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Effects of Lek Disturbances on Lesser Prairie Chickens

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TABLE 3

*Mean rectal temperatures of 51 Abert and Kaibab squirrels by mouth..  
Number in parenthesis is sample size.*

Period	Male	Female	Location
April–May	40.8 C (5)	41.2 C (8)	Kaibab N. F.
June–July	40.2 C (4)	39.6 C (8)	Kaibab N. F.
Aug.–Sept.	39.7 C (3)	40.3 C (2)	Kaibab N. F.
	40.7 C (2)	—	Cocconino N. F.
Oct.–Nov.	40.7 C (11)	40.8 C (8)	Cocconino N. F.

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#### EFFECTS OF LEK DISTURBANCES ON LESSER PRAIRIE CHICKENS.—

Published information regarding the effect of physical disturbances of leks of the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) is uncommon. Copelin (Oklahoma Wildl. Dept. Tech. Bull. 6, 1963) noted only one lek in plowed ground from a total of 44 leks studied. To better understand how disturbances affect the lek activity of these birds, a study was conducted from 1972 to 1974 in Yoakum County, Texas.

Leks were located by listening for vocalizations in both morning and evening during March, 1972. Also, area land owners and residents communicated the location of additional active leks and the sites of several former, traditional leks. Three counts of the number of cocks using each lek were made between the first week of April and the third week of May of 1972 and 1973. Only the leks with physical disturbances, such as road construction or plowing, were censused in 1974. As much information as was available regarding the history of land-use at each study lek, was gathered from area residents. Leks were sought in a variety of habitats, ranging from extensive cultivation to large areas of native range. The primary crop on all cultivated land was grain sorghum.

A total of 13 leks was located (Table 1). Nine were located in rangeland; eight of these received regular spring use through 1972 and 1973. Of these, four leks, averaging 17.1 cocks, were located in undisturbed rangeland. Two others were on abandoned oil pads situated in rangeland (13.9 cocks) and two were found directly on infrequently used, ground-level roads (11.5 cocks). Significant differences existed among the lek populations ( $X^2 = 25.1810$ , d.f. = 5,  $P < .005$ ). The only unused lek in rangeland was a former site having a frequently used, elevated road constructed through the lek. This site was characterized as a large, traditional lek by area residents until the road was constructed.

The other leks were located on land that was once farmed, but subsequently abandoned and allowed to revert back to rangeland. One of these areas was used regularly by Lesser Prairie Chickens throughout the study. Usage of the other site occurred in early April and late May of 1972, but the lek was unused during the intervening time. No activity was found on this site in 1973 or 1974. However, a site approximately 300 meters from the lek received regular use during these two

years. The number of cocks on both reverted cropland leks averaged 14.7 for 1972 and 1973.

Finally, two leks were located in cultivated fields. Neither received regular use during the study. One site was a traditional lek until 1971 when 360 acres containing the lek was broken for cultivation. Three cocks were observed courting a hen in May, 1972 near the former lek. No other use of this lek was found in 1972 or 1973 although four cocks and two cocks were observed near the lek in April and May, respectively, of 1974. It is possible the displays observed in May, 1972 were similar to the "off-lek displaying" described by Hamerstrom and Hamerstrom (Wisconsin Dept. Nat. Resources Tech. Bull. 64, 1973) for the Greater Prairie Chicken (*T. cupido*).

The second lek in cultivated land was located on an isolated section of cropland surrounded by rangeland; the land containing the lek was broken in 1964. Cocks continued to use the area from 1964 until 1971. During this time, area residents observed an average of about 30 birds on this lek. However, in 1971 four more sections of land surrounding the lek were broken for cultivation. Cocks were present on this site in March and April of 1972 (3 cocks in April). In April and May of 1973 one cock was found on this lek. Regular use occurred on this area in 1974 with an average of 7.7 cocks. In addition, another temporary lek was found approximately 1,000 m from this lek, in the newly broken area. Cocks were present only on this lek in March of 1972. Regular use, with an average of 4.7 cocks, occurred in 1973. Five cocks were present in March, 1974 but no further use occurred thereafter, although gobbling was occasionally heard from a switchgrass (*Panicum virgatum*) pasture located within 300 m of this site.

These observations indicate that physical disturbances at leks are variable in their effects on Lesser Prairie Chickens. Construction of a frequently used, elevated road through the lek resulted in abandonment. The disturbance resulting from traffic, an obscured view because of the elevated road surface, or some other factors were responsible for the termination of this site as a functional lek. However, infrequently used, ground-level roads and abandoned oil pads were relatively common lek sites. It seems possible that construction of an area so that it resembles an abandoned oil pad may encourage cocks to form new leks if adjacent habitat is otherwise adequate. Such areas may afford a valuable tool for enhancing populations of this species in west Texas.

TABLE 1  
*Utilization data for 13 Lesser Prairie Chicken leks in  
Yoakum County, Texas, 1972-73*

Site	Leks			Average Number of Males <sup>a</sup>
	Total	Regularly Used	Percent Used	
Undisturbed	4	4	100	17.1
Rangeland:				
Oil well pads	2	2	100	13.9
Infrequently used, ground-level road	2	2	100	11.5
Frequently used, elevated road	1	0	0	0
Reverted cropland	2	1	50	14.7
Cultivated land	2	0	0	1.0

<sup>a</sup> Significant differences occurred between lek population sizes ( $X^2 = 25.1810$ , d.f. = 5,  $P < .005$ ).

Whereas plowing of the lek itself may not always result in abandonment, destruction of the lek and/or the surrounding native rangeland habitat apparently fosters irregular use or abandonment of traditional leks. Presumably, disturbances causing the movement or irregular use of leks are inimical to breeding activities in Lesser Prairie Chickens as compared with regular, undisturbed use of traditional sites.

The authors wish to express their gratitude to Mr. James Edwards for 1974 lek data. This is Research Note TTU-T-9-141, Noxious Brush and Weed Control Project, College of Agricultural Sciences, Texas Tech University.—*John A. Crawford, Department of Range and Wildlife Management, Texas Tech University, Lubbock, Texas 79409 (Current address: Department of Fisheries and Wildlife, Oregon State University, Corvallis, Oregon 97331); and Eric G. Bolen, Welder Wildlife Foundation, Sinton, Texas 78387.*

A GREAT-TAILED GRACKLE CAPTURES AND KILLS A HOUSE SPARROW.—Only a few reports of the great-tailed grackle (*Cassidix mexicanus*) and its closely allied relative, the boat-tailed grackle (*C. major*) preying upon healthy and adult birds have been recorded in the literature. That they may regularly prey upon fishes, frogs, and small snails and lizards has been related by Beal (1900), McIlhenny (1937), Bent (1958), Selander and Gillar (1961), and Davis and Arnold (1972). Friedmann (1924), McIlhenny (1937), and Tutor (1962) reported predation upon the contents of bird nests. McIlhenny (1937) twice observed boat-tailed grackles pursue, kill, and devour wing-crippled dunlins (*Calidris alpina*) and kill trapped red-winged blackbirds (*Agelaius phoeniceus*) and brown-headed cowbirds (*Molothrus ater*).

In our traps we have indications that great-tailed grackles have attacked, killed, and devoured conspecifics, common grackles (*Quiscalus quiscula*), house sparrows (*Passer domesticus*), cardinals (*Cardinalis cardinalis*), and a loggerhead shrike (*Lanius ludovicianus*). However, few instances of predation upon apparently healthy, adult free-ranging birds have been noted. McIlhenny (1937) watched a male boat-tailed grackle capture a swallow and Lamb (1944) saw a male great-tailed grackle catch and kill a yellow warbler (*Dendroica aestiva*) defending its nest. The lack of accounts of *Cassidix* preying upon other birds seems to indicate that this is a seldom occurrence.

In the morning of 17 April, 1974 I was observing and filming a mixed flock of great-tailed grackles feeding upon some spilled grain on a gravel road in the farm portion of the Texas A&M University campus. Feeding with them were some mourning doves (*Zenaidura macroura*), blue jays (*Cyanocitta cristata*), and some house sparrows. Suddenly one of the immature males pounced on a female house sparrow, pinning her to the ground with his feet. He then administered sharp blows with his beak to the nape of her neck. The house sparrow called and struggled but was unable to escape. The action quickly alerted other grackles as they converged and called about the immature male and his victim. None, however, attempted to assist with the killing. After a few more blows the house sparrow expired. The dead sparrow was released as the grackle stepped off of it. The other grackles continued to mill about the carcass. One immature male grackle (same?) stepped onto the dead bird and plucked a few feathers but then left it. One-half hour later an immature male walked over to the dead sparrow and unforcefully