

# When chytrid fungus invades: Integrating theory and data to understand disease-induced amphibian declines

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The emerging amphibian fungal pathogen *Batrachochytrium dendrobatidis* (Bd) has led to severe amphibian declines around the globe. One of the challenges when attempting to mitigate the effects of Bd on amphibian populations is that different amphibian populations can show drastically divergent outcomes following Bd invasion. These include an increase in amphibian population density, no discernible change in population density, a decrease in density, and even population-level extinction. Here we integrate extensive data from amphibian-Bd systems and epidemiological theory to build a framework for predicting when and why amphibian populations might show different population-level trajectories upon Bd invasion. This framework allows us to place seemingly disparate population-level responses following Bd invasion in terms of known disease ecology theory to better understand and manage amphibian declines and recoveries.

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