

THE COST OF TRYING: WEAK CORRELATIONS AMONG LIFE-HISTORY COMPONENTS IN MALE UNGULATES

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Abstract: Although life-history trade-offs are well known in female mammals, little is known about the extent of trade-offs among males in polygynous species. I compared age-specific growth, weapon growth, survival and reproductive success in male ungulates, including 3 populations of bighorn sheep (*Ovis canadensis*) and one of mountain goats (*Oreamnos americanus*), and found weak interspecific correlations among these life-history traits. Although young males in rapidly-growing species tended to have higher reproductive success than young males in slow-growing species, there was no clear interspecific trade-off between early reproduction and early survival. Age-specific patterns of reproductive success differed widely among species, but were weakly related to differences in age-specific survival. Reproductive senescence was evident in most species. The main determinant of male reproductive success in most polygynous species is the ability to prevail against competing males. Consequently, the number and age (or size) structure of competing males should strongly affect an individual's ability to reproduce. Classic trade-offs among life-history traits, such as between growth and survival, or between early and late reproduction, may have a limited impact on the reproductive success of males in many of these species. The greatest fitness costs of reproduction in most males may arise from the energetic costs and injuries sustained while attempting to mate. The correlation of these costs with reproductive performance may be weak.

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Key words: mountain goat, bighorn sheep, *Oreamnos americanus*, *Ovis canadensis*, polygyny, life-history trade-offs.

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