

## SOCIAL DOMINANCE, REPRODUCTIVE SUCCESS AND BIRTH SEX RATIO IN ROCKY MOUNTAIN GOATS: A PRELIMINARY REPORT

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**Abstract.** A positive correlation between female dominance rank and reproductive success has been shown in various species of mammals. Dominant females can increase their reproductive success by producing more offspring of high viability than subordinate females. Female could also skew offspring sex ratio toward the sex that is more likely to leave the highest number of descendants. Two major hypotheses have been proposed to explain the adaptive significance of birth sex ratio bias in mammals. Trivers & Willard (1973; *Science* 179: 90-92) suggested that in polygynous species, females in good condition (or dominant) should produce more sons than females in poor condition (or subordinate) since sons of dominant females should have higher reproductive success than sons of subordinate females. Alternatively, the local resource competition (LRC) hypothesis (Silk, 1983; *Am. Nat.* 121: 56-66) predicts that high-ranking females should produce more daughters than sons and, low-ranking females more sons than daughters. To test these hypotheses, agonistic interactions and kid production were studied in marked female mountain goats (*Oreamnos americanus*) from 1988 to 1995 at Caw Ridge, west-central Alberta. Preliminary results showed that kid production, but not the probability of kid survival to one year, increased with female age and dominance rank (corrected for age effects). So far, dominance rank effects on kid production have been more pronounced in young females (3 to 6 year-olds) than in old females (> 7-year-olds). Dominance rank and parity did not seem to affect birth sex ratio but the probability of producing a male increased with female age. Our preliminary results support neither the Trivers & Willard model, or the LRC hypothesis but suggest that female mountain goats may adjust their reproductive effort according to age and dominance rank. The effects of female body condition remain to be tested.

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