



BRITISH COLUMBIA MOUNTAIN GOAT SOCIETY

SMITHERS BC CANADA

MTGOATS@BCNORTH.CA

Newsletter #14

October 23, 2020

Greetings to all members

Summer is over, it's snowing today so it must be newsletter time. We hope that all members are safe, healthy and free of Covid. Here's the latest news:

Mountain Goat Survey

The BC provincial government has launched an online survey for sightings of mountain goats and mountain sheep. The designer of the survey is Bill Jex, a wildlife biologist who coordinates BC provincial policies on mountain goats and represents BC on international mountain goat forums. Bill lives in Smithers so we can easily visit Bill and discuss the survey.

The survey is located at

<https://survey123.arcgis.com/share/2ab1cea9c38848578c91a622db0e010b?portalUrl=https://governmentofbc.maps.arcgis.com>

Bill claims that the ministry will use the information to reveal population declines over time. The survey will also shine a light on herds that are not currently known to biologists. Bill promises that the information collected in the survey will remain secure, will not be made public and will only be used by staff biologists who have a need to know.

Our society often submits reports about goat herds in our region to local wildlife biologists. See the attached report on Microwave mountain for an example. Bill says that staff biologists need basic information about all the herds in a format that is easy to search. This survey puts all the information in one big database with sightings from across the province.

So we are recommending that members of the BCMGS participate if you wish. Sightings from years past are welcome if you know the date of the sighting. The survey asks for the

number of nannies and kids. If you cannot tell how many nannies or kids you sighted, just leave that blank.

When you get to the part of the survey about the location of your sighting, here are some tips. Click on the large map icon on the lower left of the screen to open a larger map. Click on the icon at top right and choose Imagery with Labels. To get oriented on the map, you can type the name of your mountain or a local town in the “Find Location or Place” text box. You can also zoom in and out on the map.

You will see a blue marker on the map. When you find the location of your sighting, click on the map and the blue marker will move to where you clicked. To go back to the survey form, simply close the large map.

When our society adds a photo, we add text to a corner of each photo. If you are able to add text to your photo, please add the words “BC Mountain Goat Society”. That way Bill Jex knows that a member of our society has contributed to the database.

Report on the Blunt/Netazul Research Project

Thanks to Jesse Wolf from Trent University for the following report.

The relationship between the space an animal uses, and the physiology of the individual is an incredibly complex and intricate one. Animal movement patterns vary across temporal scales and are often impacted by season, weather, sex, and age class. Physiology is likely even more complex, as factors that result in differentiation between individuals are not always as clear.

In collaboration between Trent University and Skeena Region biologists, we are conducting research using genetic and genomic data as well as goat movements to help inform population management for mountain goats on three mountains northeast of Smithers: Blunt Mountain, Netazul Mountain, and Goat Mountain.

In August of 2019, my advisor Dr. Aaron Shafer and I flew from Ontario to Smithers for a week to join local Fish and Wildlife Biologist Kara



Figure 1: Taking in the sights with his cooler full of fecal samples, Jesse takes a minute to enjoy the beauty of the alpine.

MacAulay in collecting pellets from mountain goats. We are interested in using these fecal pellets to examine the microbial communities within their digestive systems (termed the gut microbiome). This topic is not well understood in wild ungulates but allows us to learn more about mountain goat physiology. The second chapter of my thesis aims to determine the relationship between the gut microbiome and space use in mountain goats in the Skeena region, as well as white-tailed deer in Ontario. We use both a specialist ungulate (mountain goats) and generalist ungulate (white-tailed deer) to assess if any relationships between the gut microbiome and space use apply to two species living in different habitats.

Using GPS collars, we are able to track individuals as they move across different areas on the landscape, and we can identify key habitat areas that are used more than others, often deemed a 'home range'. Using home range data, we not only identified key areas of mountain goat habitat, but also determine which individuals used more space relative to others. This is important, as highly mobile animals such as the mountain goat exhibit differences in space use.

One way that we can access physiology is with fecal pellets. Extracting DNA from pellet samples allows us

to characterize the bacterial community that is present within an individual mountain goats' gut. Using this data, we can determine levels of relative gut diversity between individuals, as well as ratios of specific bacteria that have been found to correlate with obesity in humans. This is the first study to relate gut diversity to space



Figure 2: Lunch time is always better in the mountains!

use in wild ungulates and is an important proof of concept that advances the potential type of information that can be gathered from non-invasive sampling.

Our early results suggest that individuals who have gut microbiomes associated with higher fat tend to use more space, regardless of species. When assessing the link between diversity and space use, a more diverse gut is correlated to greater space use in mountain goats, while a decrease in gut diversity is linked to greater space use in white-tailed deer.

It is interesting to note that the relationships we found are not always uniform between species, which is possibly reflective of the unique habitat niche of specialist ungulates such as mountain goats, relative to a more generalist ungulate, the white-tailed deer.

Ultimately, these findings demonstrate that using non-invasive sampling is useful in determining space use in managed populations, as it is conceivable with a large enough database, one could predict the distribution and behaviour of animals on the landscape just from pellets.

We thank the B.C. Mountain Goat Society for allowing us to share our story, and for their contribution to our project. If you'd like more information about the mountain goat research project, please contact Jesse at jessewolf@trentu.ca.

World's smallest mountain goat cliff?

Here is a photo of what may be the smallest long-term mountain goat cliff. It's 208 m wide and 110 m high. There are several other short steep openings in the forest nearby but this cliff is the only reasonably large escape terrain. We observed a nanny and kid on the cliffs. We were unable to tell how many goats are resident on the cliffs and in the trees nearby.

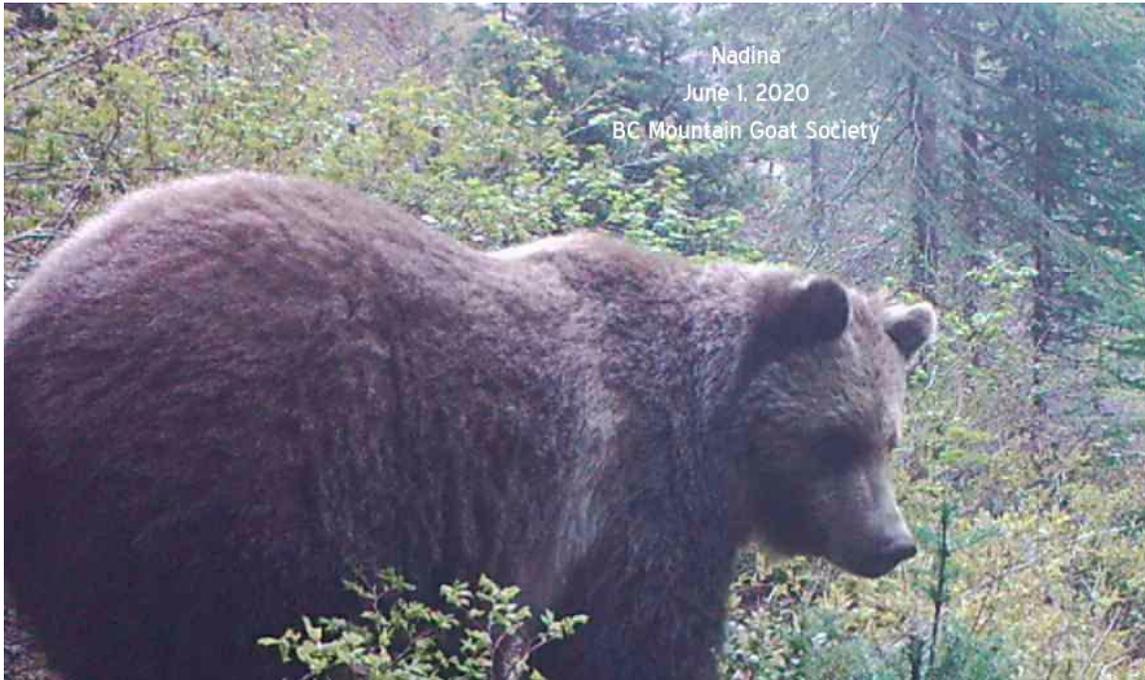


This type of cliff is known as an escarpment which means that the cliff separates two level land surfaces. Locals have seen the goats here for at least 20 years. Logging has cleared the ground right up to the bottom of the cliff. But the goats have withstood all the noise and confusion and have survived. Fortunately the logging road to the cliff was deactivated and there is no indication of foot traffic from the nearest road.

The nearest mountain is 19 km away. There are many mountain goats that live on escarpments in our region. It demonstrates how aggressively mountain goats have dispersed across BC after the last glaciation and how adaptable mountain goats can be.

Grizzly

Once in a while our trail cameras will capture predators looking for mountain goats, like this young grizzly listening intently along a mountain goat trail. Our camera records every goat that walks by and we can tell by the time stamp that no goats were on the trail when the grizzly was in front of the camera.



That's all for now. We will have lots more to report soon.

Cheers

Jim

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