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New species and additional records of Palaearctic Falagriini (Coleoptera: Staphylinidae: Aleocharinae)

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A b s t r a c t : Two species are described and illustrated: *Cordalia mirica* nov.sp. and *C. spoliata* nov.sp., both from Arunachal Pradesh (India). New records of several species of *Borboropora* KRAATZ 1862, *Cordalia* JACOBS 1925, and *Falagrioma* CASEY 1906 are reported. The binomen *Anaulacaspis schuelkei* (ASSING 2001), nov.comb. (ex *Cordalia*), is established. The external and sexual characters of *Cordalia yunnanensis* PACE 1998 and *Borboropora reitteri* (WEISE 1877) are figured. The known distribution of the extremely rare *B. reitteri* is mapped.

K e y w o r d s : Coleoptera, Staphylinidae, Aleocharinae, Falagriini, *Cordalia*, *Borboropora*, *Falagrioma*, *Anaulacaspis*, Palaearctic region, taxonomy, new species, new combination, distribution.

1. Introduction

The aleocharine tribe Falagriini is represented in the Palaearctic region by fourteen genera and more than 150 species (ASSING 2005; SMETANA 2004). Except for *Myrmecopora* SAULCY 1865 (ASSING 1997a-b, and subsequent supplements), none of the more speciose genera has been treated in the context of comprehensive modern revisions, so that the present taxonomic and zoogeographic knowledge of the tribe may be regarded as somewhat unsatisfactory.

In the recent past, aleocharine material from various sources has become available for study, including several genera and species of Falagriini from the Palaearctic region. Below, descriptions of the new species discovered in this material, as well as records of zoogeographic interest are presented.

2. Material and measurements

The material referred to in this study is deposited in the following public institutions and private collections:

HNHM Hungarian Natural History Museum, Budapest (Gy. Makranczy, O. Merkl)

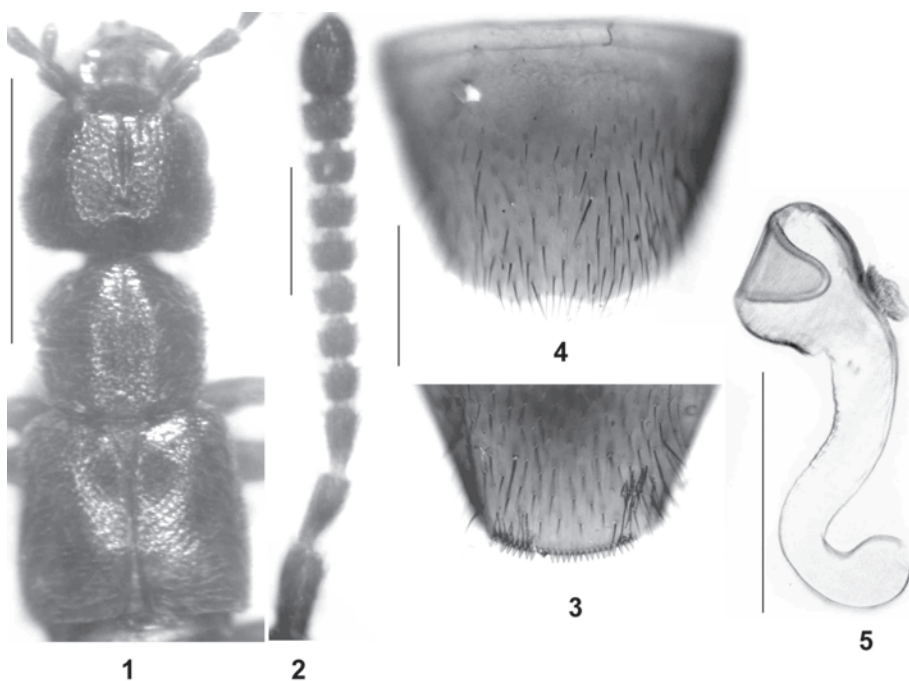
MHNG Muséum d'histoire naturelle Genève (G. Cuccodoro)

NHMW Naturhistorisches Museum Wien (H. Schillhammer)
 NME Naturkundemuseum Erfurt (A. Hartmann, W. Apfel)
 cAss..... author's private collection
 cPüt private collection Andreas Pütz, Eisenhüttenstadt
 cRou..... private collection Guillaume de Rougemont, Londinières
 cSch..... private collection Michael Schülke, Berlin
 cSme..... private collection Aleš Smetana, Ottawa

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). For the photographs a digital camera (Nikon Coolpix 995) was used.

Head length was measured from the anterior margin of the clypeus to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra.

3. New species and additional records



Figs 1-5: *Borboropora reitteri* (WEISE) (Sardinia): (1) forebody; (2) antenna; (3) posterior portion of female tergite VIII; (4) female sternite VIII; (5) spermatheca. Scale bars: 1: 0.5 mm; 2-4: 0.2 mm; 5: 0.1 mm.

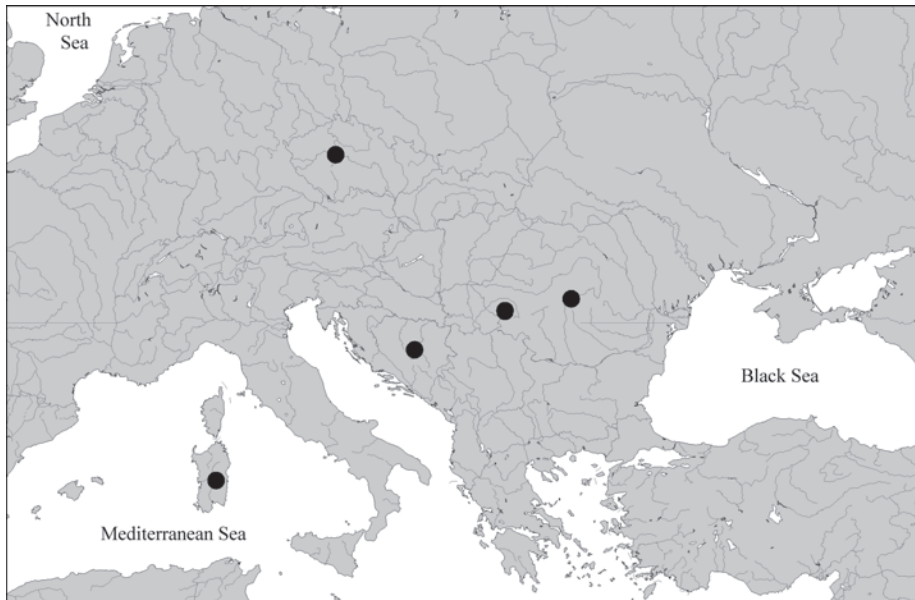
***Borboropora reitteri* (WEISE 1877) (Figs 1-5, Map 1)**

Material examined: Italy: 1♀, Sardinia, Aritzo, leg. Paganetti (NHMW). Czech Republic: 1♀, Vrané n. Vl., leg. Krása (cSme). Romania: 1♀, "Locaya" [today Bocşa, 45°22'N, 21°43'] (NHMW). Bosnia-Herzegovina: 1♀, "Central-Bosnien", leg. Reitter (HNHM).

Comment: The genus *Borboropora* KRAATZ 1862 currently includes only three species, all of them distributed in the Western Palaearctic region and all of them rare to extremely rare (ASSING in press; SMETANA 2004): the widespread type species *B. kraatzii* FUSS 1862, the recently described *B. myrmecophila* ASSING in press (southern Anatolia), and *B. reitteri*.

The original description of *B. reitteri* is based on a single holotype specimen from "den transsylvanischen Alpen bei Oberkerz" deposited in the Weise collection (WEISE 1877). The Staphylinidae from the Weise collection are deposited in the "Dt. Ent. Inst. Berlin", today the Deutsches Entomologisches Institut in Müncheberg (HORN et al. 1990). However, according to the curator in charge, the holotype cannot be found (ZERCHE pers. comm.) and a subsequent search in the collections of the HNHM, where the Reitter collection is deposited, did not yield any results either (MAKRANCZY pers. comm.), suggesting that the holotype is probably lost. The forebody and the previously unknown female sexual characters are illustrated in Figs 1-5; males have not become available for study.

Records of this species are extremely rare. After the original description, *B. reitteri* had only once been reported again from the Czech Republic (HORION 1967). The above specimens from Sardinia and Bosnia represent first records from Italy and Bosnia-Herzegovina. The currently known distribution is illustrated in Map 1.

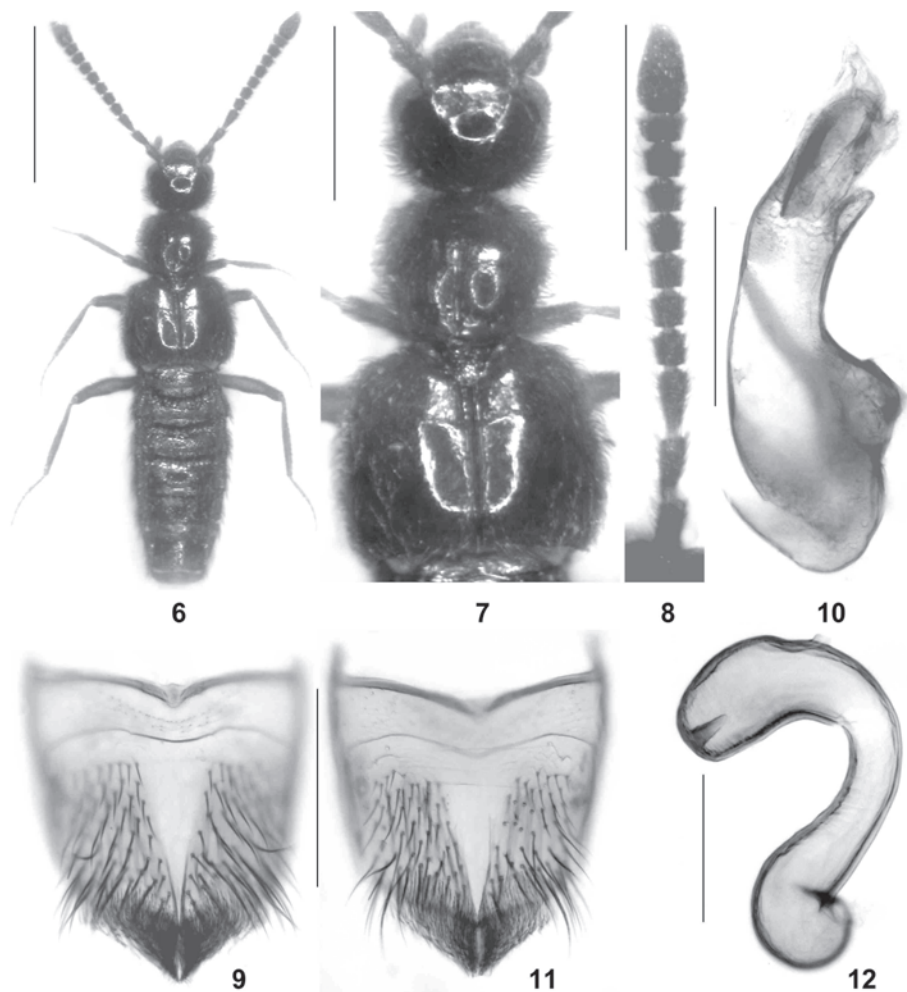


Map 1: Distribution of *Borboropora reitteri* (WEISE); the record from Bosnia-Herzegovina without specified locality is placed near Sarajevo.

***Cordalia vestita* (BOHEMAN 1858)**

M a t e r i a l e x a m i n e d : India: 4 exs., Assam, Nameri N. P., 27.V.2006, leg. de Rougemont (cAss, cRou).

C o m m e n t : This species has frequently been misidentified and/or misinterpreted, so that most literature records prior to 2002 are unreliable. A redescription was provided by ASSING (2002), who also designated a lectotype.



Figs 6-12: *Cordalia yunnanensis* PACE: (6) habitus; (7) forebody; (8) antenna; (9) male tergite VIII; (10) median lobe of aedeagus in lateral view; (11) female tergite VIII; (12) spermatheca. Scale bars: 6: 1.0 mm; 7-8: 0.5 mm; 9-11: 0.2 mm; 12: 0.1 mm.

***Cordalia permutata* ASSING 2002**

Material examined: Nepal: 17 exs., Manaslu, Bara Pokhari, 28°15'N, 84°25'E, 2100 m, 29.IV.2005, leg. Schmidt (NME, cAss); 14 exs., Manaslu, Dudh Pokhari Lekh, upper Dordi Khola, 2300-2600 m, 15.-17.IV.2003, leg. Schmidt (NME, cAss); 2 exs., Manaslu, S Bara Pokhari, 2300 m, 8.IV.2003, leg. Schmidt (NME, cAss); 8 exs., Dhaulagiri, SE-slope, N Dwari village, upper Rahugat Khola, 2500 m, 13.-15.V.2002, leg. Schmidt (NME, cAss).

Comment: This recently described species is one of the most common representatives of the genus in Nepal and has been recorded also from Taiwan (ASSING 2002, 2006).

***Cordalia yunnanensis* PACE 1998 (Figs 6-12)**

Type material examined: Holotype ♂: China, Yunnan, Ruili, 4.II.1993, G. de Rougemont / Holotypus *Cordalia yunnanensis* m., det. R. Pace 1995 / *Cordalia yunnanensis* sp.n., det. R. Pace 1995 (MHNG).

Additional material examined: China, Yunnan: 1♂, 1♀, Baoshan Pref., mountain range 22 km S Tengchong, 24°49'N, 98°29'E, 1750 m, secondary forest, litter, dead wood sifted, 2.VI.2007, leg. Pütz (cAss); 7♂♂, Dali Bai Auton. Pref., NE bank of Er Hai, 25°57'N, 100°09'E, 1990 m, field margin, 12.VI.2007, leg. Pütz (cPüt, cSch, cAss).

Comment: The original description is based on four males from two localities in Yunnan province (PACE 1998). The holotype is slightly smaller, paler, and has somewhat larger eyes (longer than postocular region in dorsal view), but is in other respects similar to the additional material from Yunnan. Convincing distinguishing characters in the male primary and secondary sexual characters were not found. The habitus and sexual characters, including the previously unknown female sexual characters, are illustrated in Figs 6-12.

***Cordalia mirica* nov.sp. (Figs 13-19)**

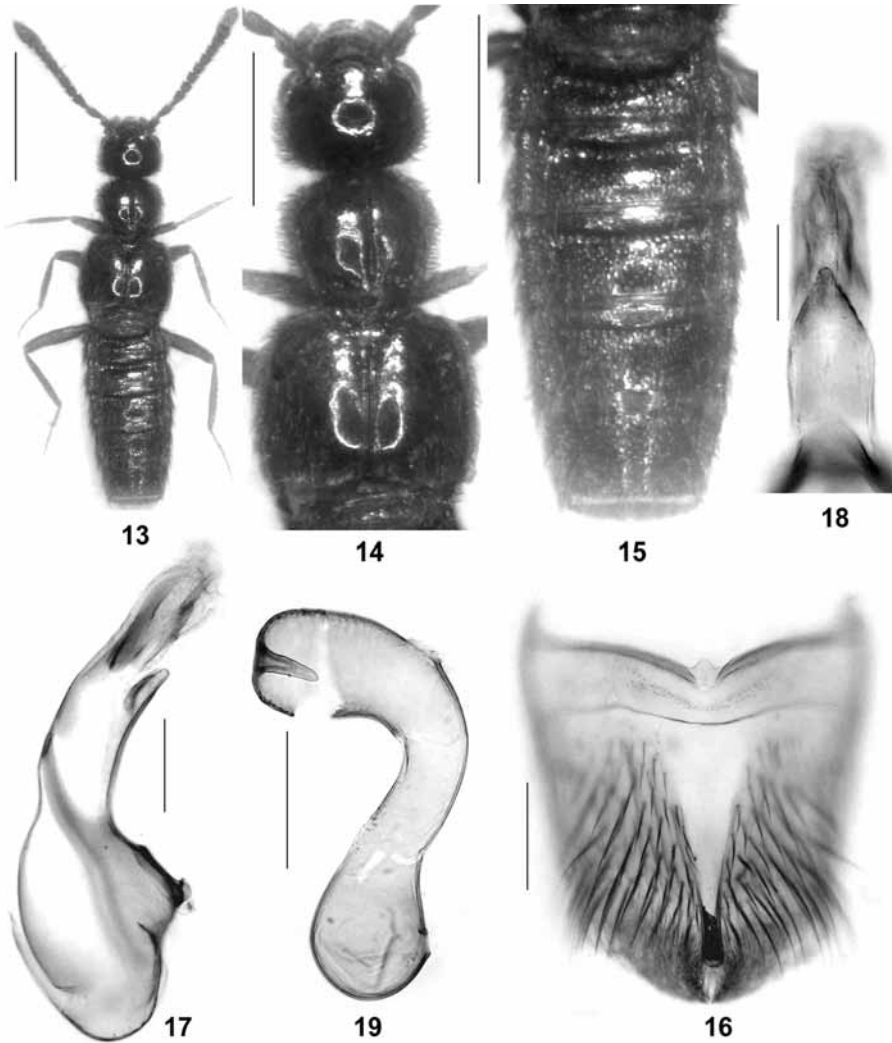
Holotype ♂: "India, Arunachal Pradesh, Miri hills / Road from Ziro to Daporijo, 27.v.2006, G. de Rougemont leg. / Holotypus ♂ *Cordalia mirica* sp.n. det. V. Assing 2008 (cAss). **Paratype** ♀ [slightly teneral]: same data as holotype (cRou).

Description: 3.0-3.3 mm. Habitus as in Fig. 13. Coloration: head dark-brown; remainder of body reddish-brown, with abdominal segment VI and adjacent parts of segments V and VII somewhat infuscate; legs rufous; antennae reddish-brown, with antennomere XI rufous.

Head without sexual dimorphism, transverse, approximately 1.15 times as wide as long; dorsal surface not impressed (Fig. 14); punctuation extremely fine, barely noticeable; microsculpture absent; pubescence dense (especially in lateral parts), long, brownish, suberect to erect. Eyes moderately large, approximately as long as postocular region or nearly so. Antennae gradually and weakly incrassate apically; antennomeres IV and V approximately as wide as long; X moderately transverse, less than 1.5 times as wide as long.

Pronotum without sexual dimorphism, approximately 1.15 times as wide as long and slightly wider than head; midline with complete, narrow, and sharply impressed furrow; posteriorly with some puncture-like grooves (Fig. 14); pubescence similar to that of head; punctuation slightly more distinct than that of head; microsculpture absent.

Elytra approximately 1.4 times as wide and at suture about as long as pronotum (Fig. 14); pubescence somewhat paler and shorter than that of head and pronotum; punctuation extremely fine. Hind wings fully developed. Metatarsomere I longer than the combined length of II and III.



Figs 13-19: *Cordalia mirica* nov.sp.: (13) habitus; (14) forebody; (15) abdominal segments III-VII; (16) male tergite VIII; (17) median lobe of aedeagus in lateral view; (18) ventral process of aedeagus in ventral view; (19) spermatheca. Scale bars: 13: 1.0 mm; 14-15: 0.5 mm; 16-19: 0.1 mm.

Abdomen approximately 0.9 times as wide as elytra, widest at segment V; basal impressions of tergites III-V with coarse, the remaining tergal surfaces with moderately coarse and rather dense punctation; posterior margin of tergite VII with palisade fringe (Fig. 15); tergite VIII without apparent sexual dimorphism, its posterior margin with rather extensive fringe of dense setae and in the middle with fine acute process (Fig. 16).

♂: median lobe of aedeagus as in Figs 17-18.

♀: spermatheca as in Fig. 19.

E t y m o l o g y : The name (adjective) is derived from the Miri hills, where the type locality is situated.

C o m p a r a t i v e n o t e s : The new species is distinguished from all its congeners especially by the morphology of the genitalia. From geographically close congeners, it may additionally be separated as follows:

from *C. longicornis* CAMERON (Nepal, India) by the absence of a sexual dimorphism of the head, the distinctly more convex pronotum (in *C. longicornis* somewhat flattened), and by the much coarse punctation of the abdomen;

from the widespread *C. vestita* by larger size, a more transverse head, the paler coloration of the antennae (in *C. vestita* dark brown), the smaller eyes (in *C. vestita* distinctly longer than postocular region), the more pronounced and longer median furrow of the pronotum (in *C. vestita* not reaching posterior margin), the more convex pronotum (in *C. vestita* somewhat flattened posteriorly), the distinctly coarser punctation of the abdomen, and by the completely different chaetotaxy of the abdominal tergite VIII;

from *C. schawalleri* ASSING (eastern Nepal) particularly by the absence of carinae in the anterior impressions of abdominal tergites III-V and by the chaetotaxy of tergite VIII;

from the widespread *C. permutata* by somewhat smaller eyes, the absence of a sexual dimorphism of the head and the pronotum, the absence of an intrahumeral impression on the elytra, and by the coarser punctation of the abdomen;

from *C. smetanai* PACE (eastern Nepal) by larger size, the much longer antennae with much less transverse pre-apical antennomeres (antennomere XI in *C. smetanai* almost 3 times as wide as long), longer legs, larger eyes, distinctly longer elytra with more pronounced humeral angles, and fully developed hind wings (in *C. smetanai*, the posteriorly widened elytra are clearly shorter than the pronotum and the humeral angles are almost obsolete).

For illustrations of these species see ASSING (2002) and PACE (1991).

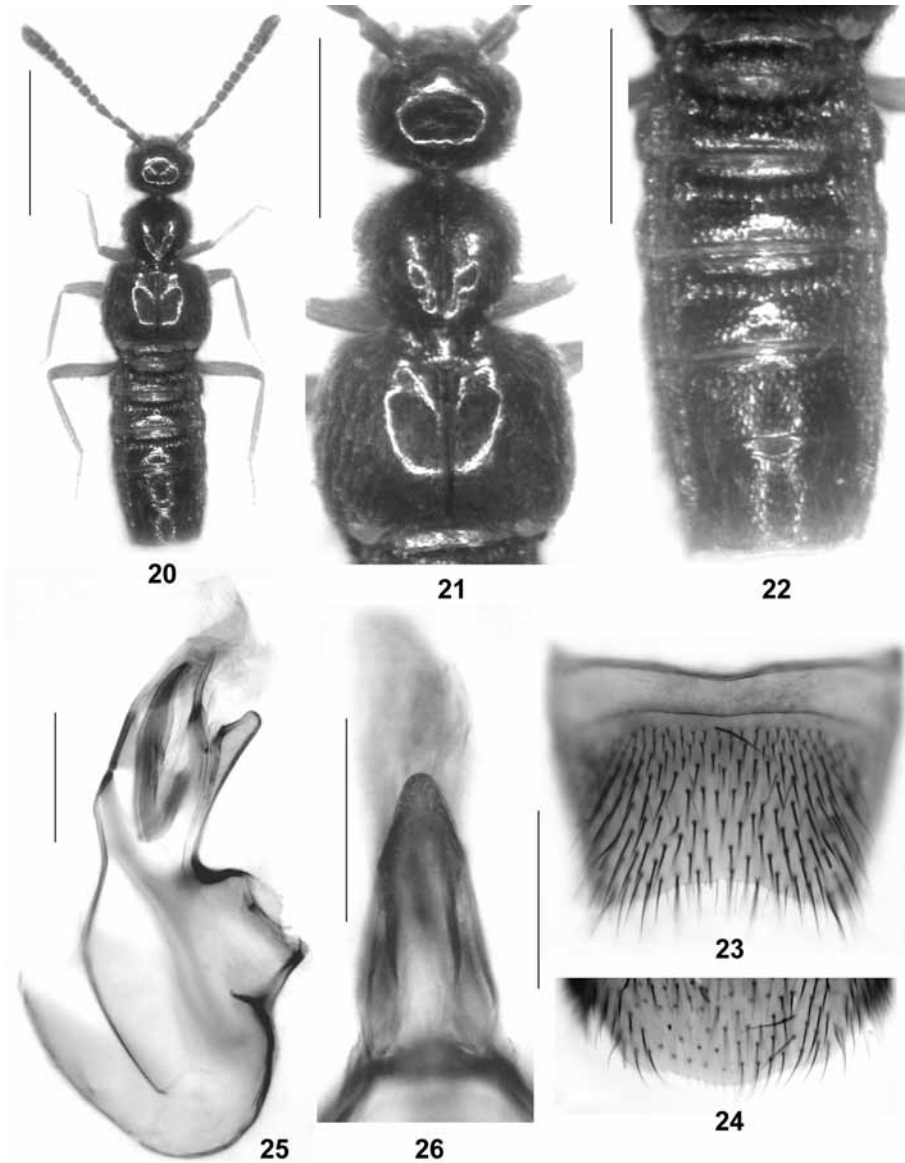
D i s t r i b u t i o n a n d b i o n o m i c s : The type locality is situated in the Miri Hills, Arunachal Pradesh, northeastern India. The paratype is slightly teneral. Additional bionomic data are not available.

***Cordalia spoliata* nov.sp. (Figs 20-26)**

H o l o t y p e ♂ : "India, Arunachal Pradesh, Miri hills / Road from Ziro to Daporijo, 27.v.2006, G. de Rougemont leg. / Holotypus ♂ *Cordalia spoliata* sp.n. det. V. Assing 2008 (cAss).

D e s c r i p t i o n : 3.0 mm. Habitus as in Fig. 20. Coloration: head and pronotum dark-brown; elytra and abdomen reddish-brown, with abdominal segment VI and adjacent parts of segments V and VII somewhat infuscate; legs dark yellowish; antennae dark-brown.

Head apparently with sexual dimorphism, transverse, approximately 1.15 times as wide as long; punctation extremely fine, barely noticeable; microsculpture absent; pubescence dense (especially in lateral parts), pale, suberect to erect. Eyes conspicuously large, approximately twice as long as postocular region (Fig. 21). Antennae gradually and weakly incrassate apically; antennomeres IV and V approximately as wide as long; X moderately transverse, approximately 1.5 times as wide as long.



Figs 20-26: *Cordalia spoliata* nov.sp.: (20) habitus; (21) forebody; (22) abdominal segments III-VII; (23) male tergite VIII; (24) posterior portion of male sternite VIII; (25) median lobe of aedeagus in lateral view; (26) ventral process of aedeagus in ventral view. Scale bars: 20: 1.0 mm; 21-22: 0.5 mm; 23-24: 0.2 mm; 25-26: 0.1 mm.

Pronotum with sexual dimorphism, approximately 1.1 times as wide as long and approximately as wide as head; midline with complete, narrow, and sharply impressed furrow; posteriorly with some puncture-like grooves (Fig. 21); pubescence similar to that of head; punctation slightly more distinct than that of head; microsculpture absent.

Elytra approximately 1.5 times as wide and at suture about as long as pronotum (Fig. 21); pubescence somewhat shorter than that of pronotum; punctation extremely fine. Hind wings fully developed. Metatarsomere I longer than the combined length of II and III. Abdomen 0.80-0.85 times as wide as elytra, widest at segment V; basal impressions of tergites III-V with transverse row of very coarse punctures separated by narrow ridges, the remaining tergal surfaces with rather fine and moderately dense punctation (Fig. 22); posterior margin of tergite VII with palisade fringe; tergite VIII posteriorly with broadly concave margin and without fringe of dense setae (Fig. 23).

♂: head weakly and extensively impressed dorsally (Fig. 21); pronotum in the middle impressed (Fig. 21); sternite VIII transverse and with broadly convex posterior margin (Fig. 24); median lobe of aedeagus with remarkably short and narrow (ventral view) ventral process (Figs 25-26).

♀: unknown.

E t y m o l o g y : The name (Latin, adjective: robbed) refers to the absence of a fringe of dense setae at the posterior margin of tergite VIII.

C o m p a r a t i v e n o t e s : From all its congeners, *C. spoliata* is readily distinguished by the shape of the median lobe of the aedeagus and by the shape and chaetotaxy of the abdominal tergite VIII. In all other *Cordalia* species known to me, the posterior margin of tergite VIII is furnished with a fringe of dense setae. From most of its congeners, *C. spoliata* is additionally separated by the conspicuously large eyes.

D i s t r i b u t i o n a n d b i o n o m i c s : The type locality is identical to that of *C. mirica* nov.sp. Additional bionomic data are not available.

***Anaulacaspis schuelkei* (ASSING 2001) nov.comb.**

C o m m e n t : A reexamination of the holotype of *Cordalia schuelkei* ASSING 2001 revealed that it somewhat resembles a *Cordalia* externally, but, based particularly on the shape and chaetotaxy of tergite VIII and on the primary sexual characters, in fact refers to the genus *Anaulacaspis* GANGLBAUER 1895. For illustrations of this species, which has become known only from Shaanxi, see ASSING (2001).

***Falagrioma sherpa* (PACE 1986)**

M a t e r i a l e x a m i n e d : Nepal: 6 exs., Kathmandu, Shivapuri Lekh, slope west of Bagmati river, 2000-2300 m, 22.-23.V.2005, leg. Schmidt (NME, cAss).

C o m m e n t : This species has become known only from Nepal (PACE 1986, 1991).

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Zusammenfassung

Zwei Arten werden beschrieben und abgebildet: *Cordalia mirica* nov.sp. und *C. spoliata* nov.sp., beide aus Arunachal Pradesh (Indien). Neue Nachweise einiger Arten der Gattungen *Borboropora*

KRAATZ 1862, *Cordalia* JACOBS 1925 und *Falagrioma* CASEY 1906 werden gemeldet. *Cordalia schuelkei* ASSING 2001 wird in die Gattung *Anaulacaspis* GANGLBAUER 1895 transferiert. Äußere Merkmale und die Genitalien von *Cordalia yunnanensis* PACE 1998 und *Borboropora reitteri* (WEISE 1877) werden abgebildet. Die derzeit bekannte Verbreitung der äußerst seltenen *B. reitteri* wird anhand einer Karte illustriert.

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