

REVISION OF THE GENUS *SADAYOSHIA* (ANOMURA, GALATHEIDAE), WITH DESCRIPTION OF FOUR NEW SPECIES

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ABSTRACT

A revision of the genus *Sadayoshia* Baba, 1969 (type species: *S. miyakei* Baba, 1969) is carried out based on more than 460 specimens from numerous localities in the Indo-Pacific, revealing the existence of seven species. *Sadayoshia edwardsii* (Miers, 1884) is redescribed using material collected near the type locality (SW Indian Ocean) and from numerous localities from the Indian and Pacific Oceans. The three previously described species (*S. acroporae*, *S. balica*, and *S. miyakei*) proved to be valid species. Four additional species are described here as new to science: *S. latisternata* n. sp. from French Polynesia, Loyalty Islands and Mauritius Island; *S. lipkei* n. sp. from French Polynesia, Solomon Islands, Vanuatu, New Caledonia, Loyalty Islands and Chesterfield Islands; *S. inermis* n. sp. from Solomon Islands, Vanuatu and New Caledonia; and *S. tenuirostris* n. sp. from Japan, South China Sea, Palau Islands, Philippines, Indonesia, Solomon Islands, Vanuatu and New Caledonia.

RÉSUMÉ

Une révision du genre *Sadayoshia* Baba, 1969 (espèce-type: *S. miyakei* Baba, 1969) est effectuée en se fondant sur l'étude de plus de 460 spécimens originaires de nombreuses localités de l'Indo-Pacifique, révélant l'existence de sept espèces. *Sadayoshia edwardsii* (Miers, 1884) est redécrite en utilisant du matériel collecté près de la localité-type (sud-ouest de l'Océan Indien) et de nombreuses localités des Océans Indien et Pacifique. Les trois espèces précédemment décrites (*S. acroporae*, *S. balica*, et *S. miyakei*) s'avèrent valides. Quatre espèces supplémentaires sont décrites ici comme nouvelles pour la science: *S. latisternata* n. sp. de la Polynésie française, des îles Loyauté et de l'île Maurice; *S. lipkei* n. sp. de la Polynésie française, des îles Salomon, du Vanuatu, de Nouvelle-Calédonie, des îles Loyauté et des îles Chesterfield; *S. inermis* n. sp. des îles Salomon, du Vanuatu et de Nouvelle-Calédonie; et *S. tenuirostris* n. sp. du Japon, du sud de la mer de Chine, des îles Palau, des Philippines, d'Indonésie, des îles Salomon, du Vanuatu et de Nouvelle-Calédonie.

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INTRODUCTION

Baba (1969) established the genus *Sadayoshia* for *S. miyakei* Baba, 1969 (type species) and *Munida quinquespinosa* Balss, 1914. Balss' species was later re-evaluated and transferred to *Galathea* (see Baba, 2005). However, Baba overlooked two other existing species that correspond to *Sadayoshia*: *Munida edwardsii* Miers, 1884 from the Amirante Islands and *Galathea balica* Boone, 1935 from Bali, Indonesia. In 1972, the fourth species of the genus, *Sadayoshia acroporae* Baba, 1972, was described from the Ryukyu Islands. Since that time, the species of the genus have been reported sporadically in some localities in the Pacific and Indian Oceans by Baba (1979), Tirmizi (1980), Baba (1988), Kamezaki et al. (1988), Peyrot-Clausade (1989), and Poupin (1996a, b). Baba (1990) synonymized *S. miyakei* and *S. acroporae* with *S. edwardsii*, based on De Man's (1888) observations of what were believed to be *Munida edwardsii* from Ambon, Indonesia: eight of the 10 specimens that De Man examined had two spines on abdominal somite 2, whereas the remaining two did not. This difference was considered to represent individual variation. Similarly, Baba (2005) synonymized *S. balica* with *S. edwardsii*. In recent years, study of large collections of *Sadayoshia* in the Museum national d'Histoire naturelle, Paris, convinced us that *S. acroporae* and *S. balica* are valid species. This tentative conclusion was incorporated in the catalogue of squat lobsters of the world (Baba et al., 2008).

Our study of ca. 460 specimens in 204 lots and colour images of some specimens made available to us revealed that all nominal species of *Sadayoshia* (i.e. *S. acroporae*, *S. balica*, *S. edwardsii* and *S. miyakei*) are valid species along with four additional species new to science. Most of these species are validated by molecular analyses (G. Paulay, University of Florida, unpublished data), although a certain degree of divergence has been observed in specimens from different localities (e.g. in *S. inermis* and *S. lipkei*). These divergences recommend additional molecular and morphological studies in order to detect the existence of cryptic species.

Terminology and measurements. — The size of the carapace is indicated as the postorbital carapace length measured along the dorsal midline from the frontal margin to the posterior margin of the carapace. The abbreviations used include: Mxp3 = third maxilliped, P1 = first pereopod (cheliped), P2-4 = second to fourth pereopods (first to third walking legs). Material examined: M = males; F = females. The specimens, including the types of the new species, are deposited in the Museum national d'Histoire naturelle, Paris (MNHN), Florida Museum of Natural History, Miami (FLMNH), the Natural

History Museum, London (BMNH), Kumamoto University (KU), Kitakyushu Museum of Natural History, Kitakyushu (ZLKU), National Taiwan Ocean University (NTOU), Coastal Branch of the Natural History Museum and Institute, Chiba (CMNH), Ryukyu University Museum, Fujukan, Okinawa (URMF), and Zoologisk Museum, University of Copenhagen (ZMUC).

TAXONOMIC ACCOUNT

Family GALATHEIDAE Samouelle, 1819

Genus *Sadayoshia* Baba, 1969

Sadayoshia Baba, 1969: 18 (gender feminine); Baba, 2005: 203.

Type species: *Sadayoshia miyakei* Baba, 1969, by monotypy.

Diagnosis. — Carapace dorsally with row of 6-10 epigastric spines, 1 parahepatic and 1 anterior branchial spine on each side; laterally with 7 spines, 2 in front of and 5 behind anterior cervical groove; dorsal striation distinct. Rostrum with 2 lateral spines. Antennular basal article with 4 distal spines; ultimate article with distal margin fringed with long setae. Telsonal subdivision complete; midlateral plate with stiff setae in males. Male gonopods on abdominal somites 1 and 2. P1 stout, spinose, distal articles depressed. P2-4 spinose on dorsal margins of meri and carpi, occasionally propodi; dactyli with row of seta-like corneous spines each arising from relatively low tooth. Epipods absent on pereopods.

Remarks. — The genus is easily differentiated from related genera by having the rostrum spiniform, without dorsal and ventral spines, two spines flanking the rostral spine and males with two pairs of gonopods. The related genera (e.g. *Munida*, *Raymunida*) have the rostral spine flanked by only one supraocular spine on each side. Fujita & Shokita (2005) noted that *Sadayoshia* is closer to *Galathea* than to *Munida* in larval morphology. According to the molecular analysis by Ahyong et al. (2009), however, *Sadayoshia*, *Cervimunida*, *Munida* and *Pleuroncodes* form a clade that is sister to *Galathea*, *Allogalathea* and Porcellanidae.

KEY TO SPECIES OF THE GENUS *SADAYOSHIA*

1. Abdominal somite 2 with spines on anterior ridge 2
- Abdominal somite 2 unarmed 3
2. Abdominal somite 2 with 4 spines on anterior ridge *S. balica*

- Abdominal somite 2 with 2 spines on anterior ridge *S. acroporae*
- 3. Basal antennular article with spine on lateral margin 4
- Basal antennular article without spine on lateral margin 6
- 4. One (rarely 2) spine mesial to anterolateral spine of carapace. Rostral spine with dorsal longitudinal carina *S. edwardsii*
- No spine mesial to anterolateral spine of carapace. Rostral spine without dorsal longitudinal carina 5
- 5. Antennal article 2 having distolateral spine much longer than distomesial spine; article 3 unarmed. Carapace yellow to reddish orange *S. miyakei*
- Antennal article 2 having distolateral spine subequal to distomesial spine; article 3 with distomesial spine. Carapace yellow or orange with several purple stripes *S. lipkei* n. sp.
- 6. Sternite 3 more than 3 times as broad as long; sternite 4 about twice breadth of sternite 3. Abdominal somites 2-4 without transverse ridges other than anterior ridge *S. latisternata* n. sp.
- Sternite 3 at most twice as broad as long; sternite 4 about 3 times breadth of sternite 3. Abdominal somites 2-4 with several transverse ridges in addition to anterior ridge 7
- 7. Rostral spine more than 3.5 times longer than wide (measured at sinus between rostral and first lateral spine), with dorsal surface convex. P1 fingers clearly longer than palm *S. tenuirostris* n. sp.
- Rostral spine less than 3 times longer than wide (measured at sinus between rostral and first lateral spine), with dorsal surface flat. P1 fingers as long as palm *S. inermis* n. sp.

Sadayoshia acroporae Baba, 1972

(fig. 1)

Sadayoshia acroporae Baba, 1972: 43, figs. 1, 2 (Kabira, Ishigaki-jima, Ryukyu Islands, subtidal); Tirmizi, 1980: 108, figs. 1-7 (Bay of Bengal, 80 m; Mozambique Channel, 1225 m).

Not *Sadayoshia acroporae* — Baba, 1979: 644 (Marsegu Island, Moluccas, subtidal) (= *S. inermis* n. sp.).

Type data: holotype, male, KU.

Type locality: Kabira, Ishigaki-jima, Ryukyus Islands, subtidal.

Material examined. — JAPAN, Kabira, Ishigaki-jima, Ryukyu Islands, subtidal: M 6.2 mm, holotype (KU).

MARIANA ISLANDS. Guam Island, Piti moat, 1-3 m, 28 May 1997: 1 M 6.2 mm (FLMNH 314). — Apra Harbour, 3.0-4.6 m, 30 May 2002: 1 M broken (FLMNH 2923). — Apra Harbour, 3.0-4.6 m, 13 June 2002: 1 M 3.8 mm (FLMNH 2731). PHILIPPINES. Panglao Island (NTOU). PANGLAO, Stn B3, 9°33.5'N 123°48.6'E, 8 m, 31 May 2004: 1 M 4.2 mm. — Stn B5, 9°35.2'N 123°50.4'E, 4 m, 2 June 2004: 1 ov. F 6.7 mm. — Stn B9, 9°33.1'N 123°44.0'E, 8-10 m, 8 June 2004: 1 ov. F 6.0 mm. — Stn B10, 9°36.5'N 123°45.6'E, 3-14 m, 10 June 2004: 1 ov. F 5.4 mm. — Stn B15, 9°38.8'N 123°49.2'E, 2-4 m, 16 June 2004: 1 ov. F 5.0 mm, 2 F 2.7-4.3 mm. — Stn B16, 9°37.6'N 123°47.3'E, 20 m, 17 June 2004: 1 M 3.2 mm, 2 F 3.5-4.3 mm. — Stn B17, 9°37.5'N 123°46.9'E, 3-21 m, 19 June 2004: 1 F 3.0 mm. — Stn L40, 9°37.3'N 123°46.5'E, 100-120 m, 24 June 2004: 2 M 3.0-4.2 mm. — Stn S28, 9°37.2'N 123°46.4'E, 28-32 m, 24 June 2004: 1 M 3.4 mm. — Stn B24, 9°29.4'N 123°56.0'E, 38 m, 25 June 2004: 2 M 4.5-5.6 mm. — Stn B36, 09°35.9'N 123°44.5'E, 24 m, 01 July 2004: 1 M 2.8 mm, 1 F

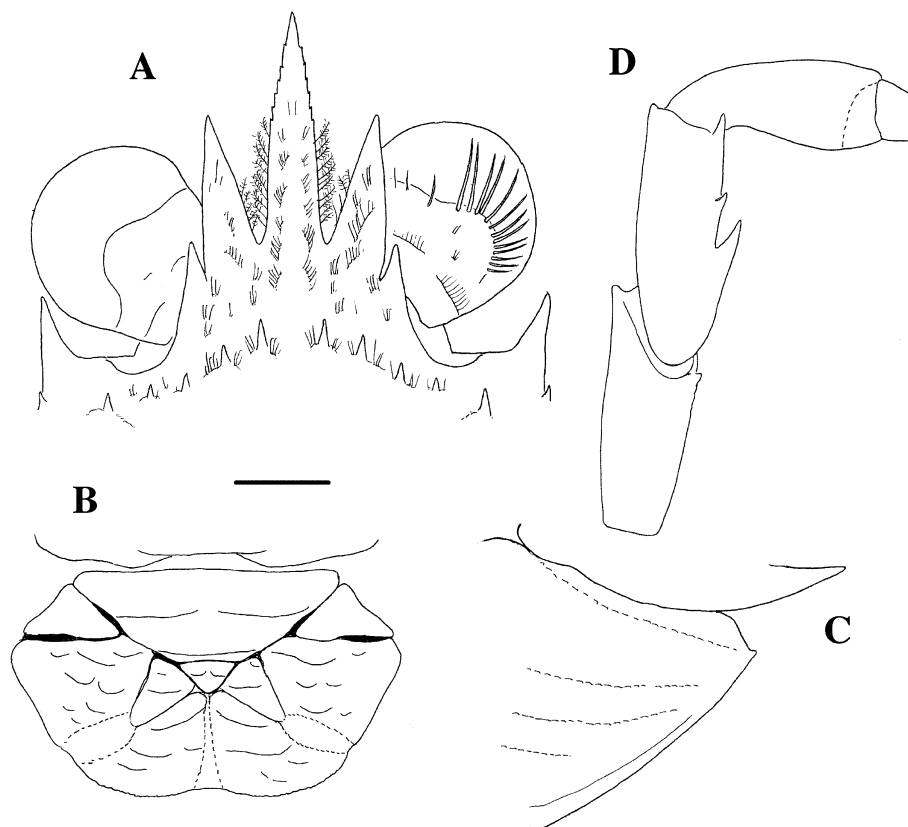


Fig. 1. *Sadayoshia acroporae* Baba, 1972. A-C, holotype, male, 6.2 mm; D, male, 5.7 mm, LIFOU Stn DW1431. A, anterior portion of carapace, dorsal view; B, telson; C, anterior portion of right pterygostomial region, lateral view; D, right Mxp3, lateral view. Scales: A-B = 1 mm, C-D = 0.5 mm.

2.9 mm. — Stn B39, 9°32.8'N 123°42.1'E, 17-25 m, 02 July 2004: 4 M 2.5-4.6 mm, 3 ov. F 4.0-5.1 mm, 3 F 2.7-4.6 mm. — Stn B42, 9°37.0'N 123°46.0'E, 30-33 m, 06 July 2004: 1 ov. F 5.8 mm, 1 F 3.7 mm.

Balicasag Island (NTOU). PANGLAO, Stn B37, 9°30.9'N 123°40.8'E, 19-20 m, 02 July 2004: 1 ov. F 5.3 mm. — Stn B41, 9°30.9'N 123°40.8'E, 17-19 m, 04 July 2004: 1 M 3.7 mm.

SOUTH CHINA SEA. Macclesfield Bank, 67.6 m: 1 ov. F 8.2 mm (BMNH 92.8.28). — 24-62 m: 1 ov. F 6.3 m (BMNH 92.8.28).

NEW CALEDONIA. Chesterfield Islands. CORAIL 2, Stn DW106, 19°09'S 158°43'E, 62 m, 27 July 1988: 3 ov. F 8.0-9.1 mm (MNHN Ga7201). — Stn DW118, 19°25'S 158°28'E, 52 m, 28 July 1988: 1 ov. F 6.8 mm (MNHN Ga7202). — Stn DW165, 19°41'S 158°22'E, 45 m, 2 August 1988: 1 ov. F 6.9 mm (MNHN Ga7203).

Lagoon Est. Stn 625, 21°59.2'S 166°53.6'E, 34-40 m, August 1986: 2 M 6.8-10.6 mm (MNHN Ga7204). — Stn 663, 21°42.2'S 166°30.5'E, 38-40 m, August 1986: 1 M 8.8 mm (MNHN Ga7205).

Lifou Island. Stn 1446, 20°50.8'S 167°09.7'E, 36-40 m, 16 November 2000: 1 M 9.1 mm (MNHN Ga7206). — Stn 1431, 20°47.5'S 167°07.1'E, 18-35 m, 03 November 2000: 1 M 5.7 mm (MNHN Ga7207). — Stn 1466, 20°46.5'S 167°06.2'E, 25-45 m, 17 November 2000: 1 F 7.4 mm (MNHN Ga7208).

MAURITIUS ISLAND. Coll. Robillard, no depth recorded: 2 M 6.4-9.2 mm (BMNH 89.3.27.43-44).

FRENCH POLYNESIA. Society Islands. Moorea. 17.5099°S 149.761°W, 20-33 m, 26 October 2008: 3 M 5.3-5.7 mm, 1 ov. F 4.9 mm (FLMNH 18372).

Sizes. — Males, 2.5-10.6 mm; females, 2.7-9.1 mm; ovigerous females from 4.0 mm.

Distribution. — Japan (Ryukyu Islands), Philippines (Panglao and Balicasag Islands), South China Sea (Macclesfield Bank), Mariana Islands (Guam Island), French Polynesia (Society Islands), New Caledonia, Loyalty Islands, Chesterfield Islands, Bay of Bengal, Mauritius, Mozambique Channel. Depths between 1 and 120 m, on coral and rock bottoms. The record of Tirmizi (1980) of 1225 m in the Mozambique Channel could be wrongly reported and should be revised.

Diagnosis. — Carapace with 4 pairs of epigastric spines; 1 postcervical spine on each side. Rostrum with rounded ridge in dorsal midline flanked by row of scaly ridges; lateral margin with row of plumose setae. Frontal margin between orbit and anterolateral spine of carapace unarmed. Sternal plastron as long as broad; sternite 3 1.4-2.0 times broader than long; sternite 4 with 2 ridges, anterior ridge concentric and medially interrupted, posterior ridge transverse and uninterrupted; sternite 5 with 2-4 arcuate ridges on each side, sternite 6 with 1-3 arcuate ridges in large specimens. Abdominal somite 2 with 2 median spines on anterior ridge (3 spines in one specimen); somites 2-3 each with 2-4 additional transverse ridges, usually uninterrupted, first ridge behind anterior margin usually scaly; somites 4-5 each with 1-3 transverse ridges, often medially interrupted. Eyelashes stiff, usually fully reaching midlength of cornea (reaching proximal third in some specimens). Basal article of antennule with 4 distal spines, without lateral spine proximal to distolateral spine. First article of antennal peduncle with distomesial spine slightly overreaching article 2; article 2 with distolateral spine subequal to or slightly smaller than distomesial spine; articles 3 and 4 unarmed. Mxp3 ischium with distinct spine on flexor distal margin; crista dentata with 28-40 denticles; merus with 2-3 flexor spines, proximal spine strong, distal spine situated at terminal end and distinctly smaller than proximal one, median spine much smaller. P1 merus 1.0-4.3 times (males) and 1.0-2.4 times (females) longer than carapace; carpus 1.2-1.5 times longer than broad; palm 1.4-1.8 times longer than broad;

movable finger 0.7-1.0 length of palm. P2 merus 0.7-1.0 as long as carapace; P2-4 propodi with a few spines on proximal lateral surface, usually lacking extensor spines.

Colour. — Carapace and abdomen orangish or brownish, rostral and supraocular spines reddish. P1 reddish orange, but fingers pale on distal and median portions. P2-4 with reddish or brownish bands, 2 on meri, 1 on each of carpi and propodi.

Remarks. — The illustration provided by Tirmizi (1980) for the material from the Bay of Bengal and Mozambique Channel clearly shows the two spines on abdominal somite 2 and a row of setae along the lateral margin of the rostral spine, both being diagnostic of *S. acroporae*.

***Sadayoshia balica* (Boone, 1935)**

(fig. 2)

Galathea balica Boone, 1935: 46, pl. 11 (Bali).

Type data: syntypes, recorded under Vanderbilt Marine Museum Cat. No. 692; not located.

Type locality: Bali.

Material examined. — None.

Diagnosis (after the description by Boone, 1935). — Carapace dorsally with 4 pairs of epigastric spines, 1 parahepatic, 1 anterior branchial and 1 postcervical spine on each side. No spine mesioventral to anterolateral spine. Abdominal somites 2-4 with at least 2 uninterrupted transverse ridges in addition to anterior one; 4 spines on anterior margin of abdominal somite 2. Article 3 of antennal peduncle unarmed.

Distribution. — Known only from Bali, Indonesia, on coral.

***Sadayoshia edwardsii* (Miers, 1884)**

(figs. 3, 4)

Munida edwardsii Miers, 1884: 560, pl. 51, figs A, a (Ile des Neufs [Noeufs Island], Amirante Islands, 27 m).

Sadayoshia edwardsii. — Baba, 1990: 970 (Aldabra); Baba, 2005: 203, 307 (in part, only Mauritius Island, Stns. 44 and 45, 46-55 m); Macpherson & Cleva, 2010: 67, colour fig. 3L (Mayotte, 15-30 m).

Not *Sadayoshia* aff. *edwardsii* Poupin, 1996b: 24, 25 (fig. g) (Tuamotu Archipelago, 140 m) (= *S. latisternata* n. sp.).

Not *Sadayoshia edwardsii*. — Fujita & Shokita, 2005: 866, figs 1-10 (larvae) (= *S. tenuirostris* n. sp.).

Dubious identification:

Munida Edwardsii. — De Man, 1888: 453 (Ambon).

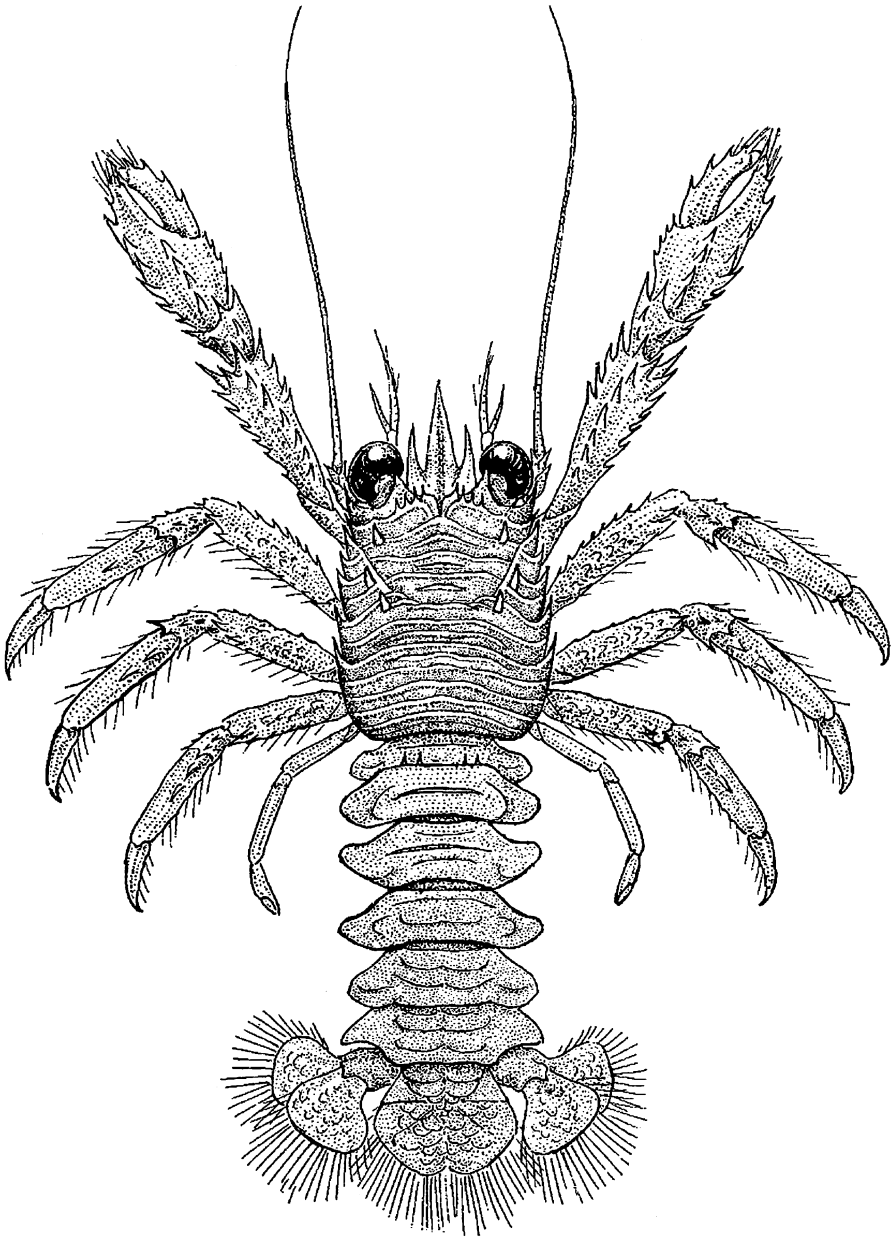


Fig. 2. *Sadayoshia balica* (Boone, 1935). General view, $\times 4$ (from Boone, 1935).

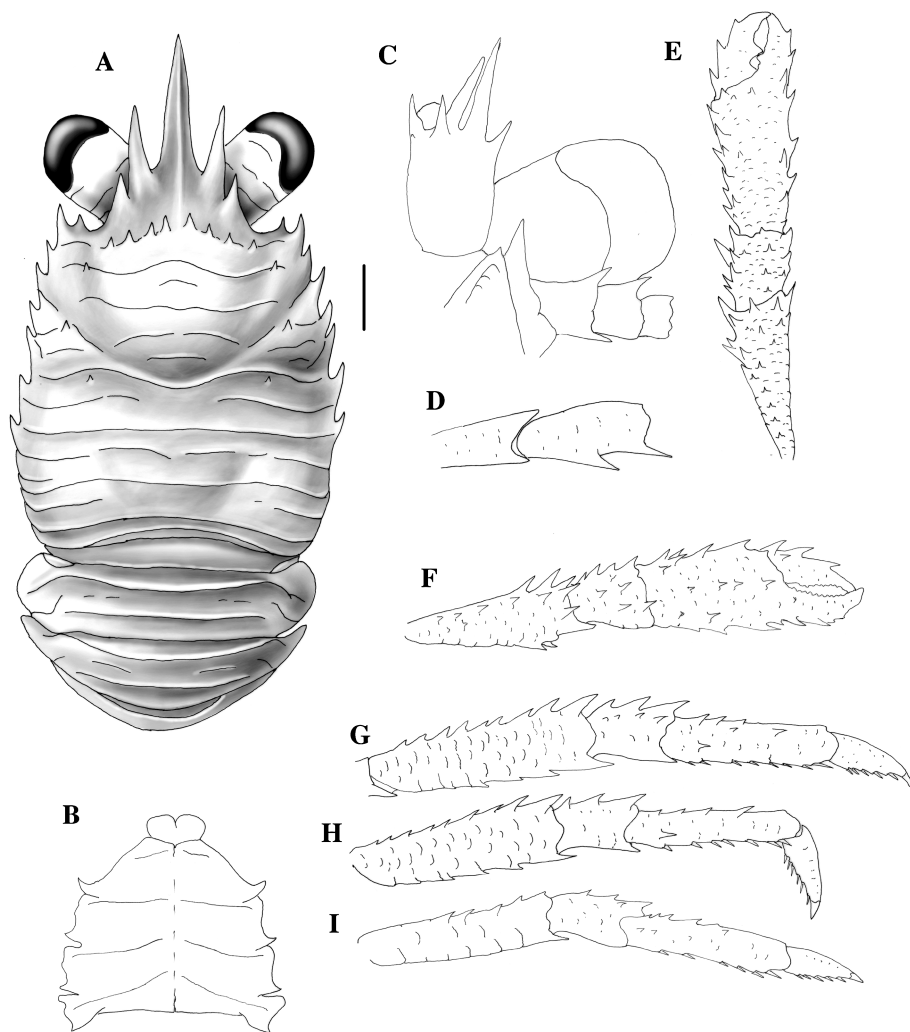


Fig. 3. *Sadayoshia edwardsii* (Miers, 1884). A-E, G-I, male, 4.5 mm, Kiritimati Atoll (FLMNH 10987); F, ov. female, 3.6 mm, Palmyra Atoll (FLMNH 10690). A, carapace and abdomen, dorsal view; B, sternal plastron; C, left cephalic region, showing antennular and antennal peduncles, ventral view; D, right Mxp3, lateral view; E-F, right P1, dorsal view; G, right P2, lateral view; H, right P3, lateral view; I, right P4, lateral view. Scales: A, B, F, G-I = 1 mm, C-D, 0.5 mm, E = 2 mm.

Sadayoshia edwardsii. — Baba, 1990: 970 (Madagascar, 170-175 m).

Type data: not located.

Type locality: Ile des Neufs [Noeufs Island], Amirante Islands, 27 m.

Material examined. — ALDABRA ISLAND. 23 May 1954: 1 M 4.0 mm (MNHN-Ga 709).

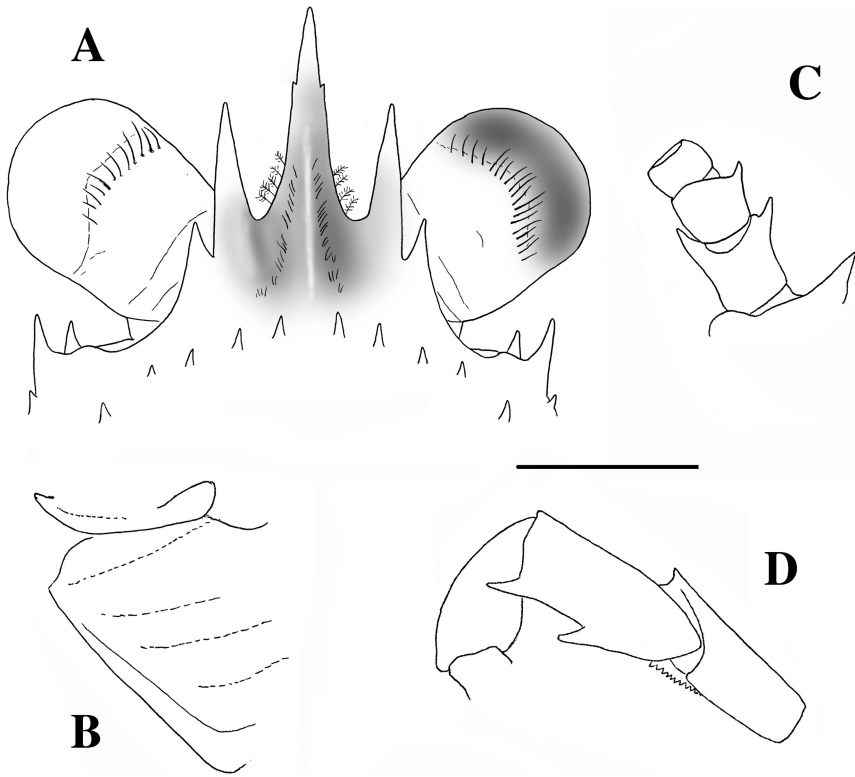


Fig. 4. *Sadayoshia edwardsii* (Miers, 1884). Male, 3.1 mm, LIFOU Stn 1465. A, anterior portion of carapace, dorsal view; B, anterior portion of left pterygostomial region, lateral view; C, left antennal peduncle, ventral view; D, left Mxp3, lateral view. Scales = 1 mm.

MAURITIUS ISLAND. Th. Mortensen's Java-South Africa Expedition 1929-30, MAURICE, Stn 44, North of Mauritius, 46 m, 15 October 1929: 1 ov. F 3.9 mm (ZMUC CRU-11103). — Sta. 45, between Gunner's Quoin and Flat Is., Mauritius, ca. 55 m, 16 October 1929: 3 M 2.8-5.0 mm (ZMUC CRU-11110).

LA REUNION ISLAND. Paine au Sucre, 21.0202°S 55.2321°E, 10-15 m, 06 August 2007: 1 M 4.4 mm (FLMNH 12637). — 21.0202°S 55.2321°E, 10-15 m, 06 August 2007: 3 ov. F 2.5-4.2 mm, 1 F 3.0 mm (FLMNH 13072). — 21.0202°S 55.2321°E, 10-15 m, 06 August 2007: 1 M 3.8 mm (FLMNH 12820).

MARIANA ISLANDS. Guam Island, Agat Bay, Nap's Reef, 18 February 1997: 1 ov. F 3.2 mm (FLMNH 278). — NW coast, Dos Amantes, close to Guam Beach, 28 m, 21 June 2002: 1 M 4.0 mm, 2 ov. F 2.8-4.1 mm (FLMNH 3128).

Agriham Island, 8 m, 30 May 1992: 1 M 2.2 mm (FLMNH 2598). — 20 m, 30 May 1992: 1 M 3.5 (FLMNH 2601).

PALAU ISLANDS. 33 m, 20 June 1995: 1 M 4.3 mm, 1 F 3.9 mm (FLMNH 5191).

VANUATU. Espiritu Santo Island. SANTO, Stn DB1, 15°33.1'S, 167°17.8'E, 15-25 m, 10 September 2006: 1 ov. F 3.7 mm (MNH Ga7209). — Stn ZB9, 15°40.6'S, 167°05.1'E, 5-7 m, 02 October 2006: 1 ov. F 3.2 mm (MNH Ga7210).

NEW CALEDONIA. Lifou Island. Recif Shelter, Stn 4: 1 F 3.0 mm (MNHN Ga7211). — Stn 1446, 20°50.8'S 167°09.7'E, 36-40 m, 16 November 2000: 4 M 3.0-4.3 mm, 1 ov. F 3.3 mm (MNHN Ga7212). — Stn 1436, 20°55.5'S 167°04.2'E, 10-20 m, 10 November 2000: 2 M 2.9-3.0 mm (MNHN Ga7213). — Stn 1464, 20°54'S 167°05.9'E, 35-50 m, 14 November 2000: 9 M 2.3-3.8 mm, 1 ov. F 3.0 mm, 3 F 2.4-3.9 mm. — Stn 1464, 20°54'S 167°05.9'E, 35-50 m, 14 November 2000: 1 ov. F 4.4 mm (MNHN Ga7214). — Stn 1446, 20°50.8'S 167°09.7'E, 36-40 m, 16 November 2000: 1 F 3.7 mm (MNHN Ga7215). — Stn 1465, 20°47.7'S 167°07'E, 35-45 m, 16 November 2000: 2 M 3.0-3.1 mm (MNHN Ga7216). — Stn 1420, 20°46.8'S 167°07.2'E, 4-5 m, 17 November 2000: 1 M 4.1 mm (MNHN Ga7217). — Stn 1466, 20°46.5'S 167°06.2'E, 25-45 m, 17 November 2000: 1 F 3.6 mm (MNHN Ga7218).

New Caledonia. SMIB 5. Stn DW99, 23°24.70'S 168°05.40'E, 58 m, 14 September 1989: 1 M 4.1 mm (MNHN Ga7219).

LINE ISLAND. Palmyra Atoll. 3.8693°N 162.0757°W, 9-15 m, 18 August 2005: 1 M 3.2 mm, 2 ov. F 3.0-3.6 mm, 1 F 3.7 mm (FLMNH 10690, 10735). — 5.8958°N 162.0815°W, 10.7 m, 19 August 2005: 11 M 2.4-3.6 mm, 4 ov. F 3.1-3.6 mm, 4 F 3.0-3.1 (FLMNH 10437, 10731).

Tabuaeran Atoll. 3.8511°N 159.3646°W, 10-20 m, 12 August 2005: 1 ov. F 3.9 mm (FLMNH 10715). — 3.8051°N 159.3021°W, 10-23 m, 13 August 2005: 1 ov. F 3.6 mm (FLMNH 10704). — 3.8681°N 159.3742°W, 10.7 m, 15 August 2005: 4 M 2.3-3.3 mm, 2 ov. F 3.7-4.1 mm, 2 F 2.8-3.3 mm (FLMNH 10729, 10730, 10732).

Kiritimati Atoll. 1.8913°N 157.5448°W, 9 m, 08 August 2005: 2 M 4.0-4.5 mm, 1 ov. F 3.9 mm (FLMNH 10987). — 1.8563°N 157.5539°W, 10-20 m, 09 August 2005: 1 M 4.5 mm, 2 ov. F 3.1-4.2 mm (FLMNH 10996, 10999).

FRENCH POLYNESIA. Austral Islands. BENTHAUS, Stn DW1926, 24°38.16'S 146°00.82'W, 50-90 m, 14 November 2006: 3 M 2.7-5.0 mm, 1 ov. F 4.6 mm (MNHN Ga 7220).

Society Islands. Moorea Island. Temae, 15-22 m, 27 May 2006: 1 M 2.4 mm (FLMNH 9616). — 17.4764°S 149.845°W, 11-13 m, 20 July 2006: 1 ov. F 3.1 mm (FLMNH 9906). — 17.4747°S 149.8392°W, 18 m, 28 July 2006: 1 M 4.6 mm (FLMNH 10141). — 17.4803°S 149.8539°W, 35-37 m, 02 August 2006: 2 M 2.5-3.5 mm, 2 ov. F 3.7-3.9 mm, 1 F 3.2 mm (FLMNH 10031, 10064). — 17.4768°S 149.8327°W, depth unrecorded, 05 August 2006: 1 M 4.3 mm (FLMNH 14832). — 17.4817°S 149.8558°W, 17-18 m, 16 October 2008: 1 M 3.4 mm (FLMNH 15639). — 17.5099°S 149.761°W, 20-33 m, 26 October 2008: 1 M 4.9 mm (FLMNH 18372). — 17.5779°S 149.8768°W, 6-21 m, 23 October 2008: 1 M 4.1 mm (FLMNH 18370).

Tuamotu Archipelago. Rangiroa Atoll. ca. 1 km S of NW point of atoll, off Motu Macherehona, 3-12 m, 10 February 2001: 1 F broken (FLMNH 1342).

Sizes. — Males, 2.2-5.0 mm; females, 2.4-4.6 mm; ovigerous females from 2.5 mm.

Distribution. — Amirante Islands, Mauritius Island, La Réunion, Aldabra Island, Mariana Islands, Palau Islands, French Polynesia (Tuamotu Archipelago, Society Islands, Austral Islands), Line Islands, Vanuatu, New Caledonia, Loyalty Islands. Depths between 3 and 90 m. *Halimeda* flat bottom, on *Seriatopora hystrix*, from dead *Pocillopora verrucosa* head, under dead coral, rubble.

Description. — Carapace, exclusive of rostrum, slightly longer than broad; dorsal surface nearly horizontal from anterior to posterior; anterior cervical

groove distinct. Dorsal surface with 4 pairs of epigastric spines, 1 parahepatic, 1 anterior branchial, and sometimes 1 postcervical spine on each side; ridges with numerous short setae and some scattered long iridescent setae. Gastric region with 3 transverse ridges (first and second uninterrupted, third sometimes interrupted) and 2 scale-like ridges (one posterior to first ridge and another posterior to third). Mid-transverse ridge of carapace uninterrupted, preceded by cervical groove, followed by 3 interrupted and 3 uninterrupted transverse ridges placed alternately. Lateral margins slightly convex, with 7 spines: 2 spines in front of and 5 spines behind anterior cervical groove; first spine anterolateral and well developed; second tiny, equidistant between anterolateral spine and anterior cervical groove; third to fifth spines on anterior branchial region, and remaining 2 spines on posterior branchial margin. Rostrum 1.4 times as long as broad, length 0.6 that of carapace, dorsal and ventral surfaces carinated in midline, nearly horizontal in lateral view, with short setae along each side of dorsal carina; lateral margin with 2 spines. Front margin with 1 (rarely 2) spine mesioventral to anterolateral spine of carapace or lateral to lateral limit of orbit.

Pterygostomial flap rugose with sparse setae, anterior margin ending in acute point.

Sternal plastron 0.8-0.9 times as long as broad, lateral limits divergent posteriorly. Sternite 3 nearly twice broader than long, anterior margin slightly convex, with small but distinct median notch. Sternite 4 2.0-2.2 times longer and 2.5-3.2 times broader than preceding sternite, 0.3-0.4 as long as broad. Surface of sternites smooth, with only few scale-like ridges on sternite 4.

Abdominal somite 2 unarmed on anterior transverse ridge; somites 2-3 with 1 or 2 additional uninterrupted ridges each followed by pair of broadly separated (left and right) short ridges.

Ocular peduncles 1.4 times longer than broad; cornea moderately dilated, maximum corneal diameter about 0.3 times distance between bases of anterolateral spines; eyelashes short, not reaching midlength of cornea.

Basal article of antennular peduncle with 4 distal spines, distomesial clearly smaller than others, distolateral larger; lateral margin with well developed spine proximal to distodorsal spine.

Article 1 of antennal peduncle with distomesial spine nearly reaching distal margin of article 2. Article 2 with distomesial spine, slightly longer than distolateral spine, reaching midlength of article 3. Article 3 with distomesial spine; article 4 unarmed.

Mxp3 ischium with small spine on flexor distal margin; extensor margin unarmed; crista dentata with 28-34 denticles. Merus subequal in length to

ischium, with 2 strong spines of subequal size on flexor margin; extensor margin unarmed. Carpus unarmed.

P1 3.0-3.5 (males), 1.8-2.4 (females) times carapace length, relatively stout; with some long uniramous and iridescent setae along lateral and mesial margins of merus, palm and fingers; dorsal and ventral surfaces of palm and fingers with scattered short setae. Merus 0.8-1.3 times length of carapace, 2.1-2.6 times as long as carpus, with some strong distal spines on dorsal and mesial margins, and a few additional small spines on distal part of dorsal surface. Carpus 1.0-1.3 times longer than broad, with some spines on dorsal surface and some well-developed spines on mesial surface. Palm 1.7-2.1 (males), 1.4-1.5 (females) times longer than broad; with dorsolateral and mesial rows of spines continued on entire margin of fixed and movable fingers, respectively; dorsal surface with row of spines. Fingers 0.4-0.6 (males), 0.7-0.8 (females) as long as palm, distally spooned; 1 or 2 proximal dorsal spines on movable finger; opposable margins somewhat gaping in large males. Dorsal surface with a few granules.

P2-4 relatively slender, somewhat compressed, sparsely with long uniramous and iridescent setae, and short plumose setae. Meri successively shorter posteriorly; P2 merus 0.7-0.8 length of carapace, 3.6-4.2 times as long as broad, 1.4 times longer than P2 propodus; P3 merus 3.2-3.5 times as long as broad, 1.2-1.3 times length of P3 propodus; P4 merus 3.2-3.8 times as long as broad, 1.1-1.4 length of P4 propodus. Dorsal margins with row of proximally diminishing spines on P2-4, less numerous on P4; ventrolateral margins with a few spines, terminal spine strong. Carpi with some spines on extensor margin, distal-most larger; flexor margins with distal spine; dorsolateral side with 1-4 small spines. Propodi nearly subequal in length, each 3.4-4.0 times as long as broad; extensor margin with 3-4 proximal spines on P2, 3-4 on P3, 0-2 on P4; 0-3 spines on each lateral side; flexor margin with 6-9 slender movable spines. Dactyli subequal in length, 0.6-0.7 times length of propodi, ending in incurved, strong, sharp spine; flexor margin with 5 or 6 seta-like movable spines, each arising from low tooth.

Colour. — Body red or reddish orange, with small purple spots along transverse ridges. Sometimes, a few white spots scattered on carapace and abdominal somites. Rostrum and supraocular spines red, base of rostrum whitish in some specimens. P1-4 with whitish and reddish bands; P1 with some whitish spots; tips of fingers orange.

Remarks. — The species is easily distinguished from the other species by the rostral spine being dorsally carinated instead of rounded and by having a

spine mesioventral to the anterolateral spine of the carapace or lateral to the lateral extremity of the orbit. Also, the Mxp3 merus consistently bears two flexor spines instead of three or four.

De Man (1888) reported 10 specimens of *S. edwardsii* from Ambon, Indonesia. However, his species account makes no mention of the spine mesioventral to the anterolateral spine of the carapace that Miers (1884) characterized as a “bispinose anterolateral spine”, and which spine is a consistent and unique character of the species. In addition, eight of the specimens he examined had two spines on the abdominal somite 2 and the other two did not. Very possibly, his material might not be true *S. edwardsii* but instead *S. acroporae*, *S. inermis* n. sp. or *S. tenuirostris* n. sp.

We have examined the spent female of *S. edwardsii* from the Ryukyus that was used by Fujita & Shokita (2005) for the larval development. It is without doubt *S. inermis* n. sp., not *S. edwardsii*.

The material examined by Baba (1990) from Aldabra, as well as several specimens from Mauritius (Baba, 2005) are *S. edwardsii*. However, some of the specimens identified by Baba (2005) as *S. edwardsii* are *S. latisternata* n. sp. and *S. tenuirostris* n. sp. (see under these species). The specimen from Madagascar (Baba, 1990) is a small juvenile of dubious identification.

***Sadayoshia inermis* n. sp.**

(figs. 5, 6A-B)

Material examined. — SOLOMON ISLANDS. SALOMON 1, Stn DW1822, 9°51.8'S, 160°51.8'E, 51-54 m, 03 October 2001: 1 ov. F broken, 1 F 3.6 mm (MNHN Ga7222).

VANUATU. Espiritu Santo island. SANTO, Stn ZB20, 15°36.1'S, 167°05.4'E, 15-20 m, 10 October 2006: 2 M 2.3-4.7 mm (MNHN Ga7236), 2 ov. F 4.4-4.6 mm (MNHN Ga7223). — Stn DB16, 15°35.5'S 167°15.8'E, 32-40 m, 14 September 2006: 1 M 2.0 mm (MNHN Ga7225). — Stn DB63, 15°26.9'S 167°15.8'E, 21 m, 25 September 2006: 1 F 2.1 mm (MNHN Ga7228). — Stn DB77, 15°27.9'S 167°14.7'E, 42-45 m, 29 September 2006: 1 ov. F 3.6 mm (MNHN Ga7231). — Stn FB47-49, 15°32.4'S 167°12.7'E, 45-50 m, 02-03 October 2006: 1 M 3.9 mm, 1 F 2.8 mm (MNHN Ga7233).

NEW CALEDONIA. Chesterfield Islands. CHALCAL 1, Stn CP16, 21°41.67'S 159°21.92'E, 53 m, 25 July 1984: 1 M 4.4 mm (MNHN Ga7238). — Stn DC16, 19°11.90'S 158°57.0'E, 63-67 m, 17 July 1984: 1 M 5.0 mm (MNHN Ga7237). — Stn DC37, 19°54.0'S 158°46.30'E, 50 m, 22 July 1984: 1 M 4.3 mm, 1 ov. F 4.4 mm (MNHN Ga7239). — Stn DC46, 20°52.26'S 158°33.74'E, 65 m, 23 July 1984: 1 M 4.0 mm, 1 ov. F 5.2 mm (MNHN Ga7241). — Stn DC52, 21°13.40'S 158°49.20'E, 69 m, 24 July 1984: 1 M 3.7 mm (MNHN Ga7243). — Stn DC55, 21°23.90'S 158°59.60'E, 55 m, 25 July 1984: 1 ov. F 3.6 mm (MNHN Ga7244).

CORAIL 2, Stn DW11, 20°50'S 161°41'E, 58 m, 20 July 1988: 1 ov. F 3.9 mm (MNHN Ga7245). — Stn DW18, 20°44'S 161°00'E, 69 m, 21 July 1988: 2 M 4.5-6.1 mm, 1 ov. F 4.2 mm (MNHN Ga7246). — Stn DW 117, 19°25'S 158°32'E, 52 m, 28 July 1988: 1 M 6.0 mm (MNHN Ga7248). — Stn CP 131, 19°25'S 158°38'E, 215-217 m, 29 July 1988: 1 M

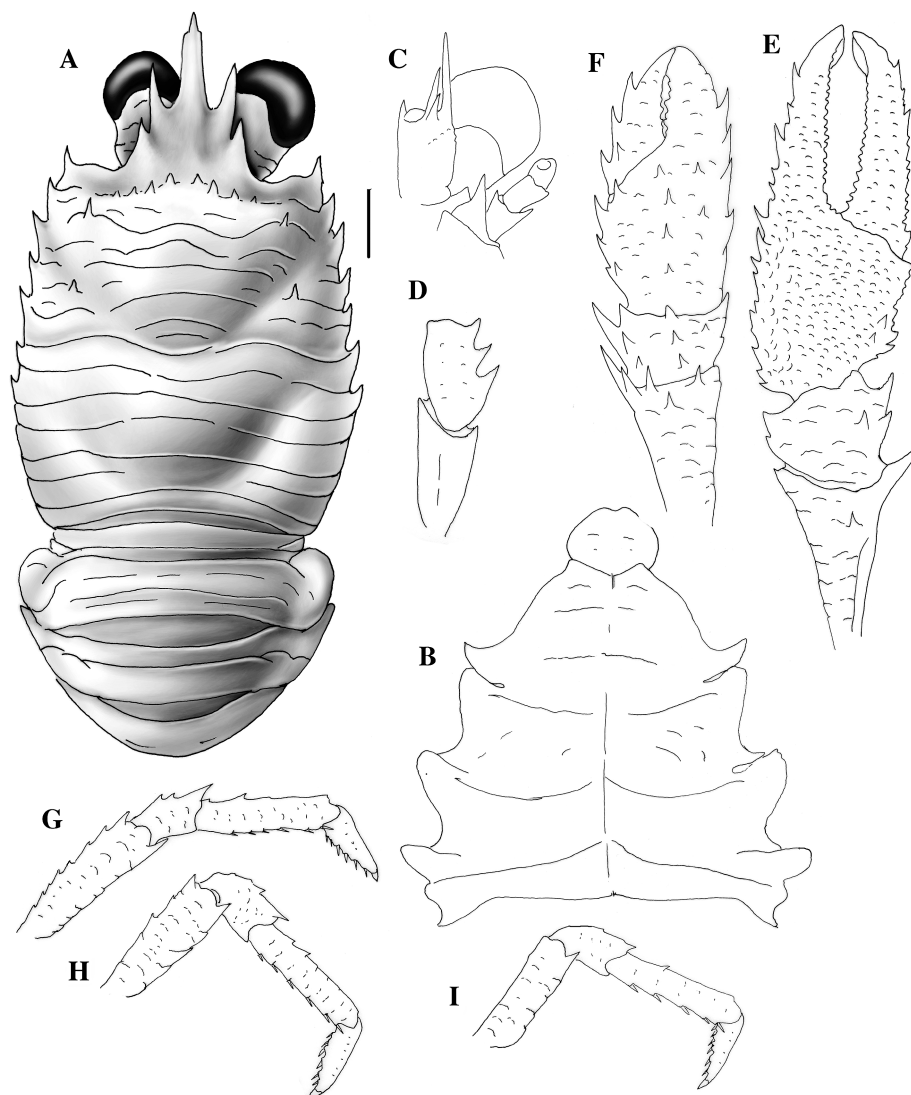


Fig. 5. *Sadayoshia inermis* n. sp. A-E, G-I, holotype, male, 6.0 mm, CORAIL 2, Stn DW117; F, paratype, ov. female, 3.9 mm, CORAIL 2, DW11. A, carapace and abdomen, dorsal view; B, sternal plastron; C, left cephalic region, showing antennular and antennal peduncles, ventral view; D, right Mxp3, lateral view; E, left P1, dorsal view; F, right P1, dorsal; G, right P2, lateral view; H, right P3, lateral view; I, right P4, lateral view. Scales: A, G-I = 1 mm, B-D = 0.5 mm, E = 2 mm.

4.8 mm (MNHN Ga7250). — Stn DW135, 19°31'S 158°19'E, 46 m, 30 July 1988: 1 M 4.0 mm (MNHN Ga7251). — Stn DW 165, 19°41'S 158°22'E, 45 m, 02 August 1988: 1 M 4.8 mm, 1 ov. F 6.9 mm (MNHN Ga7252).

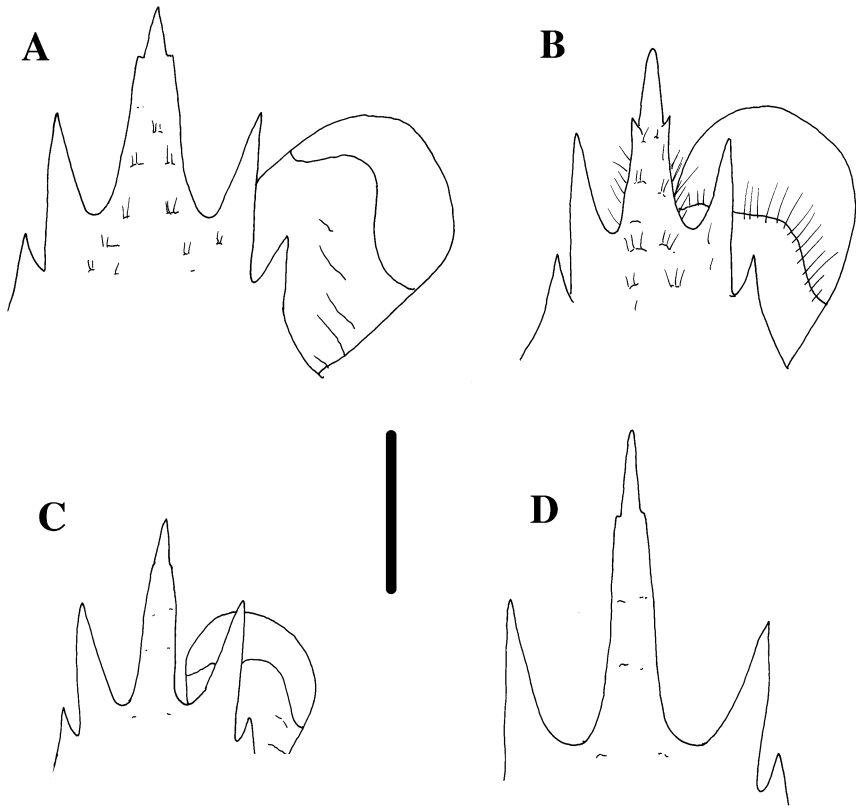


Fig. 6. *Sadayoshia inermis* n. sp. Rostrum, dorsal view. A, paratype, male, 4.9 mm, LIFOU, Stn 1414; B, paratype, male, 3.9 mm, SANTO, FB47. *Sadayoshia tenuirostris* n. sp. C, paratype, ov. female 4.8 mm, LIFOU, Stn 1431; D, paratype, male, 5.4 mm, LIFOU, Stn 1431. Scales: A, B, D = 1 mm, C = 0.5 mm.

Lagoon Est. Stn 607, 22°12.1'S 167°02.5'E, 48-54 m, August 1986: 1 M 4.2 mm (MNHN Ga7256). — Stn 613, 22°07.3'S 166°59.5'E, 45-50 m, August 1986: 1 M 5.5 mm (MNHN Ga7255). — Stn 631, 21°58.3'S 166°47.6'E, 43 m, August 1986: 1 M 5.2 mm (MNHN Ga7256). — Stn 642, 21°54.2'S 166°42.2'E, 44-47 m, August 1986: 2 M 4.5-4.6 mm, 1 ov. F 4.0 mm (MNHN Ga7259). — Stn 635, 21°57.7'S 166°44.5'E, 45-52 m, August 1986: 1 M 5.0 mm, 1 F 4.1 mm (MNHN Ga7257). — Stn 640, 21°54.8'S 166°45.8'E, 50-80 m, August 1986: 1 ov. F 5.4 mm (MNHN Ga7258). — Stn 645, 21°50.3'S 166°39.5'E, 51 m, August 1986: 1 M 5.7 mm (MNHN Ga7261). — Stn 650, 21°49.3'S 166°37.7'E, 50 m, August 1986: 1 ov. F 4.8 mm, 1 F 4.2 mm (MNHN Ga7262). — Stn 651, 21°48.0'S 166°36.4'E, 48 m, August 1986: 1 M 4.7 mm (MNHN Ga7263). — Stn 657, 21°48.2'S 166°33.8'E, 40-42 m, August 1986: 1 M 4.8 mm, 1 ov. F 5.5 mm, 1 F 3.7 mm (MNHN Ga7264). — Stn 662, 21°44.0'S 166°32.0'E, 50 m, August 1986: 2 M 5.0-5.3 mm, 1 ov. F 4.2 mm (MNHN Ga7266). — Stn 668, 21°40'S 166°29.1'E, 40 m, August 1986: 1 M 3.1 mm. Ga7269). — Stn 671, 21°38.1'S 166°25.5'E, 36-39 m, August 1986: 1 M 6.2 mm (MNHN Ga7267). — Stn 692, 21°32'S 166°12.3'E, 44-48 m, August 1986: 1 M 6.0 mm (MNHN Ga7268). — Stn 736, 22°06.7'S 166°58.4'E, 44-45 m, August 1986: 1 ov. F 4.9 mm (MNHN Ga7270).

Lagoon. Stn 247, Ouen Island, Prony Bay, 22°24'S 166°51'E, 43 m: 1 M 5.6 mm, 3 ov. F 4.3-5.6 mm (MNHN Ga7274).

Lifou island. LIFOU, Stn 1414, 20°45.9'S 167°06.2'E, 4-7 m, 20 November 2000: 5 M 3.1-4.9 mm, 2 ov. F 4.2-5.0 mm (MNHN Ga7276). — Stn 1446, 20°50.8'S 167°09.7'E, 36-40 m, 16 November 2000: 11 M 2.7-8.7 mm, 2 ov. F 3.3-4.7 mm, 2 F 1.5-1.6 mm (MNHN Ga7281). — Stn 1450, 20°45.8'S 167°01.65'E, 27-31 m, 21 November 2000: 2 M 3.5-3.6 mm, 4 ov. F 3.9-6.1 mm, 1 F 2.6 mm (MNHN Ga7282). — Stn 1466, 20°46.5'S 167°06.2'E, 25-45 m, 17 November 2000: 2 M 2.9-3.7 mm, 5 ov. F 3.6-4.4 mm, 1 F 2.2 mm (MNHN Ga7289). — Stn 1468, 20°46.5'S 167°05.7'E, 90 m, 20 November 2000: 1 M 3.9 mm (MNHN Ga7290).

Types. — Holotype, male 6.0 mm (MNHN Ga 7248), Chesterfield Islands, from CORAIL 2, Stn DW117. The other specimens are paratypes.

Etymology. — From the Latin, *inermis*, unarmed, in reference to the smooth lateral margin of the basal article of the antennular peduncle.

Sizes. — Males, 2.0-8.7 mm; females, 1.5-6.1 mm; ovigerous females from 3.3 mm.

Distribution. — Solomon Islands, Vanuatu, New Caledonia, Loyalty Islands, Chesterfield Islands. Depths between 4 and 90 m.

Description. — Carapace, exclusive of rostrum, slightly longer than broad; dorsal surface nearly horizontal from anterior to posterior; anterior cervical groove distinct. Dorsal surface with 4 pairs of epigastric spines, 1 parahepatic and 1 anterior branchial spine on each side; ridges with numerous short uniramous and some long iridescent setae. Gastric region with 5 or 6 transverse ridges usually medially convex, but posterior-most scale-like. Mid-transverse ridge of carapace sometimes uninterrupted, preceded by cervical groove, followed by 3 interrupted and 3 uninterrupted transverse ridges placed alternately, with some additional scale-like ridges between left and right interrupted ridges. Lateral margins slightly or moderately convex, with 7 spines; first anterolateral and well developed; second smaller than first, situated at midlength between anterolateral spine and anterior cervical groove; third to fifth on anterior branchial region, and sixth and seventh on posterior branchial margin. Rostrum 1.1-1.2 times as long as broad, length 0.4-0.5 that of carapace, rostral spine less than 3.0 times longer than wide (measured at sinus between rostral and first lateral spine), dorsal surface nearly flat, horizontal in lateral view; lateral margin with 2 spines, rostral spine sometimes with 1-3 denticles near distal end of each side. Plumose setae numerous along lateral margins of rostral spine and mesial margin of anterior lateral spine.

Pterygostomial flap rugose with sparse small ridges, ending in acute point.

Sternal plastron as long as broad, lateral limits divergent posteriorly. Sternite 3 1.5-2.0 times as broad as long, anterior margin clearly convex, with small median notch. Sternite 4 2.0 times as long as and 2.8-3.0 times broader than

preceding sternite, 2.3-2.5 times broader than long; surface with few transverse ridges bearing setae. Following sternites smooth, with only few scale-like ridges on sternite 5.

Abdominal somite 2 unarmed on anterior ridge; somites 2-3 each with 1 additional medially uninterrupted transverse ridge and 2 additional interrupted ridges on somite 2; ridges with numerous short setae and some long iridescent setae.

Ocular peduncles 1.2-1.3 times longer than broad; cornea moderately dilated, maximum corneal diameter about 0.4 times distance between bases of anterolateral spines; eyelashes short, not reaching midlength of cornea.

Basal article of antennular peduncle with 4 distal spines, distomesial clearly smaller than others, distolateral larger; lateral margin unarmed.

Article 1 of antennal peduncle with distomesial spine slightly exceeding distal margin of article 2. Article 2 with small distolateral and distomesial spines of subequal size, both nearly reaching midlength of article 3. Articles 3 and 4 unarmed.

Mxp3 ischium with very small spine on flexor distal margin; extensor margin bluntly produced distally; crista dentata with 24-28 denticles. Merus subequal in length to ischium, flexor margin with 3 or 4 spines, proximal one slightly stronger than others and located at midlength, distal one at terminal end; extensor margin unarmed. Carpus unarmed.

P1 2.0-3.6 (males), 1.3-2.5 (females) times carapace length, relatively stout, with some long uniramous and iridescent setae along lateral and mesial margins of merus, palm and fingers; dorsal and ventral surfaces of palm and fingers with scattered short setae. Merus 0.5-1.2 times length of carapace, 1.4-2.5 times as long as carpus, with some strong distal spines on dorsal and mesial margins, and a few additional small spines on dorsal surface. Carpus 0.7-0.9 times longer than palm, and 0.6-1.3 times longer than broad; dorsal surface with a few small spines; mesial surface with some well-developed spines. Palm 0.8-1.2 (males), 0.9-1.3 (females) times longer than broad; with dorsolateral and mesial rows of spines continued on to whole margin of fixed and movable fingers, respectively; dorsal surface with numerous granules in large specimens. Fingers 1.6-1.9 (males), 1.4-1.5 (females) times as long as palm, distally spooned; opposable margins somewhat gaping in large males; sometimes 1-2 dorsal proximal spines on movable finger.

P2-4 somewhat compressed, sparsely with long uniramous and iridescent setae, and short plumose setae. Meri successively shorter posteriorly (P3 merus slightly shorter than P2 merus, P4 merus 0.9 length of P3 merus); P2 merus

0.6-0.7 carapace length, 3.5 times as long as broad, 1.2 times longer than P2 propodus; P3 merus 3.1 times as long as broad, 1.1 times length of P3 propodus; P4 merus 3.2 times as long as broad, 1.0 length of P4 propodus. Meri having dorsal margins with row of proximally diminishing spines on P2-3, nearly unarmed on P4; ventrolateral margins with strong terminal spine. Carpi with some spines on extensor margin, sometimes obsolescent on P4, distal-most larger; flexor margins with distal spine; 0-3 small spines on dorsal side. Propodi each 3.8-5.0 times as long as broad; extensor margin and lateral surface with 0-2 proximal spines; flexor margin with 6-9 slender movable spines. Dactyli subequal in length, 0.6-0.8 times length of propodi, ending in incurved, strong, sharp spine; flexor margin with 6 or 7 seta-like movable spines, each arising from obsolescent tooth.

Remarks. — The new species is closely related to *S. tenuirostris* n. sp. (see the differences under the Remarks of that species).

***Sadayoshia latisternata* n. sp.**

(fig. 7)

Sadayoshia aff. *edwardsii*. — Poupin, 1996b: 24, 25 (fig. g) (Tuamotu Archipelago, 140 m).

Sadayoshia edwardsii. — Baba, 2005: 203 (part, only material from MAURICE Stn 47).

Material examined. — FRENCH POLYNESIA. Austral Islands. BENTHAUS, Stn DW 1939, 23°49.67'S 147°41.62'W, 100 m, 16 November 2006: 2 F 3.9-5.0 mm (MNHN Ga7292). — Stn DW 1986, 23°26.3'S 150°44.2'W, 150 m, 22 November 2006: 1 M 6.5 mm, 3 ov. F 4.1-4.7 mm, 1 F broken (MNHN Ga7293). — Stn DW 2013, 22°38.57'S 152°49.73'W, 80-93 m, 26 November 2006: 1 M 3.6 mm, 2 ov. F 4.5-4.7 mm (MNHN Ga7294, Ga7296).

NEW CALEDONIA. Lifou Island. LIFOU, Stn DW14 Stn 1467, 20°46.6'S 167°05.7'E, 90 m, 20 November 2000: 2 F 3.2-3.5 mm (MNHN Ga7295).

MAURITIUS ISLAND. Th. Mortensen's Java-South Africa Expedition 1929-30 MAURICE, Stn 47, N of Port Louis, Mauritius, ca 238 m, mud and corals, Sigsbee trawl, 6 November 1929: 1 M 4.7 mm (ZMUC CRU-11126).

Types. — Holotype, male of 3.6 mm (MNHN Ga7296), French Polynesia, from BENTHAUS, Stn DW 2013. The other specimens are paratypes.

Etymology. — From the Latin, *latus*, broad and *sternum*, in reference to the shape of the third sternite.

Sizes. — Males, 3.5-6.5 mm; females, 3.9-5.0 mm; ovigerous females from 4.1 mm.

Distribution. — French Polynesia, Loyalty Islands and Mauritius Island; 80-238 m.

Description. — Carapace, exclusive of rostrum, slightly longer than broad; dorsal surface nearly horizontal from anterior to posterior; anterior cervical groove distinct. Three pairs of epigastric spines and 1 parahepatic spines on

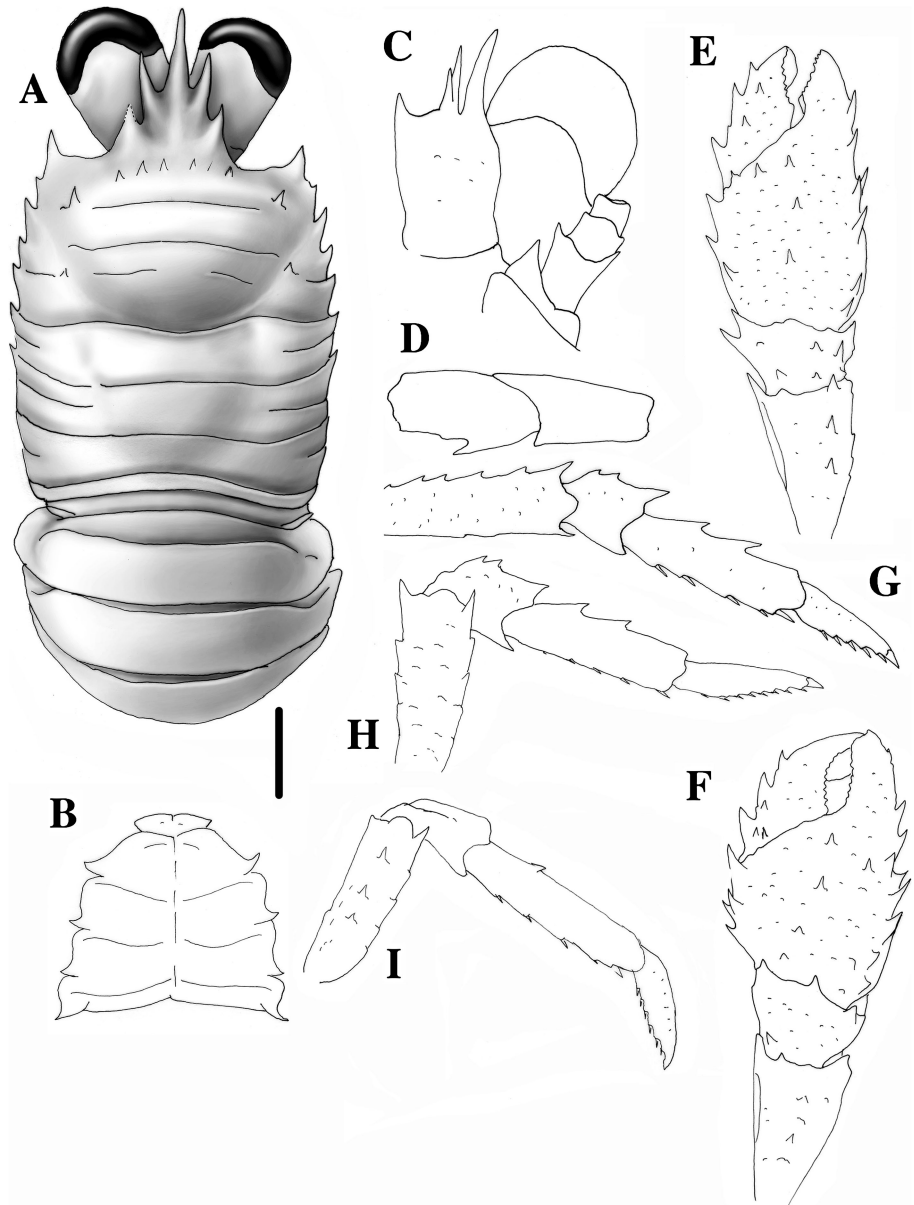


Fig. 7. *Sadayoshia latisternata* n. sp. A-E, G-I, holotype, male, 3.6 mm, BENTHAUS, Stn DW2013; F, paratype, ov. female, 4.2 mm, BENTHAUS, Stn DW2013. A, carapace and abdomen, dorsal view; B, sternal plastron; C, left cephalic region, showing antennular and antennal peduncles, ventral view; D, left Mxp3, lateral view; E-F, right P1, dorsal view; G, right P2, lateral view; H, right P3, lateral view; I, right P4, lateral view. Scales: A, B, E-I = 1 mm, C-D = 0.5 mm.

each side; 3 ridges on gastric region, first and second slightly convex and uninterrupted, third ridge medially interrupted; mid-transverse ridge of carapace uninterrupted, preceded by cervical groove, followed by 3 widely interrupted and 3 uninterrupted transverse ridges placed alternately; 1 branchial spine behind midpoint of anterior cervical groove on each side. Dorsal surface with a few uniramous short and long setae arising from transverse ridges. Lateral margins medially convex, with 7 spines: first anterolateral, relatively small, not reaching level of sinus between first and second lateral rostral spines; second tiny, located at midlength between anterolateral spine and anterior end of cervical groove; third to fifth spines on anterior branchial region, and remaining 2 spines on posterior branchial margin. Rostrum moderately broad, 1.1-1.2 times as long as broad, length 0.4-0.5 that of carapace; dorsal surface nearly horizontal in lateral view, with rounded ridge in midline; lateral margin with 2 sharp spines, proximal shorter than distal one.

Pterygostomial flap rugose with sparse setae, anterior margin ending in acute point.

Sternal plastron 0.7-0.9 times as long as broad, lateral limits divergent posteriorly. Sternite 3 3.5-4.0 times as broad as long, anterior margin slightly produced, with small V-shaped median notch. Sternite 4 2.4-3.0 times longer and slightly more than twice as broad as preceding sternite, 2.5 times broader than long; surface with 1 anterior stria flanking midline. Following sternites smooth.

Abdominal somite 2 unarmed; somites 2-4 without transverse ridges other than anterior one; some scattered uniramous long and short setae.

Ocular peduncles about 1.3 times longer than broad; cornea slightly dilated; eyelashes short, not reaching midlength of cornea.

Basal article of antennular peduncle with 4 distal spines, distolateral larger, distomesial clearly smaller than others; lateral spine absent.

Article 1 of antennal peduncle hardly visible from dorsal view, with depressed ventral distomesial process nearly reaching distal margin of article 2. Article 2 with distolateral spine larger than distomesial, barely reaching midlength of article 3. Articles 3 and 4 unarmed.

Mxp3 ischium with distal spine on flexor margin; extensor margin unarmed; crista dentata with 29-31 denticles. Merus subequal in length to ischium, with 1 strong spine at midlength of flexor margin, sometimes 1 small distal spine; extensor margin unarmed. Carpus unarmed.

P1 1.5 (males), 1.2 (females) times carapace length, stout, with some long uniramous and iridescent setae along lateral and mesial margins of merus,

palm and fingers; dorsal and ventral surfaces of palm and fingers with scattered short setae. Merus about 0.5 times length of carapace, 2.3-3.0 times as long as carpus, with some dorsal and lateral spines, and 1 strong distomesial spine. Carpus 0.6 length of palm, 0.6 times longer than broad, dorsal surface with some small spines; mesial margin with 2 or 3 well-developed spines; and some spines along distal margin. Palm 0.7 (males), 0.8 (females) times longer than broad; strong spines along mesial and lateral margins, continued on to movable and fixed finger, dorsal surface sparsely covered with spines and granules. Fingers distally spooned; opposable margins somewhat gaping; movable finger slightly longer than palm, dorsal surface with 2 or 3 proximal spines.

P2-4 somewhat compressed, sparsely with long uniramous and iridescent setae, and short plumose setae. P2-3 subequal in length, slightly longer than P4. P2 merus as long as P2 merus, P4 merus 0.8-0.9 length of P2 merus; P2 merus 0.6-0.7 carapace length, 3.0-3.2 times as long as broad, 1.3-1.4 times longer than P2 propodus; P3 merus 2.9-3.0 times as long as broad, 1.2-1.4 times length of P3 propodus; P4 merus 3.1-3.2 times as long as broad, 1.0-1.2 length of P4 propodus. Dorsal margins of meri with row of proximally diminishing spines on P2-3, unarmed on P4; dorsolateral surface unarmed on P2-3, with some spines on P4; ventrolateral margins with strong terminal spine. Carpi with 3 or 4 extensor spines on P2-3 and unarmed on P4, distal-most larger; dorsolateral surface with row of minute spines on P2, none on P3-4; flexor margins with distal spine. Propodi subequal in length on P2-4, each about 3 times as long as broad; extensor margin with 1-3 proximal spines on P2, 1 or 2 on P3, 1 or 2 on P4; flexor margin with 5-7 slender movable spines on P2-4. Dactyli subequal in length, 0.7-0.8 times length of propodi, ending in incurved, strong, sharp spine; flexor margin with 5 or 6 obsolescent teeth, each with seta-like movable spine.

Colour: Carapace and abdominal somites orange, with large purple spot on pterygostomial area. Rostrum and supraocular spines orange. P1-4 with orange and whitish bands. Tips of P1 fingers whitish or light orange.

Remarks. — The new species is easily differentiated from the other species of the genus by having abdominal somites 2-4 without transverse ridges other than the anterior ridge and the short (relative to breadth) sternites 3 and 4.

***Sadayoshia lipkei* n. sp.**

(figs. 8-9)

Sadayoshia miyakei. — Peyrot-Clausade, 1989: 112 (Tuamotu Archipelago, 5-30 m); Poupin, 1996a: 20 (compilation of French Polynesia records).

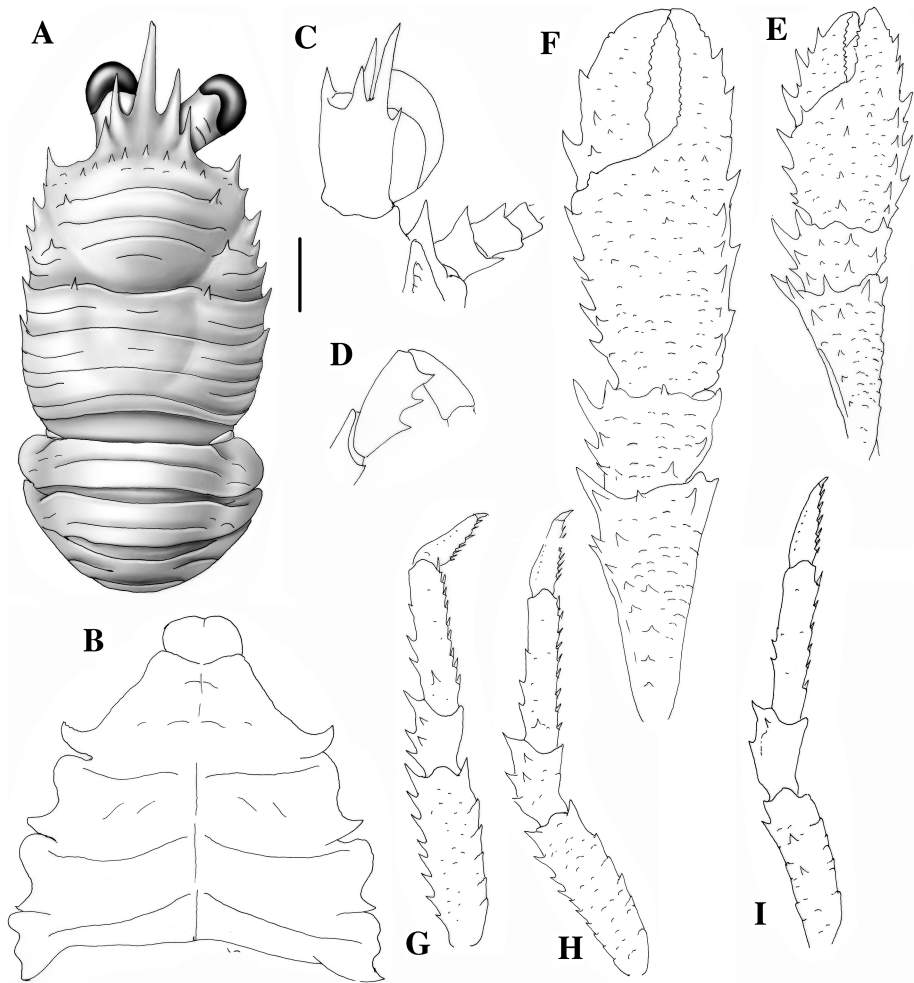


Fig. 8. *Sadayoshia lipkei* n. sp. A-E, G-I, holotype, ov. female, 7.0 mm, BENTHAUS, Stn DW1936; F, paratype, male, 6.4 mm, BENTHAUS, Stn DW1927. A, carapace and abdomen, dorsal view; B, sternal plastron; C, cephalic region, showing antennular and antennal peduncles, ventral view; D, right Mxp3, lateral view; E-F, right P1, dorsal view; G, right P2, lateral view; H, right P3, lateral view; I, right P4, lateral view. Scales: A, E-I = 1 mm, B-D = 0.5 mm.

Material examined. — FRENCH POLYNESIA. Austral Islands. BENTHAUS, Stn DW 1879, 27°54.8'S 143°30.14'W, 52 m, 07 November 2006: 4 M 4.7-5.3 mm, 5 ov. F 4.6-6.0 mm (MNHN Ga7297). — Stn DW 1894, 27°40.13'S 144°21.51'W, 100 m, 09 November 2006: 3 ov. F 5.8-6.3 mm (MNHN Ga7298). — Stn DW 1917, 27°03.29'S 146°03.82'W, 50-60 m, 13 November 2006: 5 M 4.8-6.0 mm, 2 ov. F 4.3-5.1 mm (MNHN Ga7299). — Stn DW 1926, 24°38.16'S 146°00.82'W, 50-90 m, 14 November 2006: 4 M 2.7-5.0 mm, 1 ov. F 4.6 mm (MNHN Ga7300). — Stn DW 1927, 24°39.03'S 146°01.58'W, 95-105 m, 14 November 2006:

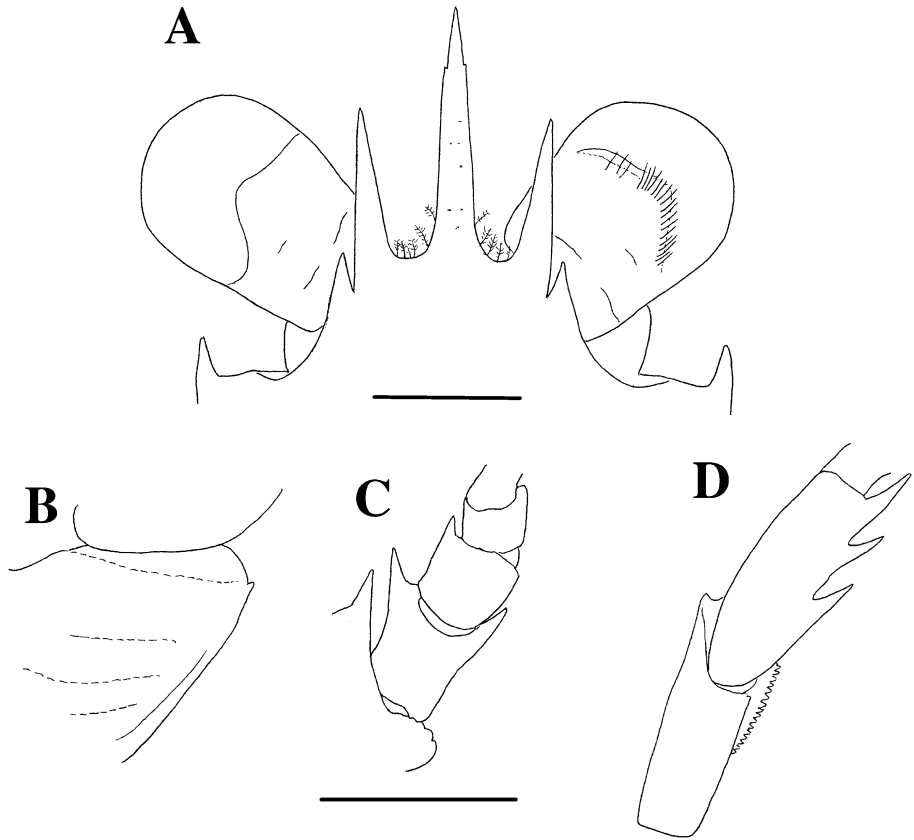


Fig. 9. *Sadayoshia lipkei* n. sp. Paratype, male, 5.0 mm, BENTHAUS, Stn DW1917. A, anterior portion of carapace, dorsal view; B, anterior portion of right pterygostomial region, lateral view; C, right antennal peduncle, ventral view; D, right Mxp3, lateral view. Scales: A = 1 mm, B-D = 1 mm.

1 M 6.4 mm (MNHN Ga7301). — Stn DW 1936, 24°39.71'S 145°57.09'W, 80-100 m, 15 November 2006: 1 M 6.3 mm, 1 ov. F 7.0 mm, 1 F 6.4 mm (MNHN Ga7302, Ga7326). — Stn DW 1939, 23°49.67'S 147°41.62'W, 100 m, 16 November 2006: 1 M 6.3 mm, 1 ov. F 6.2 mm, 1 F 2.7 mm (MNHN Ga7303). — Stn DW 1945, 23°49.05'S 147°41.57'W, 120-500 m, 18 November 2006: 1 ov. F 6.1 mm (MNHN Ga7304). — Stn DW 1946, 23°49.24'S 147°41.25'W, 100-200 m, 18 November 2006: 1 M 6.5 mm, 1 F 2.0 mm (MNHN Ga7305). — Stn DW 1958, 23°19.64'S 149°30.3'W, 80-150 m, 19 November 2006: 2 M 4.7-5.0 mm, 1 ov. F 5.3 mm, 1 F 4.3 mm (with bopyrid) (MNHN Ga7306). — Stn DW 1959, 23°19.77'S 149°30.44'W, 95-380 m, 19 November 2006: 1 M 2.7 mm (MNHN Ga7307). — Stn DW 1968, 23°22.88'S 150°43.52'W, 100-120 m, 21 November 2006: 1 M 3.3 mm, 2 ov. F 3.0-3.6 mm (MNHN Ga7308). — Stn DW 1978, 23°22.02'S 150°43.41'W, 120-180 m, 22 November 2006: 1 F 5.1 mm (MNHN Ga7309). — Stn DW 1984, 23°26.37'S 150°43.91'W, 40 m, 22 November 2006: 1 M 5.2 mm (MNHN Ga7310). — Stn DW 1985, 23°26.35'S 150°44.22'W, 100-107 m, 22 November 2006: 1 M 6.1 mm, 2 ov. F 5.0-5.1 mm, 1 F (broken) (MNHN Ga7311). — Stn DW 1986, 23°26.3'S 150°44.2'W, 150 m, 22 November 2006: 1 ov. F 5.2 mm (MNHN

Ga7312). — Stn DW 1997, 700-1350 m: 2 M 2.3-4.2 mm, 1 F 2.2 mm (dubious label) (MNHN Ga7313). — Stn DW 2013, 80-93 m: 1 M (broken), 1 ov. F 4.4 mm (MNHN Ga7314).

Tuamotu Archipelago. Mururoa. Stn D51, 21°53.12'S 139°02.62'W, 15 October 1990, 140 m: 1 ov. F 4.9 mm (MNHN Ga7315).

Tubuai, 50 m: 2 F 3.7-4.5 mm (MNHN Ga1923).

Society Islands, Moorea Is., W coast, 12-22 m, 24 May 2006: 1 M 4.3 mm (FLMNH 9606).

SOLOMON ISLANDS. SALOMON 1, Stn DW1744, 10°32.0'S 159°38.9'E, 49-55 m, 23 September 2001: 1 M 4.2 mm, 3 ov. F 3.6-4.7 mm (MNHN Ga7316).

VANUATU. Espiritu Santo island. SANTO, Stn DB86, 15°38.5'S 167°15.1'E, 13 m, 04 October 2006: 1 M 3.9 mm (MNHN Ga7317).

NEW CALEDONIA. Lifou Island. LIFOU, Stn 1434, 20°52.5'S 167°08.1'E, 5-20 m, 06 November 2000: 1 ov. F 3.2 mm (MNHN Ga7318). — Stn 1436, 20°55.5'S 167°04.2'E, 10-20 m, 10 November 2000: 1 ov. F 2.9 mm (MNHN Ga7319). — Stn 1446, 20°50.8'S 167°09.7'E, 36-40 m, 16 November 2000: 4 M 3.0-4.3 mm, 2 ov. F 3.3-4.0 mm (MNHN Ga7320). — Stn 1447, 20°45.8'S, 167°01.65'E, 17-31 m, 22 November 2000: 1 M 4.7 mm, 1 ov. F 4.3 mm (MNHN Ga7321). — Stn 1464, 20°54'S 167°05.9'E, 35-50 m, 14 November 2000: 5 M 2.8-4.1 mm (MNHN Ga7322).

New Caledonia. Grotte Merlet, 20-30 m, 19-21 January 1993: 2 M 4.7-5.0 mm, 1 F 3.1 mm (MNHN Ga7323).

Chesterfield Islands. CHALCAL 1984, Stn D45, 20°48.93'S 158°30.21'S, 50 m, 23 July 1984: 2 ov. F 5.0-5.1 mm (MNHN Ga7324). — Stn D51, 21°13.21'S 158°42.50'E, 55 m, 24 July 1984: 8 M 3.5-5.4 mm, 1 ov. F 4.7 mm, 1 F 4.0 mm (MNHN Ga 7325).

Types. — Holotype, ovigerous female of 7.0 mm (MNHN Ga7326), French Polynesia, from BENTHAUS, Stn DW 1936. The other specimens are paratypes.

Etymology. — This species is named in honor of our friend and appreciated carcinologist, Lipke B. Holthuis.

Sizes. — Males, 2.3-6.5 mm; females, 2.0-7.0 mm; ovigerous females from 3.0 mm.

Distribution. — French Polynesia, Solomon Islands, Vanuatu, New Caledonia, Loyalty Islands and Chesterfield Islands, from 5 to 500 m. Some stations covered a wide depth range (e.g. BENTHAUS, DW 1959, 95-380 m). Considering that most occurrences of species of *Sadayoshia* are shallower than 100 m, those stations covering a wide depth range should be considered with caution. The occurrence of this species in deeper waters (BENTHAUS, DW 1959, 700-1350 m) is also dubious.

Description. — Carapace, exclusive of rostrum, slightly longer than broad; dorsal surface nearly horizontal from anterior to posterior; anterior cervical groove distinct. Dorsal surface with 4 pairs of epigastric spines, 1 parahepatic and anterior branchial spine on each side, occasionally 1 postcervical spine; ridges with some scattered short and long iridescent setae. Gastric region with 4 medially convex ridges, anterior 3 ridges uninterrupted, last scale-like and placed medially. Mid-transverse ridge of carapace uninterrupted,

preceded by cervical groove, followed by 3 interrupted and 3 uninterrupted transverse ridges placed alternately. Lateral margins slightly convex, with 7 spines: 2 spines in front of and 5 spines behind anterior cervical groove; first spine anterolateral, well developed; second distinctly smaller than first, situated at midlength between anterolateral spine and anterior cervical groove; third to fifth spines on anterior branchial region, and remaining 2 spines on posterior branchial margin, last small. Rostrum 1.3-1.4 times as long as broad, length 0.5-0.6 that of carapace, dorsal surface with rounded ridge in midline, nearly horizontal in lateral view; lateral margin with 2 spines, rostral spine with tiny distal denticle on each side.

Pterygostomial flap rugose with sparse setae, anterior margin ending in acute point.

Sternal plastron 0.8 times as long as broad, lateral limits divergent posteriorly. Sternite 3 1.9-2.0 times as broad as long; anterior margin convex, with small median notch. Sternite 4 2.7 times longer and 3.2 times broader than preceding sternite, 2.0-2.5 times broader than long; surface with 2 transverse ridges, anterior ridge medially interrupted, posterior ridge also medially interrupted, occasionally with additional ridge laterally. Following sternites smooth, with only few scale-like ridges on sternite 5.

Abdominal somite 2 with anterior ridge unarmed; somites 2-3 each with 1 additional uninterrupted transverse ridge, ridge on somite 4 medially interrupted; with some long iridescent setae.

Ocular peduncles about 1.5 times longer than broad; cornea moderately dilated, maximum corneal diameter 0.3-0.4 times distance between bases of anterolateral spines; eyelashes short, not reaching midlength of cornea.

Basal article of antennular peduncle with 4 distal spines, distomesial clearly smaller than others; lateral margin with short spine proximal to distolateral.

Article 1 of antennal peduncle with distomesial spine barely reaching distal margin of article 2. Article 2 with distolateral spine slightly larger than or subequal to distomesial spine, both not reaching midlength of article 3. Article 3 with small but distinct distomesial spine. Article 4 unarmed.

Mxp3 ischium with obsolescent spine on flexor distal margin; extensor margin distally angular; crista dentata with 26-29 denticles. Merus subequal in length to ischium, with 3 spines on flexor margin, proximal one located at midlength, distal one at terminal end; extensor margin unarmed. Carpus unarmed.

P1 2.5 (males), 1.8 (females) times carapace length, relatively stout, with some long uniramous and iridescent setae along lateral and mesial margins

of merus, palm and fingers; dorsal and ventral surfaces of palm and fingers with scattered short setae. Merus 0.6-0.7 times length of carapace, 2.6-2.7 times as long as carpus, with some strong distal spines on dorsal and mesial margins, and a few additional small spines on dorsal surface. Carpus 0.6-0.7 length of palm, 0.9-1.0 (males), 0.6-0.7 (females) times longer than broad, lateral and mesial margins subparallel, dorsal surface with some small spines; mesial surface with some well-developed spines placed dorsally and ventrally. Palm 1.2-1.3 (males), 1.0 (females) times longer than broad; spines roughly in rows: 2 lateral (dorsolateral and ventrolateral), 1 dorsal, and 1 mesial; dorsolateral and mesial rows continued on margins of fixed and movable fingers, respectively. Fingers distally spooned; movable finger 0.8-1.0 (males), 1.1-1.2 (females) as long as palm; opposable margins nearly straight or somewhat gaping; 1 or 2 proximal spines on dorsal side of each finger. Dorsal spines of merus, carpus and palm usually smaller in large males than in females and small males.

P2-4 somewhat compressed, sparsely covered with long uniramous and iridescent setae, and short plumose setae. Meri successively shorter posteriorly (P3 merus slightly shorter than P2 merus, P4 merus 0.9 length of P3 merus), equally broad on P2-4; P2 merus 0.7 times carapace length, 3.2-3.3 times as long as broad, 1.1-1.3 times longer than P2 propodus; P3 merus 1.0-1.2 times length of P3 propodus; P4 merus 1.0-1.2 length of P4 propodus. Dorsal margins with row of proximally diminishing spines on P2-3, nearly unarmed on P4; dorsolateral surface unarmed on P2-3, with 2 or 3 spines on P4; ventrolateral margins with strong terminal spine. Carpi with some spines on extensor margin, distal-most larger; dorsolateral surface with row of 2 or 3 small spines paralleling extensor row; flexor margins with distal spine. Propodi successively shorter posteriorly, each 4.0-4.5 times as long as broad; extensor margin with 2 or 3 proximal spines on P2, 3 or 4 on P3, 1 or 2 on P4; flexor margin with 7-9 slender movable spines. Dactyli subequal in length, 0.5-0.7 times length of propodi, ending in incurved, strong, sharp spine; flexor margin with 6 or 7 seta-like movable spines, each arising from low tooth.

Colour. — Carapace and abdomen yellow or orange with 4 purple transverse stripes; short purple stripes on epigastric region and on each posterior branchial margin. P1-4 orange, with whitish and red bands on P2-4 propodi.

Remarks. — Morphologically, *S. lipkei* and *S. miyakei* are very similar but we believe the following differences are consistent. 1) Distolateral spine of antennal article 2 is subequal to distomesial in *S. lipkei*, whereas that spine is much longer in *S. miyakei*; 2) antennal article 3 bears a distinct distomesial

spine in *S. lipkei*, whereas it is unarmed in *S. miyakei*; 3) abdominal somite 2 has one additional transverse ridge behind the anterior ridge in *S. lipkei*, compared to usually 2 additional ridges in *S. miyakei*. Furthermore, the color of *S. lipkei* is clearly different from that of *S. miyakei*, with purple transverse stripes on carapace and abdomen. These purple transverse stripes are absent in *S. miyakei*.

Sadayoshia miyakei Baba, 1969

(fig. 10)

Sadayoshia miyakei Baba, 1969: 19, figs 5, 6; Komai, 2000: 360 (list).

Not *Sadayoshia miyakei*. — Poupin, 1996a: 20 (= *S. lipkei* n. sp.).

Dubious identification:

Sadayoshia miyakei. — Baba, 1988: 185 (Sibuyan Sea, off N Luzon, between Burias and Luzon, 37-410 m). — Kamezaki et al., 1988: 100, with fig. (Ryukyu Islands, reefs).

Type data: Holotype, male, ZLKU 14245.

Type locality: off Mage-jima W of Tanegashima, S. Kyushu, 35-40 m.

Material examined. — JAPAN. Mage-jima, Tanega-shima, 35-40 m, 30 June 1967: holotype, M 6.2 mm; paratypes, 2 ov. F 5.9, 5.9 mm, ZLKU 14245. Sesoko-jima, Okinawa, Ryukyu Islands, 20 m, 19 April 2002, coll. Y. Fujita: 1 M 3.9 mm (RUMF-ZC-01087).

Sizes. — Males, 2.8-6.2 mm; females, 2.9-5.9 mm; ovigerous females from 2.9 mm.

Distribution. — Japan, from Tanegashima (southern Kyushu) and the Ryukyu Islands, at 20-40 m.

Diagnosis. — Carapace with 4-5 pairs of epigastric spines; no postcervical spine. Rostrum with rounded ridge in dorsal midline; rostral spine marginally glabrous, with tiny distal spine. No spine ventromesial to anterolateral spine. Sternal plastron as long as broad; sternite 3 1.8-1.9 times broader than long; sternite 4 2.7 times broader than long, with a few short setiferous striae. Abdominal somite 2 unarmed on anterior ridge; somites 2-4 with 2 uninterrupted transverse ridges, each followed sometimes by interrupted transverse ridge. Eyelashes short, not reaching midlength of cornea. Antennular basal article with 4 distal spines and 1 small lateral spine directly proximal to base of distodorsal spine. First article of antennal peduncle with distomesial spine not reaching distal end of article 2; article 2 with distolateral spine terminating in midlength of article 3, much longer than distomesial spine; articles 3 and 4 unarmed. Mxp3 ischium with very tiny or obsolescent spine on flexor distal margin; crista dentata with 28-29 denticles; flexor margin of merus with 3 acute spines of subequal size or 4 spines of different sizes (proximal-most

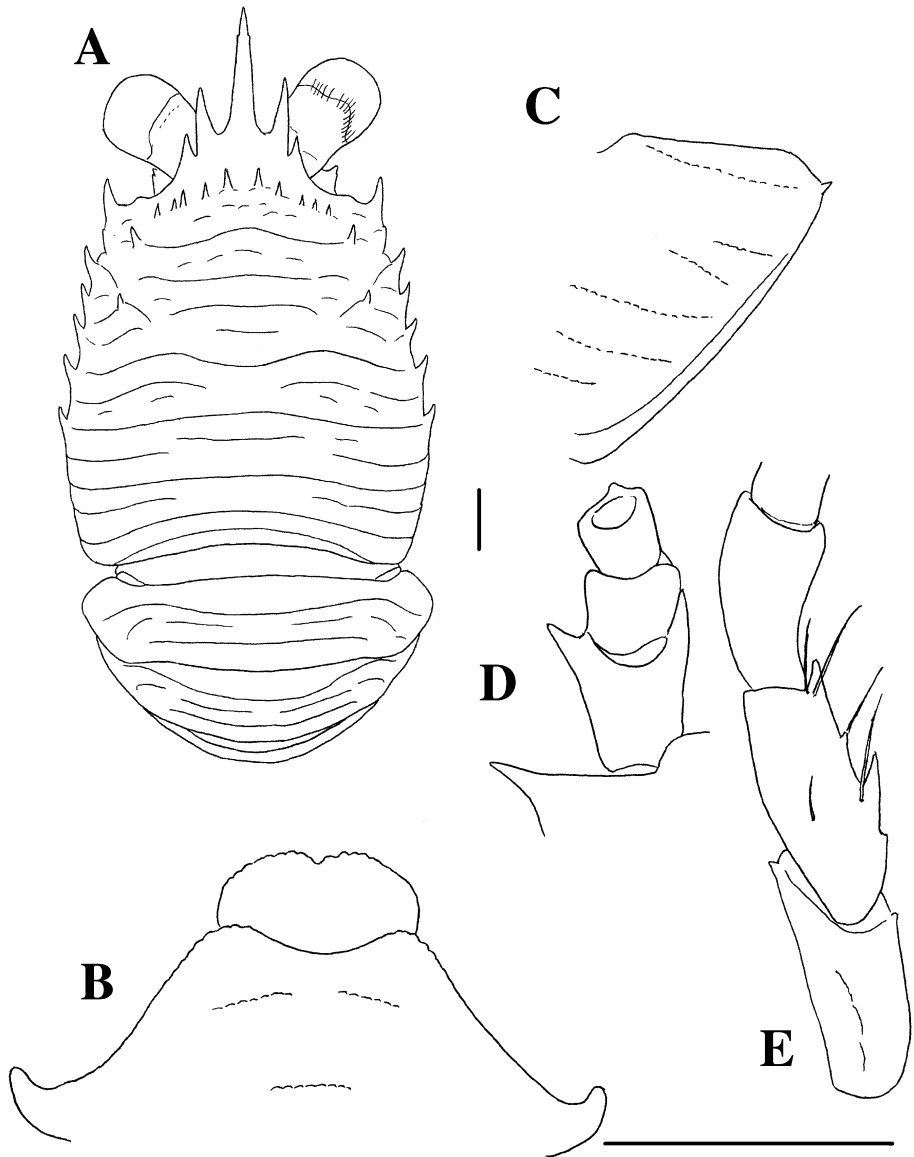


Fig. 10. *Sadayoshia miyakei* Baba, 1969. A, holotype, male, 6.2 mm; B-E, male, 3.9 mm, Sesoko-jima, Okinawa. A, carapace and abdomen, dorsal view; B, sternal plastron, sternites 3-4; C, anterior portion of right pterygostomial region, lateral view; D, left antennal peduncle, ventral view; E, right Mxp3, lateral view. Scales = 1 mm.

and distal second usually small). P1-4 with both plumose and iridescent setae. P1 merus 0.8-1.0 times length of carapace; carpus 1.0-1.2 times as long as broad; palm 1.1-1.4 times longer than broad; movable finger 1.1-1.2 times length of palm. P2-4 meri successively shorter posteriorly, P2 merus 0.7-0.8 as long as carapace; dorsal margins with row of spines continued on to carpus on P2 and P3, obsolescent on P4; propodal extensor margin with 2 or 3 spines on P2 and P3, occasionally unarmed on P4.

Colour: No information available on living color. Baba (1969) noted the orange bands on P2-4 (in preservative-alcohol), two on meri, one on each of carpi and propodi. In his illustration (Fig. 5), however, two bands are shown on the propodi. Although there is no way to prove this at the present time, most likely the inking was incorrect because all the other species of the genus have only the median portion banded.

Remarks. — The identity of the material cited by Kamezaki et al. (1989) needs verification, but the material was not available for this study. Also, the ALBATROSS material reported by Baba (1988) needs confirmation of its identity. The specimen from the Tuamotu Archipelago reported under *S. miyakei* by Poupin (1996a) is referred to *S. lipkei* n. sp. This species resembles *S. lipkei* n. sp. Their relationships are discussed under that species.

***Sadayoshia tenuirostris* n. sp.**

(figs. 6C-D, 11, 12)

Sadayoshia acroporae Baba, 1979: 644 (Marsegu Island, Moluccas, subtidal) (not *S. acroporae* Baba, 1972).

Sadayoshia edwardsii. — Fujita & Shokita, 2005: 866, figs. 1-10 (larvae).

Sadayoshia edwardsii. — Baba, 2005: 203, 307 (in part, only Banda Sea and Kei Islands material).

Material examined. — JAPAN. Cape Zanpa, Okinawa, Ryukyu Islands, 20 m, dead coral, 26 May 2001, coll. Y. Fujita: 1 F 5.1 mm, MNH-ZC1146; 1 M 5.9 mm (RUMF-ZC-01088). Cape Maeda, Okinawa, Ryukyu Islands, 22 m, dead coral, 14 August 2000, coll. Y. Fujita: 1 ov. F 4.7 mm (RUMF-ZC-01089).

PHILIPPINES. Panglao Island (NTOU). PANGLAO, Stn B2, 9°33.0'N 123°46.5'E, 5 m, 31 May 2004: 2 M 4.7-5.0 mm, 3 ov. F 3.5-5.4 mm. — Stn B5, 9°35.2'N 123°50.4'E, 4 m, 2 June 2004: 3 M 2.7-4.4 mm, 1 ov. F 3.8 mm. — Stn B6, 9°31.1'N 123°41.3'E, 12-14 m, 4 June 2004: 2 M 2.2-4.5 mm, 1 ov. F 3.6 mm, 1 F 4.2 mm. — Stn B10, 9°36.5'N 123°45.6'E, 3-14 m, 10 June 2004: 2 M 4.2-4.6 mm. — Stn B21, 09°37.2'N 123°46.4'E, 20-21 m, 24 June 2004: 1 ov. F 3.5 mm. — Stn S28, 9°37.2'N 123°46.4'E, 28-32 m, 24 June 2004: 1 M 2.7 mm. — Stn L40, 9°37.3'N 123°46.5'E, 100-120 m, 24 June 2004: 1 M 3.0 mm. — Stn B32, 9°35.8'N 123°44.6'E, 20 m, 26 June 2004: 2 M 3.6-4.2 mm, 2 ov. F 4.1-4.4 mm. — Stn B39, 9°32.8'N 123°42.1'E, 17-25 m, 02 July 2004: 1 M 5.5 mm, 7 F 2.0-2.2 mm.

Bohol Island (NTOU). Stn B13, 9°37.1'N 123°52.6'E, 3-5 m, 15 June 2004: 1 ov. F 5.1 mm. — Stn T21, 9°42.8'N 123°50.6'E, 12 m, 21 June 2004: 1 juv. (broken).

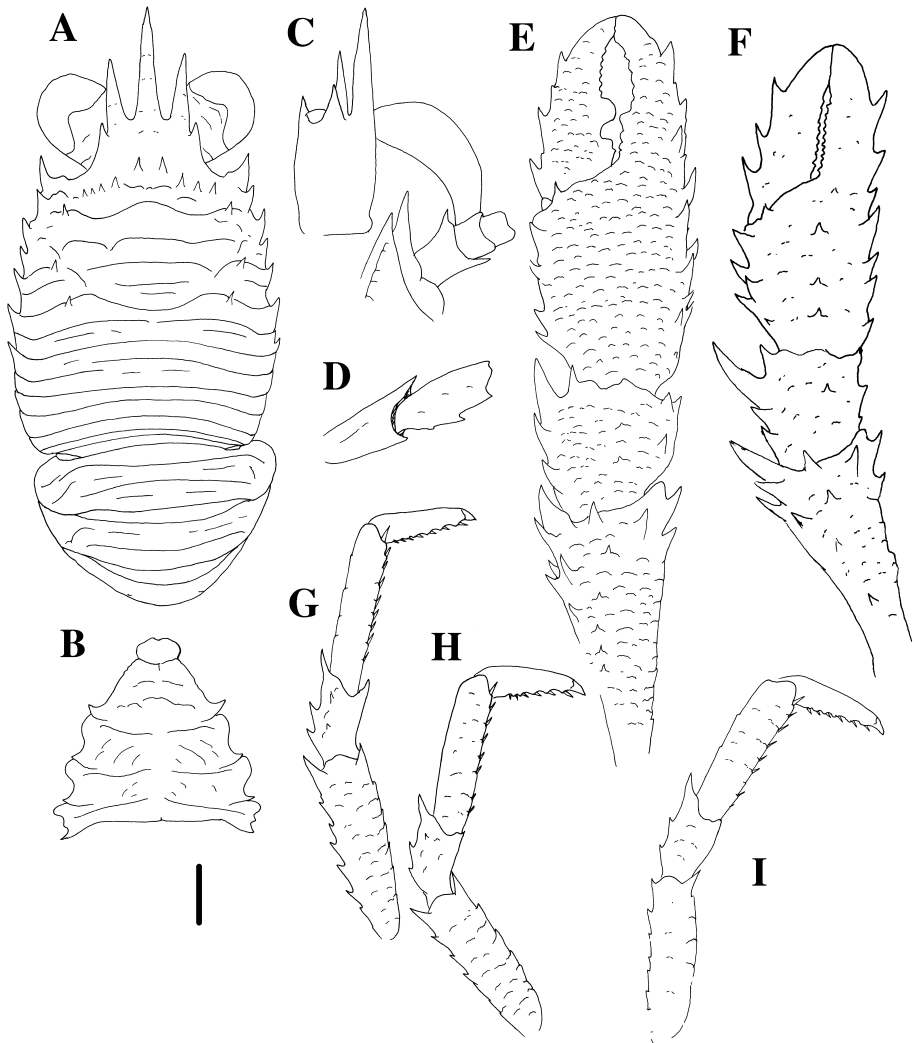


Fig. 11. *Sadayoshia tenuirostris* n. sp. A-E, G-I, holotype, male 5.5 mm, SALOMON I, Stn DW1744; F, paratype, ov. female, 4.8 mm, LIFOU, Stn 1465. A, carapace and abdomen, dorsal view; B, sternal plastron; C, left cephalic region, showing antennular and antennal peduncles, ventral view; D, right Mxp3, lateral view; E-F, right P1, dorsal view; G, right P2, lateral view; H, right P3, lateral view; I, right P4, lateral view. Scales: A, B, E-I = 1 mm, C-D = 0.5 mm.

Pamilacan Island (NTOU). Stn B19, 9°29.4'N 123°56.0'E, 17 m, 21 June 2004: 1 F 2.0 mm.

Balicasag Island (NTOU). Stn L46, 9°30.9'N 123°41.2'E, 90-110 m, 04 July 2004: 1 M 3.9 mm.

PALAU ISLANDS. 33 m, 20 June 1995: 1 M 4.3 mm, 1 F 3.9 mm (FLMNH 5191).

SOUTH CHINA SEA. Macclesfield Bank, 67.6 m: 1 M 4.7 mm, 1 F 4.4 mm (BMNH). — 24-62 m: 2 M 4.8-5.2 m (BMNH).

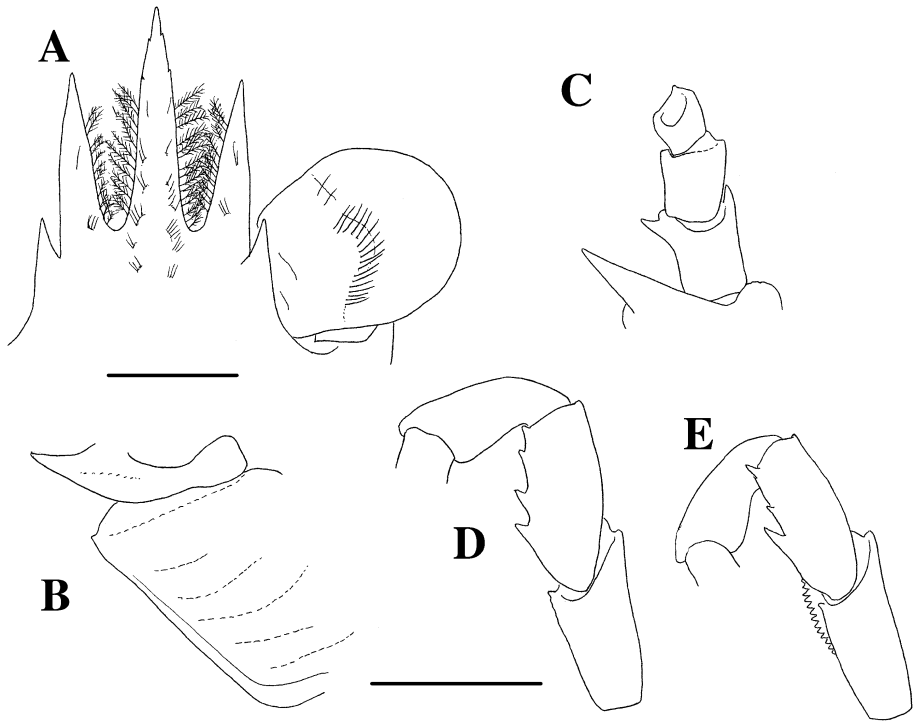


Fig. 12. *Sadayoshia tenuirostris* n. sp. A-D, paratype, male, 5.0 mm, LIFOU Stn 1465; E, paratype ov. female, 4.9 mm, LIFOU Stn 1465. A, anterior portion of carapace, dorsal view; B, anterior portion of left pterygostomial region, lateral view; C, left antennal peduncle, ventral view; D, left Mxp3, lateral view; E, left Mxp3, lateral view. Scales: A = 1 mm, B-E = 1 mm.

INDONESIA. Moluccas. Rumphius Exp. II, 1975. NE coast of Marsegu Is., on coral, 18 January 1975: 1 M 2.9 mm (MNHN Ga1153).

Kei Islands Expedition St. 16, 5°32'20''S 132°37'E, 50 m, sand with *Lithothamnion*, dredge, 12 April 1922: 1 M 3.5 mm (ZMUC CRU-11448).

Banda Sea, 25 m, sand, coral, diver, 11 June 1922, Th. Mortensen: 1 M 4.8 mm, 1 F 3.0 mm (ZMUC CRU-11134).

SOLOMON ISLANDS. SALOMON I, Stn DW 1744, 10°32.0'S 159°38.9'E, 49-55 m, 23 September 2001: 2 M 4.2-5.5 mm, 6 ov. F 3.6-5.7 mm (MNHN Ga7221).

VANUATU. Espiritu Santo island. SANTO, Stn DB12, 15°36.6'S 167°10.1'E, 10-18 m, 13 September 2006: 1 ov. F 4.4 mm (MNHN Ga7224). — Stn DB58, 15°24.6'S 167°14.3'E, 6-43 m, 23 September 2006: 1 M 3.9 mm (MNHN Ga7226). — Stn DB61, 15°32.3'S 167°16.9'E, 41 m, 25 September 2006: 1 M 5.0 mm (MNHN Ga 7227). — Stn DB67, 15°22.9'S 167°13.1'E, 7 m, 26 September 2006: 1 M 4.3 mm (MNHN Ga7229). — Stn ZB6, 15°36.8'S 167°01.3'E, 30 m, 28 September 2006: 3 M 4.1-5.3 mm, 1 ov. F 4.4 mm (MNHN Ga7230). — Stn FB43, 15°28.4'S 167°14.9'E, 19 m, 30 September 2006: 2 M 2.8-4.1 mm (MNHN Ga7232). — Stn NB43, 15°35.6'S 167°16.0'E, 6-30 m, 04 October 2006: 1 ov. F 4.1 mm (MNHN Ga 7234). — Stn DS91, 15°33.7'S 167°08.4'E, 7 m, 06 October 2006: 1 M 3.5 mm (MNHN Ga 7235).

NEW CALEDONIA. Chesterfield Islands. CHALCAL 1, Stn DC45, 20°48.93'S 158°30.21'S, 50 m, 23 July 1984: 2 ov. F 5.0-5.2 mm (MNHN Ga7240). — Stn DC51, 21°13.21'S 158°42.50'E, 55 m, 24 July 1984: 8 M 3.6-5.4 mm, 1 ov. F 4.7 mm, 1 F 4.0 mm (MNHN Ga7242). — Stn DC56, 21°24.40'S 159°08.80'E, 60 m, 25 July 1984: 2 M 4.2-4.6 mm (MNHN Ga 7245).

CORAIL 2, Stn DW 106, 19°09'S 158°43'E, 62 m, 27 July 1988: 3 ov. F 8.0-9.1 mm (MNHN Ga7247). — Stn DW 118, 19°25'S 158°28'E, 52 m, 28 July 1988: 1 F 6.8 mm (MNHN Ga7249).

New Caledonia. NORFOLK 2, Stn CP 2141, 23°00.52'S 168°19.80'E, 92-100 m, 03 November 2003: 2 M 4.1-5.3 mm, 1 ov. F 4.0 mm, 1 F 3.3 mm (MNHN Ga 7253).

SURPRISES. Stn DW 1395, 18°17.6'S 163°01.9'E, 34-36 m, 13 May 1999: 1 M 3.6 mm (MNHN Ga 7254).

Lagoon Est. Stn 644, 21°52.1'S 166°41.2'E, 45-48 m, August 1986: 1 ov. F 6.5 mm (MNHN Ga7260). — Stn 659, 21°45.3'S 166°33.4'E, 46-48 m, August 1986: 1 M 6.4 mm, 1 ov. F 3.6 mm (MNHN Ga7265). — Stn unnumbered, 48-50 m, August 1986: 1 M 4.3 mm, 1 F 4.0 mm (MNHN Ga7271).

Lagoon. Grotte Merlet, 20-30 m, 19-21 January 1993: 1 M 5.6 mm (MNHN Ga7272). — Montrouzier Expedition. Touho, 10 m, 8 September 1993: 1 M 4.3 mm, 1 F 3.7 mm (MNHN Ga7273). — Stn LF10, 20°56.30'S 167°20.85'E, 18 m, 29 November 1995: 1 M 4.7 mm (MNHN Ga7275).

Lifou island. LIFOU, Stn 1418, 20°46.9'S 167°07.9'E, 1-5 m, 07 November 2000: 2 F 3.0-3.3 mm (MNHN Ga7277). — Stn 1431, 20°47.5'S 167°07.1'E, 18-35 m, 03 November 2000: 1 M 5.4 mm, 1 ov. F 4.8 mm, 3 F 4.4-5.4 mm (MNHN Ga7278). — Stn 1434, 20°52.5'S 167°08.1'E, 5-20 m, 06 November 2000: 4 ov. F 2.8-4.8 mm, 2 F 2.5-2.8 mm (MNHN Ga7279). — Stn 1436, 20°55.5'S 167°04.2'E, 10-20 m, 10 November 2000: 9 M 2.9-5.4 mm, 6 ov. F 3.2-4.4 mm, 1 F 3.5 mm (MNHN Ga7280). — Stn 1451, 20°47.3'S 167°06.8'E, 10-21 m, 19 November 2000: 1 M 3.7 mm (MNHN Ga7283). — Stn 1453, 20°54.6'S 167°02.1'E, 21-30 m, 22 November 2000: 4 M 2.9-4.8 mm, 7 ov. F 2.8-4.2 mm (MNHN Ga7284). — Stn 1458, 20°46.7'S 167°03.1'E, 17-24 m, 04 November 2000: 1 F 2.1 mm (MNHN Ga7285). — Stn 1459, 20°47.0'S 167°03.0'E, 55-80 m, 05-13 November 2000: 5 M 3.6-5.4 mm, 1 ov. F 4.1 mm (MNHN Ga7286). — Stn 1464, 20°54'S 167°05.9'E, 35-50 m, 14 November 2000: 3 M 3.0-3.7 mm, 4 ov. F 3.5-4.1 mm, 2 F 2.4-2.8 mm (MNHN Ga7287). — Stn 1465, 20°46.5'S 167°06.2'E, 35-45 m, 17 November 2000: 9 M 3.8-6.4 mm, 8 ov. F 3.7-5.0 mm, 1 F 4.2 mm (MNHN Ga7288).

Types. — Holotype, male 5.5 mm (MNHN Ga7221), Solomon Islands, from SALOMON 1, Stn DW1744. The other specimens are paratypes.

Etymology. — From the Latin, *tenuis*, thin, and rostrum, in reference to the shape of the rostrum.

Sizes. — Males, 2.0-6.4 mm; females, 2.1-9.1 mm; ovigerous females from 2.8 mm.

Distribution. — Japan (Ryukyu Islands), Indonesia (Moluccas, Kei islands, Banda Sea), South China Sea, Solomon Islands, Vanuatu, New Caledonia, Loyalty Islands, Chesterfield Islands. On corals, *Halimeda* flat, on *Seriatopora hystrix*. Depths between 1 and 217 m.

Description. — Carapace, exclusive of rostrum, as long as or slightly longer than broad; dorsal surface nearly horizontal from anterior to posterior; anterior

cervical groove distinct. Dorsal surface with 8-9 epigastric spines, 1 parahepatic, 1 anterior branchial spine, and one postcervical spine on each side; ridges with numerous short uniramous and some long iridescent setae. Gastric region with 5 or 6 transverse ridges usually medially convex, but posterior-most scale-like. Mid-transverse ridge of carapace usually uninterrupted, preceded by cervical groove, followed by 3 interrupted and 3-4 uninterrupted transverse ridges placed alternately, with some additional scale-like ridges. Lateral margins slightly or moderately convex, with 7 spines; first anterolateral and well developed; second smaller than first, situated at midlength between anterolateral spine and anterior cervical groove; third to fifth on anterior branchial region, and sixth and seventh on posterior branchial margin. Rostrum 1.2-1.4 times as long as broad, length 0.5-0.6 that of carapace, rostral spine more than 3.5 times longer than wide (measured at sinus between rostral and first lateral spine), dorsal surface convex, nearly horizontal in lateral view; lateral margin with 2 spines. Plumose setae numerous along lateral margins of rostral spine and mesial margin of anterior lateral spine.

Pterygostomial flap rugose with sparse small ridges, ending in acute point.

Sternal plastron slightly wider than long, lateral limits divergent posteriorly. Sternite 3 1.5-1.8 times as broad as long, anterior margin clearly convex, with small median notch. Sternite 4 2.5-2.8 times as long as and 2.8-3.0 times broader than preceding sternite, 1.9-2.3 times broader than long. Sternites 4-6 with few transverse ridges bearing setae.

Abdominal somite 2 unarmed on anterior ridge; somites 2-4 each with 1 additional medially uninterrupted transverse ridge and 1-2 additional interrupted ridges; ridges with numerous short setae and some long iridescent setae.

Ocular peduncles 1.2-1.3 times longer than broad; cornea moderately dilated, maximum corneal diameter about 0.4 times distance between bases of anterolateral spines; eyelashes short, not reaching midlength of cornea.

Basal article of antennular peduncle with 4 distal spines, distomesial clearly smaller than others, distolateral larger; lateral margin unarmed.

Article 1 of antennal peduncle with distomesial spine slightly exceeding distal margin of article 2. Article 2 with distomesial spine short and smaller than distolateral. Articles 3 and 4 unarmed.

Mxp3 ischium with very small spine on flexor distal margin; extensor margin bluntly produced distally; crista dentata with 23-28 denticles. Merus slightly shorter than ischium, flexor margin with 2-4 spines, proximal one slightly stronger than others and located at midlength, distal one at terminal end; extensor margin ending in acute point. Carpus unarmed.

P1 2.5-3.0 (males), 1.5-2.0 (females) times carapace length, relatively stout, with some long uniramous and iridescent setae along lateral and mesial margins of merus, palm and fingers; dorsal and ventral surfaces of palm and fingers with scattered short setae. Merus 0.8-1.1 times length of carapace, 2.0-2.3 times as long as carpus, with some strong distal spines on dorsal and mesial margins, and a few additional small spines on dorsal surface. Carpus 0.7-0.9 times longer than palm, and 1.0-1.2 times longer than broad; dorsal surface with a few small spines; mesial surface with some well-developed spines. Palm 1.0-1.2 (males), 1.0-1.3 (females) times longer than broad; with dorsolateral and mesial rows of spines continued on to whole margin of fixed and movable fingers, respectively; dorsal surface with numerous granules in large specimens. Fingers 1.1-1.2 (males), 0.8-1.1 (females) times as long as palm, distally spooned; opposable margins somewhat gaping in large males; sometimes 1-2 dorsal proximal spines on movable finger.

P2-4 somewhat compressed, sparsely with long uniramous and iridescent setae, and short plumose setae. Meri successively shorter posteriorly (P3 merus slightly shorter than P2 merus, P4 merus 0.8-0.9 length of P3 merus); P2 merus 0.7 carapace length, 3.5-3.7 times as long as broad, 1.2-1.3 times longer than P2 propodus; P3 merus 3.1-3.3 times as long as broad, 1.1 times length of P3 propodus; P4 merus 3.2-3.5 times as long as broad, 1.0-1.2 length of P4 propodus. Meri having dorsal margins with row of proximally diminishing spines on P2-3, nearly unarmed on P4; ventrolateral margins with strong terminal spine. Carpi with several spines on extensor margin, sometimes obsolescent on P4, distal-most larger; flexor margins with distal spine; 0-3 small spines on dorsal side. Propodi each 3.5-4.0 times as long as broad; extensor margin and lateral surface with 0-2 proximal spines; flexor margin with 7-9 slender movable spines. Dactyli subequal in length, 0.7-0.8 times length of propodi, ending in incurved, strong, sharp spine; flexor margin with 6 or 7 seta-like movable spines, each arising from obsolescent tooth.

Colour. — Carapace and abdominal somites orange to reddish or dark brown, with some whitish or light brown areas. Rostrum and supraocular spines orange to reddish. P1-4 with reddish-brown and whitish bands. Base of P1 movable finger with purple spot in some specimens.

Remarks. — There is variation in the shape of the rostral and lateral spines. In some specimens these spines are moderately thick and nearly flat dorsally, whereas other specimens have thinner, dorsally convex spines. This variation is considered as intraspecific, although future studies using molecular analyses may clarify the taxonomic validity of this variation.

Sadayoshia tenuirostris is closely related to *S. inermis*. Both species have the second abdominal segment and the lateral margin of the basal antennular article unarmed. However, they can be easily differentiated by the following aspects:

- The rostral spine is more than 3.5 times longer than wide (measured at sinus between rostral and first lateral spine), and the dorsal surface is convex in *S. tenuirostris*. This rostral spine is less than 3 times longer than wide (measured at sinus between rostral and first lateral spine), and the dorsal surface is flat in *S. inermis*.
- The P1 fingers are clearly longer than palm in *S. inermis*: 1.6-1.9 (males) and 1.4-1.5 (females); whereas the P1 fingers are as long as the palm in *S. tenuirostris*: 1.1-1.2 (males), 0.8-1.1 (females).

The new species is also close to *S. acroporae* except for the absence of spines on abdominal somite 2, sharing a characteristic feature, the rostral spine bearing plumose setae along the lateral margin. Eyelashes are soft and barely reach the midlength of the cornea in *S. tenuirostris*, compared to stiff eyelashes that fully reach the midlength of the cornea in *S. acroporae*.

As mentioned above under *S. edwardsii*, the identity of De Man's (1888) material of *S. edwardsii* from Ambon is uncertain. Presumably, part or all of his material may be referable to *S. acroporae*, *S. tenuirostris* or *S. inermis*.

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