

DEVELOPMENT OF A MOLECULAR MONITORING TOOL FOR IMPERILED HERPETOFAUNA OF THE SOUTHEASTERN U.S.

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Abstract. Molecular techniques have recently been demonstrated to be effective and efficient methods for detecting presence of species across a range of aquatic systems. The general method includes the isolation of environmental DNA (eDNA) from focal taxa via water filtration and DNA amplification. The simplicity, cost-effectiveness, and non-invasiveness of these techniques for detecting presence of rare and cryptic species suggests great potential for incorporation into inventory and monitoring programs of aquatic species. In this study, we developed and tested eDNA markers for several imperiled pond-breeding amphibian species of Georgia and Florida; the flatwoods salamanders (*Ambystoma bishopi* and *A. cingulatum*), gopher frog (*Rana capito*), and striped newt (*Notophthalmus perstriatus*), under both lab and field conditions. We report the effectiveness of these markers to detect species presence under both controlled and natural conditions and discuss the potential for these markers to be incorporated into inventory and monitoring programs of amphibians in the southeastern U.S.