MOLECULAR PHYLOGENETICS, A NEW CLASSIFICATION, AND A NEW GENUS OF THE NEOTROPICAL FISH FAMILY ANOSTOMIDAE (TELEOSTEI: CHARACIFORMES)

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ABSTRACT

Introduction/Methods: While the last two decades of research have advanced markedly our understanding of the evolution, diversity, and relationships of the nearly 150 species in the Neotropical freshwater fish family Anostomidae, most phylogenetic studies to date have examined relatively few taxa. We used multilocus sequence data from 97 species (66% taxon coverage) to infer the most comprehensive phylogeny of Anostomidae to date. Methods/Results: Likelihood and Bayesian approaches support the recognition of three subfamilies: Leporellinae with one genus, Anostominae with six genera, and Leporininae with nine genera. We reassign many *Leporinus* species to a redefined *Hypomasticus* and allocate *Leporinus striatus* to a new monotypic genus sister to *Abramites* and *Megaleporinus.* These taxonomic changes clarify that section of the anostomid tree and partially solve the longstanding non-monophyly of *Leporinus*. Though many relationships inferred herein match earlier morphological hypotheses, the subfamily Anostominae appears as the unambiguous sister to *Leporellus,* not *Laemolyta*, indicating that the superior mouths of Anostominae and *Laemolyta* evolved convergently. Several other clades have converged on subterminal or inferior mouths, including lineages within *Hypomasticus*, *Leporellus*, *Leporinus*, and *Schizodon*. This largest-ever phylogeny for Anostomidae will support further taxonomic research and provide a scaffold for morphological, biogeographic, and evolutionary studies in this transcontinental group of Neotropical fishes.

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