Resolution of SFD symptoms in wild snakes

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Abstract

Snake Fungal Disease (SFD) was recently categorized as an emerging wildlife disease caused by infection with the fungus *Ophidiomyces ophiodiicola*. SFD affects snakes in North America and Europe, with most current reports emerging from the eastern United States. SFD is also present across southern Ontario and is present in the eastern foxsnake (*Pantherophis gloydii*) population at Rondeau Provincial Park (Chatham-Kent, ON). SFD symptoms include epidermal and dermal lesions characterized by crusty scales, superficial pustules, and subcutaneous nodules, though symptoms are highly variable in appearance and severity. It has been suggested that SFD symptoms may be more common in snakes directly after they emerge from hibernation in the early spring, because the snakes are unable to mount an effective response to the fungus during hibernation. To directly test the hypothesis that SFD develops over the winter and is resolved by some infected snakes over the summer, we quantified the prevalence of lesions in *P. gloydii* at Rondeau Provincial Park. For each *P. gloydii* captured in May-October of 2013 – 2016, we recorded skin abnormalities potentially indicative of SFD. We took biopsies of lesions to confirm the diagnosis through histology and qPCR. Logistic regression revealed that the prevalence of lesions on snakes decreased significantly from April to October (p < 0.001, df=287, SE= 0.005). This result supports the hypothesis that the snake-SFD system varies seasonally. It is important to understand the mechanics of this pathogen and how it affects wild snake populations so that we can assess its potential implications for snake conservation.

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