Molecular and Morphological Systematics of Two Species of the Subgenus Magnadigita (Plethodontidae: Bolitoglossa) from Honduras

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MOLECULAR AND MORPHOLOGICAL SYSTEMATICS

OF TWO SPECIES OF THE SUBGENUS *MAGNADIGITA*

(PLETHODONTIDAE: *BOLITOGLOSSA*) FROM HONDURAS

A Thesis

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Master of Science

Michael W. Itgen

Indiana University of Pennsylvania

August 2016
We hereby approve the thesis of

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Tropical climbing salamanders (Plethodontidae: Bolitoglossa) are a diverse and species-rich radiation of salamanders throughout the Neotropics. Herein, I assess the taxonomy of the Bolitoglossa subgenus, Magnadigita, endemic to the cloud forests of Honduras. This thesis involves the development of a genetic barcoding dataset for rapid classification of species, and the identification of candidate species based on divergent mitochondrial genes. I identified two species that had strong phylogenetic structure: B. porrasorum and B. celaque. I assessed three divergent populations of B. porrasorum, and found that these populations had significantly distinct morphological and genetic traits that support my hypothesis of these populations representing distinct species. In addition, I used morphology, osteology, and phylogenetics to assess the two clades of B. celaque. I found significant divergences across these traits, and suggest B. celaque is a complex of two distinct species. Finally, I suggest appropriate taxonomic revisions that should be made to the Honduran Magnadigita.