

Identification of an Abbreviated Migration Behavior in Bighorn Sheep after Migration Loss

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ABSTRACT Many ungulate populations have lost or are at risk of losing their traditional migrations. The Teton bighorn sheep (*Ovis canadensis*) population in northwest Wyoming is one such example. It lost access to its historical winter range over 60 years ago and now resides year-round on its high elevation summer range, wintering exclusively on windswept ridges above 3,000 m. We sought to investigate how this population has persisted after migration loss by evaluating seasonal movements. We outfitted 28 ewes with Global Positioning System collars from 2008 to 2010. We analyzed seasonal movements in conjunction with vegetation phenology using the Normalized Difference Vegetation Index. We found that bighorn sheep undergo distinct elevation movements within their one seasonal range. They begin spring in the high peaks and then descend approximately 500 m to 10 km to seek out vegetation emergence at mid-elevations. This movement allows them to access forage approximately 30 days before it becomes available on their high-elevation summer and winter ranges. We termed this behavior “abbreviated migration” because it partially connects individuals with their historical migration, while remaining confined to one seasonal range. This abbreviated migration behavior may be critical for bighorn sheep persistence after migration loss.

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