

Linzer biol. Beitr.	35/1	181-187	30.6.2003
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***Neptosternus arnecornelii* sp. n. from Borneo and notes on other species of the genus (Coleoptera: Dytiscidae)**

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Abstract: *Neptosternus arnecornelii* sp. n. is described from West Kalimantan, the Indonesian part of Borneo. The new species is similar to *N. biltoni* HENDRICH & BALKE 1997 from Sulawesi but differs by its distinct coloration and the form of the median lobe. The species is rheobiont, and here we provide data on its habitat. *Neptosternus brevior* RÉGIMBART 1899 [Sumatra] and *N. corporaali* ZIMMERMANN 1924 [Sumatra] are reported for the first time for Borneo and additional records for *N. bimaculatus* HENDRICH & BALKE 1997, *N. borneensis* HENDRICH & BALKE 1997, *N. jani* HENDRICH & BALKE 1997, *N. kalimantanensis* HENDRICH & BALKE 1997, *N. kodadai* HENDRICH & BALKE 1997 and *N. quadrimaculatus* HENDRICH & BALKE 1997 are given. Twenty-two species of the genus occur in Borneo, 19 of them being endemic to that island.

Key words: Coleoptera, Dytiscidae, *Neptosternus*, new species, Borneo, Kalimantan.

Introduction

The genus *Neptosternus* SHARP 1882 is confined to the Afrotropical and Oriental regions. It currently includes 92 species (HENDRICH & BALKE 2001). Southeast Asian representatives were most recently revised by HENDRICH & BALKE (1997). The fauna of that region has been updated several times since (BALKE et al. 1997; BALKE & HENDRICH 1998 & 2001; HENDRICH & BALKE 2000; HENDRICH & BALKE 2001; HENDRICH & BALKE, this volume). A total of 61 species are now known from SE Asia.

The first keys to the Indian and Sri Lankan *Neptosternus* species were published by VAZIRANI (1963 & 1968). Additional species were described by WEWALKA (1973), VAZIRANI (1975), HOLMEN & VAZIRANI (1992) and HENDRICH & BALKE (1999). The latter paper summarized the knowledge on and provided a revised key to the Indian fauna. Nevertheless, the Indian species of the genus are in need of a comprehensive revision and many species especially in tropical Southern India are still unnamed.

The present paper is based on the material collected during three field trips in 1999 and 2000 by the Italian entomologist Paolo Mazzoldi to the Indonesian province of Kalimantan on the island of Borneo. The object of this paper is to describe a new species and to give some notes on the habitat of the species. Together with the species described herein, 22 species of *Neptosternus* are now known from Borneo. All but three (*N. brevior* RÉGIMBART 1899, *N. corporaali* ZIMMERMANN 1924 and *N. riedeli* HENDRICH & BALKE

1997) are endemic to the island. Altogether 77 Dytiscidae are now reported from Borneo (BALKE et al. 2002).

Material and Methods

Specimens mentioned in this work are deposited in several collections which are abbreviated in the text as follows:

CBH..... Collection Michael Balke and Lars Hendrich, Berlin, Germany

CPM Collection Paolo Mazzoldi, Brescia, Italy

IMRL..... Phyllodrom, Institut und Museum für Regenwaldökologie, Leipzig, Germany

NMW..... Naturhistorisches Museum Wien, Vienna, Austria

OLML..... Biologiezentrum/Oberösterreichisches Landesmuseum, Linz, Austria

The median lobe was traced from a SEM. The style of the descriptive notes follows HENDRICH & BALKE (1997), BALKE & HENDRICH (1998 & 2001) and HENDRICH & BALKE (2001).

Taxonomy and Faunistics

The genus *Neptosternus* SHARP is characterized by two apomorphies: prosternal process trifid (plesiomorphic character state: simple, with only one tip); posterior angles of pronotum greatly produced backwards, needle shaped and acute (plesiomorphic character state: not produced backwards, rounded).

The following species are distributed in Borneo:

<i>Neptosternus arnecornelii</i> sp. n.	Kalimantan
<i>Neptosternus aterrimus</i> HENDRICH & BALKE 1997	Kalimantan
<i>Neptosternus bimaculatus</i> HENDRICH & BALKE 1997	Sabah, Sarawak, Kalimantan
<i>Neptosternus borneensis</i> HENDRICH & BALKE 1997	Sabah, Sarawak, Kalimantan
<i>Neptosternus brevior</i> RÉGIMBART 1899	Indonesia: Sumatra, Kalimantan
<i>Neptosternus corporaali</i> ZIMMERMANN 1924	Indonesia: Sumatra, Kalimantan
<i>Neptosternus jaechi</i> HENDRICH & BALKE 1997	Sarawak
<i>Neptosternus jani</i> HENDRICH & BALKE 1997	Sabah, Kalimantan
<i>Neptosternus kalimantanensis</i> HENDRICH & BALKE 1997	Sabah, Kalimantan
<i>Neptosternus kodadai</i> HENDRICH & BALKE 1997	Sabah, Sarawak, Kalimantan
<i>Neptosternus mazzoldii</i> HENDRICH & BALKE 1997	Kalimantan
<i>Neptosternus minimus</i> HENDRICH & BALKE 1997	Sarawak
<i>Neptosternus muluensis</i> HENDRICH & BALKE 1997	Sarawak
<i>Neptosternus neisiorum</i> HENDRICH & BALKE, 1997	Sabah
<i>Neptosternus nigrinus</i> HENDRICH & BALKE 1997	Kalimantan

<i>Neptosternus noteroides</i> HENDRICH & BALKE 1997	Sarawak
<i>Neptosternus pseudocorporaali</i> HENDRICH & BALKE 1997	Kalimantan
<i>Neptosternus riedeli</i> HENDRICH & BALKE 1997	Vietnam; Borneo: Sabah, Sarawak
<i>Neptosternus quadrimaculatus</i> HENDRICH & BALKE 1997	Sabah, Sarawak, Kalimantan
<i>Neptosternus sabahensis</i> HENDRICH & BALKE 1997	Sabah
<i>Neptosternus sarawakensis</i> HENDRICH & BALKE 1997	Sarawak
<i>Neptosternus thiambooni</i> BALKE, HENDRICH & YANG 1997	Sabah

***Neptosternus arnecornelii* sp. n.**

Holotype: ♂: "INDONESIA W Kalimantan Tanjung Lokan, Sungai Deren, 200 m, small tributary of Bungar in second. forest on gravel ground, 27.VII.2000, P. Mazzoldi leg." (NMW).
Paratypes: 70 specimens, same data as holotype (CBH, CPM, IMRL, NMW, OLML); 1 ex.: "INDONESIA, Kalimantan, Road Haratai-Loksado, big mountain stream in second. forest, 30.XII.2000, P. Mazzoldi leg." (CPM).

Etymology: Named for the late Arne Cornelius (Saarbrücken, Germany).

Description: Measurements (N = 20). Total length of beetle 2,63-2,70 mm (holotype 2,70 mm); length without head 2,39-2,41 mm (holotype 2,40 mm); greatest width of beetle 1,43-1,45 mm (holotype 1,45 mm).

Diagnosis: Small, broadly ovate species; body strongly flattened in lateral view.

Colour: Upper side comparatively light; head ferruginous; pronotum dark anteriorly and posteriorly, ferruginous medially; elytron black with two small and two bright yellow patches (Fig. 1). Venter yellowish to castaneous brown, epipleuron ferruginous anteriorly; appendages yellowish to ferruginous.

Sculpture: Head covered with polygonal meshes, medially densely punctate. Pronotum densely punctate, some larger punctures visible basomedially; with microreticulation of polygonal meshes along anterior margin and laterally. Elytron with microreticulation consisting of slightly transversely oriented polygonal meshes; fine and densely punctate; some large punctures visible discally between the suture and the discal row of serial punctures. A discal row of small serial punctures visible and almost forming a shallow stria; 1st and 2nd lateral rows less distinct, sutural row not present.

Male: Median lobe of aedeagus as in Fig. 2.

Affinities: *Neptosternus arnecornelii* superficially resembles *S. biltoni* HENDRICH & BALKE 1997 from the Togian Islands NE of Sulawesi. However the latter species is larger and more elongate. Furthermore the form of the median lobe is more elongate in *N. arnecornelii* whilst it is rather bulbiform in *N. biltoni* (see HENDRICH & BALKE 1997).

Distribution: West Kalimantan, Indonesia. Only known from the type locality.

Habitat: *Neptosternus arnecornelii* was obtained from a large rocky mountain stream partly shaded by second growth forest. Most specimens were collected among floating mats of fine tree roots and plant deposits from a shaded and steep undercut bank. The bottom consisted of sand and few larger stones (Mazzoldi in litt.).

New and additional records

Neptosternus bimaculatus HENDRICH & BALKE 1997

Material examined: 3 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Paking, 4.8.1999, leg. Mazzoldi" (CBH, CPM).

This is the first record for Kalimantan.

Neptosternus borneensis HENDRICH & BALKE 1997

Material examined: 2 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Kampung Paking, 2.8.1999, leg. Mazzoldi" (CPM).

This is the first record for Kalimantan.

Neptosternus brevior RÉGIMBART 1899

Material examined: 86 ex.: "Indonesia: Kalimantan Peg. Meratus, nr. Loksado Riv. Loksado, along shore 28.12.2000, leg. Mazzoldi" (CBH, CPM, NMW); 110 ex.: "Indonesia: Kalimantan Peg. Meratus, Sg. Tanuhi, 31.12.2000, leg. Mazzoldi" (CBH, CPM, NMW).

This is the first record for Borneo.

Neptosternus corporaali ZIMMERMANN 1924

Material examined: 3 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Paking, 4.8.1999, leg. Mazzoldi" (CBH, CPM); 12 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Kampung Paking, 2.8.1999, leg. Mazzoldi" (CBH, CPM).

This is the first record for Borneo.

Neptosternus jani HENDRICH & BALKE 1997

Material examined: 3 ex.: "Indonesia: Kalimantan Peg. Meratus, nr. Loksado Riv. Loksado, along shore 28.12.2000, leg. Mazzoldi" (CBH, CPM, NMW).

Previously only known from Sabah. This is the first record for Kalimantan.

Neptosternus kalimantanensis HENDRICH & BALKE 1997

Material examined: 1 ex.: "Indonesia: Kalimantan Peg. Meratus, Sg. Tanuhi, 31.12.2000, leg. Mazzoldi" (CPM).

Only known from the type material. This is the first additional locality.

Neptosternus kodadai HENDRICH & BALKE 1997

Material examined: 5 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Kampung Paking, 2.8.1999, leg. Mazzoldi" (CPM); 1 ex.: "Indonesia: E Kalimantan Sungai Mentarang, upstream from Paking, 4.8.1999, leg. Mazzoldi" (CPM).

This is the first record for Kalimantan.

Neptosternus quadrimaculatus HENDRICH & BALKE 1997

Material examined: 35 ex.: "Indonesia: E Kalimantan, small tributary of Sungai Mentarang, upstream from Pulau Sapi (hydr. right), 3.8.1999, leg. Mazzoldi" (CPM).

This is the first record for Kalimantan.

Acknowledgements

This work, as well as our ongoing research on SE Asian wetland biodiversity and conservation, was sponsored by Gerd Cornelius (Saarbrücken, Germany). Thanks to Dmitry Paramonov (Riga, Latvia) for his fine artwork. We are indebted to Dr Manfred Jäch (Vienna, Austria) and Paolo Mazzoldi (Brescia, Italy) for loan of the specimens and to Dr David Bilton (Plymouth, England) for critically reviewing the manuscript.

Zusammenfassung

In der vorliegenden Arbeit wird eine weitere rheophile Schwimmkäferart der Gattung *Neptosternus* aus Indonesien beschrieben: *N. arnecornelii* aus der Provinz Kalimantan auf der Insel Borneo. Die Art ist *N. biltoni* aus Sulawesi sehr ähnlich, unterscheidet sich aber klar im Bau des Medianlobus und der ausgedehnten gelben Elytrenzeichnung von diesem. Die beiden aus Sumatra beschriebenen Arten *N. brevior* und *N. corporaali* werden hier zum ersten Mal für Borneo, *N. bimaculatus*, *N. borneensis*, *N. jani*, *N. kalimantanensis*, *N. kodadai* und *N. quadrimaculatus* zum ersten Mal aus Kalimantan gemeldet. Insgesamt sind damit 22 Arten der Gattung von Borneo bekannt, wovon 19 Taxa nach bisherigem Kenntnisstand als endemisch zu bezeichnen sind.

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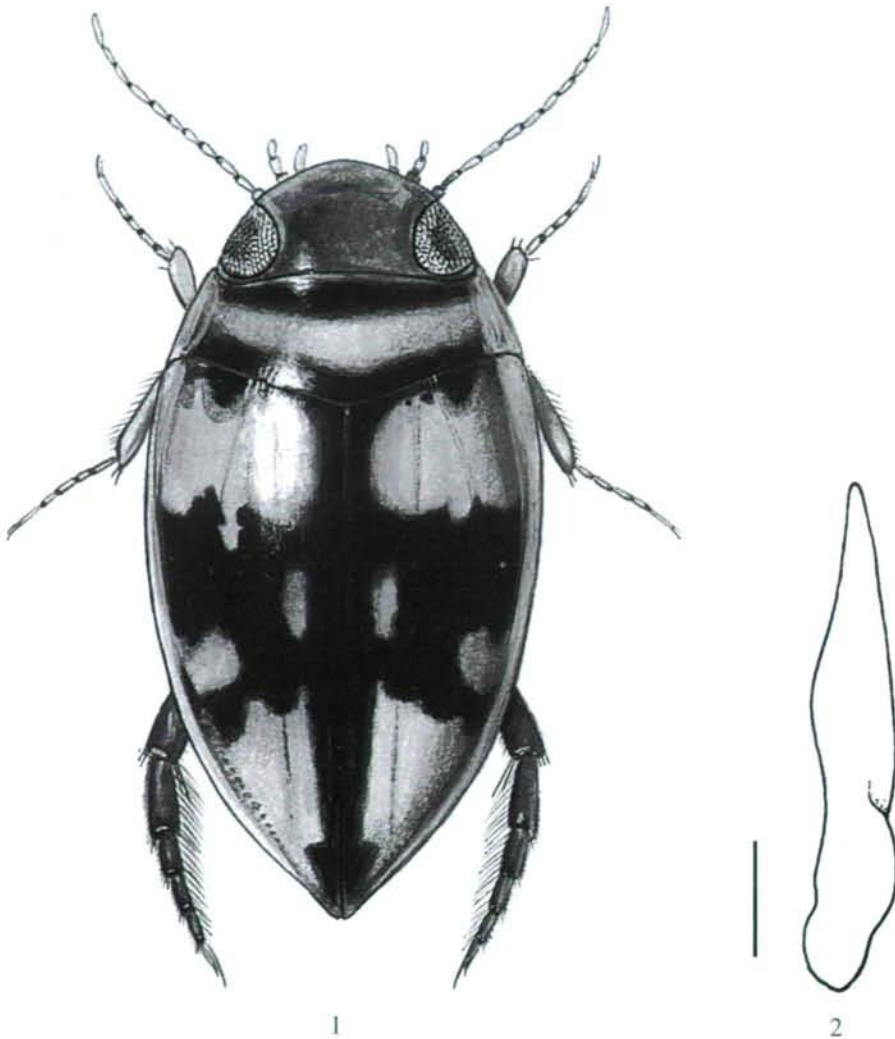


Fig. 1-2: 1 - Habitus and coloration of *Neptosternus arnecornelii* sp. n. 2 - *Neptosternus arnecornelii* sp. n., median lobe of aedeagus in ventral view. Scale: 0.1 mm.