

## Proposal

**Title:** Prevalence and infection intensity of fungal pathogen *Batrachochytrium dendrobatidis* in the eastern newt (*Notophthalmus viridescens*) in relation to seasonal change

**Program of Study:** Biology

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## Abstract

*Batrachochytrium dendrobatidis* (*Bd*) is a fungal pathogen that causes chytridiomycosis, an emerging infectious disease responsible for worldwide declines of amphibian species. In the eastern United States, *Bd* is widespread, but occurs sporadically across the landscape. For most species, the population level impact of *Bd* in the eastern United States has not yet been determined and is difficult to measure without long-term studies. The objective of this study was to set up a long-term monitoring project to study the population level impact of *Bd* on the eastern newt (*Notophthalmus viridescens*). The eastern newt is highly susceptible to *Bd* infections, but the effects of chytridiomycosis on this species is unknown. In addition to monitoring the presence of *Bd*, its relationship to seasonal changes was also observed. In order to observe disease dynamics, approximately 20 eastern newts were collected and sampled monthly at a pond in Campbell County, Virginia. To sample for *Bd*, the skin of each newt was swabbed with a sterile rayon swab. DNA was extracted from swabs and amplified via qPCR with *Bd* specific primers to quantify *Bd*. The sex, snout-vent length, and mass, were recorded for each newt. Environmental variables such as air, water temperature, and recent precipitation history were also collected during each sampling. Preliminary results show that a high proportion of newts are infected with *Bd* (range: 11-100%) with a relatively high average infection intensity (range: 93.10-4038.99) *Bd* sequence copies per newt). We also detected seasonal changes in the prevalence of *Bd* infection with a greater prevalence in colder months, but greater intensity in warmer months. There will be continued monitoring of the eastern newts to determine if there are any population level effects of chytridiomycosis.