

BC CARIBOU MATERNITY PENNING – CAPTURE/HEALTH RECORD FORM

PROGRAM: Revelstoke/Klinse-Za/South Selkirk DATE (D/M/Y): _____ WEATHER/TEMP: _____

CAPTURE

HAZE START (00:00): _____ END: _____ CHASE START: _____ END: _____

NET ON: _____ SECOND NET → No Yes → TIME ON: _____ TEMPERATURE: _____ (C/F)

RELEASED ON SITE TRANS. TO PEN → SEDATION (Dose/Drug/Route/Time): _____

WAYPOINT: _____ UTM E: _____ N: _____ /Lat: _____ Long: _____

ALONE IN GROUP (#, Sex, Age Class, Tags, Collars) : _____

ANIMAL ID AND PHYSICAL EXAM

WLH ID #: _____ OTHER ID #: _____ RECAP: No Yes → Number/Year: _____

COLLAR (Type/Colour Combo/Freq./Serial): _____

EAR TAG(S) (Colour/Number): Left: _____ Right: _____

WEIGHT: _____ (KG/LBS/Estimate/Actual) TEMPERATURE: _____ (C/F)

SEX: M F → Calf at heel: No Uncertain Yes → LACTATING: Yes No

COW AGE CLASS: Yearling Subadult (2-3) Adult (4-7) Old Adult (8+)

COW FIELD AGE (Incisor Wear): Yearling 2-3 4-5 6-7 8-9 10-11 12+

CALF → Transported to Pen: No Yes → CALF ID: _____ CALF SEX: M F PEN BORN: No Yes

BODY CONDITION: Emaci. Poor Fair Good // CARMA BCS: Shoulder: _____ Ribs: _____ Hips/Spine: _____

TICKS: No Yes → Mild Mod. Sev. // HAIR LOSS: None Mild Mod. Sev. Extreme Pictures

BESNOITIA LESIONS: No Yes → Head/Face/Sclera/Legs/Udder/Other → Mild Mod. Sev. Pictures

ANTLERS: None One Two Broken (Net) Deformity Retained Velvet Pictures L/R

INJURIES: No Yes → Net/Capture Other : _____ Pictures

BODY SIZE/MORPHOMETRICS (OPTIONAL): Total Length: _____ (cm) Chest Girth: _____ (cm)

Neck Circum.: _____ (cm) Metatarsal Length: _____ (cm)

SAMPLES

YES NO

1) Blood: 1 x 35 ml Syringe (Slightly Overdrawn) → (4) 5 ml BD Gold Top (SST Serum) Tubes
→ (1) 6 ml BD Purple Top (EDTA Whole Blood) Tube
→ (1) 6 ml BD Royal Blue Top (Trace Nutrient Serum) Tube

2) Hair: 100 mg (Coin Envelope FULL/PLUCKED Top Shoulder) Circle → Clean/Contaminated/Dry/Wet

3) Skin Biopsy: 6 mm → Retain Ear Tag Punch(es)/Record Number Collected:

4) Feces: Circle Method → Per Rectum/Off Ground/Off Snow/From Transport Bag

PROPHYLACTIC OR OTHER DRUG TREATMENTS

Anafen	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ
Dectomax or Ivomec	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ
Dystocel	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ
Other #1: _____	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ
Other #2: _____	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ
Other #3: _____	Dose (mg): _____	Volume (ml): _____	Location: _____	IV/IM/SQ

REVERSAL DRUG (ATIPAMEZOLE)

Dose: _____ (mg) IV/SQ/IM Time Admin. (00:00): _____ Time Up: _____

Dose: _____ (mg) IV/SQ/IM Time Admin. (00:00): _____ Time Up: _____

COMMENTS

COMPANION PROTOCOLS FOR BC CARIBOU MATERNITY PENNING CAPTURE/HEALTH RECORD FORM

1.0 ESTIMATING CARIBOU AGE

AGE CLASS/FIELD AGE	PATTERN OF INCISOR WEAR
Subadult (2-3 years old) Picture 1	Very white teeth with rounded caps (little or no wear)
Adult (4-5) Picture 2	First incisors are flattening and second incisors are beginning to wear.
Adult (6-7) Picture 3	All teeth in the incisor bar are flattening and appear to be a straight line across the top of the teeth.
Old Adult (8-9) No Picture	All teeth in the incisor bar are flattened significantly (all teeth appear significantly shorter than 6-7 year old)
Old Adult (10-11) Picture 4	All teeth in the incisor bar are stubs (shorter still)
Old Adult (12+) Picture 5	All teeth in the incisor bar are worn to the gum line



Modified After: Cattet, M.R.L. (2011) Government of Northwest Territories, Wildlife Care Committee Standard Operating Procedure (SOP) for Capture, Handling and Release of Caribou. Version 2-2011. Picture 5. Mike Klaczek, Government of BC.

2.0 TICK ASSOCIATED HAIR LOSS SCORING IN CARIBOU

HAIR LOSS CATEGORY	PATTERN
None (No Picture)	No hair loss or breakage
Mild (Picture 1)	Few small to medium sized patches of broken hair or hair loss
Moderate (Picture 2)	Several or large patches broken hair or hair loss - NO EXPOSED SKIN
Severe (Picture 3)	Several or large patches broken hair or hair loss <u>with</u> 1-2 small areas exposed skin
Extreme (Picture 4)	Several or large patches broken hair or hair loss <u>with</u> large or > 2 areas of exposed skin

NB: Degree of tick associated hair loss observed in caribou not always correlated with infestation burden.



* Photos and Hair Loss Classification Score: D. Culling, Diversified Environmental Services Inc., Fort St. John, BC.

3.0 ASSESSMENT OF BODY CONDITION

3.1 CARMA BODY CONDITION SCORE (STANDARDIZED RANGIFER CONDITION SCORE):

- A standardized palpation technique developed by the CircumArctic *Rangifer* Monitoring and Assessment (CARMA) Network can be used to estimate the body condition of live-captured caribou.
- This technique assigns condition scores that have not been calibrated to back fat and are somewhat subjective (but still useful) indicators of overall fatness.
- Using the chart below, assign palpation scores to the shoulder, ribs, and hips-spine.
- Scores may be broken down to halves (e.g. 2.5, 3.5) and area scores won't necessarily be the same.

SHOULDER	DESCRIPTION	SCORE#
1	V-shaped scapula, very bony, hollows behind scapula and immediately behind the scapular spine	
2	Somewhat V shaped, less bony, hollows still present	
3	U-shaped withers, hollows filled	
4	U-shaped, very broad, difficult to feel edges of bone	
RIBS	CARMA DESCRIPTION	SCORE#
1	Deep groves between ribs including behind the shoulder	
2	Ribs fairly well covered immediately behind shoulder	
3	Can still feel ribs, groves are not too deep	
4	Ribs nearly flush with tissue between them	
HIPS/SPINE	CARMA DESCRIPTION	SCORE#
1	Hip bones very distinct, no fat on back or tail head, spine very distinct	
2	Some padding on hips, spine remains very distinct	
3	Hips fairly well padded, spine partly covered along each side	
4	Hips well padded, spine is flush with or nearly covered with fat	
Total Score (sum shoulder, ribs, hips/spine assessments)		

* Gunn, A. et al. Eds. (2008). CircumArctic *Rangifer* Monitoring and Assessment (CARMA) Network Monitoring Protocols Level 2. 57 pp. # Assigned numbers may be in increments of 0.5/Area scores may not be the same.

4.0 SAMPLE COLLECTION PROTOCOLS FOR LIVE-CAPTURED CARIBOU

4.1 SAMPLE KIT CONTENTS

Each caribou sampling kit contains:

- 4 x 5.0 ml BD Gold Top (SST) serum collection tubes (BD #367986) **OR SUBSTITUTE:** 3 x 8.5 ml BD Tiger Top (SST) serum tube (BD #367988) or 3 x 9.0 ml Monoject Tiger Top (SST) serum tubes (WDDC # 110839)
- 1 x 6.0 ml BD Purple Top (EDTA) (BD #367863 or #368661) whole blood collection tube
- 1 x 6.0 ml BD Royal Blue Top (Trace Nutrient) (BD# #368380 clot activator with silicone coated interior)
- serum collection tube
- 2 x Pre-labelled 1.8-2.0 ml cryovials for serum trace nutrient testing only
- 2 x 18 or 19G, 1 or 1.5 inch, aluminum hub, needles
- 1 x 35 ml syringe
- 1 x small coin envelope (non Manila)
- 1 x large coin envelope (non Manila)
- 1 x disposable 6 mm biopsy punch
- 1 x ear tag with unique BC Wildlife Health ID (WLH ID) Number
- 1 x Whirl-Pak bag
- 1 x Nitrile glove

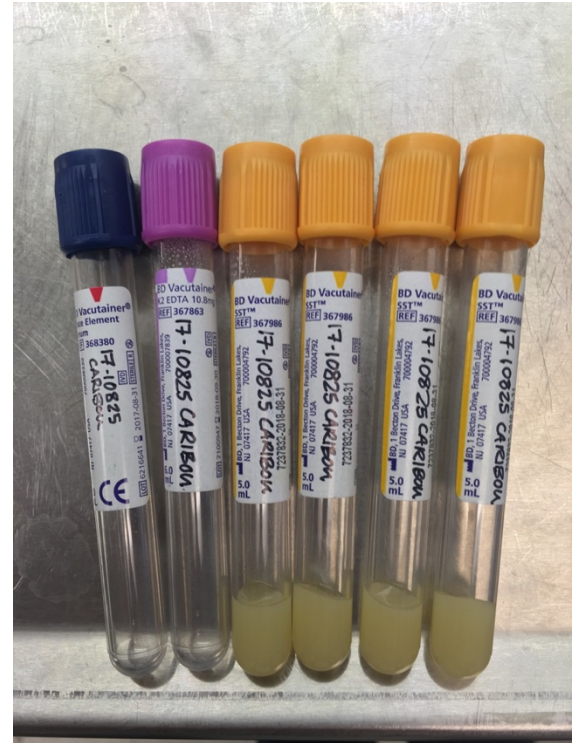
4.2 OTHER SUPPLIES NEEDED BUT NOT PROVIDED

- Digital camera
- Puncture proof, crush proof sharps container. 1L **Pyrex** Nalgene bottles work well. **NO POP BOTTLES.**

4.3 BLOOD COLLECTION

4.3.1 Blood Collection

- Use provided 18 or 19G, 1 or 1.5 inch needle and 35 cc syringe to collect blood from **EITHER** the jugular vein, the cephalic vein (front leg), or the saphenous vein (hind leg) of each live-captured caribou.
- Carefully and slowly over draw the syringe (i.e. slightly past the 35 ml mark) to ensure that enough blood is collected to fill all tubes to capacity.
- **USE A NEW NEEDLE AND SYRINGE FOR EACH ANIMAL.**
- **Secure used needles in a crush proof, puncture proof sharps container (e.g. 1L Pyrex Nalgene bottle).**
- **Syringes WITHOUT NEEDLES can be disposed of in a sealed garbage bag.**



4.3.2 Blood Transfer to Sample Collection Tubes

- Blood collection tubes are under negative pressure.
- To prevent hemolysis (the rupture of red blood cells turning serum pink or red), do not squirt/force blood into collection tubes. Instead, insert the needle through the tube stopper and negative pressure will passively draw the blood from the needle/syringe into the collection tube.
- If the vacuum has been compromised, blood can be gently and slowly injected along the sides of the tube.
- **GENTLY ROLL AND ROTATE THE PURPLE TOP TUBE IMMEDIATELY AFTER COLLECTION TO ENSURE THE ANTICOAGULANT AND BLOOD ARE WELL MIXED (30 S - 1 MINUTE).**
- Each blood tube type contains different reagents and are necessary to properly collect the different samples required for pregnancy determination, health and disease surveillance, trace nutrient testing, etc.
- The quality of data obtained from blood samples can be compromised by improper collection, handling, processing, and storage. Please ensure blood protocols are followed to the letter.
- **AT ALL TIMES, HANDLE BLOOD TUBES WITH CARE: PROTECT FROM ROUGH HANDLING, DIRECT SUNLIGHT, FREEZING, AND TEMPERATURE EXTREMES.**

4.3.3 Blood Processing and Storage

4.3.3.1 Gold Top (SST) Serum Tubes

- Centrifuge gold top (SST) tubes for 15 minutes once blood has clotted, and within 12 hours of collection.
- After centrifuging, serum (clear, yellowish liquid) will be separated from clotted blood by the gel plug.
- Decant serum from spun gold top (SST) tubes into labelled cryovials using a disposable transfer pipette.
- **Use a new transfer pipette for each type of tube and use a new set of transfer pipettes to process samples from each individual caribou.**
- If a transfer pipette becomes contaminated with gel, blood from the clot, other debris, etc. discard and use a new pipette. They are inexpensive and regions can be resupplied by the wildlife health program.
- Fill each cryovial with a maximum 1.8-2 ml serum (i.e. no more than the maximum volume listed on each vial).

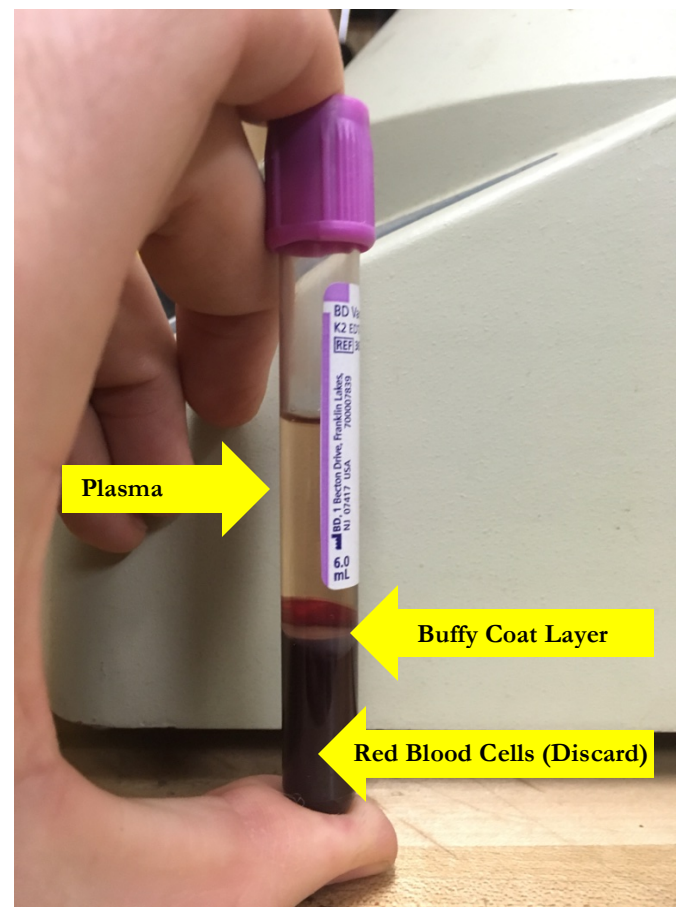
- Please do not use cryovials > 2 ml in capacity. Freeze/thaw can degrade serum samples and is required for sub sampling if larger capacity cryovials are used.
- Ensure each cryovial is properly labelled with: WLH ID (**NOT COLLAR FREQUENCIES**), herd, species, **SERUM**, and date.
- Store serum from gold top tubes frozen (minimum -20 °C).
- Discard the clot and gold top (SST) tubes.

4.3.3.2 Royal Blue Top (Trace Nutrient) Serum Tube

- Centrifuge royal blue top tube for 15 minutes and within 12 hours of collection.
- **Royal blue top tubes do not have separating gel so caution is needed not to disturb the clot after centrifuging and while processing.**
- **Royal blue top tubes are also more easily affected by hemolysis. Please note (in data sheet comments section) if the serum sample from a royal blue top tube appears red as hemolysis may influence interpretation of results.**
- Decant serum from the spun royal blue top tube into the two pre-labelled cryovials in the sample kit using a disposable transfer pipette.
- Alternatively, label two cryovials with WLH ID, herd, species, **TRACE NUTRIENTS**, and date.
- Store serum from the royal blue top tube frozen (minimum -20 °C).
- Discard the clot and the royal blue top tube.

4.3.3.3 Purple Top (EDTA) Whole Blood Tube

- **Gently roll and rotate the purple top (EDTA) tube IMMEDIATELY after collection to ensure the anticoagulant and blood sample are thoroughly mixed (30s - 1 minute).**
- Centrifuge the purple top (EDTA) tube for 15 minutes **as soon after collection as possible.**
- **CAUTION AT END OF SPINNING.** Unlike other blood tubes in the sample kit, the blood cell and plasma layers in the purple top (EDTA) tube are still in a liquid state (no clot). Do not bump or disturb the red blood cell layer and buffy coat (the opaque white blood cell layer between plasma and red cells) before sampling.
- **RE-CENTRIFUGE IF LAYERS ARE ACCIDENTALLY DISTURBED.**
- Collect plasma (clear/yellow layer) into cryovials using a clean, disposable transfer pipette.
- Fill each cryovial with a maximum 1.8-2 ml plasma (i.e. no more than the maximum volume listed on each vial).
- Label each cryovial with WLHID, herd, species, **PLASMA**, and date.
- Store plasma from the purple top (EDTA) tube frozen (minimum -20 °C).
- Collect the buffy coat (opaque middle layer) into **SEPARATE** cryovial.
- Label this vial with WLH ID, herd, species, **BUFFY**, and date.



- The buffy coat sample will appear red as some red blood cells will be sucked up with the white blood cell layer
- Try to minimize this as best as possible).
- Store buffy from the purple top (EDTA) tube coat frozen (minimum -20 °C).
- Discard the remaining red blood cell layer and the purple top tube.

4.4 SKIN BIOPSY

- Use the provided 6 mm biopsy to pre-punch holes for each ear tag that is applied.
- Caution is warranted to avoid large blood vessels in the ear.
- Caution also warranted due to punch through hazard to handler/tagger. Use an old piece of radio collar belt or similar placed on the back of the ear to protect your fingers.
- Transfer each ear plug biopsy into the **SMALL PAPER ENVELOPE** provided in the kit.
- Record the number of biopsies collected.
- Air dry (in collection envelope) at room temperature.
- Ensure biopsy samples are labelled with: WLH ID, herd, species, body site of collection, and date.
- Store skin biopsies at room temperature protected from heat, light, and moisture.
- **DO NOT FREEZE SKIN BIOPSIES.**
- Secure used biopsy punches in a crush proof, puncture proof sharps container (e.g. 1L Pyrex Nalgene bottle).

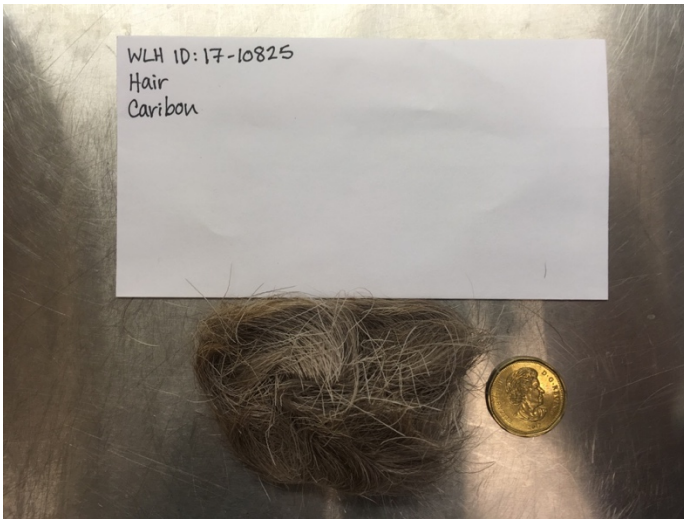
4.5 HAIR

- **PLUCK** hair from the **TOP OF THE SHOULDER** (yellow arrow) in an area as dry and as free of contaminants (blood, dirt etc.) as possible.
- Use needle nose pliers (best option) or a Leatherman to ensure undamaged, intact hairs with roots are obtained.
- Place hair in the **LARGE PAPER ENVELOPE** provided.
- **ENSURE ENVELOPE IS WELL FILLED**
- See pictures with dollar coin as reference for target sample size.
- Ensure hair samples are dry before long-term storage.
- Wet or damp hair samples should be gently blotted (not wiped) with paper towel immediately on return from the field then air dried before transferring to a new envelope for long-term storage.
- Air dry wet or damp hair samples out of direct sunlight and protected from heat (i.e. NOT near a wood stove, hot windowsill, on a truck dashboard etc.).
- Ensure hair samples are labelled with: WLH ID, herd, species, body site of collection, and date. Also note on labels if samples were collected from wet or dirty animals.
- For long-term storage keep caribou hair samples at room temperature in a dry (non Manila) paper envelope protected from heat, light, and moisture.



Photo: D. Culling

- Silica desiccant can be kept in the same general storage container (i.e. if storing many envelopes containing hair in a larger Rubbermaid etc.).
- **DO NOT FREEZE HAIR SAMPLES.**



4.6 FECES

- Using the nitrile glove provided, collect a “palm full” of fecal pellets per rectum (or from the ground/snow if defecation has occurred).
- If collecting per rectum, go slowly and proceed carefully to prevent tissue damage.
- Place pellets in the Whirl-Pak (**NO ZIPLOCS**) provided and remove as much air as possible from the bag without crushing pellets.
- Seal the bag well and store the fecal sample frozen (minimum -20 °C).
- **AVOID FREEZE THAW.**

4.7 EXTERNAL PARASITES

- Collect a representative subsample of any external parasites noted (e.g. different life stages, engorged, not engorged) if noted.
- **10+ winter ticks (*Dermacentor albipictus*) should be collected from any infested caribou.**
- In the field, ectoparasites can be temporarily placed in any well sealed, small container with a small piece of gauze or similar (old Red Top blood tubes without SST gel work very well).
- On return from the field, transfer specimens into cryovial(s) or screw-top specimen containers with 70% ETOH (Ratio of 10 parts ETOH:1 part parasite tissue).
- Label containers with WLH ID, herd, species, parasite type, body location recovered, and date.
- Store parasites in 70% ETOH at room temperature protected from heat and light.