



# Camelids Part 1 - Overview



 Over [160,000 llamas](#) and [190,000 alpacas](#) are registered in the United States.

 The International Camelid Institute lists only [58 US camelid vets & 3 in Canada](#).

## 1. Spitting

- South American camelids (SACs) spit to assert dominance
- Sputum consists of partially fermented food from C1 and is foul-smelling
- Able to spit up to 10 ft away
- Spitting is usually preceded by the animal laying its ears back
- Pregnant females will spit on intact males (quick and dirty pregnancy test)



*Note the ears drawn back - this alpaca may be about to spit*

## 2. Elliptical erythrocytes

- Erythrocytes are small and elliptical, +/- fusiform, +/- spindle-shaped
- There is no central pallor
- Folding of cells may occur
- Because of their size and shape, automated cell counters may not produce reliable results
- Normal packed cell volume (PCV) is 27-45% and normal erythrocyte counts are  $10.1-17.3 \times 10^6/\mu\text{L}$
- Click here to see images of [SAC blood smears](#)

## 3. Orgling

- Characteristic guttural vocalization of male SACs during mating
- Helps to induce ovulation in females
- Click here to see (and hear) a video of a male alpaca [orgling](#)
- Other SAC sounds are humming, clucking, and alarm calls

#### 4. Communal dung pile

- SACs defecate in a designated pile
- Animals will wait in line to use the pile
- SACs are rarely messy during travel and in their stalls
- SAC dung ("llama beans") is nutrient-rich fertilizer and does not burn plants
- SACs also urinate in the same spot
- The dung pile is nearly odorless

#### 5. Three-compartment stomach

- C1:
  - 85% of stomach
  - Similar to rumen
  - Ventricular groove: In neonates directs milk past C1 and C2, delivering to C3
- C2:
  - 6% of stomach
  - Similar to reticulum
- C3:
  - 9% of stomach
  - Similar to abomasum
  - Five anatomic divisions:
    - First 4/5 have mucosal glands
    - Distal 1/5 has true gastric and pyloric glands (this is where the majority of gastric ulcers occur)

#### 6. Berserk male syndrome

- Occurs in males that were bottle-fed as crias or isolated from herd and have imprinted on the human caregiver
- Characterised by aggressive behavior toward humans

#### 7. Kush

- Sternal recumbency with legs under body
- A common way for SACs to rest
- Females assume this position for breeding
- Most SACs will kush when you grab their tail

#### 8. SAC diseases also seen in other animals

- **Foot and mouth disease (FMD):**
  - Clinical signs are generally mild in SACs
  - SACs can be infected, but are not very susceptible
  - SACs do not become carriers and cannot transmit to other animals
- **Rabies:**
  - Any neurologic signs: Agitation, aggression, hypersalivation, roaming, separation from herd, ascending paralysis, colic, depression, light sensitivity, markedly increased sexual activity
  - ZONOTIC and 100% fatal
  - Especially a concern in SACs because of spitting
  - Vaccination is recommended, however, no rabies vaccine is licensed for use in SACs
- ***Parelaphostrongylus tenuis*:**
  - Clinical signs:
    - Lumbar weakness, ataxia
    - Paralysis
    - Scoliosis



*SACs defecate in communal dung piles*



*Kushing in a llama*

- Prevention:
  - Deer-proof fencing
  - Anthelmintics every 30-45 d from spring to fall
  - Clean, dry environment to prevent snails and slugs
- Also known as meningeal worm of white-tailed deer
- **Bovine viral diarrhoea:**
  - Fever, oral ulceration, diarrhoea, abortion
  - Vaccination in SACs currently is not recommended as it can interfere with testing
  - PCR is test of choice

Images courtesy of [Eva Rinaldi](#) (alpaca at top), [Luc Viatour](#) (down llama), [Maurice Pullin](#) (alpaca poo), [CDC](#) (FMD), [Eric Kilby](#) (kushing), [Henryhbk](#) (girl and alpaca), [Trish Steel](#) (alpacaca in table), and [mtchm from](#) (llamas and alpacas at foot of volcano) .



*Foot and mouth disease in SACs is usually mild as opposed to other hooved species, such as this cow*



*P. tenuis can cause paralysis in SACs, but rarely causes cerebral signs*

Exotics