



SOUTH DAKOTA GAME, FISH and PARKS

Bighorn Sheep Disease Research Update – South Dakota
WAFWA 2017

Background Treatment/Control

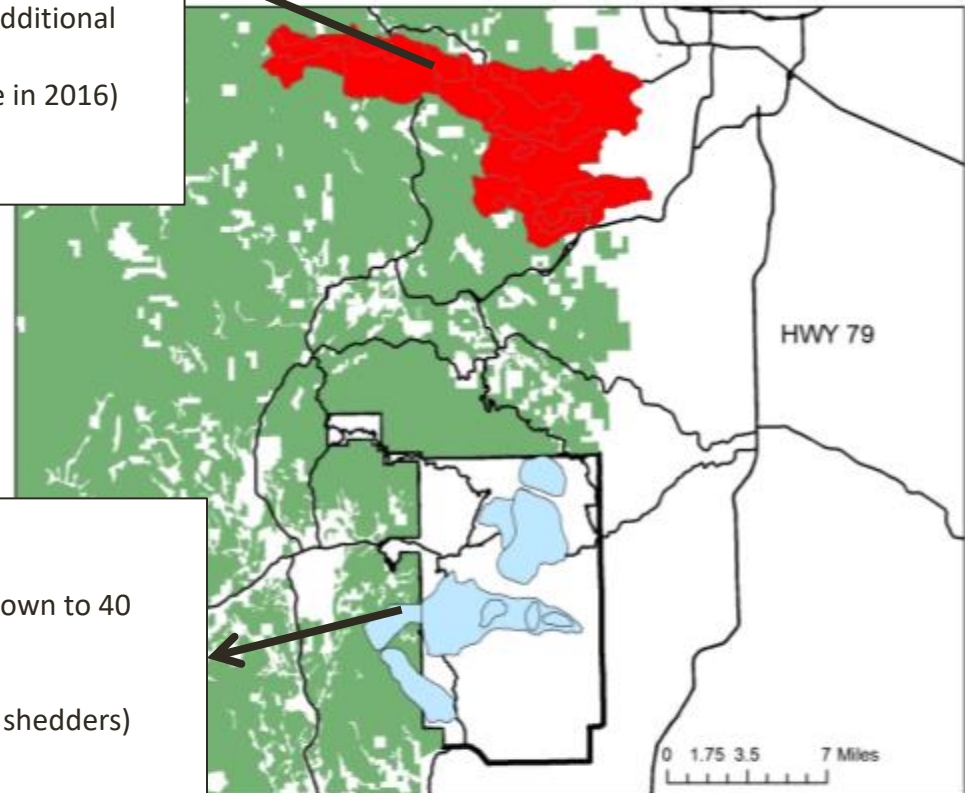


Control Area:

Rapid City herd, Rocky Mountain, central Black Hills
Disease event: 2011-12, gradual die-off from 98 sheep down to 56 slowly over time (roughly 40% die-off over time).
Marginal lamb recruitment (10-30% since die-off)
Started testing in 2015, 57 sheep when testing began (35% shedders)
Shedders left in population for continued research
Herd response continues to exhibit poor lamb survival with additional adult mortality from pneumonia as well
Continue testing for 2nd year of study (22:100 ratio lamb/ewe in 2016)
Currently 37 marked (7 lambs, 25 ewes, and 5 rams)

Treatment Area:

Custer State Park, Rocky Mountain, southern Black Hills
Disease event: 2004, 80% die-off from roughly 200 sheep down to 40 quickly in one year
Marginal lamb recruitment (0-20% since die-off)
Started testing in 2014, 25 sheep when testing began (12% shedders)
Research study started in 2015 (2 shedders removed)
Shedders sent to SDSU in pens for continued research
Herd response immediate improvement of lamb survival
Continue testing post-removal of shedders (82:100 ratio lamb/ewe in 2016)
Currently 23 marked (6 lambs, 11 ewes, and 6 rams)



Objectives

1. **Determine effect of chronic shedder removal on lamb survival.**
Hypothesis: Higher lamb survival if chronic shedders are removed
2. **Determine mortality sources in both adults and lambs.**
Hypothesis: Lower pneumonia mortality if chronic shedders are removed



Field Methods Overview



Phase 1: Adult data collection and manipulation

- Collar, test, classify, remove chronic shedders



Phase 2: Lamb data collection

- VIT pregnant ewes
- Collar, monitor, necropsy, compare between populations

Two distinct populations with spatial separation



Progress to Date



Disease Testing

- 79 tested, 6 retested
- Some results still pending

Classification

- 22 Positive
 - CSP: 2 Positive (Removed)
 - RC: 20 Positive
- 6 Indeterminate
- 47 Negative



Progress to Date



Lamb Collaring and Survival

- 13 mortalities / 26 lambs collared
 - CSP: 1 mortality / 9 collared,
 - RC: 12 mortalities / 17 collared

Lamb Mortality Sources

- CSP: 1 predation,
- RC: 5 pneumonia, 4 other disease and poor condition, 2 predation, 1 unknown



Progress to Date



Adult Survival

- 13 mortalities (not including CSP removals)
 - 3 CSP, 10 RC

Mortality Sources

- 5 pneumonia, 4 predation, 2 car collisions, 1 capture complication, 1 harvested
 - CSP: 3 predation
 - RC: 5 pneumonia, 2 car collision, 1 predation, 1 capture complication, 1 harvested



Questions....

