Zootaxa 2557: 1–18 (2010)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

A new species of *Lepidocephalichthys* (Teleostei: Cobitidae) with distinctive sexual dimorphism and comments on relationships in southern lineages of Cobitidae

JUSTIN C. HAVIRD[1,2], LAWRENCE M. PAGE[2,6], WEERAPONGSE TANGJITJAROEN[3], CHAVALIT VIDTHAYANON[4], CHAIWUT GRUDPAN[5], & SURIYA UDDUANG[5]

[1]*Florida Museum of Natural History, University of Florida, Dickinson Hall, Gainesville, FL 32611, USA. E-mail: jhavird@ufl.edu*
[2]*Department of Zoology, University of Florida, 211 Bartram Hall, Gainesville, FL 32611, USA*
[3]*Department of Equine Science, Faculty of Veterinary Medicine, Chiang Mai University,Chonlapratan Rd, Mae Hea, Muang, Chiang Mai, Thailand, 50100*
[4]*The Northeastern Research Institute for Petrified Wood and Mineral Resources, Nakorn Ratchasima Rajabhat University, 184 Moo 7 Tambon Suranaree, Mouang District, Nakorn Ratchasima, Thailand, 30000*
[5]*Department of Fisheries, Faculty of Agriculture, Ubonratchathani University 85, Sathollamark Rd., Warinchamrap, Ubon Ratchathani, Thailand, 34190*
[6]*Corresponding author. E-mail: lpage1@ufl.edu*

Abstract

Lepidocephalichthys (Telostei:Cobitidae) is diagnosed as being unique among cobitids in having the 7–8th pectoral rays of mature males modified. Recently collected material from Thailand included a new species of *Lepidocephalichthys* in which mature males have a large (extending over ~75% of the fin-ray length) dorsally projecting and serrated flange and a ventrally projecting flange. The ventrally projecting structure is unique among cobitids. An expanded phylogenetic analysis of cobitids, including previously published sequences and new material including the new species, reinforces the monophyly of *Lepidocephalichthys*. Relationships within southern lineages of cobitids, and the unusual habitat of the new species are discussed.

Key words: Cypriniformes, loaches, phylogenetics, dichromatism, Thailand, Vietnam, Mun River, Mekong

Introduction

Species of *Lepidocephalichthys* (Cobitidae) are small, spined loaches with sexually dimorphic pectoral fins. They are widely distributed throughout South and Southeast Asia, including the islands of Java and Borneo. Recent systematic studies on *Lepidocephalichthys* have included a taxonomic revision of the genus (Havird & Page 2010) and an analysis of phylogenetic relationships within Cobitidae (Šlechtová *et al*. 2008). Šlechtová *et al*. (2008) examined relationships among cobitids using the mitochondrial cytochrome *b* gene (cyt *b*) and the nuclear recombination activation gene-1 (RAG-1). Both datasets supported a large monophyletic lineage referred to as the 'northern clade' and including species of *Cobitis, Iksookimia, Niwaella, Kichulchoia, Koreocobitis, Misgurnus, Paramisgurnus* and *Sabanejewia*. Most genera in this clade were not found to be monophyletic. Genera that fell outside the northern clade (*Acanthopsoides, Acantopsis, Canthophrys, Kottelatlimia, Lepidocephalichthys, Lepidocephalus, Neoeurirrhichthys* and *Pangio*) did not form a monophyletic group and were referred to as the 'southern lineages.' These genera were recovered as monophyletic groups based on mitochondrial (with the exception of *Acanthopsoides*) as well as nuclear DNA data. *Lepidocephalichthys* was found to be sister to *Pangio* in the RAG1 analysis, a relationship not recovered in earlier analyses of morphological data (Nalbant 1963, 1994; Sawada 1982).

Although several morphological characters distinguish genera in the southern lineages, sexually dimorphic traits are among the most useful (Table 1). In particular, mature males have modifications of the

Accepted by R. Pethiyagoda: 22 Jun. 2010; published: 3 Aug. 2010