

**(8) LINKING RESOURCE SELECTION TO OVERWINTER BODY CONDITION IN A COASTAL ALASKA MOOSE POPULATION**

KEVIN S. WHITE<sup>1\*</sup>, DAVE P. GREGOVICH<sup>1</sup>, AND JOHN A. CROUSE<sup>2</sup>

<sup>1</sup> *Alaska Department of Fish and Game, Division of Wildlife Conservation, PO Box 110024, Juneau, AK 99811-0024, USA*

<sup>2</sup> *Alaska Department of Fish and Game, Division of Wildlife Conservation, 43961 Kalifornsky Beach Road, Suite B, Soldotna, AK 99669-8276, USA*

*Abstract:* Understanding the relationship between habitat selection and animal performance is of fundamental importance to wildlife ecology. Unfortunately, resource selection patterns are not necessarily linked to measures of individual or population performance and further understanding of such relationships are needed. In this study, we examined the linkage between resource selection and nutritional condition in adult, female moose during winter in Gustavus, Alaska. Specifically, we examined how individual variation in resource selection is correlated with loss of overwinter reserves of body fat. Initially, we developed a forage-based resource selection function (RSF) model (i.e., a model that yields values proportional to the probability of use of a given resource unit) using GPS-radiotelemetry data ( $n = 25$ ) and remote sensing data to describe resource selection patterns at the population-level. We then examined how individual variation in resource selection, relative to the population, influenced individual overwinter change in body fat (a correlate of reproductive success). Overall, RSF modeling results indicated that moose selected for areas with low snow depth and high forage biomass of willow (*Salix* spp.) and horsetail (*Equisetum variegatum*), critical winter forages. Further, we determined that loss of overwinter fat reserves tended to be lower for individual moose that exhibited stronger selection for areas with high forage biomass and low snow depth. These findings provide an empirical basis for understanding the nutritional implications of moose resource selection patterns in coastal Alaska.



***Finding Solutions for Future Generations***

---

# **Program & Abstracts**

---

***Hosted by:***

**ALASKA DEPARTMENT OF FISH AND GAME**

**&**

**OUTDOOR HERITAGE FOUNDATION OF ALASKA**

