

Trojan Horses: Colonization of ponds built for amphibian conservation by a pathogen,

Batrachochytrium dendrobatidis (Bd)

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Introduction

Infectious diseases are a growing issue in conservation. Chytridiomycosis is an infectious disease causing a decline in amphibian populations.

The fungal pathogen *Batrachochytrium dendrobatidis* (Bd) causes the disease. It is vital to understand the processes involved in the spread of Bd as it can undermine conservation efforts.

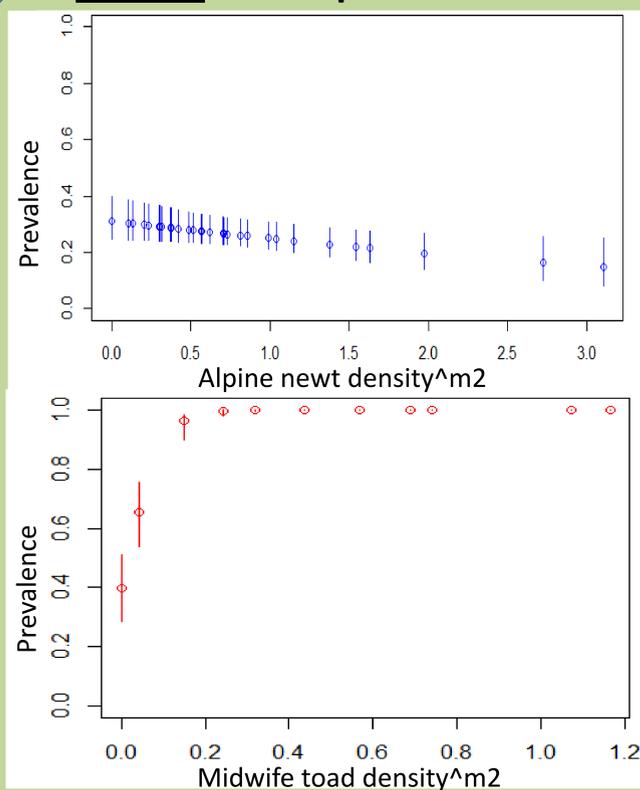
Objective: Are conservation efforts in Switzerland being compromised by a deadly pathogen Bd?

- Do tolerant and susceptible host species play a role in prevalence of Bd?
- Does connectivity affect prevalence of Bd?

Conclusions

- Conservation efforts in the EPCP area are being compromised by a pathogen.
- Midwife toad density has a higher positive influence on Bd prevalence than Alpine newts.
- Further studies to understand the mechanisms involved with increased connectivity.
- Monitoring of the project needs to be done on a year by year basis.

Results: Host species densities

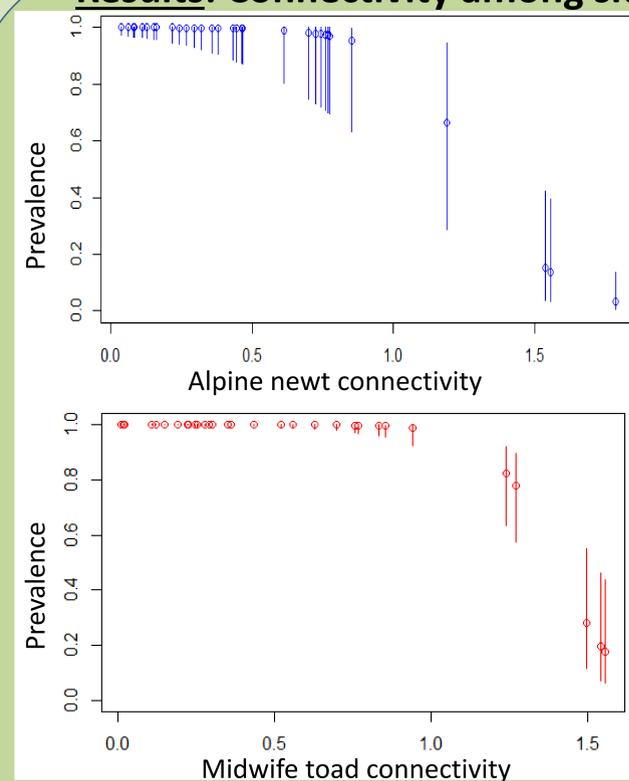


Alpine newt density had an unexpected negative effect on prevalence of Bd.

Midwife toad density had a large positive effect on Bd prevalence.

Intra-species and cross-species spread of Bd is quite low in Alpine newts, whereas for Midwife toads it is high and potentially rapid.

Results: Connectivity among sites



Prevalence of Bd unexpectedly decreased as connectivity among sites for both host species increased.

Ponds with lower connectivity are more isolated. Bd zoospores can grow and spread among host individuals if these isolated populations, hence an increase in prevalence at these isolated sites.

Study area: Emmental pond creation project (EPCP, 62.6° N; 19.6° E):



- 32 Sites sampled

Study species



Susceptible host species
Common midwife toad
(*Alytes obstetricans*)



Tolerant host species
Alpine newt
(*Ichthyosaura alpestris*)



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