



Developing a Spatial Tool to Enable Monitoring of Aircraft Flights and Compliance with Avoidance Strategies for Helicopter Skiing Operations in the Skeena Region

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ABSTRACT: Guidelines to mitigate the potential disturbance and displacement effects of helicopter-skiing in areas occupied by mountain goats (*Oreamnos americanus*) through vertical and horizontal setback distances have been in place in British Columbia since the early 2000's. In the Skeena region, detailed mitigation strategies have been developed to ensure helicopter flight paths avoid areas occupied by mountain goats during the critical winter period. Without the ability to remotely track flight paths, assessing compliance with avoidance measures is logistically challenging in the remote mountainous terrain used by both mountain goats and the heli-skiing sector. A simple spatial tool has been created to provide immediate feedback to operators and enable performance review of individual heli-skiing operations and flight paths relative to mountain goat habitats. The tool is based on a combination of Google Earth, vertically extruded mountain goat winter range habitat polygons and Garmin Global Positioning System flight tracking. The tool enables a 3-D visual analysis of flight path performance relative to avoidance zones. An ArcGIS Visibility function also provides a more detailed assessment related to horizontal setbacks from key mountain goat winter range habitats. Continued "social licence" for the heli-skiing sector to operate on public lands and within First Nation territories hinges on maintaining public confidence that commercial back-country recreation activities do not jeopardize the sustainability of wildlife populations. This tool provides an opportunity to effectively monitor and assess operator performance and enhance public confidence that appropriate protection measures are in place and being adhered to. Formal monitoring of adherence to provincial guidelines and site-specific mitigation strategies has been enabled through application of this tool, and the results for the 2016/17 ski season for some of the six heli-skiing operations in the Skeena Region are presented.

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