
Harassment of a Greater Prairie-Chicken Lek by American Crows

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We describe two separate observations of the harassment of male greater prairie-chickens (*Tympanuchus cupido pinnatus*) on a lek by American crows (*Corvus brachyrhynchos*) in eastern Kansas. The lek was occupied by 15 to 20 male prairie-chickens during the peak of the booming season. An observation blind was 50 m from the lek center. The first disturbance was caused by one crow and resulted in minimal disruption of male prairie-chicken booming activity. The second disruption involved two crows driving prairie-chickens from the lek, with normal lekking activity disrupted for the remainder of the booming period that morning.
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INTRODUCTION

Disturbances of greater prairie-chicken (*Tympanuchus cupido pinnatus*) lekking behavior by mammals (1), ring-necked pheasants (*Phasianus colchicus*; 2), and raptors (3,4) have been previously reported. Anderson (4) also reported reactions of greater prairie-chickens to waterfowl and airplanes. The effects of disturbances on male sharp-tailed grouse (*T. phasianellus*) were reported by Baydack and Hein (5) and Wedgewood (6). The majority of these disturbances had little to no effect on lekking behavior; however, raptors created the most disruption (3,4). We report two different occasions where American crows (*Corvus brachyrhynchos*) interfered with greater prairie-chicken behavior on an established lek.

OBSERVATIONS and DISCUSSION

The observations took place on a greater prairie-chicken lek that has been observed for the past 12 years in a grazed native tallgrass pasture in Lyon County, Kansas. From a blind located 50 m away, we

observed the lek during the peak of the yearly booming season (March 20 to April 20).

On March 22, 2000 at 07:45 Central Standard Time (CST), we observed one crow fly into the eastern portion of a lek on which 15 male prairie-chickens stood. This caused displaying males to crouch and discontinue booming for several minutes, behavior that is similar to reactions reported when disturbed by mammals (1) and raptors (3,4). The crow walked westward toward the center of the lek, stopping at intervals of a few meters to call. After 2 min the prairie-chickens began to display normally (7). Two male prairie-chickens near the crow began to display to the crow by raising pinnae, inflating air sacs, and strutting. Both males remained positioned parallel to the crow until it left their respective territories. After approximately 15 min standing in the center of the lek while still calling, the crow flew through the southeast portion of the lek. This caused two male prairie-chickens to move several meters into taller vegetation outside the lek area. Within 4 min, the two

displaced male prairie-chickens returned to the lek, and lekking behavior returned to normal within 10 min after the crow's departure.

On March 26, 2000 at 08:10 CST, we observed one crow fly from the east into the center of the lek where 16 males were displaying. This caused two displaying males in the area to flush 10 m into taller vegetation. All other males stopped displaying and crouched, which was similar to the behavior observed on the previous occasion when the crow approached. After approximately 60 sec of calling by the first crow from the lek, an additional crow landed near the first crow. As the second crow landed the first crow flew toward the two male prairie-chickens that had been flushed earlier from the lek. The crow caused both males, which had started to return, to flush away from the lek to the southeast. The crow continued to harass the two prairie-chickens by flying closely behind them until they were approximately 300 m from the lek. This crow then returned to the lek, flying low and causing two other males to flush 50 m to the southwest.

The two crows were observed for approximately 5 min calling and walking toward the center of the lek. As the crows neared the center, the second crow flew northwest over four male prairie-chickens. These males dispersed at least 50 m in all directions. The crow then circled the lek and approached from the northwest, at this point it dove at a lone male in the northeast corner of the lek. Flying low behind the prairie-chicken it chased the male to the southeast. At that point the two original males that had been driven 300 m from the lek had walked slowly back to within 150 m. The lone prairie-chicken male that the crow was chasing flew over the original two male prairie-chickens, with the crow in pursuit. The crow again prompted the original two males to fly 300 m to the southeast from their current position. After the three prairie-chickens had landed approximately 450 m from the lek, the crow circled back to the lek. As this crow crossed over the lek, the other crow followed, and they both flew south out of site.

The lek was left with six male prairie-chickens, that were crouched and not vocalizing. Within 15 min all displaced males had returned to their apparent original locations on the lek. The displaying and booming activity did not return to normal the rest of the morning and at 09:15 CST all but one male prairie-chicken had left the lek and flew to the east.

These are the first reported observations of American crows harassing lekking grouse. Berger et al. (3) and Anderson (4) both reported a number of raptor species interacting with greater prairie-chickens in Wisconsin. Of 4,745 morning observations from a blind over 21 years, Berger et al. (3) reported 1,379 raptor encounters, with 14 raptor species identified, but no crows. Anderson (4) also did not report crows during his observations of prairie-chickens.

Crows are known to mob predators such as hawks (Accipitidae), owls (Strigiformes), raccoons (*Procyon lotor*), and foxes (Canidae), as well as nonthreatening species (8). Mobbing involves diving to peck or strike the target and attracting other crows by uttering loud calls. Crows are known to be intelligent birds with diverse behavior patterns. They have been observed hopping or walking on the ground behind the target, attempting to pull their tail to gain attention (8,9). This type of behavior, with non-threatening species, has also been classified as play. Crows are known to "play" with species such as rabbits (Leporidae), sandhill cranes (*Grus canadensis*), wild turkeys (*Meleagris gallopavo*), river otters (*Lutra canadensis*), kestrels (*Falco* sp.), and cows (9). The behavior ranges from harassment to participation in mating behavior. The harassment of the greater prairie-chicken lek that we observed may have been an example of play.

Over the past few decades crow populations have increased in Kansas. Between 1966 and 1998 the North American Breeding Bird Survey indicated that American crows increased in Kansas (trend estimate +1.82%/y, $P = 0.00953$) slightly more rapidly than throughout the country (trend estimate +1.26%/y, $P < 0.001$; 10). This increase in the number of crows may cause an increase in

the interactions with species such as prairie-chickens.

Ring-necked pheasants in Illinois showed similar behavior to that we observed with crows (2). They found that male pheasants would challenge greater prairie-chicken males and drive them from the lek, similar to the behavior of the crows. Vance and Westemeier (2) state that harassment of prairie-chickens by pheasants on booming grounds disrupts the reproductive behavior of male prairie-chickens and often chased females from the area. This is important for smaller leks in areas where remnant or isolated populations exist. The behavior of crows seems to be similar to that of the ring-necked pheasants and may have similar results.

ACKNOWLEDGMENTS

We thank R. Westemeier, J. Grzybowski, C. McDowell, and four anonymous reviewers for their suggestions on this manuscript. This paper is a contribution, in part, by the Kansas Federal Aid Project W-39-R.

REFERENCES

1. Hamerstrom F, Berger DD, Hamerstrom FN Jr. The effect of mammals on prairie chickens on booming grounds. *J Wildl Manage* 1965;29:536-542.
2. Vance DR, Westemeier RL. Interactions of pheasants and prairie chickens in Illinois. *Wild Soc Bull* 1979;7:221-225.
3. Berger DD, Hamerstrom F, Hamerstrom FN Jr. The effect of raptors on prairie-chickens on booming grounds. *J Wildl Manage* 1963;27:778-791.
4. Anderson R. K. Mating and interspecific behavior of greater prairie chickens. [PhD dissertation] Madison: University of Wisconsin. 1969. 118 p.
5. Baydak R K, Hein DA. Tolerance of sharp-tailed grouse to lek disturbance. *Wild Soc Bull* 1987;15:535-539.
6. Wedgewood J. Tolerance of short-term disturbances by sharp-tailed grouse. *Blue Jay* 1992;50:97-100.

7. Hjørth I. Reproductive behaviour in Tetraonidae with special reference to males. *Viltrevy* 1970;7:362-388.
8. Goodwin D. *Crows of the world*. 2nd ed. Seattle: University of Washington Press. 1986. 300 p.
9. Kilham L. *The American crow and common raven*. College Station: Texas A&M University Press. 1989. 272 p.
10. Sauer JR, Hines JE, Thomas I, Fallon J, Gough G. *The North American Breeding Bird Survey, Results and Analysis 1966-1998*. Version 98.1. Laurel, Maryland: USGS Patuxent Wildlife Research Center. <http://www.mbr-pwrc.usgs.gov/bbs>. 1999.

Received: May 20, 2001; Accepted: May 6, 2002.