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Foa yamba*, a new species of cardinalfish (Percomorpha: Apogonidae: Apogonichthyini) from the tidal region of the Clarence River, Australia and redescriptions of the West Pacific *Foa longimana* and *Foa hyalina

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Abstract

Foa yamba, a new species is described from an eastern Australian tidal estuary. This species differs from other West Pacific *Foa* by having many small spots on the body. *Foa longimana*, known only from the holotype, is presently an unidentifiable larval stage from Indonesia and is redescribed, but not allocated to a different genus. *Foa hyalina*, a West Pacific species is reviewed and its known distribution expanded. It is distinguished by five reddish or brownish-red bars on the body from nape to the level of middle portion of the second dorsal fin and lacks markings on caudal fin.

Key words: *Apogonichthys, Fowleria, Neamia, Ozichthys, morphology*

Introduction

Fraser & Randall (2011) redescribed *Foa fo* Jordan & Seale 1905 as a widespread Indo-Pacific species, *Foa brachygramma* (Jenkins 1903) from the Hawaiian Islands and described *Foa leisi* as a new Pacific Plate species. Other species were excluded by these authors including taxa misidentified as *Foa fo* or *F. brachygramma*, the latter formerly believed to be widespread in the Indo-Pacific. Mark McGrouther brought to my attention a new Australian species of *Foa* Jordan & Evermann in Jordan & Seale 1905 while visiting the Australian Museum. The new species led to the examination of additional *Foa* from the West Pacific. *Foa hyalina* (Smith & Radcliffe in Radcliffe 1912) is a very distinctive species in body shape and color pattern (Allen & Erdmann 2012). This rarely collected species has never been confused with other species of *Foa*. Fowler & Bean (1930) reported on the types and one other Albatross specimen from the Philippines. New material, a redescription of the type and some internal characters of *Foa hyalina* are discussed. *Foa longimana* is known only from a single larval specimen since its description by Max Weber in 1909. The specimen is re-described and its uncertain generic status discussed.

Methods

Methods for meristic data and measurements are given in Fraser (2005). Meristic data and proportions for the new species (>28 mm SL) are given for the holotype followed by the ranges of paratypes in parentheses for the new species. Proportions are given as a percent of the standard length (SL). Acronyms used to designate institutions and collections cited follow Fricke and Eschmeyer (2014). Internal characteristics are taken from cleared and stained specimens and radiographs. All figures have been processed through Photoshop CS6 Extended ver. 13.06x64. Film-based radiographs were scanned on Epson Perfection V700 Photo to convert to digital format. All radiographs, initially negatives, were converted to positives in Photoshop and modified for clarity. Partial head pore pattern and free neuromast patterns were based on single or combinations of specimens using camera lucida attached to Wild M5D or Leica MZ95 stereo microscopes. Initial drawings were scanned and finalized in Photoshop. Species are treated in alphabetical order.

specimens (34–37) exhibited expanded (buccal) mouths but eggs were not present. *Ozichthys albimaculosus* (Kailola 1976), recently removed from *Foa*, has pale spot-like marks with outer, incomplete darkish edges on body, all scales in lateral line with pores and fused hypurals 1+2, all characters different than all known species of *Foa* (Fraser 2014).

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Literature cited

- Allen, G.R. & Erdmann, M.V. (2012) Reef fishes of the East Indies. *Apogonidae III, Tropical Reef Research*, Perth, Australia, 2013 (3), 567–568.
<http://dx.doi.org/10.1643/ot-13-010>
- Bleeker, P. (1854) Bijdrage tot de kennis der ichthyologische fauna van het eiland Floris. *Natuurkundig Tijdschrift voor Nederlandsch Indië*, 6, 311–338.
- Eschmeyer, W.N. (2014) Catalog of fishes: genera, species, references. Available from: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp> (accessed 29 Apr 2014)
- Fowler, H.W. & Bean, B.A. (1930) Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the families Amiidae, Chandidae, Dulelidae, and Serranidae, obtained by the United States Bureau of Fisheries steamer "Albatross" in 1907 to 1910, chiefly in the Philippine Islands and adjacent seas. *Bulletin of the United States National Museum*, 100 (10), 1–334.
<http://dx.doi.org/10.5479/si.00963801.85-3032.31>
- Fraser, T.H. (2005) A review of the species in the *Apogon fasciatus* group with a description of a new species of cardinalfish from the Indo-West Pacific (Perciformes: Apogonidae). *Zootaxa*, 924, 1–30.
- Fraser, T.H. (2014) A new genus of cardinalfish from tropical Australia and southern New Guinea (Percomorpha: Apogonidae). *Zootaxa*, 3852 (2), 283–293.
<http://dx.doi.org/10.11646/zootaxa.3852.2.7>
- Fraser, T.H. & Allen, G.R. (2006) A new species of *Neamia* (Perciformes: Apogonidae) from the West Pacific Ocean. *Memoirs of Museum Victoria*, 63 (1), 1–5.
- Fraser, T.H. & Randall, J.E. (2011) Two new species of *Foa* (Apogonidae) from the Pacific Plate, with redescriptions of *Foa brachygramma* and *Foa fo*. *Zootaxa*, 2988, 1–27.
- Fricke, R. & Eschmeyer, W.N. (2014) Guide to Fish Collections in the Catalog of Fishes. California Academy of Sciences, Available from: <http://research.calacademy.org/redirect?url=http://researcharchive.calacademy.org/research/Ichthyology/catalog/fishcatmain.asp> (accessed 3 Jan 2014)
- Herre, A.W.C.T. (1934) *Notes on fishes in the Zoological Museum of Stanford University. I. The fishes of the Herre Philippine expedition of 1931. The fishes of the Herre 1931 Philippine expedition with descriptions of 17 new species*. Newspaper Enterprise Ltd., Hong Kong, 106 pp.
- Jenkins, O.P. (1903) Report on collections of fishes made in the Hawaiian Islands, with descriptions of new species. *Bulletin of the United States Fish Commission*, 22, 417–511. [1902]
- Jordan, D.S. & Evermann, B.W. (1903) Descriptions of new genera and species of fishes from the Hawaiian Islands. *Bulletin of the U.S. Fish Commission*, 22, 161–208. [1902]
- Jordan, D.S. & Seale, A. (1905) List of fishes collected by Dr. Bashford Dean on the Island of Negros, Philippines. *Proceeding of the United States National Museum*, 28 (1407), 769–803.
<http://dx.doi.org/10.5479/si.00963801.28-1407.769>

- Jordan, D.S. & Seale, A. (1906) The fishes of Samoa. Description of the species found in the archipelago, with a provisional check-list of the fishes of Oceania. *Bulletin of the Bureau of Fisheries*, 25, 173–488. [1905]
- Kailola, P. J. (1976) A new species of cardinalfish (Apogonidae) from northern Queensland and Papua New Guinea. *Records of the Australian Museum*, 30 (8), 129–136.
<http://dx.doi.org/10.3853/j.0067-1975.30.1976.396>
- Kuiter, R.H. & Kozawa, T. (2001) *Apogonidae Pictorial Guide Fishes of the Indo-West Pacific*. 2nd Edition, Aquatics Photographics, Seaford, Australia, 130 pp.
- Mabuchi, K., Fraser, T.H., Song, H., Azuma, Y. & Nishida, M. (2014) Revision of the systematics of the cardinalfishes (Percomorpha: Apogonidae) based on molecular analyses and comparative reevaluation of morphologic characters. *Zootaxa*, 3846 (2), 151–203.
<http://dx.doi.org/10.11646/zootaxa.3846.2.1>
- Radcliffe, L. (1912) Descriptions of fifteen new fishes of the family Cheilodipteridae, from the Philippine Islands and contiguous waters. [Scientific results of the Philippine cruise of the Fisheries steamer "Albatross," 1907–1910.—No. 13.]. *Proceedings of the United States National Museum*, 41 (1868), 431–446.
<http://dx.doi.org/10.5479/si.00963801.41-1868.431>
- Snodgrass, R.E. & Heller, E. (1905) Papers from the Hopkins-Stanford Galapagos Expedition, 1898–1899. XVII. Shore fishes of the Revillagigedo, Clipperton, Cocos and Galapagos Islands. *Proceedings of the Washington Academy of Science*, 6, 333–427.
<http://dx.doi.org/10.2307/4070120>
- Weber, M. (1909) Diagnosen neuer Fische der Siboga-Expedition. Note IV. *Notes from the Leyden Museum*, 31, 143–169.
- Weber, M. (1913) *Die Fische der Siboga-Expedition*. Brill, E.J. Leiden, i-xii + 710 pp.
- Weber, M. & de Beaufort, F.L. (1929) *The fishes of the Indo-Australian Archipelago. V. Anacanthini, Allotriognathi, Heterostomata, Berycomorphi, Percomorpha: families Kuhliidae, Apogonidae, Plesiopidae, Priacanthidae, Centropomidae*. Vol. 5. Brill, E.J. Ltd., Leiden, i–xiv + 458 pp.