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A NEW SPECIES OF THE DUNG BEETLE GENUS *SYNOPSIS* BATES FROM BORNEO, WITH NOTES ON ITS RELATIVES (COLEOPTERA: SCARABAEIDAE)

by

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Krikken, J.: A new species of the dung beetle genus *Synopsis* Bates from Borneo, with notes on its relatives (Coleoptera: Scarabaeidae).

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Key words: Coleoptera; Scarabaeidae; *Synopsis*; Borneo; new species.

Synopsis cambeforti spec. nov. is described and, by means of of an annotated key, compared with its two Sundaland relatives, *S. ritsemae* Lansberge, 1874 (recorded from Java) and *S. thoas* Sharp, 1875 (recorded from Java and Sumatra). A fourth species, *S. cf. birmanicus* Gillet, 1907, is recorded from Sumatra and West Malaysia.

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INTRODUCTION

More than a decade ago I looked at *Synopsis* material from the Sunda Islands, comparing it with the diagnostic information provided by Balthasar (1963). Being unable to judge this information without studying the types of the species involved, I abandoned my efforts to assign names to the species then before me. The genus has been considered a rarity in the Sunda Islands. Recent collections from the region, containing *Synopsis*, led to a revival of my interest in the genus, and it is obvious that these scarabs may locally be quite abundant.

Synopsis Bates (1868) is a genus of large, black Coprini, most of the about twelve known species inhabiting parts of continental Asia, from Turkmenia to Southeast Asia. They range into Sumatra and Java, two island species having been reported up till now. One outstanding generic character is the

presence of an extra ridge on the lateral declivity of the pronotum. The Sundaland species (and some others) have proepisternal cavities covered by stiff, long, radially arranged setae. These cavities apparently are acarodomatia, as one may find numerous mites in them. In the Sundaland species neither males nor females have any cephalic or pronotal armature; sexual dimorphism is extremely slight. Notable in one group of *Synapsis* species under discussion (here termed the *ritsemae* group) are the variably drawn-out genal angles and the apparently functionally related sinuate anterolateral parts of the prothoracic margin (see figures).

Like most other coprines (cf. the review of Halffter & Edmonds, 1983), *Synapsis* species are coprophagous paracoprids, but the breeding habits of the *ritsemae* group species may well be different from the mainly Turkmenian *S. tmolus* (Fischer), the only species which has been studied in detail. Additional observations by Masumoto (1973) on *S. davidi* Fairmaire from Taiwan confirm the aforesaid general qualification of the ecology of these scarabs.

In this paper *Synapsis* is for the first time reported from Borneo by describing a new species. One female was already collected a very long time ago by Büttikofer (his expedition report appeared in 1897) in the Upper Kapuas rain-forest, in Indonesia, and this is the specimen that initially directed my attention to the genus. My colleague W.D. Edmonds, on passing through Leiden some years ago, told me that he had collected *Synapsis* in Brunei in 1980, and then sent me the specimens concerned. These proved to belong to the same species as the old Büttikofer specimen. Later again, in January 1986, I visited Sabah and collected further conspecific material on the lower slopes of Mount Kinabalu.

More work is certainly needed to establish the relations between the forms in the *ritsemae* group. The differences between *S. ritsemae* Lansberge and *thoas* Sharp may have to be reconsidered when fresh material from Java becomes available. It should also be noted that a fourth *Synapsis* species has been found in the mountains of North Sumatra and near Kuala Lumpur. However, that species belongs to a group that does not have the drawn-out genae of the *ritsemae* group. It is here provisionally referred to *S. birmanicus* Gillet (1907), the type of which was studied in the British Museum (Natural History). Whatever the precise status of this fourth species, if not conspecific, it certainly is very close to that species. For the sake of convenience this *birmanicus* is included in the key to the Sundaland species given below.

KEY TO THE SUNDALAND SPECIES

Sundaland *Synopsis* are immediately distinguishable from other coprines in the region by the presence of prothoracic mite pockets (cavities covered by stiff setae).

- 1a. Genal angles virtually rectangular (fig. 6). Metatibiae unmodified, outer surface narrow, with the usual fossorial protrusions. — Burma, Malay Peninsula, Sumatra. — Holotype in BM. *birmanicus* Gillet, 1907
- 1b. Genal angles drawn out (figs. 2, 4). Metatibiae slightly sinuate, complanate, outer surface broad, with reduced fossorial protrusions on inferior-external ridge. 2
- 2a. Head and anterolateral surface of pronotum rugulate(-punctate). Anterolateral part of prothoracic margin “excised”, genal apex distinctly drawn out, very strongly so in *thoas* (fig. 4). Elytral interstriae usually more or less opaque, due to dense punctulation and rugulation. 3
- 2b. Head and anterolateral surface of pronotum with numerous, usually fine, distinct punctures. Anterolateral part of prothoracic margin at most slightly sinuate, genal apex at most slightly pointed (fig. 2). Metatibial underside slightly arcuate near apex (fig. 3). Elytral interstriae shiny, minutely punctate ($\times 12$). Metafemoral underside posteriorly very strongly punctate. Length 22-28 mm. Further description below. — Borneo. *cambeforti* spec. nov.
- 3a. Metatibial underside slightly concave near apex (lateral view). Elytral striae vaguely punctate. Length of lectotype (male) 25 mm. — Java. — Lectotype, here designated, in Leiden museum, labelled “Hekmeyer/Ardjoeno.”, “*Synopsis Ritsemae*/type. Lansb.” and blue type label; cf. also Ritsema (1875) *ritsemae* Lansberge, 1874
- 3b. Metatibial underside strongly concave near apex (fig. 5). Elytral striae distinctly punctate. Length of *thoas* holotype (male), Paris, 24 mm. — Java, Sumatra. — Synonym: *Synopsis sumatranus* Fairmaire, 1897a, 1897b, cf. Gillet, 1907. Subspecies of *ritsemae*? . . . *thoas* Sharp, 1875

DESCRIPTION

***Synopsis cambeforti* spec. nov.**
(figs. 1-3)

Material examined. — Holotype, male, from “Brunei: 5 km E Telisai/4°44'N-114°36'E, + 20 m, 12-30/xi/1980/Forest: human feces/W.D. Edmonds, col.” (Leiden museum). Three fema-

le paratypes with the same label data (one deposited in Paris museum). These Brunei specimens collected by baited pitfall trapping in secondary forest (Edmonds, in litt.). One female paratype from the "Borneo/Exped.", "Dr. J. Büttik.[ofer]/G[unung] Kenepai/(Pondok) [= shelter]/Jan.[18]94" (in Leiden museum). Additional paratypes from the lower slopes (ca 550 m) of Mt Kinabalu: Poring (Rafflesia forest), 19-23.i.1986, Poring (Kipungit), 18-22.i.1986, J. Krikken, in multistratal evergreen forest, also collected by baited pitfall trapping with human dung (four males and females in Leiden museum and in Sabah). Just before this paper went to the press I saw material from other Sabah localities (excluded from type-series).

Holotype (male). — Length ca 25 mm. Habitus like fig. 1 (paratype). Black, shiny. Pilosity (mouthparts, abdomen, legs) brown, dorsum virtually glabrous. Cephalic contours, figs. 1 (paratype), 2 (holotype). Clypeus anteromedially bilobate, median excision deep, narrow; most of clypeofrontal surface abundantly, evenly, distinctly but finely punctate, punctures mostly separated by 1-3 times their diameter. Frons simply convex; genal angle relatively short, wide, apex rounded. Anterolateral part of prothorax, fig. 2; surface entirely evenly convex, abundantly, finely punctate, punctural diameters increasing anterolaterad; punctures, as usual, isodiametric, mostly separated by 1-3 ti-

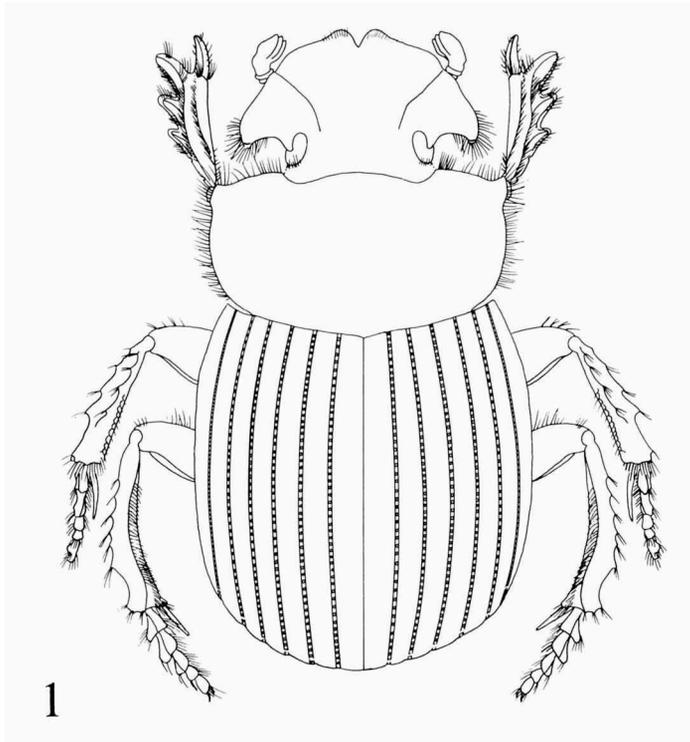


Fig. 1. Habitus (diagrammatic) of *Synapsis cambeforti*, paratype from Poring, Sabah. Length ca 27 mm.

mes their diameter; punctation fading out to postdiscal surface, sparse on lateral infracarinal declivities; lateral carina joining margin well behind distinct anterolateral pronotal angle; lateral section of anterior pronotal margin feebly sinuate; posterolateral angle indistinct in dorsal view. Elytral striae very distinct; their punctures slightly crenulating interstriae, separated by ca two times their diameter; striae 1 & 2 posteriorly joined with 10, 3 with 8, 4 with 5, 6 with 7; stria 7 adjacent to costa, 8 laterally also limited by slight ridge, 9 isolated. Elytral interstriae with very fine, sparse, scattered punctation; stria 9 ending far behind humerus.

Antenna light-brown. Most of pectus with abundant, distinct punctation; metasternal disc with fine punctures on central area, coarser but more or less effaced punctures abundant on and around posterior impression. Propectoral sides each with concavity covered with long, stiff, golden, radially arranged setae. Abdominal sternites subopaque, more or less microrugulate, with abundant, scabrous, setiferous punctation. Pygidium evenly, feebly convex, with abundant, fine, somewhat transverse punctation; pronotal borders thickly marginate.

Protibia broad, simply tridentate externally, serrate proximally; terminal spur large, elongate-acuminate, its apex reaching apex of tarsal segment 5; protarsus short. Mesotibial longitudinal-external crest with four or five antea-

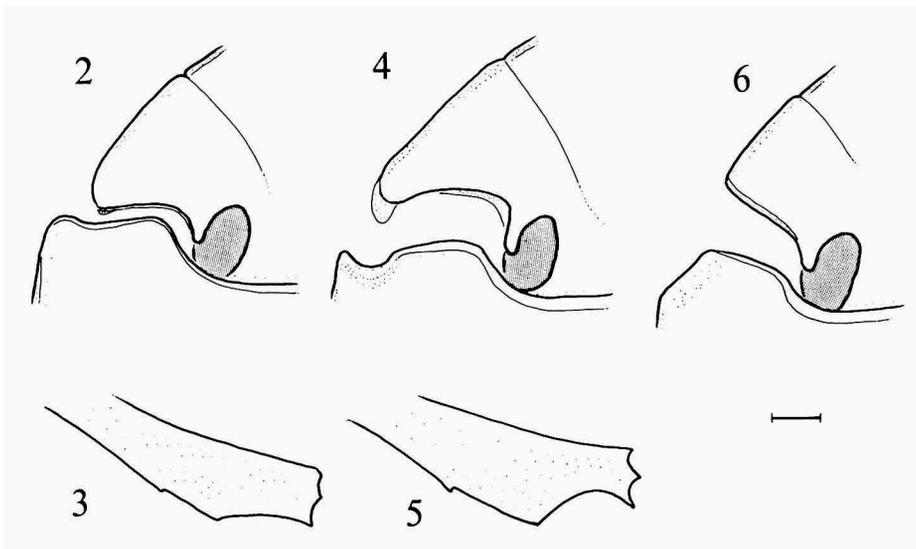


Fig. 2-6. *Synapsis* species. 2, 3, *cambeforti*, males, (2) holotype, (3) paratype, Poring, Sabah. 4, 5, *thoas*, male, Mt Mamas, Sumatra. 6, *birmanicus*, male, Kuala Lumpur environs, W Malaysia. — 2, 4, 6, left side of head and pronotum; 3, 5, left metatibial outer surface. — Scale line equals 1 mm.

pical denticles (no complete fossorial crests). Metatibia slightly sinuate, outer surface without distinct fossorial crests, underside only slightly arcuate-concave near apex (fig. 3, paratype); inferior-external crest with seven slight denticles, superior-external crest with thin fringe of long setae. Meso- and metatarsi with segments 1-4 strongly produced posterolaterally. Undersides of femora abundantly punctate; punctures on meso- and metafemora crowded on posterior margin, on metafemoral surface virtually favose; metafemur with short angulate denticle on inferior-posterior ridge, at ca 0.3 of total length from base.

Measurements in mm. Maximum width of head 10.3, interocular distance 4.0. Median length of pronotum 6.5, maximum width 12.3. Sutural length of elytra 13.7, maximum width 14.6.

Variation and sexual dimorphism. — Length 22-28 mm. Variation mainly evident in microsculpture. Some specimens from Sabah have their genal angles slightly pointed below. Sexual dimorphism slight, mainly evident in compaction of abdominal sternites.

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