



EXECUTIVE SUMMARY

Boreal caribou are declining across their ranges, and low calf recruitment contributes to that decline. To ensure caribou persistence on the landscape, land managers require a comprehensive understanding of caribou calving habitat and where caribou calves may be exposed to high predation risk. Using GPS collar data from two boreal herds (Little Smoky and Chinchaga), we used a non-invasive approach to identify calving locations and to assess caribou calving habitat. We also used existing knowledge of predator habitat use (wolves, grizzly bears, black bears, cougars, and wolverines) to assess the link between calf survival and overlap with multiple predators.

Between 2000 and 2015, we found that 73% and 58% of Little Smoky and Chinchaga caribou had calves respectively, and approximately 50% of those calves survived past 4 weeks. At calving and throughout the calving season, caribou from both herds preferred areas with lower densities of anthropogenic disturbance. Little Smoky caribou also preferred areas at higher elevations and mixed and broadleaf forest during the calving season, while Chinchaga caribou preferred valley bottoms, water, and wetlands, and avoided mixed and broadleaf forest. It is possible that Little Smoky caribou with calves are reducing their exposure to predation from wolves during the calving season, while Chinchaga caribou may be prioritizing access to forage over predation risk.

We also found that calf fate was linked to the habitat selection patterns of their mothers. Calves were more likely to survive when their mothers avoided anthropogenic disturbance and wildfires from fine to large scales, and were also more likely to survive when their mothers selected areas with more cover and when they avoided valley bottoms. By linking calf survival to overlap with a number of predators, we found that calves were more likely to survive when their mothers avoided areas preferred by both wolves and bears (Little Smoky: grizzly bears, Chinchaga: black bears), rather than only avoiding areas preferred by wolves. We found no links between calf survival and spatial overlap with cougars and wolverines.

Using the results of our analysis, we created spatially explicit maps that predict areas where caribou are likely to calve, and areas with a higher probability of being used during the first few weeks after calves are born. Combined, these maps identify important caribou calving habitat that could be used in landscape planning. Also, by evaluating the links between calf survival and overlap with multiple predators, our analysis revealed that caribou use of wolf and bear habitat decreases calf survival. This information could be used to fine tune habitat restoration efforts to increase caribou calf survival. Overall, the result of this project could be used to prioritize areas for habitat restoration, or to inform management practices that mitigate human impacts on caribou during the vulnerable calving season.