

RESEARCH PROJECT SUMMARY

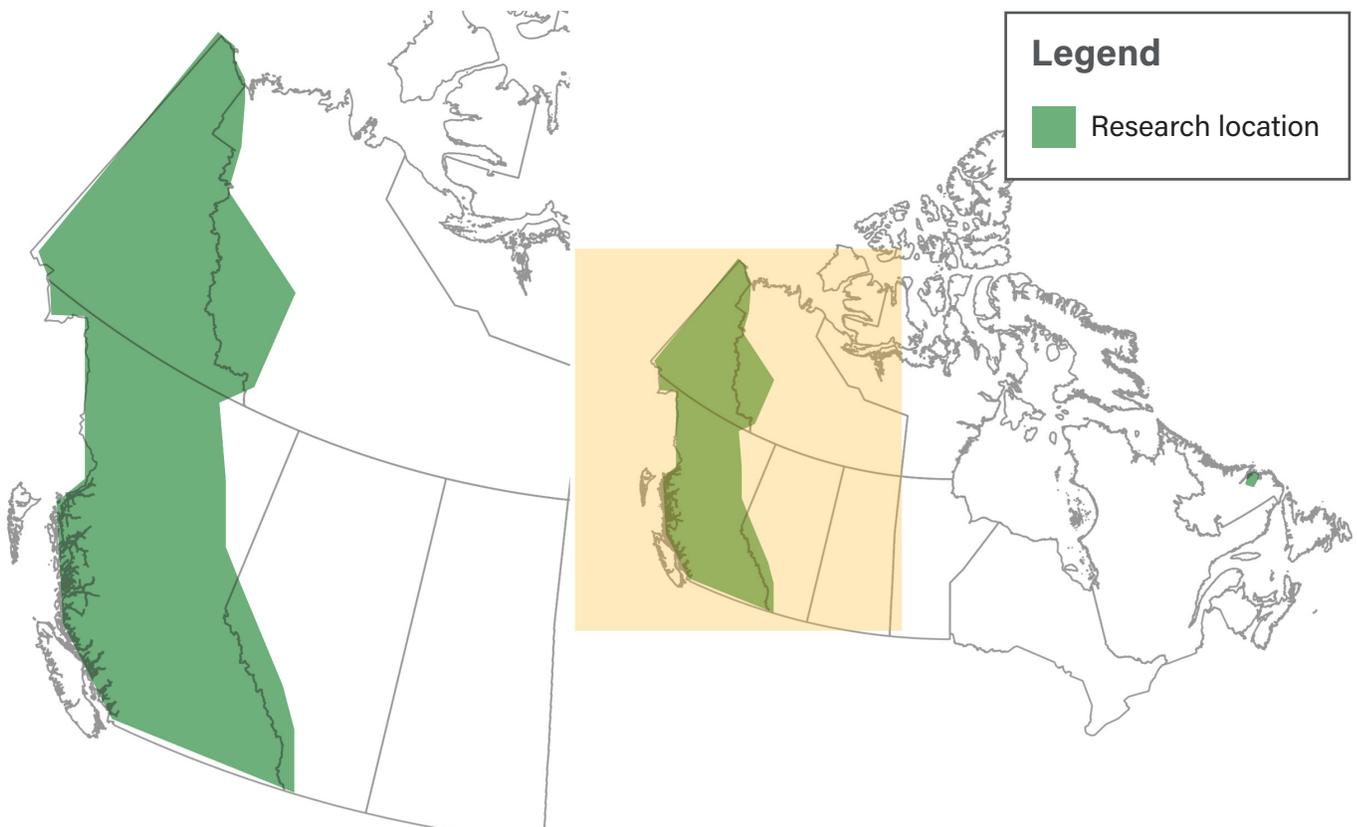
Long-term monitoring of harvested mountain ungulates to improve their conservation and sustainable use

Most populations of mountain sheep in Canada are managed for trophy hunting and all face ongoing or expected threats from climate change, exotic diseases from domestic livestock and habitat degradation and fragmentation from human development. Shrinkage in horn size from excessive selective hunting affects the evolutionary sustainability of mountain ungulate hunting, an important land use of mountainous environments that has substantial ecological, social, recreational, and economic consequences. The possible roles of genetic rescue from protected areas, climate change, and how changes in habitat affect horn size, however, have received less attention.

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Project Partners



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Objectives

The aim of this project was to examine data on sport-harvested animals from all jurisdictions in Canada that have mountain ungulates to quantify how hunting regulations, hunting pressure, weather, and taxonomy affected horn growth and how that horn growth has changed over the last few decades. The following questions were investigated in this study:

- Was the evolution of smaller horns avoided or reduced by more conservative hunting regulations?
- What was the effect of refuge areas on ram horn size and genetic diversity?
- Did long-term changes in habitat, population density, and weather account for changes in horn size?



Key Outcomes & Impact

Intense selective harvest of large-horned mountain sheep rams leads to the evolution of smaller horns, highlighting an unexpected and undesirable impact of trophy hunting. Our research suggests ways to mitigate this, such as limiting hunting pressure and closing hunting seasons earlier to protect immigrating sheep from protected areas. For mountain goats, we observed an increase in the age of first reproduction in most of BC, indicating deteriorating habitat conditions. Our findings emphasize the need to quantify the selective effects of intense trophy hunting and propose alternatives that allow sustainable sport harvesting.



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