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Notes on the Phasmatodea of Sri Lanka

(Orthoptera)

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Abstract

Several taxa of Phasmatodea from Central Sri Lanka are revised, described and illustrated with special reference to the genera *Prisomera* GRAY, 1835, *Stheneboea* STÅL, 1875, *Ramulus* SAUSSURE, 1862 and *Cuniculina* BRUNNER v. WATTENWYL, 1907. A distinctive key is provided for the genera *Prisomera* GRAY, 1835, *Paraprisomera* gen. n. and *Stheneboea* STÅL, 1875. New diagnoses of specimens and eggs are included for all three genera. *Stheneboea* STÅL, 1875 (Type-species: *Stheneboea malaya* STÅL, 1875) is reinstated with its taxonomic placement discussed and a distinction as well as a list of species included is provided.

Paraprisomera gen. n. is established for *Clitumnus coronatus* BRUNNER v. WATTENWYL, 1907. The male and egg of *Paraprisomera coronata* (BRUNNER v. WATTENWYL, 1907) are described and figured for the first time and a redescription of the female is provided. *Prisomera degeneratum* BRUNNER v. WATTENWYL, 1907, *Stheneboea esuriens* BRUNNER v. WATTENWYL, 1907, *Stheneboea oppositifolia* BRUNNER v. WATTENWYL, 1907, *Stheneboea obtuselobata* BRUNNER v. WATTENWYL, 1907 and *Stheneboea rarolobata* BRUNNER v. WATTENWYL, 1907 are synonymized with *Clitumnus coronatus* BRUNNER v. WATTENWYL (new synonyms).

The egg of *Prisomera spinicollis* GRAY, 1835 is described and figured with both sexes being redescribed and figured for the first time. *Greenia ornata* BRUNNER v. WATTENWYL, 1907 is synonymized with *P. spinicollis* GRAY (syn. n.). *Lonchodes auscultator* BATES, 1865 and *Greenia ignava* BRUNNER v. WATTENWYL, 1907 are transferred to *Prisomera* GRAY, 1835 and redescriptions for both species are provided.

The egg of *Paramenexenus ceylonicus* (SAUSSURE, 1868) is described and figured for the first time and redescriptions of the male and female are provided. *Paramenexenus molestus* REDTENBACHER, 1908 is synonymized with *Anophelepis ceylonicus* SAUSSURE (syn. n.).

The new species *Lopaphus srilankensis* sp. n. from Anuradhapura is described and illustrated from the male sex only. *Lopaphus srilankensis montanus* ssp. n. and *Parasipyloidea seiferti* sp. n. both from Nuwara Eliya region are described and figured in both sexes and the eggs. The egg of *Parasipyloidea seiferti* sp. n. is the first to be known from the genus *Parasipyloidea* REDTENBACHER, 1908. A key is provided for the Sri Lankan taxa of *Parasipyloidea* REDTENBACHER, 1908 as well as a new diagnosis, differentiation and brief discussion of the systematic placement of the genus.

Both sexes of *Sceptrophasma humilis* (WESTWOOD, 1859) are redescribed and illustrated as is the egg for the first time. *Bacillus carinulatus* SAUSSURE, 1868 is synonymized with *Bacillus humilis* WESTWOOD, 1859 (syn. n.). *Cuniculina* BRUNNER v. WATTENWYL, 1907 is reinstated and a new diagnosis, differentiation and a list of species included is provided. *Cuniculina cuniculus* (WESTWOOD, 1859) is selected as the type-species of *Cuniculina* BRUNNER v. WATTENWYL, 1907. Both sexes as well as the eggs of *Cuniculina cuniculus* (WESTWOOD, 1859) are described and illustrated and its synonymy as well as intraspecific variation are discussed. The following species are synonymized with *Cuniculina cuniculus* (WESTWOOD): *Cuniculina acute-cornuta* BRUNNER v. WATTENWYL, 1907, *Clitumnus attingens* BRUNNER v. WATTENWYL, 1907, *Lonchodes ceylonicus* SAUSSURE, 1868, *Lonchodes grallator* BATES, 1865, *Bacillus hyphrean* WESTWOOD, 1859, *Cuniculina insolens* BRUNNER v. WATTENWYL, 1907, *Cuniculina inverse-cornuta* BRUNNER v. WATTENWYL, 1907, *Cuniculina laevisissima* BRUNNER v. WATTENWYL, 1907, *Clitumnus rivalis* BRUNNER v. WATTENWYL, 1907 and *Bacillus scytale* BATES, 1865 (new synonyms).

A discussion is provided for the identity and systematic placement of the genera *Baculum* SAUSSURE, 1861 (Type-species: *Baculum ramosum* SAUSSURE, 1861), *Ramulus* SAUSSURE, 1862 (Type-species: *Bacillus* (*Ramulus*) *humberti* SAUSSURE, 1862) and *Ramulus* SAUSSURE, 1869 (Type-species: *Bacillus carinulatus* SAUSSURE, 1868). The systematics and synonymies of the genera *Ramulus* SAUSSURE, 1862 and *Clitumnus* STÅL, 1875 are briefly discussed.

Paraclitumnus BRUNNER v. WATTENWYL, 1893 (Type-species: *Paraclitumnus lineatus* BRUNNER v. WATTENWYL, 1893) is synonymized with *Ramulus* SAUSSURE, 1862 (syn. n.). *Dubreuilia* BRUNNER v. WATTENWYL, 1907 is a junior

synonym of *Paraclitummus* BRUNNER V. WATTENWYL and finally becomes a new synonym of *Ramulus* SAUSSURE, 1862 (syn. n.). *Clitummus trilineatus* BRUNNER V. WATTENWYL, 1907 is synonymized with *Ramulus humberti* (SAUSSURE, 1862) (syn. n.). Redescriptions of both sexes are provided. *Clitummus humberti* CARL, 1913 is given a replacement name and renamed as *Ramulus braggi* **nom. nov.**

The male and egg of *Ramulus lobulatus* (BRUNNER V. WATTENWYL, 1907) are described and figured for the first time and a redescription of the female is provided.

Lectotypes are designated for the following species: *Bacillus carinulatus* SAUSSURE, 1868, *Bacillus* (*Ramulus*) *humberti* SAUSSURE, 1862, *Bacillus hyphrean* WESTWOOD, 1859, *Lonchodes ceylonicus* SAUSSURE, 1868, *Clitummus coronatus* BRUNNER V. WATTENWYL, 1907, *Clitummus trilineatus* BRUNNER V. WATTENWYL, 1907, *Clitummus rivalis* BRUNNER V. WATTENWYL, 1907, *Cuniculina insolens* BRUNNER V. WATTENWYL, 1907, *Greenia ornata* BRUNNER V. WATTENWYL, 1907, *Lonchodes taprobanae* WESTWOOD, 1859, *Prisomera degeneratum* BRUNNER V. WATTENWYL, 1907, *Prisomera perlobatum* BRUNNER V. WATTENWYL, 1907, *Stheneboea esuriens* BRUNNER V. WATTENWYL, 1907 and *Paramenexenus molestus* REDTENBACHER, 1908.

Holotypes of new taxa are deposited in the ZSMC, paratypes in both the ZSMC and the author's collection.

Introduction

The Phasmid fauna of Sri Lanka has so far been poorly studied with some 85 species described, a quite remarkable number of them however representing junior synonyms. The first Phasmatodea originating from Sri Lanka (= Ceylon) have been described by GRAY (1835) and WESTWOOD (1859) followed by BATES (1865) and SAUSSURE (1862, 1868 & 1869). After the monograph published by BRUNNER V. WATTENWYL (1907) & REDTENBACHER (1906 & 1908), CARL (1913) is the only author describing a number of taxa from Ceylon and, except ZOMPRO (1999) who describes a new genus and two new species from the Horton Plains, nothing has been published on the Phasmatodea of this island up to now.

Generally the fauna does not seem to be very rich. It is however, quite remarkable because of several endemic species and genera. It clearly shows strong influence from the Indian fauna, with several genera and species recorded from both Sri Lanka and the Indian east-coast.

In the following material of Phasmatodea collected in Central Sri Lanka, during August 2000 is investigated. Collecting was done at night, searching the vegetation with torch lights and head torches. Whenever possible, eggs were obtained from egg-laying females. All the material was preserved according to the method described by ZOMPRO (1996) and is now in the author's collection (FH). Holotypes and single paratypes of the new taxa are housed in the Zoologische Staatssammlung in Munich (ZSMC). Whenever possible type material was examined and compared with the investigated specimens. As far as type material could not be examined, good photographs and data were available.

Specimens were generally collected at four different locations:

Hunas Falls: The Hunas Falls are some 26 km north of Kandy and can be reached by the mountainous road to Elkaduwa. They are at an altitude of about 900 m surrounded by cinnamon and tea plantations as well as the planter gardens and from 1000 m bordered onwards by primary forest. The region's vegetation possesses many planted hibiscus (*Hibiscus* spp.) and various *Acalypha* spp. from 800-900 m as well as much bramble (*Rubus* spp.) above 900 m. Temperatures range about 22-26 °C at day and may fall to 14 °C at night with heavy rainfall almost daily during the summer months.

Road from Kandy to Elkaduwa: The narrow mountainous road starts in Kandy at 500 m reaches its highest point near the junction to Hunas Falls at 800 m and runs down towards Elkaduwa again. Parts of the roadsides are full of rich tropical vegetation.

Geliya: A village only few kilometres south of Kandy near Mahaweli Ganga, Sri Lanka's longest river, at an altitude of approximately 500 m. Rich tropical vegetation alongside footpaths, leading to the river and gardens with numerous smaller plants. The location has high humidity and night temperatures of 22-24 °C.

Kandapola: A small village some 15 km northeast of Nuwara Eliya at an altitude of 1900 m, surrounded by vegetable and tea plantations but also small island-like areas of pine forest. During August it rains almost half the day and the region is also characterized by strong winds and low temperatures down to less than 10 °C at night. Collection took place in the lower ground vegetation of pine forest areas from 1900-2000 m.

Abbreviations used

- BMNH: British Museum of Natural History London, England.
INSB: Institute Royal des Sciences Naturelles de Belgique Bruxelles, Belgium.
MHNG: Museum d'Histoire Naturelle Geneve, Switzerland.
MNHN: Museum Nation d'Histoire Naturelle Paris, France.
NHMW: Naturhistorisches Museum Wien, Austria.
OXUM: University Museum Oxford, England.
SMFM: Senckenbergmuseum Frankfurt am Main, Germany.
SMNS: Staatliches Museum für Naturkunde Stuttgart, Germany.
UMB: Übersee-Museum Bremen, Germany.
ZMHB: Zoologisches Museum der Humboldt-Universität Berlin, Germany.
ZSMC: Zoologische Staatssammlung München, Germany.
FH: private collection of Frank Hennemann, Freinsheim, Germany.

HT, PT, LT, PLT: Holo-, Para-, Lecto-, Paralectotype.

Subfamily Lonchodinae

Keys to the genera *Prisomera* GRAY, *Paraprisomera* gen. n. and *Stheneboea* STÅL

- ♂♂
- 1 Head elongate, flat, with carina between eyes 2
 - Head spherical, or globose; Sri Lanka *Prisomera* GRAY
 - 2 Operculum keeled with anterolateral spine; meso- and metafemora ventrally with median carina, Sri Lanka *Paraprisomera* gen. n.
 - Operculum cup-like, without anterolateral spine; meso- and metafemora ventrally smooth; Sundaland *Stheneboea* STÅL
- ♀♀
- 1 Head elongate, flat, with carina between eyes 2
 - Head globose, strongly vaulted; Sri Lanka *Prisomera* GRAY
 - 2 Anal segment distinctly bilobed; meso- and metafemora ventrally with median carina; Sri Lanka *Paraprisomera* gen. n.
 - Anal segment truncate, meso- and metafemora ventrally smooth Sundaland *Stheneboea* STÅL
- Eggs
- 1 Capitular stalk strongly raised and swollen, tube- or crest-like 2
 - Capitular stalk indistinct *Stheneboea* STÅL
 - 2 Capitular stalk tube-like and cylindrical; capsule smooth *Paraprisomera* gen. n.
 - Capitular stalk crest-like, keeled dorsoventrally; capsule structured *Prisomera* GRAY

Genus *Prisomera* GRAY, 1835

Type-species: *Prisomera spinicollis* GRAY, 1835: 15, by subsequent designation of KIRBY, 1904: 323.

- Prisomera* GRAY, 1835: 15. (in part)
- WESTWOOD, 1859: 47. (in part)
 - KIRBY, 1904: 323.
 - BRUNNER V. WATTENWYL, 1907: 282. (in part)
 - KARNY, 1923: 236. (in part)
- Greenia*, BRUNNER V. WATTENWYL, 1907: 264. (in part)
- Lonchodes*, WESTWOOD, 1859: 36. (in part)
- BATES, 1865: 334 (in part)
 - SAUSSURE, 1868: 299, pl. 2: 7.
 - WOOD-MASON, 1877: 345.
- Stheneboea*, BRUNNER V. WATTENWYL, 1907: 246 (in part)

Description: Lonchodinae of average size, slender. Surface of body strongly structured and granulated or spined in ♂♂, smooth and slightly glossy in ♀♀. Head spherical or strongly globose, indistinctly longer than wide, with two large spines or foliaceous lobes between the eyes. Metanotum at least 5× longer than medianun segment. ♂♂ anal segment clearly divided or split and more or less strongly produced into two forcep-like lobes. Supraanal plate of ♀♀ long. Profemora apically curved and compressed, trapezoidal in cross-section. Meso- and metafemora distinctly curved, dorsally lobed in ♂♂, and rectangular in cross-section. Ventral carinae of meso- and metatibia strongly elevated in ♂♂, only with rounded apical-lobe in ♀♀. Basitarsi longer than remaining segments combined. Probasitarsus of ♀♀ with distinctly raised dorsal-carina.

Eggs: Capsule laterally compressed and keeled, distinctly sculptured, posterodorsally notched. Micropylar plate elongate, reaching almost from anterior to posterior end with raised median rim. Internal micropylar plate open, median line present. Operculum flat and oval, with high dorsoventrally keeled crest-like capitular stalk. Capitulum small, knob-like.

Differentiation: Characterized by the long thorax and globose head and closely related to *Paraprisomera* gen. n. which represents the link between *Prisomera* GRAY and *Stheneboea* STÅL, 1875. From *Paraprisomera* gen. n. it is distinguished by: the globose head; spines or lobes between eyes, curved meso- and metafemora; the elevated ventral-carina of the meso- and metatibiae; the long supraanal plate of ♀♀ and short abdominal tergite VII of ♂♂. The eggs are distinguished by the laterally depressed, keeled and structured capsule; oval operculum; and raised micropylar plate. From *Stheneboea* it is distinguished by: the globose head; basitarsus being longer than remaining segments combined; and the elevated and rounded dorsal carina of the probasitarsus. The eggs show an elongate and not laterally elevated micropylar plate as in *Stheneboea*, and a strongly raised crest-like operculum.

Comments: BRUNNER V. WATTENWYL (1907) already misunderstood GRAY'S genus *Prisomera* which the author originally established for *Prisomera spinicollis* GRAY, 1835, *Phasma femoratum* STOLL, 1813 and a third species which is no longer in Lonchodinae. KIRBY (1904: 322) designated *Lonchodes personatus* BATES, 1865 [= *Phasma femoratum* STOLL, 1813; = *Hermagoras foliopeda* (OLIVIER, 1792) as the type-species of *Hermagoras* STÅL, 1875.

BRUNNER V. WATTENWYL was not aware of KIRBY (1904: 323) already having designated *Prisomera spinicollis* GRAY as type-species of *Prisomera* GRAY and consequently his treatment of the genera is irritating. *Prisomera* sensu BRUNNER V. WATTENWYL (nec GRAY) does not even include its type species, but mainly taxa belonging to *Hermagoras* STÅL, 1875 instead. The actual type-species of *Prisomera* GRAY he erroneously listed in *Stheneboea* BRUNNER V. WATTENWYL (nec STÅL) and described the corresponding ♂♂ as new taxa of *Greenia* KIRBY, 1896 (type-species: *Lonchodes furcatus* BATES, 1865: 335) which is clearly a separate genus. KARNY (1923: 236) synonymizes *Stheneboea* STÅL, 1875 with *Prisomera* GRAY, 1835 an error which has since then been followed by all later authors.

Distribution: Sri Lanka, endemic.

Species included:

Lonchodes auscultator BATES, 1865.

Greenia ignava BRUNNER V. WATTENWYL, 1907.

Prisomera spinicollis GRAY, 1835.

= *Greenia furcata* BRUNNER V. WATTENWYL, 1907. **syn. n.**

= *Prisomera perlobatum* BRUNNER V. WATTENWYL, 1907.

Key to ♂♂ of *Prisomera* GRAY

1. Lobes of anal segment shorter than tergite IX 2
- Lobes of anal segment longer than tergite IX; elongate and forcep-like *spinicollis* GRAY
2. Small species (body length 67.8 mm); lobes of anal segment slender and finger shaped *ignava* BRUNNER V. WATTENWYL
- Large species (body length 92.0-97.0 mm); lobes of anal segment short and blunt *auscultator* (BATES)



Fig. 1. *Prisomera auscultator* (BATES), ♂ HT. (OXUM).

***Prisomera auscultator* (BATES, 1865)**
(Fig. 1)

Lonchodes auscultator BATES, 1865: 334. HT, ♂: Ceylon NIETNER, E coll. (1830-73) W. W. SAUNDERS, Purchased and pres. '73 by Mrs. F. W. HOPE, *Lonchodes auscultator* BATES Type, Type. BATES.

Lonchodes auscultator (OXUM, No. 553). *Stheneboca auscultator*, BRUNNER V. WATTENWYL, 1907: 248.

Lonchodes taprobanae ?, SAUSSURE, 1868: 66. 3♂♂: Ceylon, NIETNER (MHNG). [missidentification]

– SAUSSURE, 1869: 304, pl. 2: 7, 7a-b (♂). [missidentification, relating to SAUSSURE, 1868: 66]

Diagnosis: ♂. Closely related to *P. ignava* BRUNNER V. WATTENWYL, 1907 but distinguished by: the relatively shorter and broader lobes of anal segment, distally compressed and rounded horns between eyes; and considerably larger size of body; as well as lighter colouration.

Description: Since BATES's (1865: 334) original description is not very sufficient for differentiation from closely related taxa, a characterization is provided below.

♂. Large for the genus (body length of 92.0-97.0 mm), slender, stick-like. Antennae slightly longer than fore legs, light brown with black bands. Surface of body smooth, slightly glossy. General colour yellowish brown (perhaps greenish when alive), head, median segment, three terminal abdominal tergites as well as posterior part of meso- and metanotum darker brown. Legs straw coloured with irregular darker banding. Mesonotum apically with distinct black median stripe, which is already present at posterior margin of pronotum. Meso- and metafemora with broad, distinct pale band, followed by a dark brown band apically.

Head: Indistinctly longer than wide, strongly convex between eyes, narrowing posteriorly. With two long, distally slightly broadened, laterally compressed and forward pointing horns between the eyes. Vertex with several tubercles. Scapus oval, 1.5× as long as wide, dorsoventrally depressed.

Thorax: Pronotum slightly shorter than head, 1.5× as long as broad, lateral margins slightly convex. Mesothorax cylindrical, very elongate. Metanotum less than 2/3 the length of mesonotum.

Abdomen: Median segment rectangular, 1.5× as long as wide. Abdominal segments III-VI cylindrical, slightly narrowed medially, about 6× as long as wide, II and VII slightly shorter. VIII shorter than VII, dilating posteriorly, IX almost quadrate. Anal segment longer than VIII, posterolaterally protruding into two short, rounded lobes, densely dentate on inner surface. Posterior margin medially convex and indistinctly split to half of its length.

Legs: Meso- and metafemora very slightly curved. Posterodorsal carina of mesofemora indistinctly raised at end of apical third. Mesotibia apically with slightly raised and rounded ventral carina. Basitarsus at least the length of remaining segments combined. Probasitarsus with slightly rounded dorsal carina.

Measurements of the ♂ HT in OXUM (in mm): Body 97.0, head 3.4, pronotum 2.7, mesonotum 24.0, metanotum 17.0, median segment 2.5, profemora 32.5, protibiae 36.0, mesofemora 21.0, mesotibiae 24.5, metafemora 28.0, metatibiae 34.0, antennae 65.5.

SAUSSURE (1869: 304) cites body lengths of 92.0-96.0 mm.

Comments: SAUSSURE (1868: 66) seems to have been unsure about the identity of his specimens, but examination proved them to represent *Prisomera auscultator* (BATES, 1865)

Prisomera ignava (BRUNNER V. WATTENWYL, 1907)

(Figs. 31-33)

Greenia ignava BRUNNER V. WATTENWYL, 1907: 264. LT [by present designation], ♂: Ceylon, HEUSER 91, Collectio BR. v. W., det. BR. v. W. *Greenia ignava* BR., 8/28 (NHMW, No. 501); PLT, 2♀♀ (nymphs): Kandy (Ceylon) Burr, Coll. BR. v. W., (representing *P. spinicollis* GRAY, 1835).

– BROCK, 1998: 33.

Diagnosis: ♂. Very similar to the type-species *P. spinicollis* GRAY, 1835 but distinguished by: its shorter body (67.8 mm); distinctly shorter and more minutely toothed lobes of anal segment; and pointed, more slender spines on the head.

Description: As BRUNNER V. WATTENWYL's original description is insufficient, a redescription based on the ♂ lectotype in NHMW is given below.

♂: Small (body length 67.8 mm) but typical for the genus, very slender. General colour brown with shades and patches of almost black, slightly greenish on mesonotum. Head with indistinct, straw postocular line. Meso- and metafemora with distinct pale and black band apically. Remaining parts of extremities more indistinctly banded in paler brown.

Head: Slightly longer than wide, globose, narrowing posteriorly, broadest near eyes. Between eyes are two very distinct, slender black and forward pointing horns. Vertex with several small tubercles placed in four subparallel rows. Eyes small, convex, strongly projecting from head capsule, pale brown. Scapus twice as long as broad, dorsoventrally depressed, but almost cylindrical in distal section. Antennae straw with few darker bands, as long as fore legs. Pedicellus cylindrical, longer than wide.

Thorax: Pronotum almost of same dimensions as head, 1.5× as long as broad, slightly broadened medially. Median line straw and slightly impressed in anterior half. Mesothorax cylindrical, strongly elongated, slightly broadened at anterior and posterior margin. Surface smooth except for very few minor granules. Mesothorax cylindrical and like mesothorax but less than ⅓ of its length.

Abdomen: Median segment almost quadrate, half the length of tergite II. Segments II-VII cylindrical, smooth, slightly narrowed medially, on average 3× longer than broad. Tergite VIII half the length of VII, broadening towards posterior margin, with fine median carina. IX shorter than previous, strongly convex, posterior margin distinctly concave, with fine median carina as well. Anal segment keeled, posteriorly angled downward and split. Protruding as two short, finger-like lobes, which are basally extended into a saw-like, toothed rim on interior surface. Cerci small, cylindrical. Subgenital plate conically margined posteriorly and slightly projecting over posterior margin of tergite IX.

Legs: Profemora apically curved and depressed. Meso- and metafemora distinctly downcurving. Meso- and metatibia with large rounded triangular apical lobe, which is distinctly marked by a white band. Basitarsus 1.5× the length of remaining segments combined.

Measurements of the HT in NHMW (in mm): Body 67.8, head 3.0, pronotum 2.8, mesonotum 17.6, metanotum 14.9, median segment 2.3, profemora 24.0, protibiae 28.1, mesofemora 17.2, mesotibiae 20.2, metafemora 21.0, metatibiae 26.8, antennae 52.0.

Comments: The ♂ lectotype in NHMW clearly represents a valid species distinct from *P. spinicollis* GRAY, while closer examination of the two ♂♂ paralectotypes from Kandy showed these merely represent nymphs of *P. spinicollis* GRAY.

Prisomera spinicollis GRAY, 1835

(Figs 2, 3-10, 82-83)

Prisomera spinicollis GRAY, 1835: 16. HT, ♀: Ceylon (BMNH)

– KIRBY, 1904: 323.

– GÜNTHER, 1932: 386.

Prisomera spinicolle, WESTWOOD, 1859: 47.

Lonchodes spinicollis, WOOD-MASON, 1877: 345.

Sthenoboea spinicollis, BRUNNER V. WATTENWYL, 1907: 248.

Greenia ornata BRUNNER V. WATTENWYL, 1907: 264. LT [by present designation], ♂: Ceylon, 1889, H. FRUHSTORFER, Coll. BR. v. W., det. BR. v. W. *Greenia ornata* BR., 19.922, 8/28 (NHMW, No. 500); PLT: 2♂♂: Ceylon, 1891 Hladik,

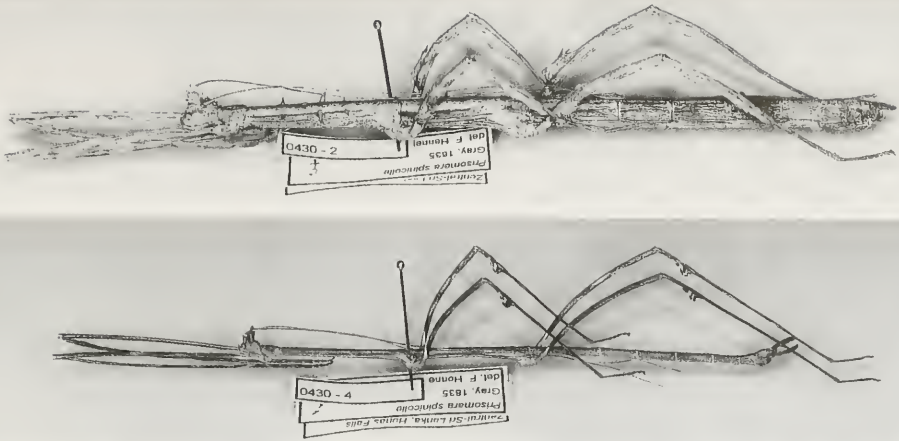


Fig. 2. *Prismera spinicollis* GRAY: up ♀, down ♂. (FH).

Coll. BR. v. W.; 1 nymph: Kandy Ceylon Löbell, Coll. BR. v. W. (NHMW, No. 500) **syn. n.**

– BROCK, 1998: 48.

Prismera perlobatum BRUNNER v. WATTENWYL, 1907: 290. Lectotype [by present designation], ♀: Coll. BR. v. W., Kandy (Ceylon) Burr, det. BR. v. W. *Prismera perlobatum*, 25.014, a9/4 (NHMW, No. 567); Paralectotypes, 2 ♀♀ (nymphs 5th instar): Coll. BR. v. W. Kandy (Ceylon) Burr, det. BR. v. W. *Prismera perlobatum*, a9/4 (NHMW, No. 567) [synonymised by GÜNTHER, 1932: 386]

Lonchodes perlobatus, GÜNTHER, 1932: 386.

– BROCK, 1998: 49.

[*Greenia ignava* BRUNNER v. WATTENWYL, 1907: 264. **n. syn.** (in part – only PLT)]

Material examined: 5♂♂, 3♀♀, 2♀♀ (subadult), 4 nymphs, 7 eggs: Zentral Sri Lanka, Hunas Falls 900-1000 m, 14.-18.VIII.2000, leg. HENNEMANN & SEIFERT (Coll. FH 0430-1 to 14, 0430-E); 3♂♂, 2♀♀, 1♀ (nymph), eggs: ex Zucht F. HENNEMANN, Zentral Sri Lanka (Hunas Falls), 2001 (Coll. FH 0430-15 to 20, 0430-ED); 1♀: Kandy, Ceylon, H. ROLLE, Berlin SW 11.; Coll. KARNY (NHMW, No. 500); 1♂: 80, Kandy (Ceylon) (SMFM).

Diagnosis: The ♂♂ are easily distinguished from the remaining two species by: the distinct long and foreps-like lobes of the anal segment; the leaf like, anteriorly serrated horns between the eyes; and more distinctly lobed meso- and metatibiae.

Description: Since no sufficient description of both sexes is available, a detailed description of both sexes is given below.

♀♀. Medium sized (body length 99.0-119.0 mm), stick-like. General colour of body light yellowish brown or straw coloured to dark brown, sometimes greyish or greenish with more or less distinct, irregular longitudinal lines. Occasionally specimens may show a distinctly broad, white longitudinal band on thorax and first abdominal tergites. Sternites with characteristic dark spots. Profemora with darker, irregular bands, meso- and metafemora with light grey and blackish patches and bands in apical half.

Head: Globose, almost spherical, indistinctly longer than wide, with four subparallel rows of small tubercles on vertex (the outer row more distinct) and a further row of tubercles laterally behind eyes. Between the eyes two large irregularly shaped, forward-pointing, ear-like lobes. Eyes small, spherical. A distinct black transverse line just after base of each antennae. These projecting beyond posterior margin of tergite III. Scapus dorsoventrally depressed, rectangular, twice as long as wide. Ventrally with a row of minute black points at posterolateral margin. Pedicellus cylindrical, longer than wide, anteroventrally with two rows of tiny points. Remaining segment decreasing in length towards apex.

Thorax: Pronotum as long as head, slightly longer than wide, narrowed medially and with long, fine transverse ridge. Surface with numerous black tubercles of variable size, forming two indistinct rows medially. Mesothorax cylindrical, strongly elongate, slightly thickened posteriorly, whole surface finely

covered with black granules. Mesonotum with indistinct fine median-line and 4-6 large asymmetrical spines on both sides. Mesopleurae with several distinct tubercles. Metathorax structured as mesothorax, metanotum parallel-sided, 5× as long as wide and more than 4× the length of segmentum medianum, with 2-4 more or less distinct spines in anterior half.

Abdomen: Median segment almost quadrate. Segments II and VII twice as long as wide, III-VI 2.5× as long as wide, all cylindrical, II slightly tapered towards anterior margin. Tergite VIII quadrate, IX shorter than wide, both strongly vaulted. All tergites distinctly covered with small, black granules and irregular, fine longitudinal lateral carinae. A minute pair of spines in anterior half, which is protruding as two distinct, rounded tubercles on VI. Sternites with several larger granules, most distinct on II-IV, and a fine carina parallel to lateral margin. This lateral carina clearly serrated on sternite VII, and protruding as a triangular lobe distally. Praeopercular organ consisting of two short, finger-like styli. Anal segment flattened posteriorly, posterior margin concave and with rounded lateral incision. Supraanal plate long, slender, protruding over apex of anal segment and almost of same length. Cerci small, dark brown, subcylindrical, bristled. Operculum boat-like, distinctly keeled, roughly spinose and structured posteriorly and slightly projecting beyond posterior margin of anal segment.

Legs: Profemora curved and depressed basally. Dorsal carina of protibia slightly raised and wave-like in distal third. Probasitarsus with distinctly raised dorsal carina, as long as remaining segments combined. Meso- and metafemora distinctly downcurving. Anterodorsal carina of meso- and metafemora apically with a large foliaceous, toothed lobe and a further similar but comparably smaller lobe on posterodorsal carina just before middle. Ventral carinae smooth. Meso- and metatibia with distinctly elevated and wave-like ventral carina except for distal third. Meso- and metabasitarsus simple, as long as remaining segments combined.

Measurements (in mm): Body 99.0-119.0, head 4.9-5.2, pronotum 4.0-5.0, mesonotum 21.75-25.5, metanotum 14.3-18.0, median segment 3.9-4.5, profemora 28.0-33.5, protibiae 32.3-37.2, mesofemora 18.2-20.25, mesotibiae 21.5-25.8, metafemora 21.75-27.5, metatibiae 29.7-35.5, antennae 63.0-68.0. Two subadult ♀♀ nymphs measure 89.0 and 93.5 mm in body length.

♂♂. Medium sized (body length 68.5-86.5 mm), very slender, antennae longer than forelegs. General colour of body mid to dark brown, meso- and metanotum more or less distinctly green. All femora and tibiae more or less distinctly annulated or mottled in lighter and darker brown, femora greyish white or straw apically. Meso- and metafemora with pale band, near middle.

Head: Generally as in ♀♀, but eyes more prominent, greyish brown, strongly projecting from capsule. Vertex only with few pointed granules, very indistinctly placed in rows. With two long, slender, foliatus lobes between the eyes, which are more or less distinctly serrated at anterior margin. Antennae as in ♀♀.

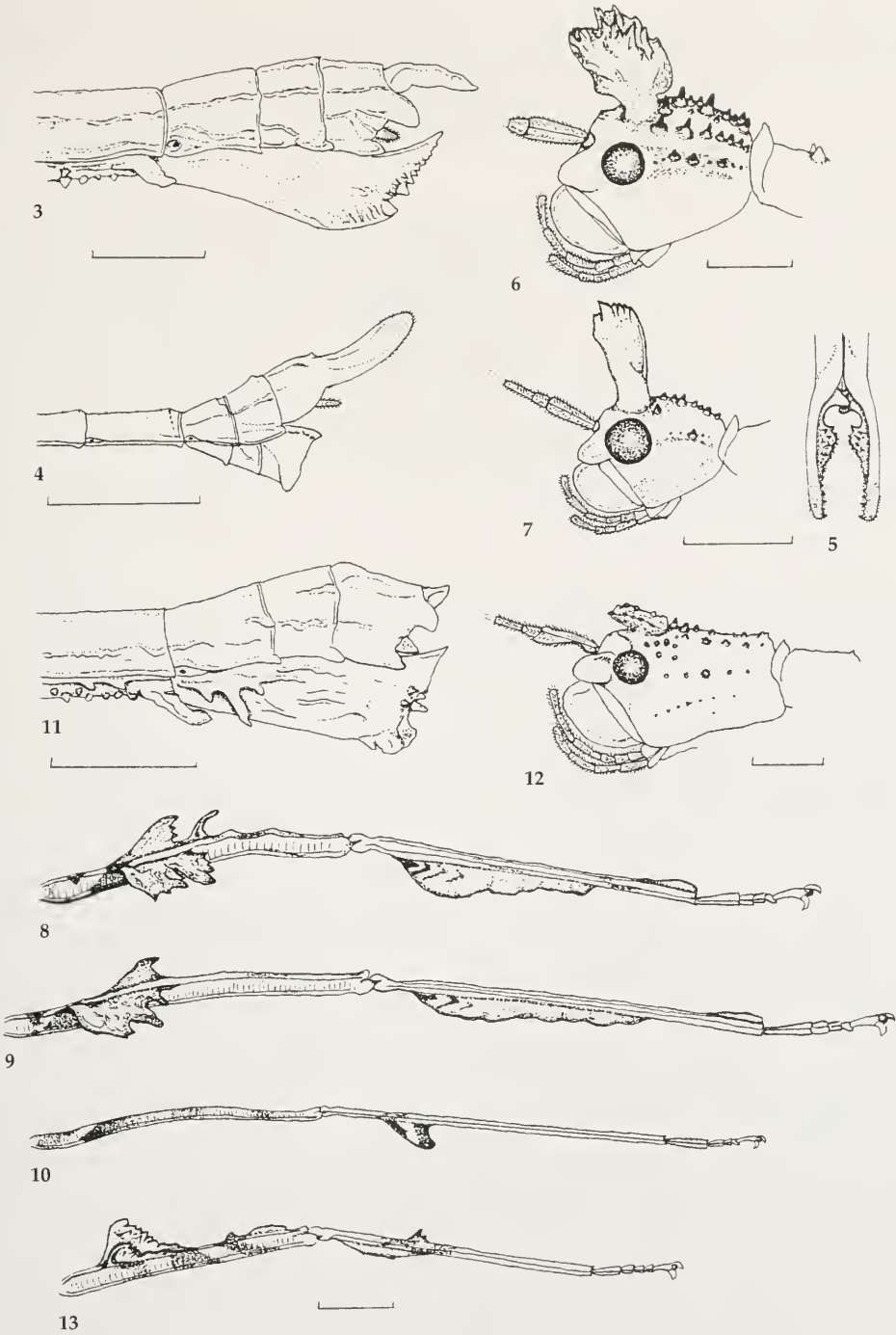
Thorax: Pronotum generally as in ♀♀, but without clear granulation, almost of same dimensions as head. Mesothorax cylindrical, very elongate, broadened posteriorly. Mesonotum smooth with few granules at lateral margins. Mesosternum smooth, mesopleurae with very few white granules. Metathorax as mesothorax, about ¾ of its length.

Abdomen: Median segment almost quadrate, half the length of segment II, smooth. Segment II 3× as long as wide, III-VII almost 4× as long as wide, with very few minute granules at lateral margins. Sternites II-V smooth, VI-VII with few pointed tubercles. Tergite VIII, slightly longer than wide, dilating towards posterior margin, with fine median carina. IX indistinctly shorter than VIII, strongly vaulted with broad median carina, lateral margins convex. Anal segment, strongly keeled, longer than two previous tergites combined, deeply split, posteriorly protruding into two long, elongate, forceps-like lobes. These are finely toothed on interior surface, interoventral carina elevated into distinct triangular tooth near base. Cerci small, cylindrical, bristled. Subgenital plate posteriorly marginated, distinctly conical in centre.

Legs: Profemora curved and depressed basally. Meso- and metafemora distinctly downcurving towards apices. Meso- and metatibia with large rounded or triangular apical lobe, which is distinctly marked by a white transverse band. Basitarsus 1.5× the length of remaining segments combined.

Measurements (in mm): Body 68.5-86.5, head 2.8-3.5, pronotum 2.1-3.0, mesonotum 17.0-20.0, metanotum 12.5-15.75, median segment 1.9-2.25, profemora 23.0-29.75, protibiae 27.3-34.7, mesofemora 13.8-20.0, mesotibiae 18.8-24.0, metafemora 18.5-23.0, metatibiae 25.5-32.5, antennae 59.0-69.0. A subadult ♂ (FH 0430-11) measures 64.5 mm in body length.

Eggs: Medium sized, capsule laterally compressed and keeled, widely notched posterodorsally, general colour light creamish brown. Surface of capsule smooth, laterally covered with area of distinct straw-coloured irregularly shaped keels. Micropylar plate elongate almost reaching from anterior to posterior



Figs. 3-10. *Prisomera spinicollis* GRAY [scale=5 mm]: 3 apex of abdomen seen laterally (♀), 4 apex of abdomen seen laterally (♂), 5 anal segment of ♂ seen dorsally, 6 head seen laterally (♀), 7 head seen laterally (♂), 8 left mid-leg seen laterally (♀), 9 left hind-leg seen laterally (♀), 10 left mid-leg seen laterally (♂).
Figs. 11-13. *Paraprisomera coronata* (BRUNNER V. WATTENWYL) [scale=5 mm]: 11 apex of abdomen seen laterally (♀), 12 head seen laterally (♀), 13 left mid-leg seen laterally (♀).

end of capsule, with strongly raised median rim, covered with several deep, circular impressions. Micropylar cup small, bean shaped. Opercular angle approximately 15°. Operculum oval and flat. Capitular stalk distinctly raised and swollen to crest-like, dorsoventrally keeled structure. Surface almost smooth, slightly transparent, dark straw. Capitulum small, knob-like, reddish brown, hidden in centre of capitular stalk.

Measurements (in mm): Length (incl. operculum) 4.6, length 3.4, width 2.2, height 3.1, Length of micropylar plate 2.8, height of capitulum 1.1.

Comments: Comparison of the type specimens of *Greenia ornata* BRUNNER v. WATTENWYL, 1907 showed this taxon merely represents the ♂ of *Prisomera spinicollis* GRAY, 1835 and has to be treated as a junior synonym (syn. n.). Examination of the type-series of *Prisomera perlobatum* BRUNNER v. WATTENWYL, 1907 confirmed its synonymy with *P. spinicollis* GRAY (GÜNTHER, 1932: 368). WOOD-MASON (1877: 346) erroneously states *Lonchodes auscultator* BATES, 1865 to represent the corresponding ♂ of *P. spinicollis* GRAY. While armature and extensions of legs are quite constant, colouration and size show strong variation especially in ♀♀.

In the Kandy and Hunas Falls region this species is readily found feeding on red-flowering Hibiscus-shrubs (*Hibiscus rosa-sinensis* or *H. mutabilis* (Malvaceae)) used for gardens and alongside roads. However, they preferred bramble (*Rubus* spp.) in captivity although different hibiscus have been offered. Eight eggs were obtained in Sri Lanka of which seven hatched after 12-14 weeks, finally resulting in three adult pairs. The eggs laid by these ♀♀ hatched at a very low rate and the newly hatched nymphs died within a few days. In captivity ♀♀ laid up to 5 eggs a week.

Genus *Paraprisomera* gen. n.

Type species: *Clitumnus coronatus* BRUNNER v. WATTENWYL, 1907: 251, by present designation.

Clitumnus, BRUNNER v. WATTENWYL, 1907: 187. (in part)

Lonchodes, WESTWOOD, 1859: 36. (in part)

Myronides, BRUNNER v. WATTENWYL, 1907: 252. (in part)

Prisomera, BRUNNER v. WATTENWYL, 1907: 282. (in part)

– KARNY, 1923: 236. (in part)

– GÜNTHER, 1938: 129.

Stheneboea, BRUNNER v. WATTENWYL, 1907: 246. (in part)

Description: Medium sized, slender, cylindrical Lonchodinae. Surface of body granulated and rugose, not spinose. Head subcylindrical, longer than wide; vertex more or less flat, with transverse carina, forming two scale-like tubercles between eyes in ♀♀, or a pair of small spines in ♂♂. Metanotum at least 4.5× as long as median segment. Median segment slightly longer than wide. Abdominal tergites in ♀♀ occasionally with small scale-like tubercle posteromedially. Supraanal plate short, rounded or triangular, carinate. Operculum of ♀♀ with long finger-like spine anterolaterally. Anal segment of ♂♂ deeply split, forming two long scoop-shaped, curved lobes. Cross-section of femora rectangular. Ventral surfaces of meso- and metafemora with fine median carina. Mesofemora with more or less distinct foliaceous lobes dorsally. Ventral carina of mesotibia with small, triangular apical-lobe. Hind legs simple. Basitarsus at least the length of following three segments combined. Probasitarsus of ♀♀ with distinctly rounded dorsal carina.

Eggs: Characteristic bottle-like appearance. Small, grey to black, capsule laterally compressed, oval in cross-section. Surface almost smooth, glossy. Polar-area notched. Micropylar plate elongate. Internal micropylar plate open, median line present. Opercular angle distinct, negative. Operculum strongly elongated, tube-like, cylindrical.

Differentiation: The new genus is closely related to *Prisomera* GRAY, 1835 but distinguished by: the elongate and flat head which is clearly longer than wide; transverse carina between the eyes which protrudes as into two spines or scale-like tubercles at its ends; simple hind legs; basitarsus at best being the length of remaining segments combined; and the less distinctly raised ventral carinae, only forming a small, triangular basal lobe. The eggs show strong resemblance to *Prisomera* but are distinguished by their almost smooth, glossy capsule, and cylindrical, strongly elongated operculum, giving the egg a characteristic bottle-like appearance.

From *Stheneboea* STÅL, 1875 it is distinguished by: the median carina on the ventral surfaces of meso- and metafemora; long basitarsus; and the deeply split ♂♂ anal segment which is elongated into two characteristic, curved scoop-like lobes; as well as in being endemic for Sri Lanka. The eggs are again clearly distinct by their flat and smooth surface and remarkably raised, tube-like operculum.

Distribution: Sri Lanka, endemic.

Species included:

- Clitumnus coronatus* BRUNNER V. WATTENWYL, 1907
- = *Prisomera degeneratum* BRUNNER V. WATTENWYL, 1907 **syn. n.**
- = *Stheneboea esuriens* BRUNNER V. WATTENWYL, 1907
- = *Stheneboea oppositifolia* BRUNNER V. WATTENWYL, 1907 **syn. n.**
- = *Stheneboea obtuse-lobata* BRUNNER V. WATTENWYL, 1907 **syn. n.**
- = *Stheneboea raro lobata* BRUNNER V. WATTENWYL, 1907 **syn. n.**
- Lonchodes taprobanae* WESTWOOD, 1859.

***Paraprisomera coronata* (BRUNNER V. WATTENWYL, 1907)**
(Figs 11-14, 29-30, 84-85)

Clitumnus coronatus BRUNNER V. WATTENWYL, 1907: 196. LT [by present designation], ♀: HLADIK 1891, Ceylon (ZMHB); PLT, 2 ♀♀: Hladik 1891, Ceylon (ZMHB).

Prisomera coronatum, GÜNTHER, 1938: 129 (fig.)

– BROCK, 1998: 27.

Prisomera degeneratum BRUNNER V. WATTENWYL, 1907: 290. LT [by present designation], ♀: Coll. BR. v. W., Kandy (Ceylon) Burr, det. BR. v. W. *Prisomera degeneratum*, a9/4 (NHMW, No. 566); PLT, 1♀, 2♀♀ (nymphs 5th instar): Coll. BR. v. W., Kandy (Ceylon) Burr, det. BR. v. W. *Prisomera degeneratum*, a9/4; 1♀: *Prisomera degeneratum* m. Kandy, a9/4 (NHMW, No. 566) **syn. n.**

– BROCK, 1998: 24.

Lonchodes degeneratus, GÜNTHER, 1932: 386.

Stheneboea esuriens BRUNNER V. WATTENWYL, 1907: 251. LT [by present designation], ♀: Süd Ceylon Mai 1889 H. FRUHSTORFER; Collectio BR. v. W., det. BR. v. W. *Stheneboea esuriens* Br., 8/24 (NHMW, No. 473); PLT, ♀: Hladik 1891, Ceylon, Mus. Caes. Vind. Ceylon Hladik, det. BR. v. W. *Stheneboea esuriens*, 8/24 (NHMW, No. 473); 3♀♀: Ceylon, 1889, H. FRUHSTORFER (ISNB). [synonymised by GÜNTHER, 1938: 129]

– VANSCHUYTBROECK & COOLS, 1981: 4.

Prisomera esuriens, SEOW-CHEON, BROCK & SEOW-EN, I., 1994: 59.

– BROCK, 1998: 27.

Stheneboea obtuse-lobata BRUNNER V. WATTENWYL, 1907: 249. HT, ♀: Ceylon, Dr. LORENT., 22, *Stheneboea obtuse-lobata* Br. 22., BRUNNER det. Type! (UMB) **syn. n.**

Stheneboea obtuselobata, ZOMPRO, 1999b: 65.

Stheneboea oppositifolia, BRUNNER V. WATTENWYL, 1907: 251. HT, ♀: no data, det. BR. v. W. *Stheneboea oppositifolia* (NHMW, No. 474) **syn. n.**

– BROCK, 1998: 48.

Stheneboea raro lobata BRUNNER V. WATTENWYL, 1907: 249. HT, ♀: Ceylon (SMNS) **syn. n.**

Material examined: 5♀♀, eggs: Zentral-Sri Lanka, Hunas Falls 900-1000 m, 14.-18.VIII.2000, leg. HENNEMANN & SEIFERT (Coll. FH 0431-1 to 5, 0431-E); 1♂: Ceylon Worms (SMFM) 1♀: Ceylon, Peradeniya 12/XII.07, Dr. UEZEL (NHMW); 1♀: Ceylon, Heuser, Coll. BR. v. W., det. BR. v. W. *Lonchodes taprobanae* (NHMW).

Diagnosis: Very similar to the second species, *P. taprobanae* (WESTWOOD, 1859), but distinguished by: its smaller size; differently shaped lobes of ♂♂ anal segment; shape of praeopercular organ, operculum, anal segment and supraanal plate; as well as the lack of foliaceous lateral lobes on tergites VIII-IX of ♀♀. Furthermore the eggs have a slightly different shaped micropylar plate, glossy black colouring and have an almost cylindrical instead of oval operculum.

Description: Redescriptions of both sexes are provided below.

♀♀: Medium-sized (body length 86.0-96.5 mm), slender, complete surface of body more or less strongly granulated and rugose. Antennae longer than fore-legs. General colour mid to dark brown, often with lighter mottling and a distinct straw coloured, triangular patch in posterior half of metanotum and on

median segment. Fore legs mottled in light and dark brown, mid and hind legs light brown or straw with darker bands, which are more indistinct on hind legs.

Head: Oval, $1.5\times$ as long as broad, oval in cross-section, vertex flat. Eyes small, greyish brown, convex. Between them is a slightly raised transverse carina, which is notched medially, forming two scale-like structures. Two rows of minute, black tubercles behind eyes and scattered black tubercles on vertex. Scapus dorsoventrally depressed, oval, apically notched at inner margin, and with fine, parallel furrows on ventral surface. Pedicellus cylindrical, longer than wide. Antennae projecting over posterior margin of median segment.

Thorax: Pronotum subquadrate, almost same dimensions as head, $1.5\times$ as long as wide. Mesothorax cylindrical, elongate, slightly widened posteriorly. Metanotum as broad as mesonotum, about $4.5\times$ longer than median segment, $6\times$ as long as wide and with a very fine median line.

Abdomen: Median segment almost quadrate with clear median line. Segments III-VII of equal length, $3.5\times$ as long as wide, II slightly shorter. Tergites II-VII with more or less distinct median line, parallel-sided, V in particular with more or less distinct scale-like tubercle posteromedially, much less prominent on remaining tergites. Granulation forming curved ridges laterally. Sternite II anteromedially with distinct black spot, almost surrounded by a white line. Sternites II-VII all with several distinctly larger tubercles and a pair of granules posteromedially. Sternite VII posteromedially with praepopular organ consisting of two foliatus, carinated lobes. Tergite VIII $1.5\times$ as long as wide, $\frac{3}{4}$ the length of VII, strongly vaulted, posteriorly broader than anteriorly, lateral margins slightly concave. IX indistinctly longer than wide and shorter than VIII. Anal segment as long as VIII with clear median carina, posterior margin pointed at angles and clearly convex medially. Supraanal plate rounded, carinated and slightly projecting over posterior margin of anal segment. Cerci small, laterally depressed, bristled. Operculum boat-like, anterolaterally with strongly raised and toothed carina ending in a long, finger-like thorn, posterior part with irregular tubercles and short teeth. Posterior margin reaching apex of lamina supraanalis.

Legs: Profemora compressed and curved basally. Apex of dorsal carina of protibia more or less distinctly raised into a rounded lobe. Probasitarsus as long as remaining segments combined, with clearly raised dorsal carina. Mesofemora with large, scale-like, toothed lobe in apical third of posterodorsal carina; occasionally followed by one or two further lobes. Anterodorsal carina with small scale-like lobe at same height as the large lobe on posterodorsal carina. Posteroventral carina indistinctly broadened in apical third. Mesotibia with small triangular tooth at end of apical third of dorsal carina. Ventral carina with small, indistinctly toothed, triangular apical lobe. Metafemora simple. Metatibia simple, except for flat apical lobe. Basitarsus as long as remaining segments, except claw, combined.

Measurements (in mm): Body 86.0-96.5, head 4.8-5.1, pronotum 3.5-4.0, mesonotum 18.7-22.0, metanotum 12.0-13.3, median segment 2.5-3.0, profemora 22.5-25.0, protibiae 26.0-27.5, mesofemora 17.0-18.23, mesotibiae 18.0-19.2, metafemora 23.0-25.5, metatibiae 27.1-28.8, antennae 44.0-49.0.

♂♂: Medium sized (body length 76.5 mm), very slender, slightly smaller than ♀♀. Antennae as long as fore legs. Whole surface of body with several raised tubercles and granules, mesonotum and abdominal tergite VII-IX in particular distinctly rugulose. General colour plain mid brown. Apical part of profemora straw-coloured.

Head: Oval, $1.5\times$ as long as wide, slightly vaulted, narrowing posteriorly. Surface with few larger granules. Eyes prominent, spherical, greyish brown. Between them a vaulted transverse carina, forming two triangular, forward pointing spines at its ends. Posterior margin with four raised medial tubercles. Antennae as in ♀♀, reaching to posterior margin of tergite IV.

Thorax: Pronotum generally as in ♀♀, almost of same dimensions as head, but broader at anterior margin. Mesonothorax very elongate and slender, cylindrical, dilated posteriorly. Mesonotum in particular, covered with numerous, occasionally quite distinct, raised tubercles and granules, posterior margin indistinctly raised. Metathorax broadened apically, generally as mesothorax but less distinctly granulose and only $\frac{2}{3}$ the length of mesothorax. Meso- and metasternum strongly convex.

Abdomen: Median segment $1.5\times$ longer than wide and $\frac{3}{4}$ the length of segment II, narrowed medially. Segment II $4\times$ as long as wide, III slightly longer, IV-VII $5\times$ as long as wide; all cylindrical, slightly narrowed medially. VII slightly dilating towards posterior margin. Tergite VIII 1.5 longer than wide, distinctly dilating posteriorly; posterior margin almost twice as broad as anterior margin. IX slightly broader than long, $\frac{2}{3}$ the length of VIII, indistinctly carinated, lateral margins convex. Anal segment as long as VIII and IX combined, parallel-sided, distinctly keeled and split over half of its length. Posteriorly forming two rectangular, laterally depressed, scoop-like lobes, densely toothed on inner surface. Cerci very small, oval

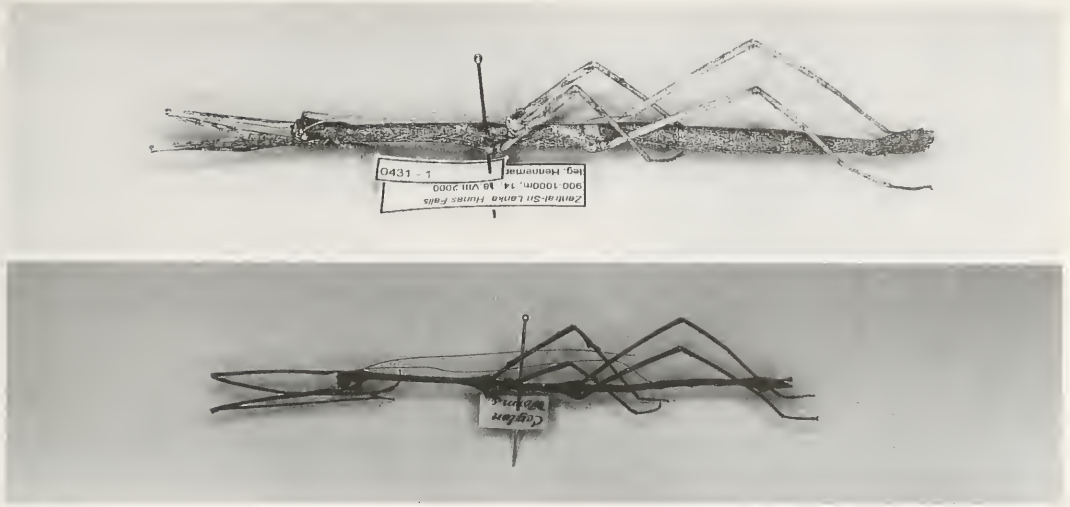


Fig. 14. *Paraprisomera coronata* (BRUNNER v. WATTENWYL), up ♀ (FH), down ♂ (SMFM).

in cross-section, bristled. Subgenital plate conical, margined posteriorly and slightly projecting over posterior margin of tergite IX.

Legs: Generally as in ♀♀ but more slender and relatively longer. Lobes of mesofemora less prominent than in ♀♀, posterodorsal carina slightly raised just near apex and with large apical lobe, lacking any further lobes or teeth. Tarsi as in ♀♀.

Measurements (in mm): Body 76.5, head 3.7, pronotum 4.0, mesonotum 19.9, metanotum 13.1, median segment 2.4, profemora 24.6, protibiae 28.0, mesofemora 16.2, mesotibiae 17.3, metafemora 20.4, metatibiae 24.7, antennae 54.0.

Eggs: Small, bottle-shaped, glossy black, greyish around operculum and micropylar plate. Surface of capsule smooth, except for indistinctly granulose lateral area. Capsule longer than high, oval and laterally depressed in cross-section, very indistinctly keeled. Polar-area concave, seen laterally. Opercular angle negative, approximately 40 per cent. Micropylar plate elongate, indistinctly structured, dark reddish brown, surrounded by raised rim. Micropylar cup at posterior end, knob-like. Operculum oval, flat. Capitular stalk tube-like, cylindrical, remarkably raised and swollen and almost $\frac{2}{3}$ the length of capsule. General colour black with greyish band at anterior margin. Capitulum dark reddish brown, circular, depressed and raised into small tubercle in centre, partly hidden in capitular stalk.

Measurements (in mm): Length (incl. operculum) 4.2, length 2.9, width 1.6, height 2.3, length of micropylar plate 2.0, height of capitulum 1.7.

Comments: This is a quite variable species, that seems to be widespread in parts of central and perhaps southern Sri Lanka. ♀♀ are quite constantly found while ♂♂ are rare in the Hunas Falls region and museum material. Examination and comparison of all remaining Sri Lankan taxa, described in the genera *Prisomera* and *Stheneboea* by BRUNNER v. WATTENWYL (1907) but clearly not belonging to either genus showed all to represent one and the same species. This was first described by BRUNNER v. WATTENWYL himself in the genus *Clitumnus* STÅL under the name *Clitumnus coronatus*. GÜNTHER (1938: 129) provided a figure of the lectotype in ZMUB and recognized BRUNNER v. WATTENWYL's error. BRUNNER v. WATTENWYL, listing *Stheneboea esuriens* BRUNNER v. WATTENWYL as a new synonym, seems to have included this taxon in *Clitumnus* based only upon its short antennae which are clearly broken in the type specimen. *Lonchodes taprobanae* WESTWOOD (1859) proved to be the only other valid species apart from *Clitumnus coronatus* BRUNNER v. WATTENWYL in the new genus *Paraprisomera* n. gen..

Numerous eggs, laid by five ♀♀ collected at Hunas Falls hatched after 10 weeks with a percentage of almost 80 %. The hatchlings immediately started feeding on potted *Hibiscus rosa-sinensis* but all died before reaching third instar. In the Hunas Falls area specimens were found feeding on shrubs of *Ixora* spp. (*Rubiaceae*).

Paraprisomera taprobanae (WESTWOOD, 1859)

(Fig. 28)

Lonchodes Taprobanae WESTWOOD, 1859: 41, pl. 6: 6 (♀) & 24: 12 (♂). LT [by present designation], ♀: *Lonchodes Taprobana* WESTW. mon pl. 6f6, Ceylon Lemphard, E coll. (1830-73) W.W. SAUNDERS, Purchased and pres. '73 by Mrs. F.W. HOPE, *Lonchodes taprobanae* WESTWOOD Type, Type. WESTWOOD. *Lonchodes taprobanae* (OXUM, No. 568); PLT, ♂: Ceylon Lemphard, *Lonchodes Taprobana* WESTW., ♂, E coll. (1830-73) W.W. SAUNDERS, Purchased and pres. '73 by Mrs. F.W. HOPE, *Lonchodes taprobanae* WESTWOOD Type, Type. WESTWOOD. *Lonchodes taprobanae* (OXUM, No. 568), PLT, ♀: Ceylon (BMNH); PLT, ♂: Ceylon (BMNH).

– GÜNTHER, 1932: 386.

– HAUSLEITHNER, 1989: 107 (fig. 4a) (description & illustration of egg).

Prisomera taprobanae, BRUNNER V. WATTENWYL, 1907: 290. [not *Lonchodes taprobanae* ?, SAUSSURE, 1868: 66. 3♂♂ : Ceylon, Nietner (MHNG). Missidentification, relating to *Prisomera auscultator* (BATES)]. [not SAUSSURE, 1869: 304, pl. 2: 7, 7a-b (♂). [missidentification, relating to *Prisomera auscultator* (BATES)].

Material examined: 1♀: Ceylon, Heuser, Coll. BR. V. W., det. BR. V. W. *Lonchodes taprobanae*, (NHMW); 1♂: Ceylon (NHMW).

Comparison of the ♀ in NHMW with the ♀ syntype of WESTWOOD's species in OXUM showed these to be clearly conspecific.

Diagnosis: Distinguished from the type-species by distinctly larger size, foliaceous, toothed lateral lobes of tergites VIII-IX and differently shaped praeopercular organ, operculum, anal segment and supraanal plate of ♀♀ and different lobes of ♂♂ anal segment. The eggs are slightly larger, of lighter, less glossy general colouring and possess a slightly oval instead of cylindrical operculum.

The original descriptions and figures of WESTWOOD (1859) are sufficient for characterization and differentiation.

Measurements of NHMW ♀ (in mm): Body 118.0, head 5.6, pronotum 4.8, mesonotum 27.6, metanotum 16.2, median segment 3.8, profemora 28.5, protibiae 29.7, mesofemora 20.6, mesotibiae 20.5, metafemora 28.0, metatibiae 29.0. WESTWOOD, 1859: 41 gives a body length of 140 mm for the ♀♀.

Comments: HAUSLEITHNER (1989: 107, fig. 4a) described and figured an egg extracted from the abdomen of the NHMW specimen and mentions the species is very unlikely to belong to *Lonchodes* GRAY.

Genus *Stheneboca* STÅL, 1875

Type-species: *Stheneboca malaya* STÅL, 1875: 68, by subsequent designation of KIRBY, 1904: 324.

Stheneboca STÅL, 1875: 10. BRUNNER V. WATTENWYL, 1907: 246. (in part)

Sthenobaca, KIRBY, 1904: 323. [misspelling of *Stheneboca*] (in part)

– KIRBY, 1896: 462. [misspelling]

Acanthoderus, DEHAAN, 1842: 136. (in part)

– WESTWOOD, 1859: 62. (in part)

Prisomera, WESTWOOD, 1859: 47. (in part)

– KARNY, 1923: 236. [listing *Stheneboca* STÅL, 1875 as a synonym of *Prisomera* GRAY, 1835]

– SEOW-CHOEN, BROCK & SEOW-EN, 1994: 59.

– BROCK, 1995: 86.

– BRAGG, 2001: 524.

Description: Medium-sized, cylindrical Lonchodinae, ♂♂ very slender, ♀♀ slender or quite robust. Surface of body tuberculate or distinctly spined on head, thorax and tergites. Antennae as long as fore legs. Head more or less cylindrical, at least 1.5× as long as broad, vertex flat. With transverse carina or distinct pair of backward pointing spines between the eyes. Median segment distinctly shorter than metanotum, transverse or at most almost quadrate. Abdominal segments increasing in length from II to VI, II-III distinctly shorter than remaining. Anal segment of ♀♀ carinated, posterior margin almost straight or convex, supraanal plate short, and never greatly projecting over anal segment, rounded or triangular. Operculum strongly convex, cup-like, occasionally with fine median carina, but never keeled over complete length. ♂♂ anal segment distinctly keeled, postomedially incised, posterior margin forming two truncate lobes, which are never distinctly elongated or forcep-like. Interior surface of lobes densely dentate. Cross-section of femora slightly trapezoidal. Dorsal carina of protibia distinctly raised over whole length or

forming several rounded lobes. Mesofemora and tibia dorsally with distinct lobes, occasionally lobes may be present on ventral carinae as well. Armature often less distinct or almost absent on hind legs. Ventral surfaces of meso- and metafemora smooth, without median carina. Tarsi very short, never with distinct dorsal lobes, basitarsus at best the length of 5th segment.

Eggs: Medium-sized to large, capsule more or less strongly laterally flattened or with irregular impressions. Surface prominently sculptured and tuberculate, occasionally with distinct foliaceous appendices. Micropylar plate elongate, partly broadened. Internal micropylar plate open, median line present. Operculum flat, oval or trapezoidal; capitulum indistinct, in centre of operculum.

Differentiation: Clearly distinguished from the two endemic Sri Lankan genera of Lonchodinae by the short tarsi (basitarsus at best the length of 5th tarsal segment) and the short, truncate ♂♂ anal segment. Furthermore, the strongly structured eggs with a flat and oval, or trapezoidal, operculum distinguish it clearly from *Prisomera* and *Paraprisomera* **gen. n.**

From *Paraprisomera* **gen. n.** it is also distinguished by: lacking the median carina on ventral surfaces of meso- and metafemora; having a transverse median segment; distinctly shortened abdominal segments II-III; comparatively longer head of both sexes; and lack of anterolateral spine and distinct keel of ♀♀ operculum. From *Prisomera* it also clearly differs by: its elongate, flat head; shorter abdominal tergites I-III; rounded, convex ♀♀ operculum; and the lack of a median carina on ventral surfaces of meso- and metafemora.

Comments: KIRBY (1904: 324) designated *Stheneboea malaya* STÅL, 1875 as the type-species of *Stheneboea* STÅL, 1875 and *Prisomera spinicollis* GRAY, 1835 as type-species of *Prisomera* GRAY, 1835. BRUNNER V. WATTENWYL, (1907), omitting KIRBY's catalogue (1904), treats the genera incorrectly. He did not even list the type-species *Prisomera spinicollis* GRAY in *Prisomera* but in *Stheneboea* STÅL instead. KARNY (1923: 236) drew attention to BRUNNER V. WATTENWYL's error which made *Stheneboea* STÅL a synonym of *Prisomera* GRAY. All later authors including GÜNTHER (1932: 367), revising the genus *Lonchodes* GRAY SENSU BRUNNER V. WATTENWYL, have since followed KARNY's systematization.

Stheneboea sensu BRUNNER V. WATTENWYL (1907) represents a very heterogeneous group, that actually divides into three different genera. As the mentioned characters and description, as well as the egg of *Prisomera spinicollis* GRAY show, there is no doubt KARNY's synonymy is incorrect. *Stheneboea* STÅL has to be treated as a valid genus apart from *Prisomera* GRAY and is here reinstated. The Sri Lankan species are transferred to the new genus *Paraprisomera* **gen. n.** The geographic distribution of the three genera is also remarkably distinct. *Prisomera* and *Paraprisomera* **gen. n.** are both endemic for Sri Lanka, while *Stheneboea* is widespread in parts of Sundaland, is however absent in Sri Lanka.

Distribution: Sundaland (West-Malaysia, Borneo, Sumatra, Java).

Species included: [The type locality is given in brackets]

Phasma (Acanthoderus) bifoliata DE HAAN, 1842: 136, pl. 14: 2 (♀) [Sumatra, Batang Singalang]

Stheneboea malaya STÅL, 1875: 68. [Malacca]

Stheneboea ornatissima BRUNNER V. WATTENWYL, 1907: 250. [Sumatra]

Phasma (Acanthoderus) phyllopus DE HAAN, 1842: 135, pl. 12: 5 (♀). [Java, Krawang]

Stheneboea repudiosa BRUNNER V. WATTENWYL, 1907: 249. [Kelantan in Malacca] = *Galactea aptera* REDTENBACHER, 1908: 492. [Perak, Malacca] (synonymized by BROCK, 1995: 86)

Prisomera severum BRUNNER V. WATTENWYL, 1907: 287. [Java]

Sthenobaea tuberculata KIRBY, 1896: 462. [Sarawak, Rejang River] (misspelling of *Stheneboea*) = *Lonchodes acutespinosus* BRUNNER V. WATTENWYL, 1907: 261. [Borneo] (synonymized by BRAGG, 2001: 525) = *Myronides longipes* BRUNNER V. WATTENWYL, 1907: 254. [Borneo, Sarawak] (synonymized by BRAGG, 2001: 525) = *Stheneboea nigra* BRUNNER V. WATTENWYL, 1907: 250, pl. 12: 1 (♀) [Borneo] (synonymized by BRAGG, 2001: 525)

Subfamily Necroschiinae

Paramenexenus ceylonicus (SAUSSURE, 1868)

(Figs 15-18, 34)

Anophelepis ceylonica SAUSSURE, 1868: 68. HT, ♀: Ceylon, M. H. SAUSSURE (MHNG) SAUSSURE, 1869: 298, pl. 2:5 (♀).

Paramenexenus molestus REDTENBACHER, 1908: 476, pl. 24: 2. LT [by present designation], ♂: Coll. BR. V. W., Ceylon
Dr. HALY, det. BR. V. W. *Paramenexenus molestus*, 17.224, a11/1 (NHMW, No. 905); PLT: 1♂, 1♀: Coll. BR. V. W.,

Ceylon, Zool. Inst. de. Univ., Univ. Wien, det. BR. v. W. *P. molestus*; 2♀♀, egg: Coll. BR. v. W., Ceylon F. Sarasin, det. BR. v. W.

Paramenexenus molestus, a11/1 (Nr. 16.246); 1♂: Ceylon, F. Sarasin, Inv.-Nr. BRUNNER v. W. 16.246 (NHMW, No. 905) syn. n.

– BROCK, 1998: 43.

Material examined: 4♂♂, 3♀♀, eggs: Zentral-Sri Lanka, Hunas Falls 1100m, 14.-18.VIII.2000, leg. HENNEMANN & SEIFERT (coll. FH 0438-1 to 7 & 0438-E); 1♀, 4♂♂, eggs: ex Zucht F. HENNEMANN, F1-Generation, Zentral Sri Lanka (Hunas Falls), 2001 (coll. FH-0438-8 to 12 & 0438-ED); 5♂♂, 5♀♀, eggs: ex Zucht F. HENNEMANN, F2-Generation, Zentral Sri Lanka (Hunas Falls), 2002 (coll. FH-0438-13 to 23); 1♂, 1♀: ex Zucht F. HENNEMANN, F2-Generation, Zentral Sri Lanka (Hunas Falls), 2002 (ZSMC, ex coll. FH); 1♀, Ceylon, 1907, Kasten-Nr. 94/56 (ZSMC).

Diagnosis: Easily distinguished from the type-species of *Paramenexenus*, *P. lactus* (KIRBY, 1904) by its smaller size and stouter body, much shorter operculum of ♀♀, spination of mesonotum and comparably broader three terminal tergites in ♂♂ as well as the brown colouring of both sexes. The eggs are different by the less spherical capsule, the distinctly shorter, drop-shaped micropylar plate as well as almost black general colour. Recent studies on the structure of the internal micropylar plate of phasmid eggs have shown striking differences between *Paramenexenus lactus* (KIRBY) and *P. ceylonicus* REDTENBACHER. Further research is ongoing to clarify the generic position of the latter, which may deserve a separate genus in close relation to *Neohirasea* REHN, 1904.

Description: SAUSSURE's (1868) and REDTENBACHER's (1908) original descriptions and illustrations of both sexes are sufficient for this quite common species. However the species is quite variable in size and number of spines on mesonotum, so detailed descriptions of both sexes are provided below.

♀♀. Medium-sized (body length 74.5-100.0 mm), stout, subcylindrical apterous insect. Surface of body particularly on abdomen, fairly strongly sculptured. General colour mid to dark brown, ventral surface comparatively lighter, often prettily mottled in pale or dark brown or occasionally white. Interior surface of profemora bright orange, mouthparts pale red.

Head: 1.5× as long as wide, parallel-sided, oval in cross-section, dorsal surface smooth except for some lighter granules on vertex. Indistinct dark brown postocular line present, eyes small, greyish brown, circular. Antennae projecting over posterior margin of median segment, all segments distinctly bristled. Scapus rounded rectangular, dorsoventrally depressed, ventral surface with slightly raised, smooth and dark glossy red coloured area at anterior margin. Pedicellus cylindrical.

Thorax: Pronotum shorter head but broader than head, slightly longer than wide, broadened posteriorly and lateral margins indistinctly concave. Mesonotum parallel-sided, except for posterior half which is distinctly narrowing, more than 3× as long as wide. Lateral margins with very minute spines, surface with 2-8 distinctly thin needle-like, black spines. Lateral margins of mesosternum carinated and irregularly wave-like. Metanotum almost of same dimensions as pronotum, less than ½ the length of mesonotum. Metapleurae with indistinct, tuberculated carina.

Abdomen: Median segment more or less equal in length to metanotum, transverse seam very indistinct. Segments II-VII equal in length, almost quadrate. II-III broadening, VI-VII slightly narrowing, V broadest. Lateral margins of tergites II-VIII slightly dilated ending in triangular tooth posteriorly. Tergites II-IX with flat median carina; posteromedially with tubercle or depressed spine which is indistinct on II-III, clearly protruding over posterior margin of tergite on VII, clearly broadened and triangular on

Figs. 15-18. *Paramenexenus ceylonicus* (SAUSSURE): 15 egg seen dorsally, 16 egg seen laterally, 17 apex of abdomen seen laterally (♀), 18 apex of abdomen seen laterally (♂) [15-16 scale=1 mm, 17-18 scale=5 mm].

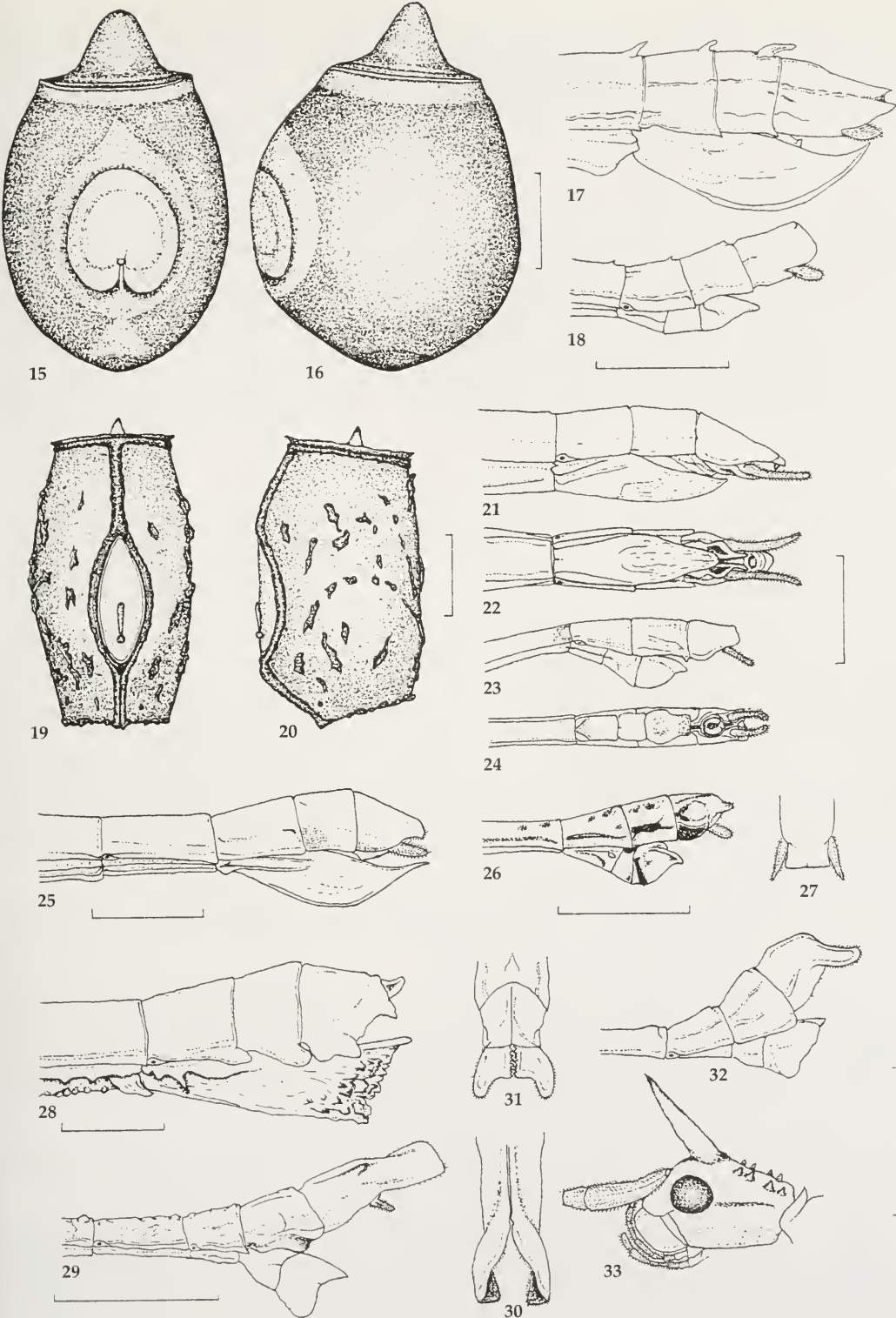
Figs. 19-24. *Parasipylloidea seiferti* sp.n.: 19 eggs seen dorsally, 20 egg seen laterally, 21 apex of abdomen seen laterally (♀), 22 apex of abdomen seen ventrally (♀), 23 apex of abdomen seen laterally (♂), 24 apex of abdomen seen ventrally (♂) (19-20 scale=1 mm, 21-24 scale=5 mm).

Figs. 25-27. *Lopaphus srilankensis montanus* ssp. n. [scale=5 mm]: 25 apex of abdomen seen laterally (♀), 26 apex of abdomen seen laterally (♂), 27 anal segment of ♀ seen dorsally.

Fig. 28. *Paraprisomera taprobanae* (WESTWOOD) [scale=5 mm]: apex of abdomen seen laterally (♀).

Figs. 29-30. *Paraprisomera coronata* (BRUNNER v. WATTENWYL) [scale=5 mm]: 29 apex of abdomen seen laterally (♂), 30 anal segment of ♂ seen dorsally.

Figs. 31-33. *Prisomera ignava* (BRUNNER v. WATTENWYL), holotype [scale=0,5 mm]: 31 anal segment of ♂ seen dorsally, 32 apex of abdomen seen laterally (♂), 33 head seen laterally (♂).



VII and VIII. Sternites with irregular longitudinal carina parallel to lateral margin. Tergite VIII broader than VII, IX as broad as VIII but slightly shorter. Anal segment narrowing posteriorly; with three parallel longitudinal carinae ending in three triangular teeth at posterior margin: median carina occasionally notched, lateral ones broader. Cerci dark reddish brown, laterally compressed, triangular, bristled. Operculum sharply keeled, boat-like, depressed in anterior third with pointed apex which does not reach posterior margin of anal segment.

Legs: All relatively short and stout, all carinae smooth, except for 2-3 minor distal spines on medio-ventral carinae of meso- and metafemora. Profemora with slightly raised dorsal carinae, curved and compressed basally, rectangular in cross-section. Meso- and metafemora laterally compressed, rectangular in cross-section. Probasitarsus as long as following two segments combined, meso- and metabasitarsus indistinctly longer than second segment.

Measurements (in mm): Body 74.5-79.4, head 5.6-6.0, pronotum 5.1-5.3, mesonotum 16.4-17.9, metanotum 4.9-5.2, median segment 4.8-5.1, profemora 19.0-19.8, protibiae 18.0-20.8, mesofemora 12.6-14.5, mesotibiae 12.4-13.2, metafemora 18.0-19.2, metatibiae 20.5-21.3, antennae 44.0. REDTENBACHER (1908: 476) cites body lengths of 82.0-100.0 mm for the ♀♀.

♂♂. Small (body length 50.0-68.0 mm), slender, apterous insect, distinctly smaller than ♀♀. Surface of body smooth except for some very few minute granules. General colour mid brown with lighter and darker mottling, particularly on abdomen, meso- and metasternum straw. Interior surface of profemora and mouthpart orange.

Head: Generally as in ♀♀ but granules on vertex less in number and not so distinct, and eyes comparatively large. Antennae projecting over posterior margin of tergite IV, as in ♀♀.

Thorax: Pronotum as in ♀♀. Mesothorax cylindrical, slightly widened at anterior margin and very indistinctly narrowed just behind middle. Mesonotum elongated, parallel-sided but distinctly narrowed in posterior third. Surface with 6-12 long, needle-like, black spines, more or less placed in two parallel rows. Metanotum smooth, rectangular almost of same dimensions as pronotum. Metapleurae with few minute granules.

Abdomen: Median segment equal in length to metanotum but more slender, transverse seam very indistinct. Segment II, VI and median segment equal in length, slightly shorter than III-V. Segments II-VII cylindrical and parallel-sided, III-VI 2.5× longer than wide. Tergite VIII shorter than VII widening posteriorly, posterior margin broader than anterior margin. IX shorter than VIII, slightly transverse and indistinctly widening posteriorly, 2× wider than VII. Anal segment almost the length of VII and VIII combined, broadly margined and notched posteromedially. Two smaller lateral incisions at bases of cerci; these distinct, straw coloured, triangular and slightly laterally compressed. Ventral surface of posterior margin densely dentate. External vomer comparatively large, triangular, pointed at apex, greyish brown. Subgenital plate very short, spoon-like, slightly projecting over posterior margin of tergite IX.

Legs: Generally as in ♀♀, but relatively slender and longer. Probasitarsus as long as following three segments combined, meso- and metabasitarsus the length of following two segments combined.

Measurements (in mm): Body 51.8-55.0, head 3.7-4.0, pronotum 3.2-3.7, mesonotum 11.5-12.0, metanotum 3.8-4.0, median segment 3.9-4.0, profemora 14.9-15.3, protibiae 15.3-16.0, mesofemora 10.0-10.8, mesotibiae 9.6-10.1, metafemora 15.0-15.4, metatibiae 15.3-16.1, antennae 36.5-39.0. REDTENBACHER (1908: 476) cites body lengths of 50.0-68.0 mm for the ♂♂.

Eggs: Comparably large for size of insect. Capsule slightly longer than high and slightly oval in cross-section, dorsal surface strongly convex. Surface almost smooth, not glossy. General colour almost black with a broad greyish band surrounding micropylar plate and a further one at anterior margin. Micropylar plate small, drop-like, notched posteromedially, dark grey and distinctly margined in black. Central region of plate slightly depressed, micropylar cup very small, positioned at posteromedial notch of plate. Operculum oval, raised, dark grey with conical black capitulum in centre.

Measurements (in mm): Length (incl. operculum) 3.9, length 3.4, width 2.6, height 3.2, length of micropylar plate 1.3.

Comments: Comparison of the type specimens of *Anophelepis ceylonica* SAUSSURE, 1868 and *Paramenexenus molestus* REDTENBACHER, 1908 showed these to represent the same species. REDTENBACHER's type specimens in NHMW are slightly larger than SAUSSURE's ♀ holotype in MHNG, but identical in most features. REDTENBACHER (1908: 476) mentioned this species to be closely related to his *Paramenexenus operculatus* REDTENBACHER, 1908 which is synonymous with *Promachus lactus* KIRBY, 1904. He was furthermore not

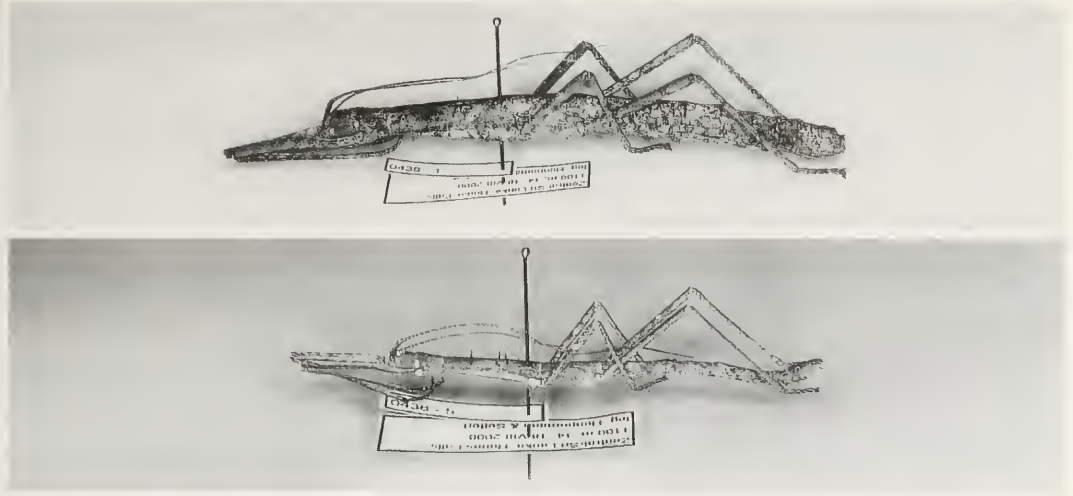


Fig. 34. *Paramenexenus ceylonicus* (SAUSSURE): up ♀, down ♂. (FH).

aware of SAUSSURE's *Anophelepis ceylonicus*, which he transferred to his new genus *Paramenexenus* was identical to his new species *Paramenexenus molestus*, although SAUSSURE (1869) published a clearly characterizing figure of his ♀ (pl. 2: 5).

SAUSSURE's holotype ♀ is remarkable for the posteromedial spine on the abdominal tergites being developed into elongate, foliaceous lobes which clearly projects over the posterior margin of the tergite itself. REDTENBACHER's types which are comparatively larger than other material show distinctly stronger spination of the mesonotum, the spines being much stronger and slightly curved in ♂♂.

One egg was removed from the ovipositor of a ♀ paralectotype and after comparison found to be identical with those laid by specimens collected at Hunas Falls. REDTENBACHER's original plate includes a figure of the ♀ terminal abdominal segments, and clearly shows the specimen to have an egg in its ovipositor.

Adults in Sri Lanka were found feeding on bramble (*Rubus* sp.) and various other plants. 15 eggs were laid and hatched after 12-13 weeks back in Europe. Nymphs immediately started feeding on bramble (*Rubus* spp.) and oak (*Quercus robur*). In humid conditions and temperatures $\pm 25^{\circ}\text{C}$ nymphs grew up in about 4 months. ♀♀ lay only one egg per day but are quite long-lived.

Lopaphus srilankensis sp. n.

(Fig. 35)

Holotype: ♂, N-Sri Lanka, Anuradhapura, leg. Dr. SCHENK, 18.3.1980 (ZSMC, ex coll. FH, No. 0355-1).

Diagnosis: ♂♂: Closely related to *Lopaphus panaetius* WESTWOOD (1859: 144, pl. 12: 4, 4a-b) but distinguished by comparatively shorter head and three terminal abdominal tergites, straight cerci and lack of black lines on head. Also similar to *Lopaphus transiens* (REDTENBACHER, 1908: 539, pl. 26: 7) from Java but differing in the shorter lobes of anal segment, less prominently granulated thorax and comparably slender body.

Description

♂♂: Medium-sized (body length 61.0 mm), very slender insect, surface of body smooth, alae projecting over posterior margin of abdominal tergite IV. Antennae almost as long as body, surface of body smooth. General colour greenish brown, profemora brown and green in apical section, mes- and metafemora brownish green with brown knees, meso- and metibiae green with black apex. Pronotum with prominent black median line, distinctly narrower in posterior half but there accompanied by two prominent black lines diverging towards posterior margin. Mesonotum with distinct black median line in posterior half. Last three abdominal tergites with several dark brown lateral lines. Tegmina mottled in different shades of

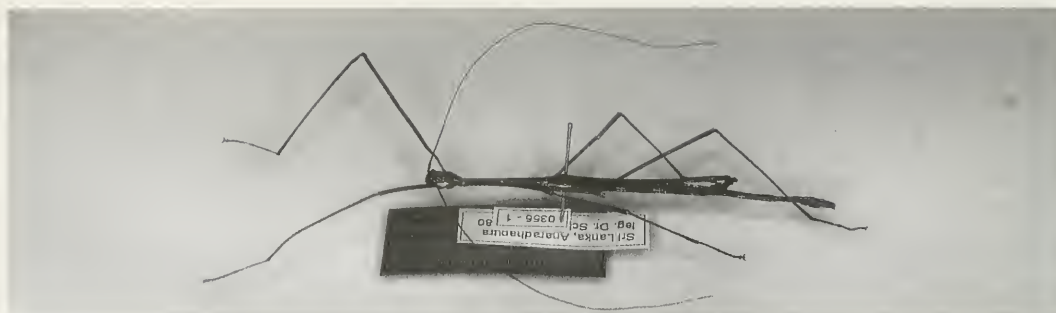


Fig. 35. *Lopaphus srilankensis* sp. n., HT, ♂.

brown, with darker veins and distinct greenish white radial line. Costal region of alae brown with lighter patches and dark veins. Antennae brown, but darker in apical half.

Head: Slightly less than twice as long as broad, parallel-sided, subcylindrical, vertex flat and smooth. Black median line present, dividing posteriorly and two indistinct dark brown postocular lines, the posterior one shorter. Eyes circular very prominent, strongly convex and projecting from head capsule, dark greyish brown with black longitudinal line. Scapus subcylindrical in cross-section, rectangular, slightly longer than wide. Pedicellus cylindrical, knob-like, indistinctly shorter than scapus. Following segments increasing in length.

Thorax: Pronotum almost of same dimensions as head, but slightly shorter and almost twice as long as broad, parallel-sided. Mesothorax elongated, cylindrical. Mesonotum minutely granulose with fine and raised median line. Mesopleurae, meso- and metasternum finely granulated. Tegmina small, oval, slightly convex, narrowed anteriorly, reaching posterior margin of metanotum. Metapleurae with fine longitudinal carina, posterior granulated. Alae almost reaching posterior margin of abdominal segment V, anal region translucent grey.

Abdomen: Median segment twice as long as metanotum. Segments II-VI cylindrical, parallel-sided, 4.5× as long as broad. VII slightly more than $\frac{2}{3}$ the length of VI. Tergite VIII $\frac{2}{3}$ the length of VII, strongly convex and very slightly broadening posteriorly. IX slightly shorter than VIII and narrowed anteriorly. Anal segment parallel-sided, shorter than IX, indistinctly keeled, posteromedially with small concave notch. Supraanal plate very small, rounded. External vomer small, black, triangular and keeled. Cerci small, cylindrical, slightly projecting over apex of anal segment. Subgenital plate small, slightly convex, posteriorly margined, straw coloured, and reaching to posterior margin of tergite IX.

Legs: All very long and slender, clearly carinated and completely destitute of spines. Profemora basally compressed and curved. Meso- and metafemora quadrate in cross-section, ventral surfaces with fine median carina, indistinctly raised apically. Basitarsus as long as remaining segments combined.

Measurements of HT (in mm): Body 61.0, head 3.1, pronotum 2.8, mesonotum 12.6, metanotum 1.9, tegmina 4.0, alae 26.3, median segment 5.3, profemora 21.3, protibiae 21.0, mesofemora 14.3, mesotibiae 13.3, metafemora 18.8, metatibiae 20.3, antennae 59.0

♀♀ and eggs unknown.

Lopaphus srilankensis montanus ssp. n.

(Figs 25-27, 36)

Holotype: ♂, Zentral-Sri Lanka, Nuwara Eliya, Kandapola, 1900 m, 20.VIII.2000, leg. HENNEMANN & SEIFERT (ZSMC, ex coll. FH, No. 0437-1)

Paratypes: 1♀, same data as holotype (ZSMC, coll. FH, No. 0437-2 to 4); 2♀♀: same data as holotype (coll. I. 1 0437-3 & 4)

Diagnosis: The ♂ of this mountainous subspecies is clearly differentiated from the nominate lowland form by the distinctly shortened tegmina and alae, more prominently carinated posterior margin of anal segment, comparably shorter head, ventrally black antennae, less prominently granulated thorax and characteristic colouration (see below).

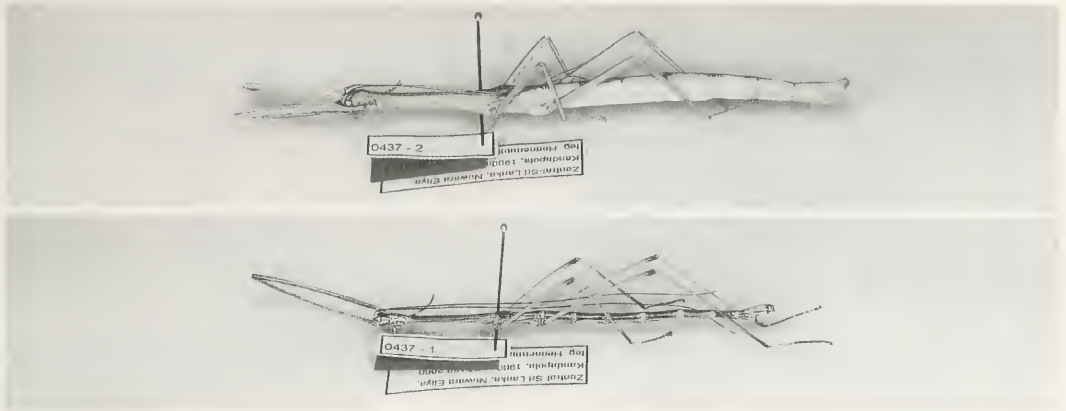


Fig. 36. *Lopaphus srilankensis montanus* ssp. n.: up PT (♀), down HT (♂).

♀♀ are similar to the closely related *Lopaphus transiens* (REDTENBACHER, 1908: 539, pl. 26: 7) from Java and *Lopaphus perakensis* (REDTENBACHER, 1908: 478) from Peninsular Malaysia and Thailand. It is distinguished from *transiens* by the shorter lobes of anal segment, typical colouring and distinctly shorter alae of ♂♂ as well as lack of distinct granules on head and mesonotum in ♀♀ and comparably smaller size of both sexes. From *perakensis* it differs by the distinctly longer median segment which is considerably longer than metanotum, shorter lobes of anal segment, typical colouring of ♂♂ and posterolaterally narrowed ♀♀ anal segment as well as its distinctly smaller size and presence of tegmina and alae.

Description: Specimens have changed colour and become more pale after preparation. Therefore colouration of both sexes is described from colour photographs taken while collecting the live specimens in Kandapola. The film used was a Kodak "Elite" 200 ASA.

♀♀. Medium-sized (body length 74.0-78.5 mm), slender, surface of body smooth, antennae reaching posterior margin of abdominal segment III, typical for the genus. General colour grass green over straw to greyish brown, abdominal tergites I-VI posteromedially with black patch, IX occasionally with black lateral patch near anterior margin and small dark patches near lateral margins of mesonotum. Legs with darker mottling at carinae. Eyes surrounded by black margin, apical half of antennae, except scapus, glossy black ventrally.

Head: Almost 1.5× as long as broad, subcylindrical, parallel-sided, vertex flat, surface smooth except for more or less distinctly depressed median line. With two slightly raised areas between the eyes. Eyes slightly oval, convex, pale straw with darker longitudinal line. Scapus dorsoventrally depressed, less than twice as long as wide, rectangular. Pedicellus more than half the length of scapus, cylindrical. Following segments increasing in length towards distal end of antennae.

Thorax: Pronotum indistinctly shorter than head, 1.5× longer than broad, parallel-sided, rectangular, posterior margin convex. Dark median line visible in posterior half, medial transverse ridge very short. Mesothorax cylindrical, strongly elongated, very slightly broadened posteriorly. Mesonotum with fine, slightly raised median line, very minutely granulated. Metathorax cylindrical, metanotum shorter than pronotum. Meso- and metapleurae smooth. Meso- and metasternum with a fine longitudinal carina parallel to lateral margins. Tegmina slightly projecting over posterior margin of metanotum, oval, straw or greyish brown with distinct black venation. Alae slightly shorter than tegmina but projecting over their distal margin, costal region like tegmina, anal region transparent.

Abdomen: Median segment more than twice the length of metanotum, parallel-sided, smooth, as long as segment II. Segments II-VII cylindrical, smooth, on average 2.5× longer than broad (II slightly shorter). Sternites with a fine median carina parallel to lateral margins. Tergite VIII slightly more than half the length of VII, strongly convex, indistinctly broadening posteriorly. IX $\frac{2}{3}$ the length of VIII, parallel-sided and strongly convex with blunt keel. Anal segment slightly longer than IX, with fine median line, parallel-sided in anterior $\frac{2}{3}$ and distinctly narrowing in posterior third, posterior margin very slightly concave. Supraanal plate small, rounded. Cerci small, cylindrical, reaching to apex of anal segment. Operculum reaching apex

of anal segment convex, boat-like with indistinct keel.

Legs: All relatively strong, of average length. All carinae entirely smooth. Profemora basally curved and compressed. Ventral surfaces of meso- and metafemora with a fine median carina. Probasitarsus as long as remaining segments combined. Meso- and metabasitarsus slightly shorter than remaining segments combined, second segment almost twice the length of third.

Measurements (in mm): Body 74.0-78.5, head 3.9-4.3, pronotum 3.7-3.1, mesonotum 15.9-16.2, metanotum 2.0-2.1, tegmina 2.9-3.0, alae 2.5-2.7, median segment 5.3-5.6, profemora 18.9-19.3, protibiae 18.0-18.8, mesofemora 11.6-12.1, mesotibiae 10.9-11.0, metafemora 25.7-26.0, metatibiae 15.8-15.9, antennae 37.5-40.5.

♂♂. Distinguished from the nominate form by the features given above and with characteristic colouring: General colour olive green and greyish on abdomen. Pronotum, tergite VIII and subgenital plate pale straw. Head brown, paler laterally with two black postocular lines, of which the anterior one is much broader and runs to posterior margin of head. Vertex with three black posterior lines of which the medial is the most prominent. Eyes surrounded by distinct black margin. Ventral surface of apical half of antennae glossy black, scapus ventrally with black distal patch. Pronotum with broad, black median line in anterior half accompanied by two further fine, parallel, black lines. Transverse medial ridge black. Posterior half with fine black median line, accompanied by two prominent black stripes converging towards posterior margin. Mesonotum with short but prominent black lateral line in posterior third. Tegmina and costal region of alae greyish brown with black veins. Tegmina with fine, pale radial line. Tergites with black lateral line and irregular black dots posteriorly. Lateral line very prominent and posteriorly divided on IX. Anal segment with distinct black anterolateral patch. Profemora greenish brown, pale green apically, knees brown. Meso- and metafemora pale green with dark brown knees. Meso- and metatibia pale green and black distally. Basitarsus green and black distally.

Measurements (in mm): Body 60.3, head 3.0, pronotum 2.6, mesonotum 13.3, metanotum 1.8, tegmina 2.1, alae 2.3, segmentum medianum 4.9, profemora 22.0, protibia 21.0, mesofemora 14.5, mesotibia 13.4, metafemora 19.5, metatibia 20.9, antennae 55.0.

Eggs unknown.

Genus *Parasipyloidea* REDTENBACHER, 1908

Type-species: *Parasipyloidea aenea* REDTENBACHER, 1908: 480, pl. 24: 4, by subsequent designation of VICKERY, 1982: 9.

Parasipyloidea REDTENBACHER, 1908: 479, pl. 24: 4. (in part).

– VICKERY, 1982: 9. (in part)

– ROCK, 1998: 12, 43 & 66. (in part)

Description: Small to medium-sized, apterous Necrosciinae. Thorax and mesonotum with more or less distinct median carina. Head longer than wide, oval in cross-section, vertex flat. Scapus rectangular dorsoventrally depressed. Mesosternum smooth. Metanotum slightly shorter than median segment. Anal segment of ♂♂ keeled, posteriorly truncate, slightly incised, elongate and distinctly narrowing towards pointed apex in ♀♀. Cerci small, cylindrical, more or less incurving in ♂♂. External vomer of ♂♂ clearly visible, oval, pointed at apex. Lamina subgenitalis of ♀♀ short, not reaching apex of anal segment, spoon-like, pointed. Profemora basally curved and compressed, trapezoidal in cross-section. All carinae of extremities entirely smooth. Meso- and metafemora with fine median line on ventral surface, trapezoidal to rectangular in cross-section. Basitarsus at least the length of following three segments combined, II distinctly longer than III.

Eggs: Small, almost cylindrical in cross-section, longer than wide. Surface of capsule smooth with few prominent tubercles. Distinctly raised keel surrounding operculum, micropylar plate and a "pseudo-operculum" at polar-area. Micropylar plate short, oval, pointed at anterior and posterior end. Micropylar cup positioned slightly below centre of plate. Internal micropylar plate open. Operculum almost circular, flat, with raised tubercle in centre. Capitulum absent.

Differentiation: Closest related to *Nescicroa* KARNY, 1923 with which it shares the posteriorly narrowing and pointed anal segment and long cerci of ♀♀. It is however distinguished by: the comparatively shorter median segment, which is always longer than the metanotum in *Nescicroa*; lacking any hint of tegmina or alae; the more elongate and slender head; as well as the carinated body. The pointed ♀♀ anal segment as

well as ♂♂ genitalia, elongate head and carinated body also clearly distinguish it from *Lopaphus* WESTWOOD, 1859 (= *Candaules* STAL, 1875, synonymized by BROCK, 1995: 89). The eggs are clearly different from both genera; in *Nescicroa* KARNY and *Lopaphus* WESTWOOD the egg-capsule is oval or almost spherical, the surface smooth or a fine-net-like structure and it is lacking a "pseudo-operculum".

Comments: VICKERY (1982: 9) designates *Parasipyloidea aenea* REDTENBACHER, 1908 from Java as the type-species and so the genus only includes the oriental taxa described or placed in *Parasipyloidea* by REDTENBACHER (1908: 479) by REDTENBACHER (1908), all showing the same typical features.

The two Australian taxa described in *Parasipyloidea* by REDTENBACHER and placed into the genus by VICKERY (1982) are clearly different and one, *Parasipyloidea cercata* REDTENBACHER, 1908, has recently been transferred to *Echetlus* STAL, 1875 (ZOMPRO & ADIS, 2001: 292). The New Guinean *Parasipyloidea novae-guineae* REDTENBACHER, 1908 is of uncertain generic position.

Parasipyloidea subtilis REDTENBACHER, 1908, described from Perak, is only known from nymphs but is quite unlikely to belong to *Parasipyloidea*. The type-specimen in NHMW does not show the elongate head and carinated body typical for the genus and may perhaps belong closer to *Lopaphus* WESTWOOD.

Distribution: Java, Sri Lanka & India.

Species included: [type-locality in brackets]

Parasipyloidea acuminata REDTENBACHER, 1908: 480. [Java, Tengger-Gebirge]

Parasipyloidea aenea REDTENBACHER, 1908: 480, pl. 24: 4. [Java]

Parasipyloidea minuta REDTENBACHER, 1908: 480. [Ceylon]

Parasipyloidea montana REDTENBACHER, 1908: 479. [Darjeeling]

Parasipyloidea seiferti n. sp. [Central Sri Lanka]

Bacteria Shiva WESTWOOD, 1859: 32, pl. 8: 6 (♀). [North India]

Parasipyloidea zehntneri REDTENBACHER, 1908: 479. [Ceylon, Kandy]

Key to ♀♀ of Sri Lankan species of *Parasipyloidea*

1. Tergites VI-VII distinctly swollen; surface of body at least partly granulose 2
- Abdomen slender; surface of body smooth *seiferti* n. sp.
2. Head and pronotum smooth *minuta* REDTENBACHER
- Head and pronotum granulose *zehntneri* REDTENBACHER

Parasipyloidea seiferti sp. n.

(Figs 19-24, 37)

Holotype: ♂, Zentral-Sri Lanka, Nuwara Eliya, Kandapola, 1900 m, 20.VIII.2000, leg. HENNEMANN & SEIFERT (ZSMC, ex coll. FH, No. 0436-2)

Paratypes: ♀, same data as holotype (ZSMC, ex coll. FH, No. 0436-1); egg, same data as holotype (ZSMC, ex coll. FH, No. 0436-E)

Etymology: The new species is named in honour of Mr. Thorsten SEIFERT (Kaiserslautern) for his great effort during night collecting in Sri Lanka.

Diagnosis: ♀. Closely related to *Parasipyloidea zehntneri* REDTENBACHER, 1908 but distinguished by the smooth body surface, elongate head less strongly dilated or swollen abdominal tergites VI-VII, and comparably longer and slenderer extremities.

Description: As specimens changed colour to uniform pale yellow after preparation, colouration of both sexes is described from colour photographs taken while collecting the live specimens in Kandapola. The film used was a Kodak "Elite" 200 ASA.

♀♀. Medium-sized (body length 62.0 mm), typical stick-like, abdomen slightly swollen, surface of body smooth, antennae longer than forelegs. General colour bright green dorsally and pale green on ventral surface, with few small dark brown markings at ventral margins of femora. Posteroventral carinae of meso- and metafemora with distinct black patch at base. Antennae straw, ventral surface of pedicellus and following six segments black.

Head: Oval in cross-section, almost twice as long as broad, parallel-sided, vertex flat with distinct

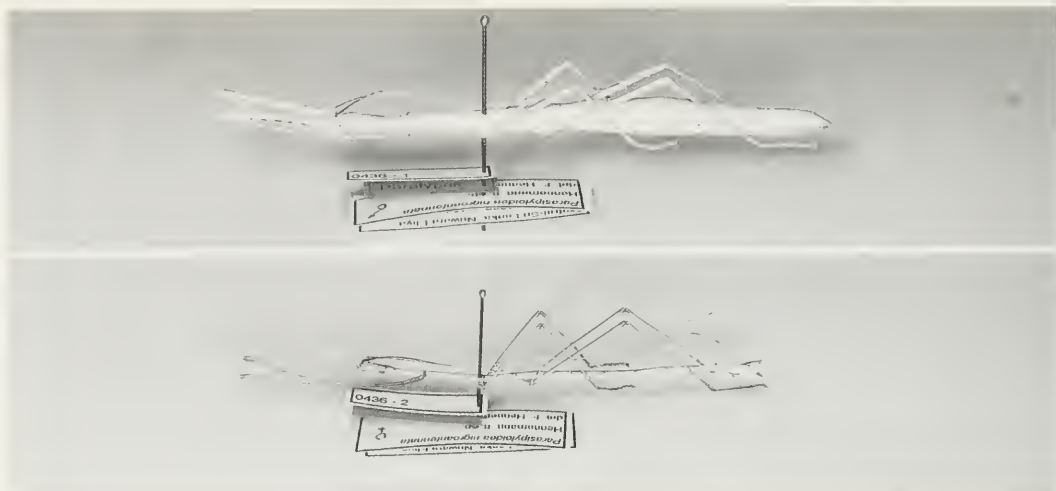


Fig. 37. *Parasipylloidea seiferti* sp. n.: up PT (♀), down HT (♂).

medial ridge. Eyes small, oval, convex, pale brown with distinct black medial line. Antennae reaching posterior margin of abdominal tergite IV, all segments bristled. Scapus rectangular, 1.5× longer than wide, dorsoventrally depressed. Pedicellus cylindrical, shorter than scapus.

Thorax: Pronotum slightly narrower and shorter than head, 1.5× longer than wide, lateral margins slightly concave. Transverse ridge almost straight, median line visible. Mesonotum smooth except for minor granules at lateral margins and just in front of posterior margin, parallel-sided with fine median carina and indistinctly irregular ridge parallel to lateral margin. Mesosternum with few minute flat granules. Metanotum more than twice as long as wide, with indistinct median carina and fine longitudinal ridge parallel to lateral margins. Metasternum as mesosternum but with clear longitudinal ridge parallel to lateral margins.

Abdomen: Median segment slightly longer than wide, narrowed anteriorly, slightly shorter than metanotum, with indistinct median carina. All tergites keeled, smooth and slightly depressed laterally. Segments II-VI in average almost twice as long as broad, II and V parallel-sided, III-IV widening towards posterior margin, VI-VII narrowing posteriorly. Sternites smooth, parallel-sided and clearly margined laterally. Tergite VIII twice as long as wide, parallel-sided, narrower than VII, strongly keeled, IX indistinctly shorter. Anal segments as long as IX flattening and tapering towards apex, posterior margin concave. Supraanal plate small, rounded with knob-like extension ventrally. Cerci long, cylindrical, projecting over posterior end of anal segment, pointed at tip, bristled. Inner genital valves distinctly forming a strong, rounded tooth. Operculum slightly vaulted projecting over posterior margin of tergite IX, tapered towards apex, rounded posteriorly. Anterior region smooth, posterior half distinctly sculptured with several irregular, longitudinal carinae.

Legs: All carinae destitute of spines, completely smooth. Profemora curved and depressed apically, meso- and metafemora clearly rectangular in cross-section. Probasitarsus as long as remaining segments combined except claw. Meso- and metabasitarsus as long as following three segments combined.

Measurements of paratype, ♀ (in mm): Body 62.0, head 4.1, pronotum 3.5, mesonotum 14.0, metanotum 5.2, median segment 3.8, profemora 18.8, protibiae 19.0, mesofemora 12.4, mesotibiae 11.2, metafemora 16.0, metatibiae 16.2, antennae 44.0.

♂♂. Medium-sized (body length 58.4 mm), very slender, typical stick-like indistinctly shorter than ♀♀ antennae almost as long as body. Surface of body smooth and glossy, but with very indistinct median carina. General colour of body and legs bright dark green, lighter ventrally. Head and pronotum with distinct broad straw coloured lateral band. Meso-, metanotum and median segment slightly lighter green laterally. Tergites with broad, pale lateral band, II-VIII posterolaterally with distinct white patch. Tergite IX-X with broad white lateral band. Coxae red, knees orange. Antennae straw coloured, ventral surface of first ten segments distinctly black, terminal segment black with a dark brown band just before apex.

Head: Generally as in ♀♀, but medial ridge only present in posterior half. Eyes as in ♀♀ but comparably larger. Antennae projecting over posterior margin of tergite VII. Posteriorventral margin of scapus with two concave incisions.

Thorax: Pronotum generally as in ♀♀ anteriorly slightly broader than posteriorly. Medial as well as transverse ridge distinctly marked in brown. Mesothorax very elongate, cylindrical and parallel-sided, smooth. Metathorax cylindrical, slightly narrowed medially, smooth, mesonotum distinctly narrowed in posterior quarter.

Abdomen: Median segment slightly narrowing towards anterior margin, which is clearly visible and some $\frac{2}{3}$ the length of metanotum. Segments II-VII cylindrical, parallel-sided. II-V 4.5× longer than wide, VI slightly shorter, VII 3× longer than wide and of equal length to median segment. Tergite VIII shorter than previous, strongly vaulted and slightly widening towards posterior end. IX as long as VIII, laterally compressed and clearly keeled. Anal segment shorter than IX, distinctly keeled, marginated posteriorly. Lateral margins rounded with indistinct concave notch at base of cerci. These clearly projecting over anal segment, cylindrical, slightly incurving and knob-like at apex, densely bristled. External vomer consisting of a dark reddish brown, triangular plate, forming a distinctly upcurving spine posteriorly. Subgenital plate reaching to posterior margin of tergite IX, slightly convex and with several minute impressions in posterior half.

Legs: As in ♀♀ but relatively long and slender. Pro- and metabasitarsus as long as remaining segment combined, mesobasitarsus slightly shorter.

Measurements of holotype, ♂ (in mm): Body 58.4, head 3.0, pronotum 2.6, mesonotum 12.8, metanotum 4.7, median segment 2.9, profemora 19.4, protibiae 19.7, mesofemora 13.4, mesotibiae 12.5, metafemora 16.9, metatibiae 17.4, antennae 52.0.

Eggs: Small, longer than wide, almost cylindrical in cross-section. General colour of capsule orange-brown, slightly paler ventrally. Surface smooth with few large tubercles or irregular carinae laterally. Irregularly shaped, black keel encircling operculum, dorsally continuing towards micropylar plate and surrounding the same. Posteriorly this keel continues to polar-area and encircles a light grey, smooth, circular area ("pseudo-operculum"). Micropylar plate more or less centrally on dorsal surface, oval, smooth and reddish brown. Micropylar cup positioned in posteromedial incision, small and knob-like. Operculum oval, flat, grey with small point in centre.

Measurements (in mm): Length 2.5, width 1.3, height 1.6, length of micropylar plate 1.2.

Subfamily Pachymorphinae

Sceptrophasma humilis (WESTWOOD, 1859)

(Figs 48-58, 76-77)

Bacillus humilis WESTWOOD, 1859: 7, pl. 2: 2 (♀). Holotype, ♀: Ceylon (BMNH)

Gratidia beroe, BRUNNER V. WATTENWYL, 1907: 228. (in part)

Bacillus carinulatus SAUSSURE, 1868: 63. LT [by present designation], ♀: Malabar (MHNG); PLT: 1♀, 2♀♀ (nymphs):

Malabar (MHNG). **syn. n.**

– SAUSSURE, 1869: 291, pl. 2: 1 (♀).

Gratidia carinulata, BRUNNER V. WATTENWYL, 1907: 223. (in part)

Material examined: 3♂♂, 1♀: Zentral-Sri Lanka, Str. Kandy-Elkaduwa, 800 m, 14.VIII.2000, leg. HENNEMANN & SEIFERT (FH 0434-1 to 5); 4♂♂ 3♀♀, 2♀♀ (subadult), 2 nymphs: Zentral-Sri Lanka, Mahaweli River, Gelioya, 500 m, 19.VIII.2000, leg. HENNEMANN & SEIFERT (FH 0434-6 to 16).

Diagnosis: Closely related to *Sceptrophasma hispidula* (WOOD-MASON, 1875) from Andaman Islands, but distinguished by: the distinctly carinated body; apically depressed meso- and metafemora; large, downcurving cerci of ♀♀; carinated tergites VII-X, different genitalia but especially longer and slender cerci as well as the longer second abdominal tergite of ♂♂. Furthermore, the eggs are clearly distinguished by being distinctly smaller and slender, with a differently shaped micropylar plate and polar-area.

Description

♀♀. Small (body length 51.0-56.5 mm), slender, antennae less than $\frac{1}{3}$ the length of profemora, general colour from straw over greyish brown to brown. Head with more or less prominent darker brown

postocular line. Bases of meso- and metafemora darker than the remaining parts. Three longitudinal carinae on abdominal tergites, thorax tuberculate.

Head: Elongate, almost parallel-sided and $2\times$ longer than broad, subcylindrical, surface smooth. Posterior margin slightly raised, median line present over whole length and with a very slightly raised area between eyes. Eyes small, oval, slightly convex, very indistinctly projecting from head capsule, grey with dark brown median line. Antennae 14-16-segmented, scapus dorsoventrally depressed, twice as long as broad, apically broader than distally, with slightly curved median carina on dorsal surface. Pedicellus longer than wide, less than half the length of scapus, subcylindrical, narrowing distally. Following segments cylindrical of different lengths. Last segment as long as pedicellus, thickened distally.

Thorax: Pronotum distinctly shorter and narrower than head, almost $1.5\times$ longer than wide, rectangular and indistinctly narrowed in anterior half. Mesothorax cylindrical, elongated, very indistinctly widening towards posterior margin. Mesonotum with fine median line and row of prominent white tubercles on lateral margins; remaining surface with very few minute tubercles. Mesopleurae with row of white tubercles in ventral half, but less prominent than on mesonotum. Lateral margins of mesosternum smooth and slightly raised. Metathorax cylindrical, narrowed medially, more than $3\times$ longer than broad and somewhat more than half the length of mesothorax. Metanotum as mesonotum but with more prominent, raised median line. Metapleurae with longitudinal, raised line in posterior half. Metasternum as mesosternum.

Abdomen: Median segment slightly transverse, as broad as metanotum with fine median carina. Segment II slightly more than twice the length of median segment, shorter than following. Segments II-VII increasing in length and getting narrower. III $2.5\times$ longer than wide, broadening posteriorly, VII $4.5\times$ as long as broad. Tergites II-VII with fine median carina and distinctly raised lateral carina, parallel to lateral margin. Sternites II-VII with two longitudinal, parallel lateral carinae. Praeopercular organ on VII consisting of raised transverse carina at posterior margin, medially forming a pointed black spine. VIII structured as previous, broadening towards posterior margin, as long as II. IX as long as broad, less than half the length of VIII, distinctly narrowing posteriorly, strongly convex, structured as previous. Anal segment parallel-sided, with distinctly raised median carina, posterior margin rounded, $1.5\times$ as long as IX. Supraanal plate very small, triangular. Cerci as long as anal segment, suboval in cross-section with longitudinal ventral carina, pointed towards apex, slightly downcurving and clearly projecting over posterior margin of anal segment. Operculum parallel-sided, elongated very slightly convex, not reaching apex of anal segment.

Legs: All long and relatively slender, carinae completely destitute of spines or teeth. Profemora basally compressed and curved, dorsal carina slightly raised. Meso- and metafemora distinctly compressed in basal section. Ventral surface of meso- and metafemora with broad, raised medial line. Probasitarsus $1.5\times$ as long as remaining segments combined, meso- and metabasitarsus slightly longer than these.

Measurements (in mm): Body 51.0-56.5, head 4.1-4.2, pronotum 2.3-2.5, mesonotum 9.6-10.4, metanotum 5.8-6.4, median segment 1.9-2.0, profemora 18.8-19.6, protibiae 18.5-19.4, mesofemora 13.2-14.1, mesotibiae 13.6-14.3, metafemora 18.1-19.8, metatibiae 19.0-20.1, antennae 5.2-5.7..

♂♂. Small (body length 40.2-48.0 mm), very slender, stick-like, general colour brown, partly lighter or darker. Head laterally with fine creamish white postocular line, ventrally with broad dark brown longitudinal band. Surface of thorax minutely tuberculate, last four tergites with three longitudinal carinae.

Head: Generally as in ♀♀ with distinct posteromedial notch. Surface smooth and median line only distinct in posterior half. Eyes slightly oval, convex, more prominently projecting from head capsule than in ♀♀. Antennae less than $\frac{1}{2}$ the length of profemora, generally as in ♀♀ but scapus not so distinctly broadened, slightly oval and almost $3\times$ as long as broad. Pedicellus $\frac{2}{3}$ the length of scapus, cylindrical, narrowing distally. Last segment distinctly longer than remaining, same length as pedicellus.

Thorax: Pronotum generally as in ♀♀, less than $\frac{2}{3}$ the length of head, anteromedially with rounded depression and lateral margins slightly raised with few minute tubercles. Mesothorax elongated, cylindrical, slightly widening posteriorly. Mesonotum with very indistinctly granulate surface, laterally with row of prominent white tubercles, anteriorly bordered by very fine median carina parallel to lateral margin. Mesopleurae as in ♀♀ but with less prominent features. Metathorax distinctly shorter than mesothorax, cylindrical. Metanotum with same surface texture as mesonotum and clearly visible median line. Meso- and metasternum smooth, lateral margins slightly raised.

Abdomen: Median segment more or less quadrate, slightly narrowing anteriorly less than $\frac{1}{2}$ the length of metanotum. Segments III-VI of equal length, II and VII slightly shorter, on average $4.5\times$ longer than broad. Sternites smooth. All tergites minutely tuberculate, II-VI with fine median carina. VII additionally

with longitudinal lateral carinae on each side. IX $\frac{2}{3}$ the length of VII with distinct median keel and prominent lateral carinae, slightly broadening towards posterior margin. IX structured as previous, but slightly shorter and narrowing towards posterior margin. Anal segment slightly shorter than IX, parallel-sided, posterior margin rounded and raised just in front with transverse ridge. Median carinae distinct. External vomer glossy grey, triangular with irregular raised areas. Cerci slightly longer than anal segment, laterally depressed, incurving and slightly thickened distally. Subgenital plate short, not projecting over posterior margin of tergite IX, slightly convex, spoon-like.

Legs: Generally as in ♀♀, but all relatively long and slender, the meso- and metafemora not so distinctly compressed in basal section. Basitarsus at least twice the length of remaining segments combined.

Measurements (in mm): Body 40.2-48.0, head 2.5-2.8, pronotum 1.7-1.9, mesonotum 7.6-8.8, metanotum 5.5-6.3, median segment 1.1-1.2, profemora 16.9-20.7, protibiae 18.1-23.4, mesofemora 13.2-15.3, mesotibiae 13.2-15.8, metafemora 18.1-20.8, metatibiae 18.8-23.2, antennae 5.8-6.3..

Eggs: Typical for the genus, very slender and elongate, cylindrical in cross-section. General colour of capsule dark brown, with slightly paler, greyish area round micropylar plate, surface smooth. Polar-area with distinctly raised rim, highest dorsally. Micropylar plate lance-shaped, very elongate with slightly raised median line in posterior half. Micropylar cup, small located almost in centre of plate. Operculum almost circular with distinctly raised lateral rim, forming several teeth of different sizes, greyish straw.

Measurements (in mm): Length (incl. operculum) 7.6, length 6.9, width 0.8, height 0.8, length of micropylar plate 5.3.

Comments: Comparison of the type specimens of *Bacillus humilis* WESTWOOD, 1859 and *Bacillus carinulatus* SAUSSURE, 1868 showed these two taxa to be synonymous. BRUNNER V. WATTENWYL (1907: 223) erroneously listed *Bacillus humilis* WESTWOOD and *Gratidia sansibarica* BRUNNER V. WATTENWYL (1893: 93, not STÅL, 1875) as possible synonyms of *B. carinulatus* SAUSSURE. Later on (1907: 228) he erroneously listed *B. humilis* WESTWOOD as a synonym of *Bacillus bercei* WESTWOOD, 1859. The type-specimens of *B. carinulatus* bear labels with the location "Malabar" although SAUSSURE cites "L'île de Ceylan". Comparison with other closely related taxa including, *Sceptrophasma hispidula* (WOOD-MASON) which is the type-species of *Sceptrophasma* BROCK & SEOW-CHOEN, 2000, proved it to belong to that genus.

The species seems to be widespread in central Sri Lanka and was commonly found in low vegetation around Kandy and Hunas Falls area. Apart of the examined specimens listed above, many nymphs of various stages were sighted.

Subfamily Phasmatinae

Genus *Cuniculina* BRUNNER V. WATTENWYL, 1907

Type-species: *Bacillus Cuniculus* WESTWOOD, 1859: 9, pl. 6: 2 (♀), by present designation.

Cuniculina BRUNNER V. WATTENWYL, 1907: 196. (in part) *Bacillus*, WESTWOOD, 1859: 9, pl. 6, figs. 1 & 2. (in part)

– BATES, 1865: 328. (in part)

Baculum, KIRBY, 1904: 327. (in part) [unnecessary selection of *Bacillus cuniculus* WESTWOOD, 1859 as the type-species.]

– HAUSLEITHNER, 1986: 124, figs 2l-m. [egg-group III] (in part)

– HAUSLEITHNER, 1988: 195, fig. 2i. [egg-group III] (in part)

– HAUSLEITHNER, 1990: 53, figs. 1-3 & 4a. (in part)

– SELICK, 1997: 103, fig. 8c. [egg-group III] (in part)

– SELICK, 1998: 225, fig. 39e,f. [egg-group III] (in part)

– BROCK, 1998: 12, 16, 18, 36 & 53.

Clitumnus, BRUNNER V. WATTENWYL, 1907: 187. (in part)

Gratidia, KIRBY, 1904: 330. (in part)

Lonchodes, BATES, 1865: 334 (in part)

– SAUSSURE, 1868: 66. (in part)

– SAUSSURE, 1869: 301. (in part)

Ramulus, KIRBY, 1904: 330. (in part)

Description: Medium sized to large, very slender and typically stick-like. Dorsal surface of body smooth. Head at least 1.5× as long as wide, flat and slightly narrowing posteriorly. Dorsal surface smooth in ♂♂,

smooth or more or less distinctly bispined in ♀♀. Antennae distinctly shorter than profemora. Scapus dorsoventrally depressed and distinctly dilated in ♀♀. Mesosternum without median carina. Median segment distinctly shorter than metanotum, at best 1/5 of its length. ♂ anal segment elongate, divided, the distal lobes slender and downcurving. ♀♀ anal segment posteriorly broadened into triangular or oval lobes. Cerci of both sexes short, cylindrical; supraanal plate of ♀♀ short and not projecting over apex of anal segment. Profemora basally curved, triangular in cross-section. Ventral surfaces of meso- and metafemora with indistinct, fine median carina, quadrate in cross-section. Basitarsus at least the length of following three segment combined. Mid- and hindlegs occasionally with distinct teeth or leaf-like lobes in ♀♀.

Eggs: Strongly elongate, much longer than wide, cylindrical, surface densely punctured. Polar-area distinctly notched or incised. Micropylar plate more or less elliptical, with longitudinal carina and posteromedial notch. Internal micropylar plate open, median line present. Operculum with distinctly raised rim-like outer margin, forming one or two triangular teeth.

Differentiation: Clearly differing from the neotropical genus *Baculum* SAUSSURE, 1861 by lacking the distinctly raised dorsal carina of basitarsi and the geographic distribution. From *Ramulus* SAUSSURE, 1862 it is distinguished by the cylindrical egg-capsule which has a distinctly notched polar-area and bears a characteristically raised crown-like rim on the operculum. Specimens of both genera are difficult to differentiate without examination and extensive comparison of large series a large number of described taxa. Live nymphs and adults of *Cuniculina* BRUNNER V. WATTENWYL however show very typical resting positions in which the abdomen is often remarkably curled up. This is untypical for any taxa of *Ramulus*.

Comments: The neotropical genus *Baculum* SAUSSURE, 1861 (Type-species *Bacillus* (*Baculum*) *ramosum* SAUSSURE, 1861: 127, by monotypy) was originally described as a subgenus of *Bacillus* LATREILLE, 1825 from Brazil and was first misunderstood by KIRBY (1904: 327). KIRBY unnecessarily designated *Bacillus cuniculus* WESTWOOD, 1859 as the type-species, an error followed by all later authors, who have treated *Bacillus cuniculus* WESTWOOD as the type-species and transferred most of the exceptionally oriental species that had originally been listed in the genera *Clitumnus* STÅL, 1875 and *Cuniculina* BRUNNER V. WATTENWYL, 1907 by BRUNNER V. WATTENWYL, 1907 to *Baculum*. All oriental taxa, presently and erroneously listed in *Baculum* SAUSSURE are however clearly distinguished from the same by lacking the distinctly raised dorsal carina of basitarsi, which the author mentions as the typical feature for his genus. Following none of these oriental taxa belong to the monotypic *Baculum* SAUSSURE, 1861.

Clitumnus STÅL, 1875 (Type-species *Phasma* (*Bacteria*) *nematodes* DE HAAN, 1842: 132, by subsequent designation of KIRBY, 1904: 327) has been erroneously synonymized with *Baculum* by KIRBY (1904: 327) because he mistakenly considered *Bacillus cuniculus* WESTWOOD and *Phasma* (*Bacteria*) *nematodes* DE HAAN to be the type-species of *Baculum* SAUSSURE and *Clitumnus* STÅL. *Clitumnus* STÅL is however clearly distinguished from *Baculum* SAUSSURE by the mentioned feature. The strongly laterally flattened egg-capsule clearly distinguishes it from *Cuniculina* BRUNNER V. WATTENWYL, and it has now to be treated as a synonym of *Ramulus*.

BRUNNER V. WATTENWYL (1907) omitted *Baculum ramosum* (SAUSSURE, 1861) from his monograph, however included *Phasma* (*Bacteria*) *nematodes* DE HAAN in his new genus *Cuniculina*, thus synonymising it with *Clitumnus* STÅL. Following BRUNNER V. WATTENWYL's treatment of the name *Clitumnus* was incorrect and *Cuniculina* BRUNNER V. WATTENWYL has since been treated as a synonym of *Baculum* SAUSSURE, 1861 by former authors, although so far no type-species has been selected. The generic name *Cuniculina* used by BRUNNER V. WATTENWYL clearly indicates that the genus was originally meant to be based on *Bacillus cuniculus* WESTWOOD, 1859 which occasionally has two distinct lance-like spines or horns between its eyes in ♀♀, being BRUNNER V. WATTENWYL's dividing character of the genus from *Clitumnus*. Accordingly *Bacillus cuniculus* WESTWOOD, 1859 is here selected as the type-species of *Cuniculina* BRUNNER V. WATTENWYL, 1907 with the genus being resurrected.

Clitumnus sensu BRUNNER V. WATTENWYL (not STÅL, 1875) erroneously included all taxa having a flat and smooth head, while *Cuniculina* united all those bearing horns or a transverse carina between the eyes. This is however an extremely variable feature only present in ♀♀ and even showing strong intraspecific variation. It is clearly not of generic or even specific value. The strongly elongate, cylindrical egg-capsule and operculum with a distinctly raised rim on the outer margin clearly distinguish it from *Clitumnus* STÅL, 1875.

Eggs of former "*Baculum*" were divided into first two groups (CLARK, 1979), then three (HAUSLEITHNER, 1986 & 1988) and finally four groups (SELICK, 1997). *Cuniculina cuniculus* (WESTWOOD) was allocated to egg-group III by these authors. HAUSLEITHNER (1986) is the first to differentiate and unite them in a separate group, and characterizes them as follows: "Länglich, charakteristischer Eideckelrand und eingekerbte

Eibasis." [Elongate, characteristic operculum margin and incised polar-area].

The taxa allocated to egg-group II by HAUSLEITHNER (1986) which are characterized by their ovoid, cask-shaped egg capsule and short almost circular micropylar plate, have recently been united in the genus *Medauroidea* ZOMPRO, 1999. These include *Clitumnus extradentatus* BRUNNER v. WATTENWYL, 1907: 193 (= *Cuniculina annamense* BRUNNER v. WATTENWYL, 1907: 205) which has become the type-species of *Medauroidea* ZOMPRO by original designation of ZOMPRO (1999b: 68)

Distribution: Sri Lanka, East India.

Species included:

Bacillus cuniculus WESTWOOD, 1859

- = *Cuniculina acute-cornuta* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Clitumnus attingens* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Lonchodes ceylonicus* SAUSSURE, 1868 **syn. n.**
- = *Lonchodes grillator* BATES, 1865 **syn. n.**
- = *Bacillus Hyphereon* WESTWOOD, 1859 **syn. n.**
- = *Cuniculina insolens* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Cuniculina inverse-cornuta* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Cuniculina laevisissima* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Clitumnus rivalis* BRUNNER v. WATTENWYL, 1907 **syn. n.**
- = *Bacillus scytale* BATES, 1865 **syn. n.**

Cuniculina cuniculus (WESTWOOD, 1859)

(Figs 59-67, 78-79)

Bacillus Cuniculus WESTWOOD, 1859: 9, pl. 6: 2. HT, ♀: Ceylon (BMNH) [with several eggs]

Cuniculina cuniculus, BRUNNER v. WATTENWYL, 1907: 203.

Baculum cuniculus, SELICK 1998: 225 (fig. 39 e, f). [illustration of egg]

Bacillus cunicularis, SAUSSURE, 1869: 292, pl. 2: 2 & 2a (?). [misspelling of specific name *cuniculus*]

Cuniculina acute-cornuta BRUNNER v. WATTENWYL, 1907: 207. HT, ♀: Kandy (Ceylon), Inv.-Nr. BRUNNER v. W., 25.119 (NHMW, No. 365) **syn. n.**

Baculum acute-cornutum, BROCK, 1998: 12.

Clitumnus attingens BRUNNER v. WATTENWYL, 1907: 194. HT, ♀: Coll. Br. v. W., Punduloya (Ceylon) Burr, det. Br. v. W. *Clitumnus attingens* (NHMW, No. 334) **syn. n.**

– HAUSLEITHNER, 1985: 127. [synonymy mentioned]

Baculum attingens, BROCK, 1998: 16.

Lonchodes ceylonicus SAUSSURE, 1868: 66. LT [by present designation], ♂: Ceylon, Nietner (MHNG); PLT, ♂: Ceylon, Nietner (MHNG). **syn. n.**

– SAUSSURE, 1869: 301. [mentoning possible synonymy with *B. grillator* BATES]

Clitumnus ceylonicus, CARL, 1913: 13.

Lonchodes grillator BATES, 1865: 334. HT, ♂: Ceylon Nietner, E coll. (1830-73) W.W. SAUNDERS, Purchased and pres. '73 by Mrs. F.W. HOPE, *Lonchodes grillator* BATES Type, Type. BATES.

Lonchodes grillator (OXUM, No. 542) **syn. n.**

Bacillus Hyphereon WESTWOOD, 1859: 9, pl. 6: 1. LT [by present designation], ♀: Ceylon (BMNH); PLT, ♀: Ceylon, E coll. (1830-73) W.W. SAUNDERS, Purchased and pres. '73 by Mrs. F.W. HOPE, Co-type. Westwood. *Bacillus hyphereon* (OXUM, No. 539) **syn. n.**

Clitumnus hyphereon, BRUNNER v. WATTENWYL, 1907: 194.

Baculum hyphereon, HAUSLEITHNER, 1985: 127.

Cuniculina insolens BRUNNER v. WATTENWYL, 1907: 201. LT [by present designation], ♀: Ceylon, Colombo, Mus. Zürich, det. Br. v. W. *Cuniculina insolens* (NHMW, No. 346), PLT: ♂, ♀: « India anglica » (MHNG – not traced) **syn. n.**

Baculum insolens, BROCK, 1998: 36.

Cuniculina inverse-cornuta BRUNNER v. WATTENWYL, 1907: 204. HT, ♀: Ceylon 1891, Heuser, det. Br. v.W.

Cuniculina inverse-cornuta (NHMW, No. 356) **syn. n.**

Baculum inverse-cornutum, HAUSLEITHNER, 1985: 127.

– BROCK, 1998: 36.

Cuniculina laevisissima BRUNNER v. WATTENWYL, 1907: 200. Holotype, ♀ (nymph): Ceylon 1891, Heuser, det. Br. v. W.

Cuniculina laevisissima (NHMW, No. 341) **syn. n.**

Baculum laevissimum, BROCK, 1998: 18.

Clitumnus rivalis BRUNNER V. WATTENWYL, 1907: 194. Lectotype [by present designation], ♀: Ceylon, Peradeniya, Dr. UEZEL. 4/1.02 (NHMW, Nr. 330); Paralectotypes: ♀: Ceylon, Dr. HALY; 2♀♀: Ceylon 1891, Heuser (NHMW, Nr. 330) **syn. n.**

– HAUSLEITHNER, 1985: 127. [synonymy mentioned]

Baculum rivalis, BROCK, 1998: 53.

Bacillus scytale BATES, 1865: 328, pl. 44: 9. HT, ♀: Ceylon, E coll. (1830-73) W.W. Saunders, Purchased and pres. '73 by Mrs. F. W. HOPE, *Bacillus scytale* BATES Type, Type. BATES. *Bacillus scytale* (OXUM, No. 537) **syn. n.**

Material examined: 9♀♀, 1♀ (5th instar), 16♂♂, 1 egg: Zentral Sri Lanka, Hunas Falls, 800-1000 m, 14.-18.VIII.2000, leg. HENNEMANN & SEIFERT (FH-0432-1 to 26 & 0432-E); 18♀♀, 10♂♂, 300 eggs: ex Zucht: F. HENNEMANN, V.2001, F1-Generation, urspr.: Zentral Sri Lanka, Hunas Falls (FH 0432-26 to 53 & 0432-ED); 4♀♀: ex Zucht: F. HENNEMANN, II.2002, F2-Generation, urspr.: Zentral Sri Lanka, Hunas Falls (FH 0432-54 to 57); 7♀♀, 6♂♂, eggs: ex Zucht: F. HENNEMANN, II.2002, F2-Generation, urspr.: Zentral Sri Lanka, Hunas Falls (ZSMC, ex coll. FH).

Description:

♀♀. Medium-sized to large (body length 87.0-156.0 mm), slender, stick-like, surface of body smooth. Remarkably variable in armature of head and extremities as well as size and colouration. General colour varying from light to dark green or straw to dark brown; occasionally greenish brown specimens may occur. Posterior part of anal segment distinctly darker brown.

Head: Subcylindrical, elongate, 1.5× longer than broad, narrowing posteriorly, broadest just behind eyes. Posterior margin with one indistinct medial and two short lateral longitudinal ridges. Dorsal surface slightly raised between eyes, either completely smooth, with two minute spines or a pair of prominent, lancet-like, backward pointing horns. This section of slightly darker colour than remaining capsule. Eyes small, spherical, greyish brown. Antennae slightly less than half the length of profemora, 27-segmented, last segment longer than previous except scapus. Scapus dorsoventrally flattened, almost twice as long as wide, laterally dilated, thickened anteromedially. Pedicellus cylindrical, distinctly shorter than scapus.

Thorax: Pronotum slightly shorter than head, 1.5× as long as broad, posteriorly broader than anteriorly and slightly narrowed in medial section. Anterior margin slightly raised, transverse medial ridge indistinct. Mesothorax very elongate, cylindrical, smooth, slightly broadened posteriorly, mesonotum with indistinct fine median line. Metathorax less than ⅔ the length of mesothorax, smooth, cylindrical, median line on metanotum more prominent.

Abdomen: Median segment more or less quadrate, less than ⅓ the length of metanotum, smooth. Segments II-VII cylindrical, II 3× as long as broad, III-VII in average 4× as long as broad, VI-VII slightly narrowing. Tergites more or less parallel-sided, smooth but occasionally with very indistinct fine median line. Sternites smooth. Tergite VIII just more than half the length of VII, very slightly broadening posteriorly, strongly convex, with fine median carina. IX parallel-sided, as previous but just slightly more than half of its length. Anal segment with clear median carina, ⅓ the length of VII, with small posteromedial notch. Anterior half parallel-sided, posterior half distinctly dilating into flattened, oval lobe. Supraanal plate very small, rounded, with fine median keel, almost completely overlapped by anal segment. Cerci small, cylindrical, pointed towards apex, slightly incurving. Operculum strongly convex and keeled, boat-like and posteriorly almost truncate, not projecting over apex of anal segment.

Legs: All very long and slender. Profemora basally compressed and curved, anterodorsal carina densely serrate. Ventral carinae smooth. Protibiae smooth, clearly carinated. Meso- and metafemora quadrate in cross section, all carinae smooth, except for occasionally 1-7 more or less distinct teeth on anterodorsal and 1-4 smaller teeth on posterodorsal carina. Ventral surfaces with very indistinct median carina which is slightly raised and protruded into blunt spine apically. All carinae of meso- and metatibiae finely spinose in distal third, occasionally 1-4 basal tooth are present on anterodorsal carina as well as 1-2 minute ones on posteroventral carina. Probasitarsus with slightly raised dorsalcara, the length of remaining segments combined. Mesobasitarsus as long as following three segments combined, metabasitarsus as long as remaining segments combined except claw.

Measurements of ♀♀ (in mm): Body 106.5-156.0, head 5.1-6.2, pronotum 4.1-5.4, mesonotum 21.5-31.8, metanotum 14.9-21.2, median segment 3.1-4.0, profemora 35.5-45.6, protibiae 38.0-58.0, mesofemora 23.0-31.2, mesotibiae 22.5-32.8, metafemora 21.0-36.4, metatibiae 28.0-41.7, antennae 14.8-23.5.

♂♂. Medium-sized (body length 82.8-91.0 mm), very slender, stick-like, body smooth. General colour creamish dark brown, the last three abdominal segments usually black. Intrasegmental membranes especially at abdomen, distinctly greyish white. Occasionally a black postocular line may be present on

head. Legs lighter brown with more or less distinct pale bands, knees and distal end of tibiae black. First two antennal segments black, remaining brown.

Head: Oval, 1.5× longer than broad, subcylindrical, flat, broadest at eyes. Posteriorly with several minute incisions and slightly raised area between eyes. Eyes blackish brown, strongly convex, distinctly projecting from head capsule. Antennae almost as long as profemora, 20-segmented. Scapus 2.5× as long as broad, dorsoventrally flattened, parallel-sided. Pedicellus distinctly shorter than scapus, cylindrical. Last segment distinctly longer than previous.

Thorax: Pronotum slightly shorter and narrower than head, slightly narrowed medially, with bended transverse rim. Mesothorax strongly elongated, cylindrical, posteriorly slightly broadened. Metathorax parallel-sided, metanotum less than $\frac{3}{4}$ the length of mesonotum.

Abdomen: Median segment almost parallel-sided, rectangular, less than $\frac{1}{2}$ the length of metanotum, slightly less than twice as long as broad. Segments II-VI cylindrical, very indistinctly narrowed medially, almost 5× as long as broad; II slightly shorter. Tergites II-VI with very indistinct median line, more prominent on VII. Segment VII less than $\frac{2}{3}$ the length of VI and slightly shorter than II. Tergite VIII almost twice as long as broad, slightly broadening towards posterior margin. IX shorter than previous, slightly longer than wide and narrowed towards posterior margin. Anal segment closed ventrally, tube-like, distinctly keeled, laterally compressed and splitted over almost $\frac{2}{3}$ of its length, posteriorly forming two long, incurving, finger-like lobes, distinctly armed with small, black tooth on their inner surface. These lobes slightly upcurving and narrowing towards apex, seen laterally cerci small, cylindrical, pointed distally. Subgenital plate convex, with fine median carina, pointed posteromedially and slightly projecting over posterior margin of tergite IX.

Legs: All very long, slender and bristled. Profemora compressed and curved basally. Meso- and metafemora quadrate in cross-section, clearly carinated. Meso- and metatibiae with very minute teeth in apical third of all carinae. Probasitarsus 1.5× as long as remaining segments combined, meso- and metabasitarsus slightly longer than remaining segments combined.

Measurements of ♂♂ (in mm): Body 82.8-91.0, head 2.9-3.0, pronotum 2.3-2.7, mesonotum 18.3-20.2, metanotum 12.8-14.0, median segment 2.0-2.3, profemora 34.8-42.8, protibiae 44.0-53.5, mesofemora 23.5-28.6, mesotibiae 25.3-33.6, metafemora 27.6-32.8, metatibiae 32.7-41.6, antennae 28.0-39.2.

Eggs: Very elongate, distinctly longer than thick, general colour brown, straw or greenish grey. Capsule cylindrical in cross-section and slightly laterally compressed towards posterior end. Polar-area with deep triangular incision, seen laterally. Surface of capsule with indistinct dorso- and posterolateral rims, irregularly granulated and with numerous pale pits. Micropylar plate short, oval, anterior end pointed, posteriorly notched and with fine median carina, which is posteriorly forming a cone-like tubercle, including the micropylar cup. Operculum almost circular with distinct, strongly raised outer margin which is protuded into large rounded, triangular tooth laterally.

Measurements (in mm): Length (incl. operculum) 6.6-7.8, length 5.1-6.0, width 1.2-1.5, height 1.9-2.1, length of micropylar plate 1.9-2.0.

Comments: Extensive research on the Sri Lankan taxa described and listed in the genera *Clitumnus* and *Cuniculina* by BRUNNER V. WATTENWYL (1907) and comparison of necessary type material showed that most of the larger species described from "Ceylon" by former authors (BATES, BRUNNER V. WATTENWYL, SAUSSURE & WESTWOOD) all merely represent variations of one and the same species, first described as *Bacillus cuniculus* by WESTWOOD (1859). HAUSLEITHNER (1986 & 1988) describing and illustrating the eggs of several species from these genera, already mentioned *Clitumnus attingens* BRUNNER V. WATTENWYL, 1907 and *Clitumnus rivalis* BRUNNER V. WATTENWYL, 1907 to represented synonyms of *Bacillus hyphereon* WESTWOOD, 1859, does not however clearly synonymize them.

Several eggs were obtained in Sri Lanka and hatched after 10-12 weeks at temperatures around 25 °C, the newly hatched nymphs immediately starting to feed on bramble (*Rubus* spp.) and rose (*Rosa* spp.). Further breeding already showed great intraspecific variability within the F1-generation, as already observed in Sri Lanka. Armature and number of teeth on the meso- and metafemora and mesotibiae, spination of the head, size and colouring are of extreme variability. The head can be smooth without any hint of spines, minutely bispined or armed with two prominent, lancet-like horns, which WESTWOOD used as the distinguishing feature between his two species *B. Cuniculus* and *B. hyphereon*. While horned ♀♀ are rare in the Hunas Falls region, some 30 % of the cultured ♀♀ possess more or less prominent horns. The three MHNG ♀♀, described and figured under the misspelled name *Bacillus cunicularis* by SAUSSURE (1869) are remarkable for their comparatively smaller size (body length cited by SAUSSURE: 87.0 mm).

In the Hunas Falls region, specimens of all stages were common and exceptionally found on various forms of cultivated *Acalypha* spp. (Euphorbiaceae), which represented its local foodplant. Specimens of *Ramulus lobulatus* (BRUNNER v. WATTENWYL, 1907) were found along with *cuniculus*.

Genus *Ramulus* SAUSSURE, 1862

Type-species: *Bacillus (Ramulus) humberti* SAUSSURE, 1862: 472 (fig. 2), by monotypy.

Ramulus, SAUSSURE, 1862: 471. [established as a subgenus of *Bacillus* LATREILLE, 1825]

– KIRBY, 1904: 330. (in part)

Baculum, KIRBY, 1904: 327. (in part)

– HAUSLEITHNER, 1986: 124, figs 2a-i. [group I]

– HAUSLEITHNER, 1988: 195, figs. 2a-g. [group I]

– HAUSLEITHNER, 1990: 53, figs. 4b&c. (in part)

– SELICK, 1997: 103, figs. 1 & 8a,e. [group I]

– SELICK, 1998: 225, fig. 29a,b,g,h. [group I]

Clitumnus STÅL, 1875: 9 & 66. (in part)

– BRUNNER v. WATTENWYL, 1907: 187. (in part)

Cuniculina, BRUNNER v. WATTENWYL, 1907: 196. (in part)

Dubreuilia BRUNNER v. WATTENWYL, 1907: 208. [Type-species: *Paraclitumnus lineatus* BRUNNER v. WATTENWYL, 1893: 91, pl. 4: 31a-c, [by indication]

Lonchodes, SAUSSURE, 1868: 299. (in part)

Paraclitumnus BRUNNER v. WATTENWYL, 1893: 91. [Type-species: *Paraclitumnus lineatus* BRUNNER v. WATTENWYL, 1893: 9, pl. 4: 31a-c, by subsequent designation of KIRBY, 1904: 330]. **syn. n.**

– KIRBY, 1904: 330. (in part) [not *Ramulus* SAUSSURE, 1869: 291. Type-species: *Bacillus (Ramulus) carinulatus* SAUSSURE, 1868: 63, by monotypy – name used as a subgenus of *Bacillus* LATREILLE, 1825, corrected by BRAGG, 1995: 12]

Comments: The genus *Ramulus* SAUSSURE, 1862 was originally established as a subgenus of *Bacillus* LATREILLE, 1825 and only included *Bacillus (Ramulus) humberti* SAUSSURE, 1861, which is the type-species by monotypy.

SAUSSURE (1896: 300) erroneously synonymized *Bacillus (Ramulus) humberti* SAUSSURE, 1862 with *Lonchodes Pseudoporus* WESTWOOD, 1859 and uses the name *Ramulus*, again as a subgenus of *Bacillus* LATREILLE but omitted *Bacillus (Ramulus) humberti* SAUSSURE and included only one species, *Bacillus carinulatus* SAUSSURE, 1868 instead. Thus *Bacillus carinulatus* SAUSSURE, 1868 is the type-species of *Ramulus* SAUSSURE, 1869, by monotypy, making *Ramulus* SAUSSURE, 1862 and *ramulus* SAUSSURE, 1869 two clearly different genera (BRAGG, 1995: 12). As *Ramulus* SAUSSURE, 1869 is not an available name, the corresponding taxa have recently been referred to *Gratidia* STÅL, 1875 (Type-species: *Gratidia Sansibara* STÅL, 1875, by monotypy) and *Sceptrophasma* BROCK & SEOW-CHOEN, 2000 (Type-species: *Sceptrophasma hispidula* (WOOD-MASON, 1875), by original designation) both belonging to Pachymorphinae. All subsequent authors have treated *Bacillus (Ramulus) carinulatus* SAUSSURE as the type-species of *Ramulus* SAUSSURE, 1896, but most were unaware of the earlier usage of this generic name *Ramulus* (e.g. KIRBY, 1904: 329; KARNY, 1923: 326).

When KARNY (1923: 235) published some corrections to the monograph of BRUNNER v. WATTENWYL (1907), he erroneously treated the genera *Baculum* SAUSSURE, 1861, *Cuniculina* BRUNNER v. WATTENWYL, 1907 and *Clitumnus* STÅL, 1875 as synonyms, but omitted *Ramulus* SAUSSURE, 1862. As discussed above, *Baculum* SAUSSURE, 1861 (Type-species: *Bacillus (Baculum) ramosum* SAUSSURE, 1862) was described from Brazil and *Cuniculina* BRUNNER v. WATTENWYL, 1907 has proved to be a clearly distinct genus apart from *Clitumnus* STÅL.

STÅL (1875) established his new genus *Clitumnus*, for *Phasma (Lonchodes) nematodes* DE HAAN, 1842, *Lonchodes stilpnus* BATES, 1865, *Lonchodes pseudoporus* WESTWOOD, 1859, *Lonchodes russelli* BATES, 1865 and *Bacillus cuniculus* WESTWOOD, 1859. The latter is here selected as type-species of *cuniculina* BRUNNER v. WATTENWYL, 1907. KIRBY (1904: 327) designates *Phasma (Lonchodes) nematodes* DE HAAN, 1842 as type-species for *Clitumnus* STÅL and erroneously synonymizes it with the neotropical *Baculum* SAUSSURE, 1861. BRUNNER v. WATTENWYL (1907) completely omitted KIRBY's catalogue (1904) and subsequently the system of KIRBY (1904) has been followed by all authors. Consequently *Clitumnus* STÅL, 1875 has now to be regarded as a synonym of *Ramulus* SAUSSURE, 1862 not the neotropical *Baculum* SAUSSURE, 1861, as closer examination of specimens and their eggs has shown (ZOMPRO, in press). Perhaps the genus has to be reinstated and may become a valid genus apart from *Ramulus* SAUSSURE, but for confirmation large series of insects and eggs

of various species need to be carefully examined.

BRUNNER V. WATTENWYL (1893: 91) established his new genus *Paraclitumnus* for three new species from Myanmar and Sri Lanka of KIRBY (1904: 330) designates *Paraclitumnus lineatus* BRUNNER V. WATTENWYL as type-species. Closer examination of *Bacillus* (*Ramulus*) *humberti* SAUSSURE and *Paraclitumnus lineatus* BRUNNER V. WATTENWYL showed the two taxa to be congeneric, so *Paraclitumnus* BRUNNER V. WATTENWYL, 1893 has to be regarded as a new synonym of *Ramulus* SAUSSURE, 1862 (n. syn.).

BRUNNER V. WATTENWYL (1907: 208) described his new genus *Dubreuilia* in honour of a Jesuit couple possibly meant as a replacement name for *Paraclitumnus*. As this is not possible, *Paraclitumnus* BRUNNER V. WATTENWYL remains valid and *Dubreuilia* BRUNNER V. WATTENWYL has to be regarded a junior synonym of *Paraclitumnus* BRUNNER V. WATTENWYL (KARNY, 1923: 235) and finally *Ramulus* SAUSSURE, 1862. *Paraclitumnus lineatus* BRUNNER V. WATTENWYL automatically becomes type-species of *Debreulia* BRUNNER V. WATTENWYL by indication. BRUNNER V. WATTENWYL however completely omitted SAUSSURE's generic name *Ramulus* in his monograph.

Eggs of former "*Baculum*" were divided into first two (CLARK, 1979), then three (HAUSLEITHNER, 1986 & 1988) and finally four groups (SELLICK, 1997 & 1998). The taxa belonging to *Ramulus* SAUSSURE, 1862 (= *Clitumnus* STÅL, = *Paraclitumnus* BRUNNER V. WATTENWYL syn. n., = *Dubreuilia* BRUNNER V. W.) are all allocated to egg-group I by these authors. HAUSLEITHNER (1986) characterizes this group as follows: "Eiform flach, länglich und mehr oder weniger schmal. (Typische Form: *B. thaii*)" [Shape flat, oblong and more or less slender. (typical form *Baculum thaii* HAUSLEITHNER)]. The eggs are furthermore characteristic for their more or less rectangular cross-section and flat, almost parallel lateral surfaces; and easily distinguished from those of *Cuniculina* BRUNNER V. WATTENWYL, 1907 by these features, as well as lacking a distinctly raised crown-like rim on the operculum and polar-area. The flat or even concave operculum occasionally shows an at best indistinctly raised, toothed rim.

The genus *medauroidea* ZOMPRO, 1999 (Type-species: *Cuniculina extradentata* BRUNNER V. WATTENWYL, 1907) has recently been established for egg-group II, which these authors characterize by the ovoid or cask-shaped capsule and unique form of operculum, in which the centre is evaginated into a black pseudocapitulum (SELLICK, 1997).

Most of the remaining taxa that do not belong to either *Cuniculina* BRUNNER V. WATTENWYL nor *Medauroidea* ZOMPRO have to be united in *Ramulus* SAUSSURE, 1862. Further splitting of the genus into different species-groups or perhaps even subgenera may be necessary, but is impossible without extensive research including examination and comparison of large series of all described taxa as well as their eggs.

The eggs are very characteristic, adult specimens are however extremely difficult to differentiate. Consequently no diagnosis or complete listing of included species is provided here.

Distribution: Sri Lanka, India, Bangladesh, Myanmar, China, Taiwan, Vietnam, Thailand, Peninsular Malaysia, Singapore, Sumatra, Java, Borneo, Palawan, Philippines & Sulawesi.

Sri Lankan species included (non-Sri Lankan taxa not listed):

Bacillus (*Ramulus*) *humberti* SAUSSURE, 1861.

= *Clitumnus trilineatus* BRUNNER V. WATTENWYL, 1907. syn. n.

Clitumnus bilineatus BRUNNER V. WATTENWYL, 1907.

Cuniculina lobulata BRUNNER V. WATTENWYL, 1907.

Bacillus pseudoporus WESTWOOD, 1859.

Clitumnus humberti CARL, 1913; renamed as *Ramulus braggi* nom. nov. (see below*)

Etymology: Named in honour of Dr. P. E. BRAGG (Nottingham, England) for his great effort in solving the systematic problems concerning *Baculum* SAUSSURE, 1861, *Ramulus* SAUSSURE, 1862, *Ramulus* SAUSSURE, 1869 and helpful discussion on this subject.

* *Bacillus* (*Ramulus*) *humberti* SAUSSURE, 1861 and *Clitumnus humberti* CARL, 1913 are clearly congeneric. Consequently a replacement name is needed for CARL's species, which is here renamed as *Ramulus braggi* nom. nov.

Ramulus humberti (SAUSSURE, 1862)

(Figs 38-47)

Bacillus (Ramulus) humberti SAUSSURE, 1862: 472. LT [by present designation], ♂: Trincomalie, Ceylon, Voyage Humbert (MHNG); PLT, 2♀♀: Trincomalie, Ceylon, Voyage Humbert (MHNG).

Lonchodes pseudoporus, SAUSSURE, 1869: 300. [erroneous synonymy]

Clitumnus trilineatus BRUNNER V. WATTENWYL, 1907: 191 (pl. 8: 2a-b). LT, ♂ [by present designation]: Ceylon, Sarasin; PLT: 2♂♂, 1♀: Ceylon, Sarasin; 2♂♂: Ceylon, Dr. HALY; Coll. BR. V. W., Ceylon, Mus. Hamburg; 2♂♂: Ceylon, Peradeniya, det. BR. V. W., *Clitumnus trilineatus* BR., Coll. BR. V. W.; 1♂: Ceylon, leg. Schilling; 1♀, 8 nymphs: Ceylon, FRUHSTORFER (NHMW, No. 317). **syn. n.**

– WERNER, 1931: 25

Baculum trilineatum, HAUSLEITHNER, 1990: 57. BROCK, 1998: 63.

Material examined: 1♀, 1♂: Zentral-Sri Lanka, str. Kandy-Elkaduwa, 800 m, 14.VIII.2000, leg. HENNEMANN & SEIFERT (FH 0435-1 & 2); 5 eggs, taken from abdomen (FH 0435-E). 1♂: ex Zucht: F. HENNEMANN, V.2000, urspr.: Zentral Sri Lanka (FH 0435-3).

Diagnosis: Characterized by the elongate, flat head of both sexes, long, lancet-like ceri and long triangular supraanal plate of ♀♀ and namely the three fine black longitudinal lines on body of ♂♂. Closely related to *Ramulus bilineatus* (BRUNNER V. WATTENWYL, 1907) from Sri Lanka and *Ramulus lineatus* (BRUNNER V. WATTENWYL, 1907) from Myanmar.

Description: As the original description of BRUNNER V. WATTENWYL is insufficient redescrptions of both sexes are provided below.

♀♀. Medium-sized, slender, stick-like, entire surface of body smooth, antennae distinctly shorter than profemora. General colour a mixture of mottled yellowish and greyish brown, slightly glossy. An indistinct, fine pale orange postocular line present as well as an indistinct median line on thorax.

Head: Twice as long as broad, slightly tapering towards posterior end, oval in cross-section. Posterior margin with minute notch medially. Eyes very small and indistinct, oval, greyish brown with fine black ocular-line. Antennae 20-jointed, brown. Scapus dorsoventrally flattened, twice as long as wide, oval with tubercle near base. Pedicellus oval in cross-section, narrowed basally. Following segments all of equal length except for one just after the middle which is comparably longer.

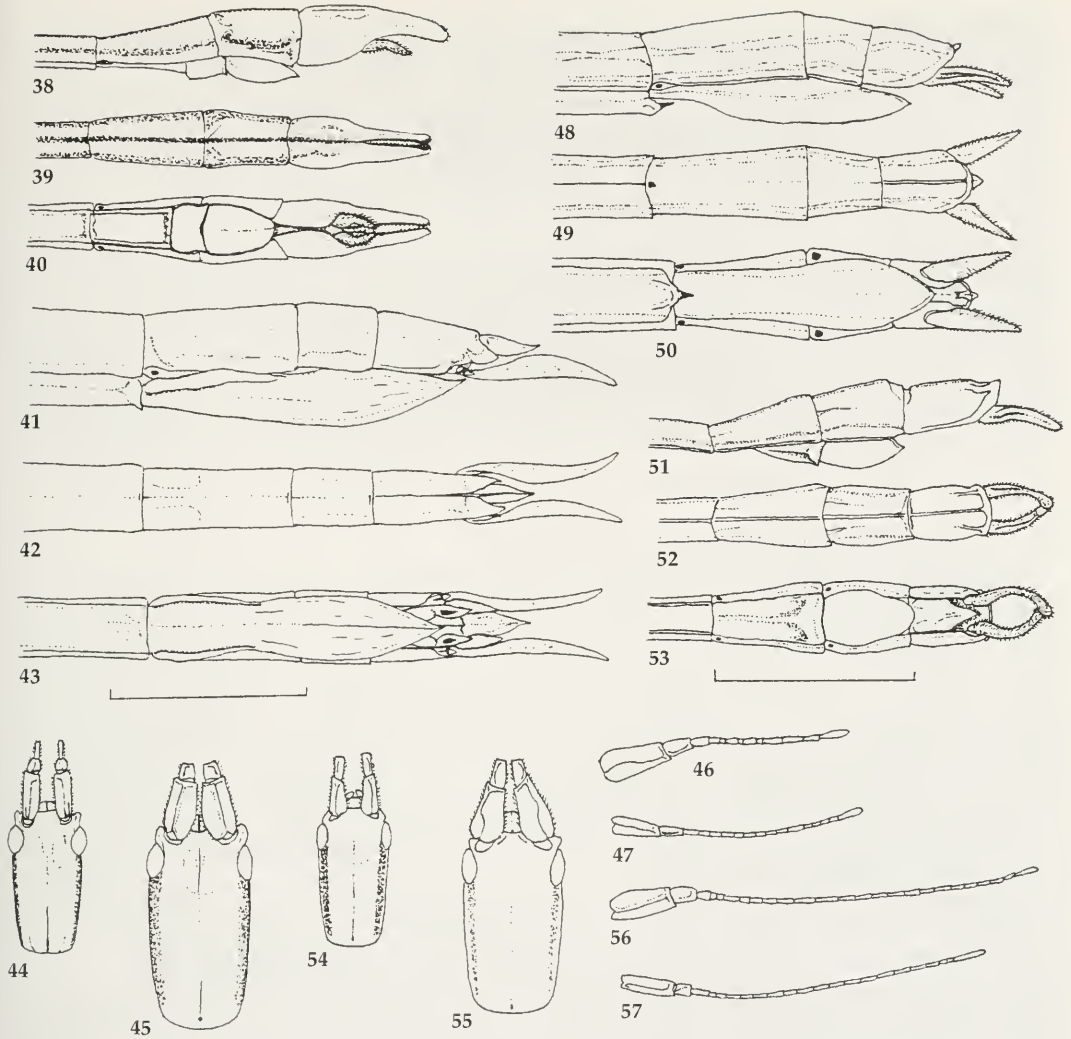
Thorax: Pronotum distinctly shorter than head, almost rectangular. Mesothorax very elongated, cylindrical. Metathorax cylindrical, $\frac{2}{3}$ the length of Mesothorax, 5.5× longer than broad.

Abdomen: Median segment more or less quadrate, less than $\frac{1}{4}$ the length of metanotum. Segment II almost twice as long as segmentum medianum, cylindrical. III-VII cylindrical in average 2.5× as long as wide, parallel-sided. Tergite VIII shorter and narrower than VII, strongly vaulted and indistinctly depressed laterally. IX shorter than previous, strongly vaulted and parallel-sided. Anal segment with clear median carina, slightly longer than IX, posteromedially with distinct pointed, triangular incision. Supraanal plate triangular with fine median carina and clearly projecting over apex of anal segment. Cerci slender, laterally depressed, slightly narrowed apically and as long as anal segment and lamina subgenitalis combined. Operculum boat-like, clearly tapered towards apex, not reaching posterior end of anal segment.

Legs: Profemora basally compressed and curved, anterodorsal carina with 10-12 minute black teeth, smooth apically. All remaining carinae smooth. Meso- and metafemora quadrate in cross-section, with fine median carina on ventral surfaces, indistinctly toothed apically. Probasitarsus longer than remaining segments combined, mesobasitarsus as long as following three segments combined, metabasitarsus as long as these combined.

Measurements of ♀ (in mm): Body 93.0, head 4.7, pronotum 2.8, mesonotum 19.7, metanotum 12.8, median segment 2.9, profemora 28.6, protibiae 29.3, mesofemora 18.8, mesotibiae 17.2, metafemora 22.8, metatibiae 22.1, antennae 11.0.

♂♂. Medium-sized, very slender, general colour of body light to reddish brown, head slightly lighter brown laterally. A prominent black longitudinal median line beginning at anterior margin of pronotum present, broadest on pro- and mesonotum. Two further fine longitudinal lines parallel to lateral margins of segments, beginning at anterior margin of mesonotum. Lateral margins white, this white band slightly broadened in posterior part of meso- and metanotum as well as whole median segment. Head with fine dark brown postocular line. Antennae about $\frac{2}{3}$ the length of profemora, dark brown, except for first two



Figs. 38-47. *Ramulus humberti* (SAUSSURE) [scale=5 mm]: 38 apex of abdomen seen laterally (♂), 39 apex of abdomen seen dorsally (♂), 40 apex of abdomen seen ventrally (♂), 41 apex of abdomen seen laterally (♀), 42 apex of abdomen seen dorsally (♀), 43 apex of abdomen seen ventrally (♀), 44 head seen dorsally (♂), 45 head seen dorsally (♀), 46 right antenna (♀), 47 right antenna (♂).

Figs. 48-57. *Sceptrophasma humilis* (WESTWOOD) [scale=5 mm]: 48 apex of abdomen seen laterally (♀), 49 apex of abdomen seen dorsally (♀), 50 apex of abdomen seen ventrally (♀), 51 apex of abdomen seen laterally (♂), 52 apex of abdomen seen dorsally (♂), 53 apex of abdomen seen ventrally (♂), 54 head seen dorsally (♂), 55 head seen dorsally (♀), 56 right antenna (♀), 57 right antenna (♂).

segments. Legs dark straw or slightly reddish, knees slightly darker brown.

Head: Similar as in ♀♀, more than 1.5× as long as broad, subcylindrical, slightly flattened dorsally, parallel-sided. A slightly raised, more or less oval area between eyes. These greyish brown, oval, convex, projecting from capsule of head. Antennae with 20 segments, scapus more than twice as long as wide, dorsoventrally flattened, dorsally with fine, waved carina. Pedicellus cylindrical, longer than wide, narrowing distally.

Thorax: Pronotum rectangular, as broad as head but slightly shorter, 1.5× as long as broad. Mesothorax very elongate, cylindrical, smooth except for few minor granules at lateral margins of mesonotum.

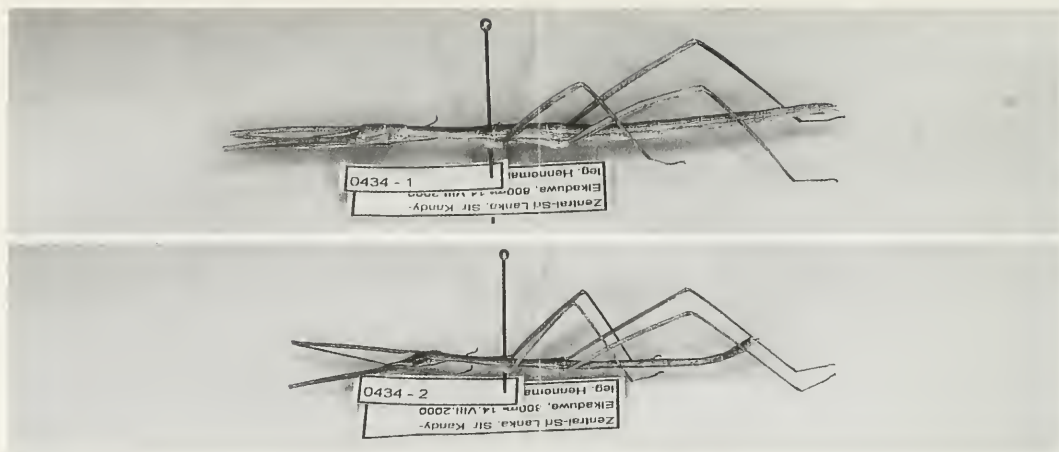


Fig. 58. *Sceptrophasma humilis* (WESTWOOD): up ♀, down ♂. (FH).

Metathorax as mesothorax but less than $\frac{2}{3}$ of its length.

Abdomen: Median segment almost rectangular, $1.5\times$ longer than wide, about $\frac{1}{4}$ the length of metanotum, anterior margin concave. Segments II-VII cylindrical, parallel-sided, equal in length except for II which is slightly shorter, in average $4.5\times$ as long as broad. Tergite VIII finely carinated less than $\frac{2}{3}$ the length of VII but slightly broader, twice as long as wide. IX about half as long as VIII, longer than wide, with minute tooth on lateral margin and a fine medial carina. Anal segment strongly keeled, laterally compressed, as long as VIII, and clearly splitted over half of its length, forming two slender, finger-like and slightly downward-curving lobes; their interior surfaces densely dentate. Cerci small, laterally compressed, slightly incurving. Subgenital plate small, oval and slightly convex, reaching posterior margin of tergite IX.

Legs: Very long and slender, all carinae smooth, except for ventromedial carina of meso- and metafemora which bears 1-4 very minute distal teeth. Profemora basally compressed and curved. Probasitarsus very elongate, more than $2\times$ longer than remaining segments combined. Meso- and Metabasitarsus as long as remaining segments combined.

Measurements (in mm): Body 61.5-66.9, head 2.9-3.0, pronotum 2.1-2.4, mesonotum 12.6-13.8, metanotum 9.0-9.7, segmentum medianum 1.8-2.1, profemora 26.7-31.0, protibiae 30.0-35.7, mesofemora 18.9-19.8, mesotibiae 18.6-21.5, metafemora 21.8-23.6, metatibiae 23.5-27.7, antennae 17.0-18.0.

Eggs: HAUSLEITHNER (1986, fig. 2j) describes and figures an egg taken from the ovipositor of a ♀ of *Clitumnus trilineatus* BRUNNER v. WATTENWYL in NHMW. Despite only a few eggs were available for examination, taken from the abdomen of the ♀ in the authors collection. These are still in a too early stage of development for description. Therefore a short characterization is provided here: Very similar to those of *Ramulus lobulatus* (BRUNNER v. WATTENWYL), but with more rounded micropylar plate and slightly different capsule form. Capsule longer than wide, clearly laterally depressed. Polar area with concave incision.

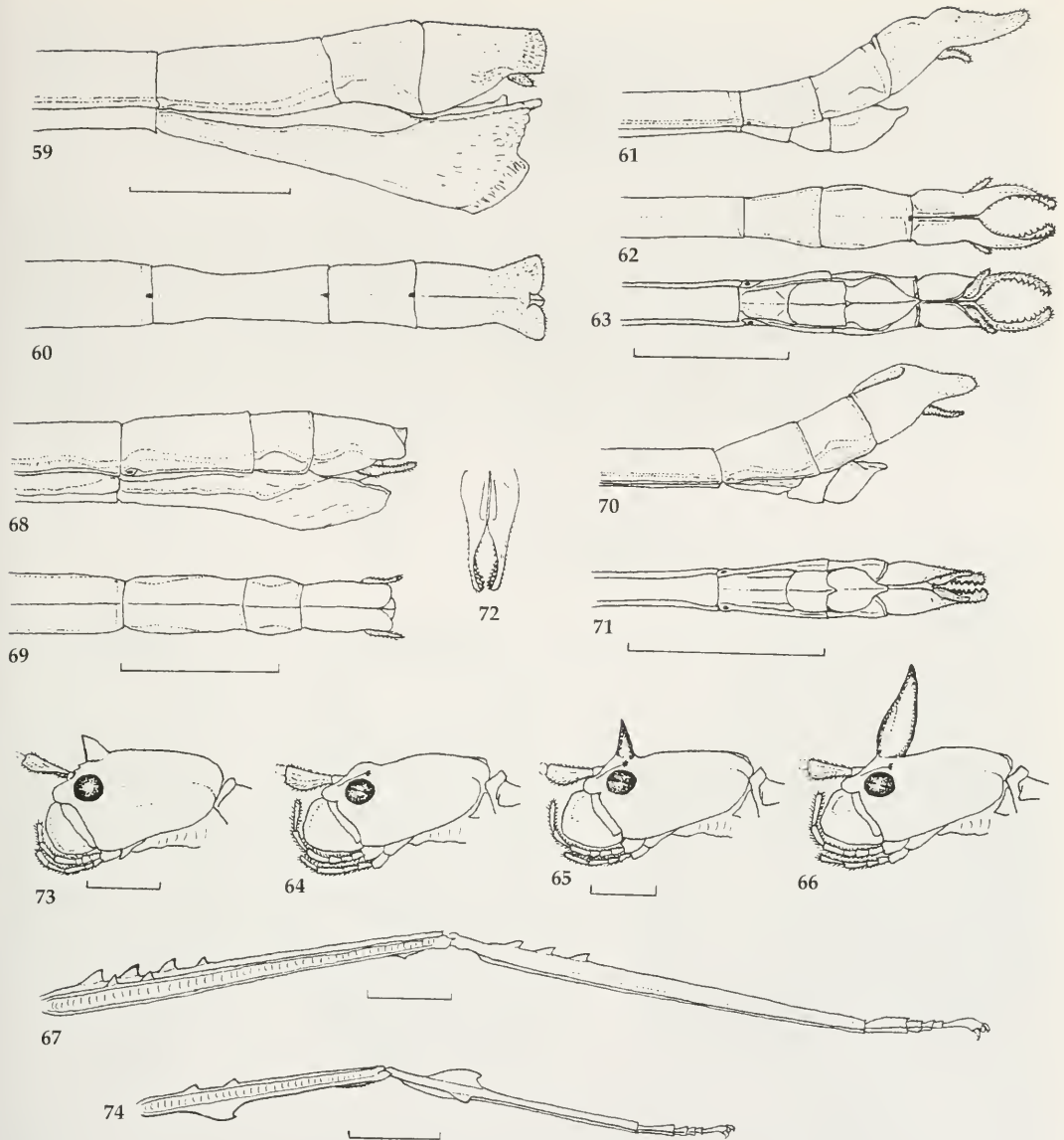
Comments: Comparison of the specimens collected alongside the road, leading from Kandy to Elkaduwa near the junction to Hunas Falls show them to be conspecific with BRUNNER v. WATTENWYL's type specimens in NHMW. Comparison of these with the types of *Ramulus humberti* (SAUSSURE, 1862) showed *Clitumnus trilineatus* BRUNNER v. WATTENWYL, 1907 to represent a junior synonym (syn. n.).

Ramulus lobulatus (BRUNNER v. WATTENWYL, 1907)
(Figs 68-74, 76, 80-81)

Cuniculina lobulata BRUNNER v. WATTENWYL, 1907: 201. Holotype, ♀: Coll. BR. v. W., Kandy (Ceylon) Burr, det. BR. v. W. *Cuniculina lobulata* (NHMW, No. 345)

– WERNER, 1931: 25.

Baculum lobulatum, BROCK, 1998: 39.



Figs. 59-67. *Cuniculina cuniculus* (WESTWOOD) [scale=5 mm]: 59 apex of abdomen seen laterally (♀), 60 apex of abdomen seen dorsally (♀), 61 apex of abdomen seen laterally (♂), 62 apex of abdomen seen dorsally (♂), 63 apex of abdomen seen ventrally (♂), 64-66 head of three ♀♀ seen laterally, 67 left mid-leg seen laterally (♀). Figs. 68-74. *Ramulus lobulatus* (BRUNNER V. WATTENWYL) [scale=5 mm]: 68 apex of abdomen seen laterally (♀), 69 apex of abdomen seen dorsally (♀), 70 apex of abdomen seen laterally (♂), 71 apex of abdomen seen ventrally (♂), 72 anal segment of ♂ seen dorsally, 73 head of ♀ seen laterally, 74 left mid-leg seen laterally (♀).

Material: 4♀♀, 5♂♂, 18 eggs: Zentral Sri Lanka, Hunas Falls, 800-1000 m, 14.-18.VIII.2000, leg. HENNEMANN & SEIFERT (FH-0433-1 to 9 & 0433-E)

Diagnosis: Closely related to *Ramulus pseudoporus* (WESTWOOD, 1859) but easily distinguished by: its globose head; distinct, broad, white lateral lines on pronotum and the white apical band of meso- and metatibiae of ♂♂; and shape of the anal segment of both sexes. The ♀♀ are characterized by the globose head

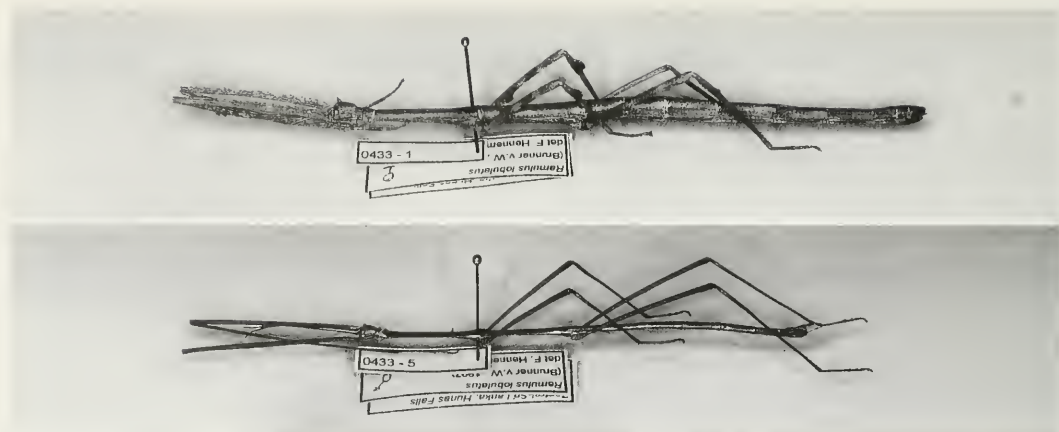


Fig. 75. *Ramulus lobulatus* (BRUNNER v. WATTENWYL): up ♀, down ♂. (FH).

bearing two short triangular horns and lobed extremities and show strong general resemblance to e. g. *Ramulus thaii* (HAUSLEITHNER, 1984) from Thailand.

Description: Below a redescription of the ♀♀ is provided, the ♂♂ are described for the first time.

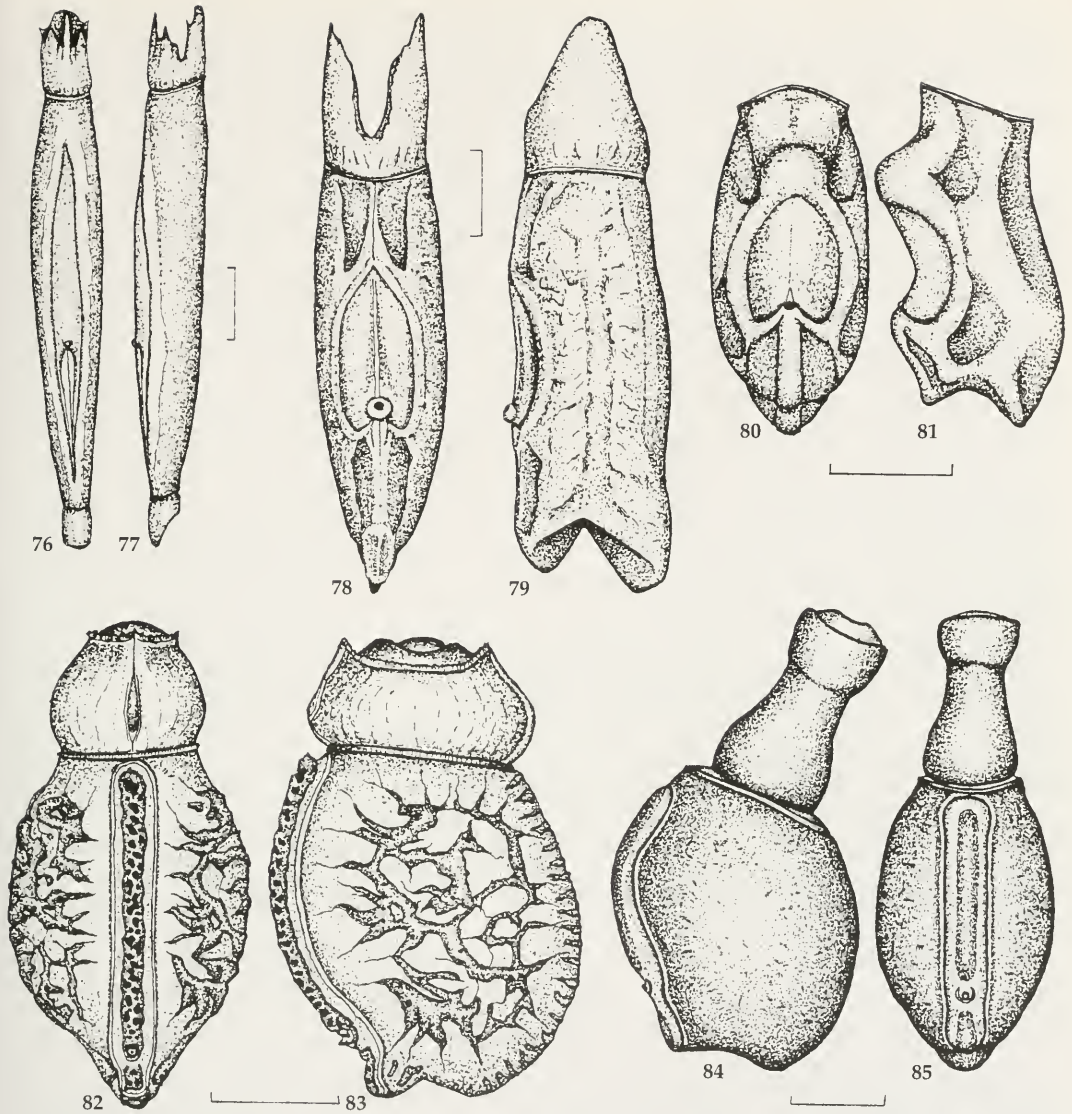
♀♀. Medium-sized (body length 88.8-100.0 mm), slender, general colour plain light to mid brown, often with darker mottling and terminal two abdominal tergites darker than remaining. Antennae about twice the length of head.

Head: Oval, slightly globose, 1.5× as long as broad, broadest at eyes, subcylindrical in cross-section. Fine median line present, only obvious posteriorly. Eyes small, convex, greyish brown. Between eyes, two prominent, pyramid-like horns, pointing anterolaterally. Antennae 25-segmented, about $\frac{1}{3}$ the length of profemora. Scapus oval, 1.5× as long as broad, distinctly dorsoventrally flattened and dilated. Pedicellus cylindrical, much shorter than scapus. All segments finely setose, last segment black, remaining light brown.

Thorax: Pronotum shorter and distinctly narrower than head, posteriorly broader than anteriorly, narrowed in anterior half. Anterior margin slightly raised. Mesothorax strongly elongated, cylindrical, slightly broadened posteriorly, with very few minor whiteish granules. Fine median line present on mesonotum. Metathorax as mesothorax, but shorter. Meso- and metasternum smooth.

Abdomen: Median segment indistinctly longer than broad, slightly narrowing anteriorly, distinctly shorter than metanotum. Segment II twice as long as broad and twice the length of median segment, cylindrical. Segments III-VII in average 3.5× as long as wide, III slightly shorter, VII longer. Segment III-IV broadest, VII narrowest, all smooth. Praoepicardial organ on sternite VII only present as an indistinct hole. Tergite VIII parallel-sided, twice as long as broad, less than half the length of VII. IX strongly convex, less than half the length of VIII. Anal segment as long as VIII, with fine median carina, parallel-sided posteriorly with triangular medial incision. Supraanal plate small rounded, with distinctly raised median carina, not projecting over posterior margin of anal segment. Cerci small, cylindrical. Operculum parallel-sided, convex, with distinct median keel in posterior half, not projecting over anal segment. Anterior margin angled downwards to apex.

Legs: Profemora basally curved and compressed, anterodorsal carina serrated, remaining carinae smooth. All carinae of protibiae smooth except for occasional presence of 1-2 black teeth in basal third of posterodorsal carina. Ventral carinae of mesofemora more or less strongly dilated or protruded into broad triangular lobe in basal third. Occasionally few minute teeth may be present at same height on anterodorsal carina. Median carina on ventral surface of meso- and metafemora slightly raised apically. Mesotibiae with a distinct rounded lobe one third the way along posterodorsal carina (occasionally only present as small tooth). Posteroventral carina occasionally with triangular tooth. Medioventral carina raised and rounded apically. Ventral carinae of metafemora less distinctly dilated as of mesofemora. Metatibiae more or less distinctly serrate distally, occasionally with triangular tooth in basal half of posterodorsal carina. Proba-



Figs. 76-77. *Sceptrophasma humilis* (WESTWOOD): dorsal and lateral view of egg. [scale=1 mm].

Figs. 78-79. *Cuniculina cuniculus* (WESTWOOD): dorsal and lateral view of egg. [scale=1 mm].

Figs. 80-81. *Ramulus lobulatus* (BRUNNER V. WATTENWYL): dorsal and lateral view of egg. [scale=1 mm].

Figs. 82-83. *Prisomera spinicollis* GRAY: dorsal and lateral view of egg. [scale=1 mm].

Figs. 84-85. *Paraprisomera coronata* (BRUNNER V. WATTENWYL): dorsal and lateral view of egg. [scale=1 mm].

sitarsus longer than remaining segments combined. Meso- and metabasitarsi as long as remaining segments combined except claw.

Measurements of ♀♀ (in mm): Body 88.8-100.0, head 4.2-4.5, pronotum 2.4-3.0, mesonotum 15.3-17.6, metanotum 12.6-14.1, median segment 2.7-3.0, profemora 26.0-29.0, protibiae 25.5-30.0, mesofemora 14.7-16.1, mesotibiae 12.2-13.1, metafemora 17.4-19.7, metatibiae 17.3-19.1, antennae 8.5-9.4.

♂♂. Medium sized (body length 60.2-74.4 mm), very slender, typical for the genus, antennae shorter than profemora. General colour glossy creamish brown, often darker on thorax. Two distinct, broad lateral lines on pronotum which are also visible in posterior parts of meso- and metanotum as well as the median

segment. These are accompanied by a further more indistinct black band at their interior margin. Head posterolaterally whiteish with dark postocular line and indistinct straw transversal band between eyes. Meso- and metasternum with distinct white patch posteriorly. Femora reddish brown, slightly lighter at base and darker brown at apex. Meso- and metatibiae brown with distinct pale apical band and further more indistinct bands.

Head: Oval, slightly globose and somewhat longer than wide, subcylindrical in cross-section. Smooth except for slightly impressed median line and indistinctly raised oval area over each eye. Eyes greyish brown, strongly convex and projecting from capsule. Antennae 25-segmented, almost $\frac{2}{3}$ the length of profemora. Scapus 2.5× as long as broad, dorsoventrally flattened, oval with distinct longitudinal carina. Pedicellus cylindrical, distinctly shorter.

Thorax: Pronotum generally as in ♀♀, shorter and narrower than head. Mesothorax very elongated, cylindrical, smooth. Metathorax as mesothorax but shorter. Meso- and metanotum indistinctly carinated.

Abdomen: Median segment slightly narrowing anteriorly, twice as long as broad, smooth, $\frac{2}{3}$ the length of tergite II. Segments II-VII cylindrical, in average 4.5× as long as broad (III and VII slightly shorter). Tergite VIII strongly convex, narrowing anteriorly, almost $\frac{2}{3}$ the length of VII. IX slightly shorter than VIII, slightly narrowing posteriorly. Anal segment as long as VIII, sharply keeled, laterally compressed, splitted over almost half of its length, and forming two finger-like, triangular downcurving lobes; their interior surfaces densely armed with black teeth. Cerci small, cylindrical, narrowed towards apices, incurving. Subgenital plate convex, cup-like, marginated posteriorly, slightly projecting over posterior margin of tergite IX.

Legs: All more slender and longer than in ♀♀, without larger teeth or lobes, except for serrations in distal half of metatibiae. Profemora basally compressed and curved. Basitarsis longer than remaining segments combined.

Measurements of ♂♂ (in mm): Body 60.2-74.4, head 2.9-3.2, pronotum 1.9-2.3, mesonotum 11.4-14.8, metanotum 10.0-12.8, median segment 1.9-2.2, profemora 25.0-30.5, protibiae 28.2-35.6, mesofemora 15.8-18.7, mesotibiae 16.1-19.2, metafemora 19.8-23.2, metatibiae 21.0-26.0, antennae 17.0-19.0.

Eggs: Small, typical for the genus, greyish brown, surface of capsule partly with strongly contrasting and textured rims and dark impressions laterally. Capsule laterally depressed and slightly trapezoidal in cross-section, surrounded by dorsoventral keel. Concavely depressed at micropylar plate and polar-area. A further distinct notch just posterior of operculum, which is surrounded by slightly raised margin. Micropylar plate oval, anteriorly pointed and notched posteromedially, dark grey. A fine median line present. Micropylar cup placed posteriorly, small and cup-like. Whole plate encircled by broad rim. Operculum oval, concave, with slightly raised outer margin and covered with several small, deep impressions.

Measurements (in mm): Length 2.6, width 1.1, height 1.7, length of micropylar plate 0.9.

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