ABSTRACT OF THE THESIS

Behavioral Responses of Four Species of Anuran Larvae to Predators

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Laboratory experiments on four species of larval anurans from the New Jersey Pine Barrens, Hyla crucifer, Bufo woodhousei fowleri, Hyla versicolor, and Hyla andersonii, reveal interspecific differences in behavior and microhabitat use that may explain these species' relative vulnerabilities to predation. Replicated observations of tadpoles in aquaria with and without predators show that H. crucifer is quiescent and benthic, B. w. fowleri is active and benthic, H. versicolor is active and pelagic, and H. andersonii is intermediate in both activity and microhabitat position. A comparison of activity data from this study and survival data from artificial pond predation studies (Morin 1986, 1987, Bristow unpublished ) shows that less active species are less vulnerable to predation. Quiescent tadpoles, however, may be poor competitors, and have long larval periods that increase their risk of death from pond drying.

Hatchling tadpoles were predominantly immobile, and

did not respond to predators. Older tadpoles of all species became less active in response to an allopatric salamander, Notophthalmus viridescens, and a sympatric fish, Enneacanthus obesus. All species except H. versicolor became more benthic in the presence of these predators. H. versicolor and H. andersonii also responded to Pantala, a larval dragonfly. Tadpoles responded to predators even though they had been raised in predator-free artificial ponds. Tadpoles continued to respond to newts after they had grown too large to be consumed. B. w. fowleri responded to E. obesus, despite their unpalatability to this predator.