

Journal Publications

Lyberth B., A. Landa, J. Nagy, A. Loison, C.R. Olesen, A. Gunn and M.C. Forchhammer. 2007. **Muskoxen in the High Arctic-temporal and Spatial Differences In Body Size**. *Journal of Zoology* 272: 227-234.

Abstract

The life history of ungulates is affected by factors such as climate, population density and resource availability. With focus on the muskoxen *Ovibos moschatus* living in Kangerlussuaq in western Greenland, Jameson Land in north-eastern Greenland and on Banks and Victoria Islands in northern Canada, we tested spatial variation in life-history traits measured by mandibular growth. In accordance with expectations, we found that muskoxen in the southernmost and low Arctic area (Kangerlussuaq) grew faster, matured earlier, reproduced earlier, reached larger adult size and additionally had a higher reproduction than muskoxen living in the more northern areas. In the Kangerlussuaq population, mandible lengths in adult males changed temporally with density, with significant smaller adult males present in high population densities in western Greenland. It was especially the male mandible lengths that responded to environmental factors. In females, spatial differences were less pronounced than in males and is probably explained by females facing a trade-off between investment in own growth and reproduction, whereas a large body size is more important for the males, which are exposed to sexual selection. This explanation was, furthermore, supported by the fact that the calf percentage was higher in western Greenland than in any of the other studied areas in spite of the density-dependent effects detected within the male gender.