Emergency hand-rearing of orphaned captive caribou calves

Purpose:

During caribou maternity penning projects when a caribou calf is orphaned for any reason (mismothering, difficult delivery, death of the cow) or when an injury occurs to a calf that requires multiple treatments and must be removed from the cow, the calf should be transported to a dedicated wildlife facility for long term treatment and/or rearing. The BC Wildlife Park in Kamloops and the Calgary Zoo have both agreed to receive and care for orphans. Since it may take a day or two for contact with the facility, appropriate transport and the calf may require stabilization prior to shipment, the following response plan should be followed:

Orphaned calf response plan

Step 1: Contact Dr. Helen Schwantje, Wildlife Veterinarian/Fish and Wildlife Branch Ph 250-751-3234/Cell 250-361-7619/Email helen.schwantje@gov.bc.ca

Step 2: Contact Dr. X (local veterinarian)

Step 3: Isolate calf in a dedicated area for ease of access for feedings. Provide clean bedding, a source of water, pellets and shelter. Age of calf should be estimated based on presence of and dryness of umbilicus, general appearance, weight and history. Calf should be examined carefully and weighed on capture and then on a daily basis to determine feeding amount and frequency.

Step 4: Monitor calf daily for signs of injury, diarrhea, lethargy, or non-responsiveness at each handling. Bowel movements should be monitored for character, colour and consistency; ideally, calves should be stimulated to defecate with each feeding. Very young calves normally have yellowish fecal paste while older calves have darker paste or fecal pellets. Water should always be available.

- Should the calf experience soft or loose stool, volume of milk replacer fed should be reduced** (contact veterinarian with concerns).
- Should the calf experience liquid bowel movements, milk formula should be replaced with oral electrolyte solution. Alternate (daily) between electrolyte solution and milk formula until feces are once again firm. Can add rice cereal and/or Pepto-Bismol (15-20 ml, for older calves with liquid feces) if necessary.
- Consult one of the veterinarians if problems persist.

Step 5: Refer to chart below for details on feeding amounts. Calves should be fed once every 2-3 hours by nippled bottle. *Forage (i.e. pellets) and water should ALWAYS be available in calf pens* Preparation of milk formula should be done within 24 hours of use, and is as follows:

1. Consult chart to determine appropriate feeding amount (based primarily on weight (kg)).

2. Mix listed amount of **water (ml/day)** (using cold water from potable water source) with **dry milk replacer (g/day)** (use gram scale to measure appropriate amount). This is the **total daily volume (ml)** for calf. It can be mixed in a cleaned gallon container (plastic milk jug with screw cap).
3. Stir or shake well until dry milk is completely dissolved. Store milk in refrigerator (3^{o}C).
4. At time of feeding, dispense **volume per feeding (ml)** (see chart) into feeding bottle. Place water warmed sheep nipple on bottle (improves flexibility to allow stretching onto bottle). Holes in nipple can be enlarged for calf's preference using a needle heated in a flame to increase flow.
5. Milk should be warmed by placement into bucket of hot/boiling water until it reaches a temperature of 25-30^{o}C (measured using thermometer in milk). Test for appropriate temperature by placing a drop of milk on inside of wrist. It should feel the same as your skin, if too hot, let the milk cool. Use your judgment!
6. Calf should be in standing position for feedings. Try to hold the head in a neutral position (looking straight ahead) when feeding. Minimal restraint should be used when possible. Person 1 should be offering the bottle and restraining the calf <u>if necessary</u> (see below image for restraint technique) and Person 2 should gently stroke area between hind legs up to base of tail repeatedly to stimulate suckling and defecation.

Nipple should be placed in front of mouth to offer milk. You can use your index finger and middle finger as substitute nipple should the calf not show interest in suckling, and then replace fingers with nipple when suckling begins.
7. Feed calf until it stops suckling. Do NOT force feedings.
8. Build a record. Use format as advised below. Record amount of milk fed per feeding. If any milk is left over after a feeding, it should be disposed of and NOT re-cooled/reused.
9. Record fecal amount, consistency, colour and character and if there was any urine produced. Make a note of overall calf demeanor and responsiveness to feeding/handling.
10. Wash nipple, bottle, and thermometer with warm water and soap and allow to dry prior to next feeding.
11. Repeat steps **5. – 10.** at each feeding time.

Step 6: If calf refuses feedings (milk and/or forage) for greater than 24 hours, immediately contact Dr. Helen Schwantje and/or local veterinarian for instructions re: feeding via orogastric tube.

Step 7: Make arrangements to transfer orphaned animal to Calgary Zoo or the BC Wildlife Park or ask Dr. Helen Schwantje to do so as soon as possible. The above instructions are for emergency situations in which calf cannot be transferred.

Step 8: Holding pen should be cleaned and disinfected thoroughly following every use and between patients.

Bottle-feeding schedule:

Average recommended daily milk intake at specific ages/weights. (note: forage/solid foods (pellets) should be offered ad lib at all ages)

Calf age (weeks)	Calf weight	Dry milk replacer (g/day)	Water (ml/day) (= Total daily volume (ml))	Volume per feeding (ml)
1	8 kg	800g	2400ml	343ml
2	11 kg	1100g	3300ml	471ml
3	14 kg	1400g	4200ml	600ml
4	17 kg	1700g	5100ml	729ml
5	20 kg	2000g	6000ml	857ml
6	22 kg	2200g	6600ml	943ml
7	23 kg	2300g	6900ml	986ml
8	25 kg	2500g	7500ml	1071ml

****Calves should be fed to satiety. Do NOT force feed – only offer bottle until calf ceases suckling****

Equipment needed:

- weigh scale (for calf), gram scale (for dry milk replacer)
- measuring cups (for adding water; measuring feeding volumes)
- Milk replacer: Zoologic® milk formula; solid component comprised of 2 replacers – 55.5% Zoologic Matrix 30/55 and 44.5% Zoologic Matrix 42/25
- Buffered oral electrolyte solution: NaCl (0.46% w/v), glycine (0.34% w/v), glucose (2.33% w/v; Re-Sorb®)
- sheep nipples
- bottles (plastic or glass, 240-300ml)
- container for mixing milk – clean plastic gallon milk jug
- small rubber bowl (black) for pellets + bucket for water
- shelter in isolation pens
- straw for bedding
- orogastric tube

- supplies for cleaning/disinfection

Calf health and feeding record:

CALF ID					
DATE and TIME	**MILK OFFERED (ML)**	**MILK ACCEPTED BY CALF (ML)**	**FECES (colour, consistency, amount, etc.)**	**URINE (colour, amount – i.e. +, ++, etc.)**	**ADDITIONAL COMMENTS (response to feedings, attitude, etc.)**