



## *Paraneetroplus synspilus* is a Junior Synonym of *Paraneetroplus melanurus* (Teleostei: Cichlidae)

CALEB D. MCMAHAN<sup>1,2</sup>, CHRISTOPHER M. MURRAY<sup>2</sup>, AARON D. GEHEBER<sup>3,2</sup>,  
CHRISTOPHER D. BOECKMAN<sup>2</sup> & KYLE R. PILLER<sup>2</sup>

<sup>1</sup>Division of Ichthyology, LSU Museum of Natural Science, Baton Rouge, LA 70803 USA. E-mail: cmcmah2@lsu.edu

<sup>2</sup>Department of Biological Sciences, Southeastern Louisiana University, Hammond LA 70402 USA

<sup>3</sup>Department of Zoology, University of Oklahoma, Norman OK 73019 USA

### Abstract

The genus *Paraneetroplus* (Teleostei: Cichlidae) currently consists of 11 species that naturally occur from southern Mexico south to Panama. *Paraneetroplus melanurus* (Günther 1862) is found in the Lago de Petén system of Guatemala, and *P. synspilus* (Hubbs 1935) in the Río Grijalva-Usumacinta system, and other systems in Mexico, Belize, and Guatemala. Reported morphological differences between the two nominal species in the literature are vague but center around characteristics of a dark band that begins at the caudal fin and tapers anteriorly near mid-body. This band is reported as straight (horizontal) in *P. melanurus* but ventrally sloped in *P. synspilus*. Some authors have previously suggested that these two forms are not distinct. The purpose of this study was to conduct a systematic morphological comparison of *P. melanurus* and *P. synspilus* to further investigate their validity. We examined meristic, morphometric, and geometric morphometric characters and failed to recover diagnostic differences between these two forms. The characters proposed to separate them do not allow for their differentiation, and we conclude that *P. synspilus* is a junior synonym of *P. melanurus*. A re-description of *P. melanurus* is provided on the basis of existing type material and additional material recently collected.

**Key words:** cichlid, taxonomy, morphology, Central America

### Introduction

In his checklist of New World cichlids, Kullander (2003) recognized 16 species in the genus *Vieja*, a group that naturally occurs from southern Mexico to Panama. However, like many other genera of the family Cichlidae, *Vieja* is an enigmatic group that is taxonomically difficult to define. Previous molecular phylogenies have recovered the genus as paraphyletic (López-Fernández *et al.* 2010 and references within), and a recent phylogeny (mtDNA and nDNA) of *Vieja* including all 16 species and close allies *Theraps* and *Paraneetroplus* also recovered the genus as paraphyletic (McMahan *et al.* 2010). The molecular analyses of the latter study found strong evidence that most species in *Vieja* should be assigned to the genus *Paraneetroplus*.

One problem plaguing *Vieja* (now *Paraneetroplus*) taxonomy is that the genus was never adequately diagnosed. Moreover, original descriptions of some species are insufficiently detailed to allow positive identification (Günther 1862; Fernández-Yépez 1969). Several recent guides to fishes contain anatomical descriptions useful in identifying many species of *Paraneetroplus* (Greenfield and Thomerson 1997; Bussing 1998; Miller *et al.* 2006), but these publications largely treat only the fish fauna of a particular country. Consequently, certain species of *Paraneetroplus* are not included, making morphological comparisons difficult.

The present study focuses on two nominal species of *Paraneetroplus*: *P. synspilus* (Hubbs 1935) and *P. melanurus* (Günther 1862). Kullander (2003) indicated that *P. synspilus* is found in Mexico, Guatemala, and Belize within the Río Usumacinta drainage, and *P. melanurus* in Guatemala within the Río de la Pasión (tributary of the Río Usumacinta) and Lago de Petén systems (Fig. 1). Miller *et al.* (2006) provide additional occurrence records for *P. synspilus* (Fig. 1). Due to taxonomic confusion in the technical and popular literature, both species have been identified under a variety of generic names, in addition to *Paraneetroplus*, mainly *Vieja*, *Cichlasoma*, *Paratheraps*,