

Effects of Winter Recreation

RESOURCE BRIEF

**Importance**

The impacts of the use of over-snow vehicles (snowmobiles and snow coaches) on wildlife has been a key issue in winter use policies in Yellowstone for two decades. OSVs are required to stay on groomed roads, but the roads are often situated where wildlife may be concentrated in winter. The proximity of humans can cause increased vigilance or wildlife displacement from preferred habitat, resulting in expenditure of more energy or reduced foraging or care of offspring at a time of year when staying warm and nourished may already be difficult, potentially affecting a species' reproduction, distribution, and abundance.



**Status**

Research indicates that disturbance by winter visitors is not a primary influence on the distribution, movements, or vital rates of bison, trumpeter swans, elk, coyotes, and bald eagles. Monitoring of OSV use in Yellowstone has found that nearly all OSV users remain on groomed roads and behave appropriately toward wildlife, rarely approaching unless animals are on or adjacent to the road. In most of 7,603 encounters observed between people on OSVs and wildlife, the animals either had no apparent response or looked and then resumed what they were previously doing: bison 91% of the encounters; swans, elk, and bald eagles, 81%; and coyotes, 74% (Figure 1).

The possibility that road grooming increases bison migration out of the park where they may be killed has not been borne out by research. Data on bison road use and off-road travel collected from 1997 to 2005 found bison on the road less often from December to April when the roads were groomed than during the rest of the year, and no evidence that bison preferentially used groomed roads during winter.

**Discussion**

Compared to similar studies done in other places, the relatively low intensity of wildlife responses in Yellowstone suggests that because the encounters near roads are predictable and apparently not harmful to the animals, some habituation to OSVs and associated human activities may be occurring.

An evaluation of 121,380 GPS locations from 14 female bison during 2003–2004, done in collaboration with Montana State University and California State University–Monterey Bay, found that the bison's travel network was defined by streams that connected foraging areas. The probability of bison travel was higher in canyons and other places where the topography constrained movements. Roads may facilitate bison travel in certain areas, but many road segments used by bison appear to coincide with or have similar landscape features as natural travel corridors. These data indicate that changes in bison distribution during the past three decades have likely been the result of the natural phenomenon of density-dependent range expansion rather than caused by road grooming.

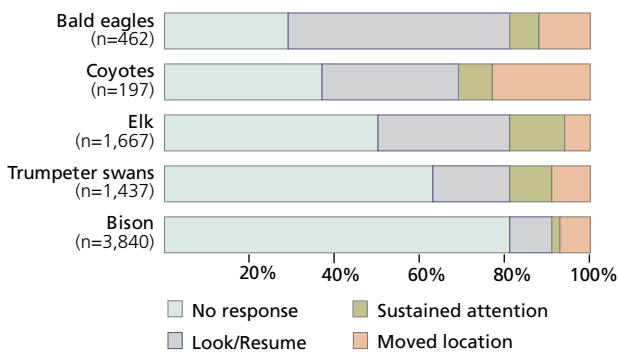


Figure 1. Reactions of five species to visitors on OSVs during the winters of 2003–2008, as a percentage of the total number of animals of that species observed.