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Halobates dianae sp.n. (Heteroptera: Gerridae), a new sea skater from the Philippines

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A b s t r a c t : The sea skater *Halobates dianae* sp.n. from the Philippine Islands is described as new. In the past, this species has been confused with *H. peronis* HERRING 1961 from the Solomon Islands. *Halobates dianae* sp.n. belongs to the *Halobates regalis* group sensu ANDERSEN & WEIR (1994). It is the only species of this group known from the Philippines and so far recorded from the shores of the islands Luzon, Leyte, and Ponson (of the Camotes group).

K e y w o r d s : Heteroptera, Gerridae, *Halobates*, new species, sea skater, Philippines

Introduction

This paper is part of a long term study on Philippine water bugs, the "Philippine Water Bug Inventory Project" (see GAPUD & ZETTEL 1999). When the author determined sea skaters of the genus *Halobates* ESCHSCHOLTZ 1822, of which only seven species are recorded from the Philippines, differences were recognized between material identified as "*Halobates peronis*" and the original description of this species by HERRING (1961). *Halobates peronis* HERRING 1961 was described from Solomon Islands and Philippines material. Examination of paratypes from both countries has proved that the Philippine population must be regarded as a distinctive new species, which is here described.

***Halobates dianae* sp.n.** (Figs. 1-9, 11-13)

T y p e m a t e r i a l : Holotype (male, Museum of Natural History, University of the Philippines, Los Baños): "Philippinen: Luzon,\ Camarines Sur, Lagonoy,\ San Sebastian, 10.2.2001\ leg. H. Zettel (268b)"; paratypes (Museum of Natural History, University of the Philippines, Los Baños; Natural History Museum Vienna; Coll. H. & S.V. Zettel, Vienna; The Natural History Museum, London; Zoological Museum Copenhagen; Coll. P.P. Chen, Tiel, The Netherlands; Coll. N. Nieser, Tiel, The Netherlands; International Rice Research Institute, Los Baños; Visayas State College of Agriculture, Baybay, Leyte, Philippines; Zoological Reference Collection, Singapore; Oberösterreichisches Landesmuseum, Linz, Austria): 140 males, 45 females, same label data; 7 males, 3 females, same label data except "(268a)"; 1 male "Philippinen: Luzon,\ Zambales, Subic Bay\ Triboa Mangrove, 7.12.\ 2000, leg. H. Zettel (260)"; 1 male, 1 female "Philippinen: Leyte,\ Inopacan, mangrove and\ intertidal zone, 10.3.\ 2001, leg. Zettel (297)"; 3 males, 1 female "Philippinen: Camotes Isl.,\ Ponson Isl., s. coast,\ SW San Juan, mangroves,\ 28.2.2001, leg. Zettel (286)".

Additional material (in Natural History Museum Vienna, exchange material from Kansas University): 1 female (all legs and antennae missing) "- PHILIPPINE IS.\ Dagupan Pangasinan\ May 10. 1936\ Roman Abalos", "PARATYPE\ Halobates\ peronis\ Jon L. Herring".

Description: Male: Dimensions of holotype: body length 4.0 mm (in paratypes 3.8-4.3 mm); maximum body width 1.64 mm; head width 1.30 mm; length of first antennomere 0.43 mm; length of mesofemur 4.6 mm; body slender.

Colour: Body black; head with posterodorsal margin pruinose (medially more or less interrrupted), with pruinose stripes extending along inner eye margins anteriad until antennal sockets, in most specimens shortly interrupted (Fig. 1); proximal quarter to third of antennomere 1, ventral surface of head, prosternum, most anterior part of mesosternum, and abdominal sternites yellowish; acetabula, coxae, and trochanters ventrally yellow, dorsally black; base of profemur indistinctly yellowish brown; proctiger with lateral margins inclusive processes usually yellowish.

Structural characteristics: posterior margin of head between eyes 0.58 times head width and 1.06 times median head length (Fig. 1); relative lengths of antennomeres 1-4 (antennomere 2 = 1): 2.7 : 1 : 0.8 : 1.1 (Fig. 2); pronotum: median length 0.5 times median head length, width 3.3 times median pronotum length and 0.8 times head width, without erect bristles; meso-metanotum anteromedially and posterolaterally with short erect black bristles (Fig. 6; in few specimens indistinct or even lacking), anterior width 0.9 times head width, maximum width between mesacetabula 1.3 times head width; relative lengths of leg segments (in relation to length of mesofemur = 100): profemur 33, protibia 26, protarsus 4+10, mesofemur 100, mesotibia 73, mesotarsus 33+10, metafemur 85, metatibia 39, metatarsus 12 (4+8); profemur slightly, evenly incrassate, bearing two rows of stout black bristles and one row of long thin whitish bristles directed ventrad (Fig. 3); meso- and metatrochanter, meso- and metafemur with numerous black spines; meso- and metatibia with numerous shorter spines; metatarsomeres more or less fused; anterior tergites and laterotergites in most specimens with short erect black bristles.

Genitalia: Segment 8 (Figs. 8-9) with spiracular (lateral) processes relatively short, with dorsoposterior margin convex, evenly curved dorsad (in lateral view), with styliform (ventromedial) processes relatively long and rather straight, subapically widened, basally close to each other, right process longer than left; pygophore ovate, apically slightly truncate; proctiger (Figs. 11-13) short, rhomboid, subsymmetrical, with lateral processes directed ventroapicad, relatively short and thick, right process longer than left; vesicula sclerites (Fig. 5) asymmetrical: dorsal sclerite apically reduced, with opening; ventral sclerite long, curved, broad; first lateral sclerites basally strongly widened.

Female: Dimensions of randomly selected paratype: body length 4.6 mm (in other paratypes 4.3-4.6 mm); maximum body width 2.30 mm; head width 1.38 mm; length of first antennomere 0.50 mm; length of mesofemur 5.2 mm; body much stouter than in male; colour as in male.

Structural characteristics: Relative lengths of antennomeres 1-4 (antennomere 2 = 1): 2.7 : 1 : 0.85 : 1.1; meso-metanotum: width anteriorly 0.95 times head width, maximum width at mesacetabula 1.65 times head width, with numerous long erect black bristles, mostly in anteriomedial part (Fig. 7); mesacetabula with long erect black bristles; relative lengths of leg segments (in relation to length of mesofemur = 100): profemur 36, protibia 30, protarsus 6+12, mesofemur 100, mesotibia 73, mesotarsus 31+11, metafemur 80,

metatibia 41, metatarsus 12 (4+8); profemur slender (Fig. 4); metatarsomeres often completely fused; anterior tergites laterally and laterotergites with erect black bristles; anterior tergites medially with pair of very shallow, elongate impressions; hind margin of sternite 7 with wide, evenly concave emargination, laterally with numerous long whitish hairs.

Comparative notes and discussion: When using the key to the species of *Halobates* by HERRING (1961), *Halobates dianae* sp.n. keys out with *H. peronis*, with the exception, that the females do not follow the statement "♀ without black bristles on meso-metanotum". HERRING's (1961) original description of *H. peronis* from Solomon Islands (holotype) and Philippine Islands material also states "Meso-metanotum without black bristles." However, examination of paratypic material proved that this characteristic is only correct for the female from the Solomon Islands, but not for the female from the Philippines. Herring obviously overlooked this difference. After studying material from both countries, further differences could be noted, which justify the description of the Philippine material as a new species.

Males of *H. peronis* and *H. dianae* sp.n. differ in the shape of the proctiger, which has the anterolateral margin just in front of the lateral process distinctly convexe in *H. peronis*, but nearly straight in *H. dianae* sp.n., and the right process in *H. dianae* sp.n. distinctly longer than the left, but which has two short, slender processes in *H. peronis* (comp. Figs. 11-13 with 14-16). The dorsal hind margin of the segment 8 is abruptly bent dorsal in *H. peronis*, but evenly curved upward in *H. dianae* sp.n., and the styliform processes are longer and straighter in *H. dianae* sp.n. than in *H. peronis* (comp. Figs. 9 and 10). Further, males of *H. dianae* sp.n. usually bear minute erect bristles on the meso-metanotum (Fig. 6), which are much shorter than in the female (rarely absent). Females differ mainly in the presence (*H. dianae* sp.n., Fig. 7) or absence (*H. peronis*) of long black pilosity of the meso-metanotum.

The natural relationships of the species of *Halobates* have been worked out in detail by ANDERSEN (1991) and ANDERSEN & WEIR (1994). Following their character analyses, *Halobates dianae* sp.n. belongs to a well defined species group, the *Halobates regalis* group. This species group contains eight species (ANDERSEN & WEIR 1994), of which five species are Australian (*H. regalis* CARPENTER 1892, *H. whiteleggi* SKUSE 1891, *H. darwini* HERRING 1961, *H. acherontis* POLHEMUS 1982, and *H. herringi* POLHEMUS & CHENG 1982). The other three species are *H. peronis* from the Solomon Islands, *H. sexualis* DISTANT 1903 from Malaysia and Sri Lanka, and *H. murphyi* POLHEMUS & POLHEMUS 1991 from Papua New Guinea. From those species, which have been described after 1961 and, therefore, are not included in the key by HERRING (1961), *H. dianae* sp.n. differs distinctly from *H. acherontis*, e.g., by its larger size and lack of a tuft of long hairs on the metatrochanter of the female, and from *H. herringi* and *H. acherontis*, e.g., in the subsymmetrical proctiger of the male.

Distribution: Philippines: Luzon (Pangasinan, Zambales, Camarines Sur), Leyte, Camotes (Ponson Isl.).

Habitats: In Camarines Sur and Leyte, *H. dianae* sp.n. has been collected in the environment of mangrove remnants, but all specimens have skated on the open surface of the sea, never between the mangrove trees. Specimens from Camarines Sur have been found individually skating during high tide (# 268a), but in extremely large schools of probably more than 100 individuals often in copulation during low tide (# 268b). The

specimen from Zambales has been collected in a river mangrove, the specimens from Ponson Island have been found in the estuary of a small stream.

E t y m o l o g y : Named after the author's first daughter Diana Christina, born in the spirit of Philippine-Austrian friendship.

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Zusammenfassung

Der philippinische Meereswasserläufer *Halobates dianae* sp.n. wird neu beschrieben. Bisher ist diese Art mit der ähnlichen Art *H. peronis* HERRING 1961 von den Salomonen vermischt worden. *Halobates dianae* sp.n. gehört in die *Halobates regalis* Gruppe (sensu ANDERSEN & WEIR 1994). Er ist die einzige Art dieser Gruppe, die von den Philippinen bekannt ist und bisher von den Küsten der Inseln Luzon, Leyte und Ponson (aus der Camotes Gruppe) nachgewiesen.

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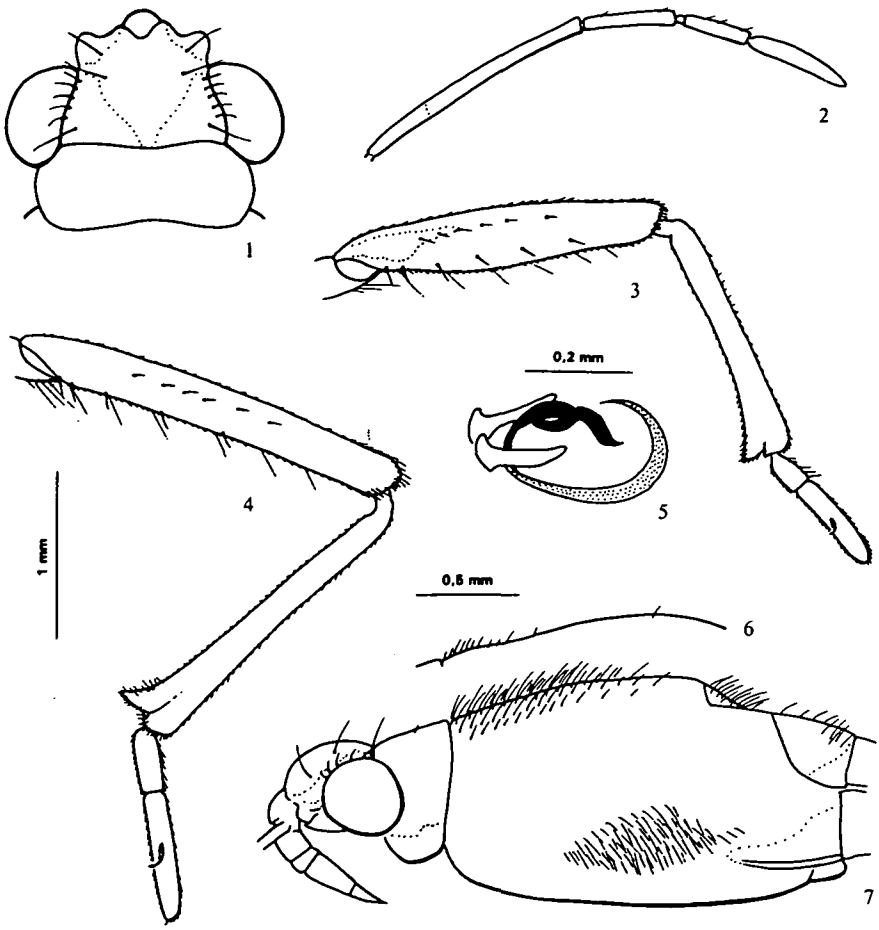
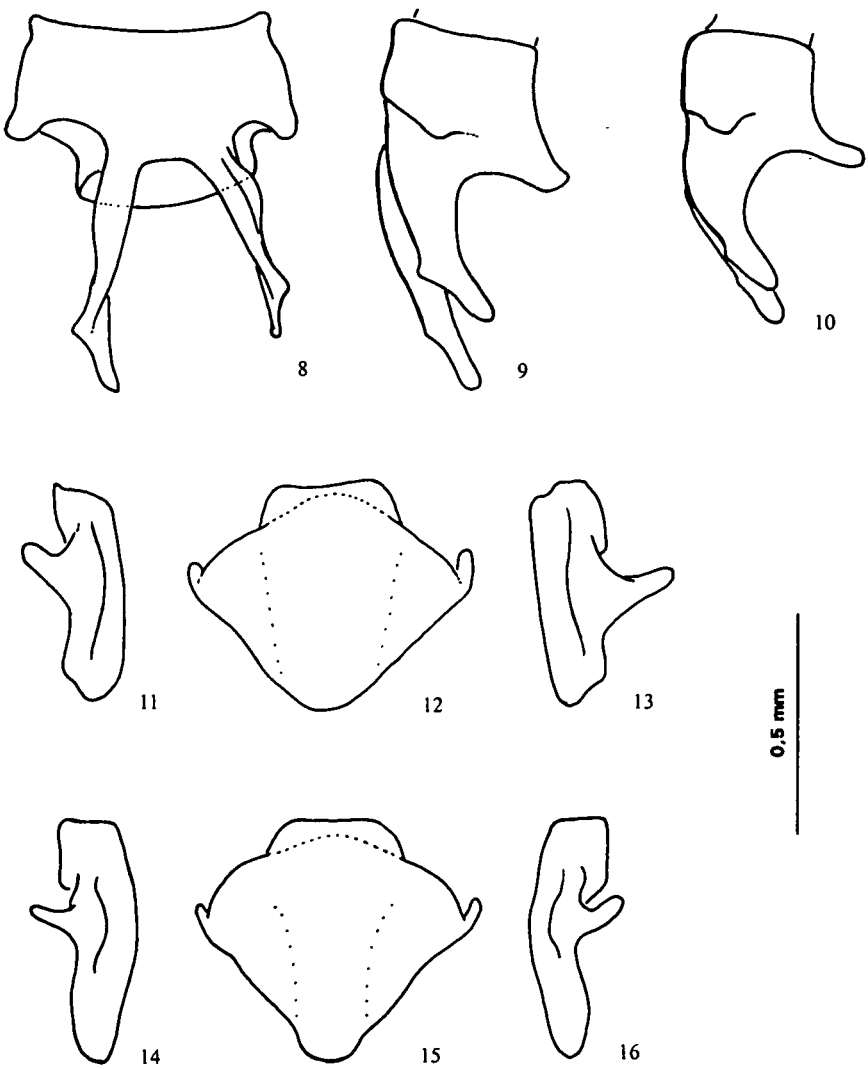


Figs. 1-7: *Halobates dianae* sp.n. (1-3, 5, 6: ♂, 4, 7: ♀): **1** – Kopf dorsal; **2** – antenna; **3, 4** – foreleg; **5** – vesicula sclerites: black - dorsal sclerite, punctate - ventral sclerite, white - first lateral sclerites; **6** – dorsal outline of meso-metanotum, lateral view; **7** – head and thorax, lateral view.



Figs. 8-16: Genitalia of males (pilosity omitted) of (8, 9, 1-13) *Halobates dianae* sp.n. and (10, 14-16) *H. peronis* (paratype from the Solomon Islands): **8** – segment 8, left view; **9, 10** – segment 8, lateral view; **11, 14** – proctiger, left view; **12, 15** – proctiger, dorsal view; **13, 16** – proctiger, right view.