

Gregory L. Finstad (b. 1954) received his Ph.D. in range ecology from the University of Alaska Fairbanks in May 2008. Graduate committee members consisted of co-committee chairs Dr. Norman Harris and Dr. Knut Kielland, Dr. Brad Griffith, Dr. Steve Sparrow and Dr. Fred Husby. Doctoral studies took place at the School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks and the project fieldwork was conducted on the reindeer ranges of the Seward Peninsula, Alaska. Funding for the project was provided by the Reindeer Research Program, School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks.



Thesis

The title of his dissertation was ‘**Applied range ecology of reindeer (*Rangifer tarandus tarandus*) on the Seward Peninsula, Alaska**’.

Abstract. Linking variation of the environment to animal production is key to successful range management. The Seward Peninsula, Alaska is classified by ecological site descriptions (ESDs) that are used as the basis for grazing management of domestic reindeer (*Rangifer tarandus tarandus*). This study investigated the appropriateness of ESDs as a grazing management unit and explored the use of alternate landscape units to link variation of reindeer ranges with animal production.

ESD composition varied among ranges, but there was no relationship to either animal productivity, estimated by June calf weight and cow/calf ratios or reindeer serum tissue mineral concentrations. I have shown that reindeer graze selectively, both temporally and spatially at a scale finer than defined by ESD. Reindeer diet selection and animal production appear to be driven by temporal variation in the nutritional characteristics of individual forage species. ESDs were reformatted to reflect temporal and species variation in nutritional characteristics of forage and integrated into an interactive mapping atlas for use by producers.

Productivity among herds was related with identified sources of protein in the diet. Reindeer in herds with smaller June calves consumed more catkins, stems and leaf buds of shrubs in May, presumably to compensate for lower protein reserves. Diets of reindeer and June calf weight were significantly predicted by the $\delta^{15}\text{N}\text{‰}$ differential between antler core (AC) and antler periosteum (AP). Although animal production was related to landscape stratification at the species level, data showed that weather patterns affected forage nutrient concentration and foraging accessibility at a landscape level. Body weight and growth of female calves and the proportion of yearlings lactating the next summer were positively correlated with spring temperature and negatively correlated with winter severity and summer temperature, respectively.

Land managers are using ESDs to monitor and assess the impact of grazing, but I have shown that landscape variation described at a multitude of scales other than ESD is linked to grazing patterns and animal production. I concluded that these alternative landscape units be integrated into reindeer range management currently being practiced on the Seward Peninsula.

His dissertation was based on the following papers:

Finstad, G.L., Kielland, K. & Blodgett, D. Nutritional mapping of grazing areas using nutrient and fiber profiles of reindeer forage plants of the Seward Peninsula, Alaska.

Finstad, G.L., & Kielland, K. Influence of regional landscape diversity of the Seward Peninsula, Alaska on diet, tissue and serum mineral values and production of reindeer (*Rangifer tarandus tarandus*).

Finstad, G.L., & Kielland, K. Submitted. Landscape variation in diet and $\delta^{15}\text{N}$ natural abundance in reindeer, Seward Peninsula, Alaska.

Finstad, G.L., Prichard, A. & Kielland, K. Submitted. Climatic drivers of interannual variation of body weight, growth and reproduction in Alaskan reindeer.

Short biography

Finstad received his B.Sc. in wildlife management at the University of Alaska Fairbanks in 1981. In 1982 he was hired as one of the first technicians for the newly formed Reindeer Research Program, UAF. In 1991 he was promoted to research associate and in 2000 became

program manager. His primary research interests are plant-animal interactions, climate-vegetation dynamics, range management, reindeer husbandry, meat production, and educational programs for reindeer herders. In his years with the Reindeer Research Program he has

traveled, lived and worked closely with Native Alaskan reindeer herders.

Finstad is now assistant professor at the School of Natural Resources and Agricultural Sciences and program manager for the Reindeer Research Program, UAF.

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