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A new intertidal shore bug (Heteroptera: Saldidae) from the Philippines

Herbert ZETTEL, Clister V. PANGANTIHON & Hendrik FREITAG

Abstract

Salduncula carmencitae sp.n. is described, its habitus and the paramere and parandria of the male are illustrated. This shore bug was found on Mindanao Island, the Philippines, in the intertidal zone. Habitat and behaviour of the species are briefly described. The distinguishing diagnostic characters of species of *Salduncula* BROWN, 1954 are discussed.

Key words: Heteroptera, Saldidae, *Salduncula*, redescription, new species, Philippines, Mindanao

Zusammenfassung

Salduncula carmencitae sp.n. wird beschrieben, ihr Habitus sowie Paramere und Parandria des Männchens werden abgebildet. Diese Uferwanze wurde auf der philippinischen Insel Mindanao in der Gezeitenzone entdeckt. Der Lebensraum und das Verhalten der Art in ihrem Habitat werden kurz beschrieben. Die Schlüsselmerkmale zur Unterscheidung der Arten der Gattung *Salduncula* BROWN, 1954 werden diskutiert.

Introduction

The knowledge on Philippine Saldidae, shore bugs, is still very insufficient. The only comprehensive study was published by GAPUD (1986). He treated five genera and seven species of which three species and one endemic genus, namely *Orthosaldula* GAPUD, 1986 (see also ZETTEL & GAPUD 2008) were new to science. The first Philippine record of the intertidal genus *Salduncula* BROWN, 1954 was published five years later with the description of a new species, *Salduncula palawanensis* J.T. POLHEMUS, 1991 from Palawan Island (POLHEMUS 1991).

Salduncula is the only genus of the tribe Saldunculini J.T. POLHEMUS, 1985. Seven species are known so far, which are distributed in the Indo-Pacific region, from Madagascar to Australia. A key to these species was published by POLHEMUS (1991). Species of *Salduncula* are known to inhabit rocky sea shores, where they live on isolated large boulders or bedrock outcrops surrounded by water or beach sands (POLHEMUS 1991, POLHEMUS & POLHEMUS 2012).

Material and methods

Specimens are dry mounted on entomological paper cards. They were examined with the help of a Leica M10 binocular microscope (magnification up to 128 ×). Series of digital

photographs (Figs. 1 - 3) were taken by Image Manager IM50 with a Leica DFC camera attached to a Leica MZ16 binocular microscope and further processed with the computer programmes Auto-Montage Pro (stacking) and Adobe Photoshop 7.0 (masking). The paramere and parandria illustrations (Figs. 4, 5) were produced as line drawings with the help of a camera lucida attached to an Olympus BX40 microscope.

Terminology follows mainly POLHEMUS (1985), except for the terms mesoscutum and scutellum which were adopted from PÉRICART (1990). All measurements are given in millimetres.

Taxonomy

Salduncula carmencitae sp.n. (Figs. 1 - 8)

Etymology: On the occasion of her 90th birthday, the new species is named after Mrs. Carmencita Ty Montesclaros for her continuous support of the second author's studies.

Type material and type locality: Holotype (male; Museum of Natural History, University of the Philippines, Los Baños, Laguna, Philippines) and paratypes (8 males, 6 females; in the same collection, in the Natural History Museum Vienna, and in the first author's collection) from the Philippines, Mindanao Island, Surigao del Sur Province, municipality of Cagwait, Cagwait White Beach, 8°55'N 126°19'E, 0 m a.s.l., leg. C. V. Pangantihon. 1 male paratype (in the first author's collection) from municipality of Cagwait, Xtreme Beach Resort, 0 m, leg. C. V. Pangantihon.

Diagnosis: Body length 2.50 - 2.97 mm. Head predominantly black, apically red. Hemelytron with narrow transverse pale stripe (or row of marks) at level of apex of clavus (excluding clavus), with small pale apical spot on corium, and in most specimens with minute pale subbasal spot on clavus. Pronotum short, 3.09 - 3.33 times as wide as medial pronotum length.

Description: Measurements. Body length of males 2.50 - 2.64 (holotype: 2.61), of females 2.80 - 2.97. Maximum body width of males 1.02 - 1.15 (holotype: 1.06), of females 1.14 - 1.28. Head width of males 0.61 - 0.65 (holotype: 0.62), of females 0.64 - 0.69. Pronotum width of males 0.88 - 0.95 (holotype: 0.89), of females 0.94 - 1.04.

Colour as in Figures 1 - 3. Body blackish brown. Labrum, mandibular plates, and anterior part of frons red. Eyes reddish gray. Clavus in most specimens with small (often minute) pale subbasal spot, apically dark. Corium with narrow pale stripe, slightly varying in extent; stripe anteriorly usually sharply delimited (Fig. 1), but weakly delimited in some few specimens with yellowish brown base of hemelytron (Fig. 2); stripe rarely dissolved into isolated spots (Fig. 3) or laterally shortened in very dark specimens. Corium distally with one clearly defined, usually small, pale, circular spot. Membrane usually not paler than corium or rarely slightly paler. Antenna brown; antennomeres 3 and 4 infuscated. Legs predominantly brown; bases of tarsi pale.

Structures: If no variation is given, measurements refer to the holotype. Head bearing thin, gray, subcumbent pubescence, densely punctured and matt, except small areas between ocelli and eyes smooth and shiny; head distinctly shorter than wide (0.49 : 0.62). Interocular distance 0.4 times head width (0.26: 0.62). Ocelli small, their distance 2.0 times as large as their diameter (0.08: 0.04). Lengths of antennomeres 1 - 4: 0.19, 0.40, 0.35, 0.40. Pronotum with thin pubescence as on head, most areas densely punctured and matt, but anterior part of disc and lateral margins with slightly sparser puncturation and moderately shiny; pronotum in males 3.09 - 3.39 (holotype 3.13), in females 3.15 - 3.33 times as wide as long at mid-line. Sides of pronotum anteriorly converging, in middle sec-

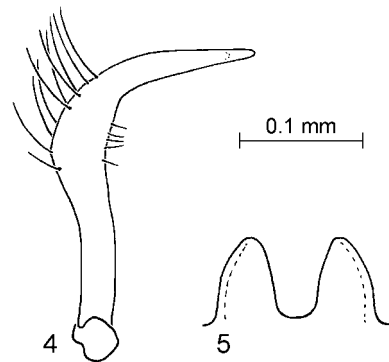


Figs. 1 - 3: Habitus of *Salduncula carmencitae* sp.n., males (1, 2) and female (3) with variations of colour pattern. Note that these variations are not sex-specific. © NHMW Hemiptera Image Collection, published with permission.

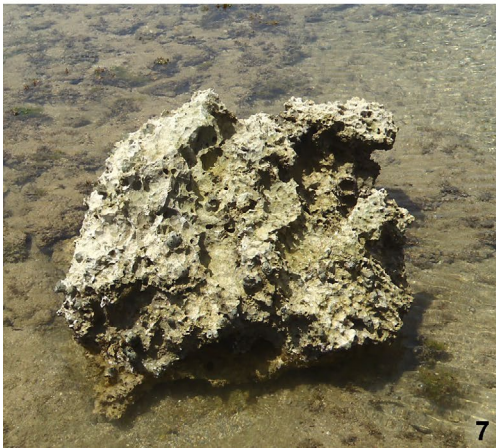
tion almost straight and at anterior and posterior corners moderately convex. Hind margin of pronotum emarginated. Mesoscutum and scutellum incompletely separated by oblique lateral impressions, both densely punctured and pubescent; their combined length 0.7 times as large as visible width of undissected mesoscutum (0.48 : 0.66). Hemelytra mat, with relatively long, scattered black setae. Membrane with four closed cells. Legs with dense, semi-erect pilosity. Mesotibia, metatibia and metatarsus bearing long, stout setae. Second tarsomere slightly longer than first on all legs. Claws with small subbasal tooth.

Male genitalia. Not diagnostic, illustrated in Figures 4 (paramere) and 5 (parandria).

Comparative notes and discussion: *Salduncula* is a poorly known genus. All species are rarely collected and little is known about their distribution and intraspecific variation. The taxonomy is based on external characteristics, because the genitalia are almost identical among species (POLHEMUS 1991). The identification key given by POLHEMUS (1991) is almost entirely based on differences of the hemelytral colour pattern. In some species, some minor intra-specific variability is noticeable in the extension of the pale patches: see notes by POLHEMUS (1991) on *S. swezeyi* (USINGER, 1946) from Guam and Australia; Figures 1 - 3 for *S. carmencitae* sp.n.; and unpublished observations by the first author on specimens of *S. seychellensis* BROWN, 1948, a species from the Seychelles and Madagascar. However, the general arrangement of the patches is species-specific and useful to clearly distinguish congeners, such as the very characteristic colour pattern of *S. carmencitae* sp.n. The female holotype of *S. swezeyi*,



Figs. 4 - 5: Left paramere (4) and parandria of a male of *Salduncula carmencitae* sp.n.



Figs. 6 - 8: (6) The type locality of *Salduncula carmencitae* sp.n., (7) an inhabited rock, the species' typical habitat, (8) and a camouflaged specimen. © Clister V. Pangantihon.

illustrated by DRAKE (1961), somewhat resembles *S. carmencitae* sp.n., but it can be clearly distinguished by the absence of the basal claval spot (see POLHEMUS 1991) and it's distinctly larger size (body length 3.66 mm, according to USINGER 1946).

Additionally, *S. carmencitae* sp.n. can be easily distinguished from all other species of the genus by the characteristic red forehead contrasting with the black posterior head por-

tion. Most other *Salduncula* species display an entirely black head, except for *S. murphyi* POLHEMUS, 1991 from West Malaysia with an either entirely red head, or a red vertex and a black forehead (POLHEMUS 1991).

Salduncula palawanensis from the southwestern Philippines differs distinctly from the new species by having a black head and a very broad pale fascia on the hemelytra occupying also the apical part of the clavus, whereas *S. carmencitae* sp.n. has a narrow fascia that does not extend onto the clavus. Furthermore, it displays a relatively elongated pronotum (width : length = 2.8; see POLHEMUS 1991) whereas the pronotum of *S. carmencitae* sp.n. is very short (width : length = 3.09 - 3.33).

Distribution: Only known from the type locality and one nearby locality on the eastern coast of Mindanao, Philippines.

Habitat and behavioural observations (Figs. 6 - 8): *Salduncula carmencitae* sp.n. inhabits the surface of rocks that are surrounded by sea water, but usually not fully submerged. Specimens were found on dry rock surfaces as well as on moist surface covered with biofilms of filamentous algae. Both, adults and nymphs were observed searching for food during daytime. They camouflage well with the rocks making it difficult to detect them. Flight abilities are well developed in adults. They easily fly away when disturbed. However, they return to the same rock if the distance to neighbouring rocks is far. Sometimes they do not escape by flight, but run to nearby crevices of the rock to hide. It could be assumed that they survive submerged in air-filled crevices during spring tides when the rocks are entirely under water.

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