

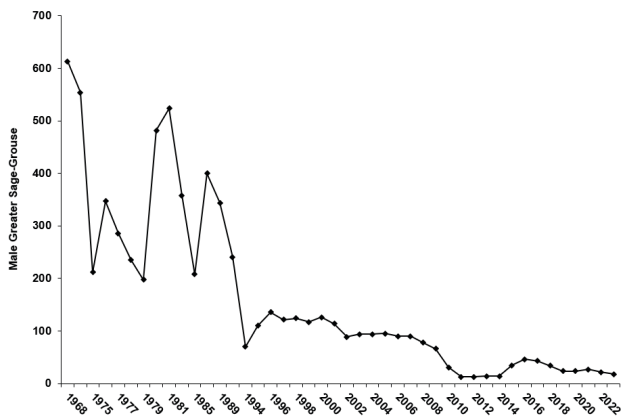
Species at Risk Survey Report

Greater sage-grouse lek census 2023

Background

The greater sage-grouse (*Centrocercus urophasianus*) is arguably Alberta's most "at risk" species. As of 1968, a provincial population of 3000 to 6000 individuals occupied a range of approximately 40,000 km². The species was also a popular game bird with a limited hunting season in the southeast of the province. Due to significant population decline (Balderson et al. 2013; Figure 1) and range contraction (now approximately 4000 km²), Alberta's *Wildlife Act* currently lists sage-grouse as an endangered species. Only three of 38 known lek sites in Alberta are currently active. The population in Saskatchewan has undergone similar declines, and sage-grouse are listed as endangered under the federal *Species at Risk Act*. Federal listing of the species was followed by the establishment of an Emergency Protection Order that restricts activities on provincial crown lands in south-eastern Alberta. In the Western United States, the status of sage-grouse ranges from extirpated to secure.

Figure 1: Total male greater sage-grouse lek attendance in Alberta by year (1968-2023).



Sage-grouse are at the northern limit of their North American range in Alberta. Sagebrush, in particular, silver sagebrush (*Artemisia cana*) – supports most of the diet of adult birds. Their range is currently limited to the south-eastern corner of the province within the sagebrush steppe of the dry mixedgrass prairie. Conversions of native prairie to agricultural lands, oil and gas development, noise, anthropogenic structures, increased predation pressure, and over-grazing are all detrimental to sage-grouse habitat quality.

Monitoring of sage-grouse in Alberta has been sporadic since it began in 1968; however, since the species decline was documented in the mid-90s a concerted effort has been made to monitor the population each spring.

Survey

Due to the small number of active lek sites, a census is undertaken to enumerate every individual at each lek site on an annual basis. Monitoring methods are consistent with accepted practice and other agencies across North America (Connelly et al. 2003). Each site is visited under appropriate environmental conditions with surveyors in place 30 to 60 minutes before sunrise to minimize disturbance at the lek sites and to detect all males arriving at the leks. Counts are conducted using binoculars and spotting scopes to reduce disturbance to the birds. Each site is visited a minimum of three times to determine maximum lek attendance.

One of the three active lek sites (80-30) has undergone more significant declines. In spring of 2022 only one male was present. Prior to the lekking season in 2023 it was decided that if there were no observations of grouse at a lek, decoys and a recording of displaying males would be deployed at that lek. Previous research has shown that this can attract males in the vicinity that are reluctant to visit the lek location (Gibson 1989, S. Liccioli 2022 *pers. comm.*).

Installation of cameras, decoys and a call playback system at lek 80-30 occurred after three lek counts were completed without sage-grouse being observed. Staff from Alberta Fish and Wildlife Stewardship and Environment and Climate Change Canada placed seven remote cameras, four 3D-printed male sage grouse, two foam-molded female grouse decoys, and a call playback system at the lek on April 27, 2023.

Results and discussion

Lek counts were conducted April 12, 21 and 24 in 2023. A maximum count of 17 male sage-grouse were observed at two of the three leks (Table 1). The absence of grouse at the third lek led to the deployment of the decoys and call playback system. During deployment of the decoy set up, one male sage-grouse was observed approximately 150 m from the lek. The cameras also recorded a single male displaying approximately 50 m from the lek during the evening of May 7. This observation increased the total count to 18

males. The current population based on the 2023 lek census is approximately 54 individuals (males and females), which represents a decline of 18 percent relative to the 2022 estimate.

TABLE 1: Greater sage-grouse (male) lek counts in Alberta (2021-2023).

Lek	2021	2022	2023
99-34	16	13	8
68-16	7	8	9
80-30	4	1	1
Total	27	22	18

The results of the 2023 lek census continue the trend of extremely low numbers of sage-grouse in Alberta. These results indicate that the population of sage-grouse in Alberta remains extremely vulnerable to stochastic events such as harsh weather or disease outbreaks and is in danger of extirpation in the near future. Significant work is underway to recover sage-grouse habitat, and continued population reinforcement.

Literature

Balderson, K.L., D.H. Eslinger and J.T. Nicholson. 2013. Greater Sage-Grouse (*Centrocercus urophasianus*). Monitoring in Southeastern Alberta: 1968-2012. Alberta Environment and Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Report No. 147, Edmonton, AB. 28 pp.

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Gibson, R.M., 1989. Field playback of male display attracts females in lek breeding sage grouse. Behavioral Ecology and Sociobiology, 24, pp.439-443.

Acknowledgements

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