

Research week Abstract

Amphibian populations worldwide have seen unprecedented declines in recent years. These declines have been closely associated with the spread of two amphibian diseases, chytridiomycosis and ranaviral disease. Chytridiomycosis is caused by two fungal skin pathogens, *Batrachochytrium dendrobatidis* (Bd) and *B. salamandrivorans* (Bsal). Both ranaviral disease and chytridiomycosis are broadly distributed in amphibian populations of the Southeast. However, the prevalence of Bd, Bsal, and ranavirus have not been evaluated in Lee County, Virginia at the Cedars Natural Area Preserve. This unique ecological area hosts several amphibian species and seeks to protect the biodiversity of rare species. Our objective was to survey for the presence of Bd, Bsal, and Ranavirus in several amphibian species including the cave salamander (*Eurycea lucifuga*), Cumberland Plateau salamander (*Plethodon kentucki*), American bullfrog (*Lithobates Catesbeianus*), spotted salamander (*Ambystoma maculatum*), southern two-lined salamander (*Eurycea cirrigera*), and the eastern newt (*Notophthalmus viridescens*). We used molecular techniques, including DNA extraction and qPCR assays to detect each pathogen. Interestingly, every species which was tested had at least one individual that was infected with Bd with an overall prevalence rate of 26.7% (n=45). Eastern newts (n=19), spotted salamanders (n=3), Cumberland Plateau salamanders (n=9), and the cave salamander (n=12) had prevalence rates of 36.8%, 33.3%, 16.4%, and 57.1%, respectively. The single American bullfrog and southern two-lined salamander were both infected. Each species had varying infection intensity in context of Bd genomic cells equivalents detected present (ranging from 14.4-86300). The American bullfrog had the highest infection intensity of 86300 genomic cell equivalents detected. Compared to previous published studies, this is a very high infection intensity. Bsal and ranavirus are in the process of being investigated.