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Rebuttal to Koeda *et al.* (2014) on the Red Sea fishes of the perciform genus *Pempheris*

JOHN E. RANDALL[1], BENJAMIN C. VICTOR[2], TILMAN J. ALPERMANN[3], SERGEY V. BOGORODSKY[4], AHMAD O. MAL[5], UKKRIT SATAPOOMIN[6] & K.K. BINEESH[7]

[1]*Bishop Museum, 1525 Bernice St., Honolulu, HI 96817-2704 USA. E-mail: jackr@hawaii.rr.com*
[2]*Ocean Science Foundation, 4051 Glenwood, Irvine, CA 92604 and Guy Harvey Research Institute, Nova Southeastern University, 8000 North Ocean Drive, Dania Beach, FL 33004 USA. E-mail: ben@coralreeffish.com*
[3]*Senckenberg Research Institute and Natural History Museum Frankfurt, Senckenberganlage 25, D-60325 Frankfurt a.M., Germany. E-mail: tilman.alpermann@senckenberg.de*
[4]*Station of Naturalists, Omsk, Russia. E-mail: ic187196@yandex.ru*
[5]*Department of Marine Biology, Faculty of Marine Sciences, King Abdulaziz University, Jeddah, Saudi Arabia E-mail: aomal@kau.edu.sa*
[6]*Phuket Marine Biological Center, P.O. Box 60, Phuket 83000, Thailand. E-mail: ukkrit@yahoo.com*
[7]*National Bureau of Fish Genetic Resources, Central Marine Fisheries Research Institute campus, P.B. No. 1603, Kochi-682 018, Kerala, India. E-mail: kkbineesh@gmail.com*

Abstract

Koeda *et al.* (2014) published a review of fishes of the genus *Pempheris* of the Red Sea. They concluded that there are four species: *P. adusta* Bleeker, *P. mangula* Cuvier, *P. nesogallica* Cuvier, and a new species, *P. tominagai*. We show that the first three species they cite are not present in the Red Sea, as follows. 1) *P. adusta* is a western Pacific species (type locality Ambon), described only from the holotype, and without a dark border on the anal fin. Koeda *et al.* (2014) mistakenly apply that name to *P. flavicycla* which is a widespread Indian Ocean species characterized by a prominent broad black border along the anal fin. Koeda *et al.* (2014) also redescribe *P. adusta*, using Indian Ocean specimens of *P. flavicycla*, despite the coloration difference and a 2.5% difference in the mtDNA sequence (COI) between Indian Ocean and W. Pacific populations. 2) *P. mangula* is a species from the east coast of India (type locality Visakhapatnam), clearly distinct in both gill-raker counts and a 1.1% sequence divergence in COI from its Red Sea relative *P. rhomboidea*. *Pempheris mangula* is not found west of India, and Koeda *et al.* (2014) mistakenly use DNA from Oman and Madagascar to represent *P. mangula*, instead of genetic material available from the type locality. 3) *Pempheris nesogallica* (type locality Mauritius) is unknown from the Red Sea. Koeda *et al.* (2014) separate *P. nesogallica* from *P. rhomboidea* (their "*P. mangula*") by eye size; we fail to find any difference (and they use their purported eye-size difference to erroneously rename one of the two syntypes of *P. nesogallica* as "*P. mangula*"). 4) Their new species *P. tominagai* is referred to as the Indian Ocean sister species of "*P. schwenkii* of the Pacific"; however, the type locality of *P. schwenkii* is the Batu Islands off the SW coast of Sumatra in the Indian Ocean. They mistakenly include specimens of a distant South African species as paratypes of *P. tominagai*. We have determined that *P. tominagai* is a valid species endemic to the Red Sea and Gulf of Aden. They misidentify one lot of *P. rhomboidea* in the collection of the Hebrew University of Jerusalem as their record of *P. nesogallica* from the Red Sea. They misidentify the specimen in their photograph of Fig. 1B as *P. adusta* and use it as material for their redescription of the species, but it is now shown to be a paratype of *Pempheris bexillon* Mooi & Randall, 2014. Additionally, they regard *P. malabarica* Cuvier as a junior synonym of *P. molucca* Cuvier, but the name *P. molucca* is based on a fanciful painting and is unavailable as a *nomen dubium*. They treat *Pempheris russellii* Day as a junior synonym of *P. mangula*; however, it is distinct in having longer pectoral fins, a larger eye, and more gill rakers. Their key to the species of *Pempheris* of the Red Sea is incorrect. We present a new key and conclude that only three species of *Pempheris* are presently known from the Red Sea: *P. flavicycla*, *P. rhomboidea*, and *P. tominagai*.

Key words: corrections, taxonomy, Pempheridae, *Pempheris flavicycla*, *Pempheris rhomboidea*, *Pempheris tominagai*, Red Sea

Background to the Rebuttal

The sweepers of the genus *Pempheris* are among the most difficult of fishes to classify, due to the poor condition of

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