Species Diversity, 2006, 11, 1–5

Peristedion picturatum* (Actinopterygii: Peristediidae), a Junior Synonym of *Peristedion liorhynchus

Toshio Kawai and Mamoru Yabe

Chair of Marine Biology and Biodiversity (Systematic Ichthyology), Graduate School of Fisheries Sciences, Hokkaido University, 3-1-1 Minato-cho, Hakodate, Hokkaido, 041-8611 Japan
E-mail: toshio78@fish.hokudai.ac.jp (TK); myabe@fish.hokudai.ac.jp (MY)

(Received 4 April 2005; Accepted 17 October 2005)

Peristedion picturatum McCulloch, 1926 (family Peristediidae) was distinguished from *P. liorhynchus* (Günther, 1872) by a single character, the presence of two bony plates between the anus and first anal ray (vs. three in *P. liorhynchus*). Our examination of the holotype of *P. liorhynchus* revealed that it also actually has just two bony plates there, not three. Based on a comparison of the holotype and other material of *P. picturatum* with the holotype of *P. liorhynchus*, we conclude that *P. picturatum* is a junior synonym of *P. liorhynchus*.

Key Words: Peristediidae, synonym, *Peristedion picturatum*, *Peristedion liorhynchus*.

Introduction

Peristedion picturatum McCulloch, 1926, based on a single specimen from Flinders Island, Australia, has been recognized as a valid species of armored sea robin by Miller (1974) and del Cerro and Lloris (1997), but Paxton *et al.* (1989), without stating their reasons, regarded *P. picturatum* as a junior synonym of *Peristethus liorhynchus* Günther, 1872 (now recognized as *Peristedion liorhynchus*: e.g., Yatou 1982, 1985; Richards 1999; Yamada 2002; Coleman 2003). This latter species has been reported from southern Japan, Indonesia, northern and western Australia, and New Caledonia. Our detailed examination of the type specimens of both species and additional comparative material of *P. liorhynchus* has confirmed their conspecificity, as will be shown below.

Counts and proportional measurements follow Kawai *et al.* (2004). Standard length is abbreviated as SL. Measurements were made to the nearest 0.1 mm with a caliper under a microscope. Terminology and counts for bony plates and barbels follow Yatou and Okamura (1985), counting all bony plates in each row. Gill rakers, including all rudiments, were counted on the outer side of the first arch on the right side. Institutional codes follow Leviton *et al.* (1985).

Material examined. *Peristedion liorhynchus* (20 specimens): AMS E.4628 (holotype of *Peristedion picturatum*), 127.5 mm SL, east of Flinders Island (39°57'S, 148°20'E), Australia, 182 m depth, 4 December 1913; AMS I.19205-002 (3), 138.3–161.3 mm SL, east of Broken Bay (33°33'S, 151°59'E), Australia, 384 m, 26 May 1976; AMS I.20435-005 (2), 131.0–135.0 mm SL, off North Solitary Island (29°47'S, 153°44'E), Australia, 438 m, 2 August 1978; AMS I.22807-028 (3), 173.8–183.1 mm SL, 175 km north of

Port Hedland (18°32'S, 118°17'E), Australia, 204 m, 2 April 1982; AMS I.39994-001 (6), 130.6–150.3 mm SL, off Bermagui (36°44'S, 150°20'E), Australia, 375 m, 29 February 2000; BMNH 1871.7.20.53 (holotype of *Peristethus liorhynchus*), 188.3 mm SL, Celebes Sea, Manado, Indonesia; BSKU 27393, 222.6 mm SL, Okinawa Trough (27°00.2'N, 125°46.0'E), East China Sea, 302–309 m, 3 March 1978; BSKU 32664, 208.0 mm SL, Okinawa Trough (25°50.0'N, 124°20.0'E), East China Sea, 250–290 m, 20 September 1979; HUMZ 71452, 158.8 mm SL, Port Onahama, Iwaki, Fukushima, Japan, 13 November 1977; HUMZ 79424, 199.3 mm SL, off Cape Ashizuri, Kochi, Japan, 240 m, 30 November 1978.

Results and Discussion

Günther (1872) reported that the holotype of *Peristedion liorhynchus* (Fig. 1A) had three bony plates between the anus and the first anal ray, and these were shown in his plate (Günther 1872, pl. 62). McCulloch (1926) distinguished *Peristedion picturatum* (Fig. 1B) from *P. liorhynchus* because the former has two bony plates between the anus and first anal ray (Fig. 2B). Later, Paxton *et al.* (1989) treated *P. picturatum* as a junior synonym of *P. liorhynchus* without stating their reasons. The holotype of *P. liorhynchus* actually has two bony plates at the site in question (Fig. 2A), and Günther's (1872) plate is incorrect. Although we found one specimen of AMS I. 19205-002 with just one bony plate there (Fig. 2C), we regard this as an example of intraspecific variation similar to that exhibited by other peristediids (e.g., *Peristedion orientale* Temminck and Schlegel, 1843; pers. obs.). Yamada and Nakabo (1983) pointed out another instance of variation in bony plate count in the peristediid *Satyrichthys rieffeli* (Kaup, 1859). Among the material of *Peristedion liorhynchus* we examined, we found variation in cranial spine shape (Fig. 1) and slight differences in head width (Table 1) as well. We consider such differences in spination to result from growth, and head shape to be variable and not of taxonomic significance. Therefore, we conclude that *P. picturatum* is a junior synonym of *P. liorhynchus*.

Fig. 1. Holotypes of *Peristedion liorhynchus*, BMNH 1871.7.20.53, 188.3 mm SL A, and *P. picturatum*, AMS E.4628, 127.5 mm SL B.

Fig. 2. Ventral view of region between anus and first anal ray. A, *Peristedion liorhynchus*, BMNH 1871.7.20.53, holotype, 188.3 mm SL; B, *P. picturatum*, AMS E.4628, holotype, 127.5 mm SL; C, *P. liorhynchus*, AMS I. 19205-002, 139.0 mm SL.

Table 1. Comparison of *Peristedion picturatum* and *P. liorhynchus*.

	<i>P. picturatum</i>	<i>P. liorhynchus</i>	
	holotype	holotype	others (n=18)
Standard length (mm)	127.5	188.3	130.6–222.6
Counts:			
Dorsal fin rays	VIII, 21	VIII, 21	VII–IX, 20–22
Anal fin rays	20	21	20–22
Pectoral fin rays			
(including two detached rays)	14	14	14
Pelvic fin rays	I, 5	I, 5	I, 5
Principal caudal fin rays	12	Broken	11–12
Bony plates in dorsal row	32	32	30–32
Bony plates in upper lateral row	36	36	36–37
Bony plates in lower lateral row	26	26	25–27
Bony plates in ventral row	23+2	23+2	23–24+2
Bony plates before anus	2	2	2
Bony plates between anus			
and first anal ray	2	2	1–2
Gill rakers	5+1+18=24	5+1+16=22	4-5+1+16-20=22–26
Barbels (lip+chin)	3+6	3+Broken	3+5–7
Measurements (%SL):			
Body depth	17.0	15.1	13.6–18.4
Body width	13.6	14.2	12.4–16.1
Head length	33.2	33.2	31.9–34.5
Head depth	15.8	14.7	13.2–17.7
Head width	28.1	22.9	21.8–27.5
Distance from snout to dorsal fin	32.2	33.4	32.2–34.5
Distance from snout to anal fin	45.6	46.5	45.4–50.8
Distance from snout to anus	40.5	42.2	39.6–45.4
Snout length	16.5	16.6	15.1–17.5
Rostral projection length	Broken	7.6	7.3–12.3
Longest barbel length	10.6	10.6	8.2–13.9
Upper jaw length	12.2	12.3	10.4–12.6
Lower jaw length	13.3	12.7	12.2–13.6
Orbital diameter	7.3	8.0	7.0–8.2
Interorbital width	7.3	7.3	6.7–8.1
Pectoral fin length	16.1	17.6	13.7–17.2
Length of upper			
detached pectoral fin ray	20.2	22.3	17.6–22.6
Length of lower			
detached pectoral fin ray	17.4	18.6	15.8–18.0
Pelvic fin length	17.3	16.9	16.3–18.7
Length of first dorsal spine	13.3	11.7	8.7–13.8
Caudal peduncle length	10.7	9.6	8.7–11.0
Caudal peduncle depth	2.1	2.0	2.0–2.5

Acknowledgments

We sincerely thank Peter R. Last (CSIRO) for his critical reading of the manuscript and valuable advice, and Kazuhiro Nakaya (HUMZ), Hajime Miyahara

(HUMZ), and Hisashi Imamura (Hokkaido University Museum) for various suggestions. We also thank Mark McGrouther (AMS), James MacLaine (BMNH), and Hiromitsu Endo (BSKU) for providing the specimens.

References

- del Cerro, L. and Lloris, D. 1997. Gurnard fishes (Scorpaeniformes, Triglidae) from off New Caledonia, with description of five new species. [*In*: Séret, B. (Ed.) Résultats des Campagnes MUSORSTOM, Vol. 17.] Mémoires du Muséum National d'Histoire Naturelle 174: 91–124.
- Coleman, N. 2003. *Indo-Pacific Sea Fishes, Northern Australia-Great Barrier Reef*. Neville Coleman's Underwater Geographic, Springwood, 144 pp.
- Günther, A. 1872. Report on several collections of fishes recently obtained for the British Museum. Proceedings of the Zoological Society of London 1871: 652–675, pls 53–70.
- Kawai, T., Imamura, H. and Nakaya, K. 2004. *Paraheminodus kochiensis* Kamohara, 1957 (Teleostei: Peristediidae), a junior synonym of *Paraheminodus murrayi* (Günther, 1880), with a comparison of *Paraheminodus murrayi* and *Paraheminodus laticephalus* (Kamohara, 1952). Ichthyological Research 51: 73–76.
- Leviton, A. E., Gibbs, R. H. Jr., Healand, H. and Dawson, C. E. 1985. Standards in herpetology and ichthyology: part I. Standard symbolic codes for institutional resource collection in herpetology and ichthyology. Copeia 1985: 802–832.
- McCulloch, A. R. 1926. Report on some fishes obtained by the F. I. S. "Endeavour" on the coasts of Queensland, New South Wales, Victoria, Tasmania, South and South-Western Australia. Part V. Biological Results of the Fishing Experiments Carried on by the F. I. S. "Endeavour" 1909–14, 5: 157–216, pls 43–56.
- Miller, G. C. 1974. Fische des Indischen Ozean. Ergebnisse der ichthyologischen Untersuchungen während der Expedition des Forschungsschiffes "Meteor" in den Indischen Ozean, Oktober 1964 bis Mai 1965. A. Systematischer Teil, XIV, Scorpaeniformes (2) Family Peristediidae. Meteor Forschungsergebnisse. Reihe D, Biologie 18: 61–72.
- Paxton, J. R., Hoese, D. F., Allen, G. R. and Hanley, J. E. 1989. *Zoological Catalogue of Australia, Vol 7, Pisces, Petromyzontidae to Carangidae*. Australian Government Publishing Service, Canberra, xii+665 pp.
- Richards, W. J. 1999. Triglidae. Pp. 2359–2382. *In*: Carpenter, K. E. and Niem, V. H. (Eds) *FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. Vol. 4. Bony Fishes Part 2 (Mugilidae to Carangidae)*. FAO, Rome.
- Yamada, U. 2002. Peristediidae. Pp. 610–613, 1523. *In*: Nakabo, T. (Ed.) *Fishes of Japan with Pictorial Keys to the Species. English Edition*. Tokai University Press, Tokyo.
- Yamada, U. and Nakabo, T. 1983. Morphology and ecology of *Satyrichthys rieffeli* (family: Peristediidae) from Japan. Uo 33: 1–16. [*In* Japanese with English summary]
- Yatou, T. 1982. *Peristedion liorhynchus* (Günther). Pp. 282–283, 399. *In*: Okamura, O., Amaoka, K. and Mitani, F. (Eds) *Fishes of the Kyushu-Palau Ridge and Tosa Bay*. Japan Fisheries Resource Conservation Association, Tokyo.
- Yatou, T. 1985. *Peristedion liorhynchus* (Günther). Pp. 582–583, 725. *In*: Okamura, O. (Ed.) *Fishes of the Okinawa Trough and the Adjacent Waters. Vol. 2*. Japan Fisheries Resource Conservation Association, Tokyo.
- Yatou, T. and Okamura, O. 1985. *Satyrichthys isokawae* Yatou et Okamura, sp. nov. Pp. 586–589. *In*: Okamura, O. (Ed.) *Fishes of the Okinawa Trough and the Adjacent Waters. Vol. 2*. Japan Fisheries Resource Conservation Association, Tokyo.