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**GIA Form**

1 message

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Tue, Oct 29, 2019 at 4:49 PM

To: info@wyomingwildsheep.org, skilpatrick@wyomingwildsheep.org, joni@wyomingwildsheep.org

**Project Details:**

Project Title: The 'West Side Story': Where Performance Exceeds Expectations

Project Type: Research

Affiliate: University of Wyoming

Project Location: WY/Hunt Area 8/East side of Winds

Project Description: During the winter of 1990/91, the WMBS herd experienced a pneumonia outbreak that resulted in significant mortality of the migratory sheep in hunt areas 9 and 10. In contrast to other bighorn sheep die-off events throughout the West that gradually recover from pneumonia outbreaks, the WMBS herd has continued to slowly decline presumably because of low lamb recruitment over the past decades. Due to the remote location of the non-migratory segment of WMBS that winter in hunt area 8, little is known about impacts of the pneumonia outbreak on this group of sheep. Helicopter surveys are conducted most winters in the WMBS herd, and trend counts of hunt area 8 sheep have not declined proportional to that of sheep counted in hunt areas 9 and 10. Additionally, lamb:ewe ratios observed during 2019 surveys in hunt area 8 were 34:100, compared with 22:100 and 5:100 observed in hunt areas 9 and 10, respectively. Although a wealth of research on the effects of disease on bighorn sheep have been conducted, pneumonia continues to be one of the most poorly understood diseases. Recurring mortality within chronically infected herds are likely dependent upon certain ecological or environmental conditions, and understanding these interactions could yield management alternatives to help reduce the frequency of epizootics and dampen fluctuations in abundance. To determine the potential interplay among density, nutrition, and immune function for disease in the WMBS population, the Wyoming Game and Fish Department (WGFD) and the University of Wyoming (UW) initiated a lamb survival study in hunt areas 9 and 10 in 2019. Although this research targets the sub-populations of sheep in the herd most likely impacted by disease, the high performance (high lamb recruitment) of sheep in hunt area 8 and merely on the other side of the mountain range from sheep in hunt areas 9 and 10 remains befuddling. Indeed, sheep that winter on Sheep Ridge on the east side of the range migrate over the mountain into hunt area 8 for the summer. Nevertheless, lamb recruitment and change in nutritional condition of sheep that exhibit that migratory behavior have performed similarly poorly to the rest of the sheep that stay on the east side throughout the year. Therefore, the striking difference occurs in those sheep in hunt area 8 that remain on the west side of the mountains all year, and notably, winter at high elevation compared with the Sheep Ridge sheep that summer on the west side but migrate to low elevation winter ranges near Dubois. Consequently, the story of the sheep that remain on the west side in hunt area 8 all year may hold powerful insight into understanding how disease, nutrition, or predation dynamics affect this segment of the herd. Such understanding could yield power insight into what could be the primary problem and thus, the potential solution for the heart of the WMBS that resides on the east side. Indeed, to fully comprehend population dynamics and the interaction among density, nutrition, disease and migration in the WMBS herd, we must capture and include animals from hunt area 8 in ongoing research to develop the 'West Side Story'.

Project Problem: The goal of the proposed research is to continue to unravel the processes underpinning the dynamics of sheep populations by maintaining a longitudinal study design and better understanding the contributions of summer nutrition, predation, disease and migration on survival of young sheep in the WMBS herd. Knowledge of limited resources or other factors affecting sheep in the Whiskey herd will be used to guide future management actions to support sustainable populations for future generations.

Problem Solution: In general, our aim is to replicate ongoing work associated with unraveling the contributions of nutrition, disease, and predation to understand ecology of sheep in the face of chronic pneumoia, while simultaneously characterizing the relative roles of factors underpinning sheep on the West Side. Specific project objective associated with sheep in Hunt Area 8 include, and aspects more broadly with the integrative project as a whole: 1) Determine seasonal ranges and potential migration corridors, and evaluate life history strategies for WMBS residing in hunt area 8. 2) Estimate nutritional carrying capacity of WMBS populations to assess the capacity of habitats to support sheep. 3) Assess survival and cause-specific mortality of adult female and neonate sheep. 4) Evaluate intrinsic and extrinsic factors affecting vital rates (e.g., pregnancy, seasonal survival, migratory status, recruitment of young). 5) Assess longitudinal changes associated with disease, nutrition and immunocompetence. 6) Evaluate diet, forage quality (including micronutrients) and abundance during summer. 7) Evaluate the effects of naturally occurring browsing, intense browsing, and fire on forage quality (including micronutrients) and biomass of forage on summer ranges.

**Biography Of Applicant:**

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Current Member: Yes

**Cost To Be Funded**

Equipment.....\$

Services.....10000.....\$233500  
Publishing.....\$7000  
Monitoring.....\$223243  
Supplies.....30000.....\$146139  
Other.....\$  
Totals \$.....40000.....\$609882

**Other Organizations:**

Organization 1: WGBGLC: 70K

Organization 2:

Organization 3:

Organization 4:

**Media Contacts:**

Media 1: Christine Peterson

Media 2: Chad Baldwin

Media 3:

Media 4:



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