Descriptions of five new species of Metriaclima (Teleostei: Cichlidae) from Lake Malawi, Africa

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Abstract
Lake Malawi is known for its endemic haplochromine species flock, most notably the rock-dwelling cichlids known as mbuna. One of the larger genera of mbuna is Metriaclima, a group consisting of 31 described species (including the five described herein) and approximately 45 recognized unique populations. Metriaclima is diagnosed by its feeding behavior and several morphological characteristics including the angle of the vomer and the presence of bicuspid teeth in the outer row of both the upper and lower jaws. Metriaclima zebra, the type species for the genus, was described based on a single specimen. While the collection location of this holotype is not known, based on the travel records of its collector, it is likely that the specimen originated from Likoma Island. The holotype was therefore compared to specimens from several localities around this island and was found to be morphologically indistinguishable from some of these.

This study includes the morphological analysis of 496 specimens of Metriaclima belonging to 31 collections from Lake Malawi. Morphometric differences were analyzed and the relationships among several distinguishable populations of Metriaclima zebra were investigated.

Our study further resulted in the description of the following five new species belonging to the M. zebra species complex: M. pambazuko, M. lundoense, M. midomo, M. tarakiki, and M. nigrodorsalis. These species were distinguished and described based on color patterns, morphometric, meristic, and ecological differences. These new species were compared with and distinguished from nearby populations of Metriaclima having similar pigmentation patterns and/or similar ecological niches. An artificial dichotomous key to the described species of Metriaclima is presented.

Key words: Mbuna, zebra cichlid, pigmentation patterns