



Corlatti L., Bassano B. (2014)

Contrasting alternative hypotheses to explain rut-induced hypophagia in territorial male chamois. *Ethology*, 120: 32-41.

Abstract

Male ungulates in temperate environments often show a severe reduction in time spent foraging during the mating season. Several hypotheses have been put forward to explain this phenomenon but, so far, no study investigated the proximate mechanisms underlying rut-induced hypophagia in ungulates using alternative mating tactics (AMTs). Between the pre-rut and post-rut of 2011 and 2012, we collected data on activity budgets, parasite burden and androgen levels of territorial and non-territorial male Alpine chamois *Rupicapra r. rupicapra* in the Gran Paradiso National Park (Italy). We aimed to investigate whether AMTs showed similar reduction in time spent foraging during the mating period and to test the predictions underlying alternative hypotheses that may explain rut-induced hypophagia. Only territorial males showed a significant reduction in time spent foraging during the rut; the lack of correlation between proportion of time spent foraging and androgen metabolites or parasite burden did not fully support the physiological and the parasite hypotheses, while the foraging constraint, the energy-saving and the physical rest hypotheses could not be discounted. Territorial males decreased the time spent lying down from the pre-rut to the rut, but not their foraging-to-lying-down ratio. During the mating period, we found negative correlations between time spent foraging or lying down and time spent rutting. Our data suggest that territorial males' behaviour is more consistent with the foraging constraint hypothesis than with the energy-saving hypothesis previously suggested. Yet, during the rut territorial males did not maximise their foraging time, and the optimisation of their energy balance could rather depend upon feeding on relatively high-quality plants. This suggestion – possibly named 'forage quality hypothesis' – now requires further investigations. This work showed that alternative mating behaviours may underlie different patterns of foraging strategies: we suggest that tests of alternative hypotheses to explain rut-induced hypophagia within ungulate populations should not ignore the occurrence of AMTs.