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A number of recently emerging fungal diseases have led to population declines and extinction in wildlife species. Many infectious disease agents, including most fungal pathogens, have attributes of both microparasites and macroparasites. We illustrate how Integral Projection Models (IPMs) provide a novel modeling framework to represent fungal pathogens. We build a simple host–parasite IPM that tracks both the number of susceptible and infected hosts and the distribution of parasite burdens in infected hosts.

We parameterize the IPM using data from experiments on an amphibian species suffering population extinctions from the fungal pathogen *Batrachochytrium dendrobatidis* (Bd). We show that while transmission from an environmental Bd reservoir increased the ability of Bd to invade an amphibian population and the extinction risk of that population, Bd-induced extinction dynamics were far more sensitive to host resistance and tolerance than to Bd transmission. We demonstrate that this is a general result for load-dependent pathogens, where non-linear resistance and tolerance functions can interact such that small changes in these functions lead to drastic changes in extinction dynamics. (Received September 23, 2017)