# Grizzly Bear Response to Oil and Gas Development and Activities in Alberta

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Oil and gas transmission pipelines are prevalent features on the Alberta landscape. While some wildlife species avoid linear features, others may use linear features as movement corridors. Limited research has been completed regarding grizzly bear response to pipelines in Alberta. In the first year of this research project, we set out to address the current knowledge gap regarding grizzly bear habitat use, foraging patterns, and movement patterns on pipelines.

We completed an analysis of selection ratios to describe habitat use of pipelines and other linear features in our study area, including roads and seismic lines. Our results indicate that grizzly bears used roads, road-pipeline combined right-of-ways, and pipelines significantly more than expected based on habitat availability. Seismic lines were used no differently than expected. Selection patterns for pipelines, road-pipelines and roads varied by linear feature, age-sex class, and season.

To investigate what grizzly bears may be doing on

pipeline RoWs, we visited 211 grizzly bear collar locations on pipelines in 2012. Analysis of field data indicates that bears are using pipeline RoWs for a range of foraging opportunities, with anting as the most common activity. We analyzed hourly movement rates (step lengths) to investigate grizzly bear movement on pipelines and other linear features. Movement rates of grizzly bears were significantly faster on road RoWs, road-pipeline RoWs, pipeline RoWs, and seismic RoWs as compared to non-linear habitat. Fast rates of movement suggest that linear feature RoWs may serve as movement corridors for grizzly bears in our study area. Age-sex class and period of the day were also significant predictors of movement rates.

The use of pipeline right-of-ways for foraging and movement has potential consequences for grizzly bears and other species. Bears using linear features are at a higher risk of human-caused mortality. Grizzly bear use of RoWs for movement could also result in avoidance of linear features by ungulates such as caribou, and has the potential to increase grizzly bear predation rates on caribou. As oil and gas development continues to expand in grizzly bear habitat, it is important to gain an understanding of the potential impacts of pipelines on grizzly bears. Results from this research will help resource managers to understand and predict grizzly bear response to pipelines, assisting with resource management and recovery efforts in grizzly bear habitat in Alberta.

**Policy Issue**

Biodiversity: Species Conservation; grizzly bears

**Knowledge Gap**

Grizzly bear response to oil and gas development. Predator use of anthropogenic features associated with oil and gas developments

**Reports**

- 2010 Interim report
- 2012 Final Report

**Presentations**

- 2010 Presentation
- 2011 Presentation