

Sage Grouse Leaks on Recently Disturbed Sites

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Abstract

Three sage grouse (*Centrocercus urophasianus*) leks located on recently disturbed areas within the Idaho National Engineering Laboratory Site are described. A possible increase in the grouse population and lack of suitable natural clearings in the general vicinity of these leks are suggested as reasons for the bird's use of these areas. This species' acceptance of newly cleared sites for display areas may have potential as a management tool.

This paper describes three sage grouse (*Centrocercus urophasianus*) leks we located on recently disturbed areas while conducting an inventory of leks on and near the Idaho National Engineering Laboratory Site (INEL) during the springs of 1978 and 1979. Sage grouse leks are generally considered to be traditional display areas with birds returning to the same area year after year. One lek near Laramie, Wyoming, has been reported to have been occupied for at least 28 years (Wiley 1978). Dalke et al. (1963) suggested that some leks in southeastern Idaho may have been active since the time of Indian occupancy, at least 100 years prior to their study. Although the formation of new leks has not been well documented, it seems that sage grouse will quickly take advantage of new disturbed areas (Dalke et al. 1960, 1963). This species has been observed to use plowed, paved roads and man-made clearings in eastern Wyoming when their traditional display areas were covered with snow (A.W. Alldredge pers. comm.). Further, recent research in Montana suggests that sage grouse leks can be relocated using man-made clearings (R. Eng and E. Pitcher pers. comm.).

Study Area and Methods

The INEL Site is a 2,315 km² area located on the upper Snake River Plain in southeastern Idaho. The topography is flat to rolling and has an average elevation of 1,470 m. The area is dominated by sagebrush (*Artemisia* spp.)-grass plant communities, which have been described by Atwood (1970) and McBride et al. (1978). The leks discussed in this paper occur in a big sagebrush (*A. tridentata*)-bluebunch wheatgrass (*Agropyron spicatum*)-rabbitbrush (*Chrysothamnus viscidiflorus*) habitat type (McBride et al. 1978) in the southwestern section of the Site.

Leks were censused from 1/2 hour before to 1 1/2 hours after sunrise at least 4 times during the month of April and the first week of May (Jenni and Hartzler 1978). The three highest counts were then averaged to estimate average male attendance at each of these leks. No effort was made to differentiate yearling cocks from

mature birds.

Results and Discussion

To date, we have located 51 leks on and near the INEL, 3 of which occur on recently disturbed sites. Lek A is located in a burned area and Leks B and C are found on and in pits dug to obtain gravel and fill (Table 1). Lek A occurs on a 300-ha, 5-year-old burn and has been used for the past two seasons. It is doubtful that sage grouse had used it prior to 1978 since field personnel travel the area regularly during spring mornings and had not previously observed any birds in the burn. The area adjacent to the burn is dominated by a relatively dense stand of big sagebrush, so it is not likely that the site was used as a lek before the burn. Lek B is found along the edge of a pit, approximately 2 ha in size, dug during the fall of 1978 to obtain gravel and fill. This area was searched for leks by both ground vehicles and aircraft during the spring of 1978, and none were located. Prior to the pit being dug, this site was dominated by bluebunch and crested wheatgrass (*A. cristatum*). Lek C is located within and along the edges of a gravel pit. This pit is approximately 20 years old, but we consider it a recent disturbance because gravel and fill have been removed each year, thus changing its physical shape and precluding the development of vegetation. This lek is somewhat atypical in that dominant males have established territories in the bottom of the pit with subdominant males dispersed along its edge. Lumsden (1968) indicated that the two common characteristics of the leks he studied were that the grouse were easily seen from the ground in most directions and were visible for a great distance to birds flying 5-10 m above the ground. Neither of these conditions exists at Lek C. We do not know how long this pit has been used as a display area, but INEL employees reported seeing sage grouse displaying in this gravel pit for the past five years.

Until the initiation of this study in 1978, very little was known about sage grouse populations on the INEL Site. Overall, male lek attendance was higher in 1979 than in 1978. This may indicate an increasing sage grouse population and thus partially explain the bird's use of these disturbed sites. However, more data is needed before an accurate assessment of the population's status can be made.

From aerial observations, it is apparent that these 3 leks are located in a portion of the INEL Site which contains fewer natural clearings than does the remaining area of the Site; however, we have not yet calculated the density of natural openings on the Site. To date, no leks have been located on recently burned areas or man-made clearings in that part of the INEL which appears to have a greater number of natural clearings.

These findings suggest that sage grouse are flexible in the types of areas used for leks and further reinforce the notion that sage grouse will use man-made clearings for leks providing there is

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Table 1. Male attendance and physical characteristics of 3 leks occurring on recently disturbed sites on the Idaho National Engineering Laboratory.

Lek	Avg. attendance ¹		Peak attendance		Type	Date of disturbance	Size	Distance to nearest known lek
	1978	1979	1978	1979				
A	21	19	21	20	Burn	Fall 1974	300 ha ³	10 km
B ²	—	25	—	30	Gravel pit	Fall 1978	2 ha	1.6 km
C	13	31	17	36	Gravel pit	Early 1950's	1 ha	5.6

¹Calculated from 3 highest counts made between April 1 and May 7.

²Not used in 1978.

³An area of approximately 1 ha is used as the lek.

sagebrush nearby for escape and feeding and a paucity of natural clearings in the general vicinity. We suggest that this species' acceptance of newly disturbed sites for display areas can be used as a management tool in areas where leks are destroyed by road-building, mining, or other man-made or natural disturbances, especially where other natural clearings are not available.

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