



BRITISH COLUMBIA MOUNTAIN GOAT SOCIETY

SMITHERS BC CANADA

MTGOATS@BCNORTH.CA

Newsletter #8

February 2, 2019

Greetings members

Here is a report from Krystal Kriss, a wildlife biologist with Fish and Wildlife Branch in Dease Lake BC. Our society is proud of helping with Krystals project from the start.

“British Columbia is home to over 50% of mountain goats (*Oreamnos americanus*) that are found globally, with an estimated half of those residing in the Skeena region (MOE 2010). Mountain goats are ranked S3 and are Blue Listed in British Columbia, indicating they are a species of special concern (BC Conservation Data Center 2016), for management. Mountain goats are not only a species that need to be conservatively managed; they are also a symbol of rugged wilderness and have important linkages to First Nations cultures, hunters and non-hunters, in the Province of British Columbia and beyond.



Goat with new collar is released

Managing populations of mountain goats at an appropriate biological scale for the species is important to ensure conservation values are appropriately considered and long-term stewardship

of those wildlife resources is achieved. A population management unit (PMU) can be described as a metapopulation; a metapopulation is defined as a group of several local populations that are linked by immigration and emigration (Levins 1970; Caughley and Gunn 1996). While most populations of mountain goats undertake some seasonal movement (Festa-Bianchet and Côté 2003), little is known about dispersal patterns in mountain goat populations (MOE 2010) in general. Using the appropriate scale to manage populations ensures that conservation measures and human impacts are appropriately considered, while balancing other potential impacts on those populations (resource extraction, access, recreation, harvest, etc.).

Mountain goat PMU's have currently been derived for the Skeena region based on expert opinion and anecdotal information, which generally align the boundaries of major watershed boundaries, likely creating a barrier to animal movement. Having biologically meaningful PMU's will improve the management of goats, ensuring conservation values and appropriate considerations of development risk are applied when evaluating activities and harvest opportunities at appropriate scales.

This year, Skeena region wildlife biologist Krystal Kriss has partnered with Dr. Aaron Shafer of Trent University to examine movements of specific populations of mountain goats. This project has benefitted from financial support provided by the Rocky Mountain Goat Alliance, the British Columbia Mountain Goat Society and the Habitat Conservation Trust Foundation of BC, taking mountain goat management in Skeena to the next level.

It was a cold morning on February 5, 2018, a balmy -20°C , when the study hit the ground running with a goal of collaring 22 mountain goats in just a few days. The capture crew got together and met at the hangar and made a plan before heading off towards the mountains. We were successful in getting 5 collars out on the 5th. The next day, we were ready to get down to work, but Mother Nature had a different idea; it snowed 52 cm over the next two days effectively grounding the capture crew! It wasn't until February 8th that work could start again. At that point we were able to bring Dr. Helen Schwantje, British Columbia's Provincial Wildlife Veterinarian, up so she could provide hands-on training to Provincial biologists; we were successful in collaring and collecting samples from 9 additional mountain goats. The following day, February 9 we were successful and got all the remaining 8 collars deployed. In total, we were able to collar 12 nannies and 10 billies, primarily focusing on mountains northeast of Smithers, BC .



In addition to collaring, we collected a number of heath samples, providing the opportunity for the largest baseline health collections of mountain goats to date in the Province. We examined and sampled the captured mountain goats according to a standard protocol that includes assessing for: age (incisor eruption, staining and wear and counting horn annuli), body condition, external

parasite presence and prevalence, lactation and presence of kids. From each goat we take blood to facilitate serum testing for Protein B levels and serological screening for selected pathogens using a modified protocol initially developed by the WAFWA Wild Sheep Working Group. We use nasal swabs to sample for *Mycoplasma ovipneumoniae* and obtained fecal samples for parasitological assessment. Each mountain goat was ear-tagged with a unique identifier tag, and a 6 mm punch biopsy of the ear will be air-dried for genetics. We also collected hairs with roots from each mountain goat (shoulder) for genetic or other studies (e.g., stress assessment through cortisol levels).

In this study we will use collaring information from both nannies and billies on the three adjacent mountain complexes along with making genetic comparisons, to help refine the PMU's. The collection of the data will not only enable the opportunity to delineate PMU(s) for these mountain complexes, but will allow us to make inferences to support further genetics work to help determine more biologically based PMU's for mountain goats in the rest of the Skeena Region. All good news for mountain goat management, research and conservation!



This billy hid so that the team were unable to collar him

It has now been almost a year since the goat captures. Some preliminary results include: all 22 collars deployed February 2018 (12 nannies and 10 billies), only half of the nannies collared (n=12) were pregnant, all 22 goats were *Mycoplasma ovipneumoniae* free, there were limited movements observed by goats during winter post collaring. and so far we have had three goat mortalities (one unknown, collar un-retrievable until summer 2019), one hunter harvest, one natural predation) and one collar failure where the release mechanism let off early. The coming

winter, the goal is to hire a capture company to redeploy 2 collars this winter. The masters student is on target to defend in the summer of 2020. We will have results at this time. Apart from mortality investigations when possible, and the potential redeploying of collars, the project is in a collecting location data phase.”

Climate change

We recently read a research article that modelled the effect of climate change on mountain goats in SE Alaska. Climate models predict warmer summers and less snow in winter for that part of Alaska. Using ten different climate models, all calculations resulted in a decrease in summer range for the goats. Warmer summers mean that the goats move up the mountain to keep cool. But there is less soil at higher elevations so the forage is lower quality and the goats are less able to store enough body fat to survive the winter. Of course, mountains are cone shaped so the higher the goats go, the less real estate, so again there is less forage. Less snow in winter benefited the goats but the heat stress and loss of forage in summer were a stronger influence. Five of the ten climate models resulted in extinction of the entire population within 70 years! Modelling can prove inaccurate but the results of this study are sobering. We have asked permission to link to the article but haven't heard yet. You can try a Google search.

Kevin White et al, 2017, *Projecting the future of an alpine ungulate under climate change scenarios*



This is what happens when a mountain goat with short legs gets in deep snow – this is another of Krystals collared goats.

Miracle sedge

In our latest video on mineral licks we mentioned that mountain goats in coastal BC don't need mineral licks unlike mountain goats in the interior of the province. Instead coastal goats get all the sodium they need from one plant, the large-awn sedge (*Carex Macrocheata*). This sedge is common in the alpine along the coast but is rare to the east in our area. We will be looking for this sedge next summer. It has high protein levels and is a favourite with grizzlies as well. Are you aware of this sedge in your area? Here's a photo – the key is the long hair (awns) up to 12 mm in length on the female lateral spikes. The dark terminal spikes are male. The roots are covered with yellowish felt. If we can find the seed, we'll try to plant it into the garden. It's supposed to be easy to sprout and grow and does best with plentiful moisture.



Alaska Large Awn Sedge (*Carex macrochaeta*) →

[More Photos](#)

Until next time

Jim Easterday

Director, British Columbia Mountain Goat Society

Smithers BC

250-847-4802

mtgoats@bcnorth.ca www.mtgoats.ca www.bcmountaingoatsociety.ca