

## **Effect of host life history on parasite infection; are old males the superspreaders?**

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Identification of the characteristics associated with the most infected individuals is a key topic in our understanding of parasite transmission. Host age and sex has been shown to be important, however their combined effect has rarely been investigated. We test the hypothesis that host sex and age of Ibex may interact to add further heterogeneity within host-parasite distributions.

Alpine ibex have a peculiar survival profile; males have high survival rates until the age of 11years, afterwards they show a drastic senescence, while females show a more constant and progressive survival decline. Such a pattern is interpreted as a life-history strategy where males allocate most of their energy to survival until reaching a definitive body size, which allows reproduction. Females optimize their fitness and modulate reproduction.

In this system we hypothesized sexes differs in their strategies to control infections along with age; males control parasites until 11years old at which point infections rise uncontrolled, whilst females constantly control infections. As such, the old male individuals will be the most infected and so potentially super-spreaders of infection.

We tested this hypothesis analysing abomasal parasites and modelling different age effects.

The model best describing our data confirmed our hypothesis identifying the highest infections and infectiousness in old males whilst females were more constant by comparison.

