

### The effects of maternal age and body weight on reindeer calf birth-weight and survival

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Some recent evidence suggest that maternal age and weight have a clear effect upon calving in the genus *Rangifer* (Lenvik & Bö 1983, Skogland 1984). The objective of this study is to report on the effects of maternal age and weight on birth-weight and vitality of calves. Calving and calf production were studied in an experimental reindeer herd in Inari Kaamanen (69° 10' N) in northern Finland. The reindeer were freely grazing in the area of 70 km<sup>2</sup>. The calving area was 8 ha.

During 1970 - 84 altogether 913 hinds gave birth and most of the calving took place between May 10. and 29.; 50% of the calves were born up to 22.5 and 90% up to 29.5. The percentage of calves (calves/hinds preceding year) was on average 79.2%.

The hinds gave birth for the first time at the age of three years and produced calves successfully up to the 9th pregnancy (Eloranta & Nieminen 1985). The mean weight of pregnant hinds was 71.7 kg. A highly significant linear regression was obtained between the birth-weight of calves and the weight of pregnant hinds just prior to calving ( $r=0.58$ ) as well as in the preceding autumn ( $r=0.49$ ).

There was a large range (1.8 to 8.5 kg) in the birth-weight of newborn calves; male calves weighed about 0.3 kg more than female. Over 5-year-old and over 80-kilograms weighing hinds gave birth to the heaviest calves (mean 6.3 kg). The most successful in calving were the 3

- 6 years old hinds, while the productivity of younger and older hinds was clearly lower.

The total loss of calves during the first six months was about 34.5% (range 6.3 to 100%) and 12.2% of the calves died during the calving period. They were usually younger than one day and on average weighed 1.3 kg less at birth than calves who lived until autumn. The hinds of calves dying early were usually young and calving for the first time. The calf mortality during the calving period was over 30% among under 3-year-old hinds and about 10% among older hinds. There was no such difference in calf mortality between age classes in summer.

The birth-weight of calves was in relation to the timing of births. Those calves that were born before the peak of calving were significantly heavier ( $P<0.001$ ) than those who were born later. The sex-ratio among calves born before the peak of calving was 1:1. The mean age and weight of hinds which calved before the peak of calving were higher than those of hinds calving later.