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New records of Dermaptera from India and South America, with notes on their ecology, and a description of an unknown female

FABIAN HAAS, Institut für Spezielle Zoologie und Evolutionsforschung Friedrich-Schiller-Universität, Erbertstr. 1, D-07743 Jena, Germany

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Introduction

The specimens in this study have been kindly provided by H.-H. Vitt, C. Härle, C. Daniel, V. Weisz and P. Kautt, all Tübingen, Germany, who found the specimens on their journeys through Argentine, Brazil, Paraguay and India, respectively. The locations and notes on the environment are listed in Table 1. The specimens remained in the author's collection.

Record from Brazil

Euborellia plebeja (Dohrn)

The specimens of *E. plebeja* are characterised by the last three to four antennal segments, which are white; a unique character for this species, though the baso-medial teeth of the forceps are less marked than described by Steinmann (1989).

The location of *E. plebeja* is remarkable because it has not previously been reported from South Brazil, which is the southern-most location known (Steinmann, 1989, Hincks, 1947). Length with forceps: 13 mm. The gut content consisted of small fragments of plants.

Record from Argentina

Carcinophora rosenbergi (Burr)

This species has previously been recorded from Ecuador and Colombia (Steinmann, 1989), so the location in northern Argentina is the southern-most record. The species is characterised by two white to yellow spots on the tegmina, white bands on the visible part of the wing and white legs with brown rings on the femur.

Length with forceps: 17 mm. The gut content of the larva consisted of insect fragments (cornea, head capsules of beetles and ants, complete legs, abdomina, Dermapteran head and tegmina). Some of the legs resembled those of the Diplopoda and Chilopoda.

Record from Paraguay

Pyragra paraguayensis Borelli

Though being larvae, the species is identified with a high degree of certainty due to the neck structure and the unique colour pattern. It is generally dark brown with a yellowish variegation on pronotum, wing pads and abdomen.

Length with forceps: 15 mm. The gut content consisted exclusively of plant fragments.

Records from India

The specimens from Uttar Pradesh have been found up to 3000m, which, according to Schweinfurth (1957) is well below the tree line and the vegetation is a temperate mixed oak and coniferous forest, consisting of several species of *Quercus*, *Cedrus*, *Picea* and *Abies*.

The species from Himachal Pradesh have been found in high mountain steppe. The vegetation consists of species of the genera *Caragan*, *Astragalus* and *Artemisia* (Schweinfurth, 1957)

Anechura nanyari Kapoor

A. nanyari is characterised by the shape of the forceps which are similar to that shown by Kapoor (1966) and Steinmann (1993). The descriptions given by these authors differ slightly concerning the colour from the specimens found. They are not all black, some are rather dark brown, like chestnut, tending to be lighter on the ventral side. The female, which was unknown to both authors, is in accord with their descriptions of the male. The ultimate tergite and the forceps of the female are shown in Fig. 1. The ultimate tergite narrows significantly, its caudal end having only about three quarters the width of its base. The bases of the forceps lie close to each other, separated by a small pygidium. The median margins of the forceps are faintly serrated and lie almost parallel to each other. In one specimen, the tips cross. The species has already been recorded from Uttar Pradesh (Brindle, 1987) but not from Himachal Pradesh. The length of the female forceps is about 3.5 mm, length with forceps: 17 to 19 mm. The gut content consisted of insect fragments (wing fragments, sterna, antennae, cornea of complex eyes and mandible) and pollen.

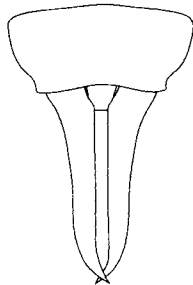


Fig. 1: Ultimate tergite and female forceps of *Anechura nanyari* Kapoor

Anechura zubovskii Semenov

The species is characterised by yellowish spots on the tegmina and yellowish margins of the pronotum. This species is already known from Himachal Pradesh (Brindle, 1987) and Kashmir (Burr, 1910). Some specimens (Table 1) have been attracted to a light trap, however, it is not known whether or not they flew into it, possibly they crawled. Length with forceps: 16 to 19 mm. The gut content consisted of few Lepidopteran scales, however, no wing parts were discernible. The rest was not identifiable, possibly pollen or plant material.

Elaunon bipartitus (Kirby)

This species is fairly wide-spread (Steinmann, 1993) and has been recorded earlier for this area by Brindle (1987) and Burr (1910). Length with forceps: 12 mm.

Labidura orientalis Steinmann

This species is discriminated from *L. riparia* (Pallas) by its colour – it is much darker than *L. riparia* – and the lack of two small teeth on the tergum of the ultimate tergite (Steinmann, 1989). However, the material available to me showed that the differences between the two species are rather faint and gradual; for example, a *L. riparia* from South Africa showed only very small teeth, much more like tubercles, on its ultimate tergite and a *L. truncata* Kirby from Australia showed no teeth at all and was dark brown. The latter species is included by Steinmann (1989) into *L. riparia* (see his list of synonyms). Therefore the species-status of *L. orientalis* seems to be, at least, debatable to me.

So far *L. orientalis* has only been recorded from Nepal; this is the first record for India.

Spongovostox hakeni Ramamurthi

There is a species of which male genitalia look very similar to *S. hakeni*, that is *S. semiflavus* (Bormans). However, concluding from the different shape of the forceps (Steinmann, 1990) and the 16 segmented antennae that my specimen belongs to *S. hakeni*. The record from India is the northern-most record of this species, so far it has only been known from the Philippine Islands. Length with forceps: 10 mm.

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Table 1. The locations of the Dermaptera mentioned.

Family /Species	Date	Location	Environment
Pygidicranidae <i>Pyragra paraguayensis</i> Borelli 2 larvae	25.ix.1993	60 km south of Cataratas del Iguazu, opposite the town Eldorada, Paraguay; 26°30' South; 5430' West; 60m asl;	500m to the river bank of the Parana, under stone and wood, fallow ground
Carcinophoridae <i>Euborellia plebeja</i> (Dohrn) 3 males; 1 female	01.x.1993	Serra Gegalal, Rio Grande do Sul, southern Brazil; 29°29' South; 50°11' West; 500-600m asl; in ground trap	forest consisting of ferns, <i>Araukaria angustifolia</i> , bromelians
<i>Carcinophora rosenbergi</i> (Burr) 1 male; 1 larva	03.x.1994	Cataratas del Iguazu, Ciudad del Este, northern Argentine; 25°35' South; 54°30' West; 0-300m asl;	evergreen rain forest, westernmost branch of costal rain forest Mata Atlantica
Forficulidae <i>Anechura naysyari</i> Kapoor 4 males; 4 females	27-31. vii.1993	Uttar Pradesh, 15km north of Joshimath, Ghangaria, 3050m asl; in light-trap and under stones	summer-green monsoon forest with dense underwood; consisting of ferns, rhododendrons, conifers; specimens found on clearing in forest
1 male; 1 female	02.viii.1993	Uttar Pradesh, 5km south of Joshimath, Auli, 2700-3000m asl; under stones	no forest, alpine meadows, humid soils
2 females	08-09. viii.1992	Uttar Pradesh, Gangotri, 3100m asl; under stones	conifer forest with sparse underwood
1 male	03.vii.1994	Himachal Pradesh, Spiti, Spiti Valley, Kaza, 3600m asl; attracted to light	high mountain steppe, thorn bolster vegetation
1 male	12.vii.1994	Himachal Pradesh, Spiti, Spiti Valley, Kaza, 3600m asl; attracted to light	high mountain steppe, thorn bolster vegetation
<i>Anechura zubovskii</i> Semenov 1 female	25.vi.1994	Himachal Pradesh, Spiti, Spiti Valley, 1km east of Kibber, 4150m asl; on plant, near flower	high mountain steppe, thorn bolster vegetation
1 male	8.vii.1994	Himachal Pradesh, Spiti, Spiti Valley, Kaza, 3600m asl; attracted to light	high mountain steppe, thorn bolster vegetation
1 female	12.vii.1994	Himachal Pradesh, Spiti, Spiti Valley, Kaza, 3600m asl; attracted to light	high mountain steppe, thorn bolster vegetation

Dermaptera records from India & S. America

Family /Species	Date	Location	Environment
1 female	14.viii.1994	Himachal Pradesh, Spiti, Spiti Valley, 3km east-north-east of Kibber, 4350m asl; under stone	high mountain steppe, thorn bolster vegetation
<i>Elauanon bipartitus</i> (Kirby) 1 female	23-25. vii.1993	Uttar Pradesh, Rishikesh, northern India; 350m asl; in light-trap	evergreen monsoon forest; transition of settlement to forest
Labiduridae <i>Labidura orientalis</i> Steinmann 1 male	23-25. vii.1993	Uttar Pradesh, Rishikesh, northern India; 350m asl; in light-trap	evergreen monsoon forest; transition of settlement to forest
Labiidae <i>Spongovostox hakeni</i> Ramamurthi 1 male	23-25. vii.1993	Uttar Pradesh, Rishikesh, northern India; 350m asl; in light-trap	evergreen monsoon forest; transition of settlement to forest

Summary

New locations are given for the earwigs (Dermaptera) *Euborellia plebeja*, *Carcinophora rosenbergi*, *Labidura orientalis* and *Spongovostox hakeni*. The previously unknown female of *Anechura nanyari* is described. The gut content of five species was examined.

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