White-tailed Deer Hunting with Dogs in East Texas

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Abstract: White-tailed deer (*Odocoileus virginianus*) were experimentally chased with dogs in east Texas in December 1984 and in January and December 1985. Chase duration and dog dispersal were determined with the aid of radio telemetry. Fifty-three experimental chases of deer were conducted; chase duration averaged 18 minutes. Average dog dispersal from the point of release was 1.1 km; 70% of chases were within 1.6 km of the release point. Dog dispersal data indicated that 2,514 ha were required to hunt deer with dogs in a 405-ha core area to prevent dog trespass onto surrounding land in 70% of the chases. Twenty-six deer of either sex were harvested in experimental chases for a hunter success rate of 65%. Crippling loss of unharvested deer was 38%. No extreme deer movements off the study area were observed, and no deer were caught by dogs.

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White-tailed deer hunting using dogs in east Texas is a tradition that dates back to the times of the early settlers. Deer populations in many areas were severely reduced by 1900 and almost extirpated by 1940 (Anonymous 1945). Although attempts were made to close deer hunting seasons and protect the resource, those efforts proved inadequate. Legislation to prohibit the use of dogs in hunting deer was enacted in 1925, but special laws were passed in some counties that permitted the practice to continue. By 1983, hunting deer with dogs was permitted by special law in 10 east Texas counties.

Hunting deer with dogs in east Texas and throughout the southeastern states is a social and political issue with potential impacts on biological aspects of deer management (Marchinton et al. 1970, Sweeney et al. 1971, Steffen et al. 1983). Deer hunting with dogs was previously practiced in remote areas with poor access, except by foot or horseback. Today, most dog-hunted lands in east Texas are inter-

laced with public roads and other rights-of-ways. Hunters use off-road vehicles and radios to assist them in the hunt. Most social interaction between proponents and opponents of hunting deer with dogs occurs along property boundaries. The most frequently complaint we heard from hunters and landowners opposed to the practice is that dogs trespass onto private property. Another opposition is that dog hunters are perceived as illegal hunters. Proponents insist that dog hunting provides a better chance of killing a deer, and that they prefer to hunt deer with dogs. Biological implications result from noticeably lower deer densities on dog-hunted areas than nondog-hunted areas (Spencer 1986).

In 1984 an investigation to study the sociological and biological aspects of hunting deer with dogs was initiated. This study was conducted in December 1984 and in January and December 1985, and the objectives were to determine dog dispersal patterns on experimental chases, hunter success and deer mortality, and effects on the deer population. This study was supported by the Texas Parks and Wildlife Department Federal Aid Project W–109–R.

Methods

The study area was located in the east Texas Timberlands Land Resource Area in the Southern Coastal Plain. The forest type is shortleaf (*Pinus echinata*) and loblolly (*P. taeda*) pine-hardwood (Stransky 1969). Intensive forest management has converted much of the pine-hardwood forest to loblolly pine plantations (1–4 years old). The study was conducted on 2 deer hunting clubs that covered 13,736 ha in Hardin and Polk counties. The hunting clubs practiced still hunting (without dogs) and also used dogs. The average deer density at the beginning of the study was 75 deer/400 ha (Spencer 1986). The high deer density was a consideration in the selection of the area to facilitate the study.

A helicopter was used to locate deer in 3- to 8-year-old pine plantations on the study area and to drive them into a 167-m × 2-m net. Forty-three deer were trapped and released on the area. Prior to release, each deer was marked with metal ear tags and collared with a battery-powered transmitter (150–152 MHz).

Experimental chases (chases) were conducted to simulate a typical deer hunt using dogs in east Texas. Dog breeds included beagles, black and tans, walkers, and hybrids. Prior to each chase, 2 or 3 dogs were collared with small battery-powered transmitters (150–152 MHz). Collared dogs allowed telemetry observers to continue monitoring the chase if the dogs ceased chasing a radio-collared deer and began chasing unmarked deer.

A receiver and hand-held antenna were used to approach a radio-collared deer for each chase. Dog-handlers with a 2 to 5 dog pack followed the telemetry observer. Dogs were released behind the deer after it had been sighted or the dogs began trailing the deer. A chase was successful if the dogs followed the trail of the collared deer for at least 1 minute. Radio tracking began immediately.

Telemetry data were obtained by triangulation (Cochran and Lord 1963) us-

ing 2 truck-mounted, medium-gain Yagi antennas, and 2 fixed tracking stations. Ground observers, without telemetry equipment, also recorded locations and times during the chase. A telemetry observer in a helicopter was used to provide additional observation on the deer and dogs. Telemetry and observer locations were plotted on aerial photographs (1 : 15,840) of the area when all dogs used in the chase were retrieved. Hunters retrieved all dogs used without the aid of telemetry or observers. Immediately following a chase, the collared deer was located to determine its status.

To investigate deer and dog dispersal patterns without including the influence of hunters and hunting, hunters were not allowed to participate in the chases conducted in December 1984. Experimental either-sex hunts (hunts), each involving an average of 15 hunters, were conducted in January and December 1985 to study dispersal, hunter success, and deer mortality associated with using dogs. Hunters used all-terrain vehicles and radios to assist them in hunts.

Data collected were used to determine chase duration, elapsed time, and dog dispersal. Chase duration (minutes) was the time elapsed from the release of the dogs on the trail of a collared deer until all of the dogs stopped following the trail. Elapsed time (minutes) was the time elapsed between release and retrieval of each dog released in a chase. Dog dispersal (km) was the distance from the point of release to the point at which each dog was captured after each chase. Student's *t*-test was used to determine significant differences ($P < 0.05$) between chases involving hunters and chases not involving hunters. A simple correlation was used to identify any relationship between chase duration and dog dispersal. Hunter success was expressed as the percentage of hunters killing 1 or more deer.

Results

Of the 43 radio-collared deer, 13 were killed by hunters during hunts, and 1 deer was killed prior to the hunts during the regular hunting season. Crippling loss of unharvested deer was 38%. Two of the 13 deer killed were found, with the aid of telemetry, dead and unrecovered by hunters. Three deer were wounded, relocated by telemetry, rechased, and ultimately recovered by the hunters. Fifteen deer were known to be alive on the study area with active transmitters at the end of the study. Unknown status for 14 deer was assumed to be due primarily to malfunctioning or loss of transmitters. No deer movements off of the study area were observed, no deer were caught by dogs during chases, and no deer mortality was attributed to any cause other than gunshot wounds.

Monitoring chases using a helicopter and fixed tracking stations proved ineffective. Helicopter observers lost sight of the deer and dogs because of canopy cover. Accurate telemetry locations from fixed tracking stations was not feasible. Mobile ground crews equipped with telemetry equipment and ground observers were the most effective in monitoring chases.

Fifty-three chases were conducted; dogs failed to chase the collared deer in 8 attempts (Table 1). Chase duration averaged 18 minutes and ranged from 1 to 75

Table 1. Chase duration, elapsed time, and dispersal for radio-collared dogs in experimental chases of white-tailed deer in Hardin and Polk counties, Texas, December 1984–85 and January 1985.

Category	Number of chases	Chase duration (min.)		Elapsed time (min.)		Dog dispersal (km)	
		$\bar{X}$	SE	$\bar{X}$	SE	$\bar{X}$	SE
Chase only	15	24[a]	3.8	78[b]	4.2	1.6	0.2
Chase and unsuccessful harvest	15	19	3.5	37	4.0	1.4	0.2
Chase and successful harvest	23	14	3.0	25	2.3	0.8[b]	0.1

[a]Different ($P < 0.05$) from chase and successful harvest category.
[b]Different ($P < 0.05$) from other chase categories.

minutes. Elapsed time averaged 41 minutes and ranged from 2 minutes to 18 hours. Excluding the 18-hour elapsed time (1 dog chasing different deer), the greatest elapsed time was 6 hours, 10 minutes. In 90% of the chases, after the dogs stopped chasing the collared deer, they began chasing uncollared deer. Average dog dispersal was 1.1 km and varied from 0.2 to 7.4 km. Excluding the extreme 18-hour chase, the greatest dog dispersal was 6.8 km. Based on cumulative maximum dog dispersal, 90%, 70%, and 50% of chases were within 2.7 km, 1.6 km, and 1.3 km of release, respectively.

Chase duration was greater ($P < 0.05$) for chases not involving hunters than for chases involving successful harvest of deer. Elapsed time was greater ($P < 0.05$) for chases not involving hunters than for chases involving hunters. Dog dispersal was less ($P < 0.05$) for chases involving successful harvest of deer than for chases not involving successful harvest of deer. A correlation ($P < 0.05$, $r = 0.40$) existed in the data between elapsed time and dog dispersal. Most dogs chased in 1 direction; however, others circled back toward the point of release.

Hunters were allowed to harvest any deer chased in 38 of the chases. Forty hunters expended 95 man-days of hunting effort to harvest 26 deer for a hunter success rate of 65%. The average deer kill per chase was 0.7.

Discussion

Few studies have been reported on the effects of hunting white-tailed deer with dogs. Marchinton et al. (1970) and Sweeney et al. (1971) found that chases averaged 33 minutes and 3.8 km in experimental deer chases in Alabama, Florida, and South Carolina. They found that hunting dogs were not a limiting factor on deer populations in the areas studied. We did not observe any extreme movements of radio-collared deer off the study area despite the great amount of activity by dogs and hunters on the area. Nor did we observe any deer mortality directly associated with chasing deer with hunting dogs. We found dogs frequently switched from the trail of 1 deer to another deer during a chase. Frequent switching, due to the high

deer population on the area, may have contributed to the shorter chases observed in this study than other studies. Sweeney et al. (1971) found that deer in high populations were more difficult to chase for extended periods than those in low populations.

Excluding hunters from the chases provided the longest chases in terms of time and dog dispersal. Deer extended the chases by circling back on their trail and generally leading the dogs in circles. Dog dispersal increased with elapsed time. Dog dispersal data indicated that 70% of chases were within 1.6 km of the release point, and the greatest dog dispersal was 7.4 km. These data provide a useful measure of the size area needed for deer hunting with dogs if dogs are to be contained within land controlled by dog hunters. Assuming a square-shaped tract and 1.6 km dog dispersal, 2,514 ha would be required to release dogs in a 405-ha core area to contain dog dispersal 70% of the time. Similarly 8,956 ha would be required to release dogs in a 4,047 ha core area. Dogs could not be released in the remaining "buffer" area without risk of dog trespass. This strategy is not practical for most dog-hunters and, therefore, dog dispersal into surrounding lands is inevitable in most cases.

The magnitude of the potential for trespass by dogs was apparent from the distribution, size, and shape of dog-hunted lands in east Texas (Spencer 1986). The study indicated that only 15% of the deer range in the 10-county area open to hunting deer with dogs was dog hunted with landowner permission. Most of the contiguous tracts were <2,025 ha. Dog-hunted tracts were typically irregular in shape and widely separated with frequent inholdings. Additionally, the amount of acreage available to deer hunters using dogs has decreased steadily. Within the past 15 years, 75% of timber company lands, representing 34% of the total deer range in the 10 dog-hunted counties, have been closed to deer hunting using dogs (Spencer 1986). This trend will force deer hunters using dogs into smaller, isolated tracts in the future. The problem of dog trespass onto surrounding lands will incease, causing continued tension between hunters and landowners.

Corbett et al. (1971) found that hunting deer with dogs in mountainous habitat was a very efficient hunting technique, and indicated that the dog trespass problem may be more widespread. Our data indicated that hunting deer with dogs was an efficient harvest method when the harvest was either-sex. Hunter success (65%) was much greater than the success rate (35%) experienced by hunters not using dogs. The hunter success rate observed should be considered as the upper limit because hunters were allowed to harvest any deer chased to maximize the harvest. The presence of telemetry observers provided some (unknown) benefit to the hunters in hunter success; however, the effect was considered insignificant compared to the advantage gained by the use of radios and all-terrain vehicles. Also there was a potential for high crippling loss of unharvested deer. Without the aid of the telemetry equipment, it was doubtful that the wounded deer would have been recovered by hunters. The crippling loss rate of unharvested deer on a nondog-hunted wildlife management area in east Texas was 12% and hunter success rate was 24% (Hogan and Synatzske 1985).

Differential hunting mortality (efficient harvest) and/or high crippling loss may account for generally lower deer densities in dog-hunted areas of east Texas. The high deer density (75 deer/400 ha) on the study area was not typical of dog-hunted areas in east Texas and was attributable to a history of conservative (<25%) harvest of antlerless deer and excellent habitat. This study would not have been feasible on the average dog-hunted area because of inadequate number of deer and size of area. A survey of dog-hunted and nondog-hunted lands in east Texas indicated that the average deer density was 23 deer/400 ha and 86 deer/400 ha, respectively (Spencer 1986). That study found a negative ($P < 0.05$) correlation between deer density and percent of deer range hunted with dogs.

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