EXAMINING MOVEMENTS AND RESOURCE SELECTION OF MOUNTAIN GOATS IN RELATION TO HELI-SKIING ACTIVITY

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Abstract: Helicopter-based recreation is increasing rapidly in many areas used by mountain goats (*Oreamnos americanus*). Although the immediate, acute responses of mountain goats to helicopters have been well studied, longer-term effects are unclear. There is concern that disturbance caused by helicopter activity may result in heightened energetic expenditures and displacement from preferred habitats; impacts that could have important implications during the winter season when habitat requirements are highly specific and animals are subject to significant nutritional and energetic stress. From 2007–2010, location data from 11 GPS-collared female mountain goats inhabiting a gradient of heliskiing activity (no use to high intensity) were collected as well as detailed GPS-helicopter tracks obtained in cooperation with Last Frontier Heliskiing. We reviewed how we examined whether heli-skiing activity affected the medium-term movements and range use of mountain goats within a commercial heli-skiing tenure in northwest British Columbia. We discussed how we were examining this unique dataset within a 3D-GIS framework to define proximity and visibility of heliskiing activity to animals, both spatially and temporally. We then explained the methods we were utilizing to relate these point-specific measures of heliskiing activity to a range of movement metrics including medium-term range size and displacement, average movement rates, and distinct anomalous extra-home range movements. To further explore range use, we illustrated how we were examining the relative importance of heliskiing-related covariates to selection strategies through logistic regression and the information-theoretic approach.

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Key words: *Oreamnos americanus*, mountain goat, disturbance, heliskiing, radio-telemetry, range size, habitat selection.

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