

# Newly Recognized Diagnostic Characters of the Poorly Known Lionfish *Pterois brevipectoralis* (Scorpaenidae: Pteroinae), with Notes on Fresh Coloration

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*Pterois brevipectoralis* (Mandrytsa, 2002), previously known only from the holotype and two paratypes collected from the Saya de Malha Bank (western Indian Ocean), in depths of 57–90 m, is redescribed on the basis of 10 additional specimens collected from the type locality and the Cargados Carajos Shoals, Mascarene Islands. The species is characterized by the presence of usually XIII, 10 dorsal-fin rays, usually 16 pectoral-fin rays, a relatively low number (6–10) of dark blotches on the pectoral-fin membrane, a relatively short pectoral fin [longest ray 44.5–66.4 (mean 53.4)% SL; not extending beyond the level of the posterior end of the dorsal-fin base in specimens over 91.3 mm SL], ctenoid scales covering the head and dorsolateral body, and the posterior portion of the pectoral-fin rays (not associated with fin membrane) with several bands. In addition, extremely large (greater than orbit diameter), fan-like skin flaps on the tip of the posterior lacrimal spine and the posterior margin of the preopercle in large adults are recognized herein as diagnostic characters for the species. The first report of fresh coloration, based on a specimen from the Saya de Malha Bank, is included, and ontogenetic changes in various features are described in detail.

**Key Words:** *Pterois brevipectoralis*, *Pteropterus*, diagnosis, distribution, Cargados Carajos Shoals, Mascarene Islands, Saya de Malha Bank, Indian Ocean.

## Introduction

The Indo-Pacific scorpaenid genus *Pterois* Oken, 1817 has been characterized within the subfamily Pteroinae as having three anal-fin spines, all pectoral-fin rays unbranched, the parietal spine of males not elongated, and no spine or ridge on the mandible (Eschmeyer and Randall 1975; Poss 1999). Smith (1957) and Mandrytsa (2001, 2002) regarded *Pteropterus* Swainson, 1839 as valid, being distinguished from *Pterois* by having more than 15 pectoral-fin rays (*vs* fewer than 15 in *Pterois*), the head and dorsolateral body covered with ctenoid scales (*vs* all scales cycloid), less than 65 scale rows in the longitudinal series (*vs* fewer than 65), and the ventral margin of the orbit close to the suborbital ridge (*vs* greatly separated). In his phylogenetic analysis of the Scorpaenoidei, based on morphological characters, Mandrytsa (2001) included the following five species in *Pteropterus*: *Scorpaena antennata* Bloch, 1787, *Pterois radiata* Cuvier in Cuvier and Valenciennes, 1829, *Pterois sphex* Jordan and Evermann, 1903, *Pteropterus mombasae* Smith, 1957, and *Pteropterus brevipectoralis* Mandrytsa, 2002 (as *Pteropterus* sp.). However, most recent studies have treated *Pteropterus* as a junior synonym of *Pterois* (e.g., Herre 1952; Eschmeyer and Randall 1975; Poss 1999). In addition, Kochzius *et al.*

(2003) suggested *Dendrochirus* Swainson, 1839 to also be a junior synonym of *Pterois* on the basis of a molecular phylogenetic analysis. Although *Dendrochirus* had previously been considered distinguished from *Pterois* by a single pectoral fin character, *i.e.*, several rays branched in adults, compared with all rays unbranched throughout life in *Pterois* (Smith 1957; Poss 1999; Mandrytsa 2001), such separation of the two genera was questioned by Eschmeyer and Randall (1975). However, a comprehensive phylogenetic study of Pteroinae has yet to be made, and the relationships between *Pterois*, *Pteropterus*, and *Dendrochirus* remain unclear. Accordingly, we tentatively follow the widespread practice of regarding *Pteropterus* as a junior synonym of *Pterois*, as previously done by Matsunuma and Motomura (2011).

*Pterois brevipectoralis* (Mandrytsa, 2002) was originally described as *Pteropterus brevipectoralis* on the basis of three specimens (65.5–147 mm SL) collected from the Saya de Malha Bank, western Indian Ocean, in depths of 57–90 m (Mandrytsa, 2002). The species has not been reported since. Because Mandrytsa's (2002) detailed description of the species was based solely on preserved specimens, it lacked any description of fresh coloration. The recent location of several additional specimens (49.2–117.9 mm SL), collected from the Saya de Malha Bank and the Mascarene Islands, representing first records from the latter locality, and the