

Sheep nutrition, predation, and disease: a successful first season monitoring lambs
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The summer crew for the Bighorn Sheep Nutrition-Disease Research Project all leaned in close whispering the final plan of the sneak before splitting up in attempt to collar a lamb, born early that morning. Their spotter was already glassing from a high point across East Torrey Creek in the northern Wind River Range, trying to get eyes on the ewe and lamb pair. Fresh snow from the previous night had absorbed the sound of their steps up the Whiskey Mountain Trail and through the timber towards Middle Mountain. Following the signal from the radio telemetry, which picks up a high-frequency signal from the ewe's collar, they began inching forward; one group led the sneak from above the cliff band while the other followed from below. As they approached the birth site, the telemetry started booming, indicating the ewe was very close. They radioed to the group below to stay in position, as Brittany crawled to the cliff's edge to try to spot the ewe. After a quick glance below, she motioned to the rest of the group to descend to the lamb. The upper group managed to find a crack in the cliff with just enough footing to make it down. Brittany kept eyes on the ewe while Rachel and Landon continued to creep in silently. When they were about 40 yards from the ewe she spotted them, glanced directly at her lamb laying in the snowy meadow, and immediately disappeared into the timber. From her vantage point above the cliff, Brittany shouted, explaining where she had seen the ewe look. Rachel and Landon ran towards that point and the lamb immediately popped up from his bed site. After a short sprint, Landon cut the lamb off and scooped it up while the rest of the crew moved in with the capture supplies. They weighed and measured the ten-pound lamb, took nasal swabs for pathogen testing, and slipped on a GPS collar. After successfully releasing the lamb, they climbed back up the rock chute to make their way back to the trailhead.

This type of sneak operation became routine throughout the lambing season. The wet and cold spring and frequent June snowstorms made for many days of soaked feet and miles of post-holing. Despite the weather conditions and the impressive speed and agility of a newborn lamb, they captured 14 in the Whiskey herd and 4 in the Gros Ventre herd. Several lambs died in their first couple weeks of life from predation and other factors, as is typical with most newborn ungulates. Lambs started to die of pneumonia in late June. After the first lamb died of pneumonia, this was the only cause of death observed thereafter. Ages of the pneumonia mortalities ranged from 29 – 78 days. As of late September, three lambs are still alive: two in Whiskey and one in the Gros Ventre.

The team of researchers from the Monteith Shop at the University of Wyoming, along with biologists and wildlife managers of the Wyoming Game and Fish Department, Bureau of Land Management, Fish and Wildlife Service, and Tribal Partners from all over the northwest part of the state aim to gather more lamb survival data over the next two years and begin to pull apart the differences between the lambs that succumb to pneumonia and those that survive pathogens in the herd. In addition, the summer crew spent most of July and August conducting habitat surveys and collecting fecal samples on sheep summer ranges. With these data they will be able to assess habitat quality of each sheep's summer range and analyze their diets to determine summer nutrition. Overall, they hope to better understand how environmental factors influence how sheep respond and cope with disease.

For the past century, bighorn sheep herds have experienced die offs, largely because of bacterial pathogens associated with pneumonia. Some populations are able to recover quickly from these die-offs while others continue to decline or remain stagnant. The Whiskey Basin herd has been struggling to recover from a pneumonia outbreak in the 1990's. The Gros Ventre herd has suffered several outbreaks in the past few decades, but has recovered following each outbreak. Ongoing research throughout North America has made strides in identifying the specific pathogens involved in causing pneumonia, however, the ecological factors that may well interact with the presence of disease remain unclear. Nevertheless, it is an understanding of those ecological factors that may help identify management alternatives for populations afflicted by disease.

With critical support from the Wyoming Game and Fish Department, Wyoming Wildlife and Natural Resource Trust, Wyoming Governor's Big Game License Coalition, Bureau of Land Management, Wyoming Wild Sheep Foundation, Wild Sheep Foundation, Bowhunters of Wyoming, and Wyoming Wildlife/Livestock Disease Research Partnership they will continue to monitor lamb survival, assess habitat quality, and monitor adult pathogen prevalence and nutritional condition. Although much more support will be needed to see the project through to completion, the current partnerships are strong and all players, from financial supporters all the way to the researchers are committed to helping do their part in seeking possible solutions to aid in keeping sheep on the mountain.



