Dispersal in rare habitats

Dispersive trait expression of *Asellus aquaticus* in a rare cave habitat

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Background

Dispersal affects several ecological and evolutionary processes, such as escape from competition, inbreeding, genetic drift and effects from environmental fluctuations. In rare, aggregated habitats, selection could disfavour dispersal.

Aim:

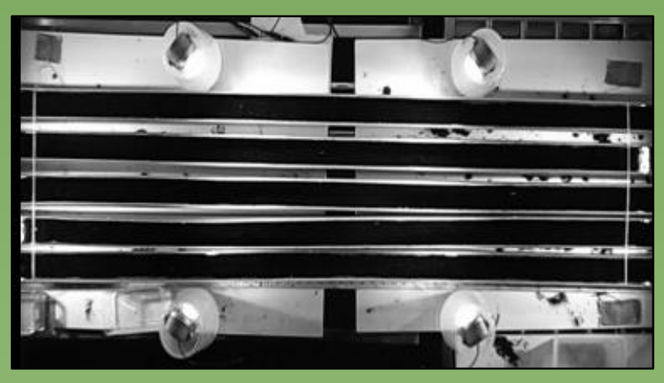
- Gain further insight into dispersal by investigating assumed dispersive traits from rare habitats.
- Link morphological traits to dispersion.

Methods

Isopods (*Asellus aquaticus*) from Cave Lummelunda and its adjacent water bodies up- and downstream were collected in June and October. First generation common garden animals were also used.

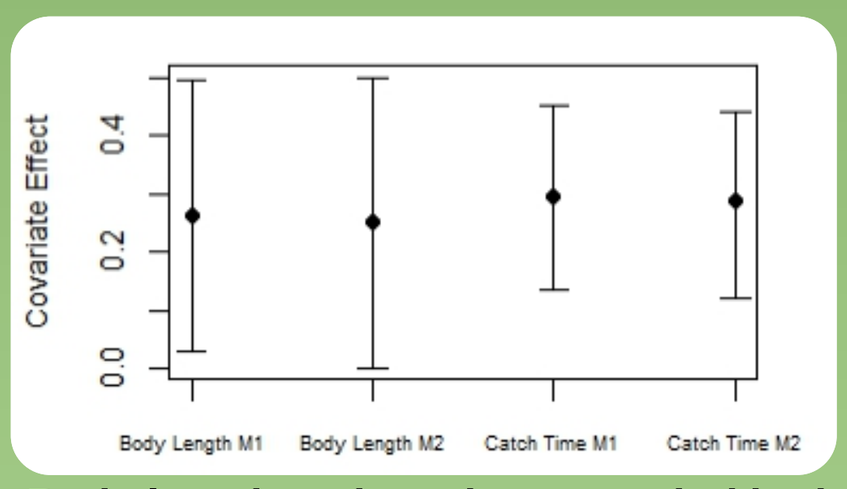
Dispersal experiments were conducted in half-pipes, recording net displacement and time. IR-equipment was used for visualization, enabling dark conditions. Morphological measurements were done on all specimens.

Bayesian inference was used to analyse data in a hierarchical model approach, using both individual and population parameters.



Results

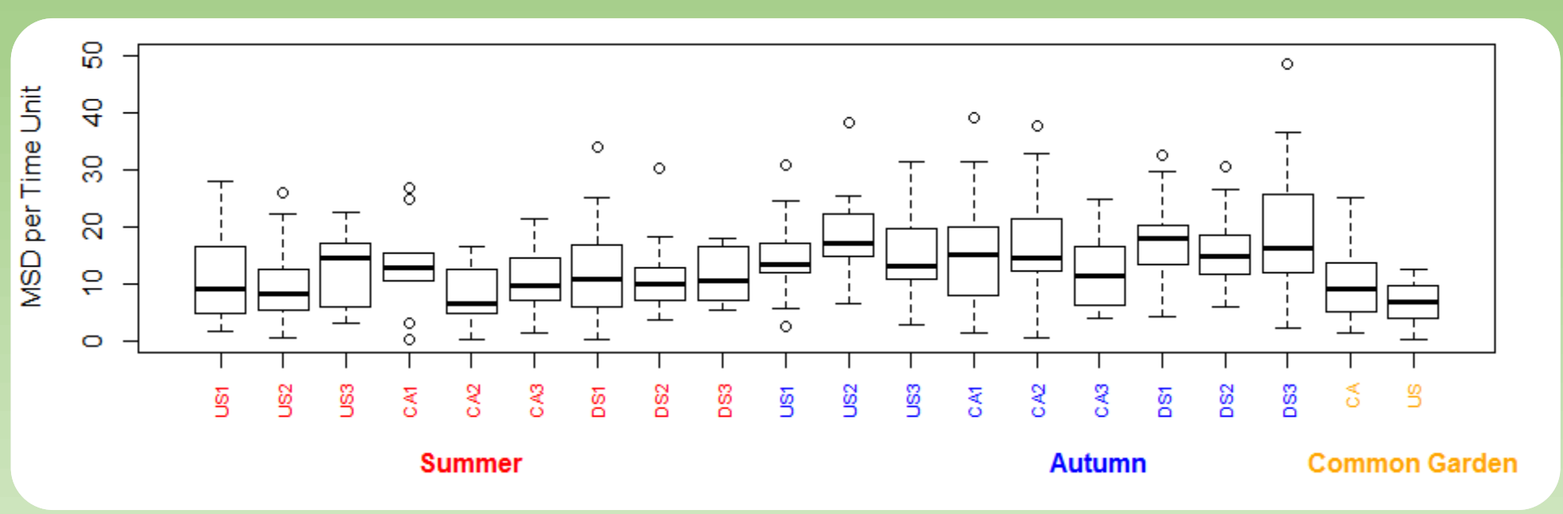
- Analysis was inconclusive in regards to differences in dispersal abilities between cave and surface phenotypes.
- Body size had positive correlation with dispersal.
- Catchment period influenced dispersal.



Body length and catchment period had >95 % credibility of having a positive effect on dispersal according to their respective models with best fit (M1 and M2).

Conclusion

- Large variation in dispersal at individual, location and phenotypic level.
- Positive correlation of body size on dispersal was unsurprising, but indicates that the analysis was able to identify factors which affects dispersal.
- Methods adjusted for the discontinuous movement of the animals are needed to investigate dispersal differences between the two phenotypes.



Results from the dispersal experiments showed large variation within locations. US = Upstream, CA=Cave, DS=Downstream. MSD as $cm^2 \bullet s^{-1}$.

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