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Do ring-necked snakes choose retreat sites based upon thermal preferences?

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ABSTRACT

Biochemical reaction rates are highly sensitive to temperature, and the body temperatures of ectotherms covary with their immediate environment. Therefore, ectotherms should choose microhabitats that permit the maintenance of physiological function. While some previous studies have found that squamate reptiles choose retreat sites that allow them to maintain physiologically optimal body temperatures, this research has been limited in context and taxonomic scope. We sought to test these empirical patterns by studying the properties of retreat sites in the context of physiological preferences and tolerances in a population of semifossorial ring-necked snakes (*Diadophis punctatus*). We measured environmental temperature distributions of retreat sites, field body temperatures, thermal preferences, and both upper voluntary temperature and critical thermal minima of snakes. We found that ring-necked snakes are under larger and warmer rocks, but that body temperatures in the field do not match thermal preferences measured in the laboratory. Specifically, we found aggregated ring-necked snakes

[1] Both authors contributed equally to this manuscript.