A redescription of *Salmones tafaongae* Banner & Banner, 1966 (Malacostraca: Decapoda: Alpheidae)

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Abstract.— The alpheid shrimp *Salmones tafaongae* Banner & Banner, 1966 was described based on a fragmentary holotype from Samoa, which was subsequently lost in the devastating fire of the Hawaii Marine Laboratory in 1961. The species is here fully redescribed based on new material from French Polynesia, Australia (Great Barrier Reef) and Solomon Islands, and compared to closely related species.

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■ Introduction

Salmones is the third most species rich genus in the family Alpheidae, with currently 53 species known, although several more await description (De Grave & Fransen, 2011; Anker, 2011a, 2011b, 2019a, 2019b, 2020a; Komai & Anker, 2012; Anker & Lazarus, 2015; Komai *et al.*, 2015; Anker & Ashrafi, 2019; Anker *et al.*, 2020). The genus is near-cosmopolitan in distribution, occurring in tropical to temperate latitudes, with species known from the Mediterranean Sea, West Africa, islands of the central Atlantic, Brazil, the wider Caribbean-Florida-Gulf of Mexico area, tropical eastern Pacific, as well as across the Indo-West Pacific from the Red Sea and South Africa through to Japan, Hawaii and French Polynesia (see references above). Ecologically, a wide number of niches are occupied, with cave dwellers (e.g. *S. sketi* Fransen, 1991; *S. antricola* Komai, Yamada & Yunokawa, 2015) and inhabitants of mangroves and mudflats (e.g. *S. seticheles* Anker, 2003; *S. carvachoi* Anker, 2007) known. The majority of species, however, are associated with coral reefs and adjacent habitats rich in coral rubble (e.g. *S. serratidigitus* (Coutière, 1897); *S. camaroncito* Anker, 2010a; *S. paulayi*

Anker, 2011b). In addition, several species of *Salmones* are associated with a variety of burrowing invertebrates, such as larger snapping shrimps of the genus *Alpheus* Fabricius, 1798 (e.g. *S. colinorum* De Grave, 2004; *S. alpheophilus* Anker & Marin, 2006), ghost-shrimps of the family Callinassidae (e.g. *S. brucei* Komai, 2009; *S. ikaros* Anker, Al-Kandari & De Grave, 2020) and echiuran worms (e.g. *S. gracilipes* Miya, 1972, perhaps only occasionally) (Komai, 2009; Anker *et al.*, 2020).

Several species of *Salmones* are currently poorly known because of the incomplete condition of their type material. One of them is *S. tafaongae* Banner & Banner, 1966, described on the basis of a single fragmentary ovigerous specimen, collected on a fringing reef at Apia, Upolu, Samoa, in 1954 (Banner & Banner, 1966). The original description of *S. tafaongae* is rather brief and unillustrated. The holotype lacked the major cheliped, with the minor cheliped and the second pereopods also accidentally lost after initial examination (Banner & Banner, 1966). In addition, the holotype of *S. tafaongae* was apparently consumed, prior to publication, by the devastating fire, which destroyed part of the Hawaii Marine Laboratory

in December 1961, where most of the alpheid material gathered and studied by the Banners was stored (Banner & Banner, 1962, 1966; see also Banner & Banner, 1973: footnote on p. 334). The fire destroyed almost all specimens collected in Samoa in 1954, as well as material from several other localities.

In the present study, we fully redescribe *S. tafaongae* on the basis of material collected by one of us (AA) in French Polynesia (Moorea), Australia (Great Barrier Reef) and the Solomon Islands (New Georgia), between 2009 and 2016. Material is deposited in the Zoological Collections of the Oxford University Museum of Natural History, Oxford, United Kingdom (OUMNH.ZC), Muséum National d'Histoire Naturelle, Paris, France (MNHN), and Florida Museum of Natural History, University of Florida, Gainesville, USA (FLMNH UF). Carapace length (cl, in mm) was measured from the tip of the rostrum to the posterior margin of the carapace. The term “cuspidate seta” is used for stout spiniform setae inserted in deep pits, e.g. on the dorsal surface of the telson and on the pereopodal ischia (formerly often called “spines”). As all individuals of *Salmones* appear to be simultaneous hermaphrodites and have a well-developed appendix masculina, a distinction is only made between ovigerous (ov.) and non-ovigerous specimens (non-ov.) (see Anker 2011a). The abbreviation “fcn” stands for field collection number/photographic voucher.

■ Taxonomy

Family Alpheidae Rafinesque, 1815

Salmones Holthuis, 1955

Salmones tafaongae

Banner & Banner, 1966

Figs. 1–5

Salmones tafaongae Banner & Banner,
1966: 155.

Material examined

French Polynesia: 1 ov. specimen, cl 3.6 mm, FLMNH UF54333, Society Islands, Moorea, Moorea Biocode sta. BIZ-172, Temae, close to public beach, lagoon with strong current, depth 0.5–2 m, on sand under large coral rocks and corals, leg. A. Anker, 16.11.2009.

Australia: 1 ov. specimen, cl 5.0 mm, OUMN. ZC.2018-07-03, Queensland, Great Barrier Reef, Heron Island, southern side, shallow reef flat, near-shore area, depth 0.5–1 m at low tide, under rocks and rubble, leg. A. Anker, 27.09.2016 [fcn HE-072]; 1 ov. specimen, cl 4.6 mm, MNHN-IU-2019-3162, same collection data as for previous specimen [fcn HE-076]; 1 ov. specimen, cl 4.0 mm, 1 non-ov. specimen, cl 3.6 mm, MNHN-IU-2019-3163, Queensland, Great Barrier Reef, Heron Island, southern side, reef crest area, depth 0–1 m at low tide, under rocks and rubble, leg. A. Anker, 27.09.2016 [fcn HE-061].

Solomon Islands: 1 non-ov. specimen, cl 3.7 mm, OUMN.ZC.2018-06-03, New Georgia, Munda, Kunda Kunda Hite, sand-rubble flat with scarce coral bommies near coral reef, depth less than 1 m at low tide, under coral rubble, leg. A. Anker, 16.09.2016 [fcn SOL-150]; 1 ov. specimen, cl 3.0 mm, MNHN-IU-2019-3164, New Georgia, Munda, Soso Hite, shallow sand-rubble flat around small island, depth less than 1 m at low tide, under coral rubble, leg. A. Anker, 13.09.2016 [fcn SOL-169].

Description

Small-sized (cl 3.0–5.0 mm) alpheid shrimp with moderately slender, non-compressed body. Carapace mostly glabrous, with some erect setae on dorsal surface and rostrum (Fig. 1A, B, D). Rostrum long, about twice as long as wide at base, acute distally, reaching to middle of third article of antennular peduncle; ventral margin typically with single subterminal tooth, sometimes without tooth; mid-dorsal carina absent (Fig. 1B–D). Orbital teeth well de-

Fig. 1. *Salmoneus tafaongae* Banner & Banner, 1966. A, carapace and frontal region of pleon, lateral; B, frontal region of carapace, dorsal (right side deformed by bopyrid infestation); C, anterior region of carapace and left eye, lateral; D, frontal region of carapace, lateral. A, B: non-ov. specimen, cl 3.7 mm, from New Georgia, Solomon Islands (OUMNH.ZC. 2018-06-03); C, ov. specimen, cl 3.66 mm, from Moorea, French Polynesia (FLMNH UF 00000); D, ov. specimen, cl 5.0 mm, from Heron Island, Australia (OUMNH.ZC. 2018-07-03).

veloped, distally sharp, reaching almost mid-length of first article of antennular peduncle, usually somewhat upturned (Fig. 1B–D). Pterygostomial margin broadly rounded, anterolateral suture present; cardiac notch well developed (Fig. 1A, D).

Pleon with first to fourth pleura broadly rounded; fifth pleuron with posteroventral margin forming acute angle; sixth pleonite with short, partly internal suture, but without distinct articulated flap; posterolateral margin with long sharp tooth flanking telson (Fig. 2A). Preanal plate medially rounded, laterally with

rounded lobes (Fig. 2B). Telson moderately slender, subrectangular, with distal portion tapering, about 2.3 times as long as proximal width; dorsal surface with two pairs of small cuspidate setae, both inserted at some distance from lateral margin; proximal pair slightly posterior to telson mid-length, distal pair at about 0.75 of telson length; posterior margin with notch relatively deep, trapeziform, narrow, with two long plumose setae; posterolateral angles each with one pair of spiniform setae, equally stout, mesial ones about 1.4 times as long as lateral (Fig. 2C, D).

Fig. 2. *Salmoneus tafaongae* Banner & Banner, 1966. A, pleon, lateral; B, preanal plate of sixth pleonite, ventral; C, telson and right uropod, dorsal; D, telson, posterior margin, dorsal; E, third maxilliped, lateral; F, tip of ultimate article of third maxilliped; G, second pleopod, anterolateral; H, same, detail of appendix masculina and appendix interna. All from non-ov. specimen, cl 3.7 mm, from New Georgia, Solomon Islands (OUMNH.ZC. 2018-06-03).

Eyes only partly concealed, visible between orbital teeth and rostral base in dorsal view, most of cornea also visible in lateral view; cornea faceted, pigmented (Fig. 1).

Antennular peduncle stout; stylocerite long, slender, with acute tip reaching to distal margin of second article; ventromesial carina with small, anteriorly directed tooth; second article

subquadrate, about as long as wide; lateral antennular flagellum with short fused portion, secondary ramus well-developed, with six or seven subdivisions, each with a group of 2–3 aesthetascs; mesial antennular flagellum stouter than lateral (Fig. 1A, B, D). Antenna with basicerite stout, its distoventral margin armed with robust acute tooth; scaphocerite ovate in

general shape, almost reaching end of antennular peduncle, with straight lateral margin and broad blade; distolateral tooth strong, overreaching distal margin of blade; carpopocrite cylindrical, reaching mid-length of scaphocerite (Fig. 1A, B, D).

Mouthparts not dissected, typical for genus in external observation. Third maxilliped slender, pediform; coxa with oval-shaped lateral plate; penultimate article about one-third length of antepenultimate article and about three times as long as wide; ultimate article about six times as long as wide, with numerous rows of serrulate setae and longer simple setae, tip with blunt corneous point and 2–3 stout spiniform setae; arthrobranch well-developed (Fig. 2E, F).

Chelipeds very asymmetrical in shape and dissimilar in size, carried flexed in resting position (Fig. 5). Major cheliped relatively slender; ischium typically armed with single cuspidate seta (absent in one specimen); merus slender, more than seven times as long as proximal width, widening distally, smooth, distodorsal and distomesial margins with subquadrate lobes, ventrolateral surface depressed distally; carpus short, cup-shaped, without distoventral process; chela subcylindrical, more or less rounded in cross-section, with palm about 0.85 as long as fingers, smooth; fingers slightly gaping when closed, subequal, crossing distally, not noticeably twisted, with evenly serrated cutting edges; cutting edge of both dactylus and pollex with about 14–15 teeth of approximately same size (Fig. 3A–C). Minor cheliped significantly smaller than major cheliped, slender; ischium typically armed with single cuspidate seta on ventrolateral surface (two in one specimen); carpus slightly shorter in length than merus, cylindrical, somewhat widening distally; chela about 0.8 length of carpus, simple, with palm subequal to fingers in length, smooth; fingers slightly gaping when closed, subequal in length, crossing distally, cutting edges armed with one to three minute teeth in

distal half (Fig. 3D, E).

Second pereopod slender; ischium typically armed with single cuspidate seta on ventrolateral surface (sometimes with two cuspidate setae); merus slightly longer than ischium; carpus with five subdivisions, with ratio approximately equal to 3.7 : 1.0 : 0.5 : 0.5 : 1.0 (proximal to distal); chela longer than distal-most subdivision, simple (Fig. 4A). Third pereopod slender; ischium typically armed with three cuspidate setae on ventrolateral surface (rarely two or four); merus about eight times as long as wide, unarmed; carpus about 0.75 times length of merus, with stiff seta distoventrally; propodus about 0.85 times as long as carpus, with two widely spaced spiniform setae on ventral margin, and two longer spiniform setae near dactylar base; dactylus about 0.3 times as long as propodus, slender, conical, simple, smoothly curved distally (Fig. 4B, C). Fourth pereopod similar to third, slightly more slender; ischium armed with three cuspidate setae on ventrolateral surface; merus more than nine times as long as wide; carpus about 0.8 times as long as merus, more slender than merus, unarmed distoventrally; propodus slightly shorter than carpus, with two widely spaced spiniform setae on ventral margin, and two longer spiniform setae near dactylar base; dactylus about 0.6 times as long as propodus, similar to that of third pereopod (Fig. 4D, E). Fifth pereopod more slender than others; ischium unarmed, merus about 10 times as long as wide; carpus somewhat more slender than merus, about same length as merus, unarmed distoventrally; propodus long, slender, about 1.2 times as long as carpus, with numerous rows of serrulate setae forming dispersed cleaning brush on ventrolateral surface from mid-length to distal margin, ventral margin with five or six dispersed spiniform setae and two longer, slender spiniform setae near dactylar base; dactylus about 0.4 times as long as propodus, otherwise similar to that of third and fourth pereopods (Fig. 4F, G).

Fig. 3. *Salmonsus tafaongae* Banner & Banner, 1966. A, major cheliped, lateral; B, same, mesial; C, same, chela, lateral; D, first minor cheliped, lateral; E, same, chela, mesial. All from non-ov. specimen, cl 3.7 mm, from New Georgia, Solomon Islands (OUMNH.ZC. 2018-06-03).

Second pleopod with appendix masculina slightly longer than appendix interna, furnished with several long simple setae (Fig. 2G, H).

Uropod with lateral lobe of protopod ending in acute tooth; exopod broadly ovate, with well-developed distolateral tooth and moderately

Fig. 4. *Salmoneus tafaongae* Banner & Banner, 1966. A, second pereiopod, lateral; B, third pereiopod, lateral; C, same, distal portion of propodus and dactylus, lateral; D, fourth pereiopod, lateral; E, same, distal portion of propodus and dactylus, lateral; F, fifth pereiopod, lateral; G, same, distal portion of propodus and dactylus, lateral. All from non-ov. specimen, cl 3.7 mm, from New Georgia, Solomon Islands (OUMNH.ZC. 2018-06-03).

Fig. 5. *Salmoneus tafaongae* Banner & Banner, 1966. Colour pattern. A, B, ov. specimen, cl 3.0 mm, from New Georgia, Solomon Islands (MNHN-IU-2019-3164), in dorsal (A) and lateral (B) views; C, ov. specimen, cl 4.0 mm, from Heron Island, Australia (MNHN-IU-2019-3163), in lateral view. Photographs by A. Anker.

developed spiniform seta; diaeresis sinuous; endopod as long as exopod, ovate (Fig. 2C).

Gill formula typical for genus.

Colouration

Semi-translucent, varying from whitish with slight yellow tinge to pale yellow or more intense yellow (in larger ovigerous specimens);

whiter specimens with more conspicuous lilac-purple margins of pleonites forming very fine transverse half-rings; antennular and antennal peduncles and flagella with reddish-purple or lilac-purple tinge; eggs bright orange-yellow (Fig. 5).

Distribution

West Pacific: currently known from Samoa (Upolu, type locality), French Polynesia (Society Islands: Moorea), Australia's Great Barrier Reef (Queensland: Heron Island) and Solomon Islands (New Georgia) (Banner & Banner, 1966; present study).

Habitat

All specimens (including the holotype) were collected under coral rubble on reef flats, either near the shore or closer to the reef crest, at depths of up to 1 m at low tide (Banner & Banner, 1966; present study).

Remarks

The material examined herein, corresponds closely to the superficial description of *S. tafaongae* provided by Banner & Banner (1966), especially in the shape and length of the rostrum, the partial covering of the eyes, the somewhat upturned orbital teeth, as well as the proportions of the articles of the ambulatory pereopods. However, some minor differences between the holotype and the present material are evident. The ischium of the third pereopod of the holotype was stated to harbour "two movable spines", whilst the present specimens typically have three cuspidate setae on this article (Fig. 4B). However, in one of the two specimens from lot MNHN-IU-2019-3163 from Heron Island, one of the third pereopods was armed with two cuspidate setae on the ischium, whilst the other had four such setae on the ischium, thus showing that there is indeed some variation in the ischial armature of *S. tafaongae*. The carpus of the third pereopod of the holotype was described as "armed with movable spine on inferior margin", whilst, in our specimens, this article only bears a stiff seta on the distoventral margin (Fig. 4B), which is also present in many other species of the genus (A. Anker, pers. obs.). The propodus of the third pereopod of the holotype was "bearing three slender spines on inferior mar-

gin", with the longest spine [being] distal", whereas in the present material, this article is armed with three spiniform setae in addition to a pair of them, longer indeed, adjacent to the propodo-dactylar articulation (Fig. 4B, C). The propodal cleaning brush of the fifth pereopod was described as "poorly developed" by Banner & Banner (1966), but in the present material appears to be fairly well developed, although somewhat dispersed (Fig. 4F, G). In the holotype, the mesial spiniform setae of the posterior margin of the telson were described as "1.6 times as long as posterior margin is broad", whilst in our material, these spiniform setae are of about the same length (1.2 times as long) as the posterior margin (Fig. 2D). Finally, the posterior notch of the telson was described by Banner & Banner (1966) as "shallow", whilst it appears to be relatively deep in the present material. We believe that all these are discrepancies may be due to differences in the interpretation or observation by Banner & Banner (1966) and can be considered as intra-specific variation.

In the present material, the major cheliped ischium typically bears one stout cuspidate seta, whilst its counterpart, the minor cheliped ischium, typically bears one, rarely two, cuspidate seta(e). The unarmed major cheliped of one specimen (MNHN-IU-2019-3163, Heron Island), appears to be an exception. Banner & Banner (1966) did not describe (possibly overlooked) the armature on the minor cheliped ischium. Nevertheless, the presence of armature in the form of cuspidate setae on the first and second pereopods ischia represents an important character contributing to the differentiation of *S. tafaongae* from some other species (see below).

Banner & Banner (1966) originally stated that *S. tafaongae* belongs to the genus *Salmonus* for "it has the articulated pleura of the sixth abdominal segment [pleonite], as is characteristic of *Salmonus*". Later, Banner & Banner (1973: footnote on p. 334) corrected

this “error crept in during the rewriting of the paper” and stated that based on their original notes, the sixth pleonite of *S. tafaongae* does not have an articulated plate. Although *Salmaneus* is generally defined by the absence of an articulated plate on the sixth pleonite (Anker & Marin, 2006), a variously developed oblique suture, sometimes partly internal but visible through the somewhat translucent tegument, may be present in some species, e.g. *S. cavicolus* Felder & Manning, 1986, *S. tiburon* Anker, 2019b (Felder & Manning, 1986; Anker, 2019b). In the present material, a short suture is visible in the distolateral angle of the sixth pleonite, where a triangular articulated plate or flap is present in some other alpheid genera (Fig. 2A); this suture is particularly visible in ventral view of the pleonite and with lateral illumination.

Salmaneus tafaongae clearly belongs to the somewhat heterogeneous *S. gracilipes* species group, as defined by Anker & Marin (2006). The main characteristics of this group are the long and slender rostrum, often with a small subdistal tooth on its ventral margin; the dorsally partly exposed eyes; the slender dactyli of the ambulatory pereopods; the major chela armed with relatively small teeth over the entire length of the cutting edges; and the ischia of the chelipeds and second pereopods sometimes armed with one cuspidate seta. As originally defined, in addition to *S. gracilipes*, this group comprised the Indo-Pacific *S. alpheophilus*, *S. colinorum*, *S. falcidactylus* Anker & Marin, 2006, *S. pusillus* Anker & Marin, 2006, and *S. seticheles*, as well as the Atlantic *S. cavicolus*. Among taxa described since 2006, the Atlantic *S. hispaniolensis* Anker, 2010a and the recently described *S. ikaros* from the Indian Ocean can be confidently placed in this relatively heterogeneous and possibly non-monophyletic grouping. Two further species, the western Atlantic *S. camaroncito* and the western Pacific cave-dwelling *S. antricola* show some affinities to the *S. gracilipes* group (Anker

et al., 2020), but differ from other members of this group in a number of important morphological characters, especially of the chelipeds. The western Atlantic *S. armatus* Anker, 2010a, originally considered to be somehow allied to the *S. gracilipes* group (Anker, 2010a), was recently transferred to *Triacanthoneus* Anker, 2010b, due the presence of a strong dorsal tooth on the mid-dorsal line of the carapace (Anker, 2020a).

Salmaneus tafaongae can be distinguished from *S. alpheophilus* by the narrower and longer rostrum, reaching almost to the end of the antennular peduncle (vs. wider and only reaching to the end of the second article of the antennular peduncle in *S. alpheophilus*); the carapace without small post-rostral tubercle (vs. typically with such tubercle in *S. alpheophilus*); the deeper notch on the posterior margin of the telson (vs. much shallower in *S. alpheophilus*) and the eyes without small anteromesial tubercle (vs. with such tubercle in *S. alpheophilus*) (cf. Anker & Marin, 2006).

Salmaneus tafaongae can be easily distinguished from *S. colinorum* by the presence of a cuspidate seta on the ischium of the first and second pereopods (vs. absent in *S. colinorum*); the posterior margin of the telson with a deep notch (vs. straight in *S. colinorum*) (cf. De Grave, 2004); and the presence of very fine lilac-coloured half-rings on the pleon (vs. broad dark purple bands in *S. colinorum*; cf. Fig. 5; Anker *et al.*, 2015; Anker, 2020b).

Salmaneus tafaongae can be distinguished from *S. falcidactylus* most easily by the stouter, shorter dactylus of the ambulatory pereopods (vs. much more slender, sickle-shaped dactylus in *S. falcidactylus*); the presence of one cuspidate seta (usually) on the ischium of the first and second pereopods (vs. absent in *S. falcidactylus*); and the better developed notch on the posterior margin of the telson (vs. very shallow in *S. falcidactylus*) (cf. Anker & Marin, 2006).

It can also be distinguished from *S. pusillus*,

S. ikaros and the western Atlantic *S. hispaniolensis* by the much longer, narrower rostrum, reaching at least to the middle of the third article of the antennular peduncle (vs. relatively wider and shorter, reaching at most to the middle of the second article in the other species); and the posterior margin of the telson with a deep notch (vs. absent or at most indicated and very shallow in the other species) (cf. Anker & Marin, 2006; Anker, 2010a; Anker *et al.*, 2020). Additionally, *S. ikaros* has a unique eye structure and lives in association with burrowing callianassid ghost-shrimps (Anker *et al.*, 2020), thus being ecologically very different from *S. tafaongae*.

Salmonus tafaongae can be readily separated from *S. seticheles*, e.g. by the dorsal and ventral margins of the major chela not fringed with long flexible setae (which represent one of the main diagnostic characters of *S. seticheles*); the posterior margin of the telson with a deep notch (vs. very shallow one in *S. seticheles*); the ischia of both first pereopods each typically armed with a stout cuspidate seta (vs. unarmed in *S. seticheles*); and the appendix masculina not exceeding the distal margin of the endopod (vs. far exceeding it in *S. seticheles*) (cf. Anker, 2003). In addition, these two species live in very different habitats, the former on reef flats on offshore islands and the latter on continental mudflats.

Salmonus tafaongae also differs in many respects from the western Atlantic *S. cavicolus*, including the rostrum without a mid-dorsal carina (vs. with a carina in *S. cavicolus*); the much longer stylocerite, reaching to the distal margin of the second article of the antennular peduncle (vs. not reaching the mid-length of the second article in *S. cavicolus*); the noticeably shorter scaphocerite; the ischia of the first pereopods each typically armed with a stout cuspidate seta (vs. unarmed in *S. cavicolus*); and the posterior margin of the telson with a deep notch (vs. straight in *S. cavicolus*) (cf. Felder & Manning, 1986).

Salmonus tafaongae appears to be morphologically most similar to *S. gracilipes*, e.g. in the general configuration of the rostro-orbital region, the presence of a relatively deep notch on the posterior margin of the telson, and the general shape and proportions of the chelipeds and ambulatory pereopods. Anker *et al.* (2020) raised the possibility that *S. gracilipes* could be a species complex as the presence or absence of a stout cuspidate seta on the ischium of the first and second pereopods, as well as the presence or absence of the ventral subdistal tooth on the rostrum has been variously mentioned in several subsequent records of the species (see also Miya, 1984; Āuriš & Horká, 2016). Although a similar variation in the presence or absence of a ventral rostral tooth can be seen in the studied specimens of *S. tafaongae* (Fig. B–D), it is most likely not of any taxonomic significance. As the presence of a cuspidate seta on the ischium of the first and second pereopods appears to be variable to some extent in the material currently referred to *S. gracilipes* (Anker *et al.*, 2020) as well as in *S. tafaongae* (at least in the major cheliped, see above), it cannot be used to differentiate the two species.

The longitudinal groove on the dorsal surface of the major chela palm (Miya, 1972; Āuriš & Horká, 2016) has been considered diagnostic for *S. gracilipes*, although Anker *et al.* (2020) noted it to be less conspicuous in some specimens from Kuwait. This groove appears to be absent in *S. tafaongae*, with the palm being rounded in cross-section and no grooves visible, and could thus potentially serve as a distinguishing feature between these two species. Irrespective of whether *S. gracilipes* represents a species complex, several differences can be observed between the original description of the species (Miya, 1972) and *S. tafaongae*. Most importantly, in *S. tafaongae*, the rostrum is much narrower at its base and reaches to the mid-length of the third article of the antennular peduncle, whereas in *S. gracilipes*, it is rela-

tively broad and reaches only to the distal margin of the second article of the antennular peduncle. In addition, in *S. tafaongae*, the rostrum is devoid of a mid-dorsal carina (vs. present in *S. gracilipes*) the orbital teeth are typically upturned in *S. tafaongae* (vs. not so in *S. gracilipes*) and the distolateral tooth of the scaphocerite of *S. tafaongae* is comparatively larger than in *S. gracilipes*.

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