

How does sexual dimorphism in life history traits evolve?

Master Project and/or Research Training Autumn 2017 - Spring 2018



Background

Life history traits are traits directly related to growth, reproduction and survival. They are often strongly inter-linked so that selection on one trait often results in responses in other traits, and trade-offs between traits are common. Even though the two sexes share most of their genome, they can differ drastically in important life history traits, such as timing of reproduction and lifespan. This is the case for the nematode *Caenorhabditis remanei*, the model organism in our lab.

Aim

In our lab, we want to understand how sexual dimorphism in key life history traits evolves over time, and the role of ongoing sexual conflict in this process. We use experimental evolution to subject populations of worms to changed levels of sexual selection and sexual conflict over many generations, and we follow this with a quantitative genetics approach to investigate how genetic variances and covariances of life history traits evolve within and between the sexes under these conditions. There are possibilities to design a range of master projects within this framework, for example addressing the following questions:

1. Does increased sexual conflict shift the relative importance of pre- vs post-copulatory sexual selection?
2. How do the different genetic architectures of morphological vs. life history traits influence the evolution of sex differences?

We are also open to your suggestions if you would like to shape your own project within this broader framework of life history evolution and sexual conflict.

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