Fall supplemental feeding increases population growth rate of an endangered caribou herd.

BACKGROUND

Woodland caribou (*Rangifer tarandus caribou*) populations are declining primarily because of unsustainable predation as a result of habitat-mediated apparent competition. Because reversing habitat-caused declines will take many decades, **immediate population management is required to reverse population declines** and prevent local extinction of small herds.

Wolf (*Canis lupus*) reduction is an effective short-term recovery option for caribou, but supplemental feeding has never been tried and was the focus of this study.

METHODS

Since caribou are generally predator sensitive foragers and will often forego foraging opportunities due to risk of predation, **we considered the possibility that summer food may be limiting caribou population growth.** To test this hypothesis, **we provided supplemental food to the Kennedy Siding herd for 3 months each fall** over a period of 6 years starting in 2014.

Concurrently, beginning in winter 2015–16, the Province of British Columbia began an **annual program to promote caribou population increase by removing most wolves within the Kennedy Siding** and the adjacent caribou herds' ranges.

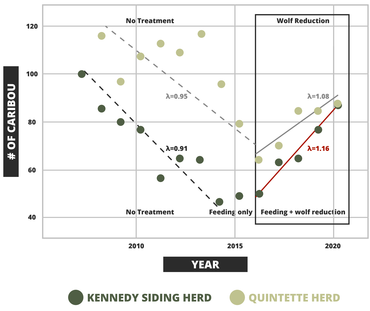
RESULTS

POPULATION GROWTH

To evaluate the impact of feeding, **we compared population growth rates before and after feeding began**, and to the population trend in the adjacent Quintette herd.

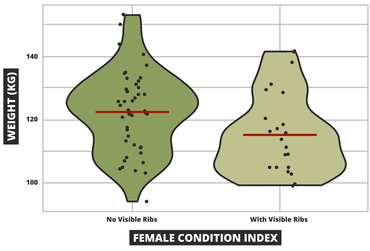
The Kennedy Siding caribou herd had steadily declined from 120 to 41 between 2007 and 2012. In 2015–16, after the first year of feeding, **when feeding was the only treatment, the herd size increased at a growth rate of λ=1.06**, where λ (lambda) is the proportional change in population size from one time period to the next.

Over the subsequent four years, 2016–2020, **when we provided food, and wolf densities were reduced, the herd size grew to 87 animals and the mean growth rate increased to λ=1.16**. The adjacent Quintette herd grew at **λ=1.08** over the same period when wolves were reduced. **When feeding and wolf reduction occurred at the same time, population growth was higher than when the only treatment was wolf reduction.**



BODY CONDITION

We also determined body condition by recording weights and rib visibility using trail camera images. Caribou were attracted onto a platform scale where motion-sensor cameras captured images that allowed us to identify the individual caribou and read the weight on the scale's digital display.



Some caribou were relatively light and skinny, suggesting that **summer nutrition was limiting some caribou's ability to put on as much fat as would be expected under ideal summer foraging conditions.**

CONCLUSIONS

Our observations supported the hypothesis that summer food may have been limiting population growth. **Supplemental feeding appeared to increase this endangered caribou herd's population growth rate and may be a management option that supports recovering small and declining caribou herds.**

Replicating our experiment and detailed study of the factors affecting caribou summer nutrition are required to determine the conditions required for supplemental feeding to be effective elsewhere.

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