

MAINTENANCE OF MOOSE COLLARS TO SUPPORT UNBC RESEARCH PROJECT

Moose ID: 15-5607, Collar ID: GSM18332

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*Moose
mortality
investigation
no. 3 – January
12, 2016*

Summary

Moose ID: 15-5607

Collar type: Vectronics Vertex

Collar ID: GSM18332

Sex: Female

Area: Clarke

Frequency: 153.360

Cause of death: wolf predation (highly probable)

Date of death: January 3 2016 (reduced movement noted); January 8 2016 (mortality notice received)



Figure 1. Moose 15-5607 collar with only the transmitter/battery box remaining January 12 2016

Background:

On January 8, 2016, we received notification of potential mortality for moose ID 15-5607 by Caslys Consulting Ltd. (Caslys). Caslys indicated that movement rates were extremely low on this collar since January 3, 2016, but that they not received a mortality notice from Vectronics until January 8, 2016. Caslys also observed wolves BW039 and BW040 in this same area from January 3-6, 2016. On January 12, 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 15-5607 as few carcass remains were present. 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 handheld telemetry at 58.71694°, -121.93752°, or UTM 10V 561540, 6509021 in the far northeast corner of British Columbia, in the Clarke Core study area and was so badly chewed by wolves that only the transmitter/battery box remained (fig. 1). This location was approximately 175m from the final location provided by the satellite data and 85m from the suspected kill site. A 50m radius search around the kill site and collar revealed wolf scats, a potential wolverine hair, moose hair, one half of the lower mandible and portion of the upper jaw (fig 2). These were collected, labelled and given health ID numbers (15-5607-1 to 15-5607-6). The wolf scat contained moose hair. Moose pellets were not observed on site. Reduced movements for Moose 15-5607 date back to January 3, 2016 and data from a concurrent project (S. Alexander, pers. comm.) show overlapping collared wolf movements (wolves BW039 and BW040) from January 3-6, 2016. Wolf predation is the probable cause of mortality. Due to the time lag between when the reduced movement was noted (*i.e.* assumed mortality) and when collar retrieval occurred it is difficult to determine whether there could have been any additional or complicating factors associated with this mortality prior to predation.

The collar was found under the snow in a patch of black spruce but aerial observations identified that the actual kill location was 85m to the north where the habitat consisted of small openings with extremely stunted black spruce, willow and bog birch (see figs. 3, 4, 5). Scavenging on site was still occurring and fresh tracks of wolverine, marten, ermine, and raven were noted. A wolverine was seen on the location the morning prior to our arrival by a Bailey pilot traveling over enroute to a different location.

There was some post-mortem movement of this collar, likely attributed to wolves and the final location received by satellite four days prior to dispatching to retrieve the collar was 195m from the actual location of the collar.

Figures: Moose 15-5607



Figure 2. Half of the lower mandible and a portion of the upper mandible were the only remains retrieved January 12 2016



Figure 3. Kill site with Eva Needlay (FNFN) and Tom Halbert (pilot) January 12 2016 (looking west)



Figure 4. Aerial view of kill site showing multiple wolf trails leading to and from the location January 12 2016



Figure 5. Labelled aerial view of collar location and more open landscape of the kill site January 12 2016

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

BC MOOSE RESEARCH - MORTALITY INVESTIGATION FORM

Date: Jan 12/16 Date of Mortality (signal): Jan 8/16 Days elapsed since death: likely > 4 b/c reduced movement noted by collars on Jan 3/16
 Personnel: Ragston Hansen, Eva Needham, Tom Hulbert (pilot)
 General Location: Clark core
 Waypoint: _____ UTM: Zone 14 E: 561540 N: 6509021
 Lat: 58.71694° Long: -121.93752°
 Wildlife Health ID: 155607
 Ear Tag #: 0754 Collar Recovered: (Y) N Ser. No.: 18332
 Carcass Located: Y/N Collar Condition: ☐ Functional ☐ Damaged ☒ Destroyed
some was in area

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

very little remains (partial) - upper jawed, obvious kill site
observed from air w/ many wolf tracks/roads leading
to and from kill site. No other seen near cdc earliest
in Bailey plot, Brian. 1g search revealed only wolf scat/tracks
and other scavenger signs (martens, ermine, raven)
 Snow Crust: ☐ Heavy ☐ Light ☒ Fluffy Snow Depth (cm): 45 Sinking Depth (cm): 41

EXTERNAL - Describe abnormalities, collect samples, take photos

Choose all that apply

Carcass Location	Carcass Condition	Carcass State	Body Condition	Skin / Hair Coat
<input checked="" type="checkbox"/> In Open <input type="checkbox"/> Concealed <input type="checkbox"/> Buried <input type="checkbox"/> _____	<input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Frozen <input type="checkbox"/> Decomposed <input checked="" type="checkbox"/> <u>heavily scavenged/ eaten</u>	<input type="checkbox"/> Intact <input type="checkbox"/> Disarticulated <input checked="" type="checkbox"/> Scattered <input checked="" type="checkbox"/> Scavenged <input type="checkbox"/> _____	<input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/> Emaciated <input checked="" type="checkbox"/> Undetermined	<input type="checkbox"/> Normal <input type="checkbox"/> Hide Inverted <input type="checkbox"/> Missing Hair <input type="checkbox"/> External Parasites <input type="checkbox"/> Abnormal Skin <input type="checkbox"/> Lumps / Warts <input checked="" type="checkbox"/> <u>UNK</u>
Discharge / Blood	Diarrhea / Feces	Hoof Condition	Bones / Legs / Joints	Mouth / Teeth
<input type="checkbox"/> None <input type="checkbox"/> Mouth <input type="checkbox"/> Nose <input type="checkbox"/> Anus <input checked="" type="checkbox"/> <u>UNK</u>	<input type="checkbox"/> None <input type="checkbox"/> Normal Pellets <input type="checkbox"/> on Tail + Hind-legs <input checked="" type="checkbox"/> <u>UNK</u> <u>no pellets found</u>	<input type="checkbox"/> Normal Wear <input type="checkbox"/> Worn <input type="checkbox"/> Overgrown <input checked="" type="checkbox"/> <u>UNK</u>	<input type="checkbox"/> Normal <input type="checkbox"/> Chewed <input type="checkbox"/> Fractured <input type="checkbox"/> Compound <input checked="" type="checkbox"/> <u>UNK</u>	<input checked="" type="checkbox"/> Normal Wear <input type="checkbox"/> Irregular / Worn <input type="checkbox"/> Broken <input type="checkbox"/> _____

Comments / Details

collar ~ 100m from kill site. Only transmitter/battery
box found - under snow. Collar in blade service patch
kill site in more open area w/ stunted SB + long birch &
willow, humpback
wolf tracks/roads/scat
martens, ermine, raven
pt. (wolverine scat & hair) (scavenging at site)

INTERNAL - Record all abnormalities, collect samples and take photos

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	Normal	Abnormal	Comments
Lungs / Trachea	<input type="checkbox"/>	<input type="checkbox"/>	
Heart	<input type="checkbox"/>	<input type="checkbox"/>	
Muscle	<input type="checkbox"/>	<input type="checkbox"/>	
Liver	<input type="checkbox"/>	<input type="checkbox"/>	
Kidney	<input type="checkbox"/>	<input type="checkbox"/>	
Spleen / Lymph nodes	<input type="checkbox"/>	<input type="checkbox"/>	
Stomachs / Intestines	<input type="checkbox"/>	<input type="checkbox"/>	
Skull / Spine	<input type="checkbox"/>	<input type="checkbox"/>	
Reproductive Tract	<input type="checkbox"/>	<input type="checkbox"/>	

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

no carcass

no carcass

CAUSE OF DEATH (follow key and check appropriate boxes)

Confidence Level	Predation	Non-Predation	Unknown
<input type="checkbox"/> Definitive <input checked="" type="checkbox"/> Probable <input type="checkbox"/> Possible	<input checked="" type="checkbox"/> Wolf <input type="checkbox"/> Bear <input type="checkbox"/> Cougar <input type="checkbox"/> Unknown	<input type="checkbox"/> Collision <input type="checkbox"/> Hunter Kill <input type="checkbox"/> Hunter Wounded <input type="checkbox"/> Accident <input checked="" type="checkbox"/> Other	<input type="checkbox"/> Unknown

Comments/ Details

Highly

- only part of upper jaw & part of lower jaw found
- presence of wolf scat / tracks, trails & typical "kill site"
= highly probable wolf kill

SAMPLES (check if taken)

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

☒ Photos Taken?

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

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Swab Data Sheet				
Wildlife Health ID Number <u>15-5607</u>				
Swab #	1		Wound Type (circle one)	Wound Location and Description
			Kill	
			Feed	
			Other	
check boxes as swabs are completed		A B		
Swab #	2		Wound Type (circle one)	Wound Location and Description
			Kill	
			Feed	
			Other	
check boxes as swabs are completed		A B		
Swab #	3		Wound Type (circle one)	Wound Location and Description
			Kill	
			Feed	
			Other	
check boxes as swabs are completed		A B		
Swab #	4		Wound Type (circle one)	Wound Location and Description
			Kill	
			Feed	
			Other	
check boxes as swabs are completed		A B		
Predator hair or scat collected? How many? What species?				
hair (pot wolverine), scat (wolf + pot. wolverine)				
- no DNA swabs from collar taken as predator is known - wolf				

→ wildlife health IDs: 15-5607

- 1 = moose mandibles
- 2 = wolverine hair (pot.)
- 3 = pot. wolverine scat
- 4 = wolf scat
- 5 = moose
- 6 = hair
- 7 = hair

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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	Signs 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.
		Dead.

no body / carcass to score