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***Hydaticus dintelmanni* sp.n. from Papua New Guinea highlands (Coleoptera: Dytiscidae)**

M. BALKE, L. HENDRICH, K. SAGATA & G. WEWALKA

Abstract: *Hydaticus dintelmanni* sp.n. is described from Kainantu, in the Eastern Highlands Province of Papua New Guinea. It is very similar to *Hydaticus okalehubyi* BALKE & HENDRICH 1992, from the Baliem Valley and Ok Sibil area of West Papua but can be distinguished by its larger body and brighter color, and the shape of the median lobe. The two species and their distributions are briefly illustrated.

Key words: Coleoptera, Dytiscidae, *Hydaticus*, New Guinea, highlands, new species.

Introduction

New Guinea highlands boast a number of intramontane depressions, or large valleys, between ca. 1700 and 2000 m, such as the Anggi Lakes, Paniai Lakes and Baliem valley in West Papua, as well as the principal highland area of Papua New Guinea. All of these areas share one geomorphological feature, that is more or less extensive level ground as opposed to extremely steep slopes that dominate the rest of New Guinea's rather young mountain ranges. Thus, a comparably rare type of higher elevation aquatic habitat could be found. Primarily, the areas were rather swampy, along the rivers covered with riverine forests which featured systems of slowly flowing streams, backflows with almost stagnant water, puddles and pools. For thousands of years, New Guinea highlands are densely populated, and much of the land was cleared and irrigated to create beautifully designed gardens. Today, more than 80 % of the population of New Guineans continue to live an agrarian life with most population found in the central highlands. With rapid population increase and development related activities like forest conversion and eutrophication (BALKE 1993), there is an increasing threat on the fragile ecosystem of the highlands. This includes aquatic ecosystems containing most of the endemic aquatic beetle fauna (BALKE 2001a, b; BALKE & HENDRICH 1992; BISTRÖM et al. 1993).

To help us collect data to conserve these fragile ecosystems, we have launched the "Papua New Guinea Water Beetle Survey" as a joint project between PNG and international biologists. Our first aim will be to monitor highland habitats to (i) assess their actual diversity and (ii) assess if there is any hope to conserve the few remaining and halfway intact wetlands. Considering the paramount importance of water for human life, we ultimately hope to provide materials for public awareness-rising in order to stimulate more sustainable use of aquatic resources.

Here, based on museum specimens, we describe a new species of the genus *Hydaticus*, which are among the largest New Guinean diving beetles. This rather speciose genus has an almost worldwide distribution, with most of the about 150 species inhabiting the Old World tropics. No recent revision is available that deals with all of the numerous Oriental species. So far, seven species have been recorded from New Guinea (RÉGIMBART 1899, WEWALKA 1975, 1979; NILSSON 2001).

Material and Methods

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

CLH.....Collection Dr. Lars Hendrich, Berlin, Germany, property of NMW

MHNG.....Musée d'Histoire Naturelle, Geneva, Switzerland

Drawings of the median lobes were made with a drawing tube attached to a Leica MZ12.

Taxonomy

Hydaticus okalehubyi BALKE & HENDRICH 1992 (Figs 1 B, C)

Hydaticus okalehubyi BALKE & HENDRICH 1992: 298 (orig. descr.); NILSSON 2001: 104 (catalogue).

Material studied: Paratypes, 2♂♂ and 2♀♀: "W. Neuguinea/Baliem Valley Wamena (Ort), 1600m / IR 1&6 31.8. & 6.9.1990 leg: Balke & Hendrich", "PARATYPUS *Hydaticus okalehubyi* n.sp. Hendrich & Balke des. 1992" (CLH).

Hydaticus dintelmanni sp.n. (Figs 1 A, D, E)

Type locality: Onerunka, EHP, Papua New Guinea.

Type material: Holotype ♂: "Papua New Guinea, Eastern Highlands Province, Kainantu: Onerunka, 5.iv.1979, Ullrich (MHNG). Paratypes. 2 males, 2 females, same but 7.iv.1979 (CLH, MHNG).

Diagnosis: *Hydaticus dintelmanni* belong to the *H. pacificus*-group (see BALKE & HENDRICH 1992) based on the structure of the median lobe of the aedeagus (distally with lateral extensions, or "horns"). It is very similar to *Hydaticus okalehubyi* BALKE & HENDRICH 1992, from the Baliem Valley and Ok Sibil area of West Papua. We suggest it represents its Eastern sister species, following the trend that major highland regions of New Guinea house endemic species. *Hydaticus dintelmanni* is larger, however (16.0-17.2 mm versus 13.7-15.0 mm); of brighter color (in *H. okalehubyi*, the dorsal side, even in the brightest colored, appears rather dark to blackish) and the shape of the median lobe is different: lateral horns longer and narrower in *H. dintelmanni* (Figs 1 B-E), and tip narrower and more parallel-sided than in *H. okalehubyi* (Figs 1 B, D).

Size and habitus: Length of beetle 16.0 (female) -17.2 (holotype) mm, greatest width 8.5-8.8 mm. A fairly large *Hydaticus*, body shape rather elongate-oval, *Rhantus*-like.

Color: Dorsal side overall appearing brightly colored. Head blackish with dark orange

patches as depicted in Fig. 1; pronotum dark orange with darker median markings (Fig. 1), elytron dark orange with small dark speckles, as in Fig. 1. Ventral side orange to ferruginous, appendages orange.

Surface sculpture: Head with fine microreticulation of regular honeycomb-like cells and double punctation, diameter of small punctures about 1/2 of the cells, larger punctures 2x the size of cells. Same principal sculpture on pronotum and elytron, but punctures slightly smaller. Elytral microreticulation somewhat more apparent.

Male: Protarsus ventrally with four rows of stalked, round suction discs (tarsomere to which stalk is attached in parentheses): 3(1) - 6(1) - 7(2) - 6(3), mesotarsus 3(1) - 3/4(1) - 4(2) - 4(3). The median lobe of the aedeagus has conspicuously long and narrow distal-lateral "horns", and is in dorsal view rather narrow and parallel-sided distally (Figs 1 D, E).

Etymology: Named after Mr. Horst Dintelmann (Bonn, Germany) in recognition of his support of conservation in Papua New Guinea.

Habitat: Nothing is known about the life habitat of the new species. The sister species *H. okalehubyi* was collected in a slowly flowing peaty drainage ditch, rich in aquatic vegetation (BALKE & HENDRICH 1992), as well as in a small, shaded, leafy pool nearby. One of us, K. Sagata, collected specimens of *Rhantus bacchusi* BALKE 2001, from a small, slowly flowing grassland stream from near a forest edge in the Aiyura area. As *Rhantus* and *Hydaticus* species always co-occur in New Guinea highlands on these altitudes, we reason that almost stagnant backflows of streams, irrigation ditches as well as pools, usually shaded and with aquatic vegetation and leaves covering the ground are the home of this new beetle species.

Distribution: So far only known from the type locality.

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Zusammenfassung

In der vorliegenden Arbeit wird eine neue *Hydaticus*-Art aus der *H. pacificus*-Gruppe beschrieben. *Hydaticus dintelmanni* wurde in Kainantu, in der Eastern Highlands Province von Papua Neuguinea, gesammelt und steht *Hydaticus okalehubyi* BALKE & HENDRICH 1992 aus West Neuguinea sehr nahe. *Hydaticus dintelmanni* unterscheidet sich aber von diesem durch die größere Körperlänge, die hellere Färbung des Pronotums und der Elytren sowie im Bau des Medianlobus: Die lateralen Flügelchen an der Spitze des Medianlobus sind wesentlich länger und schlanker, als bei *Hydaticus okalehubyi*.

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Author's addresses:

Dr. Michael BALKE
Zoologische Staatssammlung
Münchhausenstrasse 21
D-81247 München, Germany
E-Mail: michb@nhm.ac.uk

Dr. Lars HENDRICH
Mörchinger Strasse 115 A
D-14169 Berlin, Germany
E-Mail: hendrich1@aol.com

Katayo SAGATA
Wildlife Conservation Society PNG Program
Po Box 277, Goroka,
Eastern Highlands Province, PNG
E-Mail: ksagata@global.net.pg

Prof. Dr. Günther WEWALKA
Starkfriedgasse 16
A-1190 Wien, Austria
E-Mail: g.wewalka@gmx.at



Fig. 1: (A) Habitus of *Hydatiscus dintelmanni* sp.n. (by D. Paramonov); (B) *H. okalehubyi*, tip of median lobe dorsal view, (C) dito, lateral view; (D) *H. dintelmanni*, tip of median lobe dorsal view, (E) dito, lateral view. Arrow indicates view for B, D.

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