

The Sixth North American Caribou Workshop,
Prince George, British Columbia, Canada,
1-4 March, 1994.

Abstracts

Genetic relationships between Woodland and Barren ground caribou

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Abstract: The genetic relationships between woodland and barren ground caribou herds are being investigated using both mitochondrial and nuclear DNA. DNA sequence variation in the most variable region (the D-loop region) of mitochondrial DNA indicate the woodland caribou from Newfoundland, Ontario, Alberta, and British Columbia are closely related and form a monophyletic clade although introgression of barren ground mitochondrial genotypes occur in some herds. In addition, micro-satellites, which are highly variable nuclear loci used for DNA finger printing, are being developed which can distinguish individuals within and between herds.

Rangifer, Special Issue No. 9, 397

Importance of summer weight gain to the reproductive success of caribou in Arctic Alaska

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Abstract: In early July and again in early October 1988-91, 36 different adult female caribou (*Rangifer tarandus granti*) of the Central Arctic Herd were captured and weighed 92 times (i.e., 46 pairs of weights). For nonlactating females, July-October weight gain (y_i , kg) varied inversely with July body weight (x_i , kg): $y_i = -0.51 x_i + 54.71$ ($r = 0.75$; $P < 0.001$); the hypothetical autumn "target" body weight (i.e., x-intercept) of 107 kg yields a 99% probability that a female will ovulate, conceive, and carry a fetus to term. For lactating females, however, that relationship was not significant ($P > 0.1$), and mean body weight by autumn was significantly lower than that of nonlactating females (85 vs. 94 kg, respectively; $P < 0.001$). The 9-kg difference in weight gain represents the net or "ecological" cost of mid- and late lactation, which would theoretically depress the parturition rate of the herd by 28%. Reduced fecundity probably results from repeated failure to compensate for the metabolic demands of lactation, thereby increasing the likelihood of breeding pauses.

Key words: body weight, fecundity, *Rangifer*, reproduction

Rangifer, Special Issue No. 9, 397