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Hybridization in Umbridae in the Hudson River, New York, with Designation of Neotypes for *Umbra limi* and *Umbra pygmaea*

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Abstract

We document the occurrence of a natural hybrid between the Eastern Mudminnow, *Umbra pygmaea* (DeKay 1842) and the Central Mudminnow, *U. limi* (Kirtland 1840). Hybrid individuals were collected in a supratidal pool in a fresh-tidal marsh in the Hudson River, New York. ANOVA, ANCOVA, principal components analysis, and discriminant function analysis of meristics and morphometrics showed that the hybrids were distinguishable from the parental species and were generally intermediate between them. The tidal Hudson River is the only place these species are sympatric, and hybridization must have occurred within the last several decades. We designate neotypes for *Umbra pygmaea* and *Umbra limi.*

Key words: Central Mudminnow, Champlain Canal, Eastern Mudminnow, Erie Canal, fish dispersal, James DeKay, Jared Kirtland, type locality, zoogeography

Introduction

There are two species of Umbridae in the Eastern United States (Lee et al. 1980 *et seq.*): the Central Mudminnow (*Umbra limi*) and the Eastern Mudminnow (*U. pygmaea*). Phylogenetic analyses indicate that these two species are sister taxa (Cavender 1969, Kettler et al. 1986, López et al. 2000, López et al. 2004, Nelson 1972, Wilson and Veilleux 1982). Recently, we received a mudminnow collection from Manitou Marsh, a fresh to brackish tidal marsh in Putnam County, New York (Fig. 1). A subsequent collection (1998) of mudminnow from a supratidal pool in Manitou Marsh contained individuals that were not easily classified as either species. Geographic distinctions are no longer possible in the Hudson River Valley, and the specimens collected in Manitou Marsh (New York State Museum—NYSM 55623) had color patterns not readily classified as either striped or blotched. Smith (1985) provided a table of meristics and morphometrics for both

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