MAINTENANCE OF MOOSE COLLARS TO SUPPORT UNBC RESEARCH PROJECT

Moose ID: 15-5638, Collar ID: GSM18298
Prepared by: Ingebjorg Jean Hansen

Summary

Moose ID: 15-5638

Collar type: Vectronics Vertex

Collar ID: GSM18298

Sex: Male

Area: Chinchaga

Frequency: 152.810

Cause of death: wolf predation (highly probable)

Date of death: February 20 2016 (reduced movement noted); February 22 2016 (mortality notice received)

Figure 1. Moose 15-5638 collar remains February 24 2016 found on the Sikanni Chief River

Background:

On February 22, 2016, we received notification of potential mortality for moose ID 15-5638 by Caslys Consulting Ltd. (Caslys). Caslys indicated that movement rates were extremely low on this collar since February 20, 2016. On February 24, 2016, we deployed to retrieve the collar. Ferlin Makadahay of the Doig River First Nations assisted with this investigation.

Methods:

The mortality site was accessed via helicopter from the Fort St John airport. The last known location of the collar was used to set the flight path and aerial telemetry techniques were used to get an exact location of the collar prior to landing. Location, habitat details, and photographs were taken. The time elapsed since mortality limited the biological samples available from moose 15-5638 to skeletal remains. The sampling protocol followed the BC Moose Research Mortality Investigation Form from the BC Ministry of Forests, Lands and Natural Resources (see *Appendix A*). Wildlife health ID numbers were assigned to each sample and are linked to the moose ID number.

Results and Discussion:

The collar was located by aerial telemetry at 58.02877°, -121.51669°, or UTM 10 V 587603, 6432876 along the Sikanni Chief River in northeastern British Columbia in the Chinchaga Core study area. The collar was severely damaged (fig. 1) and parts of it were found in two places along the river, 80m and 250m from the kill site (58.02808, -121.51666 or UTM 10 V 587606, 6432798). The kill site was approximately 100m from the final location provided by the satellite data three days prior to the investigation and was located just into the treeline on the south side of the river (fig. 2). The vegetation at the kill site was fairly dense and typical riparian edge vegetation with willows blending into larger riparian corridor trees (cottonwoods), and then upper bench evergreens (spruce). The kill site had a lot of hair remaining (fig. 3) as well as the skull with cervical vertebrae (fig. 4), two forelimbs (one adjacent to the kill site, and one on the river) and a large portion of hide. The river area had many secondary feeding sites, wolf beds, extensive wolf tracks and scat (fig. 5). Samples were collected, labelled and given health ID numbers (15-5638-1 to 15-5638-7). The wolf scat contained moose hair. Moose pellets observed near the kill site appeared normal and the hooves exhibited a normal range of asymmetry and normal wear. Although the skull had been extensively chewed, the distal portions of the jaw were intact enough to observe that there was no mandibular or maxillary prognathism (underbite or overbite).

Wolf predation is the probable cause of mortality with a typical and obvious kill site identified; the location where the moose was taken down and bled out was obvious and signs of struggle

were evident (small broken trees and limbs). However, even a time lag of only 3-4 days between the mortality event and mortality investigation (such as occurred in this case), can make it difficult to determine whether there could have been any additional or complicating factors associated with this mortality prior to predation. The wolf pack may have been large as the scat, tracks and other sign was extensive. Scavenging was still occurring during the mortality investigation with marten tracks observed and ravens heard. Raven feathers and droppings were present at the kill site and on the secondary feeding sites along the river. The only other obvious tracks onsite was a snowmobile with skimmer. It seems likely that a trapper investigated the feeding sites on the river but did not get off the snowmobile. A trapper`s cabin was located approximately 500m upstream.

Figures: Moose 15-5638

Figure 2. The kill site (red circle) was located just into the edge of the forest along the Sikanni Chief River, February 24, 2016

Figure 3. The kill site with hair and ear tag/bits of leather from the collar, was found in the trees at the edge of the river

Figure 4. The skull and cervical vertebrae of 15-5638 with Ferlin Makadahay, Febraury 24 2016

Figure 5. Aerial view of secondary feeding sites spread along the river, February 24 2016. Note the snowmobile and skimmer tracks running through the site.

Appendix A: Field Notes / BC Moose Research - Mortality Investigation Form

BC MOOSE RESEARCH - MORTALITY INVESTIGATION FORM

Date: Feb 24/16   Date of Mortality (signal): Feb 21/16   Days elapsed since death: ___

Personnel: Inge Jean Hansen, Ferland Makabatimy Tom Halbert (pilot)

General Location: Sikanni Cheif River.

Waypoint: 5638 WH/collar   UTM: Zone 10V E: 587603   N: 6437876

Lat: 58.02877°   Long: -121.51669°

Wildlife Health ID: 15-5638

Ear Tag #: recovered tagged w/ samples   Collar Recovered (Y)/ N   Ser. No.: 18298

Carcass Located: (Y) N   Collar Condition: ☐ Functional ☑ Damaged ☐ Destroyed

DESCRIBE THE MORTALITY SITE and TAKE PHOTOS (Tracks, Scat, Blood, Signs of Struggle, etc)

many wolf tracks, scats, urine & eating areas. Kill site w/ blood many tracks gutpile, hide, etc. just in weeds on SW side of river.

Snow Crust: ☐ Heavy ☑ Light ☐ Fluffy   Snow Depth (cm): 25cm   Sinking Depth (cm): 18

EXTERNAL - Describe abnormalities, collect samples, take photos

Choose all that apply

Carcass Location	Carcass Condition	Carcass State	Body Condition	Skin / Hair Coat
☑ In Open	☐ Fresh	☐ Intact	☐ Excellent	☑ Normal
☐ Concealed	☑ Frozen	☐ Disarticulated	☐ Good	☐ Hide Inverted
☐ Buried	☐ Decomposed	☐ Scattered	☐ Fair	☐ Missing Hair
☐ ____	☑ Scattered	☑ Scavenged	☐ Poor	☐ External Parasites
		☑ heavily	☐ Emaciated	☐ Abnormal Skin
			☑ Undetermined	☐ Lumps / Warts
				☐ ____

Discharge / Blood	Diarrhea / Feces	Hoof Condition	Bones / Legs / Joints	Mouth / Teeth
☐ None	☐ None	☐ Normal Wear	☑ Normal	☑ Normal Wear
☐ Mouth	☑ Normal Pellets	☐ Worn	☑ Chewed	☐ Irregular / Worn
☐ Nose	☐ on Tail + Hind-legs	☐ Overgrown	☐ Fractured	☐ Broken
☐ Anus	☐ ____	☐ ____	☐ Compound	☐ ____
☑ UNK			☐	

Comments / Details

Very spread out site - scat & tracks & parts dragged onto and downriver for ~300m. many wolf bed sites. Fairly large pack. likely a trapper (sled w/ skimmer) travelled past & checked out the site. (didn't get off sled). Trappers cabin just upstream (~500m). Ravens heard / lots of droppings / Marten tracks near kill site

INTERNAL - Record all abnormalities, collect samples and take photos

	Normal	Abnormal	Comments
Lungs / Trachea	☐	☐	
Heart	☐	☐	
Muscle	☐	☐	
Liver	☐	☐	
Kidney	☐	☐	
Spleen / Lymph nodes	☐	☐	
Stomachs / Intestines	☐	☐	
Skull / Spine	☐	☐	
Reproductive Tract	☐	☐	

If Pregnant: Record sex and crown rump length(s) of fetus(es)   Sex: ____ CR Length (cm): ____

Back Fat Depth (mm): _____   Sex: ____ CR Length (cm): ____

Comments/ Details

few remains / no internal organs except gut pile

CAUSE OF DEATH (follow key and check appropriate boxes)

highly

Confidence Level	Predation	Non-Predation	Unknown
☐ Definitive	☑ Wolf	☐ Collision	☐ Unknown
☑ Probable	☐ Bear	☐ Hunter Kill	
☐ Possible	☐ Cougar	☐ Hunter Wounded	
	☐ Unknown	☐ Accident	
		☐ Other	

Comments/ Details

- marten tracks / ravens
- snowmobile / skinner - checked out site but did not
dismount sled.

SAMPLES (check if taken)

SAMPLES	STORAGE	REASON for COLLECTION
☑ Long Bone	Freeze	For Body Condition Inex (Bone Marrow Fat)
☑ Jaw	Freeze	For Size and Growth
☑ Teeth	Freeze	For Aging
☑ Head (if intact)	Freeze	For CWD
☐ Kidney + Fat	Freeze	For Body Condition Index (Kidney Fat)
☐ Liver (3 x 3 cm)	Freeze	For Toxicology
☐ Kidney (3 x 3 cm)	Freeze	For Contaminants
☐ Intestines	Freeze	For Parasites
☐ Muscle	Formalin	For moose measles / Parasites
☐ Predator DNA swab	Dry	For Predator Identification
☐ Predator Hair	Dry	For Predator Identification
☑ Predator Scat	Freeze	For Predator Identification

☑ moose pellets

☑ Photos Taken?

Send Samples to:
Cait Nelson
2080 Labrieux Road
Nanaimo, BC
V9T 6J9

Swab Data Sheet

Wildlife Health ID Number 15 - 5638

Swab #	1			Wound Type (circle one)	Wound Location and Description
check boxes as swabs are completed		A	B	Kill Feed Other _____	
Swab #	2			Wound Type (circle one)	Wound Location and Description
check boxes as swabs are completed		A	B	Kill Feed Other _____	
Swab #	3			Wound Type (circle one)	Wound Location and Description
check boxes as swabs are completed		A	B	Kill Feed Other _____	
Swab #	4			Wound Type (circle one)	Wound Location and Description
check boxes as swabs are completed		A	B	Kill Feed Other _____	

Predator hair or scat collected? How many? What species?

Wolf scat   (marten tracks, obs.)

BODY CONDITION SCORING SYSTEM

Body Condition	SCORE (Franzmann 1977)	PHYSICAL DESCRIPTION (Franzmann 1977)
	10	Prime, fat animal with thick, firm rump fat by sight. Well fleshed over back and loin. Shoulders and rump round and full.
	9	Choice, fat moose with evidence of rump fat by feel. Fleshed over back and loin. Shoulders round and full.
5 Excellent	8	Good, fat moose with slight evidence of rump fat by feel. Bony structures of back and loin not prominent. Shoulders well fleshed.
4 Good	7	Average moose with no evidence of rump fat, but well fleshed. Bony structures of back and loin evident by feel. Shoulders with some angularity.
3 Fair	6	Moderately fleshed moose beginning to demonstrate one of the following conditions: (A) definition of neck from shoulders; (B) upper foreleg (humerus and musculature) distinct from chest; or (C) rib cage prominent.
2 Poor	5	Two of the characteristics listed in 6 are evident.
1 Emaciated	4	All Three of the characteristics in 6 are evident.
	3	Hide fits loosely about neck and shoulders. Head carried at a lower profile. Walking and running postures appear normal.
	2	Sings of malnutrition. Outline of the scapula evident. Head and neck low and extended. Walks normally but trots and paces with difficulty, cannot canter
	1	Point of no return. Generalized appearance of weakness. Walks with difficulty; cannot trot, pace or canter.
	0	Dead.