

Grizzly bear management is too risky

November 7 2013

(Phys.org) —Six biologists, including four from Simon Fraser University, cast doubt on the scientific soundness of management of British Columbia, Canada's grizzly bear population in a new paper published online in the scientific journal *PLOS ONE*.

The SFU co-authors are: Kyle Artelle, the study's lead author, Raincoast biologist, and doctoral student; John Reynolds, a professor and Artelle's co-supervisor; Andrew Cooper, a School of Resource and Environmental Management associate professor; and Sean Anderson, a doctoral student co-supervised by Cooper and Nick Dulvy, an SFU biologist.

The manuscript, *Confronting uncertainty in wildlife management: performance of grizzly bear management*, was a collaboration between biologists from SFU, the University of Victoria, and the Raincoast Conservation Foundation. It is the first independent, peer-reviewed study of the Ministry of Environment's grizzly bear hunt management program.

The authors tested whether government policy assured the sustainability of its trophy hunt for grizzlies from 2001 to 2011. In this period, out of an estimated population of 15,000 bears, more than 3,500 bears (including more than 1,200 females) were killed. Legally sanctioned trophy hunting took more than 2,800 bears (including more than 900 females) in the kill.

In reviewing the government's 2001-2011 record of all human-caused mortality, the researchers discovered that the number of kills exceeded

government sanctioned limits in half of the populations open to hunting.

In addition to a high number of overkills, the researchers discovered that the government might have underestimated the risk of overkills in up to 70 per cent of its records. This was based on computer simulations that considered uncertainty in the true sizes of populations currently estimated, sustainable mortality rates, and poaching.

"Fortunately, through hunting permit allocations the government has an easy tool at its disposal to help safeguard these populations. Even considering non-hunting kills and management uncertainty, most overkills could have been prevented by reducing or eliminating hunting pressures," says Artelle.

Cooper and Reynolds note that the lessons learned about the need to err on the side of caution in setting mortality limits in [grizzly bear](#) management are universally applicable to any species' management.

"The concepts that underpin this study have been common currency in the fisheries realm for decades," says Reynolds. "Unfortunately, we have yet to see them broadly adopted by terrestrial managers."

"There will always be uncertainty in management," adds Cooper. "This paper shows how important it is for wildlife managers to address it, and provides first steps for doing so."

Background

Trophy hunting is allowed in 50 of the 57 population units in British Columbia, Canada. The areas include coastal central B.C.'s Great Bear Rainforest, where Coastal First Nations (an alliance of First Nations people on B.C.'s north and central coasts) has banned the activity. The provincial government doesn't recognize the ban. The hunting region also

includes southeastern B.C., which experiences one of the highest rates of overkills in the province.

"Based on historical records, we detected over-mortality cases that ranged from one to 24 grizzlies higher—meaning two to 171 per cent higher —than government limits," explains Kyle Artelle, the study's lead author.

"Grizzly bears' low rate of reproduction makes them highly vulnerable and slow to recover from population declines. Cautious management of such species should set targets sufficiently low to safeguard against uncertainty in true sustainable limits to mortality, as well as against unpredictable losses from a variety of factors. They include animal control kills, road accidents, and poaching."

More information: [dx.plos.org/10.1371/journal.pone.0078041](https://doi.org/10.1371/journal.pone.0078041)

Provided by Simon Fraser University

Citation: Grizzly bear management is too risky (2013, November 7) retrieved 2 April 2024 from <https://phys.org/news/2013-11-grizzly-risky.html>

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