

UNGULATE RESPONSES TO PATHWAY CONSTRUCTION AND USE IN A NATIONAL PARK TRANSPORTATION CORRIDOR

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ABSTRACT

Expanding transportation corridors in national parks to incorporate recreational pathways can affect wildlife, visitors, and opportunities to see wildlife. I conducted a Before-After-Control-Impact assessment of elk (*Cervus canadensis*) and pronghorn antelope (*Antilocapra americana*) responses to recreational pathway construction and use in an existing transportation corridor in Grand Teton National Park, USA. I measured activities of these ungulates and humans before pathway construction (2007), during construction (2008), and for two years after the pathway opened to public use (2009, 2010) in a treatment area with the pathway and an adjacent control area without it. If ungulates avoided pathway activities, I predicted that, in the treatment as compared to the control: 1) standardized counts of ungulates viewed from the road would decline; 2) ungulates would be seen farther from the road; 3) the probability of ungulates responding behaviorally would increase, and 4) observations of vehicles stopped, people afoot and wildlife viewing activities would decrease given fewer opportunities to view wildlife during and after pathway construction. Contrary to predictions, the number of elk viewed did not decrease and the distance of elk from the road did not increase in the treatment relative to the control after pathway installation. Further, the probability of elk behaviorally responding in the treatment was lower, not higher, compared to the control during and after pathway construction, particularly in early season, potentially suggesting tolerance or habituation to human activities. Although the number of pronghorn viewed and their behavioral responsiveness did not differ in the treatment relative to the control, pronghorn shifted farther from the road after construction in the treatment, supporting the prediction that pronghorn avoided pathway activities during the mid-season peak in park visitation. In contrast to the prediction of reduced wildlife viewing opportunities following pathway construction, I observed more vehicles parked and people afoot in 2010 in the treatment than in other years, particularly in the late season. Although I saw fewer people engaged in viewing wildlife in the treatment and control in 2009, wildlife viewing activities recovered in the treatment relative to the control in 2010. Despite direct habitat loss, widening the human footprint, and a shift in pronghorn groups away from the transportation corridor during the annual peak in park visitation, pathway construction and use did not appear to greatly impact ungulates or reduce visitor opportunities to see elk and pronghorn in the travel corridor.

BIOGRAPHICAL SKETCH

Amanda Hardy is the Assistant Director of the Wildlife Conservation Society's (WCS) North American Program, where she manages programs in the Alaskan Arctic, Adirondacks, Greater Yellowstone, Northern Rockies, and Great Plains regions. Prior to joining WCS, she worked for the National Park Service in Yellowstone for a decade, doing wildlife research, fire and forestry work, resource management, and planning and compliance work. Later, Amanda established the

Road Ecology Program at the Western Transportation Institute at Montana State University where she led scientific studies quantifying and ameliorating impacts of transportation systems on wildlife at local and landscape levels; beyond applied science, Amanda also facilitated a multi-stakeholder group in Montana to pioneer the “Eco-Logical” ecosystem approach for offsetting anticipated unavoidable impacts associated with long-term transportation project planning and delivery. She currently is a member of the Transportation Research Board’s Committee on Ecology and Transportation, and served on the ICOET planning committee for the 2003 and 2005 conferences. Amanda earned a BS and MS in Fish and Wildlife Management from Montana State University, and a PhD in Ecology from Colorado State University.