Benefits from calf harvest

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Abstract: In spite of the growing numbers of reindeer in the husbandry area of Finland, calf/female ratio has increased and natural mortality rate decreased since the middle of the 1970s. This has occurred independant of supplementary feeding. Data presented here are based on official statistics from all 56 herding associations for the period of 1960–1987. The natural rate of mortality of reindeer was inversely related to the rate of harvest of calves throughout the period 1974–1987.

Harvesting calves appears to result in improved reproductive success in females. Calves commonly share feeding sites (snow craters) with their mothers in winter. Calves spend less time digging in snow when feeding at shared craters than when feeding alone, but the digging of mother is not influenced by sharing a crater (Kojola 1989). It is therefore plausible that calves exploit their mothers' digging and therefore represent and energetic cost to mother. We suggest that calf harvest improves body condition of maternal females resulting in higher subsequent calf/females ratios. Such effect should be most pronounced in northern Lapland where reindeer dig for food beneath the snow throughout the whole winter.

Correlation between calf harvest and calf/female ratio of the years was, in turn, correlated with the proportion of winter digging ($r=0.621$, $n=56$, $p < 0.001$, data on the length of digging from Helle and Saastamoinen 1979).

Supplementary feeding was initiated in the late 1960s. The results from partial correlation analysis indicated that the harvest rate of calves influenced mortality rate more than supplementary feeding (calf harvest, controlled for feeding: $r=-0.486$, $n\ 56$, $p < 0.001$; feeding, controlled for calf harvest: $r=0.263$, $n=56$, $p > 0.05$). This applied also to productivity ($r=0.466$, $p < 0.001$; $r=-0.092$, $p > 0.05$, respectively), though not to the calf/female ratio ($r=0.191$, $p > 0.05$; $r=0.121$, $p > 0.05$, respectively). Supplementary feeding itself resulted in increased production of meat, owing to an increase in the number of reindeer.

References:

Helle, T. and **Saastamoinen, O.** 1979. The winter use of food resources of semi-domestic reindeer in Northern Finland. - *Communicationes Instituti Forestialis Fenniae*, 96(6):1–26.

Kojola, I. 1989. Mothers' dominance status and differential investment in reindeer calves. - *Animal Behaviour*, **38:177–185.**