

Feral Horses Disrupt Greater Sage-Grouse Lekking Activity in the Great Basin

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ABSTRACT: Greater sage-grouse (*Centrocercus urophasianus*; hereafter, sage grouse) and feral horses (*Equus ferus caballus*) co-occur within Great Basin sagebrush ecosystems of western North America. In recent decades, sage-grouse populations have declined substantially while concomitantly feral horse populations have increased drastically. Although multiple studies have reported feral horses adversely impacting native ungulate species, direct interactions between feral horses and sage-grouse have not been documented previously. We compiled sage-grouse lek count data and associated ungulate observations from 2010 and 2013-2018. We used Bayesian multinomial logistic models to examine the response of breeding male sage-grouse to presence of native (i.e. mule deer, pronghorn) and non-native (i.e. cattle, feral horses) ungulates on active sage grouse leks (traditional breeding grounds). We found sage-grouse were 9.5 times more likely to be present on active leks concurrent with native ungulates compared to non-native ungulates. Of the four different ungulate species, sage-grouse were least likely to be at active leks when feral horses were present. Our results suggest that the presence of feral horses negatively influences sage-grouse lekking activity. Because sage-grouse population growth is sensitive to breeding success, disruption of leks by feral horses could reduce breeding opportunities and limit breeding areas within sage-grouse habitat.

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