

MS Thesis Defense

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Title: Microhabitat Selection In The Eastern Worm Snake (*Carphophis Amoenus*) And A Survey Of The Amphibians And Reptiles Of Huntley Meadows Park, Alexandria, Virginia

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ABSTRACT

The purpose of this study was to characterize the coarse woody debris (CWD) that eastern worm snakes (*Carphophis amoenus*) use as refugia. Refuge characteristics did not differ by sex or ecdysis status. Refuge temperatures were significantly lower than ambient air temperatures, but there was no significant difference between the microclimate characteristics of used and available refuges. Used refuges had significantly more decayed CWD and a higher proportion of CWD cover. They were also more likely to contain active ant colonies and less likely to contain earthworms. CWD refuges were within the optimal temperature range of worm snakes for significantly more days per year than underground, indicating that thermoregulation may be a driving factor guiding microhabitat selection.

In addition to studying worm snakes, the amphibians and reptiles of Huntley Meadows Park were surveyed to determine their status, which was last assessed in 1989. Spotted turtle (*Clemmys guttata*) populations were higher than expected and one new species, Green treefrogs (*Hyla cinerea*), had moved into the park since the previous survey. However, three species of amphibian and five species of reptile have been extirpated from the park: Northern cricket frog (*Acris crepitans*), Upland chorus frog (*Pseudacris feriarum*), Red-spotted newt (*Notophthalmus viridescens*), Ring-neck snake (*Diadophis punctatus*), Ground skink (*Scincella lateralis*), Mole kingsnake (*Lampropeltis calligaster*), Northern brown snake (*Storeria dekayi*), and Red-bellied snake (*Storeria occipitomaculata*). A further two amphibian species (Fowler's toad, *Anaxyrus fowleri*, and Wood frog, *Lithobates sylvaticus*) appear to be on the cusp of extirpation. Factors that may have contributed to the loss of species include a decrease of meadows and wetlands within the park, increased urbanization surrounding the park, the vulnerability of amphibians and reptiles to road effects, and the closing of habitat corridors between the park and other areas of suitable habitat.