ABSTRACT

This thesis deals with the moose and its environment, with emphasis on matters that affect moose foraging and population dynamics. I have examined death risks in moose adults, tested for density dependence in body size, fecundity and antler size, and examined diet selection with emphasis on the hierarchal selection process, frequency dependent selection, and reproductive response. I also have examined shortcomings and successes of local moose management.

The wasting syndrome observed in moose (MWS) since the mid 1980s in Sweden have affected senescent individuals more than other adult age classes; males have been at least as vulnerable as females; there has not been any locality in Sweden with an obviously higher death risk; the death risk seems to have been uniform over the four seasons. There is as yet no definitive knowledge of the underlying cause(s) of MWS. Reconsidering MWS in light of this new demographic description might give important clues to understanding observations at the individual level.

Population density can affect early-life body growth, resulting in a lower probability of ovulation and smaller antler size as yearlings. Adults appear less sensitive to density. Slow growth and late age at maturity imply time-delayed population dynamics.

Birch (*Betula* sp.) is the quantitatively most important forage species in the early summer diet of moose. It also seems to be a highly preferred species, both in comparison with availability at feeding patches and availability in the environment overall. The selection of each food types declines with availability. In early summer, thus, moose seem to balance intake from different food sources instead of maximising the intake of a single food type. High fecundity was associated with high dietary diversity. The negative frequency-dependent selection and the reproductive response together suggest that moose is a 'clever ungulate'.

In winter the relative risk to be browsed increased for top ranked forage species but decreased for bottom ranked species when moose density was experimentally reduced. This is in agreement with an energy maximising strategy. Thus moose may adopt different foraging strategies in winter and summer; nutrient mixing in early summer but energy maximising in winter.

I believe local management can be both important and successful. Because it involves those who have a direct interest in a particular biological resource, they are likely to be willing to act. However, difficulties arise when attempting to apply scientific concepts and methods where non–scientifically trained people are involved. Therefore, for local natural resource management to succeed, I suggest that local involvement should mainly focus on goal *formulation*, and less on how specifically to *manage* the resources so as to achieve these goals.

Key words: Alces alces, antler size, carcass mass, death risk, density dependence, diet selection, food limitation, frequency dependent selection, local management, moose, Moose Wasting Syndrome, ovulation rate, population dynamics, ungulate