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Thalassoma mascarenum Fricke, 1999 (Perciformes: Labridae), a synonym of *T. genivittatum* (Valenciennes, 1839)

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Abstract

Thalassoma mascarenum Fricke, 1999, described from specimens from Réunion, Mauritius, and Rodriguez, is a synonym of *T. genivittatum* (Valenciennes, 1839). In addition to the Mascarene Islands, *T. genivittatum* is known from Madagascar and the Natal coast of South Africa. The record of *T. genivittatum* from the Seychelles by Randall and van Egmond (1994) appears to be a misidentification of *T. lutescens*, otherwise known from the western Indian Ocean only from Oman. Color illustrations are presented of the initial phase, terminal male, and juvenile of *T. genivittatum*. The record of *T. quinquevittatum* from Réunion by Fricke is based on a misidentification of *T. hebraicum*, a widespread species of the western Indian Ocean. Fricke was also mistaken in designating the Gronovius illustration of *Labrus lunaris* Linnaeus as the lectotype and stating that the syntype from which the figure was drawn was not identifiable.

Some of the 17 Indo-Pacific labrid fishes of the genus *Thalassoma* are difficult to differentiate. All have VIII,13 dorsal rays, III,11 anal rays, and 25 or 26 lateral-line scales (depending on how the count is made with respect to the last pored scale at the caudal-fin base). The number of pectoral-fin rays and gill rakers provide the meristic separation of some species (Schultz in Schultz and collaborators, 1960: Table 101; Randall and Edwards, 1984: Tables 1, 2), but usually there is overlap in counts from species to species. With so little meristic difference and similar morphology, color is the most important basis for identifying the species. Here the problem is the variation in color with growth and with sex, as well as the fading of color in preserved specimens. The adults of species of *Thalassoma* have two different color phases. One termed the initial phase may be either male or female. This phase has been observed to spawn in aggregations, generally with many males in the upward spawning runs fertilizing the ova of a single female. The second phase is the terminal male. Its new color pattern is usually strikingly different from that of the initial phase. Terminal males maintain a harem of females and typically spawn with a single female following courtship. Juveniles are generally different in color from adults.

The first species of *Thalassoma* described from the Mascarene Islands (Réunion, Mauritius, and Rodriguez) was *T. hebraicum* by Lacepède (1801: 455, 562, pl. 29, fig. 3), as *Labrus hebraicus*. Bauchot (1963: 84) determined the type locality as Mauritius. The species is reported from India (Day, 1877: 404, pl. 86, fig. 2), East Africa (Smith, 1949: 287, pl. 53, fig. 778), Seychelles (Smith and Smith, 1963, 40, pl. 81 D), Chagos Archipelago (Winterbottom et al., 1989: 56, fig. 339), and the southern Maldive Islands (Anderson et al., 1998: 26). Records from the Red Sea appear to be in error.

Thalassoma genivittatum was described by Valenciennes in Cuvier and Valenciennes (1839: 416) from Mauritius, as *Julis genivittatus*. On page 418 Valenciennes described *Julis commersoni*, and on 419, *Julis matthoei*, also both from Mauritius. Günther (1862: 183) recognized *Julis genivittatus* (as *genivittata*) as a valid species and correctly placed *Julis commersoni* in its synonymy. On page 508 he changed his mind and considered *genivittata* a synonym of *Julis hebraica*. On page 184 Günther described *Julis bicolor* from a single 5-inch specimen of unknown locality. Randall in Smith and Heemstra (1986: 704) listed it as a synonym of *T. genivittatum*. Bauchot (1963: 56) followed Günther in regarding *T. genivittatum* a

Figure 1. *Thalassoma genivittatum*, initial phase, BPBM 20209, 123 mm SL, Mauritius.

Figure 2. Underwater photograph of initial phase of *Thalassoma genivittatum*, Mauritius.

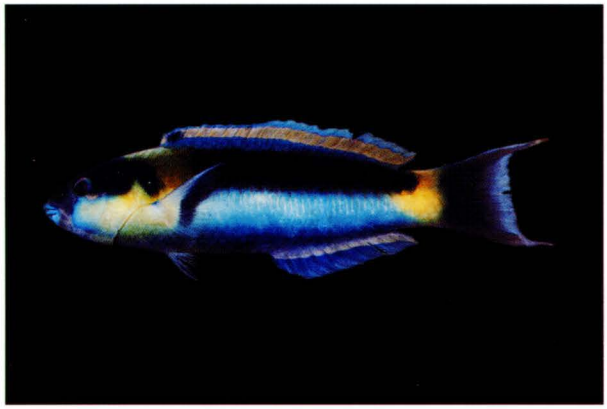

Figure 3. *Thalassoma genivittatum*, terminal male, BPBM 20213, 125 mm SL, Mauritius.

Figure 4. *Thalassoma genivittatum*, juvenile, 27 mm SL (specimen lost).

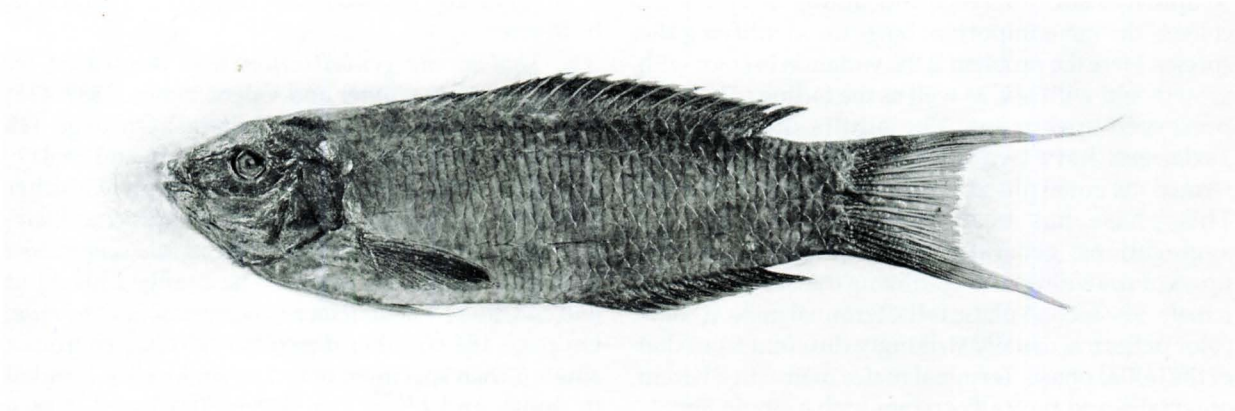

Figure 5. Syntype of *Labrus lunaris* Linnaeus, BMNH 1853.11.12.39, 212 mm TL, first described by Gronovius, 1754.

synonym of *T. hebraicum*. On page 61 she correctly concluded that Smith (1957) was in error in regarding *Julis matthoei* as a senior synonym of *Xiphocheilus gymnogenys* Günther, adding that it is "très proche sinon identique à *Julis genivittatus* = *Thalassoma hebraicum* (Lacepède)." It seems likely that *matthoei* is a synonym of *T. genivittatum*. Heiser (1981), in an unpublished PhD thesis on *Thalassoma*, recognized *T. genivittatum* as distinct from *T. hebraicum*.

Fricke (1999) prepared a checklist of the fishes of the Mascarenes. He listed nine species of *Thalassoma* from the islands, among them *T. quinquevittatum* (Lay and Bennett) as a new record based on one specimen he examined at the U.S. National Museum of Natural History. The first author has made three fish-collecting trips to Mauritius and one to Réunion, and the junior author participated in a large fish-collecting expedition to Mauritius. We did not observe or collect this species, so we examined the specimen (USNM 345826, 27.5 mm SL). It is reidentified as *T. hebraicum*.

We were also surprised to see that Fricke had described *Thalassoma mascarenum* as a new species from specimens from Réunion (type locality), Mauritius, and Rodriguez.

He provided an extensive list of type specimens and nontype material of this new labrid fish. However, on noting that he cited *Thalassoma* sp. Allen and Steene (1987: 210, plate 98–7) in the synonymy of *T. mascarenum*, we suspected that he had mistakenly described the initial phase of *T. genivittatum* as *T. mascarenum*.

Fricke deposited his type specimens of *Thalassoma mascarenum* at the Staatliches Museum für Naturkunde in Stuttgart and the Muséum National d'Histoire Naturelle in Paris. Under the heading Other Material, he identified nine lots of *Thalassoma* from Mauritius and Réunion in the National Museum of Natural History as *T. mascarenum*. We have examined these specimens. USNM 130978, 157 mm SL, is *T. lunare* (Linnaeus); however, the label says "possibly Mauritius?" Since, as noted by Fricke, *T. lunare* does not occur in the Mascarene Islands, this fish must have come from some other locality. Four of the ten lots (USNM 348806–07, 348810–11, 45: 15–50 mm SL) are reidentified as *T. trilobatum* (Lacepède). The seven specimens of USNM 19974, 128–151 mm SL, are *T. genivittatum*; these are from the Col. Nicholas Pike collection in Mauritius made in the early 1870's. In spite of their age, they still show the large dark band on the pectoral fin as illustrated by Fricke in Fig. 6 A. USNM 348805, 20 mm SL, is a juvenile of *T. genivittatum*. USNM 348808, 28 mm SL, is a juvenile of *T. hebraicum*. USNM 348809, 4: 10–15 mm, are unidentified juveniles of *Thalassoma*. In summary, the USNM specimens identified as *T. mascarenum* by Fricke are four different species of the genus. We refer *T. mascarenum* to the synonymy of *T. genivittatum*. Figures 1 and 2 herein illustrate the initial phase of *T. genivittatum*, Figure 3 the terminal male, and Figure 4 the juvenile.

Most of the synonyms that Fricke listed for *Thalassoma mascarenum* are misidentifications as *T. lunare*, and he wrote that it appears to be the most closely related species to *T. mascarenum*. We do not agree. *T. lutescens* (Lay and Bennett) appears to be a closer relative. It has a similar dark band on the pectoral fin to that of *T. mascarenum* (see Schultz in Schultz and collaborators, 1960: Fig. 100 d), usually 16 pectoral rays, compared to 15 for *T. lunare*, and 20–23 gill rakers (this count not given for *T. mascarenum* by Fricke, but it is 19–23 for *T. genivittatum*), compared to 18–20 for *T. lunare*.

Fricke stated that *Thalassoma mascarenum* is endemic to the Mascarene Islands. It's senior synonym, *T. genivittatum*, however, is also known from Madagascar and Natal south to Durban (Randall in Smith and Heemstra, 1986: 704). The first author collected a specimen at Aliwal Shoal southeast of Durban (BPBM 27375, 152 mm SL).

Randall and van Egmond (1994: 58) reported a specimen (BPBM 35468,165 mm SL) as *T. genivittatum* from the Seychelles, but it is now tentatively reidentified as *T. lutescens*, a species otherwise known in the western Indian Ocean only from Oman (Randall, 1995: 291, upper figs.).

Fricke wrote, in his Remarks for *Thalassoma mascarenum*, that there are two forms of *Thalassoma lunare*, one in the western Indian Ocean and the other in the Pacific. We are not aware of any differences of this species between the two oceans, and Fricke does not document them. He then stated that the two syntypes of *Labrus lunaris* Linnaeus that are available "are not sufficient to distinguish the species." One is BMNH 1853.11.12.39, a dried skin that Fricke stated is probably the basis for the illustration by Gronovius (1854: pl. 6, fig. 2). He then designated the illustration as the lectotype of *Labrus lunaris* Linnaeus because the specimen is "no longer recognizable as belonging to this species." The illustration, of course, cannot be the lectotype. Furthermore, the specimen is recognizable as *Thalassoma lunare* (Fig. 5).

Acknowledgments

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Literature cited

Allen, G.R. and R.C. Steene. 1987. Reef fishes of the Indian Ocean. T.F.H. Publications, Neptune City, New Jersey, 240 pp.

Anderson, R.C., Randall, J.E. and R.H. Kuiter. 1998. Additions to the fish fauna of the Maldive Islands. Part 2: New records of fishes from the Maldive Islands, with notes on other species. Ichth. Bull. J.L.B. Smith Inst. Ichth., no. 67: 20–32.

Bauchot, M. L. 1963. Catalogue critique des types de poissons du Muséum National d'Histoire Naturelle. Publ. Mus. Natl. Hist. Nat., no. 20: 1–195.

Cuvier, G. and A. Valenciennes. 1839. Histoire naturelle de poissons. F.G. Levrault, Paris, xix + 505 pp.

Day, F. 1875–1878. The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon, vol. 1. Reprint edition, 1958, William Dawson & Sons Ltd., London, xx + 778 pp.

Fricke, R. 1999. Fishes of the Mascarene Islands (Réunion, Mauritius, Rodriquez). An annotated checklist, with descriptions of new species. Koeltz Scientific Books, Koenigstein, Germany, viii + 759 pp.

Gronovius, L.T. 1854. Catalogue of fish collected and described by Laurence Theodore Gronovius, now in the British Museum. J.E. Gray (ed.), British Museum, London, vii + 196 pp.

Günther, A. 1862. Catalogue of the fishes in the British Museum, vol. 4. British Museum, London, xxi + 534.

Heiser, J.B. 1981. Review of the labrid genus *Thalassoma* (Pisces: Teleostei). PhD thesis, Cornell University, Ithaca, vi + 252 pp.

Lacepède, B.G.E. 1801. Histoire naturelle des poissons. Chez Plassan, Paris, xxvii + 558 pp.

Randall, J.E. 1995. Coastal fishes of Oman. University of Hawaii Press, Honolulu, xiii + 439 pp.

Randall, J.E. and A. Edwards. 1984. A new labrid fish of the genus *Thalassoma* from the Pitcairn Group, with a review of related Indo-Pacific species. Jour. Aquaric. & Aquat. Sci. 4(2): 13–32.

Randall, J.E. and J. van Egmond. 1994. Marine fishes from the Seychelles: 108 new records. Zool. Verh. Leiden 297: 43–83.

Schultz, L.P. and collaborators. 1960. Fishes of the Marshall and Marianas Islands. Bull. U.S. Natl. Mus. 202, vol. 2: ix + 438 pp.

Smith, J.L.B. 1949. The sea fishes of southern Africa. Central News Agency Ltd., Cape Town, xvi + 550 pp.

Smith, J.L.B. 1957. List of the fishes of the family Labridae in the western Indian Ocean. Ichth. Bull. Dept. Ichth., Rhodes Univ., no. 7: 99–120.

Smith, J.L.B. and M.M. Smith. 1963. The fishes of Seychelles. Department of Ichthyology, Rhodes University, Grahamstown, 215 pp.

Smith, M.M. and P.C. Heemstra (eds.). 1986. Smiths' sea fishes. Macmillan South Africa Ltd., xx + 1047 pp.

Winterbottom, R., Emery, A.R. and E. Holm. 1989. An annotated checklist of the fishes of Chagos Archipelago, central Indian Ocean. Life Sci. Contrib. Roy. Ontario Mus., no. 145: vi + 226 pp.