MAINTENANCE OF MOOSE COLLARS TO SUPPORT UNBC RESEARCH PROJECT

MOOSE ID: 15-5639 COLLAR ID: GSM18283

Moose Mortality Investigation #9, March 25 2017

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SHIFTING MOSAICS CONSULTING

SUMMARY

Moose ID: 15-5639

Collar number/ type: GSM18283 Vertex Vectronics

Sex: Male

First capture date: January 12 2016

Area found: Chinchaga (58°5'44.47"N/ 121°10'35.23"W)

Frequency: 152.290

Cause of death: Probable wolf

Date of decreased movement: The download summary from Caslys Consulting Ltd. reported slow movement was observed after March 14 2017, on the March 20 2017 download. The download summary for March 23 2017 indicated clustered movement after March 21 2017 and highlighted a potential mortality. The beginning of a star pattern formed with clustering but a new transmission was received approximately 115m away from the cluster. Caslys Consulting Ltd. reported that there was no mortality alert for this moose

Date of investigation: March 25 2017

Investigation team: Dr. Sonja Leverkus, Dr. Gillian Leverkus, Shawn Thomas, Brad King (Qwest pilot)

ANIMAL BACKGROUND

- Initial notification of potential death by Caslys Consulting Ltd.: March 24 2017 at 17h14.
- Caslys Consulting Ltd. reported that Moose 15-5639 (GSM18283) showed decreased movement after March 14 2017.
- A second report from Caslys Consulting Ltd. reported that Moose 15-5639 (GSM18283) showed clustered movement to March 24 2017 and that it could be a mortality.
- Date of decision to investigate: March 25 2017 at 10h04.
- Date of investigation: March 25 2017 at 10h05.
- A combination of telemetry techniques and the most recent GPS location were used to locate the collar.
- In addition to Moose 15-5639 (GSM18283), a second potential mortality was investigated on Moose 15-7224 (GSM20497), a cow in the Chinchaga range, approximately 17km southeast of Moose 15-5639 (GSM18283) showing decreased movement from March 22 to 24 2017.

METHODS

The last known point of the GPS collar was used to provide a location to travel to via helicopter from Fort Nelson. Aerial telemetry techniques were used to determine the location of the collar in combination with the most recent GPS point provided by Caslys Consulting Ltd. and visual observation from the helicopter. The GPS point provided by Caslys Consulting Ltd. was determined to be accurate for the collar location and was used to navigate towards on the ground. The team followed the BC Moose Research Mortality Investigation Form from the Ministry of Forests, Lands, and Natural Resources sampling protocol to obtain samples from the remains of Moose GSM18283/15-5639. The entire team attended the investigation using the best safety practices, walking together through the snow with one firearm at either end of the line.

Figure 1. Movement pattern for Moose GSM18283/15-5639 as per Caslys Consulting Ltd. as of March 24 2017 at 58°5'44.47"N/ 121°10'35.23"W. Horizontal line represents 30m.

RESULTS AND DISCUSSION

The remains of the skeleton of Moose 15-5639/GSM18283 were located at 58°5'44.47"N/ 121°10'35.23"W. The mortality site was located in a willow-alder-birch complex including a component of tamarack with surrounding wetland areas. The shrubby vegetation in the area was approximately between 1m to 2m in height with heavy browsing observed specifically on willow in the area surrounding the mortality site. Willows with seed heads (pussy willows) had been targeted with heavy browsing on the pussy willows. The temperature on site without windchill was on average -8C and the snow depth ranged from approximately 30cm – 100cm in places. There was no crust on the snow and the sinking depth was up to 100cm+. The weather was overcast with snow flurries, strong winds, and ice fog causing the team to fly low. Time since last snow was not more than several hours.

The carcass was located in a small opening amongst deciduous vegetation. The carcass was frozen, yet fairly intact, found lying on its right side. The body condition was undeterminable due to the scavenged state, however, the hide and remaining bones appeared to be free of abnormalities. There were no internal organs remaining nor any ability to observe potential discharge/blood. There were minimal feces found due to the recent snow. In several locations, when feces were able to be dug up from under the snow, there appeared to be blood on the outside edge of the feces. A sample was collected. The hoof condition appeared normal with the front left side slightly chewed. The remaining ribs, legs, bones, and joints were in various stages of being chewed. The complete skull was collected with jaw bone attached including the hind right leg. The mouth/teeth appeared to have normal wear. There were no apparent signs of struggle nor were there blood trails or spattering anywhere on top of the snow, however, it is possible that this could have been observed if there was less snow.

The GPS collar had not been chewed. The collar was located on the carcass. Following the cause of death key, we suggest that the probable cause of death was wolf predation, however, we cannot have full confidence in this conclusion due to the length of time since the movement decreased. It was challenging to determine the full extent of wolf presence given the recent snow event, however, we observed more than five trails leading into the mortality site. We also located two wolf bedding sites under tamarack and spruce trees located 17m away from the mortality site at 58° 5'44.45"N/121°10'34.46"W. Several locations of urine markings were observed along the trail walking into and away from the mortality site. Wolf tracks had been covered by the recent snow. Other than wolf presence, two ravens were observed in the conifers to the north of the site and one site of raven scat was found under the snow.

A second collared moose was investigated after the first mortality investigation was completed. The team flew approximately 17km southeast to locate Moose 15-7224 (GSM20497). This moose is a collared cow which demonstrated decreased movement patterns from March 22 to 24 2017. This cow was located alive with a yearling calf at 57°56'41.45"N/121° 7'19.49"W. The pair appeared to be in good condition and the collar was functioning properly at the time.

In addition to the mortality investigation, 12 moose and 2 caribou were incidentally counted on the commute to and from Fort Nelson (Figure 2) comprised of bulls, cows, and young of the year/calves.

FIGURES

Name	# animals	Latitude	Longitude
Moose	1 adult lying down	58.662503	-122.241284
Caribou	1 cow and 1 calf	58.599648	-122.110001
Moose	1 adult	58.383189	-121.686865
Moose	1 adult browsing willow	58.293670	-121.526610
Wolf bed	n/a	58.095681	-121.176240
Moose (GSM20497/15-7224)	1 cow and 1 yearling	57.944829	-121.122056
Moose	1 cow and 1 yearling	58.049181	-121.269866
Moose	1 adult	58.197635	-121.509009
Moose	1 bull, 1 cow, and 1 yearling	58.611693	-122.199098
Moose	1 bull lying down	58.728071	-122.399476

Figure 2. Locations of incidental moose and caribou sightings were documented on the commute to and from the mortality site.

Figure 3. The recorded location data white line represents 30m for Moose GSM18283/15-5639 as per Caslys Consulting Ltd.

Figure 4. Moose GSM18283/15-5639 (red circle) was located in an open birch-willow-alder complex close to several wetlands.

Figure 5. The GPS collar was located on the carcass which had approximately 2cm of fresh snow on it.

Figure 6. Mortality site.

Figure 7. Raven presence (feces) was observed at the mortality site, underneath the fresh snow.

Figure 8. Moose feces with blood surrounding them (left). Hoof condition appeared to be good (right). Wolf bed location within 17m of the mortality site (bottom).

Figure 9. Moose 15-7224 (GSM20497) was located using telemetry with the helicopter. The cow and calf pair appeared to be in good condition.

APPENDIX A - INVESTIGATION MAP

Figure 10. Mortality location of Moose GSM18283/15-5639.