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Z.Arb.Gem.Öst.Ent.	62	127-133	Wien, 19. 11. 2010	ISSN 0375-5223

A new genus of apterous Carventinae from Brunei Darussalam (Hemiptera, Heteroptera, Aradidae)

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Abstract

A new genus of apterous Carventinae, *Enkopicephalus* nov.gen.with the species *E.gibbidorsus* nov.sp. is described and figured. Another species from Borneo described as *Notoplocaptera draco* by VÁSÁRHELYI 1988 belongs to this genus and is assigned to as *E.draco* (VÁSÁRHELYI 1988) nov.comb.

Key words: Hemiptera, Heteroptera, Aradidae, Carventinae, *Enkopicephalus*, new genus, new species, apterous, Borneo, Brunei.

Introduction

The fauna of Aradidae from the island of Borneo is very rich and many taxa were described so far mostly from its northern part belonging to the Malaysian provinces of Sarawak and Sabah (KORMILEV & FROESCHNER 1987). The Aradid fauna of Brunei, a territorial enclave within these provinces is however practically unknown although it may be assumed that it is not basically different from that of the surrounding Malaysian rainforest areas. Access to its rugged hinterland is facilitated by the erection of the Field Studies Center on Kuala Belalong river about 20 years ago, which is run by the University of Brunei Darussalam. However only few material of Aradidae is still available and a first new genus is described in this paper.

Material and Methods

The type series was collected by the author already in 1993 and 1995 when visiting Brunei Darussalam in occasion of the Rainforest Conference Brunei and was already recognized in the field as belonging to a new genus. As no further material was recorded later the taxon is now described. The usual incrustation covering the body of apterous Carventinae was removed for the study of the abdominal fusion lines and structural details. The specimens are kept in the collection of the author.

The photos were taken with an Olympus SZX10 camera and assembled with Helicon Fokus 4.30 software.

Measurements were taken with a micrometer eyepiece, 20 units = 1mm.

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Taxonomy

***Enkopicephalus* nov. gen.**

Type species: ***Enkopicephalus gibbidorsus* nov. sp.**

D i a g n o s i s. The long slender neck region resembles first the apterous Oriental Carventinae genera *Apteraradus* DRAKE 1957 and *Tiomanaptera* HEISS 2010. The new genus can be distinguished at once from both genera by different fusion of thoracic segments lacking a scutellum like mesonotum and by much longer antennae, its length reaching 2.8-3.25x the width of head across eyes (ranging at most from 1.3-2.5x in both other genera). However its smooth elongate median thoracic plate is also shared by the genus *Notoplocaptera* USINGER & MATSUDA 1959, represented by 9 species from Oriental-Australian region (KORMILEV & FROESCHNER 1987, VÁSÁRHELYI 1988, HEISS & NAGASHIMA 2008). From the latter and all other apterous Carventinae described so far from Eastern hemisphere, *Enkopicephalus* n.gen. differs by a unique structure of the posteriorly elongate head neck showing a transverse excavation with two pincer like opposed teeth in both sexes. Females of the type species *Enkopicephalus gibbidorsus* n.sp. bear a shark-fin like vertical projection on mediotergite III, which is also unknown so far in Aradidae.

D e s c r i p t i o n. Apterous, body surface glabrous beneath incrustation, color piceous.

H e a d. At least 1.75x as long as wide, genae slightly produced over clypeus diverging anteriorly; antennae nearly or more than 3x as long as width of head, segment I thickest and longest, the following ones thinner and shorter; eyes large inserted in head; vertex elevated between eyes anteriorly split into diverging carinate ridges laterally delimited by deep longitudinal grooves and ovate elevations; postocular margins of head strongly converging to elongate cylindrical neck region which is transversally excavated near its base; a larger tooth projecting from posterior margin of neck and a smaller one emerging from the excavation are opposed to each other. Rostrum arising from a slit like atrium much shorter than head.

P r o n o t u m. Constricted anteriorly to a ring like collar, disk consisting of two lateral ovate elevated lobes with a median posteriorly dilated plate with longitudinal groove at middle.

M e s o n o t u m. Lateral ovate lobes elevated and rugose with an elongate smooth sclerite along inner margin; median triangular area depressed forming a pentagonal longitudinal smooth plate which extends across metanotum and mediotergites I+II to anterior margin of tergal plate.

M e t a n o t u m. Structure of lateral lobes and sclerites as in mesonotum.

T h o r a x a n d a b d o m e n. Mediotergites I+II fused to each other and to metanotum forming two trapezoidal sclerites laterad of the continuous median plate, separated from metanotum by a transverse suture and from laterotergites and tergal plate by deep grooves; tergal plate with slightly elevated median ridge and large ovate lateral markings of apodemal impressions; dorsal external laterotergites (deltg) I-III fused and triangularly expanded anteriorly reaching ½ of metanotum, IV-VII subrectangular and separated by deep sulci, mediotergite VII raised posteromedially. Spiracles II-VII lateral on posteriorly increasing triangular projections and visible from above, VIII terminal on paratergites VIII.

S t e r n u m a n d v e n t e r. Prosternum with a deep puncture at middle then posterolaterally produced into distinct lobes that are contiguous with anterior coxae, posteriorly

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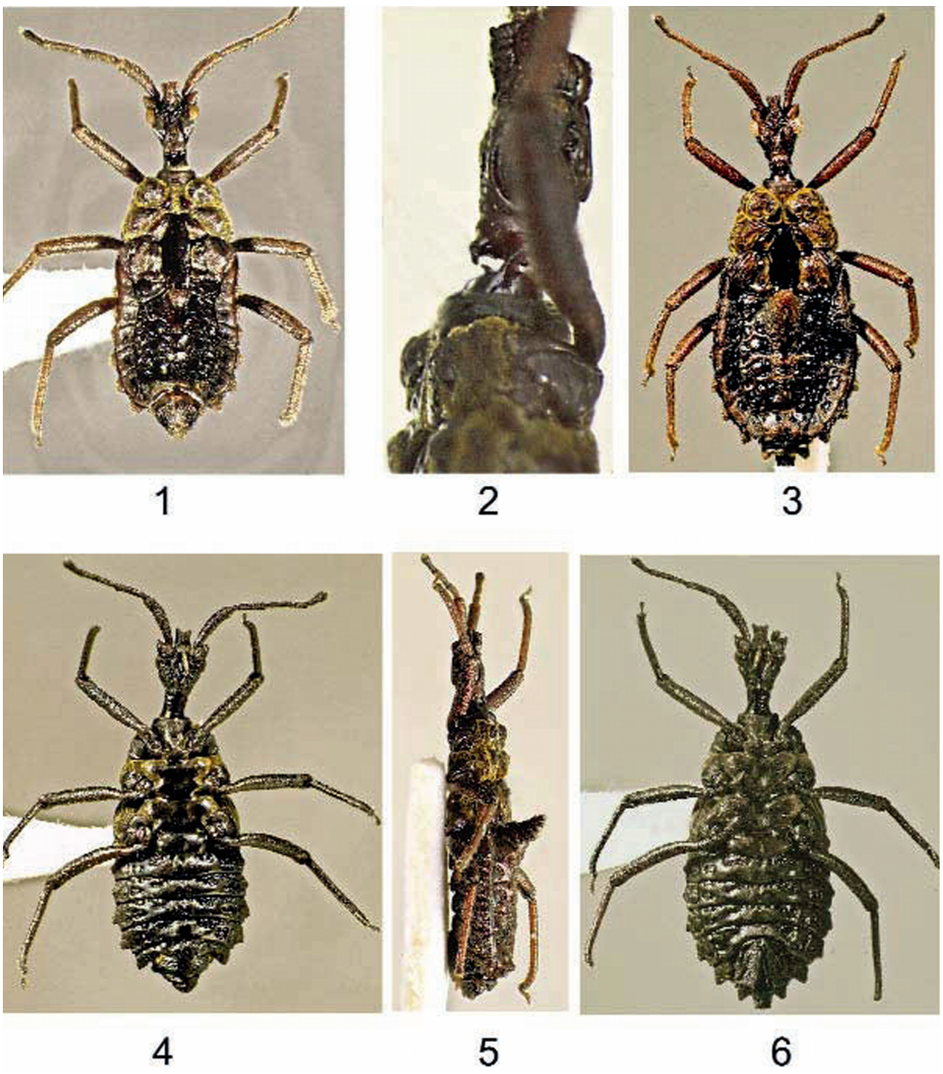

Photos 1-6: *Enkopicephalus gibbidorsus* sp.nov.: (1) holotype male, dorsal view; (2) head and pronotum lateral view, showing the pincer like structure; (3) paratype female, dorsal view; (4) paratype male, ventral view; (5) paratype female lateral view, showing the shark-fin like elevation on mtg III; (6) paratype female, ventral view.

fused to mesosternum this marked by a depression; meso- and metasternum fused, wider and depressed at middle with laterally directed lobes contiguous with median and posterior coxae; posteriorly fused to sternites I+II and III the fusion lines marked by transverse impressions, sternites III-VI separated by deep furrows, the apodemal impressions of usual pattern surrounded by deep punctures; median anterior margins of sternites III-VI with a row of deep punctures.

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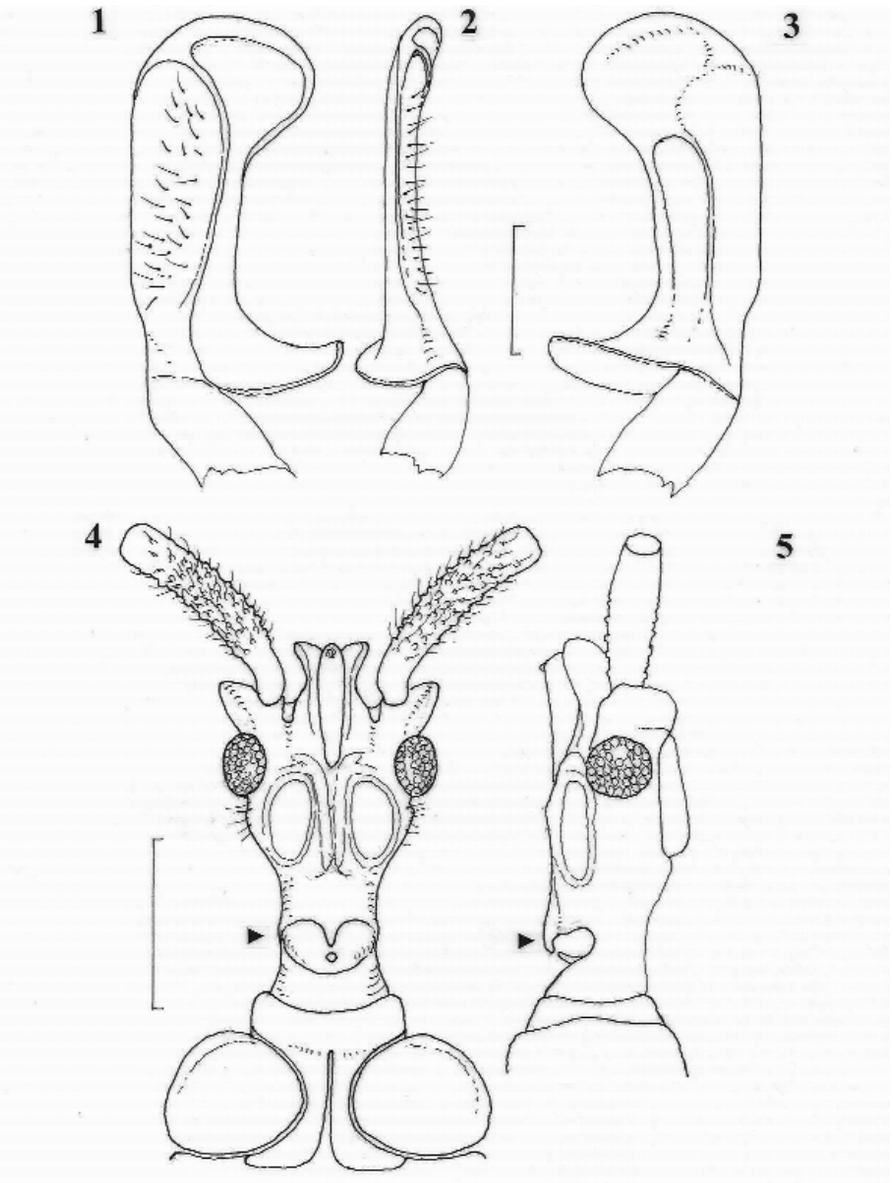

Fig. 1-5 *Enkopicephalus gibbidorsus* sp.nov.: (1-3) paramere in different positions; (4) head and pronotum dorsal view; (5) ditto lateral view, the arrows indicate the subbasal transverse excavation of the neck with the pincer like tubercles. Scale 0.1mm (Fig.1-3), 0.5mm (fig.4-5).

L e g s. Trochanters completely fused to femora, the latter slightly curved at base, then nearly straight and subcylindrical; tibiae cylindrical, apically distinctly curved inward;

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preapical comb on anterior tibiae present; tarsi bisegmented with thin first and larger club shaped second segment; claws with long thin pseudopulvilli.

E t y m o l o g y. From Greek >*enkopi*< (notch, furrow) and >*kefalos*< (head) referring to the conspicuous structure of basal head.

***Enkopicephalus gibbidorsus* sp.nov.** (figs. 1-5, photo 1-6)

Material examined: Holotype ♂, Brunei Darussalam, Temburong, Kuala Belalong Field Studies Center, mixed dipterocarp forest, 60-300m, 16-20 IV 1993 lg. E.Heiss; paratypes: 3♂♂ 5♀♀ collected with holotype; 3♂♂ 3♀♀ from the same area 2-5 IV 1995 lg. E.Heiss.

D e s c r i p t i o n. Male, apterous, colour uniformly piceous, glabrous beneath incrustation; lateral and ventral parts of thorax partly covered by a yellowish velvet like pilosity, legs and antennae with short yellowish setae.

H e a d. Much longer than wide (22 /12.5), ratio length of neck from posterior margin of eyes to collar 1.0 (12.5 / 12.5); genae anteriorly slightly produced over free clypeus, diverging laterally and reaching at most 1/3 of antennal segment I; antenniferous lobes short and thick with subacute apices diverging anteriorly; antennae 3.16x as long as width of head across eyes (39.5 / 12.5); segment I thickest and longest, II and III thinner and cylindrical, IV shortest and fusiform with pilose apex; length of antennal segment I/II/III/IV = 26/16.5/20/11.5; eyes oblong inserted in head; postocular lobes converging straightly to elongate cylindrical neck, the latter with a transverse subbasal excavation and two contiguous teeth at middle (fig. 4-5, photo 2); vertex with a median elevation and lateral ovate callosities separated by deep furrows; rostral groove V-shaped with carinate margins about ½ as long as head.

P r o n o t u m. Twice as wide as long including collar (20 / 10); collar ring like, mat, posteriorly connected with a widening smooth plate with a median furrow; lateral ovate lobes elevated and rugose; posterior margin sinuate, a deep furrow separates the meso- from metanotum; lateral margins and furrows of sclerites of pro-, meso- and metanotum beset with a velvet like fringe.

M e s o n o t u m. Median depressed smooth plate triangular then extending subparallel along metanotum and fused mediotergites (mtg) I+II to anterior margin of tergal plate; lateral ovate lobes elevated and rugose with a smooth triangular lower sclerite along their inner margins.

M e t a n o t u m. Lateral lobes ovate, elevated and rugose as in mesonotum, inner longitudinal sclerite smaller; a shallow transverse furrow indicates the fusion line with mtg I+II.

A b d o m e n. Mtg I+II fused forming polygonal sclerites laterad of the median plate, they are divided into a smaller anterior one (mtg I) and a larger posterior one (mtg II), the latter with some deep punctures at base; tergal plate subpentagonal its surface glabrous with usual pattern of deep apodemal impressions; the median ridge only slightly elevated, enlarged and highest on mtg III where its surface is granulate; deltg I+II+III fused triangularly extending anteriorly to ½ of metanotum, deltg IV-VII trapezoidal with deep apodemal impressions, mtg VII raised posteromedially for the reception of the large pygophore; spiracles II-VII lateral on triangular projections which increase in size from deltg II to VII, that of VIII terminal on paratergites VIII, all visible from above.

G e n i t a l i c s t r u c t u r e s. Pygophore with a dorsally rounded posteriorly projecting median ridge, its surface rugose and with short yellowish pilosity; parameres slender as fig. 1-3 .

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F e m a l e. Generally as male but of larger size, tergal plate with a conspicuous in lateral view shark-fin like projection on mtg III, its surface transversely rugose and with scattered short pilosity.

M e a s u r e m e n t s. Holotype ♂: length 4.25mm; width of pronotum 1.0mm, of mesonotum 1.3mm and of metanotum 1.35mm; width of abdomen across tergite V 1.6mm. Length of paratypes ♂♂ ranges from 4.20-4.65mm.

Female paratypes: Length 5.0/5.2mm; head w/l 0.65/0.67mm; pronotum w 1.1/1.2mm; mesonotum w 1.45/1.5mm; metanotum w 1.55/1.60mm; abdomen w 2.0/2.05mm; ratio length of antennae / width of head 3.15/3.10.

E t y m o l o g y. Refers to the large triangular dorsal projection of female type species, from "*gibbus*" (latin= elevated) and dorsum.

D i s c u s s i o n. VÁSÁRHELYI 1988 described *Notoplocaptera draco* n.sp. upon a single female from Borneo, Sandakan in Sabah province east of Brunei. This species shares the basic characters of *Enkopicephalus* gen.nov. and the author mentions and figures also the peculiar transverse excavation with two opposed teeth on base of cylindrical neck region.

Therefore *Notoplocaptera draco* belongs and is here assigned to the new genus, thus

Enkopicephalus draco (VÁSÁRHELYI 1988) **new.comb**.

The female holotype of Vásárheyi's taxon lacks however the triangular elevation on mtg III and is distinguished from *Enkopicephalus gibbidorsus* sp.nov. by this character. As the conspicuous fin like elevation is unique among Aradidae its function is unknown. However it can be assumed that this structure prevents the male effectively from grabbing females from above forcing them to the standard copulation position with females above the males.

A c k n o w l e d g m e n t s

The author thanks Mrs. Dr.Abu Kamariah Salim, University of Brunei Darussalam, responsible for the Kuala Belalong Field Studies Center and her staff for their assistance and hospitality during his stay in occasion of the Tropical Rainforest Conference Brunei 1993 and a second visit in 1995. My thanks are also due to Stefan Heim (Tiroler Landesmuseum) who took the photos.

Z u s a m m e n f a s s u n g

Vom Sultanat Brunei Darussalam, einer Gebietsenklave in Nordborneo wird eine neue Gattung von Rindenwanzen, *Enkopicephalus* gen.nov. mit der Typusart *gibbidorsus* sp.nov.beschrieben. Diese zeichnet sich durch eine auffällige Querrille an der Basis des verlängerten Halses aus, welche zwei sich zangenförmig nähernde Zähnchen aufweist. Die Weibchen der Typusart sind durch eine große dreieckige Erhebung am Mediotergit III gekennzeichnet, dessen Funktion unbekannt ist.

Die von VÁSÁRHELYI 1988 ebenfalls aus Borneo beschriebene Art *Notoplocaptera draco* erweist sich zur neuen Gattung gehörig und wird als *Enkopicephalus draco* (VÁSÁRHELYI 1988) nov.comb. eingeführt.

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Zeitschrift/Journal: Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen

Jahr/Year: 2010

Band/Volume: 62

Autor(en)/Author(s): Heiss Ernst

Artikel/Article: A new genus of apterous Carventinae from Brunei Darussalam (Hemiptera, Heteroptera, Aradidae). 127-133