dogs to the last one-half of the regular deer season in the 10-county area where hunting deer with dogs was permitted (Fig. 1). This regulation change became effective during the 1986-87 hunting season. Prior to 1986, deer hunting with dogs was permitted during the entire regular deer hunting season in the 10-county area.

In 1989, the Commission redirected the staff to repeat certain aspects of the 1984 study to evaluate changes occurring during the period and to provide the results of these investigations by January 1990. Consequently, an investigation was developed to accomplish 4 of 5 objectives established for the 1984 study. The 1984 study, objective 5, to determine the range of movements for both deer and dogs during hunting activity, could not be repeated under current conditions of land use and hunting practices and subsequently was omitted from the 1989 study.

Although every effort was made in the current study to duplicate procedures used in 1984, changes in hunting practices on lands previously involved required some alterations.



Fig. 1. Texas counties open to hunting deer with dogs, 1989 (shaded area).

OBJECTIVES

This study was designed to:

1. Determine landowner attitude toward hunting deer with dogs.
2. Determine hunter attitude toward hunting deer with the aid of dogs and the relative success of dog vs. non-dog-hunting methods.
3. Determine the magnitude and distribution of dog-hunting activity.
4. Compare deer populations between dog-hunted and non-dog-hunted areas.

PROCEDURES

Hunter-Landowner Surveys

Approximately 50,578 survey cards were mailed to rural boxholders in 10 East Texas counties where deer hunting with dogs is permitted (Fig. 2). This survey was designed to determine landowner attitudes regarding hunting deer with dogs.

A survey questionnaire was forwarded to 5 major forest industry corporate landowners with ownership in the 10 East Texas counties where hunting deer with dogs is permitted (Fig. 3). The purpose of this questionnaire was to evaluate policies regarding hunting deer with dogs on corporate lands.

Approximately 1,783 survey cards were mailed to a random sample of licensed hunters who had previously indicated hunting in 1 or more of the 10 counties where hunting deer with dogs is legal (Fig. 4). Each survey card recipient had indicated deer hunting in the 10-county dog-hunted area at least once in the previous 3 years (1986, 1987, and 1988). This survey was designed to determine hunter attitude toward hunting deer with dogs and to evaluate hunting success with and without dogs.

Magnitude and Distribution of Dog Hunting Activity

Landowners who were known to own 1,000 acres or more in a contiguous tract within the 10 counties where hunting deer with dogs is legal were interviewed. Tracts where deer are hunted with dogs with landowner permission were identified through these contacts. Non-posted absentee landowner tracts were considered the same as tracts where permission was granted to hunt deer with dogs. The size of each tract of dog-hunted land (permission granted) was determined and then each 1,000+ acre tract was mapped. In the mapping process, dog-hunted lands were coded as either private or public.

Deer harvest and hunter success data for the 10 dog-hunted counties were collected under Federal Aid Project W-109-R, Job 4, Big Game Harvest Regulations. These data were examined to determine if correlations existed between hunter success, deer harvest rates and the percentage of county deer range open to hunting with dogs.

TEXAS PARKS AND WILDLIFE DEPARTMENT

YOUR COOPERATION IN THIS IMPORTANT SURVEY WILL ASSIST YOUR PARKS AND WILDLIFE DEPARTMENT IN ITS EFFORTS TO PROPERLY MANAGE OUR WILDLIFE RESOURCES. PLEASE COMPLETE AND MAIL THIS CARD TO THE DEPARTMENT.

RURAL BOXHOLDER: THE TEXAS PARKS AND WILDLIFE DEPARTMENT IS CURRENTLY COLLECTING INFORMATION ABOUT HUNTING DEER WITH THE AID OF DOGS. AS PART OF THIS STUDY, WE ARE INTERESTED IN THE ATTITUDES OF LANDOWNERS AND SPORTSMEN REGARDING THIS METHOD OF HUNTING. PLEASE COMPLETE THIS SURVEY CARD AND RETURN IT TO US.

1. Please indicate your feelings about hunting deer WITH THE AID OF DOGS: (check one)
 Strongly favor _____ Slightly oppose _____ Undecided _____
 Slightly favor _____ Strongly oppose _____
2. How many acres are included on the land on which you reside? _____
3. Do you own the land on which you reside? Yes _____ No _____
4. Do you own other land IN THIS COUNTY? Yes _____ No _____
 If Yes, how many acres? _____
5. Do you hunt deer with the aid of dogs? Yes _____ No _____
6. Do you permit hunting deer with the aid of dogs on your property in this county? Yes _____ No _____
7. State your strongest reason for favoring or opposing hunting deer with the aid of dogs. _____

Boxholder
 Route 2
 Orange TX 77630 18131873

Fig. 2. Rural Boxholders Survey, 1989.

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PARKS AND WILDLIFE DEPARTMENT

4200 Smith School Road • Austin, Texas 78744 • 512-388-6800

December 8, 1989

CHARLES THAVIS
 Executive Director



Hunting deer with dogs has been a controversial issue in portions of East Texas for several years. The practice is now permitted in all or portions of the following counties: Hardin, Harrison (south of Interstate 20 and east of State Highway 43), Jasper, Newton, Orange, Panola, Polk, Sabine, San Jacinto, and Tyler.

In order to properly evaluate this issue, the Texas Parks and Wildlife Commission has directed staff personnel to conduct a study to determine the biological impacts related to hunting deer with dogs. We are presently in the process of evaluating the distribution and magnitude of this practice on both private and corporate lands.

We would appreciate your help by answering the following questions concerning the practice of hunting deer with dogs on your lands in the 10-county area where it is now legally permitted. Your cooperation is vitally important to the Department as we continue this study.

1. How many acres does your company own in each county or portion of a county where hunting deer with dogs is legal?
2. Does company policy permit the hunting of deer with dogs on land leased for hunting?
3. Do hunting lease contracts contain a statement of company policy regarding hunting deer with dogs?
4. Does company policy permit the hunting of deer with dogs on lands open to free public hunting? If not, does the company attempt to enforce the policy?

Sincerely,

Gary E. Spencer
 Pineywoods District Leader, Wildlife Division

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Fig. 3. Forest Industry Survey, 1989.

TEXAS PARKS AND WILDLIFE DEPARTMENT

YOUR COOPERATION IN THIS IMPORTANT SURVEY WILL ASSIST YOUR PARKS AND WILDLIFE DEPARTMENT IN ITS EFFORTS TO PROPERLY MANAGE OUR WILDLIFE RESOURCES. PLEASE COMPLETE AND MAIL THIS POSTAGE-PAID CARD TO THE DEPARTMENT.

 * Instructions: This survey card should reflect the activity of ONLY the person to *
 * whom it is addressed. *
 * Please complete and return immediately, EVEN if you did not hunt *
 * white-tailed deer last season. *

1. Did you hunt white-tailed deer in Texas during the past season? Yes _____ No _____
 *****If you answered NO to QUESTION 1, skip to QUESTION 5.*****

2. How many DAYS did you hunt DEER:
 WITH the aid of dogs? _____
 WITHOUT the aid of dogs? _____

3. How many deer did you PERSONALLY kill:
 WITH the aid of dogs? 0 1 2 3 4 (circle one)
 WITHOUT the aid of dogs? 0 1 2 3 4 (circle one)

4. In which county did you do MOST of your deer hunting? _____

5. Please indicate your feelings about hunting deer WITH THE AID OF DOGS?
 Strongly Favor _____ Slightly Favor _____ Slightly Oppose _____ Strongly Oppose _____ Undecided _____

6. State your STRONGEST reason for favoring or opposing hunting deer WITH THE AID OF DOGS:

0460

Fig. 4. Hunter Survey, 1989.

Deer Population Characteristics

Deer populations were surveyed on paired study areas established in the 10 counties. Areas where hunting with dogs was the primary deer hunting method were paired with areas where deer were hunted without the aid of dogs.

Criteria for the selection of dog-hunted study areas were as follows:

1. Hunting with dogs has been the primary deer hunting method used for at least the past 10 years.
2. The area contains at least 10,000 acres in a contiguous tract.
3. The area is accessible by vehicle.

A total of 2 dog-hunted tracts was selected from among 7 candidate tracts identified in the 1984 survey. Each dog-hunted tract was paired with a non-dog-hunted tract that met similar size and accessibility criteria. Efforts were made to

pair areas that had similar land use, land ownership and habitat characteristics. Non-dog-hunted areas that were geographically located nearest each dog-hunted area were given preference in selection.

One 15-mile spotlight deer survey transect was established on each study area. Each transect was established and surveyed according to standardized procedures for deer spotlight surveys in Texas. Existing road systems in each study area were used for the transects with an attempt made to sample as much of each area as possible. Surveys were conducted from mid-July through mid-August using 1 driver and 2 observers in a pickup truck. The transects were surveyed during the 4-hour period beginning 1 hour after sunset and a vehicle speed of 7-8 miles per hour was maintained.

Visibility estimates were made perpendicular to the vehicle by each observer at 1/10 mile intervals along the route and estimates were converted to total acres of visibility at the end of each survey. Each visibility reading represented the average distance a deer could be seen perpendicular to the transect at each 1/10 mile interval. All deer observed along the transect were recorded on standardized forms and each deer was classified as either buck, doe, fawn, or "unidentified." Each transect was surveyed 3 times on consecutive nights using the same observers. Paired areas were surveyed on the same nights using separate personnel crews. Deer stocking rates were determined through browse utilization surveys (Lay, 1967) on each of 2 pairs of study areas. A total of 30 1/100-acre (11.8 ft. radius) circular plots was systematically established on each area. Sampling transects were placed at miles 2, 4, 6, 8, 10 and 12, respectively, along the previously established 15-mile spotlight deer survey transect on each area. A total of 5 plots was placed at 100-yard intervals along each transect.

Percent browse utilization of identifiable species was recorded for each plot and only those species occurring on 20% or more of the plots were used for estimating degree of utilization and interpretation of range evaluation indices. Evidence of deer browsing on pine (*Pinus* spp.) was recorded, but grasses and forbs were ignored.

All identifiable species were grouped in 3 categories of palatability: first, second, and third choice browse. A browse utilization mean was then determined for data collected on each of the 2 paired study areas according to palatability class. This mean was calculated by adding all the percent utilization readings (0, 5, 30 or 70%) for a given species, and then dividing the sum by the total number of plots in which the species occurred. The utilization mean for each palatability class was determined by averaging the utilization of individual browse species in each class. The mean indices of palatability classes were then combined to produce a ratio of 3 numbers that would indicate the stocking intensity (light, moderate, or heavy) for each study area.

RESULTS AND DISCUSSION

Landowner Survey

The landowner survey (Fig. 2) resulted in 7,165 of 50,578 questionnaires being returned for a response rate of 14.2%. The higher response rate of 19.2% in 1984 could probably be attributed to a difference in postage requirements for the 2 surveys. The 1984 survey was postage paid while the respondent was required to pay postage in 1989.

Landowners in all counties demonstrated overwhelming opposition to hunting deer with dogs as they did in 1984. Responses opposing hunting deer with dogs ranged from 64.8% in Newton County to 84.7% in San Jacinto County (Table 1). The total for all counties was 75.2% opposed with 23.4% favoring and 1.4% undecided. These results were similar to the 1984 survey responses showing 73.8% opposed, 25.0% favoring and 1.2% undecided.

Table 1. Landowner attitude survey^a on hunting deer with dogs (Question 1, opinion on the use of dogs) by county of residence.

County of residence	Year	Opinion on hunting deer with dogs											
		Favor strongly		Favor slightly		Oppose slightly		Oppose strongly		Undecided		All	
		N	%	N	%	N	%	N	%	N	%	N	%
Unknown	1984	68	19.54	6	1.72	7	2.01	262	75.29	5	1.44	348	100.00
	1989	2	12.50	-	-	-	-	14	87.50	-	-	16	100.00
Hardin	1984	338	27.75	36	2.96	56	4.60	772	63.38	16	1.31	1,218	100.00
	1989	283	25.02	44	3.89	56	4.95	729	64.46	19	1.68	1,131	100.00
Harrison	1984	30	12.00	5	2.00	6	2.40	207	82.80	2	0.80	250	100.00
	1989	15	13.89	5	4.63	3	2.78	84	77.78	1	0.92	108	100.00
Jasper	1984	344	29.94	25	2.18	30	2.61	731	63.62	19	1.65	1,149	100.00
	1989	296	29.13	33	3.25	32	3.15	644	63.39	11	1.08	1,016	100.00
Newton	1984	228	29.50	13	1.68	10	1.29	513	66.37	9	1.16	773	100.00
	1989	138	32.39	9	2.11	14	3.29	262	61.50	3	0.71	426	100.00
Orange	1984	310	18.95	56	3.42	74	4.52	1,181	72.19	15	0.92	1,636	100.00
	1989	246	16.76	40	2.72	81	5.52	1,071	72.96	30	2.04	1,468	100.00
Panola	1984	134	16.83	12	1.51	34	4.27	609	76.51	7	0.88	796	100.00
	1989	101	13.86	24	3.29	48	6.58	544	74.62	12	1.65	729	100.00
Polk	1984	203	21.73	22	2.36	29	3.11	664	71.09	16	1.71	934	100.00
	1989	121	16.13	20	2.67	52	6.93	544	72.53	13	1.74	750	100.00
Sabine	1984	132	19.70	6	0.90	7	1.04	520	77.61	5	0.75	670	100.00
	1989	131	18.77	11	1.57	22	3.15	532	76.22	2	0.29	698	100.00
San Jacinto	1984	111	19.24	9	1.56	13	2.25	440	76.26	4	0.69	577	100.00
	1989	45	12.75	5	1.42	12	3.40	287	81.30	4	1.13	353	100.00
Tyler	1984	151	22.34	17	2.51	23	3.40	470	69.53	15	2.22	676	100.00
	1989	84	20.74	8	1.98	18	4.44	289	71.36	6	1.48	405	100.00
All Counties	1984	2,049	22.70	207	2.29	289	3.20	6,369	70.56	113	1.25	9,027	100.00
	1989	1,462	20.59	199	2.80	338	4.76	5,000	70.42	101	1.43	7,100	100.00

^aRefer to Fig. 2, Rural Boxholder Survey, 1989.

The survey indicated that most landowners (83.4% in 1989) do not hunt deer with the aid of dogs (Table 2). Similar results were revealed by the 1984 survey with 79.8% of landowners reporting negatively to the same question. The 1989 responses ranged from 74.1% in Newton County to 89.3% in San Jacinto County.

The greatest number of responses came from landowners owning acreage in the 1-4 acre category (39.3%), while landowners with acreage in the greater than 500-acre category provided the lowest number of responses (2.6%). Size classes of lands of residence reported by respondents are shown in Table 3.

Table 2. Landowner attitude survey^a on hunting deer with dogs (Question 5, origins of persons hunting with and without dogs) by county of residence.

County of residence	Year	Do you hunt deer with dogs?				All	
		Yes		No		N	%
		N	%	N	%		
Hardin	1984	293	24.23	916	75.77	1,209	100.00
	1989	212	18.81	915	81.19	1,127	100.00
Harrison	1984	21	8.47	227	91.53	248	100.00
	1989	14	12.61	97	87.39	111	100.00
Jasper	1984	311	27.30	828	72.70	1,139	100.00
	1989	240	23.76	770	76.24	1,010	100.00
Newton	1984	210	27.24	561	72.76	771	100.00
	1989	112	25.93	320	74.07	432	100.00
Orange	1984	292	17.97	1,333	82.03	1,625	100.00
	1989	191	13.03	1,275	86.97	1,466	100.00
Panola	1984	114	14.39	678	85.61	792	100.00
	1989	87	11.82	649	88.18	736	100.00
Polk	1984	156	16.77	774	83.23	930	100.00
	1989	92	12.23	660	87.77	752	100.00
Sabine	1984	121	18.11	547	81.89	668	100.00
	1989	121	17.04	589	82.96	710	100.00
San Jacinto	1984	92	15.97	484	84.03	576	100.00
	1989	38	10.70	317	89.30	355	100.00
Tyler	1984	134	20.00	536	80.00	670	100.00
	1989	70	17.11	339	82.89	409	100.00
All Counties	1984	1,744	20.21	6,884	79.79	8,628	100.00
	1989	1,177	16.56	5,931	83.44	7,108	100.00

^aRefer to Fig. 2, Rural Boxholder Survey, 1989.

Table 3. Landowner attitude survey^a on hunting deer with dogs (Questions 3 and 4, distribution of size of residence by county).

County of residence	Year	No response		1 - 4 acres		5 - 9 acres		10-19 acres		20-49 acres		50-99 acres		100-499 acres		500+ acres		Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Unknown	1984	88	24.86	136	38.42	37	10.45	19	5.37	31	8.76	15	4.24	20	5.65	8	2.26	354	100.00
	1989	1	6.25	9	56.25	4	25.00	1	6.25	0	0.00	0	0.00	1	6.25	0	0.00	16	100.00
Hardin	1984	77	6.28	726	59.22	147	11.99	103	8.40	75	6.12	37	3.20	33	2.69	28	2.28	1,226	100.00
	1989	89	7.81	601	52.77	156	13.70	132	11.59	76	6.67	37	3.25	24	2.11	24	2.11	1,139	100.00
Harrison	1984	9	3.60	54	21.60	27	10.80	39	15.60	30	12.00	26	10.40	54	21.60	11	4.40	250	100.00
	1989	5	4.50	21	18.92	18	16.22	20	18.02	14	12.61	11	9.91	17	15.32	5	4.50	111	100.00
Jasper	1984	49	4.25	419	36.31	156	13.52	165	14.30	189	16.38	87	7.54	73	6.33	16	1.39	1,154	100.00
	1989	54	5.27	311	30.37	132	12.89	164	16.02	187	18.26	86	8.40	69	6.74	21	2.05	1,024	100.00
Newton	1984	53	6.79	222	28.43	111	14.21	107	13.70	149	19.08	71	9.09	58	7.43	10	1.28	781	100.00
	1989	31	7.13	105	24.14	50	11.49	75	17.24	78	17.93	52	11.95	35	8.05	9	2.07	435	100.00
Orange	1984	96	5.84	1,106	67.32	169	10.29	114	6.94	81	4.93	24	1.46	35	2.13	18	1.10	1,643	100.00
	1989	157	10.64	834	56.50	166	11.25	127	8.60	87	5.89	42	2.85	30	2.03	33	2.24	1,476	100.00
Panola	1984	34	4.24	221	27.56	625	7.73	90	11.22	87	10.85	94	11.72	172	21.45	42	5.24	802	100.00
	1989	50	6.77	169	22.87	72	9.74	72	9.74	100	13.53	76	10.28	161	21.79	39	5.28	739	100.00
Polk	1984	83	8.78	424	44.87	79	8.36	80	8.47	102	10.79	59	6.24	78	8.25	40	4.23	945	100.00
	1989	107	14.10	249	32.81	87	11.46	82	10.80	85	11.20	51	6.72	73	9.62	25	3.29	759	100.00
Sabine	1984	59	8.74	340	50.37	48	7.11	62	9.19	76	11.26	36	5.33	50	7.41	4	0.59	675	100.00
	1989	101	14.19	274	38.48	41	5.76	61	8.57	103	14.47	65	9.13	56	7.87	11	1.54	712	100.00
San Jacinto	1984	31	5.36	225	38.93	82	14.19	78	13.49	70	12.11	42	7.27	40	6.92	10	1.73	578	100.00
	1989	43	12.01	141	39.39	41	11.45	37	10.34	32	8.94	25	6.98	30	8.38	9	2.51	358	100.00
Tyler	1984	27	3.98	223	32.84	93	13.70	92	13.55	98	14.43	64	9.43	66	9.72	16	2.36	679	100.00
	1989	33	8.01	111	26.94	69	16.75	56	13.59	60	14.56	32	7.77	38	9.22	13	3.16	412	100.00
Total	1984	606	6.67	4,096	45.08	1,011	11.13	949	10.44	988	10.87	555	6.11	679	7.47	203	2.23	9,087	100.00
	1989	671	9.34	2,825	39.34	836	11.64	827	11.52	822	11.45	477	6.64	534	7.44	189	2.63	7,181	100.00

^aRefer to Fig. 2, Rural Boxholder Survey, 1989.

As expected from other responses, 81.6% of the landowners reported that they do not permit hunting deer with dogs on their property (Table 4). These results

compare to 79.0% of the landowners responding negatively in 1984. The range of responses was from 70.2% not permitting hunting deer with dogs in Newton County to 88.5% in San Jacinto County.

Table 4. Landowner attitude survey^a on hunting deer with dogs (Question 6, distribution of persons who do and do not permit dog hunting).

County of residence	Year	Do you permit deer hunting with dogs?				All	
		Yes		No		N	%
		N	%	N	%		
Hardin	1984	261	23.68	841	76.32	1,102	100.00
	1989	210	19.52	866	80.48	1,076	100.00
Harrison	1984	29	12.29	207	87.71	236	100.00
	1989	14	12.96	94	87.04	108	100.00
Jasper	1984	319	29.62	758	70.38	1,077	100.00
	1989	268	27.29	714	72.71	982	100.00
Newton	1984	216	29.19	524	70.81	740	100.00
	1989	127	29.81	299	70.19	426	100.00
Orange	1984	221	14.79	1,273	85.21	1,494	100.00
	1989	183	13.14	1,210	86.86	1,393	100.00
Panola	1984	123	16.31	631	83.69	754	100.00
	1989	106	14.72	614	85.28	720	100.00
Polk	1984	168	19.29	703	80.71	871	100.00
	1989	113	15.61	611	84.39	724	100.00
Sabine	1984	120	19.48	496	80.52	616	100.00
	1989	119	17.63	556	82.37	675	100.00
San Jacinto	1984	98	17.72	455	82.28	553	100.00
	1989	40	11.53	307	88.47	347	100.00
Tyler	1984	140	21.91	499	78.09	639	100.00
	1989	83	20.65	319	79.35	402	100.00
All Counties	1984	1,695	20.97	6,387	79.03	8,082	100.00
	1989	1,263	18.43	5,590	81.57	6,853	100.00

^aRefer to Fig. 2, Rural Boxholder Survey, 1989.

Tables 5 and 6 categorize responses to Question 7 (strongest reason for opposing or favoring hunting deer with dogs). The primary concerns expressed by landowners opposing hunting deer with dogs were categorized as: (1) concerned about impacts on the deer resource (25.4%), (2) concerned about violation of the law or rights of other hunters (33.1%), (3) feel that hunting with dogs is unsporting or unnatural (26.0%), or (4) prefer to hunt

without dogs (2.1%). Those favoring hunting deer with dogs responded in the following categories: (1) feel that it is a right or tradition that should not be taken away (27.9%), (2) feel hunting with dogs is more sporting (23.6%), (3) prefer dog hunting (19.6%), (4) feel that dogs are more helpful in getting deer moving (9.4%), or (5) feel that dogs aid in finding crippled or wounded deer (6.3%).

Table 5. Landowner attitude survey^a on hunting deer with dogs; Question 7 (strongest reason for opposing the use of dogs).

Reason	1989	
	N	%
1. Dog hunting is bad deer management.	22	2.05
2. Dog hunting keeps the deer population low.	26	2.42
3. Deer kill is higher with non-dog hunting.	8	0.75
4. Dogs run deer off or out.	82	7.64
5. Dogs disturb or scare deer, changing their habits.	37	3.45
6. Dogs stress, injure, or kill deer.	69	6.43
7. Dogs do not distinguish between bucks, does, and fawns.	21	1.96
8. Dog hunting increases hunter crippling.	7	0.65
9. Dog hunting doesn't give the deer a fair chance.	74	6.90
10. Dog hunting disturbs non-dog hunters.	49	4.57
11. Trespassing by dogs and/or dog hunters on posted or non-dog areas.	162	15.10
12. Dog-hunters are outlaw hunters.	37	3.45
13. Dogs are "trained" during off-season.	23	2.14
14. Dog hunting is dangerous.	32	2.98
15. I personally prefer non-dog hunting.	23	2.14
16. Dog hunting is unsporting or unnatural.	205	19.11
17. Dog hunting is bad because deer-dogs get abandoned or killed.	26	2.42
18. Dog-hunted deer are not fit to eat.	29	2.70
19. Dogs should be used only for trailing wounded or crippled deer.	3	0.28
20. Dog hunters kill whatever the dogs run out of the woods (indiscriminate killing).	46	4.29
21. Does not like the people that run dogs.	3	0.28
22. Shooting from public road.	6	0.56
23. Trapper hates dogs.	1	0.09
24. Opposed hunting anything.	19	1.77
25. No comment	63	5.87
Total	1,073	100.00

^aSee Fig. 2 for question format.

Table 6. Landowner attitude survey^a on hunting deer with dogs; Question 7 (strongest reason for favoring the use of dogs).

Reason	1989	
	N	%
1. Dog hunting doesn't hurt the population.	14	3.98
2. Dog hunting provides a better chance of killing a deer; gets them moving and out.	33	9.38
3. Dogs give deer a better chance of getting away.	14	3.98
4. Dog hunting is an American tradition; a right.	53	15.06
5. Hunters should have the freedom to choose whether or not to hunt with dogs.	45	12.78
6. I love to hear the sound of the dogs or see the dogs work.	30	8.52
7. Dog hunting is more exciting; I love the chase.	19	5.40
8. I prefer to hunt with dogs.	20	5.68
9. Dog hunting is more sporting.	69	19.60
10. Dogs help in finding wounded and crippled deer.	22	-6.25
11. I favor dog hunting, but think it should be restricted.	6	1.70
12. I favor dog hunting, but find faults with it.	4	1.14
13. Good for handicapped and elderly.	1	0.28
14. Too many regulations will make enemies.	2	0.57
15. I hunt for food.	1	0.28
16. No comment	19	5.40
Total	352	100.00

^aSee Fig. 2 for question format.

Forest Industry Survey

Results of the forest industry (corporate) landowner survey (Fig. 3) indicated that corporate landowners controlled 1,997,080 acres of deer range in the 10 dog-hunted counties (Table 7). This total represents approximately 44.1% of the combined deer range in the 10 counties. Corporate landowners responding to a similar survey in 1984 revealed control of 2,053,822 acres or 45.4% of the 10-county deer range. Three corporations holding 1,365,931 acres do not permit hunting deer with dogs on their land, while 2 corporations controlling 631,149 acres reported that dog use was authorized under certain conditions. Champion International (608,549 acres) replied that they permit

hunting deer with dogs only with company permission. As a result of these special conditions, Champion indicated that only 43,369 acres (7.1% of company lands) were being hunted with dogs. With the reduced Champion acreage included, the survey found that only 65,969 acres (3.3%) of corporate lands surveyed were being dog-hunted with landowner permission.

In response to question 4, regarding policies applicable to "free" hunting lands open to the public, 4 of 5 corporations reported that "free" hunting is not available on their holdings. One corporation (Temple Inland) stated that only a few small areas were still available for hunting with no fee required, but that deer dog-hunting was not permitted on these lands.

Table 7. Results of forest industry (corporate) attitude survey regarding hunting deer with dogs in 10 East Texas counties, 1989.

Corporation	Question number - response ^a				
	1	2	3	4a	4b
Champion International	608,549	Yes	Yes ^b	No free hunting	
International Paper	10,521	No	Yes	No free hunting	
Kirby Forest Industries	558,375	No	Yes	No free hunting	
Temple Inland	797,035	No	No	No	No
Wirt Davis Estate	22,600	Yes	No	No free hunting	
Total	1,997,080	Yes(2) No(3)	Yes(4) No(1)	No(1) No free hunting(4)	No(1)

^aSee Fig. 3 for question format.

^bDogs shall be used for the purposes of hunting deer only with the permission of Champion International and in compliance with hunting club rules and state game laws.

Hunter Survey

Results of the hunter survey (Fig. 4) indicated a response rate of 49.1%. Of 1,651 deliverable cards, 811 were returned. The response rate drop from 68.9% in 1984 is probably attributable to the availability of a \$100 reward incentive provided in 1984, but not included in 1989.

The survey revealed that 73.3% of the respondents opposed hunting deer with dogs and 20.7% favored the hunting method. A total of 6.0% of respondents was undecided (Table 8). These data compare to 69.1% opposed, 24.8% favoring and 6.1% undecided in the 1984 survey. Responses in 1989 ranged from 65.4% opposed in Polk County to 85.0% opposed in Harrison County (Table 9).

Table 8. Hunter attitude survey^a on hunting deer with dogs Question 5 (feelings about hunting with dogs) compared with Question 1 (did you deer hunt during the 1988 season).

Deer hunter? (Question 1)	Year	Opinion on hunting deer with dogs (Question 5)											
		Favor strongly		Favor slightly		Oppose slightly		Oppose strongly		Undecided		All	
		N	%	N	%	N	%	N	%	N	%	N	%
Yes	1984	175	17.82	70	7.13	94	9.57	587	59.78	56	5.70	982	100.00
	1989	112	14.93	47	6.27	83	11.07	462	61.60	46	6.13	750	100.00
No	1984	23	17.04	9	6.67	15	11.11	76	56.30	12	8.89	135	100.00
	1989	4	7.14	4	7.14	9	16.07	37	66.07	2	3.57	56	100.00
Total	1984	198	17.73	79	7.07	109	9.76	663	59.36	68	6.09	1,117	100.00
	1989	116	14.39	51	6.33	92	11.41	499	61.91	48	5.96	806	100.00

^aRefer to Fig. 4, Hunter Survey, 1989.

Table 9. Hunter attitude survey^a on hunting deer with dogs (Question 5, opinion on the use of dogs) by county hunted most.

County hunted most	Year	Opinion on hunting deer with dogs											
		Favor strongly		Favor slightly		Oppose slightly		Oppose strongly		Undecided		All	
		N	%	N	%	N	%	N	%	N	%	N	%
Unknown	1984	2	5.56	2	5.56	4	11.11	23	63.89	5	13.89	36	100.00
	1989	2	10.00	2	10.00	3	15.00	13	65.00	0	0.00	20	100.00
Hardin	1984	18	17.82	7	6.93	10	9.90	62	61.39	4	3.96	101	100.00
	1989	11	18.64	3	5.08	6	10.17	37	62.71	2	3.39	59	100.00
Harrison	1984	7	11.11	2	3.17	14	22.22	36	57.14	4	6.35	63	100.00
	1989	5	6.25	2	2.50	14	17.50	54	67.50	5	6.25	80	100.00
Jasper	1984	22	25.58	6	6.98	3	3.49	51	59.30	4	4.65	86	100.00
	1989	9	15.25	4	6.78	4	6.78	37	62.71	5	8.47	59	100.00
Newton	1984	19	33.33	6	10.53	3	5.26	26	45.61	3	5.26	57	100.00
	1989	9	16.67	3	5.56	6	11.11	34	62.96	2	3.70	54	100.00
Orange	1984	4	50.00	0	0.00	0	0.00	4	50.00	0	0.00	8	100.00
	1989	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
Panola	1984	14	24.14	2	3.45	8	13.79	32	55.17	2	3.45	58	100.00
	1989	9	19.15	3	6.38	2	4.26	30	63.83	3	6.38	47	100.00
Polk	1984	21	17.65	12	10.08	7	5.88	70	58.82	9	7.56	119	100.00
	1989	17	16.35	7	6.73	6	5.77	62	59.62	12	11.54	104	100.00
Sabine	1984	6	27.27	1	4.55	2	9.09	12	54.55	1	4.55	22	100.00
	1989	7	24.14	1	3.45	3	10.34	16	55.17	2	6.90	29	100.00
San Jacinto	1984	7	31.82	2	9.09	2	9.09	10	45.45	1	4.55	22	100.00
	1989	7	29.17	1	4.17	3	12.50	13	54.17	0	0.00	24	100.00
Tyler	1984	21	18.42	8	7.02	18	15.79	61	53.51	6	5.26	114	100.00
	1989	18	19.15	5	5.32	13	13.83	56	59.57	2	2.13	94	100.00
Out of Area	1984	34	11.49	22	7.43	23	7.77	200	67.57	17	5.74	296	100.00
	1989	18	10.06	16	8.94	23	12.85	109	60.89	13	7.26	179	100.00
All Counties	1984	175	17.82	70	7.13	94	9.57	587	59.78	56	5.70	982	100.00
	1989	112	14.93	47	6.27	83	11.07	462	61.60	46	6.13	750	100.00

^aRefer to Fig. 4, Hunter Survey, 1989.

Responses to Question 2 (Table 10) indicated that most hunters (82.2%) hunted without dogs. A total of 3.6% of sampled hunters reported that they hunt deer exclusively with dogs and 10.9% hunt both with and without dogs. Hunters responding to the 1984 survey revealed that 80.5%

hunted deer without dogs, 6.1% hunted with dogs and 10.1% hunted both with and without dogs.

Of 3 categories of hunters classified in the survey, those hunters hunting both with and without dogs reported the highest hunter success (Table 11). Hunters who

hunted both ways reported an 80.5% success (indicated killing at least one deer). Non-dog hunters reported a 68.0% success rate and 63.0% of dog hunters were successful. All categories of hunters reported

a higher success rate in 1989 compared to 1984. The 1984 survey yielded the following hunter success figures: both (70.7%), non-dog (52.0%), and dog (41.7%).

Table 10. Hunter attitude survey^a on hunting deer with dogs; distribution of hunters by hunter classification.

County hunted most	Year	Opinion on hunting deer with dogs								All	
		Neither		Dog		Non-dog		Both			
		N	%	N	%	N	%	N	%	N	%
Unknown	1984	1	2.78	1	2.78	31	86.11	3	8.33	36	100.00
	1989	5	25.00	2	10.00	11	55.00	2	10.00	20	100.00
Hardin	1984	5	4.90	11	10.78	77	75.49	9	8.82	102	100.00
	1989	3	5.08	2	3.39	47	79.66	7	11.86	59	100.00
Harrison	1984	1	1.59	2	3.17	55	87.30	5	7.94	63	100.00
	1989	2	2.50	1	1.25	74	92.50	3	3.75	80	100.00
Jasper	1984	3	3.45	13	14.94	62	71.26	9	10.34	87	100.00
	1989	2	3.39	1	1.69	49	83.05	7	11.86	59	100.00
Newton	1984	1	1.75	8	14.04	37	64.91	11	19.30	57	100.00
	1989	1	1.85	3	5.56	45	83.33	5	9.26	54	100.00
Orange	1984	1	12.50	1	12.50	4	50.00	2	25.00	8	100.00
	1989	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
Panola	1984	6	10.34	6	10.34	38	65.52	8	13.79	58	100.00
	1989	1	2.13	2	4.26	37	78.72	7	14.89	47	100.00
Polk	1984	3	2.52	2	1.68	96	80.67	18	15.13	119	100.00
	1989	2	1.89	5	4.72	88	83.02	11	10.38	106	100.00
Sabine	1984	0	0.00	4	18.18	16	72.73	2	9.09	22	100.00
	1989	0	0.00	2	6.90	16	55.17	11	37.93	29	100.00
San Jacinto	1984	2	9.09	4	18.18	15	68.18	1	4.55	22	100.00
	1989	2	8.33	3	12.50	16	66.67	3	12.50	24	100.00
Tyler	1984	3	2.63	5	4.39	92	80.70	14	12.28	114	100.00
	1989	2	2.13	3	3.19	75	79.79	14	14.89	94	100.00
Out of Area	1984	7	2.36	3	1.01	270	90.91	17	5.72	297	100.00
	1989	4	2.23	3	1.68	160	89.39	12	6.70	179	100.00
All Counties	1984	33	3.35	60	6.09	793	80.51	99	10.05	985	100.00
	1989	25	3.32	27	3.59	618	82.18	82	10.90	752	100.00

^aRefer to Fig. 4, Hunter Survey, 1989.

Table 11. Hunter attitude survey^a on hunting deer with dogs; Question 3 (kill per hunter) by hunter classification.

Hunter classification	Year	Number of deer killed										Total	
		0		1		2		3		4		N	%
		N	%	N	%	N	%	N	%	N	%		
Dog	1984	35	58.33	14	23.33	10	16.67	1	1.67	0	0.00	60	100.00
	1989	10	37.04	6	22.22	7	25.93	4	14.81	0	0.00	27	100.00
Non-Dog	1984	381	48.05	230	29.00	142	17.91	40	5.04	0	0.00	793	100.00
	1989	198	32.04	186	30.10	136	22.01	62	10.03	36	5.83	618	100.00
Both	1984	29	29.29	35	35.35	27	27.27	8	8.08	0	0.00	99	100.00
	1989	16	19.51	27	32.93	17	20.73	10	12.20	12	14.63	82	100.00
Total	1984	445	46.74	279	29.31	179	18.80	49	5.15	0	0.00	952	100.00
	1989	224	30.81	219	30.12	160	22.01	76	10.45	48	6.60	727	100.00

^aSee Fig. 4 for question format.

Tables 12 and 13 list the categorized responses to Question 6 (strongest reason for favoring or opposing hunting deer with dogs). It appears that those opposing deer dogs are either concerned about impacts on the deer resource (30.5%), concerned about violation of the law or rights of other hunters (30.1%), prefer to hunt without dogs (2.9%), or feel that hunting with dogs is unsporting or unnatural (24.2%). Similar concerns were expressed by hunters opposed to hunting deer with dogs in the 1984 survey, although the percentage in each category varied.

Those favoring dog use do so because they feel that dogs are helpful in getting deer moving (22.1%), feel that it is a right or tradition that should not be taken away (22.1%), prefer dog use (26.6%), feel hunting with dogs is more sporting (10.8%), or feel that dogs aid in finding crippled or wounded deer (8.9%). The 1984 surveys revealed the same concerns by those favoring hunting deer with dogs.

Table 12. Hunter attitude survey^a on hunting deer with dogs; Question 6 (strongest reason for opposing the use of dogs).

Reason	1984		1989	
	N	%	N	%
1. Dog hunting is bad deer management.	14	1.81	5	0.86
2. Dog hunting keeps the deer population low.	33	4.27	26	4.45
3. Deer kill is higher with non-dog hunting.	11	1.42	6	1.03
4. Dogs run deer off or out.	92	11.90	46	7.88
5. Dogs disturb or scare deer, changing their habits.	60	7.76	23	3.94
6. Dogs stress, injure, or kill deer.	52	6.73	27	4.62
7. Dogs do not distinguish between bucks, does, and fawns.	19	2.46	22	3.77
8. Dog hunting increases hunter crippling.	15	1.94	23	3.94
9. Dog hunting doesn't give the deer a fair chance.	52	6.73	53	9.08
10. Dog hunting disturbs non-dog hunters.	60	7.76	46	7.88
11. Trespassing by dogs and/or dog hunters on posted or non-dog areas.	51	6.60	73	12.50
12. Dog-hunters are outlaw hunters.	103	13.33	23	3.94
13. Dogs are "trained" during off-season.	8	1.03	15	2.57
14. Dog hunting is dangerous.	20	2.59	19	3.25
15. I personally prefer non-dog hunting.	43	5.56	17	2.91
16. Dog hunting is unsporting or unnatural.	90	11.64	88	15.07
17. Dog hunting is bad because deer-dogs get abandoned or killed.	6	0.78	7	1.20
18. Dog-hunted deer are not fit to eat.	16	2.07	20	3.42
19. Dogs should be used only for trailing wounded or crippled deer.	8	1.03	10	1.71
20. No comment	20	2.59	35	5.99
Total	773	100.00	584	100.00

^aSee Fig. 4 for question format.

Table 13. Hunter attitude survey^a on hunting deer with dogs; Questions 6 (strongest reason for favoring the use of dogs).

Reason	1984		1989	
	N	%	N	%
1. Dog hunting doesn't hurt the deer population.	5	1.81	6	3.80
2. Dog hunting provides a better chance of killing a deer; gets them moving and out.	73	26.45	29	18.35
3. Dogs give deer a better chance of getting away.	10	3.62	6	3.80
4. Dog hunting is an American tradition; a right.	28	10.14	18	11.39
5. Hunters should have the freedom to choose whether or not to hunt with dogs.	27	9.78	17	10.76
6. Laws against hunting with dogs would be unenforceable.	2	0.73	0	0.0
7. Dog hunting is safer.	2	0.73	2	1.27
8. I love to hear the sound of the dogs or see the dogs work.	31	11.23	16	10.13
9. Dog hunting is more exciting; I love the chase.	25	9.06	12	7.59
10. I prefer to hunt with dogs.	11	3.99	6	3.80
11. Dog hunting is more sporting.	23	8.33	17	10.76
12. Dogs help in finding wounded and crippled deer	21	7.61	14	8.86
13. I favor dog hunting, but think it should be restricted.	6	2.17	4	2.53
14. I favor dog hunting, but find faults with it.	4	1.45	6	3.80
15. No Comment	8	2.90	5	3.16
Total	276	100.00	158	100.00

^aSee Fig. 4 for question format.

Magnitude and Distribution of Dog Hunting Activity

The 10 counties where hunting deer with dogs is legal contain a total of 4,525,274 acres of deer range. Dog-hunted lands in these counties in 1989 represented 206,391 acres or 4.6% of the available deer range. Maps depicting the spatial distribution of dog-hunted lands in each county are presented in Figs. 5-12. A comparison of total dog-hunted deer range in 1984 (661,668 acres) with 1989 data (206,391 acres) reveals a reduction in acreage of 68.8% during the 5-year period (Table 14).

All counties showed significant declines in acreage open to deer dog-hunting. Variations by county ranged from no lands open to deer dog-hunting in Orange and Tyler Counties to 19.0 and 23.8%, respectively, open in San Jacinto and Sabine Counties. All counties surveyed showed less than 3.5% of the county open to deer dog-hunting except Sabine and San Jacinto Counties. The significantly larger tracts still available in Sabine and San Jacinto Counties can be attributed to the presence of large United States Forest Service ownership in each county.

Table 14. Acreage of dog-hunted lands expressed as a percentage of total county deer range.

County	Total dog-hunted deer range (acres) ^a		Total deer range (acres)	Percent of deer range open to doghunting	
	1984	1989		1984	1989
Hardin	67,700	15,300	508,061	13.32	3.01
Harrison	9,500	1,304	505,160	1.88	0.26
Jasper	50,317	19,426	556,891	9.03	3.49
Newton	106,574	11,452	591,935	18.00	1.93
Orange	6,381	-0-	89,205	7.15	0.00
Panola	37,359	17,806	447,054	8.36	0.40
Polk	87,200	12,252	642,100	13.58	1.91
Sabine	119,721	65,343	275,000	43.53	23.76
San Jacinto	94,325	63,508	333,406	28.29	19.05
Tyler	82,591	-0-	576,462	14.33	0.00
Total	661,668	206,391	4,525,274	14.62	4.56

^aDog-hunted deer range includes all known tracts 1,000+ acres in size where dog hunting is practiced by landowner permission.

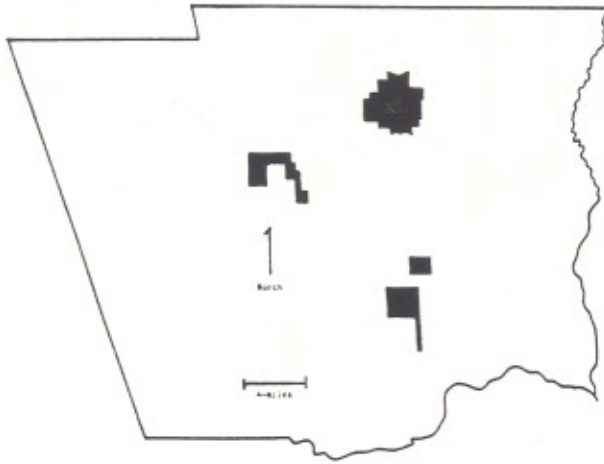


Fig. 5. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, Hardin County, 1989.



Fig. 6. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, Harrison County, Texas, 1989.



Fig. 7. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, North Jasper County, 1989.

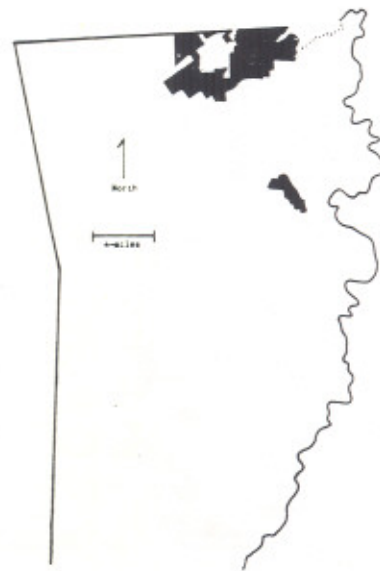


Fig. 8. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, North Newton County, 1989.

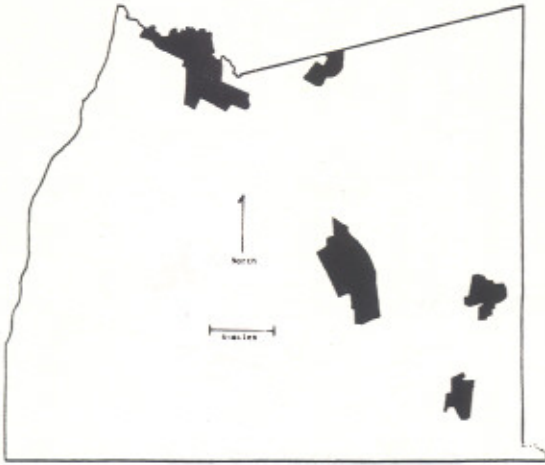


Fig. 9. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, Panola County, 1989.

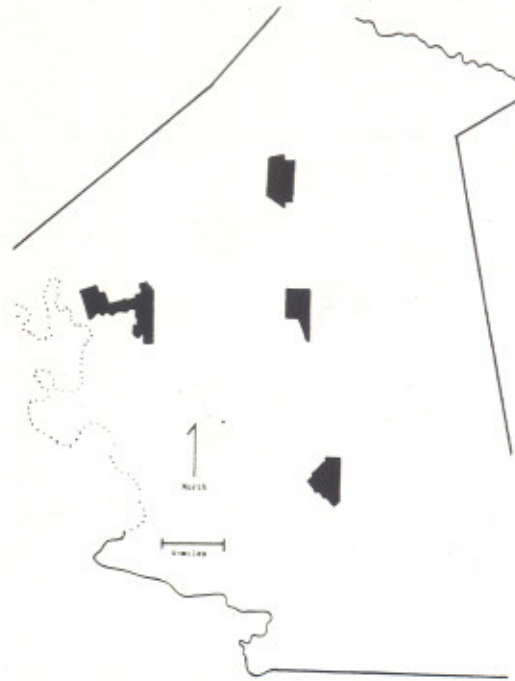


Fig. 10. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, Polk County, Texas, 1989.



Fig. 11. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, Sabine County, 1989.

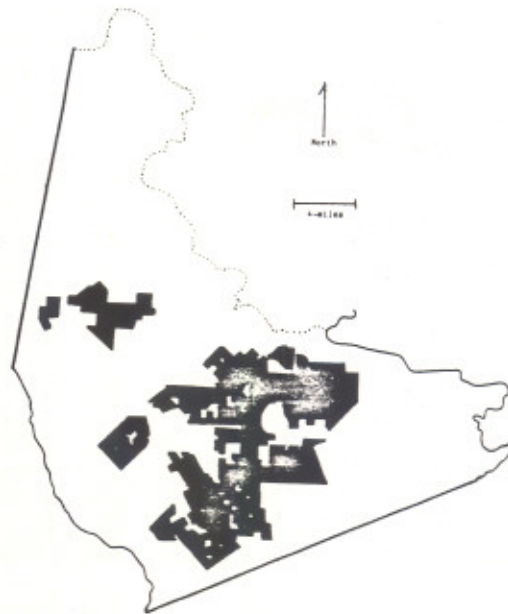


Fig. 12. Lands 1,000 acres or more in size where deer are hunted with dogs by landowner permission, San Jacinto County, 1989.

A total of 28 tracts of land 1,000 acres or more in size was identified as dog-hunted by landowner permission in 1989. This compared to 92 tracts identified in the 1984 survey for a reduction of 69.6% (Table 15). The greatest reduction in number of tracts occurred in the 1,000-4,999 acre category with a loss of 41 tracts. The 5,000-9,999 acre category revealed a loss of 10 tracts and the 10,000+ category showed a loss of 13 tracts.

Results of a linear regression analysis (Fig. 13) show a strong negative correlation between the percentage of county deer range deer-hunted with dogs and deer kill per hunter ($r = -0.799$). A similar negative correlation was found between the percentage of county deer range deer-hunted with dogs and deer kill per 1,000 acres of deer range ($r = -0.623$) (Fig. 14). Similar correlations were observed in the 1984 study.

Table 15. Size classes of dog-hunted lands by county, 1989.

County	Number of tracts						Total acreage	
	1,000-4,999 acres		5,000-9,999 acres		10,000+ acres		1984	1989
	1984	1989	1984	1989	1984	1989		
Hardin	10	3	2	1	1	0	67,700	15,300
Harrison	4	1	0	0	0	0	9,500	1,304
Jasper	10	3	1	1	2	0	50,317	19,426
Newton	3	1	1	1	5	0	106,574	11,452
Orange	1	0	1	0	0	0	6,381	-0-
Panola	6	4	0	1	1	0	37,359	17,806
Polk	4	4	2	0	2	0	87,200	12,252
Sabine	11	2	3	0	3	3	119,721	65,343
San Jacinto	1	1	0	1	2	1	94,325	63,508
Tyler	10	0	5	0	1	0	82,591	-0-
Total	60	19	15	5	17	4		
Total acres	136,826	49,402	102,247	42,858	422,595	114,131	661,668	206,391
Average acres	2,280	2,600	6,816	8,572	24,859	28,533		

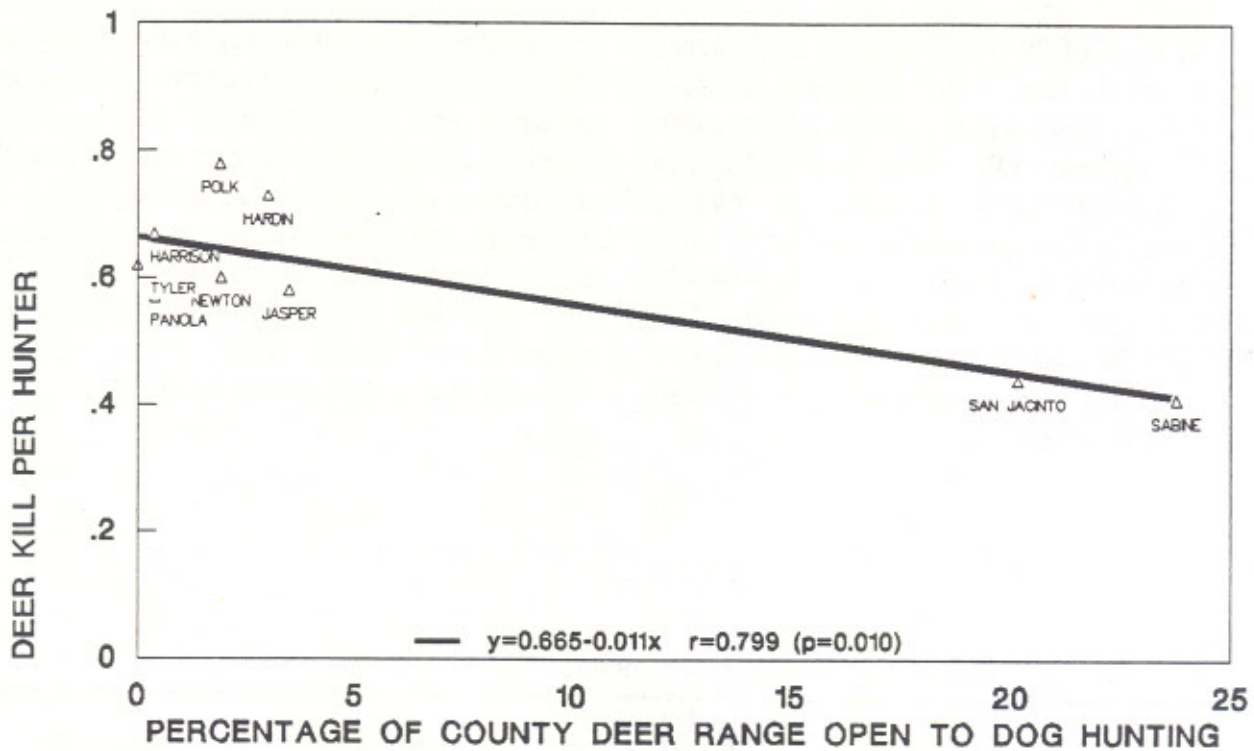


Fig. 13. Relationship between percentage of county deer range open to hunting deer with dogs and deer kill per hunter, 9 East Texas counties, 1989.

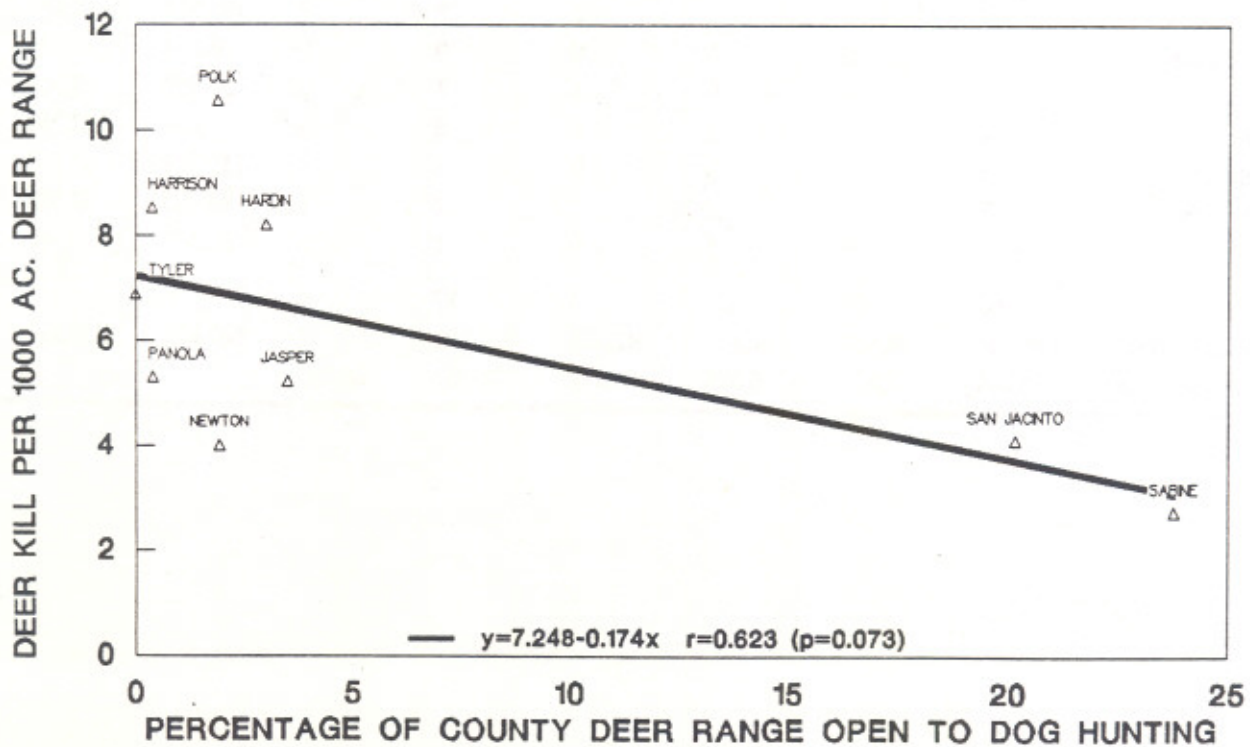


Fig. 14. Relationship between percentage of county deer range open to hunting deer with dogs and deer kill per 1,000 acres of deer range, 9 East Texas counties, 1989.

Deer Population Characteristics

Of the 14 areas (7 dog-hunted and 7 non-dog-hunted) that met established criteria and were investigated in 1984-85, only 4 areas (2 dog-hunted and 2 non-dog-hunted) were qualified for study in 1989. The 4 areas represent United States Forest Service lands in the Sabine National Forest in Sabine County (dog-hunted) and Shelby County (non-dog-hunted) and the Sam Houston National Forest in San Jacinto County (dog-hunted) and Walker County (non-dog-hunted). In each of the 10 areas disqualified in 1989, rejection occurred because the status of the dog-hunted pair member was changed to non-dog-hunted. Maps of areas investigated in 1989 are displayed in Fig. 15. The Sabine-Shelby County study area sites were altered somewhat as a result of the placement of the 1984 Sabine County pair member in a designated wilderness area with no vehicular access for survey activities. Each area was surveyed using a mobile deer night spotlight technique and browse utilization surveys to evaluate deer population characteristics.

Spotlight deer survey results for 1984-85 and 1989 are displayed in Table 16. A comparison of data revealed that dog-hunted areas in 1989 contain much lower deer densities (4 deer per 1,000 acres) compared to non-dog-hunted areas (28

deer per 1,000 acres) or a 7:1 difference between the 2 types of areas. Data collected from these areas in 1984-85 showed a similar difference with 6 deer per 1,000 acres observed on dog-hunted areas compared to 46 deer per 1,000 acres on non-dog-hunted areas. Comparisons of buck:doe and fawn:doe ratios could not be made as a result of the very small number of identified deer observed on dog-hunted areas.

Deer browse surveys conducted on the 2 pairs of dog-hunted and non-dog-hunted study areas substantiated findings from spotlight surveys regarding relative deer densities on the 2 types of areas (Tables 17 and 18). The browse utilization index for non-dog-hunted areas was 32-12-5 compared to an index of 16-5-1 for dog-hunted areas. The index for all areas surveyed was lower than would normally be expected since surveys were conducted in early December before the peak winter stress period arrived. Although standard procedures prescribe that browse surveys be initiated in late winter, this survey was conducted earlier to meet reporting deadlines. However, indexes do show a large relative difference in deer stocking rates between non-dog-hunted and dog-hunted areas and generally support findings from spotlight surveys. The investigation also found that range conditions are not limiting herd growth on any of the areas surveyed.

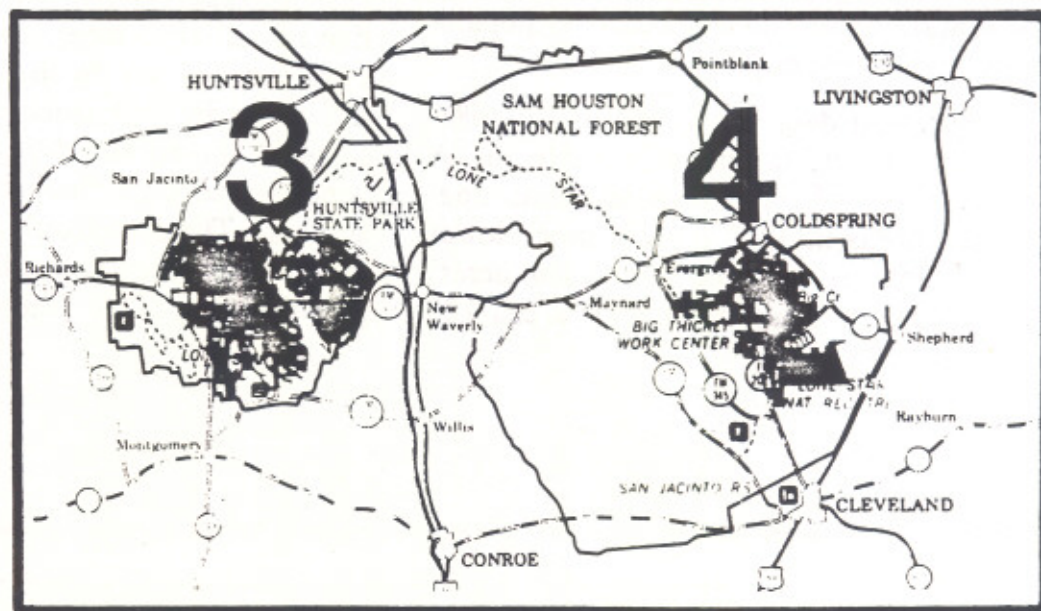
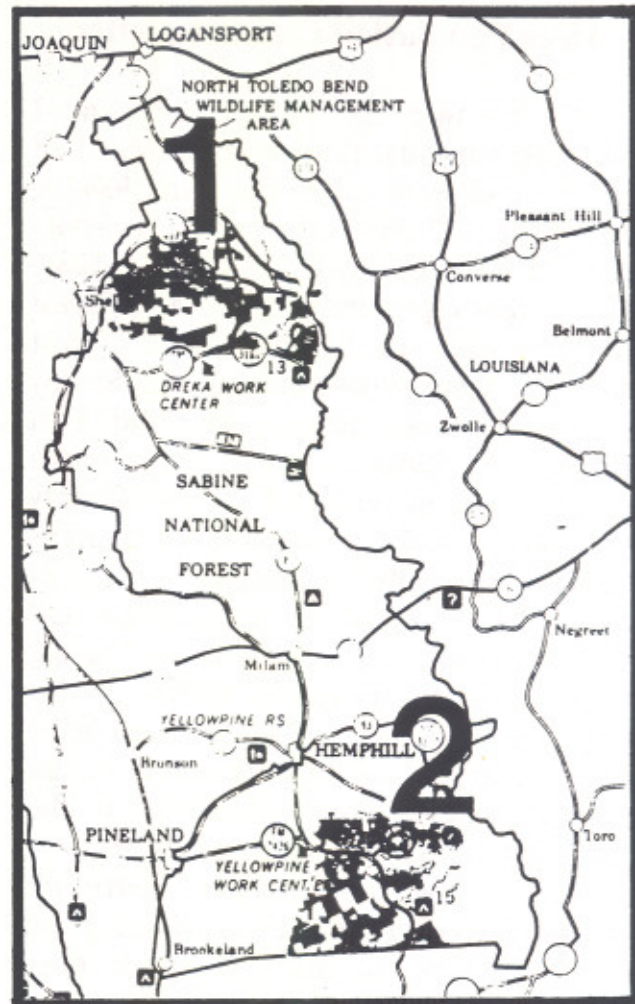


Fig. 15. Paired study areas: (1) Sabine NF, Shelby County, (non-dog-hunted); (2) Sabine NF, Sabine County, (dog-hunted); (3) Sam Houston NF, Walker County, (non-dog-hunted); (4) Sam Houston NF, San Jacinto County, (dog-hunted).

Table 16. Deer population characteristics from spotlight surveys.

Year	Area name	Acres sampled	Deer observed					Acres per deer	Deer per 1,000 acres	Herd composition	
			Bucks	Does	Fawns	Undet	Total			Doc/Buck	Fawn/Doc
Dog-hunted study areas											
1984-85	Sam Houston National Forest	958	0	1	0	7	8	119.8	8	-	-
1989	Sam Houston National Forest	972	0	0	0	1	1	972.0	1	-	-
1984-85	Sabine National Forest	675	0	0	0	2	2	337.5	3	-	-
1989	Sabine National Forest	612	0	4	0	1	5	122.4	8	-	-
Non-dog-hunted study areas											
1984-85	Sam Houston National Forest	1,058	1	13	7	43	64	16.5	61	13.00	0.54
1989	Sam Houston National Forest	852	2	14	2	12	30	28.4	35	7.00	0.14
1984-85	Sabine National Forest	486	0	4	1	2	7	69.4	14	-	0.25
1989	Sabine National Forest	555	1	7	0	2	10	55.5	18	7.00	-
Combined study areas											
1984-85	Dog-hunted Areas	1,633	0	1	0	9	10	163.3	6	-	-
1989	Dog-hunted Areas	852	0	4	0	2	6	264.0	4	-	-
1984-85	Non-dog-hunted Areas	1,544	1	17	8	45	71	21.7	46	17.00	0.47
1989	Non-dog-hunted Areas	1,407	3	21	2	14	40	35.2	28	7.00	0.14

Table 17. Palatability ratings of browse species occurring on 120 1/100 acre plots surveyed on 2 pairs of dog-hunted and non-dog-hunted study areas in East Texas, 1989.

Common name	Scientific name
First choice	
St. Peterswort	<i>Ascyrum stans</i>
White Ash	<i>Fraxinus americana</i>
Carolina Jessamine	<i>Gelsemium sempervirens</i>
Yaupon	<i>Ilex vomitoria</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
Blackberry	<i>Rubus</i> sp.
Sassafras	<i>Sassafras albidum</i>
Greenbrier	<i>Smilax</i> sp.
Kentucky Viburnum	<i>Viburnum molle</i>
Second choice	
Red Maple	<i>Acer rubrum</i>
Wild Azalea	<i>Azalea</i> sp.
American Beautyberry (French Mulberry)	<i>Callicarpa americana</i>
Flowering Dogwood	<i>Cornus florida</i>
Hawthorne	<i>Crataegus</i> sp.
Largeleaf Gallberry	<i>Ilex coriacea</i>
Sweetbay Magnolia	<i>Magnolia virginiana</i>
Redbay	<i>Persea borbonia</i>
Flatwoods Plum	<i>Prunus umbellata</i>
White Oak	<i>Quercus alba</i>
Water Oak	<i>Q. nigra</i>
Willow Oak	<i>Q. phellos</i>
Common Sweetleaf	<i>Symplocos tinctoria</i>
Poisonoak	<i>Toxicodendron quercifolium</i>
Poisonsumac	<i>T. vernix</i>
Elm	<i>Ulmus</i> sp.
Rusty Blackhaw Viburnum	<i>Viburnum rufidulum</i>
Muscadine	<i>Vitis rotundifolia</i>
Third choice	
American Hornbeam	<i>Carpinus caroliniana</i>
Hickory	<i>Carya</i> sp.
Eastern Redbud	<i>Cercis canadensis</i>
Common Witchhazel	<i>Hamamelis virginiana</i>
American Sweetgum	<i>Liquidambar styraciflua</i>
Tree Huckleberry	<i>Lyonia ligustrina</i>
Southern Magnolia	<i>Magnolia grandiflora</i>
Southern Waxmyrtle	<i>Myrica cerifera</i>
American Hophornbeam	<i>Ostrya virginiana</i>
Pine	<i>Pinus</i> sp.
Carolina Laurelcherry	<i>Prunus caroliniana</i>
Black Cherry	<i>P. serotina</i>
Southern Red Oak	<i>Quercus falcata</i>
Post Oak	<i>Q. stellata</i>
Flameleaf Sumac	<i>Rhus copallina</i>
Blueberry	<i>Vaccinium</i> sp.

Table 18. Browse utilization indices by palatability class for dog-hunted and non-dog-hunted areas, East Texas, 1989.

Area name	Palatability class - percent use		
	1st choice	2nd choice	3rd choice
Non-dog-hunted areas			
Sam Houston National Forest	30.92	16.95	6.11
Sabine National Forest	33.30	7.20	3.60
Average	32.11	12.08	4.86
Dog-hunted areas			
Sam Houston National Forest	6.79	5.41	0.00
Sabine National Forest	25.30	4.20	2.00
Average	16.05	4.81	1.00

ANALYSIS

It is apparent that the 1989 study update has documented a decline in the practice of hunting deer with dogs in the 10-county area where it is currently legal. The number of hunters actively and exclusively involved in the practice has declined by 41.0%. Some of these hunters have apparently switched to either hunting without dogs or possibly a mix of hunting with and without dogs.

Several factors probably have contributed to a change in hunting methods among those who were previously classified as dog-hunters. Among these are: changing landowner and hunter attitudes, a reduction in available acreage, a reduction in hunting season length, or a combination of these. The 1989 survey demonstrated that small landowners have shown an increasing unwillingness to permit deer dog-hunting and only slightly over 3% of corporate lands are currently available. A total reduction in acreage available for deer dog-hunting of 68.8% has occurred in the last 5 years, bringing the total acreage available to less than 5% of the total deer range in the 10-county area.

The reduction in available acreage and season length is resulting in increasing hunting pressure on the available acreage that remains. According to data collected in 1984-85 on dog dispersal during deer chases, very large tracts are required for deer dog-hunting without unwanted dog trespass on adjoining properties. For example, calculations from data collected in 1984-85 indicated that a buffer zone of 12,130 acres was required around a 10,000 acre tract to insure that dog trespass on neighboring lands would not occur 70% of the time. The current study only identified 2 tracts of land available for dog-hunting in the 10-county area that contained in excess of 22,130 acres and these tracts included many inholdings of small privately-owned lands. From these results, one can readily see that unwanted dog trespass on private lands under current conditions is unavoidable and highly likely. The social results of such conditions will inevitably lead to an increase in conflicts between those who continue to hunt deer with dogs on a diminishing land base and the surrounding private landowners who do not want dogs or dog-hunters trespassing on their property.

Most of the land available for deer dog-hunting (62.4%) occurs on the Sabine National Forest in Sabine County and the Sam Houston National Forest in San Jacinto County. These National Forests provided the only remaining dog-hunted areas large enough to meet established criteria for deer population studies in 1989. The remaining deer dog-hunted counties contain an insignificant acreage (2.0%) still classified as "dog-hunted" with landowner permission. Deer population characteristics were investigated in 1984-85 and again in 1989 on both National Forests with non-dog-hunted lands on the Sabine National Forest in Shelby County and the Sam Houston National Forest in Walker County serving as controls in the study.

The same 7:1 difference in deer densities on non-dog-hunted areas compared to dog-hunted areas found in 1984-85 also appeared in results of the 1989 survey. The combined deer densities on dog-hunted National Forest was 6 deer per 1,000 acres in 1984-85 compared to 4 deer per 1,000 acres in 1989. Forty deer per 1,000 acres is considered "carrying capacity" for these areas. In contrast, deer densities on non-dog-hunted National Forest were 46 deer per 1,000 acres in 1984-85 and 28 deer per 1,000 acres in 1989. Currently, deer densities on dog-hunted National Forest stand at one-tenth carrying capacity while non-dog-hunted National Forests support herds at 70% of carrying capacity. Obviously, deer herds on the 2 dog-hunted National Forests studied in 1984-5 were being suppressed below carrying capacity and have remained suppressed during the interim until 1989. Herds in these areas under current conditions are considered very fragile and both areas studied would qualify for deer restoration under current Department guidelines. Deer herds at this low level (4

deer per 1,000 acres) with an assumed 1:3 buck:doe ratio may only recruit 1 female per 1,000 acres into the herd annually. Even a small amount of hunting pressure on the female herd segment would result in zero population growth or even lead to further declines. However, it is generally observed that National Forest lands in both Sabine and San Jacinto Counties receive heavy hunting pressure by deer dog-hunters under current conditions. By comparison, deer herds on neighboring non-dog-hunted National Forests have sustained viable populations despite heavy hunting pressure from non-dog-hunters.

After 3 years of investigation (1984, 1985, and 1989) the question remains: Why are deer herds suppressed on dog-hunted lands while non-dog-hunted areas support significantly higher numbers? Browse surveys conducted both in 1985 and 1989 suggest that habitat factors are not limiting deer herd growth on dog-hunted areas.

The previous study conducted in 1984-85 revealed that on a high deer density area, no permanent detrimental effects were observed on deer after being chased by dogs. However, these results may not be applicable to low deer density areas such as dog-hunted National Forest lands involved in the 1989 study. It is possible that under low deer density conditions, deer/dog chases would last longer with the possibility for excessive exertional stress being applied to deer. The 1984-85 study disclosed that the reason dog chases on high deer density areas are of short duration (18 minutes) is the availability of other deer in the area for dogs to "switch" to during the chase. It would be unlikely for much "switching" to occur under the low deer density conditions prevailing on dog-hunted study areas investigated in 1989.

Aside from the possibility of direct adverse effects occurring among deer being chased by dogs under low deer density conditions, there is the possibility that some other factor associated with the hunting practice may be leading to excessive mortality. The 1984-85 study suggested that hunting deer with dogs can be a highly efficient harvest method with a hunter success of 65.0% observed during short duration experimental either-sex hunts. Hunting success reported by deer dog-hunters (63.0%) in the 1989 survey was comparable to success reported by non-dog-hunters (68.0%) despite the fact that dog-hunters generally hunt areas with much lower deer numbers. This seems to substantiate earlier observations regarding the efficiency of hunting deer with dogs. One of the 4 major reasons given by deer dog-hunters involved in the 1989 survey for favoring the method was that hunting with dogs is helpful in "getting deer moving." Clearly, this gives the hunter some advantage compared to hunting deer that are moving only in response to breeding conditions and environmental factors. The fact that most deer dog-hunting occurs in low density areas, makes the possibility of over harvest not only likely, but probable.

The 1984-85 study also revealed that hunting deer with dogs can result in a high crippling loss. In experimental deer

dog-hunts during the period, the incidence of crippling was 38%. A crippling loss of this magnitude could suppress population growth in low density deer areas.

It is apparent that some factor associated with the practice of hunting deer with dogs has led to a risk of depletion of deer resources on dog-hunted lands. The likely cause of these reductions is the efficiency and high crippling loss associated with the practice although the possibility of stress related losses has not been ruled out. Furthermore, the reduced acreage available for deer dog-hunting is leading to an increased probability of unwanted dog trespass on private lands with associated human conflicts. Public displeasure with the practice of hunting deer with dogs is increasing although the numbers of hunters participating in deer dog-hunting is declining.

According to the Wildlife Conservation Act of 1983, §61.055, "If the Commission finds that there is a danger of depletion or waste, it shall amend or revoke its proclamation to prevent the depletion or waste and to provide the people the most equitable and reasonable privilege to pursue, take, possess and kill wildlife resources."

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