The Effects of Groomed Roads on the Behavior and Distribution of Bison in Yellowstone National Park[TWS]

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The road grooming needed to support snowmobile travel in Yellowstone National Park has come under examination for its effects on bison (*Bison bison*) ecology. Data were collected from November 1997 through May 1998 and again from December 1998 through May 1999 on the effects of road grooming on bison in Madison-Gibbon-Firehole area of Yellowstone National Park. The study area roads were surveyed by crewmembers for use by bison. The trend for both seasons showed moderate numbers of groups traveling on roads in late fall/early winter, prior to road grooming. Road use leveled off in midwinter before peaking sharply in April. This sharp increase coincided with the beginning of spring melt at lower elevations of the study area and occurred after road grooming had ceased. Bison surveys of the entire study area were conducted over both field seasons. These surveys provided data on bison locations and behavior from over 28,000 bison observations. During the road-grooming period, 18 percent of observed bison travel took place on groomed roads. Most travel (57 %) took place off of roads and established trails. For December through March, travel accounted for only 0.7 percent of observed snow-displacing bison behavior, while foraging accounted for 42.5 percent. Bison appeared to utilize corridors such as waterways for off-road travel pathways. Location data, along with data from infrared trail monitors, were utilized to assess the aspects of off-road movements. These data indicate that the Mary Mountain trail between the Hayden Valley and the Firehole continued to be the major route for bison winter distributional shifts.