Adaptive population divergence in *Asellus aquaticus*?

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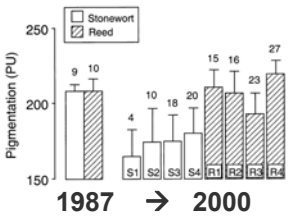
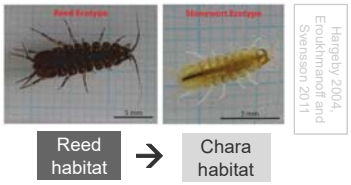
Background:

Previous research in Swedish lakes shows rapid phenotypic evolution (body size and pigmentation) of the freshwater isopod

Asellus aquaticus

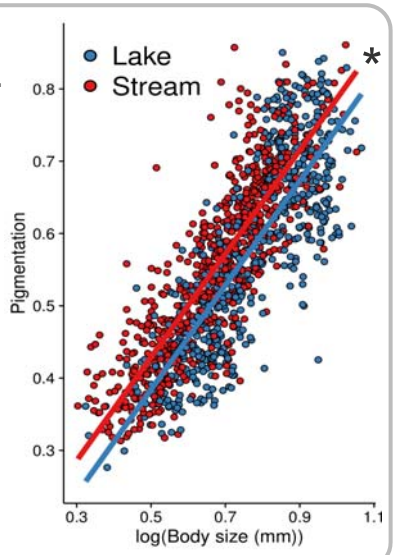




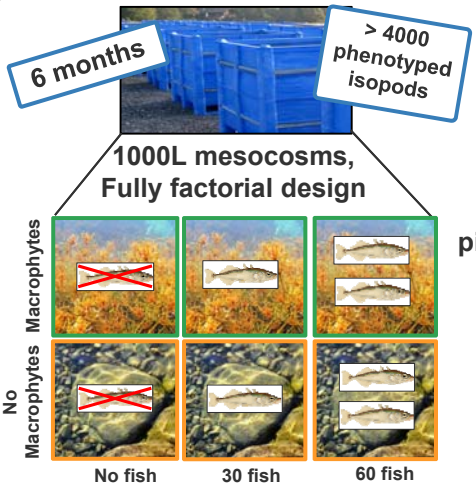
Asellus aquaticus is common in Switzerland. Can we find similar patterns here ?

YES
Stream isopods are **darker** than isopods from **Lake Lucerne**

BUT
The variation is not bimodal and the drivers are unknown.



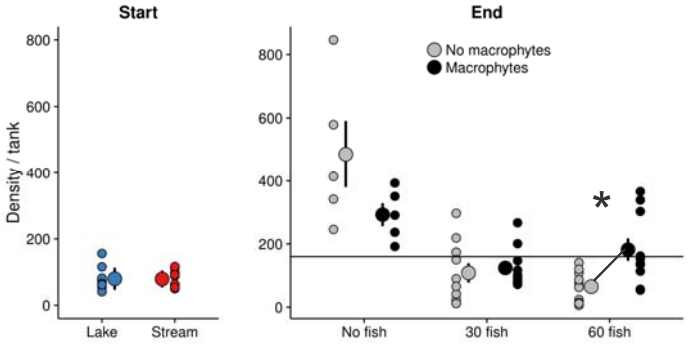
Selection experiment



What factors affect body size and pigmentation in swiss *A. aquaticus*?

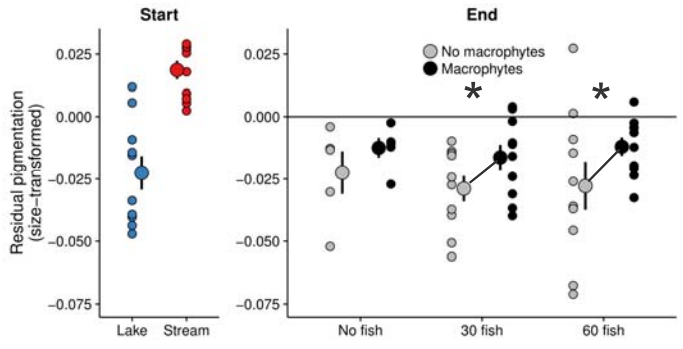
RESULT 1:

Fish greatly reduce isopod densities, but with fish present macrophytes increase survival



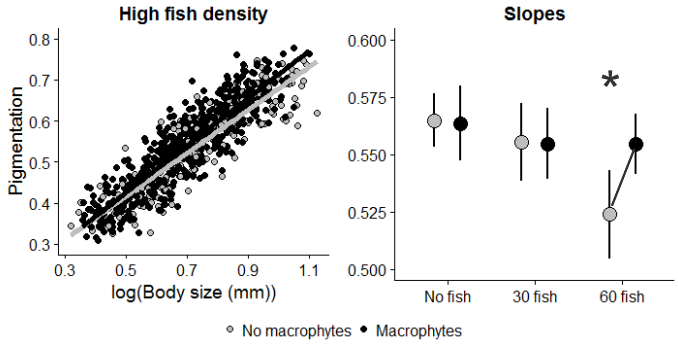
RESULT 2:

Isopods are lighter in the presence than in the absence of macrophytes. This difference in pigmentation increases with fish density



RESULT 3:

Under high fish density and in the absence of macrophtes, the relationship between pigmentation and body size is shifted towards lighter phenotypes



Summary:

Fish predation has a strong effect on isopod densities, which is reduced by macrophyte presence. Macrophytes also affect the strength and direction of selection on pigmentation and body size in *Asellus aquaticus*.

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