

Mycoplasma ovipneumoniae (M. ovi) Surveillance and Research Update



What is M. ovi?

- A bacterium that can lead to pneumonia in sheep, goats, and muskox (does not affect humans).
- M. ovi is short for *Mycoplasma ovipneumoniae*
- Identified as a pathogen in bighorn sheep pneumonia outbreaks.
 - Several western states and British Columbia
 - Sporadic, large-scale sickness and mortality events
 - Subpopulation-level events with mortalities of 70-90%
- Not all strains appear to cause sickness and additional stressors (nutritional/environmental) are important.



Testing for M. ovi underway

- Testing → M. ovi is in wildlife and domestic sheep and goats (virtually certain).
- Primarily nasal swabs from hunter harvested animals and routine captures.
- Tests: detect DNA fingerprint (PCR and sequencing)
 - Tiny sections of the bacterium's genetic code
 - Multiple different tests – each looking for different sections of the M. ovi genetic code



Tremendous Hunter Assistance

Requested help from hunters in July 2018 to voluntarily bring in heads – phenomenal response.

Hunter Samples:

- Dall's sheep > 331 samples
- Mountain goats > 113 samples
- Caribou > 120 samples*
- Moose > 94 samples**

* Collaboration with Yukon Territory colleagues

** Includes road kill samples



Comparing Tests

- Utilized up to 5 different tests on ~375 samples to compare tests.
 - High overall concordance
- However, one test gives many more (+) detections
 - Is the test more sensitive? Or less specific (false positives)?
 - Strong disagreement from experts associated with each lab
 - Consulting additional experts, may be somewhere in between
- Variable results → uncertainty
 - Don't want to say it is there when it is not
 - Don't want to say it is not there when it could be



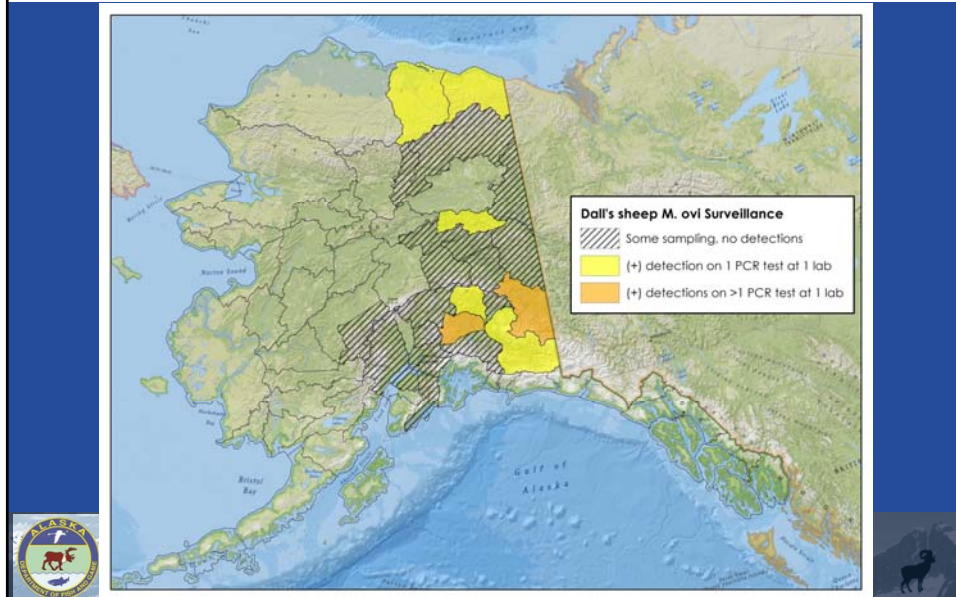
Proposed* Tiered View of Results

- (+) detection from a population on one PCR test at one lab = Concerned *M. ovi* is in the population
- (+) detections on multiple tests at one lab = Concerned *M. ovi* is very likely in the population
- (+) detections, multiple tests, multiple labs = Virtually certain *M. ovi* is in the population

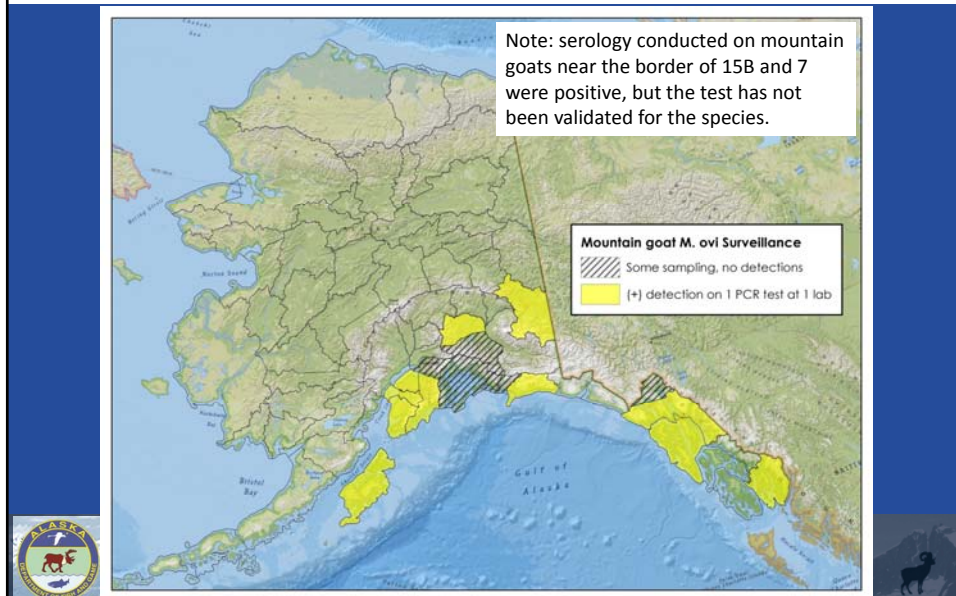
* Structure of tiers will be updated as we learn and understand more about each PCR test.



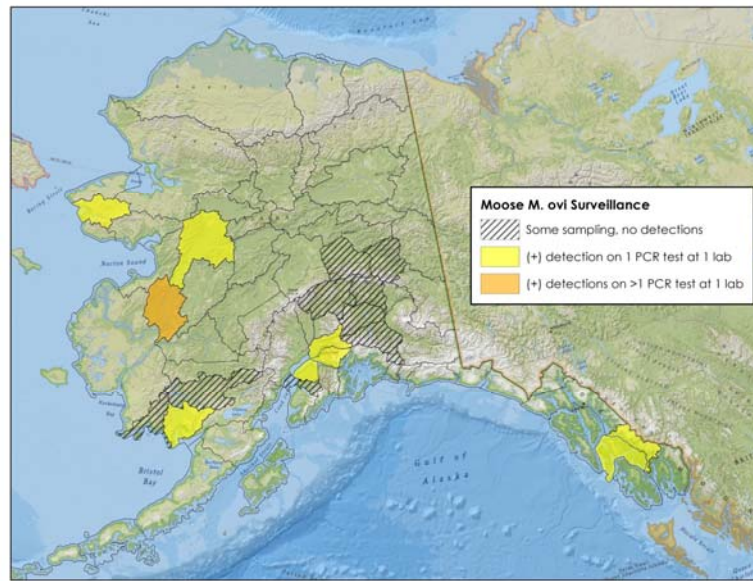
Dall's Sheep: Initial/Partial M. ovi PCR Results by GMU



Mountain Goat: Initial/Partial M. ovi PCR Results by GMU



Moose: Initial/Partial M. ovi PCR Results by GMU



Caribou: Initial/Partial M. ovi PCR Results by Herd

Caribou Herd	Detections
Fortymile Nelchina	(+) detection on >1 PCR test at >1 lab
Central Arctic Mulchatna Teshekpuk Western Arctic White Mountains	(+) detection on 1 PCR test at 1 lab
Mentasta	Some sampling, no detections

