MAINTENANCE OF MOOSE COLLARS TO SUPPORT UNBC RESEARCH PROJECT

Moose ID: 15-5633, Collar ID: GSM18319
Prepared by: Ingebjorg Jean Hansen

Moose mortality investigation no. 7 – February 27, 2016

Summary

Moose ID: 15-5633

Collar type: Vectronics Vertex

Collar ID: GSM18319

Sex: Male

Area: Fortune

Frequency: 153.000

Cause of death: wolf predation (highly probable)

Date of death: February 19 2016 (reduced movement noted); February 25 2016 (mortality notice received)

Figure 1. Moose 15-5633 collar was found largely intact, February 27 2016

Background:

On February 25, 2016, we received notification of potential mortality for moose ID 15-5633 by Caslys Consulting Ltd. (Caslys). Caslys indicated that movement rates were abnormal on this collar since February 19, 2016. On February 27, 2016, we deployed to retrieve the collar. Eva Needlay of the Fort Nelson First Nations assisted with this investigation.

Methods:

The mortality site was accessed via helicopter from the Fort Nelson 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 15-5633 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 59.71359°, - 122.09055°, or UTM 10 V 551164, 6619866 in the far northeastern corner of British Columbia in the Fortune Core study area. The collar was recovered relatively intact but damaged (fig. 1) in a natural opening approximately 150m from the kill site (59.71270, - 122.09179 or UTM 10 V 551095, 6619766). The final location provided by the satellite data two days prior to the investigation was 5m from the actual collar location. Fresh snow the night prior (approximately 3cm) obscured tracks but the kill site was identified by a bleed out site and gut pile. The collar location, kill site and secondary feeding sites were all located in relatively open, natural black spruce bog/scrub birch habitat (fig. 2). Hair and some skeletal remains were recovered (Fig. 3-5). The upper skull with cervical vertebrae (fig. 4), and lower jaw (fig. 5) were located separately at two different secondary feeding sites. The distal portions of the upper jaw had been extensively chewed precluding the measurement of mandibular or maxillary prognathism (underbite or overbite). The skull and a forelimb as well as other samples were collected (wolf scat, moose hair, moose scat), labelled and given health ID numbers (15-5633-1 to 15-5633-7). All wolf scat observed contained moose hair. Moose pellets observed near the kill site appeared normal and the one front hoof recovered exhibited a normal range of asymmetry and wear.

Wolf predation is the probable cause of mortality with a typical and obvious kill site identified; a bleed out site was observed adjacent to a gut pile. The presence of hair/hide on the upper skull and other skeletal remains with hide/hair is indicative of a relatively recent kill (3-4 days),

however reduced movement of the animal on February 19, 2016 noted by Caslys, six days prior to receiving the mortality notice, could indicate a longer post-mortem period prior to investigation (up to 8 days). In this case, a smaller wolf pack/low scavenging activity may be the reason hide was still observed. Even a time lag of only 3-4 days between the mortality event and mortality investigation can make it difficult to determine whether there could have been any additional or complicating factors associated with this mortality prior to predation. As previously mentioned, a fresh snow obliterated tracks and the only scavenging that could be confirmed was ravens, with fresh tracks observed on the remains (fig. 4 & 5).

Figures: Moose 15-5633

Figure 2. Aerial view 15-5633 kill site showing relatively open bog habitat, February 27, 2016

Figure 3. Eva Needlay collecting moose hair near the kill site of 15-5633, February 27, 2016

Figure 4. The skull and cervical vertebrae of 15-5633 with raven tracks, February 27 2016

Figure 5. Lower mandible of 15-5633, February 27 2016. Note the covering of snow and raven tracks.

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

BC MOOSE RESEARCH - MORTALITY INVESTIGATION FORM

①

Date: _Feb.27/16_ Date of Mortality (signal): _Feb 25/16_ Days elapsed since death: _____

Personnel: _Inga Jean Hansen, Eva Medlay, Brad Knighton (pilot)_

General Location: _just west of Petitot airstrip_

Waypoint: _5633_ UTM: Zone _10V_ E: _551095_ N _6619766_
5433kall KM Lat: _59.71272_ Long _-122.09179_

Wildlife Health ID: _15-5633_

Ear Tag # : _4 - unk._ Collar Recovered (Y) / N Ser. No.: _18319_

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

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

found gut pile & bleed out site ~150m from collar
lot wolf trails (fresh snow obscured trades) & packed
down obvious kill site/eating sites

Snow Crust: ☐ Heavy ☑ Light ☐ Fluffy Snow Depth (cm): _63_ Sinking Depth (cm) _48_

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
☐ _____	☑ _heavily_	☑ Scavenged	☐ Poor	☐ External Parasites
	Scavenged	☐ _____	☐ Emaciated	☐ Abnormal Skin
			☑ Undetermined	☐ Lumps / Warts
				☑ _unk._

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-	☐ Overgrown	☐ Fractured	☐ Broken
☐ Anus	legs	☐ _____	☐ Compound	☐ _____
☑ _unk_	☐ _____	☐	☐ _____	

Comments / Details

only scavenger tracks are raven but snowed last night so (~3cm)
covered up other tracks & kill site. (cover of
snow on all remains
found upper & lower mandible separated
(cervical vertebrae still attached (had to
separate) - wolf scat present. Moose head
recovered & some normal pellets found

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): _____

Sex: ___ CR Length (cm): _____

Back Fat Depth (mm): _____

Comments/ Details

_____ no internal organs found _____

CAUSE OF DEATH (follow key and check appropriate boxes)

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

Highly

Comments/ Details

Some hide & skin still on skull so maybe only 2-3 days
at site   old. Question the clustering from 19-23 or 24
as maybe not the mortality
seen to reduce
but movement
is there   all site (?)

SAMPLES (check if taken)

☐ Photos Taken?   all site (?)

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

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

+ moose pellets.

Swab Data Sheet

Wildlife Health ID Number 15 - 5633

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

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

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

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

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

yes. predator scat w4f.

only ravens were obs as scavenger otherwise but see notes on scan fresh snow.

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.