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<https://escholarship.org/uc/item/5zt7m8h5>

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### Publication Date

2005-08-29

## **ROAD WATCH IN THE PASS: USING CITIZEN SCIENCE TO IDENTIFY WILDLIFE CROSSING LOCATIONS ALONG HIGHWAY 3 IN THE CROWSNEST PASS OF SOUTHWESTERN ALBERTA**

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### **Abstract**

The municipality of Crowsnest Pass is situated in a rare east-west corridor bisecting the Rocky Mountains in Southwestern Alberta and Southeastern British Columbia. Highway 3, which runs the length of the Pass, is a major transportation route supporting over 13,000 vehicles per day. Wildlife mortality, due to collisions with vehicles, has been identified as a major human-safety and wildlife-conservation issue on this stretch of highway with approximately 109 large mammal deaths per year. Another immediate threat to wildlife populations in the region is the proposed expansion and realignment of Highway 3. The expanded highway footprint and increased traffic will likely affect wildlife use in the area. It is therefore important that decision makers acquire information on where wildlife are most likely to cross the road to ensure effective mitigation measures. Currently, information pertaining to wildlife movement in the Pass is limited.

Road Watch in the Pass is an innovative, community-based research project that engages local citizenry in reporting wildlife observations along Highway 3 through the Crowsnest Pass in southwestern Alberta, Canada. Through the use of a Web-based GIS, interested citizens can participate in data collection that will be instrumental to decision makers in reducing wildlife-vehicle collisions and for developing mitigation measures for highway expansion. Road Watch was designed to test and profile the use of local knowledge and volunteer data collection in the Crowsnest Pass by providing land managers and the community with valuable baseline information related to wildlife highway crossings. The goals of the project are to collect, analyze, and communicate information highlighting crossing locations of wildlife along the highway based on local knowledge and observations, as well as to engage the citizenry of the pass in local issues relating to wildlife movement and safety.

The project was launched in November 2004 after considerable communication with decision makers in the Pass and the hiring of a local project coordinator. There are currently 51 active participants using the website and interactive mapping tool. The 51 participants have recorded over 581 large mammal sightings. These results are provided to the community on a regular basis through the local media, project website, and email messages. Although the project is still new in inception, preliminary results indicate that the community is successfully engaged with an average of five new volunteers joining Road Watch each month. Each volunteer has contributed an average of 12 observations, with 59 percent of the participants submitting observations on more than one occasion. The number of individual observations ranges from one to 167. Participants have recorded the full compliment of large mammals that occur in the pass, including: 243 mule deer (*Odocoileus hemionus*), 106 big horn sheep (*Ovis canadensis*), 66 white-tailed deer (*Odocoileus virginianus*), 64 unidentified deer species (*Odocoileus* spp.), 35 elk (*Cervus elaphus*), 30 moose (*Alces alces*), 11 coyotes (*Canis latrans*), seven black bears (*Ursus americanus*), three wolves (*Canis lupus*), three mountain goats (*Oreamnos americanus*), three grizzly bears (*Ursus arctos horribilis*) and two cougars (*Puma concolor*), with the exception of wolverine (*Gulo gulo*) and lynx (*Lynx canadensis*).

Road Watch observations provide a valuable supplement to mortality data and have the potential to greatly enhance the existing information base. For example, the percentages of species observations from Road Watch correlate to the recorded levels of wildlife mortality, with mule deer as the highest recorded species from both data sources. From preliminary comparisons of these two data sources, we have identified zones with high Road Watch observations corresponding with low mortality records. This may indicate that there are areas where wildlife are successfully crossing, which has important implications for highway mitigation.

Road Watch is an innovative initiative that will generate a unique dataset resulting from a comparative analysis of knowledge sources. Preliminary results demonstrate that this approach increases the knowledge base by providing new emerging knowledge that would not have been explicit from a single source. This initiative also provides the opportunity for the Crowsnest Pass community to actively engage in an important wildlife-conservation issue. This information will be important to citizens in the community and local decisionmakers in relation to human safety and wildlife conservation around Highway 3.