

## Rates and Causes of Mortality of Dall's Sheep in Alaska: A Comparison Among Mountain Ranges

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**ABSTRACT** Annual survival and causes of mortality of Dall's sheep (*Ovis dalli*) lambs and ewes were estimated in Alaska's Chugach Mountains (CHU; 2010-2014), central Alaska Range (CAR; 1999-2005), and eastern Brooks Range (EBR; 2009-2012). Survival of ewes ranged from 0.88 in the CHU to 0.91 in the EBR. Lamb survival was lowest in the CHU (mean = 0.27) and highest in the EBR (mean = 0.48). Wolves (*Canis lupus*) were the most common cause of ewe mortality in the CAR and EBR (80% and 83% of deaths, respectively). In contrast, 85% of CHU ewes died of accidents, disease, or other non-predation causes. Predation was the leading cause of lamb deaths in the CAR and EBR (95% and 75% of deaths, respectively) but predators only killed 46% of CHU lambs. Golden eagles (*Aquila chrysaetos*) were important predators of lambs in all 3 areas. Wolverine (*Gulo gulo*) predation was common in the CHU and EBR but less important in the CAR. Coyote (*Canis latrans*) predation was a significant cause of mortality only in the CAR, whereas predation by black bears (*Ursus americanus*) and grizzly bears (*U. arctos*) was common only in the CHU. Differences among areas in predator communities, particularly the abundance of coyotes, could explain many of the differences we observed, though differences between the CHU and CAR are more likely due to weather and topography. These results suggest that the relative importance of predation, particularly that of specific predators, to sheep population dynamics differs among areas within Alaska. Thus, managers should obtain information specific to a particular area before adopting predator management plans intended to benefit sheep.

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**KEY WORDS** Alaska, *Aquila chrysaetos*, *Canis lupus*, Dall's sheep, golden eagle, lamb, mortality, *Ovis dalli*, predation, survival, wolf.

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