Zootaxa 4759 (3): 405–412
https://www.mapress.com/j/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.4759.3.6
http://zoobank.org/urn:lsid:zoobank.org:pub:7F3C0290-C75B-4814-BE7D-87762F4C4B6E

Stenus praedator sp. nov. from the Philippines and a new species group in S*tenus* Latreille, 1797 (Coleoptera: Staphylinidae, Steninae)

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Abstract

Stenus praedator **sp. nov.** (Philippines: Mindanao) is described and the *S. heterocerus* group is proposed. All species of the group are figured.

Key words: Staphylinidae, *Stenus*, new species, taxonomy, new species group, Philippines

Introduction

The diversity of *Stenus* Latreille, 1797 is enormous. Even though nearly 3,000 species have already been described (Betz et al. 2018), there are still new species to be discovered, just like the new species presented in this paper, which Volker Puthz (Schlitz) generously left to me for description. Numerous species groups have been established to replace the traditional (artificial) subgeneric concept (Puthz 2008). In the present paper a new species group is introduced. The habitus and aedeagus of the species assigned to this group are figured.

Material and methods

The morphological studies were carried out using a stereoscopic microscope (Lomo MBS-10) and a compound microscope (Euromex BB.1153.PLI). High-resolution extended-focus images of the holotype of the new species were obtained using the BK PLUS Lab system (Dun Inc., http:// www.duninc.com/bk-plus-lab-system.html) with a customized Canon MPE 65 mm 1–5x micro-photography lens mounted on a Canon 6D camera. Image stacks were captured with Adobe Lightroom and processed using Zerene Stacker. The images were edited using Adobe Photoshop CS6. Measurements (in mm) were made using an ocular micrometer. The genitalia are embedded in Euparal (soluble in alcohol). The following acronyms are used:

BL	length of body
DE	average distance between eyes
EL	maximal length of elytra
EW	maximal width of elytra
FBL	length of forebody (head, pronotum, elytra)
HT	holotype
HW	head width
PL	pronotal length
PM	proportional measurements
PT	paratype
PW	pronotal width
SL	sutural length of elytra

Accepted by A. Brunke: 12 Mar. 2020; published: 3 Apr. 2020

The material referred to below is deposited in the following collections:

CM private collection Tobias Mainda, Nauen, Germany
ZMM Zoological Museum of Moscow University, Moscow, Russia

Results

The group of *Stenus heterocerus* L. Benick, 1929

Previously, five species from the Philippines were assigned as a complex to the group of *Stenus cylindricollis* Boheman, 1858 (see: Puthz 1972, Puthz 2013). Based on recent studies of the *cylindricollis*-group (including *Stenus praedator* **sp. nov.**), it turned out, that these species are the only micropterous species of the *cylindricollis* group. Furthermore, they are the only species in the whole genus *Stenus* with an antennomere X longer than antennomeres IX and XI. To recognize this distinct combination of easily observed characters, the *heterocerus* group is established for these species. This group is characterized by the combination of the following features:

Large micropterous species from the Philippines (up to 7.5 mm: Fig. 19), blackish with more or less strong metallic hue, ranging from lead-coloured to Prussian blue; elytra without humeral angles, abdomen without paratergites; antennomere X longer than antennomeres IX and XI (Fig. 12); frons concave, median portion flat (Figs 3, 4, 6); pronotum distinctly longer than broad (Figs 13–18); punctation of pronotum and elytra moderately coarse to very coarse, mostly dense, interstices smooth, pubescence indistinct; legs yellowish, meta-tarsomere I about as long as the three following combined and much longer than tarsomere V, tarsomere IV bilobed; male legs without sexual modifications (exception: *Stenus thaumatocerus*, Fig. 2; ventral side of male abdomen with impressions, but without conspicuous additional characters); sternite IX and valvifera apicolaterally serrate, tergite X with convex posterior margin (Fig. 19); aedeagus (Figs 7–11) slender, apical portion of median lobe acutely narrowed, inside with a bicornate expulsion-clasp, internal sac with a long flagellum.

Species assigned to the *S. heterocerus* group:

S. heterocerus L. Benick, 1929 (Philippines, Samar) HT (Figs 1, 13)
S. thaumatocerus Puthz, 1974 (Philippines, Mindanao) HT (Figs 2, 11, 12, 14)
S. ernstjuengeri Puthz, 1984 (Philippines, Leyte) HT (Figs 5, 8, 17)
S. inflaticollis Puthz, 1998 (Philippines, Negros) HT (Figs 4, 9, 16)
S. quatei Puthz, 2013 (Philippines, Mindanao) HT (Figs 3, 10, 15)
S. praedator **sp. nov.** (Philippines, Mindanao) HT (Figs 6, 7, 13, 18, 19)

Stenus praedator sp. nov.

Figs 6, 7, 13, 18, 19
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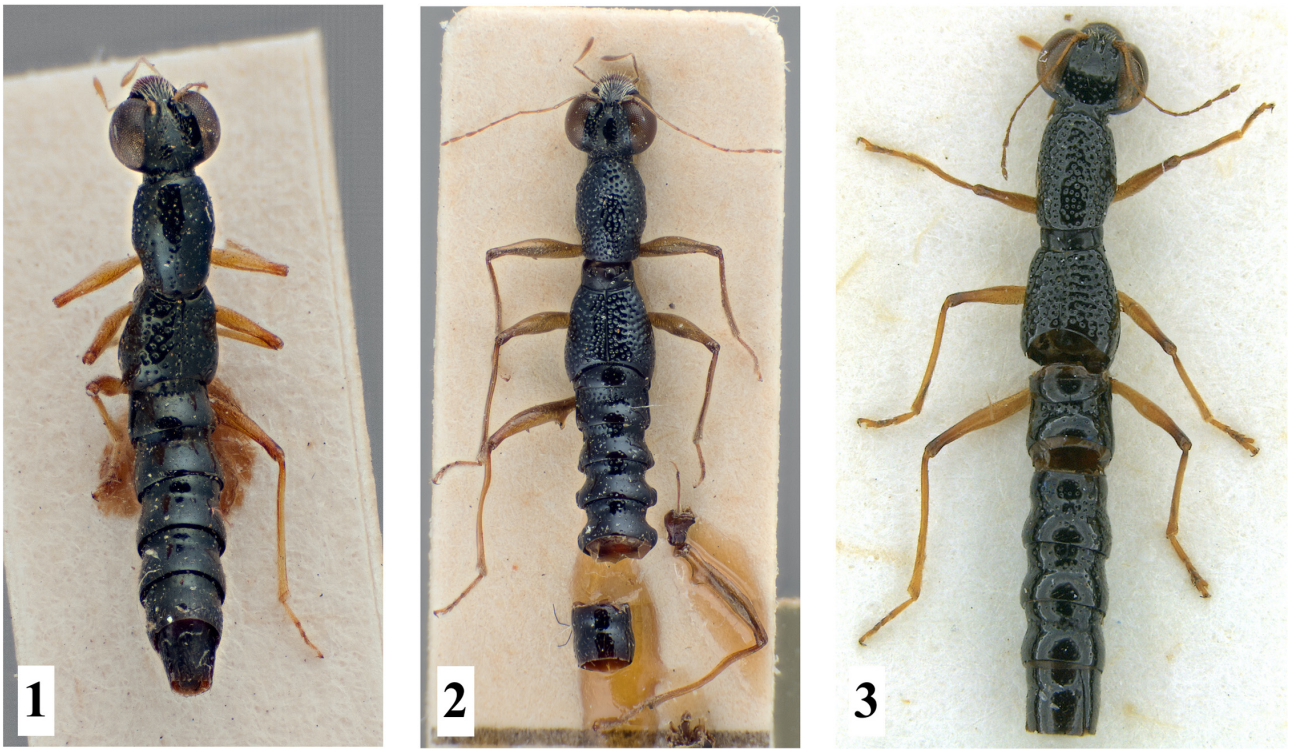
Type material examined. Holotype ♂: "Philippines: Mindanao Isl., Barangay Baganihan, Marilog District, Eagles Ridge, 7°45'N, 125°23'E, 26.–28.3.2018, secondary broad-leaved forest, sifted from wet litter near small rocks, leg. A. Shavrin" [ZMM]. 1 Paratype ♀: "Philippines: Mindanao, Mount Hamiguitan Range Wildlife Sanctuary, 6°43'48.0"N 126°08'24.0"E, 500 m, 30.III.–2.IV.2018, sifted from wet litter and debris near stream, leg. A. Shavrin" [cM].

Description. Measurements of the HT (in mm): BL: 7.5, DE: 0.55, FBL: 3.6, EL: 1.23, EW: 1.15, HW: 1.25, PL: 1.27, PW: 0.9, SL: 0.8. Measurements of the PT (in mm): BL: 7.4, DE: 0.4, FBL: 3.5, EL: 1.22, EW: 1.17, HW: 1.25, PL: 1.27, PW: 0.9, SL: 0.8.

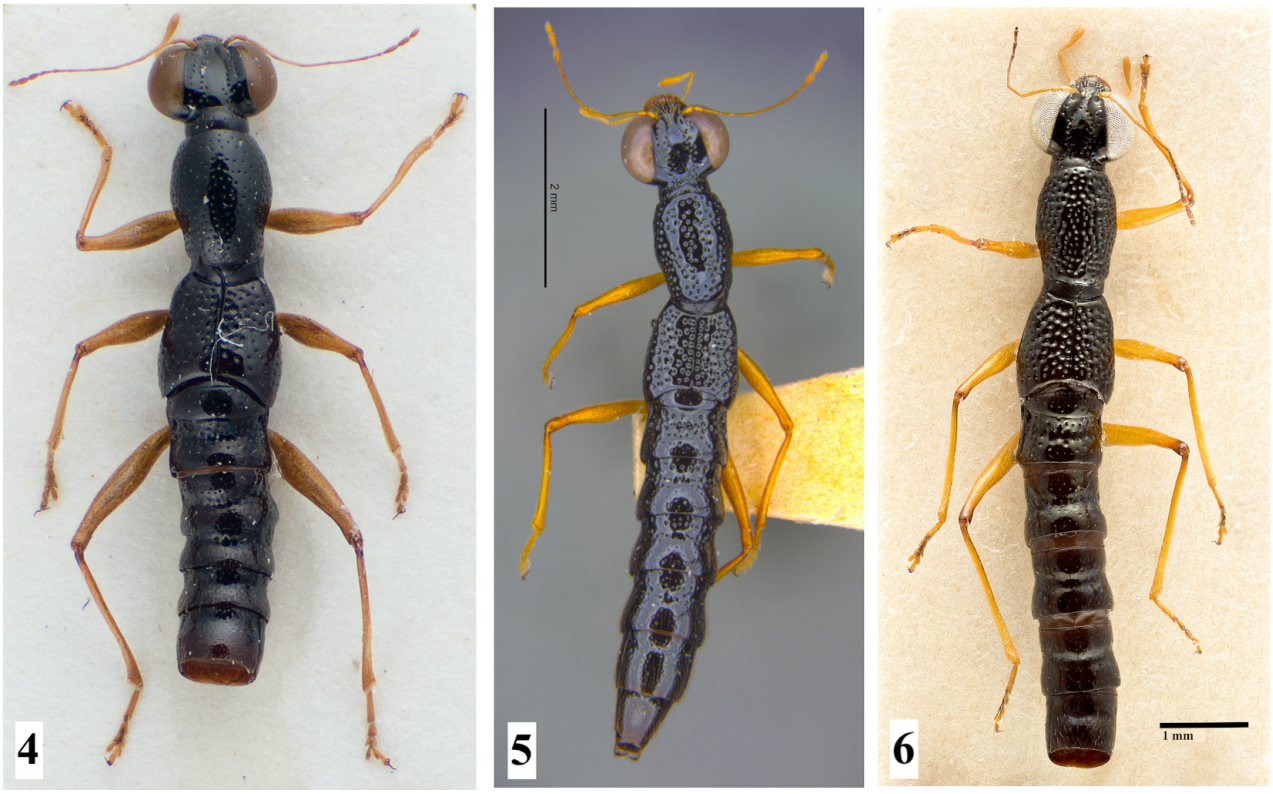
Habitus as in Fig. 6. Micropterous, body black, shining, with weak metallic hue, completely without microsculpture; maxillary palpi, legs and antennae yellowish; labrum reddish-yellow.

Median portion of head shiny, about twice as wide as lateral portions and with tiny puncture in its anterior

centre. Anterior inner eye-margin with three to five punctures; median portion separated from lateral portions by a series of punctures, diameter of punctures about as wide as basal cross-section of antennomere III. Clypeus and labrum with dense silvery pubescence. Antennae long and slender, extending to posterior margin of pronotum when reflexed; antennomere X about twice as long as antennomere XI.



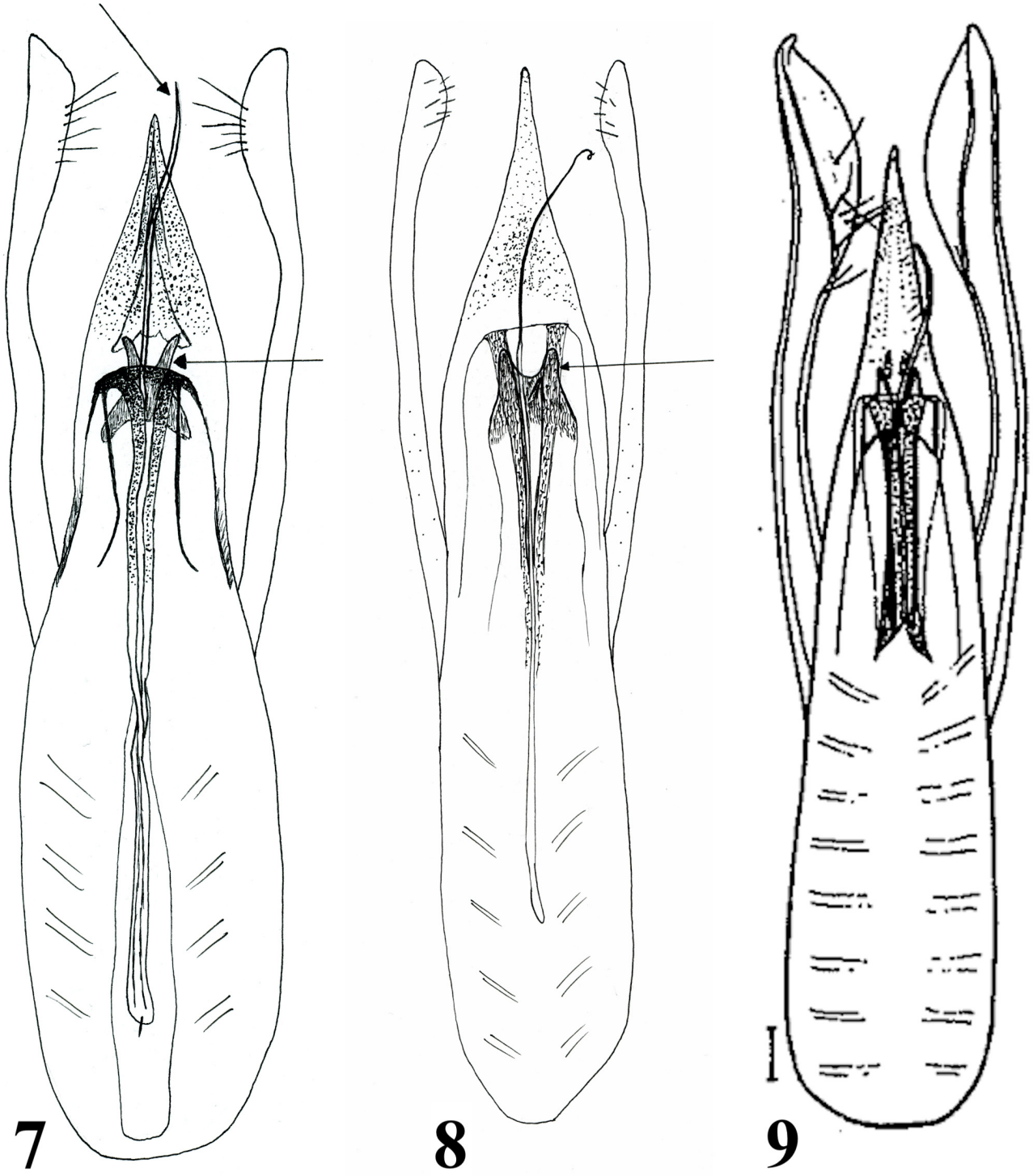
FIGURES 1–3. Holotypes of *S. heterocerus* (photo: Field Museum of Natural History 2019) (1), *S. thaumatocerus* (photo: Field Museum of Natural History 2019) (2), *S. quatei* (photo: Bishop Museum, James Boone 2019) (3).



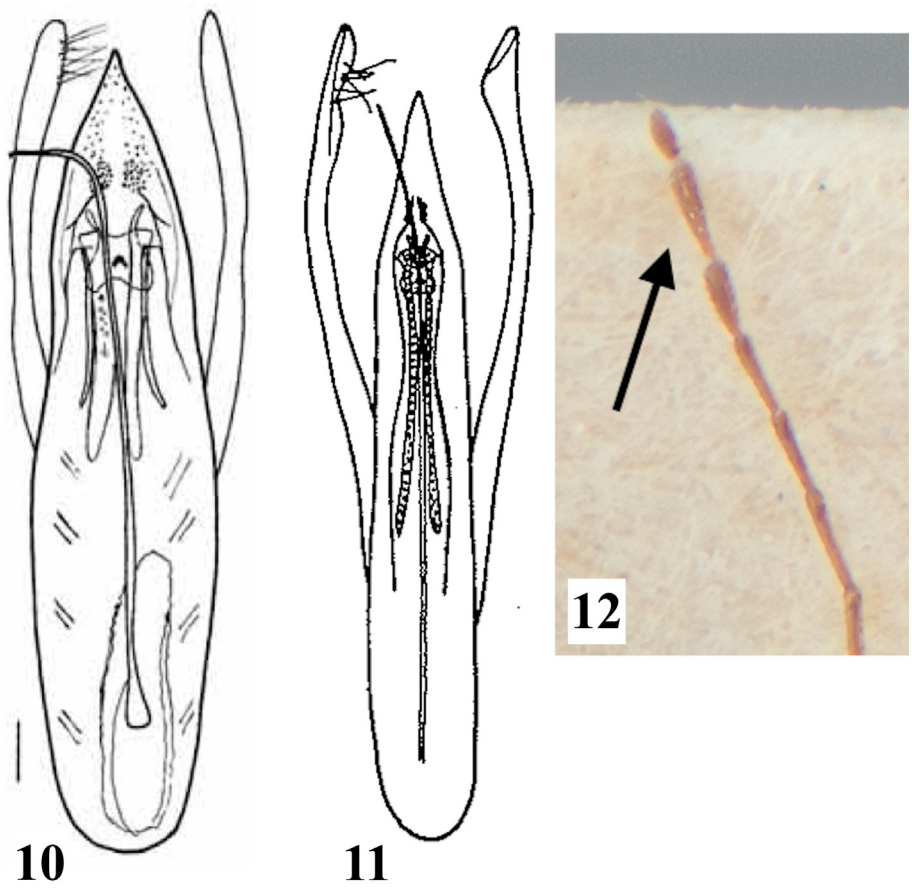
FIGURES 4–6. Holotypes of *S. inflaticollis* (photo: Field Museum of Natural History 2019) (4), *S. ernstjuengeri* (photo: Museum of Comparative Science 2019) (5) and *S. praedator* **sp. nov.** (6).

Pronotum (Fig. 18) 1.4 times as long as broad, broadest in the middle, sides towards anterior margin slightly convex, towards posterior margin concavely narrowed. Punctation coarse and fairly dense, except for few little elevated impunctate areas on each side, largest punctures in dorsal middle as large as maximal diameter of antennomere III in cross-section, lateral punctation somewhat less coarse, interstices much narrower than diameter of punctures. Legs slender, metatarsi less than half as long as metatibia; metatarsomere I as long as the combined length of metatarsomeres II–V and longer than metatarsomere V; metatarsomere IV deeply bilobed.

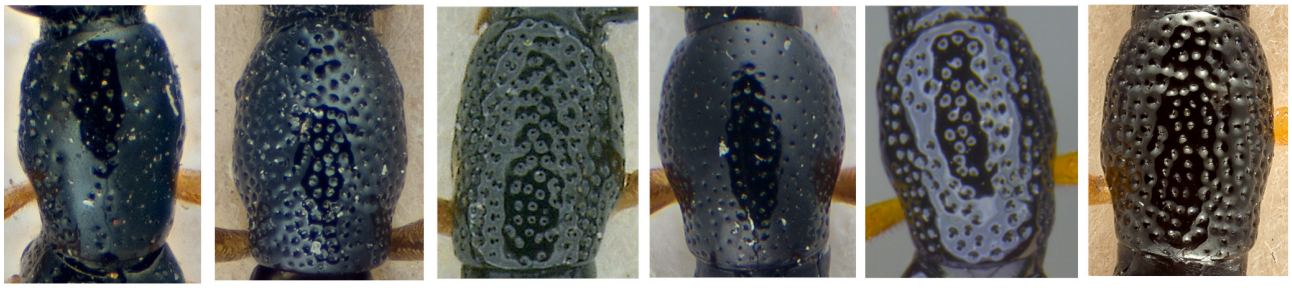
Elytra 0.92 times narrow as head, 1.4 times as long as broad, humeral angles oblique, sides distinctly divergent posteriorly, suture unmodified. Punctation very coarse, diameter of punctures larger than apical cross-section of antennomere III, interstices mostly narrower than diameter of punctures.



FIGURES 7–9. Aedeagi of *S. praedator* **sp. nov.** (7), *S. ernstjuengeri* (8) and *S. inflaticollis*, holotype, from Puthz (1998) (9).



FIGURES 10–12. Aedeagi of *S. quatei*, holotype, from Puthz (2013) (10), *S. thaumatocerus*, holotype, from Puthz (1974) (11) and antennomere X of *S. thaumatocerus*, holotype (12).



FIGURES 13–18. Pronotum of *S. heterocerus* (13), *S. thaumatocerus* (14), *S. quatei* (15), *S. inflaticollis* (16), *S. ernstjuengeri* (17) and *S. praedator* **sp. nov.** (18).

FIGURE 19. sternite VIII, tergite VIII, sternite IX and tergite X (left to right) of *Stenus praedator* **sp. nov.**

Abdomen cylindrical; with short pubescence; basal impressions of tergites I–III very deep; punctation of basal impressions of tergites III and IV coarse; interstices much wider than diameter of punctures, their size about as large as an ommatidium at medial eye-margin up to the middle cross-section of antennomere V; punctation of tergites V–VII finer and sparser, interstices as wide as on tergite IV; punctation of tergite VIII denser than that of tergites III–VII, interstices wider than diameter of punctures.

Male. Femora slightly dilated. Metaventrite coarsely and densely punctured. Sternites III–VI unmodified, sternite VII ventrally flattened and medially more densely punctured than laterally, near posterior margin shallowly impressed; sternite VIII with a rounded notch in posterior sixth; sternite IX serrate apicolaterally; tergite X with convex posterior margin (Fig. 19). Apical portion of aedeagus (Fig. 7) acutely narrowed, expulsion-clasp with two "horns" (lower arrow); internal sac with long flagellum (upper arrow); parameres slightly extending beyond apex of median lobe, with six setae apically.

Female. Legs unmodified. Median pubescence of sternite VII denser than in lateral portions; sternite VIII broadly rounded at posterior margin; valvifer serrate apicolaterally.

Differential diagnosis. The species is distinguished from the similar *S. ernstjuengeri* by its male sexual characters, the structure of the pronotum, and the sparser punctation of the abdomen. It is separated from *S. heterocerus* by its denser and coarser punctation and from *S. thaumatocerus* by the male sexual characters and coarser punctation of the pronotum and elytra. It differs from *S. inflaticollis* by the punctation of the whole body and the male sexual characters and from *S. quatei* by denser punctation of the frons and the pronotum, as well as by the male sexual characters.

Etymology. The specific epithet refers to the fact that species of *Stenus* are predators.

Key to the species of the *S. heterocerus* group

1 Pronotum moderately finely and sparsely punctured (Figs 13, 16) 2
- Pronotum coarsely and densely punctured (Figs 14, 15, 17, 18) 3
2 Elytral punctation sparser and less coarse (Fig. 4). Aedeagus (Fig. 9). 6.6 mm. Negros. . . . . *S. inflaticollis* Puthz
- Elytral punctation denser and coarser (Fig. 1). Pronotum (Fig. 13). Aedeagus unknown. 6.5–7.0 mm. Samar . . . . . *S. heterocerus* L. Benick
3 Pronotum without impunctate areas (Fig. 14). Abdominal segments posteriorly enlarged. ♂: metafemur with node-shaped dila-

tion in basal third (Fig. 2); aedeagus (Fig. 11). ♀: legs unmodified. 6.0–7.5 mm. Mindanao . . . . . *S. thaumatocerus* Puthz

- Pronotum with some impunctate shiny areas 4

4 Interstices of pronotum and elytra wider. Body with Prussian blue hue. ♂: parameres not extending beyond apex of median lobe (Fig. 8). 6.5–7.5 mm: Leyte . . . . . *S. ernstjuengeri* Puthz

- Interstices of pronotum and elytra narrower. Body black. ♂: parameres extending beyond apex of median lobe 5

5 Punctation of frons less sparse (Fig. 3). ♂: apical portion of median lobe longer and less broad (Fig. 7). 7.4 mm. Mindanao . . . . . *S. praedator* **sp. nov.**

- Punctation of frons sparser (Fig. 6). ♂: apical portion of median lobe shorter and broader. 7.5 mm. Mindanao . . . . . *S. quatei* Puthz

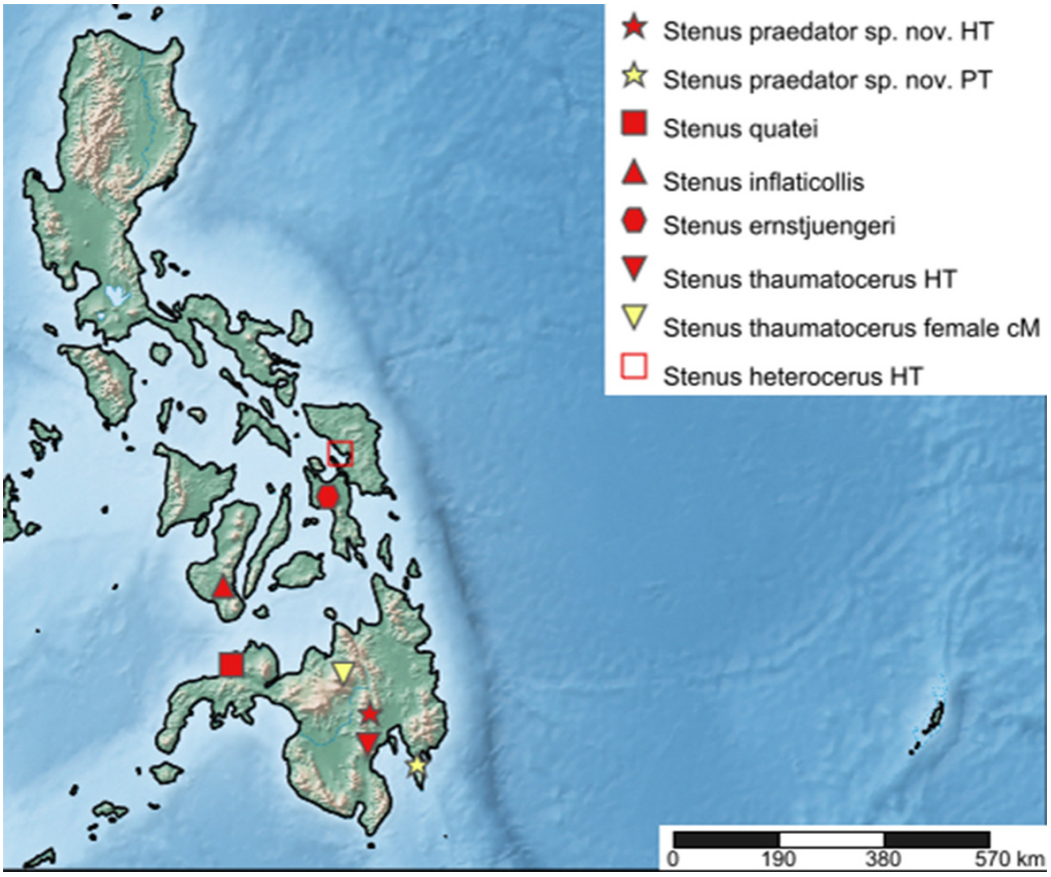


FIGURE 20. Distribution of the species of the *heterocerus* group.

Acknowledgements

I would like to thank Volker Puthz (Schlitz, Germany) for his help and the permission to use his drawings of several aedeagi and Alexey Shavrin (Daugavpils, Latvia) for the female paratype for my collection. Volker Assing (Hannover) kindly provided critical comments on the manuscript and revised the English text. I also thank Petra Sierwald (Field Museum of Natural History, Chicago, U.S.A.), Marcia Kazmierczak (Harvard University, Museum of Comparative Zoology, U.S.A.) and James Boone (Bishop Museum, Honolulu, U.S.A.) for the photos of the holotypes and the permission to use them in this paper. Moreover, I would like to thank Peter Michalik (University of Greifswald, Germany) for taking photos of the holotype of *Stenus praedator* **sp. nov.**

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