



## Review of the shrimp-associated goby genus *Lotilia* (Actinopterygii: Perciformes: Gobiidae), with description of a new species from the West Pacific

KOICHI SHIBUKAWA<sup>1</sup>, TOSHIYUKI SUZUKI<sup>2</sup> & HIROSHI SENOU<sup>3</sup>

<sup>1</sup>Nagao Natural Environment Foundation, 3-10-10 Shitaya, Taito-ku, Tokyo 110-0004, Japan.

E-mail: kshibukawa@nagaofoundation.or.jp

<sup>2</sup>Kawanishi-midoridai Senior High School, 1-18 Koyodai, Kawanishi, Hyogo 666-0125, Japan.

E-mail: trimma-toshiyuki@hop.ocn.ne.jp

<sup>3</sup>Kanagawa Prefectural Museum of Natural History, 499 Iryuda, Odawara-shi, Kanagawa 250-0031, Japan.

E-mail: senou@nh.kanagawa-museum.jp

### Abstract

The Indo-West Pacific gobiid fish genus *Lotilia*, symbiotically associated with alpheid shrimps, is reviewed. The genus comprises two species, viz. *L. graciliosa* Klausewitz, 1960 and *L. klausewitzi* sp. nov., the latter of which is described herein based on 11 specimens (including seven type specimens) from Japan, Australia and the Bismark Archipelago. *Lotilia klausewitzi*, previously misidentified as *L. graciliosa* in the West Pacific, is readily distinguished from *L. graciliosa* by having the following features, in addition to some minor differences in the sensory-papillae configuration on the cheek: cephalic sensory canals and associated pores present (vs. absent in *L. graciliosa*); 7+6=13 branched caudal-fin rays (vs. 7+7=14); pale area on dorsum from snout to dorsoanterior part of body relatively long, extending posteriorly to, or beyond, base of fifth spine of first dorsal fin (vs. extending posteriorly to around base of third or fourth spine); a faint, relatively small dark grayish brown spot at center of first dorsal fin behind third or fourth spine, and its paler margin usually absent or obscure (vs. conspicuous ocellated black spot with vivid pale margin at center of first dorsal fin, extending anteriorly beyond third spine); and a submarginal row of black spots on caudal fin (vs. absent). Geographic records based on the specimens examined and underwater photographs indicate that *L. graciliosa* appears to be restricted to the Red Sea and its adjacent areas, whereas *L. klausewitzi* is widely found in the West Pacific. *Lotilia* is re-diagnosed, and *L. graciliosa* is re-described based on five specimens including the holotype.

**Key words:** Perciformes, Gobiidae, *Lotilia*, new species, shrimp-associated goby, Indo-West Pacific

### Introduction

*Lotilia* is an Indo-West Pacific fish genus of the gobiid subfamily Gobiinae (*sensu* Pezold 1993), symbiotically associated with alpheid shrimps. The genus was originally described by Klausewitz (1960) for his new species, *L. graciliosa* Klausewitz, 1960, from the Red Sea. Since then, *Lotilia* has been considered monotypic.

Hayashi *et al.* (1981) recorded *Lotilia graciliosa* from the Ishigaki-jima Island, Yaeyama Group of Ryukyu Islands, Japan. This represented the first record of the species outside the Red Sea, although subsequent authors revealed a widespread distribution in the West Pacific (Randall *et al.* 1990, 1997; Akihito *et al.* 1993, 2002; Myers 1999; Kuitert & Tono-zuka 2001; Senou *et al.* 2004; Allen *et al.* 2003; Randall 2005). Kuitert & Tono-zuka (2001) and Senou *et al.* (2004) pointed out that some color variants were recognized in this species, but they did not provide any details.

Recently the first author (KS) examined the holotype of *Lotilia graciliosa*, housed in the Natur-Museum und Forschungs-Institut Senckenberg, Germany. Although the holotype was indeed similar to the West Pacific specimens in general physiognomy, the former evidently differed from the latter in, e.g., cephalic sensory systems and coloration. Based on subsequent examination of several additional specimens, we conclude that the West Pacific population is a distinct species, described herein as new.