

# Risk of Disease in Wild Sheep



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# Mid 1800's reports of

- Die-offs in bighorns
- Populations with shared habitats – failed to expand
- Extirpations in OR, WA, S.W. ID, N.E. CA and N. NV



# Since the 80's accidental and experimental contact

- Wild sheep and other sheep species
- Wild Sheep and other ruminant / livestock species







**Contact between domestic sheep and wild sheep is a risk factor for disease**



# What does the Science tell us?





Domestic sheep and goats carry bacteria that are foreign to wild sheep

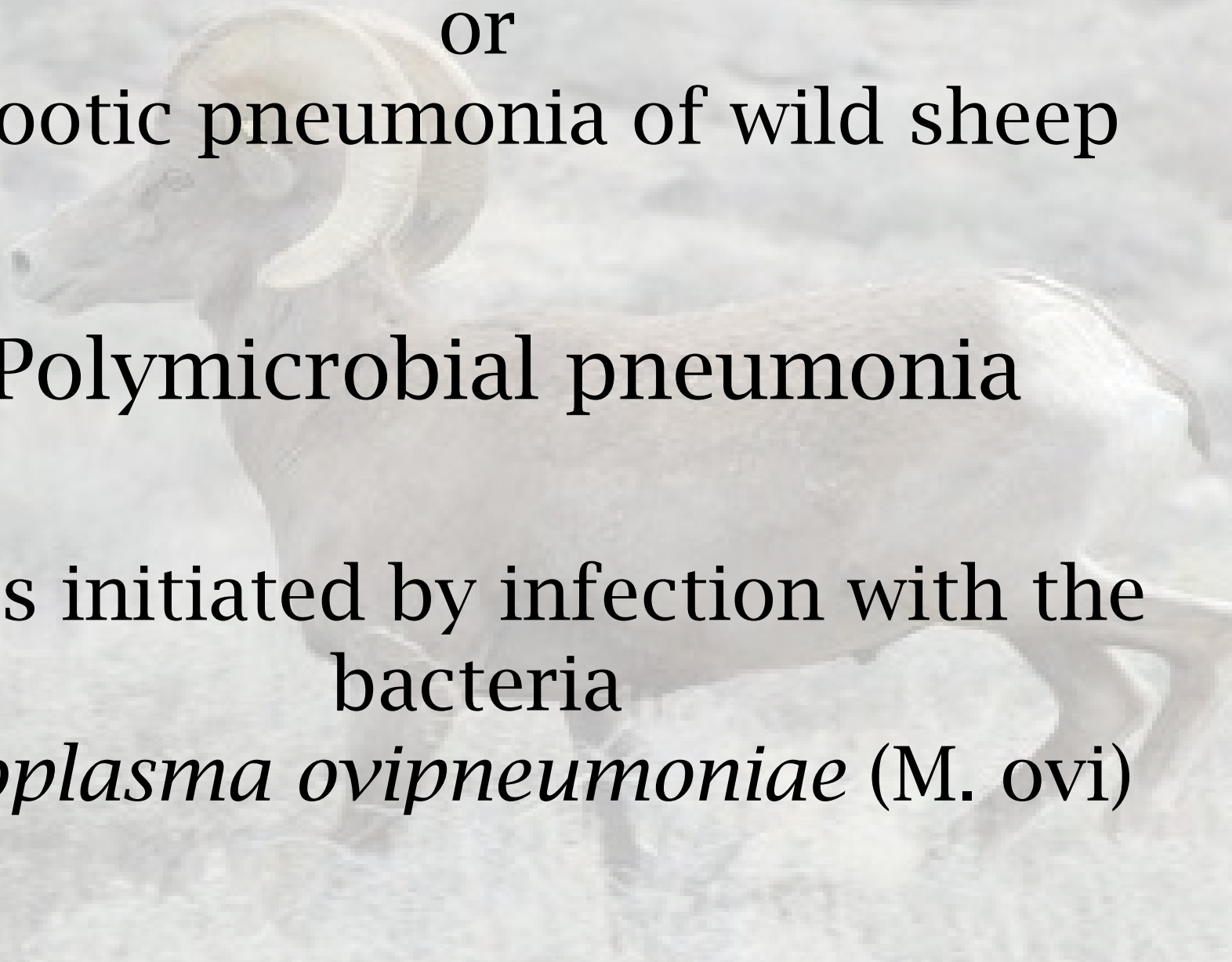
This often results in and all age die-off  
or

Epizootic pneumonia of wild sheep

Polymicrobial pneumonia

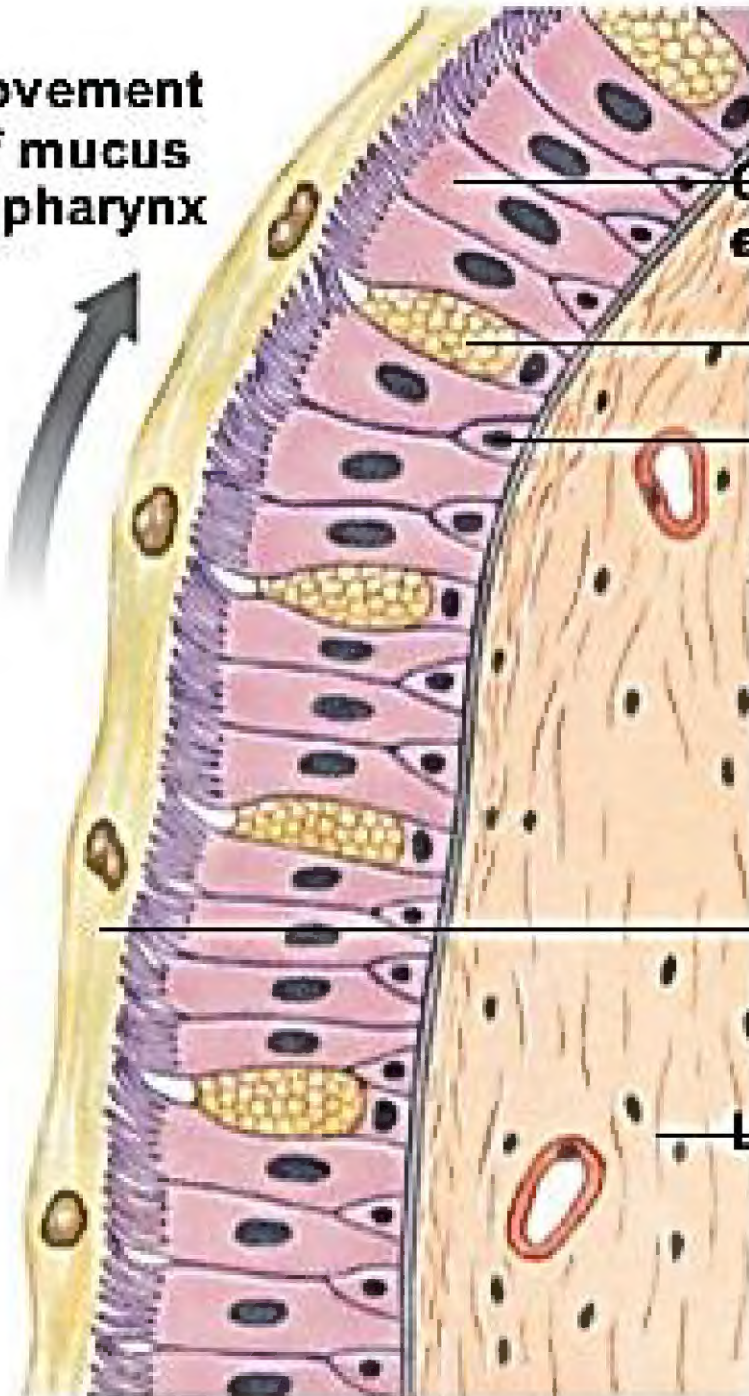
that is initiated by infection with the  
bacteria

*Mycoplasma ovipneumoniae* (M. ovi)





**Movement  
of mucus  
to pharynx**



**Ciliated columnar  
epithelial cell**

**Mucous cell**

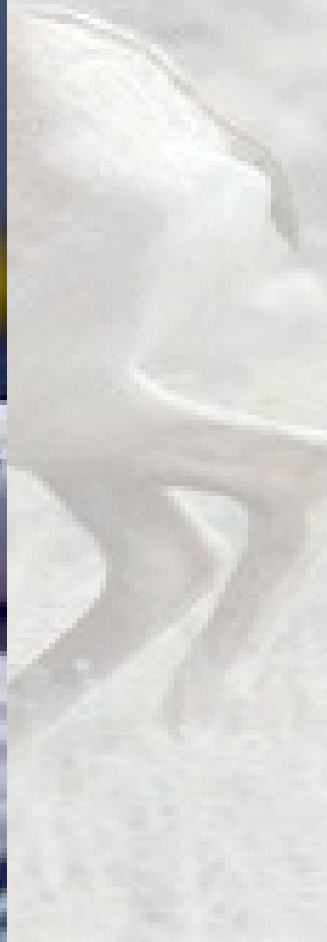
**Stem cell**

**Mucus layer**

**Lamina propria**



Bacteria that live in the back of the throat  
move down to the lungs causing  
pneumonia



# Outcomes for herds



- Complete loss of the entire herd
- Loss of all age classes followed by many years of poor lamb recruitment
- Loss of all age classes followed by a few years of poor lamb recruitment
- Minimal impact on herd

# Why Variable Outcomes?

A large ram with thick, curved horns is the central focus of the image. It is standing in a field of dry, light-colored grass. The ram is facing left, and its body is slightly angled towards the viewer. The background is a soft-focus field of similar grass, creating a sense of a natural, outdoor environment. The overall tone is muted and naturalistic.

Pathogen related

- Chronic Carriers
- Strain type

Herd Density

Nutrition

Genetics

Other Environmental factors



5-20% of survivors may still carry the bacteria





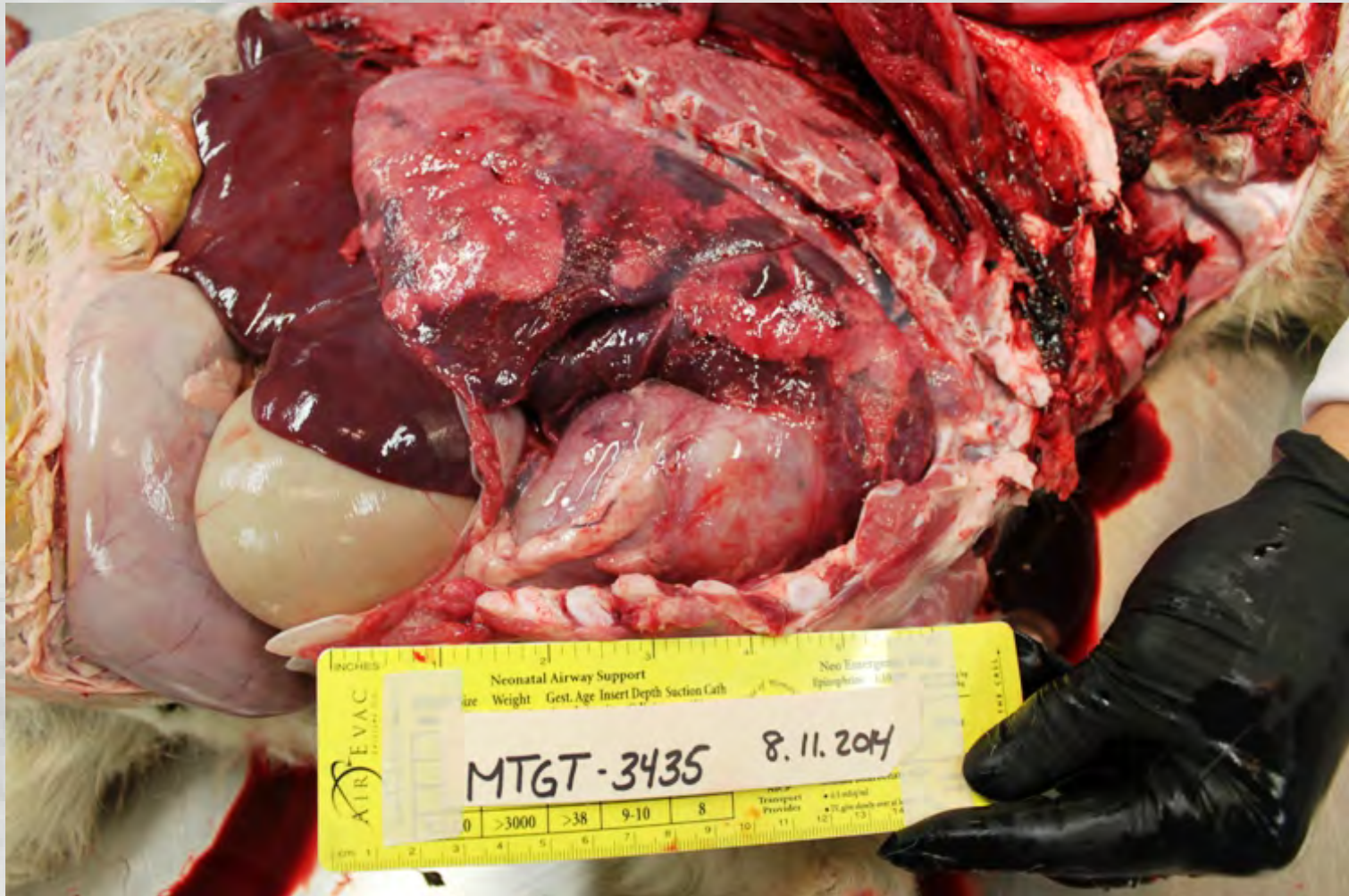
In some herds lamb survival can be  
0%  
for many years (+/- 18)



Photo by Stratton: National Park  
Service



A similar epidemiology of pneumonia has been documented in mountain goats



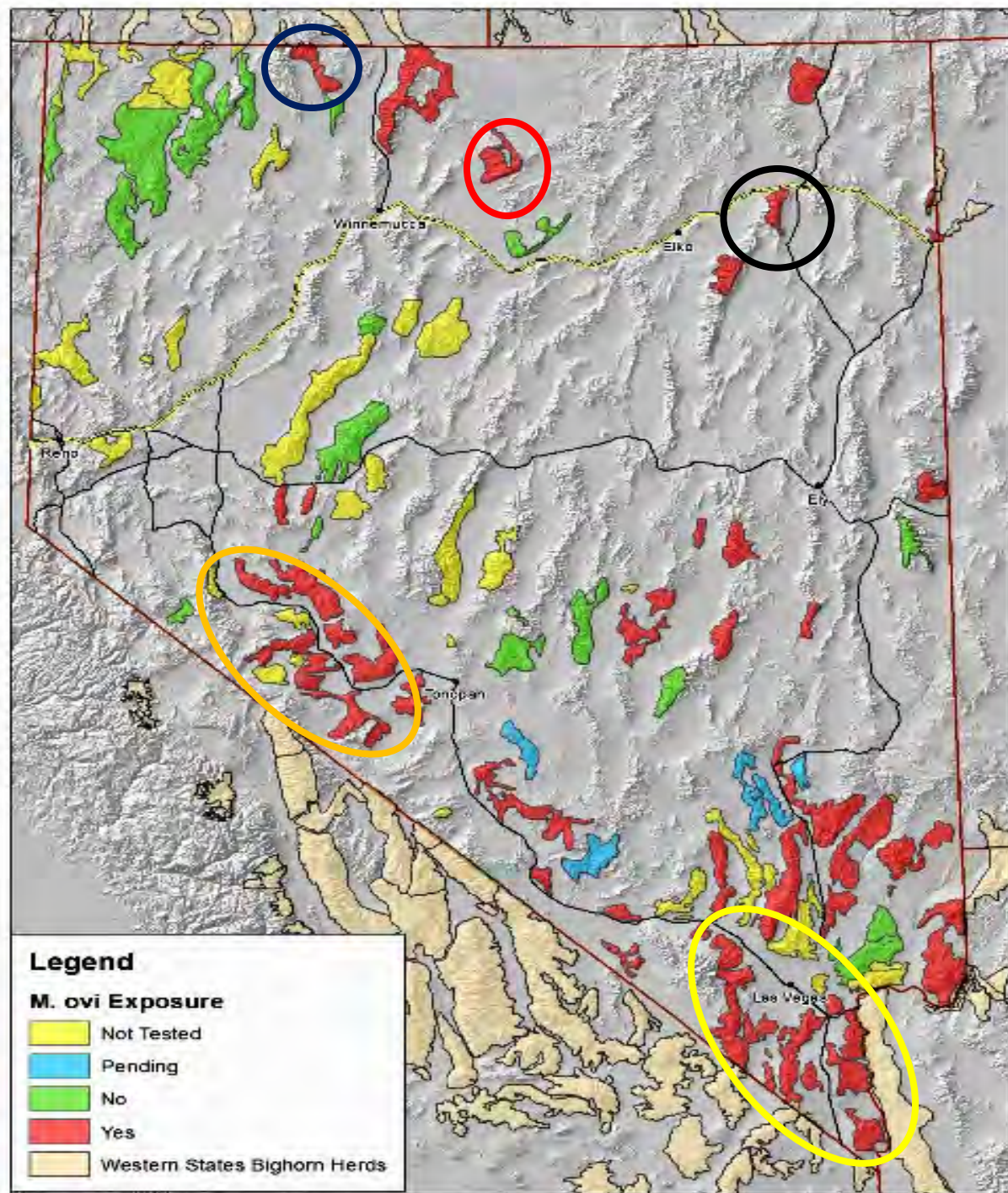


Similar to many pathogens, there are multiple strains of *M. ovi* which gives us a clue as to the origin of the infection





# Nevada herds *M. ovi* status

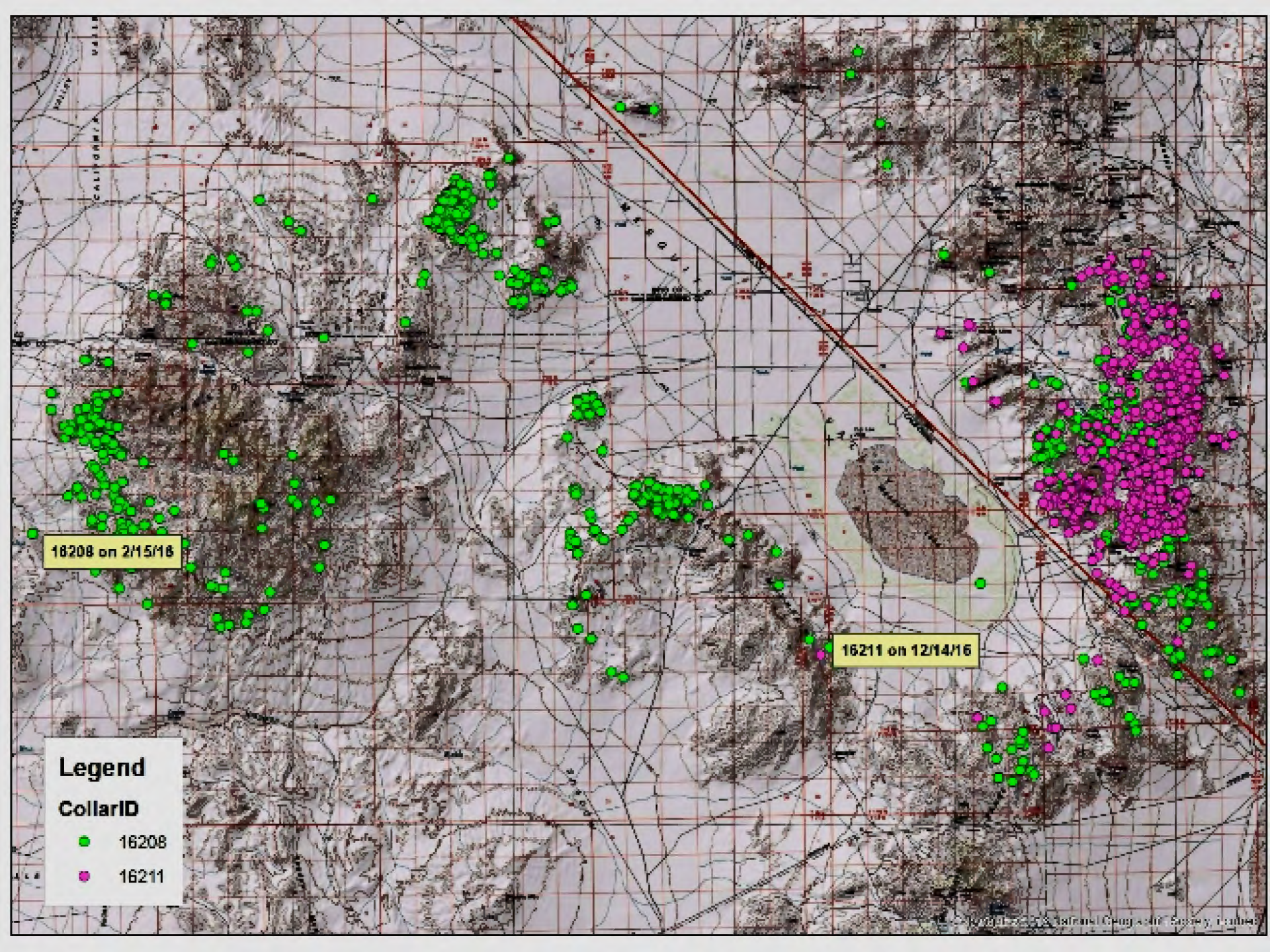




Do not under estimate the distances that rams may foray







16208 on 2/15/16

16211 on 12/14/16

**Legend**

**CollarID**

- 16208
- 16211





Photo by The Bighorn Institute







To maintain healthy and viable herds  
To keep wild sheep on the mountain  
Separation must be maintained



**Thank you**

