

Migratory Behavior and Survival of Adult Female Elk of the Ya Ha Tinda Population

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The Ya Ha Tinda (YHT) Ranch is situated on the eastern edge of Banff National Park along the Red Deer River corridor and is home to one of Alberta's most prized partially migratory elk (*Cervus elaphus*) herds. The herd has experienced a steady decline since 1993 from >2000 elk to a current estimate of ~300. At the same time the proportion of migrant elk within this population declined from about 95% migrants to ~50% migrants. My objectives were to 1) evaluate the migratory behavior of adult female elk and 2) test for density dependence in survival and cause-specific mortality of migrant and resident elk



Scott conducting telemetry on radiocollared adult female elk in Banff National Park, Alberta

to understand limiting or regulating factors. I used data collected on summer and winter movements and survival (106 mortalities) from 223 VHF and GPS radiocollared adult female elk captured between 2002 & 2011. I used a novel mathematical approach to quantify migratory strategies

and changes in behavior over time. I then estimated survival for residents (0.866) and migrants (0.85) and found little evidence for negative-density dependence in survival estimates. Wolves (*Canis lupus*) were the highest cause of mortality for migrants and residents (23%). Interestingly, grizzly bear (*Ursus arctos*) mortality was significantly higher for migrants than residents, while wolves and human harvest were the highest causes for residents. My results suggest that predators were the main cause of mortality, but predation did not change with elk population size and survival appears to be balanced between migrants and residents.