Linzer biol. Beitr.	47/2	1133-1178	30.12.2015

A revison of the *Lithocharis* species of the Palaearctic, Oriental and Australian regions (Coleoptera: Staphylinidae: Paederinae: Medonina)

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A b s t r a c t : The species of the medonine genus *Lithocharis* DEJEAN, 1833 of the Palaearctic (Mauritania included), Oriental, and Australian regions are revised. In all, 23 species are recognized, one of them of doubtful identity (male and type depository unknown) and one (male unknown) of doubtful generic assignment. Except for few, partly previously revised species from the West Palaearctic region, all the species are (re-)described and illustrated, six of them for the first time: *Lithocharis socotrana* nov.sp. (Yemen: Socotra); *L. bitriangulata* nov.sp. (Sumatra); *L. inermis* nov.sp. (Thailand); *L. latexcisa* nov.sp. (Nepal); *L. ornatrix* nov.sp. (Malaysia, Indonesia); *L. parvincisa* nov.sp. (Indonesia: Sulawesi). *Lithocharis erythroptera* GEMMINGER & HAROLD, 1868 is revalidated. Five synonymies are established: *L. erythroptera* GEMMINGER & HAROLD, 1868 = *L. penicillata* CAMERON, 1928, nov.syn.; *L. nigriceps* KRAATZ, 1859 = *L. changlingensis* LI, 1992, nov.syn.; *L. vilis* KRAATZ, 1859 = *L. jacobsoni* CAMERON, 1928, nov.syn., = *L. vexans* CAMERON, 1936, nov.syn.; *Panscopaeus lithocharoides* (SHARP, 1874) = *Medon subopacus* BERNHAUER, 1907, nov.syn. *Lithocharis gigantea* FAUVEL, 1878 is excluded from *Lithocharis*. *Lithocharis ochracea* (GRAVENHORST, 1802) is confirmed as a valid name and removed from the previously proposed synonymy with *Staphylinus tricolor* FABRICIUS, 1787, whose valid present combination is *Xantholinus tricolor* (FABRICIUS, 1787). Lectotypes are designated for *Lithocharis sororcula* KRAATZ, 1859, *L. fuscipennis* KRAATZ, 1859, *L. penicillata* CAMERON, 1928, *L. uvida* KRAATZ, 1859, *L. lamellifera* CAMERON, 1928, *L. distinguenda* CAMERON, 1928, *L. sordida* CAMERON, 1928, *L. timorensis* CAMERON, 1928, *Medon subopacus* BERNHAUER, 1907, and *Staphylinus tricolor* FABRICIUS, 1787. Inhabitants of decaying organic matter and active flyers, *Lithocharis* species are generally remarkably widespread. Males of this genus are occasionally subject to conspicuous teratologies (aedeagus completely reduced; male secondary characters absent). A key to the *Lithocharis* species of the Palaearctic (including Mauritania), Oriental, and Australian regions, and a catalogue are provided.

K e y w o r d s : Coleoptera, Staphylinidae, Paederinae, Paederini, Medonina, *Lithocharis*, *Panscopaeus*, Palaearctic region, Oriental region, Australian region, taxonomy, new species, new synonymies, new combination, revalidation, lectotype designations, teratology, key to species, catalogue.

Introduction

Lithocharis was made available by DEJEAN (1833), who included 13 species, most of which have been transferred to other genera in the meantime. THOMSON (1859) desig-

nated *Paederus ochraceus* GRAVENHORST, 1802 as the type species. Numerous additional have been described in, or assigned to, *Lithocharis*, but the vast majority of these names is now in other genera of Medonina, particularly *Medon* STEPHENS, 1833.

According to NEWTON et al. (2001), more than 100 species are currently assigned to *Lithocharis*, nine of which have been recorded from North America. There is little doubt, however, that a significant number of these species will eventually have to be removed from the genus. This is apparently also true of part of the North American representatives, as can be inferred from NEWTON et al. (2001) stating that some of them are flightless.

In the latest edition of the Palaearctic Catalogue SCHÜLKE & SMETANA (2015) list 13 *Lithocharis* species with a total of eight junior synonyms. Nine additional species have been reported from the Oriental region (CAMERON 1928, 1931, 1936; FAUVEL 1878; SCHEERPELTZ 1957). One species from Japan, *L. dissimilis* SHARP, 1874, was recently excluded from the genus (ASSING 2015). Except for some species recorded from the West Palaearctic region (ASSING 2008), the remaining species previously attributed to *Lithocharis* had not been subject to a modern revision. The most recent keys are those by CAMERON (1928, 1931) (focus on the East Palaearctic and Oriental regions), COIFFAIT (1984) (West Palaearctic), and ASSING (2012a) (Central Europe).

According to CAMERON (1931), COIFFAIT (1982, 1984), and ASSING (2012a), *Lithocharis* is characterized within the Medonina by large eyes, straight and distinctly separated gular sutures, a non-dentate labrum, a male sternite VII with a comb of palisade setae at the posterior margin, a male sternite VIII with a large posterior excision and sometimes with a pair of brush-like clusters of conspicuously long setae, and an aedeagus of rather intricate structure, often with a pair of lateral appendices (erroneously referred to as parameres by ASSING 2012a).

All the *Lithocharis* species whose generic assignment has been confirmed are fully winged. They are often collected on the wing, and generally found in various sorts of decaying matter. Some species are known to have enormously vast distributions; three species are categorized as cosmopolitan in the Palaearctic Catalogue (SCHÜLKE & SMETANA 2015).

The present study was initiated primarily by attempts at identifying some species from Yemen and the Canary Islands that had not been recorded from the West Palaearctic region. It soon showed that it was not possible to limit the revision to the species known from the Palaearctic, so that all the Oriental representatives of the genus were included, too.

Material and methods

The material treated in this study is deposited in the following collections:

ANIC..... Australian National Insect Collection, Canberra (via A. Schomann and A. Solodovnikov)

BMNH ..... The Natural History Museum, London (R.G. Booth)

FMNH..... Field Museum of Natural History, Chicago (via L.H. Herman)

IRSNB..... Institut Royal des Sciences Naturelles de Belgique (Y. Gérard)
MHNG ..... Muséum d'Histoire Naturelle, Genève (G. Cuccodoro)
MNHNP ..... Muséum National d'Histoire Naturelle, Paris (A. Taghavian)
NHMB ..... Naturhistorisches Museum Basel (M. Geiser, I. Zürcher)
NHMD ..... Natural History Museum Denmark/ University of Copenhagen Zoological Museum (A. Solodovnikov)
NHMW ..... Naturhistorisches Museum Wien (H. Schillhammer)
NME ..... Naturkundemuseum Erfurt (M. Hartmann, assisted by W. Apfel)
NMP..... National Museum of Natural History, Praha (J. Hájek)
SDEI ..... Senckenberg Deutsches Entomologisches Institut (L. Behne)
cAss..... author´s private collection
cSch..... private collection Michael Schülke, Berlin
cSha..... private collection Alexey Shavrin, Daugavpils

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using a photographing device constructed by Arved Lompe (Nienburg) and CombineZ software, as well as a digital camera (Nikon Coolpix 995).

Body length was measured from the anterior margin of the mandibles (in resting position) to the abdominal apex, the length of the forebody from the anterior margin of the mandibles to the posterior margin of the elytra, head length from the anterior margin of the frons 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, and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule, if not indicated otherwise. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

General results: taxonomy, diversity, and natural history

In all, 23 *Lithocharis* species with a total of 14 synonyms are recognized in the Palaearctic (Mauritania included) and Oriental regions. Six species are described for the first time, one name is revalidated, five names are synonymized (one of them with a species of *Panscopaeus* SHARP, 1889), and one species is excluded from the genus. The identity of one species described from southern Algeria (male and type depository unknown) and the generic assignment of one species still included in *Lithocharis* (male unknown) are doubtful.

A revision of material from various collections revealed that a significant proportion of the specimens had been misidentified, not only at the species but also at the genus level. Except for the distinctive *L. uvida*, a reliable identification of *Lithocharis* females is problematic or impossible. The male sexual characters, on the other hand, particularly the shape of the comb of palisade setae at the posterior margin of sternite VII, the chaetotaxy and the shape of the posterior excision of sternite VIII, and the morphology of the aedeagus (absolute size; shapes of the ventral process, of the dorso-lateral apophyses, and of the internal structures), are highly distinctive. The lateral appendices, here termed dorso-lateral apophyses, are clearly not homologous to the parameres found in some other genera of Paederinae, nor are they homologous to the dorso-lateral apophyses of

Nazeris FAUVEL, 1873. I have not seen similar structures in any other genus of Medonina. In *Lithocharis*, they may be completely reduced, conspicuously large, or of intermediate size.

The similar general morphology of the aedeagus and the similarly derived chaetotaxy of the male sternite VII (posterior margin with a comb of palisade setae) suggest that *Lithocharis* is closely allied to *Charichirus* SHARP, 1889. According to CAMERON (1931), the latter is distinguished from the former primarily by the shape of the labrum (anterior margin with a median tooth). Also, the head is generally more slender in *Charichirus*. On the other hand, *Lithocharis uvida* KRAATZ, 1859 is somewhat intermediate between *Lithocharis* and *Charichirus* both in external (except for the shape of the labrum) and the male sexual characters. Thus, the systematic status of both taxa requires revision.

Interestingly, in four examined males belonging to three different species the abdomen did not contain an aedeagus and the male sternite VII lacks the typical comb of palisade setae. Instead, only long fine setae are present at the posterior margin. Similar, possibly atavistic teratologies have been observed also in the genus *Medon* STEPHENS, 1833 (ASSING 2006).

Current evidence suggests that *Lithocharis* has a circumtropical distribution and that the species recorded from the West Palaearctic region have originated from either the Afrotropical (*L. mateui*, *L. socotrana*, *L. subochracea*, *L. mauretanica*, *L. fontinalis*) or the Oriental region (remaining species). The native distribution of *L. ochracea*, however, is at present unknown, but an Oriental origin is most unlikely.

Active flyers and inhabitants of decaying organic organic matter of all sorts (compost, dung, carrrion, etc) in warmer (micro-)climates, *Lithocharis* species are generally widespread in the south of the Palaearctic and the Oriental regions. The distributions of some species (*L. nigriceps*, *L. vilis*, *L. sororcula*) range from the Atlantic Islands to Japan, Indonesia, and/or the Philippines. *Lithocharis nigriceps*, *L. sororcula*, and *L. vilis* have reliably been recorded also from Australia, at least the former two also from the Americas. Some species, however, are currently known only from one or few localities, at least some of them most likely because of previous confusion with other common species such as *L. nigriceps* and *L. vilis*. The distributions of many species largely overlap, particularly so in the southern East Palaearctic and the Oriental regions, so that the known species inventory is mostly a result of collecting activity and expertise in identification rather than a reflection of true diversity. It is, therefore, not surprising that as many as seven species are currently known from Singapore alone, the smallest country in Southeast Asia. Considering that, despite the limited material revised, six new species were discovered in the course of the present study, it seems likely that a study of more material from the Oriental region will yield additional novelties.

The species of *Lithocharis*

Lithocharis nigriceps KRAATZ, 1859

Lithocharis nigriceps KRAATZ, 1859: 159.
Lithocharis changlingensis LI, 1992: 56 ff.; **nov.syn.**
Type material examined: see ASSING (2008).
Additional material examined: Australia: Australian Capital

T e r r i t o r y : 1♀, Pialligo, sprouting garlic, 20.VIII.1984, leg. Banks (ANIC). N o r t h e r n T e r r i t o r y : 1♀, Jasper Gorge, 16°02'S, 130°48'E, at light, 15.X.2000, leg. Weir & Yeates (ANIC). S o u t h W a l e s : 5♂♂, 1♀, 8 km NE Batemans Bay, 35°39'S, 150°14'E, from grass clippings, 28.IV.1991, leg. Gush (ANIC, cAss); 1♂, 1.8 km E Loomberah, 31°12'S, 151°02'E, rotting straw, 5.X.1992, leg. Horning; 1♀, Bawley Point, 35°30'S, 150°24'E, 8.XII.1995, leg. Rentz & McCarron (ANIC). Q u e e n s l a n d : 1♀, Mt. Coot-tha, 27°29'S, 152°57'E, light trap, 18.XII.1990, leg. Lawrence (ANIC); 1♂, Gap Creek, 15°51'S, 145°20'E, at light, 24.XI.1992, leg. Calder & Zborowski (ANIC); 2♂♂, Bucasia, 13.II.2004, leg. Sandery (ANIC); 1♀, same data, but 31.III.2004 (ANIC); 2♂♂, 1♀, Bramston Beach via Innisfall, coastal melaleuca swamp, at light, 15.VIII.1987, leg. Walford-Huggins (ANIC, cAss); 1♀, same data, but flight interception trap, 18.IX.-11.XI.1987 (ANIC); 1♀, 6 km WSW Tallebudgera, 29°11'S, 153°23'E, at light, 18-23.IV.1994, leg. Rentz et al. (ANIC).

C o m m e n t : The type material of *L. nigriceps* was revised and a lectotype was designated earlier (ASSING 2008). *Lithocharis changlingensis* was described from Jilin Province, Northeast China. Previous attempts at locating type material of species decribed in LI et al. (1990) and LI (1992) have failed (e.g., FELDMANN et al. 2014). In the short original description LI (1992) states that *L. changlingensis* is similar to *L. nigriceps*, but does not indicate any distinguishing characters whatsoever. The presence of only two species, *L. nigriceps* and *L. ochracea*, has been confirmed for the northern East Palaearctic region. According to LI (1992) the type material of *L. changlingensis* has the midline of the pronotum impunctate, so that there is little doubt that it is conspecific with *L. nigriceps*, a common species in China.

Lithocharis nigriceps is the most common and the most widespread representative of the genus throughout the Palaearctic and Oriental regions (numerous specimens examined), which is why the material is not listed individually. In addition, material from the Americas and the Afrotropical regions was studied, but is not listed above. Only primary data for specimens seen from Australia are provided. For illustrations of the male sexual characters see ASSING (2012a).

Lithocharis ochracea (GRAVENHORST, 1802)

Paederus ochraceus GRAVENHORST, 1802: 59.

T y p e m a t e r i a l e x a m i n e d : see ASSING (2008).

C o m m e n t : The type material was studied and a lectotype was designated earlier (ASSING 2008). According to SCHÜLKE & SMETANA (2015), this species has a cosmopolitan distribution. However, so far I have seen material only from the West Palaearctic region eastwards to Kazakhstan. According to KLIMASZEWSKI et al. (2013) it is adventive in North America, but, to my knowledge, these records have not been subject to a recent revision. For records from the West Palaearctic region see ASSING (2008), for illustrations of the male sexual characters ASSING (2012a).

Lithocharis mateui COIFFAIT, 1968 (Figs 1-7)

Lithocharis mateui COIFFAIT, 1968: 142 ff.

T y p e m a t e r i a l e x a m i n e d : Holotype ♂: "Tchad Borkou, Bir Nazara, Mateu 5.8.58 / Holotype / Lithocharis mateui Coiff., H. Coiffait det. 1966" (MNHNP). Paratype ♀: same data as holotype, but with "Allotype" label.

A d d i t i o n a l m a t e r i a l e x a m i n e d : Tchad: 1♂, Tibesti, SW L. Sière, Totous, 1.X.1956, leg. Miré (MNHNP). Yemen: 6 exs., Al Hudaydah gov., Jabal Bura valley forest NP, 14°52'N, 43°25'E, 240-350 m, stream valley, 4.XI.2010, leg. Bezděk (NMP, cAss). Iran: 1♂, Minab, 17.X.1966, leg. Gaillot (MNHNP). Saudi Arabia: 7 exs. [1♂ without aedeagus and without

palisade setae at the posterior margin of sternite VII], Al-Hejaz ["Hedjaz"] (BMNH, cAss). Pakistan: 1♂, Baluchistan, Zhob Valley, sand desert, 27.-31.VIII.2008, leg. Gurko (cSch); 1♂, Northwest Frontier Province, South Waziristan agency, near Tanai village, 1500-2500 m, 28.VII.-12.VIII.2005, leg. Gurko (cAss).

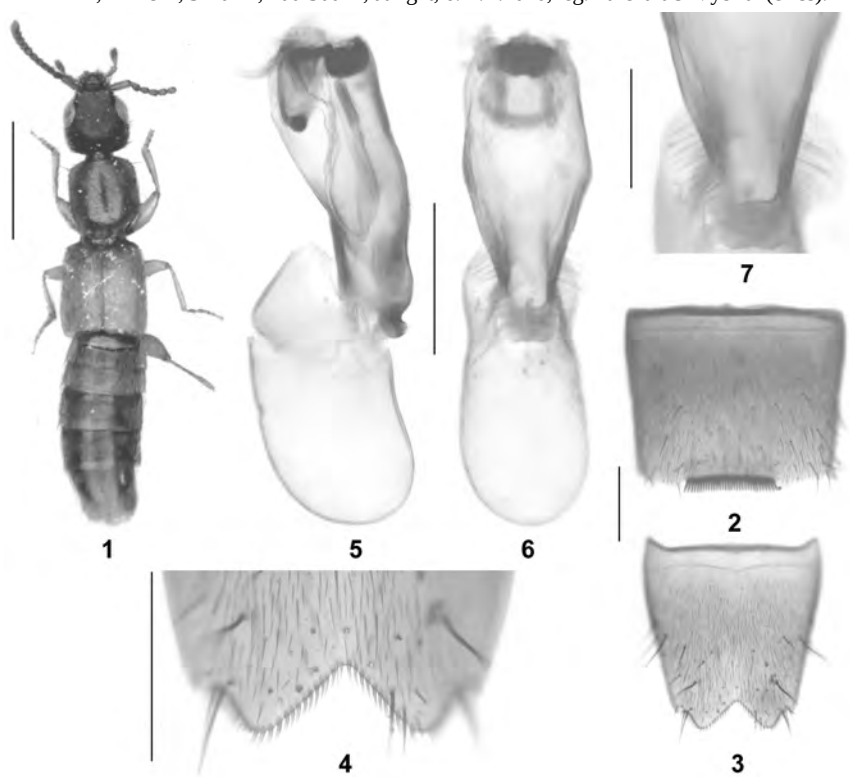
C o m m e n t : According to COIFFAIT (1968), the type material is composed of a male holotype and two female paratypes from "Borkou, Bir Nazara" and one male paratype from "Ennedi, guelta de Guir Kaqué". The above material from Tibesti and Iran was standing as *L. fontinalis* in the Jarrige collection at the MNHNP. For an additional record from Yemen see ASSING (2012b). The habitus and the primary and secondary sexual characters of the holotype are illustrated in Figs 1-7.

Lithocharis subochracea COIFFAIT, 1966 (Figs 8-13)

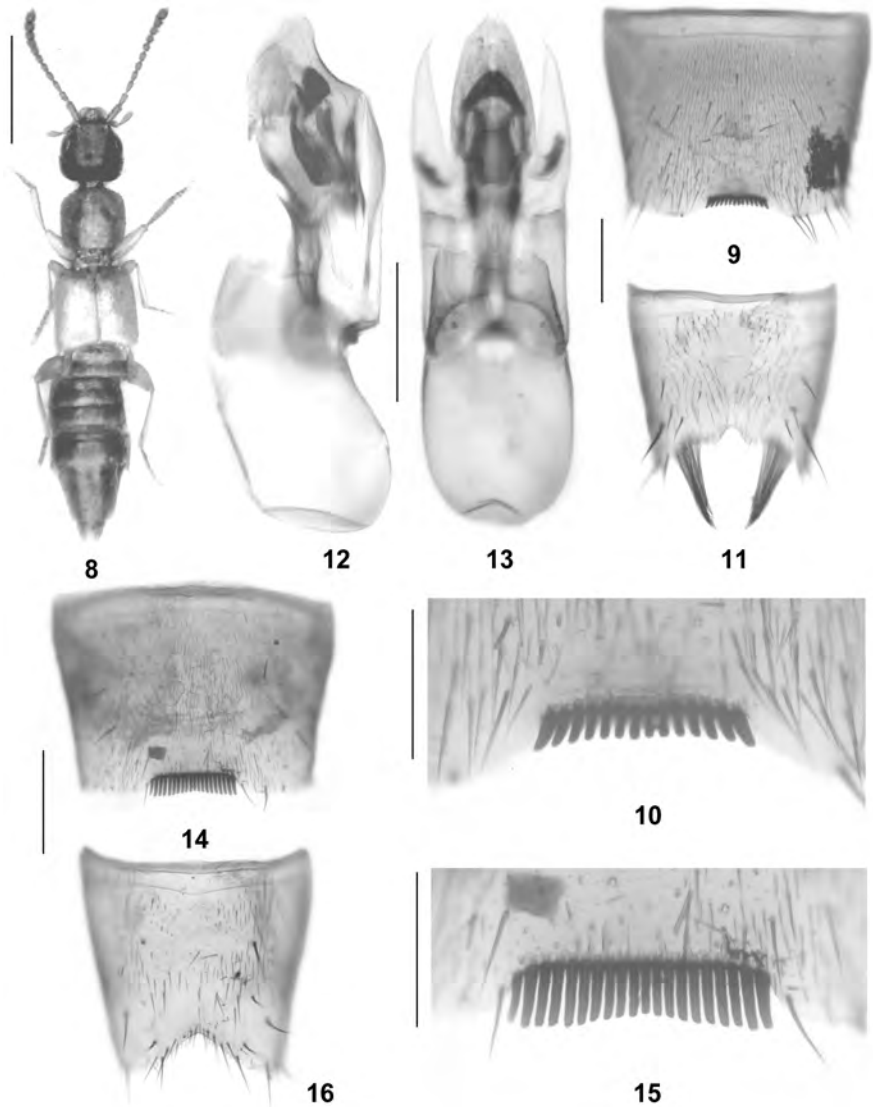
Lithocharis subochracea COIFFAIT, 1966: 346 f.

T y p e m a t e r i a l e x a m i n e d : Holotype ♂ [dissected prior to present study; aedeagus missing]: "Mauritanie, Tagant Fogh, Mateu 9.3.58 / Préparation microscopique / Holotype / Lithocharis subochracea Coiff., H. Coiffait det. 1966" (MNHNP).

A d d i t i o n a l m a t e r i a l e x a m i n e d : Yemen: 7 exs., Socotra Island, Zemhon area, 12°31'N, 54°07'E, 270-350 m, 3.-4.II.2010, leg. Purchart & Vybíral (NMP, cAss); 1♂, Socotra, Firmihin, 12°28'N, 54°01'E, 400-500 m, at light, 6.-7.II.2010, leg. Purchart & Vybíral (cAss).



Figs 1-7: *Lithocharis mateui* COIFFAIT, holotype: (**1**) habitus; (**2**) male sternite VII; (**3**) male sternite VIII; (**4**) posterior portion of male sternite VIII; (**5-6**) aedeagus in lateral and in ventral view; (**7**) basal portion of ventral process in ventral view. Scale bars: 1: 1.0 mm; 2-6: 0.2 mm; 7: 0.1 mm.



Figs 8-16: *Lithocharis subochracea* COIFFAIT (**8-13**; 8-11: holotype; 12-13: male from Yemen) and *L. mauretanica* COIFFAIT, holotype (**14-16**): (**8**) habitus; (**9, 14**) male sternite VII; (**10, 15**) postero-median portion of male sternite VII; (**11, 16**) male sternite VIII; (**12-13**) aedeagus in lateral and in ventral view. Scale bars: 8: 1.0 mm; 9, 11-14, 16: 0.2 mm; 10, 15: 0.1 mm.

C o m m e n t : The original description is based on a unique male from "Mauritanie, Tagant Fogh" (COIFFAIT 1966). The species was subsequently recorded from the Canary Islands (ASSING 2008). The above specimens from the Yeminitic island Socotra represent a new country record and considerably expand the known distribution of this species. The habitus and the male sexual characters are illustrated in Figs 8-13.

Lithocharis mauretanica COIFFAIT, 1966 (Figs 14-16)

Lithocharis mauretanicus [sic] COIFFAIT, 1966: 347 ff.

T y p e m a t e r i a l e x a m i n e d : Holotype ♂ [dissected prior to present study; aedeagus missing]: "1 / Mauritanie, Rgueibat Temba, Mateu, 5.2.58 Préparation microscopique / Holotype / Lithocharis mauretanicus Coiff., H. Coiffait det. 1966" (MNHNP). Paratype ♀: same data as holotype, but "7.3.58" (MNHNP).

C o m m e n t : The original description is based on a male holotype and three paratypes (one male and two females) from "Mauritania: Rgueïbat Temba" (COIFFAIT 1966). The secondary sexual characters of the holotype are illustrated in Figs 14-16.

Lithocharis fontinalis PEYERIMHOFF, 1929

C o m m e n t : The identity of *L. fontinalis* is doubtful. The original description is based on a unique holotype from "Hoggar: source T'abor, à quelques kilomtres de Tamanrasset" sent to him by "M. Pierre Bordes, Gouverneur général de l'Algérie" (PEYERIMHOFF 1929). The male sexual characters are not described, suggesting that the specimen is a female. According to the curator in charge at the MNHNP, the holotype was not found in the Peyerimhoff collection (TAGHAVIAN e-mail 27.I.2014). Thus, it seems that Peyerimhoff returned it to Pierre Bordes. I have been unable to trace the whereabouts of the Bordes collection.

Lithocharis socotrana nov.sp. (Figs 17-21)

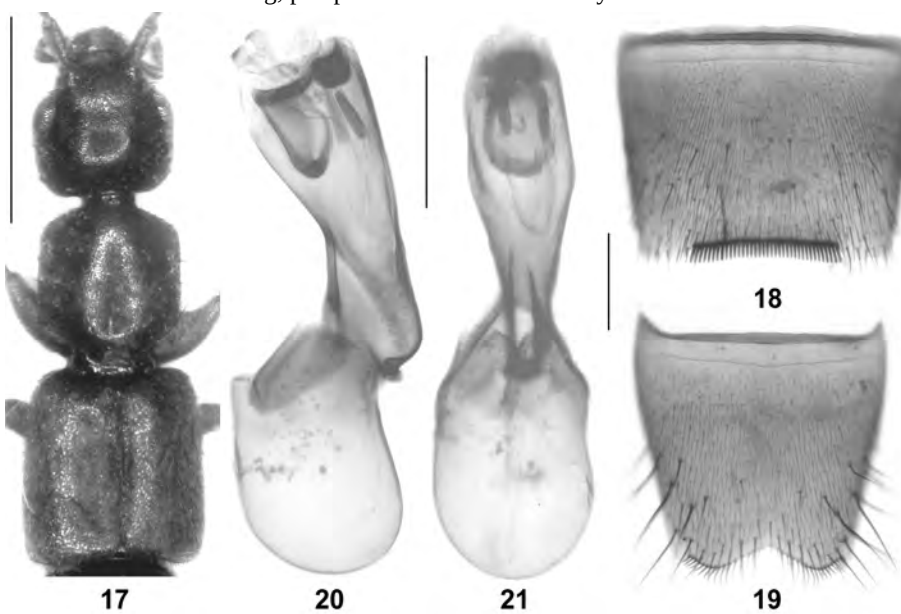
T y p e m a t e r i a l : Holotype ♂: "Yemen, Soqotra Is., 2.-3.xii.2003, Dixam plat.: Wadi Esgego, N 12°28'09" E 54°00'36", 300 m [GPS], Jan Farkač lgt. / Yemen - Soqota 2003 Expedition, Jan Farkač, Petr Kabátek & David Král / Holotypus ♂ *Lithocharis socotrana* sp. n. det. V. Assing 2014" (NMP). Paratypes: 3♂♂, 1♀: "Yemen, Sokotra, Dixam plateau, Firmihin, 12°29'N, 54°01'E, 490 m, *Dracaena* forest, 15.-16.XI.2010, leg. Hlaváč" (cAss); 1♂: "Yemen, Soqotra Is., Hadiboh env., 21.xi.-12.xii.2003, N 12°65'02" [sic] E 54°02'04", ca 10-100 m [GPS], leg. P. Kabátek / Yemen - Soqotra 2003 Expedition, Jan Farkač, Petr Kabátek & David Král" (cAss); 3♂♂: same data as before, but "David Král lgt." (cAss); 1♂: same data, but "Jan Farkač lgt." (cAss); 1♂: "Yemen, Soqotra Is., 200, 5-6.xii., Noged plain, Qaareh (waterfall), 57 m, N 12°20'10" E 53°37'56" [GPS], David Král lgt. / Yemen - Soqota 2003 Expedition, Jan Farkač, Petr Kabátek & David Král" (cAss); 1♂: "Yemen - Sokotra isl., Noged plain Sharet Halma vill. env. (at light), 12°22'N, 54°05'E, 20 m, 10.-11.XI.2010, Bezděk" (cAss); 1♀: "Yemen, Socotra Island, Noged plain (sand dunes), Sharet Halma vill. env., 12°21.9'N, 54°05.3'E, 20 m, P. Hlaváč leg., 10-11.xi.2010" (NMP); 2♂♂: "Yemen - Sokotra isl., Al Haghier Mts., Scant Mt. env., 1450 m, 12°35'N, 54°02'E 12.-13.XI.2010, Bezděk" (cAss); 1♂: same data as before, but leg. Purchart" (cAss); 5♂♂, 2♀♀, 1 ex.: "Yemen, Socotra Island, Firmihin, 400-500 m, 12°28'27"N, 54°0'54"E, 6.-7.ii.2010, at light, L. Purchart & J. Vybíral leg." (NMP); 2♂♂, 1♀, 1 ex.: "Yemen, Socotra Island, Dixam plateau, 14.-15.vi.2012, Firmihin, *Dracaena* woodland, 12°28.6'N, 54°01.1'E, 490 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (NMP, cAss); 1 ex.: "Yemen, Socotra Island, Dixam plateau, Wadi Zerig, pools, *Juncus* marsh, *Dracaena* trees, cave 13.-14.vi.2012, 12°29.6'N, 53°59.5'E, 655 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (NMP): 1 ex.: "Yemen, Socotra Island, Kazazhan area, shrubland on limestone, sifting, 10.vi.2012, 12°33.8'N, 54°19.8'E, 540 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (NMP); 2♂♂: "Yemen, Socotra Island, Aloove area, Aloove vill. env., *Jatropha unicostata* shrubland with *Boswellia elongata* trees, 19.-20.vi.2012, 12°31.2'N, 54°07.4'E, 221 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (NMP, cAss); 1♂: "Yemen, Socotra Island, Noged plain, Abataro, border of sand dunes and shrubland, 12.-13.vi.2012, 12°21.2'N, 54°03.4'E, 20 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (cAss); 1♂, 1♀: "Yemen, Socotra Island, Delisha vill. 3 env., *Jatropha unicostata* shrubland, at light, 8.vi.2012, 12°41.2'N, 54°07.7'E, 36 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg."

(NMP, cAss); 1♂: "Yemen, Socotra Island, Deiqub cave, 12.vi.2012, cave & *Croton socotranus* + *Jatropha unicostata* shrubland, 12°23.1'N, 54°00.9'E, 115 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg." (cAss); 1♀: "Socotra (Yemen), Zam Hom, 7.IV.2008 at lamp, leg. A. Carapezza" (NMP). Numerous additional paratypes recorded in ASSING (2012) as "*Lithocharis* sp. aff. *mateui*" in NMP.

E t y m o l o g y : The specific epithet is an adjective derived from Socotra, the name of the Yemenitic island where the species was discovered.

D e s c r i p t i o n : Body length 4.0-5.5 mm; length of forebody 2.3-2.6 mm. Coloration: head blackish-brown to black; pronotum pale-reddish to brown; elytra yellowish; abdomen dark-reddish to dark-brown, with the margins of the segments reddish; legs yellowish; antennae reddish.

Head (Fig. 17) weakly transverse, not distinctly dilated behind eyes; punctation very dense and fine. Eyes large, distinctly longer than postocular portion in dorsal view. Antennae 1.3-1.4 mm long; preapical antennomeres weakly transverse.



Figs 17-21: *Lithocharis socotrana* nov.sp.: (**17**) forebody; (**18**) male sternite VII; (**19**) male sternite VIII; (**20-21**) aedeagus in lateral and in ventral view. Scale bars: 17: 1.0 mm; 18-21: 0.2 mm.

Pronotum (Fig. 17) approximately as wide as long or indistinctly transverse, as broad as, or slightly broader than head; posterior angles rounded, weakly marked; punctation similar to that of head; midline usually without narrow impunctate band; interstices without microsculpture.

Elytra (Fig. 17) 1.05-1.10 times as long as pronotum; punctation very dense and fine. Hind wings present. Protarsomeres I-IV very indistinctly dilated. Metatarsomere I slightly longer than II, but distinctly shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 18) moderately transverse, posterior margin with a broad comb composed of approximately 35 moderately long palisade setae; sternite VIII (Fig. 19) approximately as long as broad or very weakly transverse, with dense pubescence everywhere, posterior excision shallow, very broadly V-shaped, margin of this excision in the middle with short, thin, and sparse setae, laterally with somewhat longer, stouter, and denser setae; aedeagus (Figs 20-21) approximately 0.75 mm long, with internal structures of characteristic shape.

Comparative notes: From the similar, sympatric *L. mateui*, *L. socotrana* is distinguished particularly by the shape and chaetotaxy of the male sternite VIII (much shallower posterior excision with longer and more slender marginal setae) and by the morphology of the aedeagus (larger; ventral process and internal structures differently shaped).

Distribution and natural history: The known distribution is confined to the Yemenitic island Socotra. Part of the type material was reported as *L.* cf. *mateui* in ASSING (2012b). The specimens were collected at altitudes from near sea-level to 1450 m, partly at light sources.

Lithocharis sp.

Material examined: Sudan: 1♂, Western Equatoria, Jabal Zingad [4°28'N, 28°56'E], X.49 (MNHNP).

Comment: The above male was standing as *L. fontinalis* in the Jarrige collection at the MNHNP.

Lithocharis vilis KRAATZ, 1859

Lithocharis vilis KRAATZ, 1859: 159.
Lithocharis jacobsoni CAMERON, 1928: 246; **nov.syn.**
Lithocharis vexans CAMERON, 1936: 159; **nov.syn.**
Type material examined: *L. vilis*: see ASSING (2008).
L. jacobsoni: Lectotype ♂, present designation: "Fort de Kock (Sumatra) 920 M. / 1926, leg. E. Jacobson / 10 / / L. jacobsoni Cam, Type / M. Cameron. Bequest. B.M. 1955-147. / Type / Lectotypus ♂ *Lithocharis jacobsoni* Cameron, desig. V. Assing 2015 / Lithocharis jacobsoni Cameron, det. V. Assing 2015" (BMNH). Paralectotypes: 4♀♀: same data as lectotype (BMNH).
L. vexans: Holotype ♀: "Holotype / ♂ [sic] / JAVA. F.C. Drescher. B.M. 1934-264. / Leg. Dr. Ed. Jacobson, Preanger, Java, 800 m, Dago Bandoeng, III.1933 / L. vexans Cam, Type / Holotype Lithocharis vexans Cam., det. R.G. Booth 2014 / Lithocharis vilis Kraatz, det. V. Assing 2015" (BMNH).

Additional material examined: Sri Lanka: 1♀, Kandy, Udawattakele Reserve, 7°20'N, 80°37'E, 500 m, rain forest, rotting fruit of *Artocarpus heterophyllus* on ground, 10.I.1983, leg. Darby (BMNH). China: 1♂, Hubei, Xingshan Co., Zhenziling, 1600 m, 3.VII.1998, leg. Bolm (cAss). Laos: 1♂, S-Udomxai Prov., Pak Beng, 19°54'N, 101°08'E, 450 m, 18.-27.V.2001, leg. Kolibáč (cAss). Thailand: 1♀, Mae Hong Son, Ban Si Lang, 1200 m, 23.-31.V.1991, leg. Horák (cAss); 1♂, 130 km NE Bangkok, 12 km SW Pak-Chong, 400 m,, fruit orchard, light trap, 9.XI.1992, leg. Thielen (cAss). Malaysia: 1♂, Pahang, Cameron Highlands, Tanah Ruta, grass heap, 19.-23.III.2008l, leg. Hammond (cAss); 1♂, Penang, X.1913, leg. Bryant (BMNH); 1♂, Borneo, Sarawak, Gn. Mulu National Park, near Base Camp, 50-100 m, henhouse litter, V-VIII.1978, leg. Hammond & Marshall (BMNH); 1♂, Sarawak, Gn. Mulu National Park, Clearwater Cave, 13.IV.1978, leg. Hammond & Marshall (BMNH); 1♀, Sarawak, Gn. Mulu National Park, Deer Cave, 14.V.1978, leg. Hammond & Marshall (BMNH); 1♀, Sarawak, Gn. Mulu National Park, Clearwater Cave, rice bait, I.1981, leg. Chapman (BMNH); 1♀, Borneo, Sabah, Poring, 8 km N Keningau, 1000 m, bat dung, 20.IX.1977, leg. Bacchus (BMNH); 7 exs.,

Sabah, 8 km S Mt. Trus Madi, 550 m, rotten tapioca skins, 18-28.VIII.1977, leg. Bacchus (BMNH, cAss). Singapore: 1♂, 3♀♀, 6.VIII.1922, leg. Saunders (BMNH); 1♂, 1♀, leg. Saunders (BMNH); 1♂, Angello Kio, fruit (BMNH). Indonesia: 2♂♂, 2♀♀, Sumatra, Bukittinggi ["Fort de Kock"], 920 m, 1926, leg. Jacobson (BMNH, cAss); 1♂, 1♀, Sumatra, Sumatera Utara, Tangkahan, Gunung Leuser National Park, 3°41'N, 98°04'E, 100 m, 4.II.2011, leg. Cibu̧skis (cSha, cAss); 1♂, 1 ex., Sulawesi, Minahassa, Tomohon, VII.1954, leg. Alston (BMNH); 2♂♂, 4♀♀, 3 exs., Sulawesi, locality not specified (BMNH); 1♂, Sulawesi Utara, Gng. Ambang F.R., near Kotamobagu, 1200 m, at light, 1.-2.IV.1985 (BMNH); 2♂♂, 2♀♀, Sulawesi Utara, Dumoga Bone National Park, 200 m, light trap, IV.1985, leg. Barlow (BMNH); 4 exs., Sulawesi Tengah, near Morowali, Ranu River area, lowland rain forest, at light, I-IV.1980, leg. Brendell (BMNH); 1♀, Sulawesi Tengah, Solato River, Taronggo, 1°45'S, 121°40'E, forest floor litter, 27.-30.III.1980, leg. Brendell (BMNH). Philippines: 1♂, Palawan, Bacuit (BMNH); 1♀, Mindanao, Momungan (BMNH). Micronesia: 1♂, Caroline Islands, Ponape Island, Colonia, 6.X.1981, leg. Kirby & Muniappan (ANIC). Australia: 1♀, Queensland, Mt. Webb National Park, 15°04'S, 145°07'E, malaise trap, 1.X.1980, leg. Colless (ANIC); 1♀, Queensland, 11 km ENE Mt. Tozer, 12°43'S, 143°18'E, 11-16.VII.1986, leg. Weir & Calder (ANIC); 1♂, Queensland, Rockhampton, chicken manure, 16.VII.1984, leg. Halliday (cAss); 1♀, South Australia, Brookfield Con. Pk., 34°21'S, 139°29'E, 3-12.IX.1991, leg. Lawrence et al. (ANIC; 1♀, New South Wales, Bawley Point, 35°30'S, 150°24'E, 9.III.1997, leg. Rentz & McCarron (ANIC).

C o m m e n t : The type material of *L. vilis* was revised and a lectotype was designated earlier (ASSING 2008). The original description of *Lithocharis jacobsoni* is based on an unspecified number of syntypes from "Sumatra: Fort de Kock" (CAMERON 1928). Five syntypes, one male and four females, were located in the Cameron collection at the BMNH. The male is evidently teratological: its abdomen did not contain an aedeagus and its sternite VII lacks a comb of palisade setae at the posterior margin. Similar malformations were observed also in another male of *L. vilis*, in one of *L. mateui*, and in one of *L. sororcula*. The examined male, which is designated as the lectotype, is undoubtedly the specimen which Cameron (1928) based his diagnosis and illustration on. Externally, the type material of *L. jacobsoni* is indistinguishable from *L. vilis*, which too was found in the type locality of *L. jacobsoni*. Thus, there is no reasonable doubt that *L. jacobsoni* is in fact conspecific with *L. vilis*.

Lithocharis vexans was described from a unique female holotype from "Dago Bandoeng" (CAMERON 1936). In external characters the holotype is identical to *L. vilis*. Hence the synonymy proposed above.

According to SCHÜLKE & SMETANA (2015), *L. vilis* has a cosmopolitan distribution. Confirmed records are currently known from the Canary Islands (ASSING 2000), Madeira (ASSING & SCHÜLKE 2006), Sri Lanka (ASSING 2008), China, Laos, Thailand, Malaysia, Singapore, Indonesia (Sulawesi, Java, Sumatra), the Philippines, Micronesia, and Australia (see material examined). In view of the frequent misidentifications all other previous records require revision. The male sexual characters are illustrated in ASSING (2008).

Lithocharis boops SCHEERPELTZ, 1957 (Figs 22-26)

Lithocharis boops SCHEERPELTZ, 1957: 286 ff.

T y p e m a t e r i a l e x a m i n e d : Paratype ♂ [teneral]: "♂ / 602 W-Sumba, Pogobino, 12.-15.9.49 / Lichtfang / Expedition Bühler-Sutter / Sumba-Exped. Naturhist. Mus. Basel 1949 / ex coll. Scheerpeltz / Cotypus Lithocharis boops O. Scheerpeltz" (NHMW).

C o m m e n t : The original description is based on a male holotype and three paratypes (one male and two females) from "Insel Sumba" (SCHEERPELTZ 1957).

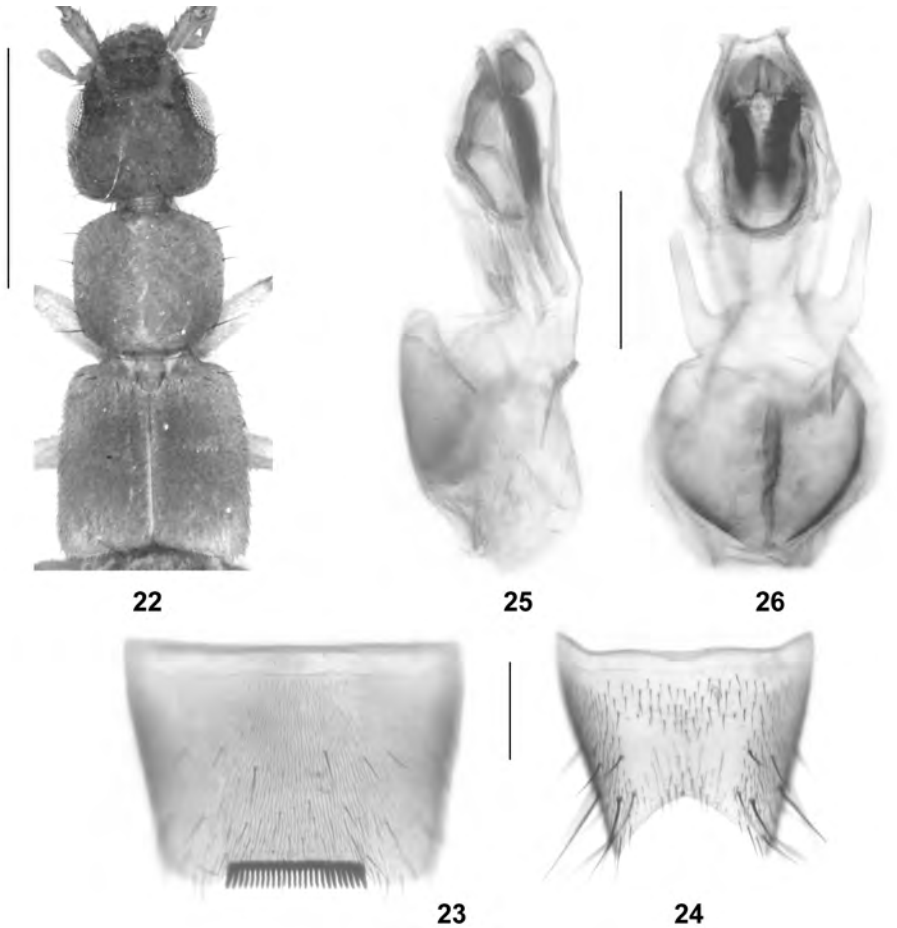
R e d e s c r i p t i o n : Body length 4.5 mm; length of forebody 2.2 mm.

Head (Fig. 22) weakly transverse, 1.05 times as broad as long; punctation very dense and fine. Eyes large, distinctly longer than postocular portion in dorsal view. Antennae 1.5 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 22) approximately 1.05 times as wide as long and approximately as broad as head; posterior angles rounded, weakly marked; punctation similar to that of head; midline with distinct narrow impunctate band.

Elytra (Fig. 22) approximately 1.05 times as long as pronotum; punctation very dense and fine. Hind wings present. Protarsomeres I-IV distinctly dilated. Metatarsomere I shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.



Figs 22-26: *Lithocharis boops* SCHEERPELTZ, paratype: (**22**) forebody; (**23**) male sternite VII; (**24**) male sternite VIII; (**25-26**) aedeagus in lateral and in ventral view. Scale bars: 22: 1.0 mm; 23-26: 0.2 mm.

♂: sternite VII (Fig. 23) moderately strongly transverse, posterior margin with comb of approximately 25 rather long palisade setae in the middle; sternite VIII (Fig. 24) transverse, extensively without pubescence in median portion, anteriorly with rather sparse dark pubescence, and with a cluster of few long black setae in postero-median portion, posterior excision large and deep; aedeagus (Figs 25-26) 0.68 mm long, apex of ventral process somewhat bifid in ventral view; with two long membranous and an apical sclerotized structure of distinctive shapes in internal sac; dorso-lateral apophyses straight and conspicuously stout.

Comparative notes: This species is characterized particularly by the large eyes in combination with strongly dilated protarsomeres and a distinct impunctate midline on the pronotum, as well as by the male sexual characters (chaetotaxy of sternite VII; shape and chaetotaxy of sternite VIII; shapes of the ventral process, of the internal structures, and of the dorso-lateral apophyses of the aedeagus).

Distribution: *Lithocharis boops* is known only from Sumba, Indonesia.

Lithocharis sororcula KRAATZ, 1859 (Figs 27-33)

Lithocharis sororcula KRAATZ, 1859: 140.

Type material examined: Lectotype ♂, present designation: "92 / Ceylon / Coll. Kraatz / Syntypus / coll. DEI Eberswalde / DEI Müncheberg Col - 04274 / Lectotypus ♂ *Lithocharis sororcula* Kraatz desig. V. Assing 2014 / Lithocharis sororcula Kraatz, det. V. Assing 2014" (SDEI). Paralectotypes: 3♂♂, 1♀: "Ceylon / Syntypus / Coll. Kraatz / coll. DEI Eberswalde / DEI Müncheberg Col - 04271-04273, 0475"; 1♂ with additional labels "93 / Lithochar. sororcula" (SDEI).

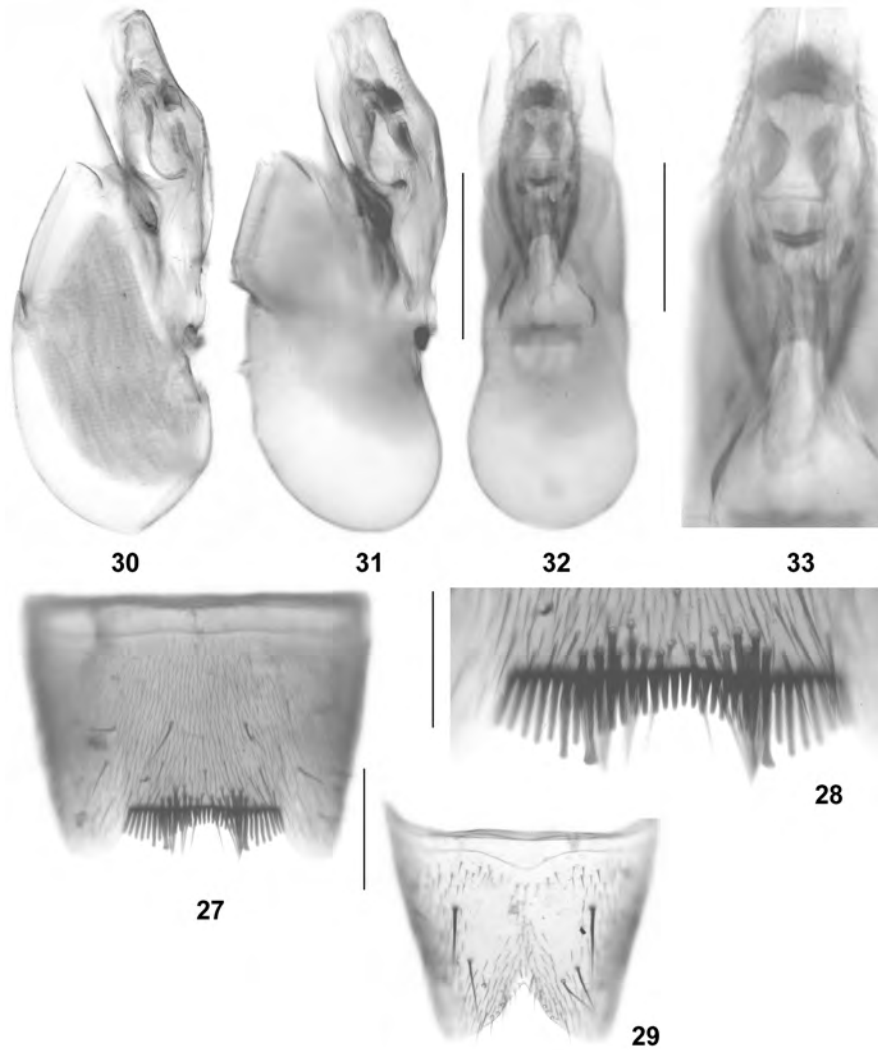
Comment: The original description is based on an unspecified number of syntypes from "insula Ceylan" (KRAATZ 1859). Five syntypes, four males and one female, were located in the Kraatz collection at the SDEI. One of the males is designated as the lectotype.

Additional material examined: Spain: Canary Islands: 1♂, 3♀♀ [1 teneral], Tenerife, Las Mercedes, 1000 m, 27.IX.1965, leg. Benick (cAss). India: 1♂, 6♀♀, Karnataka, Bandipur National Park [ca. 11°42'N, 76°34'E], 1000 m, in elephant dung, 21.XII.1992, leg. Cuccodoro (MHNG, cAss); 1♂, Dehra Dun, 19.X.1921, leg. Cameron (BMNH); 1♂, Dehra Dun, 18.III.1921, leg. Cameron (BMNH); 1♂, 2♀♀, "Bengal. Sarda", leg. Champion (BMNH, cAss). Sri Lanka: 2♂♂, 1 ex., Yala [ca. 6°31'N, 81°24'E], 20.VI.1976, leg. Quillerou" (MHNG, cAss). China: 7 exs., Beijing, northern suburbs, manure and straw heap, 30.VIII.1980, leg. Hammond (BMNH, cAss); 11 exs., Yunnan, Dali Bai Aut. Pref., 35 km N Dali, 26°01'N, 100°07'E, 1980 m, pond margin, decaying vegetables sifted, 24.VIII.2009, leg. Schülke (cSch, cAss). Hong Kong: 1♂, leg. Walker (BMNH). Thailand: 1♂ [slightly teneral], 130 km NE Bangkok, 12 km SW Pak-Chong, 400 m, fruit orchard, at light, 9.XI.1992, leg. Thielen (cAss). Malaysia: 1♂, Borneo, Sarawak, Pusa, rotten papaya stem, 26.VIII.1914 (BMNH); 1♂, Sarawak, Gn. Mulu National Park, V-VIII.1978, leg. Hammond & Marshall (BMNH). Singapore: 1♂, Scott Land, 5.VIII.1922, leg. Saunders (BMNH); 1 ex. [without abdomen], locality not specified, leg. Saunders (BMNH); 1♂ [without aedeagus, sternite VII teratological], Keppel Harbor (BMNH). East Timor: 1♂, Dili (BMNH). Peru: 12 exs., Huanaco Prov., Panguana station at Rio Llullapichis, 9°37'S, 74°56'W, 260 m, at light, 2.-20.X.2009, leg. Riedel (cAss). Australia: 1♂, 1♀, New South Wales. 1.8 km E Loomberah, 31°12'S, 151°02'E, rotting straw, 5.X.1992, leg. Horning (ANIC); 1♀, Queensland, 14 km ENE Mt. Tozer, 12°42'S, 143°20'E, 15.VII.1986, leg. Weir (ANIC).

Redescription: Small species; body length 3.2-4.0 mm; length of forebody 1.9-2.0 mm. Coloration: head blackish-brown to blackish, mostly with the frons somewhat paler; pronotum and elytra pale-reddish to reddish-brown, with the suture and the posterior margins of the elytra yellowish; abdomen brown, with the margins of the segments reddish; legs yellowish; antennae reddish to reddish-brown.

Head approximately as broad as long, not dilated behind eyes; punctation very dense and fine; interstices with microsculpture. Eyes large, distinctly longer than postocular portion in dorsal view. Antennae 1.2-1.3 mm long; preapical antennomeres approximately as long as broad or weakly transverse.

Pronotum approximately as wide as long and slightly broader than head; posterior angles obliquely truncate; punctation similar to that of head; midline with or without narrow impunctate band and with fine furrow posteriorly; interstices without microsculpture.



Figs 27-33: *Lithocharis sororcula* KRAATZ: (**27**) male sternite VII; (**28**) postero-median portion of male sternite VII; (**29**) male sternite VIII; (**30-32**) aedeagus in lateral and in ventral view; (**33**) internal structures of aedeagus in ventral view. Scale bars: 27, 29, 30-32: 0.2 mm; 28, 33: 0.1 mm.

Elytra 1.00-1.05 times as long as pronotum; punctation very dense and fine. Hind wings present. Protarsomeres I-IV weakly dilated in male. Metatarsomere I slightly longer than II, but distinctly shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Figs 27-28) distinctly transverse, posterior margin with broad and pronounced excavation of transversely trapezoid shape, margin of this concavity with approximately 30 palisade setae of different lengths (shortest in the middle, longest sublaterally), on either side of middle with one or two projecting palisade setae somewhat resembling a golf club; sternite VIII (Fig. 29) transverse, on either side of middle with a large area without pubescence, posterior excision of somewhat variable shape, broadly V-shaped; aedeagus 0.62-0.65 mm long; ventral process laterally pubescent; dorso-lateral apophyses absent.

Comparative notes: This species is best distinguished from all its congeners by the conspicuous chaetotaxy of the male sternite VII. In coloration and habitus it is similar to *L. nigriceps*.

Distribution and natural history: Confirmed records are currently known from the Canary Islands (Tenerife), India, Sri Lanka, China, Hong Kong, Thailand, Malaysia, Singpore, East Timor, Australia, and Peru suggesting that, though probably native in the Oriental region, this species may have a cosmopolitan distribution today. The material from Tenerife represents the first record from the West Palaearctic region. In view of its external resemblance to *L. nigriceps*, it does not seem unlikely that part of the records of that species, and of *L. ochracea*, refer to *L. sororcula*. CAMERON (1931) reports the species also from the West Indies. Some of the examined specimens were collected from elephant dung, decaying vegetable, and at light sources at altitudes of up to 1000 m.

One of the males from Singapore has its sternite VII teratologically deformed (posterior margin with long setae instead of palisade setae) and an abdomen without an aedeagus.

Lithocharis erythroptera GEMMINGER & HAROLD, 1868, revalidated (Figs 34-41)

Lithocharis fuscipennis KRAATZ, 1859: 138 f.; preoccupied.
Lithocharis erythroptera GEMMINGER & HAROLD, 1868: 621; replacement name.
Lithocharis penicillata CAMERON, 1928: 244; **nov.syn.**
Type material examined: *L. fuscipennis*: Lectotype ♂, present designation: "92 / Ceylon / Lithochar. fuscipennis / Coll. Kraatz / Syntypus / coll. DEI Eberswalde / DEI Müncheberg Col - 04261 / Lectotypus ♂ *Lithocharis fuscipennis* Kraatz desig. V. Assing 2014 / Lithocharis erythroptera Gemm. & Harold, det. V. Assing 2014" (SDEI). Paralectotypes: 2♂♂, 6♀♀: "Ceylon / Syntypus / Coll. Kraatz / coll. DEI Eberswalde / DEI Müncheberg Col - 04262-04269" (SDEI).
L. penicillata: Lectotype ♂, present designation: "Keppel Harb, Singapore / L. penicillata Cam Type / Type / M. Cameron. Bequest. B.M. 1955-147. / Lectotypus ♂ *Lithocharis penicillata* Cameron desig. V. Assing 2015 / Lithocharis erythroptera Gemm. & Harold, det. V. Assing 2015" (BMNH). Paralectotypes: 1♂: "Dung / Singapore / Syntype / M. Cameron. Bequest. B.M. 1955-147" (BMNH); 1♂, 1♀: "Dehra Dun, Dr. Cameron. 22-10-1921. / penicillata / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♂: "Raub, Pahang, F.M.S., Dr. Cameron. / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♂: "Sheung Shui, S.China [today in Hong Kong], Dr. Cameron / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH).

Comment: The original description of *L. fuscipennis* is based on an unspecified number of syntypes from "insula Ceylan" (KRAATZ 1859). Nine syntypes, three males

and six females, were located in the Kraatz collection at the SDEI. One of the males is designated as the lectotype.

Lithocharis fuscipennis KRAATZ, 1859 is a junior primary homonym of *Lithocharis fuscipennis* MOTSCHULSKY, 1858, which again is a junior synonym of *Sunius melanocephalus* (FABRICIUS, 1792), and was replaced with the nomen novum *L. erythroptera* by GEMMINGER & HAROLD (1868). Interestingly enough, BERNHAUER & SCHUBERT (1912) cited *L. erythroptera* as a synonym of *L. vilis* and *L. fuscipennis* as a valid species. So did CAMERON (1931), who, however, misinterpreted the species, as can be inferred from the illustration of the male secondary sexual characters. *Lithocharis fuscipennis* was eventually synonymized with *L. vilis* by BLACKWELDER (1973). An examination of the type material of *L. fuscipennis* KRAATZ revealed, however, that it is not conspecific with *L. vilis*, but represents a distinct species. Hence, *L. erythroptera* GEMMINGER & HAROLD, 1868 is revalidated.

The original description of *L. penicillata* is based on an unspecified number of syntypes from "India: Dehra Dun. Malay Peninsula: Phang, Sinagpore. South China: Sheung Shui" (CAMERON 1928). Six syntypes were located in the Cameron collection at the BMNH. The male labelled by Cameron as the type is designated as the lectotype. All the type specimens are conspecific with *L. erythroptera*, hence the synonymy proposed above.

Additional material examined: India: 7 exs., Karnataka, Bandipur National Park [ca. 11°42'N, 76°34'E], 1000 m, in elephant dung, 21.XII.92, leg. Cuccodoro (MHNG, cAss); 1♂, "Bengal. Sarda", leg. Champion (BMNH). China: 1♂, Guizhou, 30 km S Guilin, 22.IX.1980, leg. Hammond (cAss). Taiwan: 1♂, Chiayi Hsien, Dalin ["Taihorin"], leg. Sauter (BMNH). Hong Kong: 1♂, 1 ex., leg. Walker (BMNH). Laos: 2♂♂, 240 km N Vientiane, 10 km N Luang Prabang, Mekong river, XI.1992, leg. Somsy (cSch, cAss). Malaysia: 1♂, Borneo, Sarawak, Pusa (BMNH).

Redescription: In size and coloration similar to *L. vilis*.

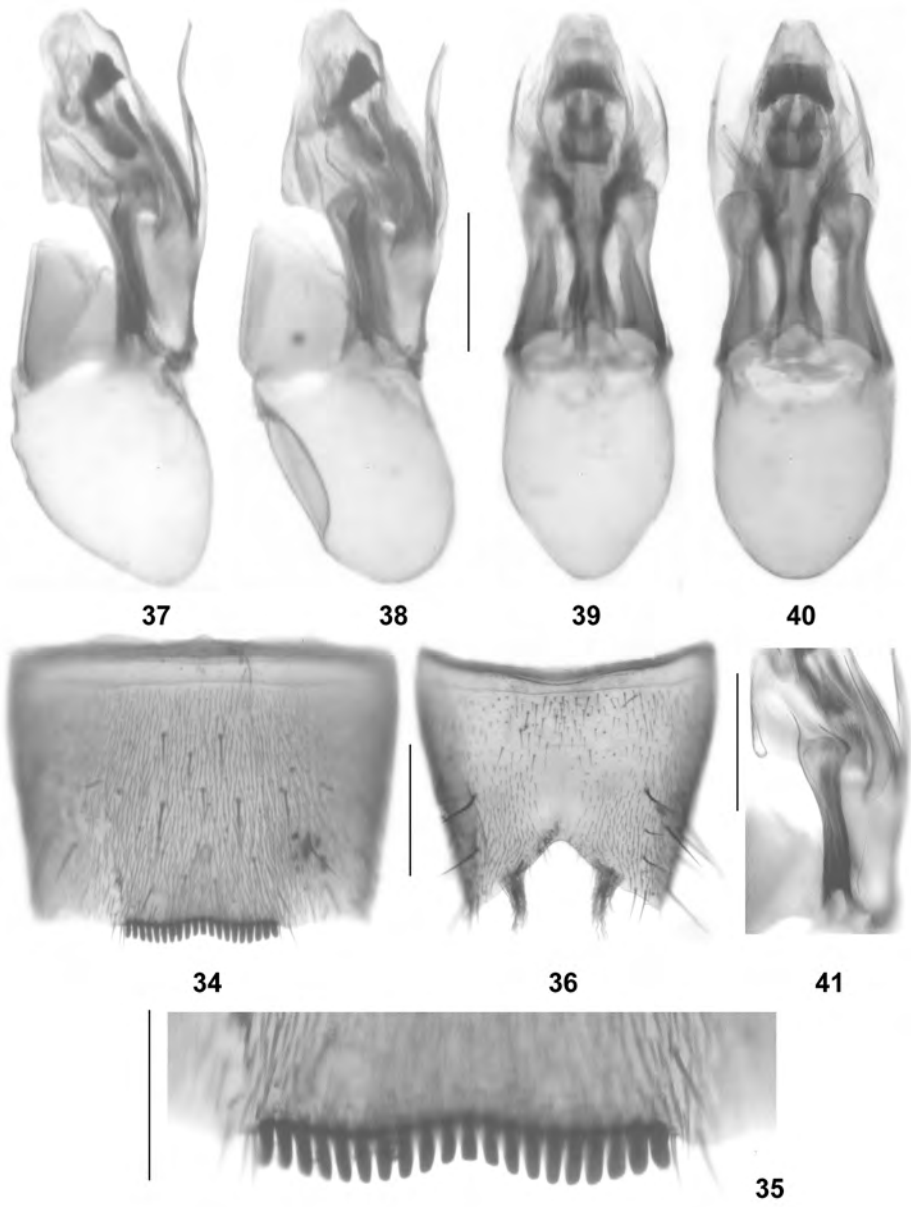
Head approximately as long as broad, lateral margins slightly converging posteriorly; punctation extremely fine and dense; interstices with microsculpture. Eyes large, approximately twice as long as postocular portion in dorsal view. Antennae 1.5-1.6 mm long; preapical antennomeres weakly oblong.

Pronotum approximately as wide as long and about 1.05 times as broad as head; posterior angles rounded, weakly marked; punctation very dense and fine; midline with narrow impunctate band; interstices without microsculpture.

Elytra approximately 1.05 times as long as pronotum; punctation very dense and fine; interstices without microsculpture. Hind wings fully developed. Protarsomeres I-IV weakly dilated in both sexes. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Figs 34-35) strongly transverse, posterior margin weakly convex in the middle and with a weakly bisinuate comb of approximately 20 moderately long palisade setae, on either side of this comb without long setae; sternite VIII (Fig. 36) transverse, median portion without pubescence, posterior excision broadly and deeply V-shaped, lateral margins of this excision each with a conspicuous tuft of long yellowish setae; aedeagus (Figs 37-41) large, approximately 0.85 mm long (total length 0.87-0.90 mm),



Figs 34-41: *Lithocharis erythroptera* GEMMINGER & HAROLD (34-35, 38, 40: lectotype of *L. penicillata* CAMERON): (**34**) male sternite VII; (**35**) postero-median portion of male sternite VII; (**36**) male sternite VIII; (**37-40**) aedeagus in lateral and in ventral view; (**41**) basal portion of dorso-lateral apophysis in lateral view. Scale bars: 34, 36-41: 0.2 mm; 35: 0.1 mm.

ventral process lamellate, thin and semi-transparent, and distinctly separated from remainder of aedeagus; dorso-lateral apophyses composed of a stout, sclerotized, and moderately long basal portion, and of a rather large, lamellate, semitransparent apical portion.

Comparative notes: This species is characterized by the distinctive shapes and chaetotaxy of the male sternites VII and VIII, as well as by the morphology of the aedeagus. It additionally differs from the externally similar *L. vilis* by the narrower head, the denser punctation and distinct microsculpture of the head, the slightly longer antennae, and the weakly dilated protarsomeres I-IV.

Distribution and natural history: Confirmed male-based records of this species are known from North and South India, Sri Lanka, South China (Guizhou), Taiwan, Hong Kong, Singapore, and Malaysia (Pahang, Sarawak). CAMERON (1931) reports it (as *L. fuscipennis*) also from Sumatra, but his interpretation of this species is clearly erroneous. The additional material from South India was collected from elephant dung at an altitude of 1000 m, together with *L. sororcula*.

Lithocharis uvida KRAATZ, 1859 (Figs 42-46)

Lithocharis uvida KRAATZ, 1859: 138.

Type material examined: Lectotype ♂, present designation: "Ceylon / Syntypus / Coll. Kraatz / DEI Müncheberg Col - 04276 / Lectotypus ♂ *Lithocharis uvida* Kraatz desig. V. Assing 2014 / Lithocharis uvida Kraatz, det. V. Assing 2014" (SDEI). Paralectotypes: 2♂♂, 4♀♀: "Ceylon / Syntypus / Coll. Kraatz / DEI Müncheberg Col - 04277-04282" (SDEI).

Comment: The original description is based on an unspecified number of syntypes from "insula Ceylan" (KRAATZ 1859). Seven syntypes, three males and four females, were located in the Kraatz collection at the SDEI. One of the males is designated as the lectotype.

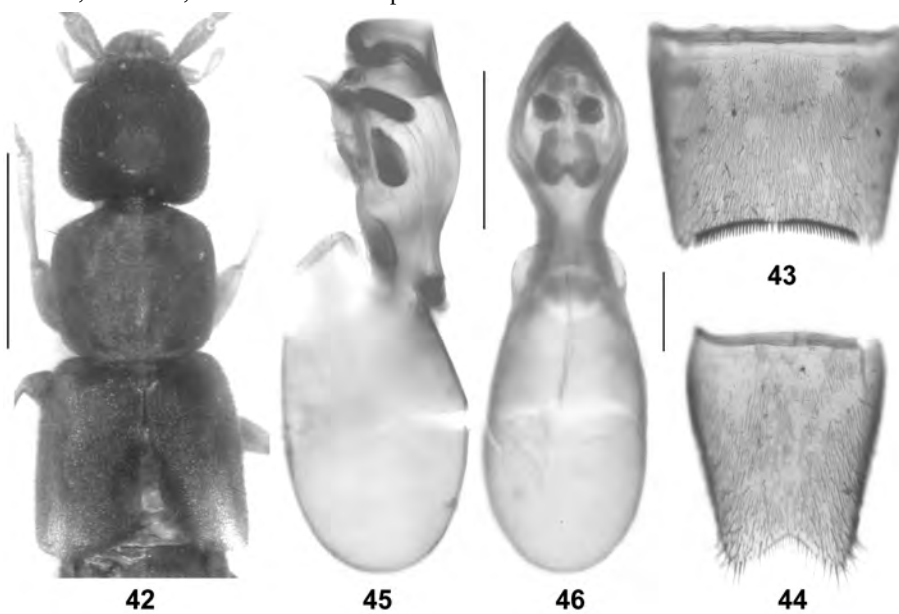
Additional material examined: Nepal: 1♂, 1 ex., Phewa-Tal, Pokhara, 35°59'N, 28°14'E, 760 m, in cattle dung, 8.-10.V.1954, leg. Hyatt (BMNH, cAss). India: 1♂ [teneral], Assam, Manas, 200 m, 23.X.1978, leg. Besuchet & Löbl (MHNG); 1♀, Assam, Bhalukpong, 27°02'N, 92°35'N, 150 m, 26.V.-3.VI.2006, leg. Pacholátko (BMNH); 1♀, Dehra Dun, 5.VIII.1921, leg. Cameron (BMNH); 1♀, Dehra Dun, 17.X.1921, leg. Cameron (BMNH); 1♂, "Sarda, Bengal", leg. Champion (BMNH); 1♂, Kerala, Aleppey, "9,28' 76,17'", sea level, canal edge, 31.I.1983, leg. Darby (cAss). Sri Lanka: 1 ex., Dikoya, 1150-1280 m, 25-27.II.1882, leg. Lewis (BMNH); 1 ex., locality not specified, leg. Lewis (BMNH); 1♂, Kandy, VI.1908, leg. Bryant (BMNH). China: 2♀♀, Sichuan, Qingcheng Shan, NW Chengdu, 30°54'N, 103°32'E, 650-700 m, 3.-4.VI.1997, leg. Schülke (cSch); 2♀♀, Qingcheng Shan, 56 km NW Chengdu, 30°54'N, 103°33'E, 975 m, field margin, sifted from straw heaps, 13.VII.1999, leg. Schülke (cSch, cAss). Taiwan: 1♂, Chiayi Hsien, Dalin ["Taihorin"], 22.VII.1911, leg. Sauter (BMNH). Hong Kong: 1♀ (BMNH). Japan: 1♀, Tokyo, Tachikawa, 6.V.1937, leg. Yano (BMNH). Singapore: 2♂♂, 1♀, Mandai, rotting fruit, leg. Cameron (BMNH, cAss); 2♀♀, locality not specified, leg. Saunders (BMNH). Laos: 1♀, 240 km N Vientiane, 10 km N Luang Prabang, Mekong river, XI.1992, leg. Somsy (cSch). Malaysia: 1♀, Penang, X.1913, leg. Bryant (BMNH); 1♀, Penang, leg. Bowring (BMNH). Indonesia: 1♂, 1♀, Celébes (BMNH); 1♀, South Sulawesi, Tjanba, leg. Doherty (BMNH); 1♀, Sulawesi, leg. Wallace (BMNH); 1♀, Sumatra, Bukittinggi ["Fort de Kock"], 1926, leg. Jacobson (BMNH).

Redescription: Body length 4.4-5.5 mm; length of forebody 2.4-2.8 mm. Head dark-brown to blackish; pronotum brown; elytra pale-reddish to dark-red; abdomen brown, with apex and the margins of the segments yellowish; legs yellowish; antennae yellowish-red to red.

Head (Fig. 42) weakly transverse, 1.02-1.04 times as broad as long, indistinctly dilated

behind eyes; punctation extremely dense and fine; interstices with pronounced microsculpture; surface matt. Eyes large, much longer than postocular portion in dorsal view. Antennae 1.5-1.7 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 42) approximately 1.1 times as wide as long and 1.1 times as broad as head; posterior angles moderately marked; punctation and microsculpture similar to those of head, disc matt; midline without impunctate band.



Figs 42-46: *Lithocharis uvida* KRAATZ (43-46: lectotype): (**42**) forebody; (**43**) male sternite VII; (**44**) male sternite VIII; (**45-46**) aedeagus in lateral and in ventral view. Scale bars: 42: 1.0 mm; 43-46: 0.2 mm.

Elytra (Fig. 42) approximately as long as pronotum or slightly longer; punctation very dense and fine; surface matt. Protarsomeres I-IV not distinctly modified. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense; interstices with microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 43) moderately transverse, posterior margin with very long comb of > 40 relatively short palisade setae, laterally with few long dark setae; sternite VIII (Fig. 44) oblong, with short and dense pubescence everywhere, posterior excision broad and not very deep, shallowly V-shaped; aedeagus (Figs 45-46) approximately 0.7 mm long and with apical portion of distinctive shape; dorso-lateral apophyses absent.

Comparative notes: *Lithocharis uvida* externally somewhat resembles a small *Charichirus*. It is distinguished from its congeners particularly by the conspicuously matt forebody and relatively large body size alone. In addition, it differs from them by the long comb of short pectinate setae at the posterior margin of the male ster-

nite VII, the oblong and densely pubescent male sternite VIII with a relatively shallow posterior excision, and by the morphology of the aedeagus.

Distribution and natural history: Confirmed records are known from Nepal, Sri Lanka, North and South India, China, Taiwan, Hong Kong, Japan, Laos, Malaysia, Singapore, and Indonesia. The record from China in CAMERON (1931) probably refers to Hong Kong. Some of the examined specimens were collected from straw heaps, rotting fruit, cattle dung, and a canal margin. The altitudes range from sea-level to approximately 1300 m.

Lithocharis lamellifera CAMERON, 1928 (Figs 47-52)

Lithocharis lamellifer [sic] CAMERON, 1928: 245.

Type material examined: Lectotype ♂, present designation: "12 / Chakrata Dist. Saiya, 3600' / Dr. Cameron. 2.V.22. / L. lamellifer Cam, Type / M. Cameron. Bequest. B.M. 1955-147. / Lectotypus ♂ *Lithocharis lamellifera* Cameron, desig. V. Assing 2015 / Lithocharis lamellifera Cameron, det. V. Assing 2015" (BMNH). Paralectotype ♀: same data as lectotype (BMNH).

Comment: The original description is based on an unspecified number of syntypes from "India: United Provinces, Saiya" (CAMERON 1928). Two syntypes, a male and a female, were located in the Cameron collection at the BMNH. The male is designated as the lectotype.

Additional material examined: India: 1♂, Uttar Pradesh, Gangani, 1250 m, 13.-20.VI.1981, leg. Brancucci (NHMB); 1♂, Assam, Umrongso env., 25°27'N, 92°43'E, 700 m, 3.-8.VI.2002, leg. Trýzna (cAss).

Redescription: Body length 4.2-4.8 mm; length of forebody 2.1-2.3 mm. Coloration: head dark-brown to blackish-brown; pronotum and elytra dark-yellowish to pale-reddish; abdomen reddish to brown, with the margins of the segments reddish; legs yellow; antennae pale-reddish.

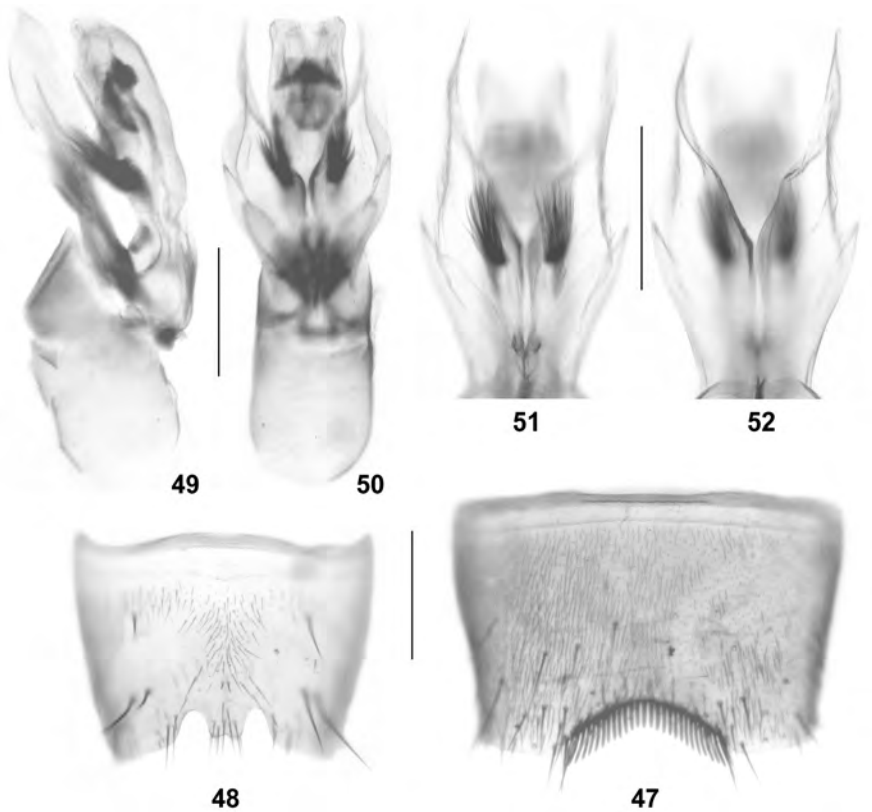
Head approximately as long as broad or weakly oblong; posterior angles broadly convex, weakly marked; punctation extremely dense and fine. Eyes large, nearly as long as distance from posterior margin of eye to posterior constriction of head in dorsal view. Antennae 1.4 mm long; preapical antennomeres approximately as long as broad.

Pronotum approximately as long as broad and as broad as head; posterior angles weakly marked; punctation similar to that of head; midline with narrow glossy band not reaching anterior and posterior margins of pronotum, posteriorly usually with fine furrow.

Elytra slightly longer than pronotum; punctation very dense and fine; surface matt. Protarsomeres I-IV weakly dilated. Metatarsomere I longer than II, but shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense; interstices with microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 47) strongly transverse, posterior margin with broad and moderately deep median concavity, this concavity furnished with 30-40 rather long palisade setae; sternite VIII (Fig. 48) of highly distinctive shape, posterior excision with a conspicuous median projection; aedeagus (Figs 49-52) approximately 0.75 mm long; dorso-lateral apophyses large, lamellate, and weakly sclerotized; internal sac with a pair of clusters of dark spines and additional sclerotized apical structures.



Figs 47-52: *Lithocharis lamellifera* CAMERON (47-48, 51-52: lectotype): (**47**) male sternite VII; (**48**) male sternite VIII; (**49-50**) aedeagus in lateral and in ventral view; (**51-52**) apical portion of aedeagus in ventral view. Scale bars: 0.2 mm.

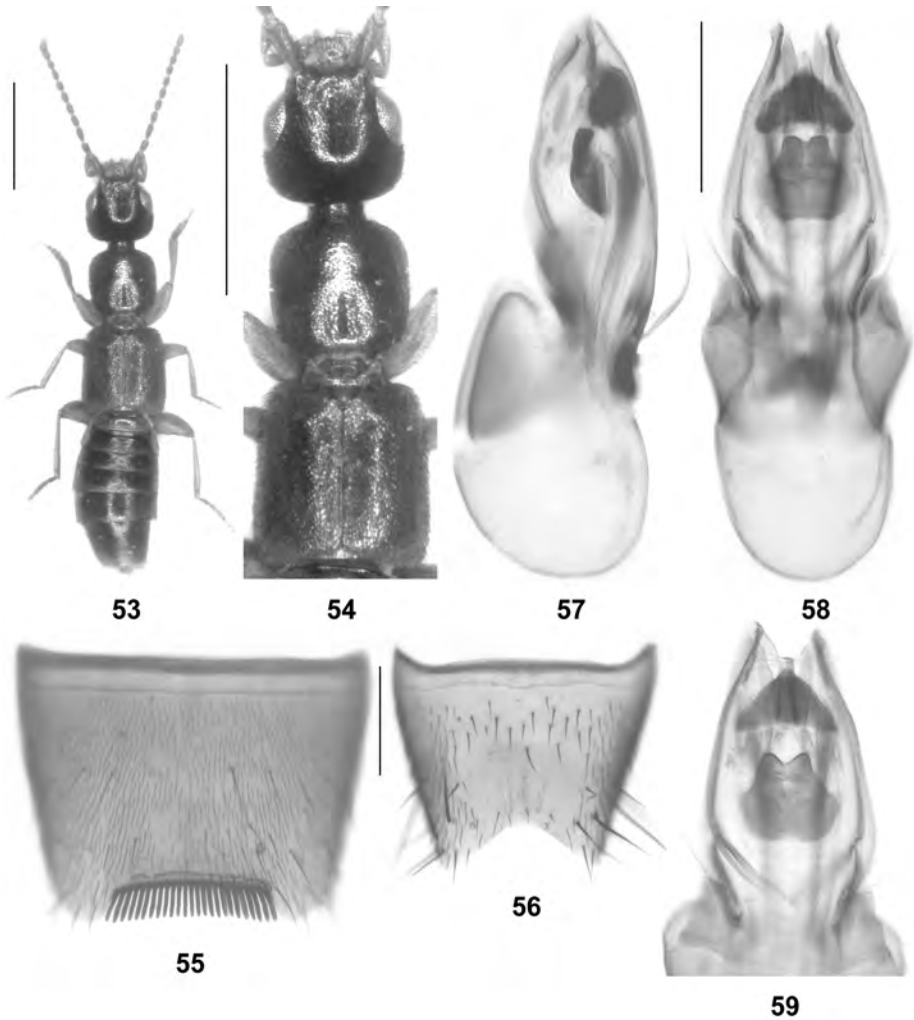
Comparative notes: *Lithocharis lamellifera* is readily distinguished from other species of the genus not only by the morphology of the aedeagus and by the shape and chaetotaxy of the male sternite VII, but also by the conspicuous shape of the male sternite VIII.

Distribution and natural history: The known distribution is confined to three localities in North India. The examined material was collected at altitudes between 700 and 1250 m.

Lithocharis distinguenda CAMERON, 1928 (Figs 53-59)

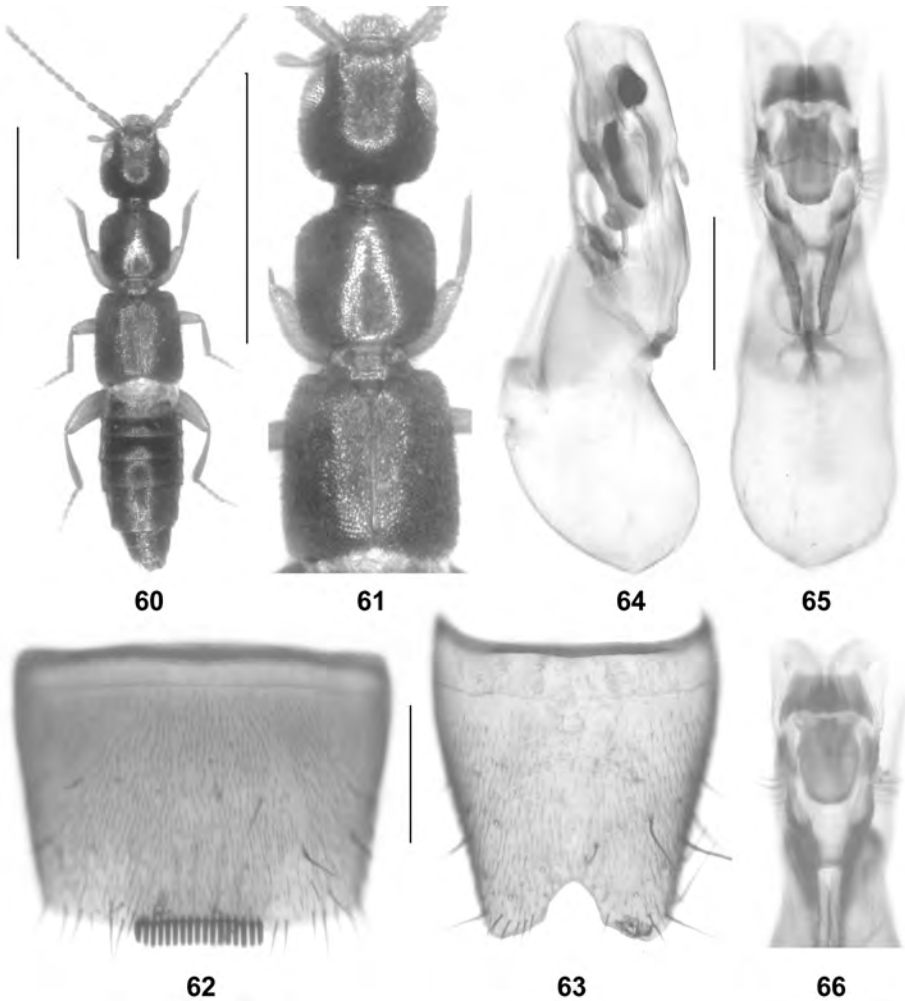
Lithocharis distinguenda CAMERON, 1928: 246.

Type material: Lectotype ♂, present designation: "Singapore / Dung / L. distinguenda Cam, Type / M. Cameron. Bequest. B.M. 1955-147. / Type / Lectotypus ♂ *Lithocharis distinguenda* Cameron, desig. V. Assing 2015 / Lithocharis distinguenda Cameron, det. V. Assing 2015" (BMNH). Paralectotypes: 1♂: "Singapore / Carrion / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♀: "Rotting Fruit / Bukit Kutu, Selangor F.M.S., Dr. Cameron / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♀: "Rotting Fruit / Woodlands [locality not specified] / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♂, 1♀: "Sandakan, N.Borneo, Dr. Cameron / Syntype / M. Cameron. Bequest. B.M. 1955-147." (BMNH).



Figs 53-59: *Lithocharis distinguenda* CAMERON (59: lectotype): (**53**) habitus; (**54**) forebody; (**55**) male sternite VII; (**56**) male sternite VIII; (**57-58**) aedeagus in lateral and in ventral view; (**59**) apical portion of aedeagus in ventral view. Scale bars: 53-54: 1.0 mm; 55-59: 0.2 mm.

C o m m e n t : The original description is based on an unspecified number of syntypes from "Singapore. Federated Malay States: Selangor. North Borneo: Sandakan" (CAMERON 1928). Six syntypes were located in the Cameron collection at the BMNH. The male labelled by Cameron as the type is designated as the lectotype.



Figs 60-66: *Lithocharis sordidula* HERMAN (64-65: lectotype): (**60**) habitus; (**61**) forebody; (**62**) male sternite VII; (**63**) male sternite VIII; (**64-65**) aedeagus in lateral and in ventral view; (**66**) apical portion of aedeagus in ventral view. Scale bars: 60-61: 1.0 mm; 62-66: 0.2 mm.

Additional material examined: India: 1♂, Assam, Bhalukpong, 27°02'N, 92°35'E, 150 m, 26.V.-3.VI.2006, leg. Pacholátko (cAss); 1♂, 2♀♀, Assam, Umrongso env., 25°27'N, 92°43'E, 700 m, 3.-8.VI.2002, leg. Trýzna (cSch, cAss); 1♀, Meghalaya, 1 km E Tura, 25°30'N, 90°14'E, 500-600 m, 2.-5.V.2002, leg. Trýzna & Benda (cSch). China: 1♂, Guangxi, Bama, cow dung, I.1988 (BMNH). Thailand: 2♂♂, 2♀♀, Chumphon prov., Pha To env., 9°48'N, 98°47'E, 27.III.-14.IV.1996, leg. Majer (NHMB, cAss); 1♂, Chumphon prov., Pha To env. 9°48'N, 98°47'E, 1.-21.III.1996, K. Majer leg. (NHMB); 1♂, Chumphon, Pha To env., 9°48'N, 98°47'E, III-IV.1996, at light, leg. Prudek (cSch); 1♂, 1♀, Ranong prov., Ranong: Hot Springs, 9°56'N, 98°40'E, 23.-25.II.1996, leg. Majer" (NHMB, cAss). Laos: 8 exs., 240 km N Vientiane, 10 km N Luang Prabang, Mekong river, XI.1992, leg. Somsy (cSch, cAss). Singapore: 1♂, "B.T.Ra." 4 m, I.1922, leg. Saunders (BMNH); 1 ex., "Scott land", 5.VIII.1922, leg. Saunders (BMNH). Indonesia: 6 exs., Sulawesi Tengah, near Morowali, Ranu River area, lowland rain forest, at light, I-IV.1980, leg. Brendell (BMNH, cAss).

Redescription: Body length 3.9-4.2 mm; length of forebody 2.2-2.4 mm. Habitus as in Fig. 53. External characters (Figs 53-54) as in *L. vilis*.

♂: sternite VII (Fig. 55) moderately transverse, posterior margin with shallow median excision of broadly trapezoid shape, this excision with a comb of approximately 25 long palisade setae; sternite VIII (Fig. 56) transverse, postero-median portion extensively without pubescence, posterior margin moderately deep, broadly V-shaped; aedeagus (Figs 57-59) approximately 0.7 mm long, apically bifid in ventral view, at base of ventral process with a long string-shaped appendix best visible in lateral view; dorso-lateral apophyses with straight, short, and thin apices; internal structures distinctly sclerotized and of distinctive shapes.

Comparative notes: As can be inferred from the similar external and male sexual characters, *L. distinguenda* is closely related to *L. vilis*, from which it differs by the shape of the posterior excision of the male sternite VII, the less numerous and longer palisade setae at the posterior margin of the male sternite VII, by the shape and chaetotaxy of the male sternite VIII, as well as by the smaller aedeagus with a bifid apex, with smaller and differently shaped dorso-lateral apophyses, and with internal structures of distinctive shapes.

Distribution and natural history: Male-based records are known from Northeast India (Assam), Singapore, China (Guangxi), Thailand, Malaysia (North Borneo), and Indonesia (Sulawesi Tengah). Some of the examined specimens were collected from dung, carrion, rotting fruit, and with light traps at altitudes of up to 700 m.

Lithocharis sordidula HERMAN, 2003 (Figs 60-66)

Lithocharis sordida CAMERON, 1928: 245; preoccupied.
Lithocharis sordidula HERMAN, 2003: 6; replacement name.
Type material examined: Lectotype ♂, present designation: "Bentong, Pahang, F.M.S., Dr. Cameron / Dung / L. sordida Cam, Type / M. Cameron. Bequest. B.M. 1955-147. / Type / Lectotypus ♂ *Lithocharis sordida* Cameron, desig. V. Assing 2015 / Lithocharis sordidula Herman, det. V. Assing 2015" (BMNH).

Comment: The original description of *L. sordida* is based on an unspecified number of syntypes from "Malay Peninsula, Pahang" (CAMERON 1928). One slightly damaged male syntype (left elytron missing; male sternite VIII incomplete) was located in the Cameron collection at the BMNH; it is designated as the lectotype. The preoccupied name *Lithocharis sordida* was recently replaced with the nomen novum *L. sordidula* by HERMAN (2003).

Additional material examined: Thailand: 1♂, Chumphon prov., Pha To env. 9°48'N, 98°47'E, 1.-21.III.1996, leg. Majer (NHMB); 1♂, 1♀, same data, but 27.III.-14.IV.1996 (NHMB, cAss).

Redescription: Body length 3.4-3.8 mm; length of forebody 1.85-2.1 mm. Habitus as in Fig. 60. Coloration: head blackish; pronotum and elytra pale reddish-brown; abdomen brown, with the apex and the posterior margins of the segments paler; legs yellowish; antennae brown with antennomeres I-II yellowish.

Head (Fig. 61) as long as broad or weakly oblong; punctation dense and very fine; interstices with shallow microsculpture. Eyes large, distinctly longer than postocular portion in dorsal view. Antennae approximately 1.2 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 61) approximately as long as broad and as broad as head; posterior angles rounded, weakly marked; punctation similar to that of head; midline with distinct impunctate band; interstices without microsculpture.

Elytra (Fig. 61) as long as pronotum or slightly longer; punctation very dense and fine; interstices without microsculpture. Hind wings present. Protarsomeres I-IV moderately dilated, slightly more so in male than in female. Metatarsomere I nearly as long as the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 62) moderately transverse, posterior margin nearly truncate and with comb of approximately 20 moderately long palisade setae; sternite VIII (Fig. 63) approximately as long as broad and with posterior excision of somewhat variable shape (sometimes more broadly V-shaped); aedeagus (Figs 64-66) approximately 0.7 mm long; ventral process with pair of ventral teeth in the middle (best visible in lateral view); dorso-lateral apophyses very long, nearly reaching apex of ventral process; internal structures of distinctive shapes.

Comparative notes: This species is characterized particularly by the slender head and pronotum, by rather small body size, by the shapes and chaetotaxy of the male sternites VII and VIII, and by the morphology of the aedeagus (ventral process with pair of teeth, dorso-lateral apophyses very long, shapes of internal structures). For characters distinguishing it from the similarly small and syntopic *L. inermis* see the comparative notes in the section on that species.

Distribution and natural history: Confirmed records are known only from two localities, one in Pahang province in Peninsular Malaysia and one in Chumphon province in southern Thailand. The lectotype was collected from dung.

Lithocharis timorensis CAMERON, 1928 (Figs 67-70)

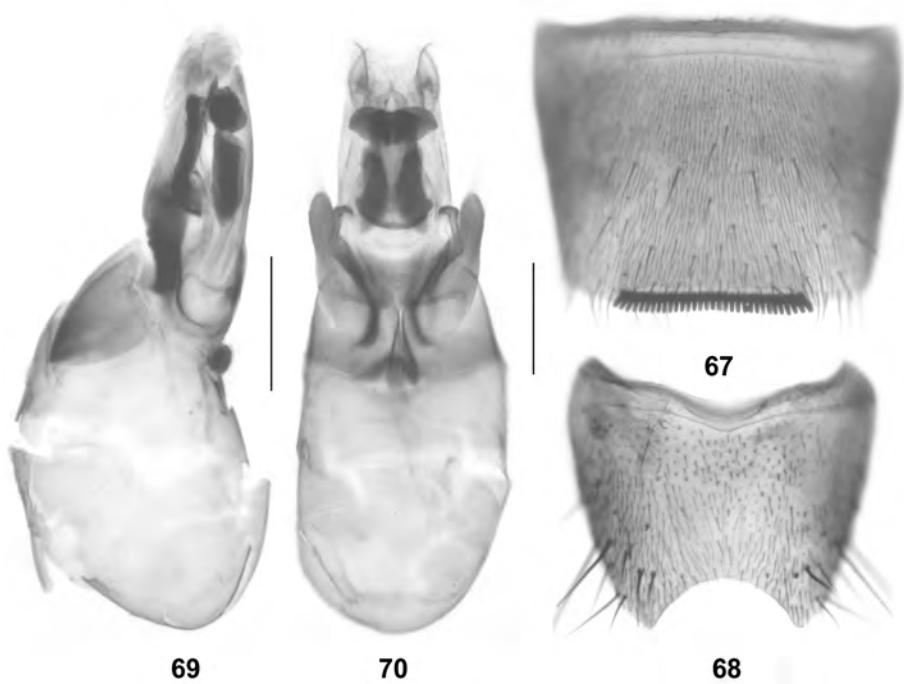
Lithocharis timorensis CAMERON, 1928: 246.

Type material examined: Lectotype ♂, present designation: "Dilli, Timor, Dr. Cameron / L. timorensis Cam, Type / M. Cameron. Bequest. B.M. 1955-147. / Type / Lectotypus ♂ *Lithocharis timorensis* Cameron, desig. V. Assing 2015 / Lithocharis timorensis Cameron, det. V. Assing 2015" (BMNH). Paralectotypes: 4♂♂, 1♀: same data as lectotype (BMNH); 1♂: "Singapore / M. Cameron. Bequest. B.M. 1955-147. / Syntype" (BMNH).

Comment: The original description is based on an unspecified number of syntypes from "Timor: Dilli. Singapore." (CAMERON 1928). Seven syntypes, six from Timor and one from Singapore, were located in the Cameron collection at the BMNH. A male from Timor is designated as the lectotype.

Additional material examined: Indonesia: 1♂, Sulawesi Tengah, near Morowali, Ranu River area, lowland rain forest, at light, I-IV.1980, leg. Brendell (BMNH).

Redescription: Body length 3.8-4.8 mm; length of forebody 2.0-2.3 mm. Coloration: head dark-brown to blackish-brown; pronotum and elytra reddish-brown to brown, with the posterior margin of the elytra yellowish to dark-yellowish; abdomen reddish-brown to brown, with the margins of the segments and the apex paler; legs yellow; antennae brown, with the basal and apical antennomeres more or less distinctly and more or less extensively paler.



Figs 67-70: *Lithocharis timorensis* CAMERON, lectotype: (**67**) male sternite VII; (**68**) male sternite VIII; (**69-70**) aedeagus in lateral and in ventral view. Scale bars: 0.2 mm.

Head weakly transverse; posterior angles abruptly convex, moderately marked; punctation dense, but surface with some shine. Eyes large, much longer than postocular region in dorsal view. Antennae 1.4-1.5 mm long; preapical antennomeres approximately as long as broad or weakly transverse.

Pronotum weakly transverse, approximately 1.05 time as broad as long and 1.05-1.10 times as broad as head; posterior angles weakly marked; punctation similar to that of head, but slightly more distinct; surface with some shine; midline with (sometimes indistinct) narrow glossy band of reduced length.

Elytra approximately as long as pronotum; punctation very dense and fine; surface matt. Protarsomeres I-IV dilated, distinctly more so in males than in females. Metatarsomere I longer than II, but shorter than the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 67) moderately strongly transverse, posterior margin truncate, in the middle with long comb of approximately 35 relatively short palisade setae; sternite VIII (Fig. 68) strongly transverse, posterior excision broadly concave, nearly semi-circular, anterior margin, too, distinctly concave; aedeagus (Figs 69-70) approximately 0.9 mm long, of distinctive shape and with distinctive internal structures.

Comparative notes: Based on the similarly derived morphology of the aedeagus and the similar shape of the male sternite VIII, *L. timorensis* is closely allied to

L. vilis, from which it differs by smaller body size, a less robust habitus, a relatively smaller head, relatively larger eyes, the shape and chaetotaxy of the male sternite VII, the anteriorly excised male sternite VIII, and by the morphology of the aedeagus (smaller, differently shaped, slightly different internal structures).

Distribution and natural history: The type material was found in East Timor and Singapore. The above non-type male was collected at a light source in a lowland rain forest in Sulawesi Tengah, Indonesia.

Lithocharis carinata CAMERON, 1928 (Figs 71-75)

Lithocharis carinatus [sic] CAMERON, 1928: 246.

Type material examined: Syntype ♂: "Engano, Bua-Bua. V.VI., Modigliani 1891. / Lithocharis carinatus Cam / Museo Civ. Genova / / M. Cameron. Bequest. B.M. 1955-147. / Cotype / Lithocharis carinata Cameron, det. V. Assing 2015" (BMNH).

Comment: The original description is based on an unspecified number of syntypes from "Sumatra" (CAMERON 1928). One of them was located in the Cameron collection at the BMNH; the remainder is deposited in the collections of the Museo Civico di Storia Naturale, Genova. Since the examined syntype is evidently somewhat teneral, it is not designated as the lectotype.

Additional material examined: Burma: 1♂, Tenasserim (BMNH). Indonesia: 20 exs., Sumatra, Bukittinggi ["Fort de Kock"], 920 m, 1926, leg. Jacobson (BMNH, cAss).

Redescription: Body length 3.0-4.0 mm; length of forebody 1.8-2.1 mm. Coloration: head blackish-brown to black; pronotum pale-reddish to brown; elytra reddish-yellow; abdomen reddish to reddish-brown, with the margins of the segments and the apex (segments VIII-X and posterior portion of segment VII) yellowish; legs yellow; antennae pale-reddish.

Head weakly transverse; posterior angles broadly rounded, weakly marked; punctation very dense and fine; interstices with fine microsculpture; surface only with subdued shine. Eyes large, somewhat longer than postocular region in dorsal view. Antennae approximately 1.4 mm long; antennomeres IV weakly oblong, V-VI approximately as long as broad, VII-IX weakly transverse, and X moderately transverse.

Pronotum approximately as long as broad or weakly transverse, and approximately as broad as head; posterior angles obtusely marked; punctation very dense and slightly more distinct than that of head; surface only with subdued shine; midline with distinct narrow glossy band, posteriorly with fine median furrow of variable length.

Elytra 1.07-1.10 times as long as pronotum; punctation very dense and fine; surface nearly matt. Protarsomeres I-IV dilated, distinctly more so in males than in females. Metatarsomere I longer than II, but shorter than the combined length of II and III.

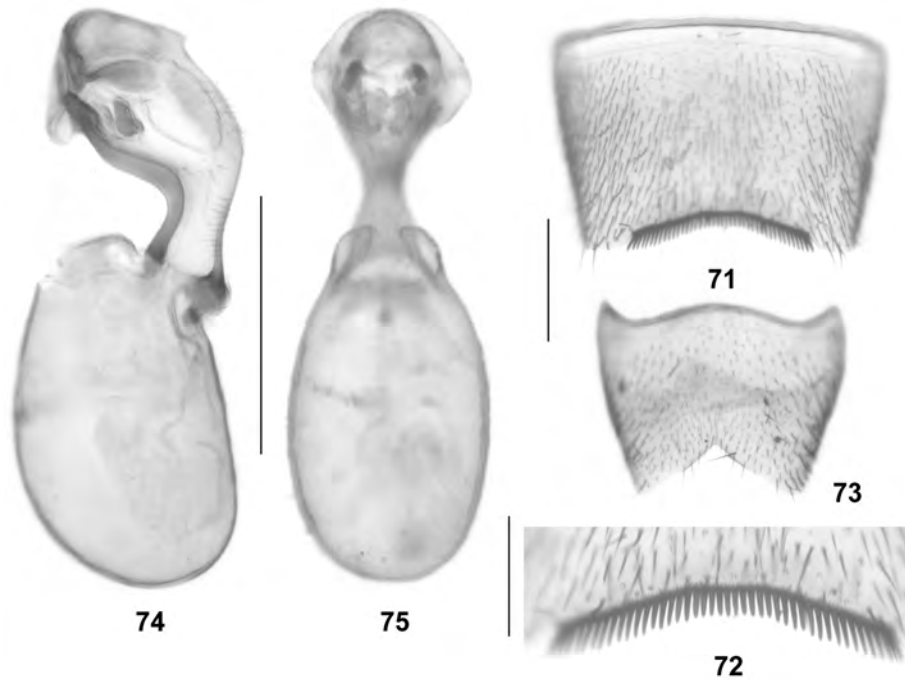
Abdomen narrower than elytra; punctation extremely fine and dense; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Figs 71-72) strongly transverse, posterior margin broadly concave and with broad comb of numerous relatively short palisade setae; sternite VIII (Fig. 73) distinctly transverse, posterior excision large and broadly V-shaped; aedeagus (Figs 74-75) small, 0.45-0.48 mm long; apical portion strongly dilated (ventral view) and strongly bent dorsad in lateral view.

Comparative notes: This species is characterized particularly by the male

primary and secondary male sexual characters, above all by the conspicuously bent apical portion of the aedeagus. It is additionally distinguished from many other species of similarly small size and of similar coloration by the fine median furrow in the posterior portion of the pronotum.

D i s t r i b u t i o n : Confirmed records are known from Burma, Sumatra, and the Indonesian island Enggano. CAMERON (1936) reported the species also from Java.



Figs 71-75: *Lithocharis carinata* CAMERON, syntype: (**71**) male sternite VII; (**72**) postero-median portion of male sternite VII; (**73**) male sternite VIII; (**74-75**) aedeagus in lateral and in ventral view. Scale bars: 71, 73-75: 0.2 mm; 72: 0.1 mm.

Lithocharis preangerana CAMERON, 1936 (Fig. 76)

Lithocharis preangeranus [sic] CAMERON, 1936: 50.

T y p e m a t e r i a l e x a m i n e d : Holotype ♀: "JAVA. F.C. Drescher. B.M. 1934-264. / F.C. Drescher, lamp. Preanger, Bandoeng-Dago, 8.IX.1929 / Lithocharis preangeranus Cam, Type / Holo-Type / Holotype Lithocharis preangeranus Cam., det. R.G. Booth 2014 / Lithocharis preangerana Cameron, det. V. Assing 2015" (BMNH).

C o m m e n t : The original description is based on "A single ♀" from "Dago, Bandoeng" (CAMERON 1936). The generic assignment is uncertain and requires confirmation based on males.

R e d e s c r i p t i o n : Body length 4.5 mm; length of forebody 2.2 mm. Coloration: head dark-brown; pronotum reddish; elytra pale-reddish, with a large infuscate spot in posterior half, this spot narrowly separated from suture and posterior margin of elytra; abdomen brown, with segments VIII-X and the anterior, lateral, and posterior margins of segments III-VII reddish; legs yellow; antennae reddish.

Head (Fig. 76) weakly transverse, 1.04 times as broad as long, weakly narrowed behind eyes; posterior angles marked; punctation extremely dense and fine. Eyes large, slightly longer than postocular region in dorsal view. Antennae 1.4 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 76) 1.02 times as wide as long and 1.1 times as broad as head; posterior angles moderately marked; punctation similar to that of head, disc matt; midline with narrow glossy band not quite reaching anterior and posterior margins of pronotum.

Elytra (Fig. 76) as long as pronotum; punctation very dense and fine; surface matt. Protarsomeres I-IV unmodified. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation extremely fine and dense; interstices with microreticulation; posterior margin of tergite VII with palisade fringe.

♂: unknown.

Comparative notes: This species is characterized particularly by the marked posterior angles of the head and the coloration of the elytra.

Distribution: *Lithocharis preangerana* is currently known only from Java.

***Lithocharis parvincisa* nov.sp. (Figs 77-84)**

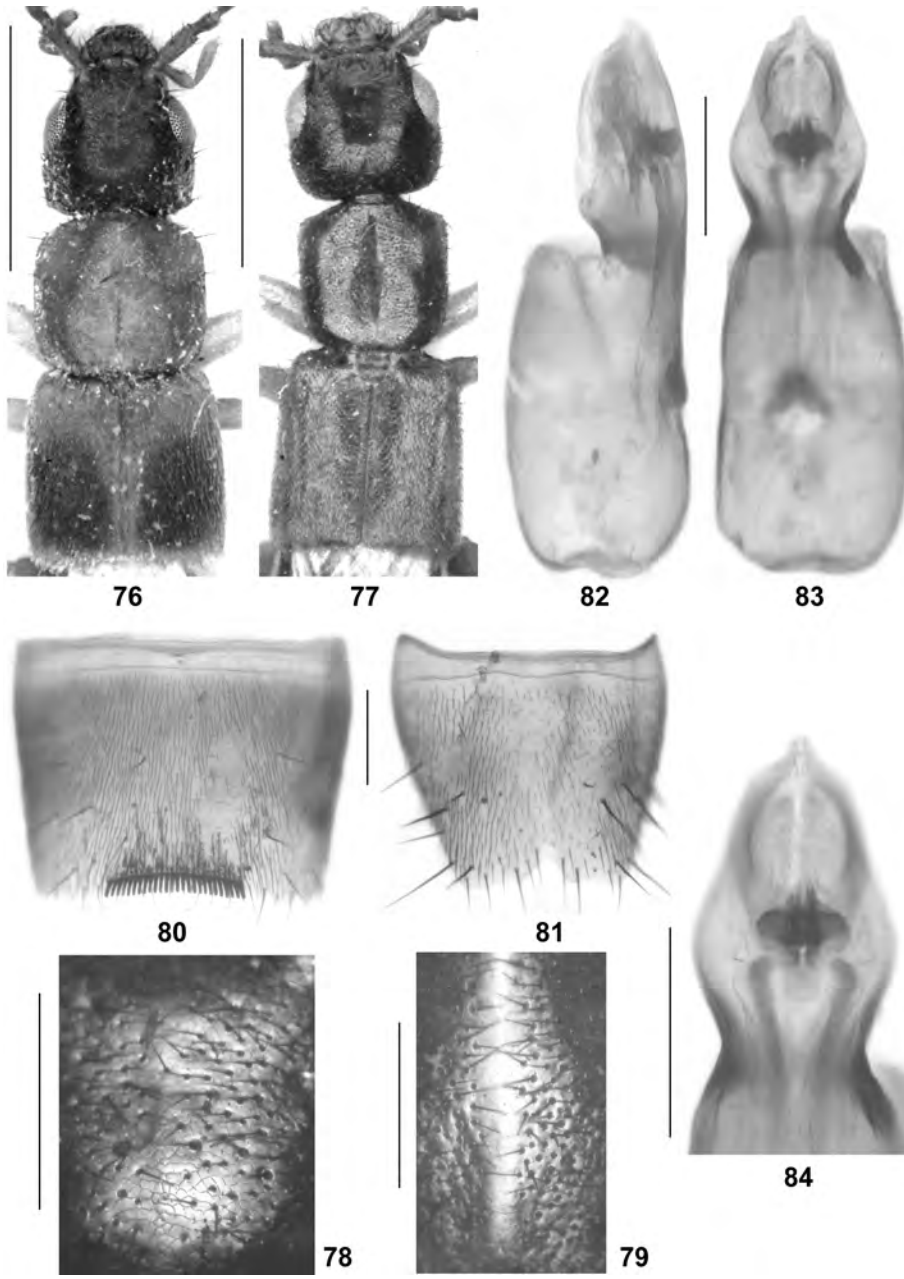
Type material: Holotype ♂: "INDONESIA: SULAWESI UTARA, Dumoga-Bone N.P., February 1985 / human dung baited trap, I. Hanski 920 m / 26.29 / R.Ent.Soc.Lond., Project Wallace, B.M. 1985-10 / Holotypus ♂ *Lithocharis parvincisa* sp. n. det. V. Assing 2015" (BMNH). Paratypes: 1♀: same data as holotype (BMNH); 2♂♂, 1♀: "INDONESIA: SULAWESI UTARA, Dumoga-Bone N.P., April 1985 / Rothamsted light trap, site 1, 200 m. H. Barlow / R.Ent.Soc.Lond., Project Wallace, B.M. 1985-10" (BMNH, cAss); 1♀: "INDONESIA: SULAWESI UTARA, Dumoga-Bone N.P., April 1985 / Pit fall trap / Plot C, ca 400 m, Lowland forest / R.Ent.Soc.Lond., Project Wallace, B.M. 1985-10" (BMNH); 3♀♀: "INDONESIA: SULAWESI UTARA, Dumoga-Bone N.P., 1985. / 'Edwards' Camp, Lowland forest, 664 m, 26.iv.-4.vi. / Malaise trap / R.Ent.Soc.Lond., Project Wallace, B.M. 1985-10" (BMNH); 1♂: "INDONESIA: SULAWESE UTARA, Dumoga-Bone N.P., May 1985. / 'Clarke' Camp, Lower montane forest, 1140 m / At light / R.Ent.Soc.Lond., Project Wallace, B.M. 1985-10" (cAss).

Etymology: The specific epithet (adjective) is composed of the adjectives parvus (small) and incisus (incised). It alludes to the relatively small posterior incision of the male sternite VIII.

Description: Body length 4.0-4.7 mm; length of forebody 2.3-2.5 mm. Coloration: head dark-brown to black; pronotum brown to dark-brown; elytra brown; abdomen brown to dark-brown, with the posterior margins of the segments yellowish to yellowish-brown; legs yellowish; antennae reddish.

Head (Fig. 77) weakly transverse, 1.06-1.09 times as broad as long, lateral margins behind eyes subparallel in dorsal view; punctation dense and fine; interstices with shallow microreticulation, glossy (Fig. 78). Eyes large, noticeably longer than postocular region in dorsal view. Antennae approximately 1.7 mm long; preapical antennomeres distinctly oblong.

Pronotum (Fig. 77) approximately as long as broad and as broad as head; anterior angles sharply, posterior angles weakly marked; lateral margins weakly converging posteriad in dorsal view; midline with pronounced impunctate band; punctation dense and fine, slightly more distinct than that of head; interstices without microsculpture (Fig. 79).



Figs 76-84: *Lithocharis preangerana* CAMERON, holotype (**76**), and *L. parvincisa* nov.sp. (**77-84**): (**76-77**) forebody; (**78**) median dorsal portion of head; (**79**) median portion of pronotum; (**80**) male sternite VII; (**81**) male sternite VIII; (**82-83**) aedeagus in lateral and in ventral view; (**84**) apical portion of aedeagus in ventral view. Scale bars: 76-77: 1.0 mm; 78-84: 0.2 mm.

Elytra (Fig. 77) approximately 1.1 times as long as pronotum; punctation very dense and fine; interstices without microsculpture. Hind wings present. Protarsomeres I-IV weakly dilated. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with shallow microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 80) moderately transverse, posterior margin with shallow median excision, this excision with a comb of 20-25 moderately long palisade setae; sternite VIII (Fig. 81) weakly transverse and with unmodified pubescence, posterior incision small and broadly V-shaped; aedeagus (Figs 82-84) approximately 0.8 mm long, without dorso-lateral apophyses; ventral process apically deeply bifid; internal structures of distinctive shapes.

Comparative notes: Regarding its external and male sexual characters, *L. parvincisa* is similar to the sympatric *L. vilis*, from which it is distinguished by the shape of the pronotum, the more slender antennae, the less distinctly dilated protarsomeres I-IV, the shorter comb of palisade setae at the posterior margin of the male sternite VII, the less transverse male sternite VIII with a much smaller posterior excision and with unmodified pubescence, and by the smaller aedeagus without dorso-lateral apophyses and with smaller sclerotized internal structures of different shapes.

Distribution and natural history: The type specimens were collected in Dumoga-Bone National Park in Sulawesi Utara (Indonesia: northern Sulawesi) with traps baited with human faeces, with light traps, Malaise traps, and pitfall traps at altitudes of 200-1140 m.

Lithocharis ornatrix nov.sp. (Figs 85-89)

Lithocharis fuscipennis: CAMERON (1928, 1931); misidentification.

Type material: Holotype ♂: "SAWARAK, 4th Division, Gn. Mulu NP. / Pitfall-trap, fish bait, Alluv. for., ca. 100 m / I. Hanski, iii-v.1978, B.M. 1978-524 / L. fuscipennis / Holotypus ♂ *Lithocharis ornatrix* sp. n. det. V. Assing 2015" (BMNH). Paratypes: 1♀, 1 ex. without abdominal apex, 1 ex. without abdomen: same data as holotype (BMNH); 1♂: "Rotting Fruit / Bukit Kutu, Selangor, F.M.S., Dr. Cameron. / L. fuscipennis Kr. / M. Cameron. Bequest. B.M. 1955-147." (BMNH); 1♂, 1♀: "166 / Celebes / Sharp Coll. 1905-313. / fuscipennis Kr / Celebes Wallace" (BMNH); 1♂, 1♀: "Celeb, Wallace / Sharp Coll. 1905-313. / L. fuscipennis" (BMNH); 1♂: "Celebes, Wallace / Sharp Coll. 1905-313. / L. fuscipennis" (BMNH); 1♂: "SABAH: 200 ft, R. Karamuak, 7m SSE Telupid, 1-7.ix.1977 / At light / M.E. Bacchus, B.M.1978-48" (cAss); 1♂: "Malaysia, Sabah, Sandakan, Lokan (L.F), March 97, AYC Chung / FIT 5/3/2 / Pae13 / BMNH {E} 2002-113, A. Y. C. Chung, LF - Logged Forest" (cAss).

Comment: As can be inferred from the above material from the Cameron and the Sharp collections, as well as from the descriptions and illustrations provided by CAMERON (1928, 1931), *Lithocharis ornatrix* is conspecific with Cameron´s (mis-)interpretation of *L. fuscipennis* KRAATZ, now a junior synonym of *L. erythroptera* GEMMINGER & HAROLD.

Etymology: The specific epithet (Latin: woman hairdresser) is a noun in apposition. It alludes to the conspicuous comb of palisade setae at the posterior margin of the male sternite VII.

Description: Body size rather variable; body length 3.8-4.5 mm; length of forebody 2.1-2.6 mm. Coloration variable: head brown to blackish; pronotum pale-reddish to dark-brown; elytra yellowish to yellowish-brown; abdomen reddish to brown, with the

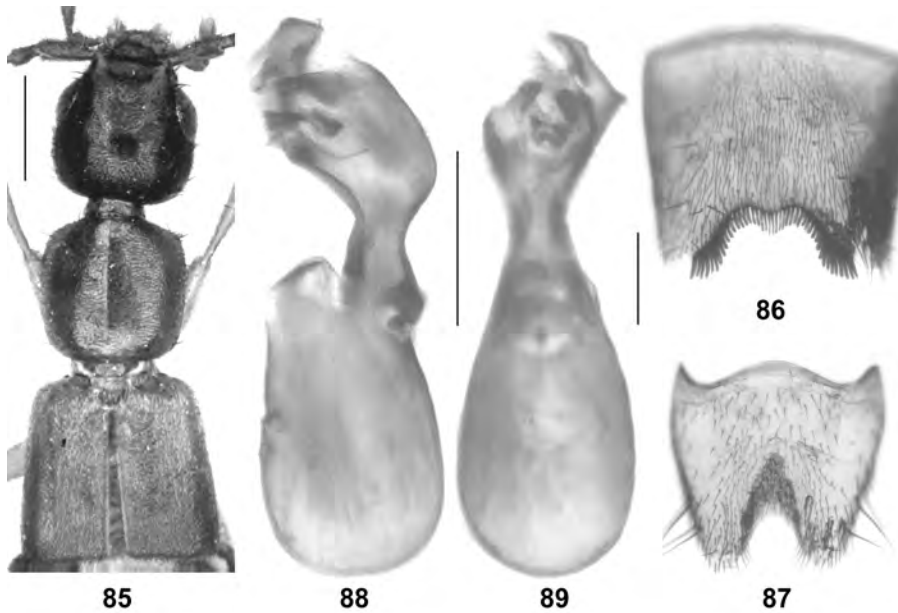
posterior margins of the segments and the apex (segments VIII-X and posterior portion of segment VII) yellowish; legs yellowish to dark-yellowish; antennae pale-reddish to reddish-brown.

Head (Fig. 85) approximately as long as broad; lateral margins behind eyes subparallel in dorsal view; posterior angles rounded, weakly marked; punctation very dense and fine, but distinct; interstices without microreticulation, glossy. Eyes large, slightly longer than postocular region in dorsal view. Antennae 1.5-1.7 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 85) approximately as broad as long and as broad as head; lateral margins weakly convex in dorsal view; midline with narrow impunctate band; punctation dense and fine, similar to that of head; interstices without microsculpture.

Elytra (Fig. 85) only slightly longer than pronotum; punctation very dense and fine; interstices without microsculpture. Hind wings present. Protarsomeres I-IV moderately dilated. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with shallow microreticulation; posterior margin of tergite VII with palisade fringe.



Figs 85-89: *Lithocharis ornatrix* nov.sp.: (**85**) forebody; (**86**) male sternite VII; (**87**) male sternite VIII; (**88-89**) aedeagus in lateral and in ventral view. Scale bars: 85: 0.5 mm; 86-89: 0.2 mm.

♂: sternite VII (Fig. 86) relatively weakly transverse, posterior margin with pronounced, deep, broad, and bisinuate excision, this excision furnished with a conspicuous comb of long palisade setae; sternite VIII (Fig. 87) moderately transverse, pubescence not distinctly modified, posterior excision relatively deep, but not very broad; aedeagus (Figs 88-89) approximately 0.6 mm long; apical portion strongly bent dorsad in lateral view; dorso-lateral apophyses absent; internal structures of distinctive shapes.

C o m p a r a t i v e n o t e s : This species is readily distinguished from its congeners particularly by the conspicuous modifications of the male sternite VII and by the morphology of the aedeagus.

D i s t r i b u t i o n a n d n a t u r a l h i s t o r y : *Lithocharis ornatrix* is currently known from Sulawesi (Indonesia), Sarawak, and Sabah (Malaysia: North Borneo). Some of the specimens were collected at light, with a flight interception trap, and with fish-baited pitfall traps in alluvial and logged forests at low altitudes.

***Lithocharis bitriangulata* nov.sp. (Figs 90-94)**

T y p e m a t e r i a l : Holotype ♂: "Sumatra (S), SW coast of Rana lake, 1.-4. June 2001, Bolm lgt., 1200 m / Holotypus ♂ *Lithocharis bitriangulata* sp. n. det. V. Assing 2013" (NHMB).

E t y m o l o g y : The specific epithet (adjective) alludes to the pair of triangular apical internal structures of the aedeagus.

D e s c r i p t i o n : Body length 4.3 mm; length of forebody 2.3 mm. Coloration: head blackish; pronotum dark-reddish; elytra yellowish-brown with indistinctly delimited yellowish margins; abdomen brown, with the margins of the segments yellowish; legs yellowish; antennae reddish.

Head (Fig. 90) transverse, 1.08 times as broad as long, indistinctly dilated behind eyes; punctation dense and fine; interstices without distinct microsculpture. Eyes large, distinctly longer than postocular portion in dorsal view. Antennae 1.45 mm long; preapical antennomeres approximately as long as broad.

Pronotum (Fig. 90) 1.1 times as wide as long and 1.02 times as broad as head; posterior angles rounded, weakly marked; punctation similar to that of head; midline with indistinctly delimited, narrow impunctate band; interstices without microsculpture.

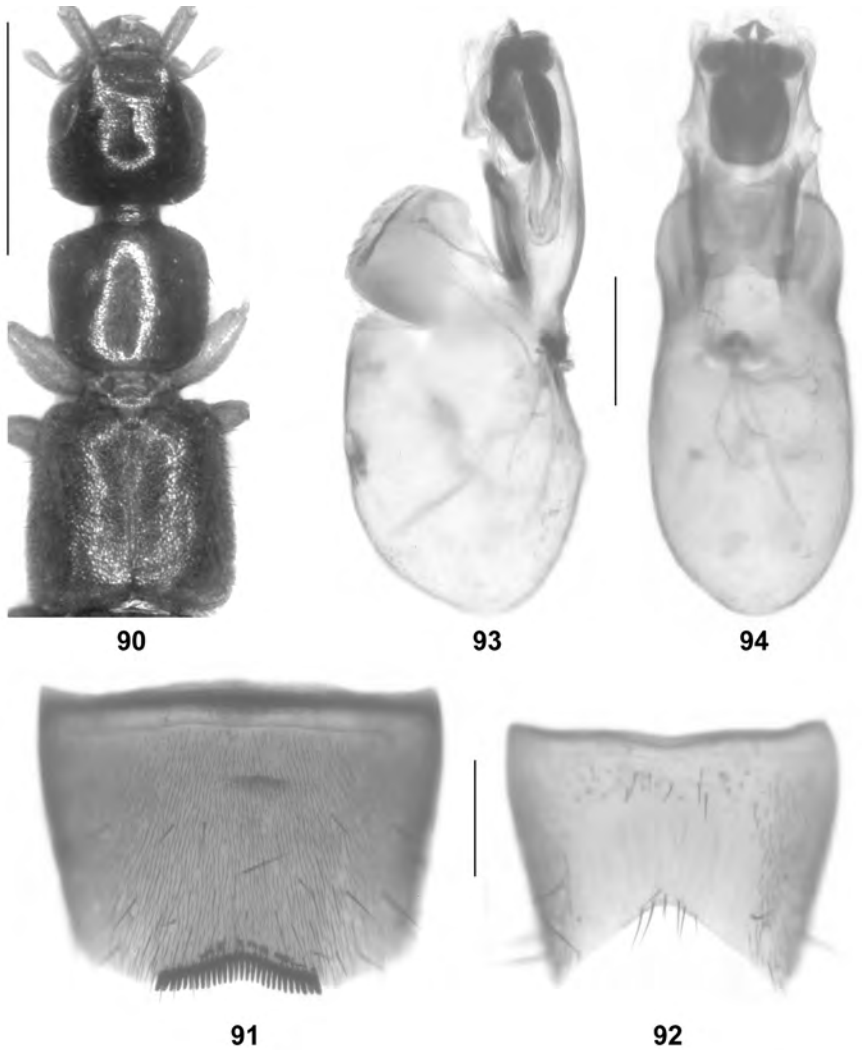
Elytra (Fig. 90) 1.1 times as long as pronotum; punctation very dense and fine; interstices without microsculpture. Hind wings present. Protarsomeres I-IV distinctly dilated. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 91) moderately transverse, posterior margin weakly concave in the middle and with comb of approximately 30 moderately long palisade setae; sternite VIII (Fig. 92) transverse, extensively without pubescence in postero-median portion, posterior excision large and broadly V-shaped, near middle of margin of this excision with a few long setae; aedeagus (Figs 93-94) large, 0.92 mm long, with strongly sclerotized internal structures of distinctive shapes; dorso-lateral apophyses curved and rather stout.

C o m p a r a t i v e n o t e s : Based on the similar external and male sexual characters, *L. bitriangulata* is closely related to *L. vilis*. It is distinguished from this species by the less transverse male sternite VII with a differently shaped posterior margin and with a shorter comb with fewer palisade setae, by the different chaetotaxy of the male sternite VIII, and by the slightly smaller aedeagus with internal structures of different shapes.

D i s t r i b u t i o n a n d n a t u r a l h i s t o r y : The type locality is situated in in the south of Sumatra, where the holotype was collected on, or near, the shore of a lake.

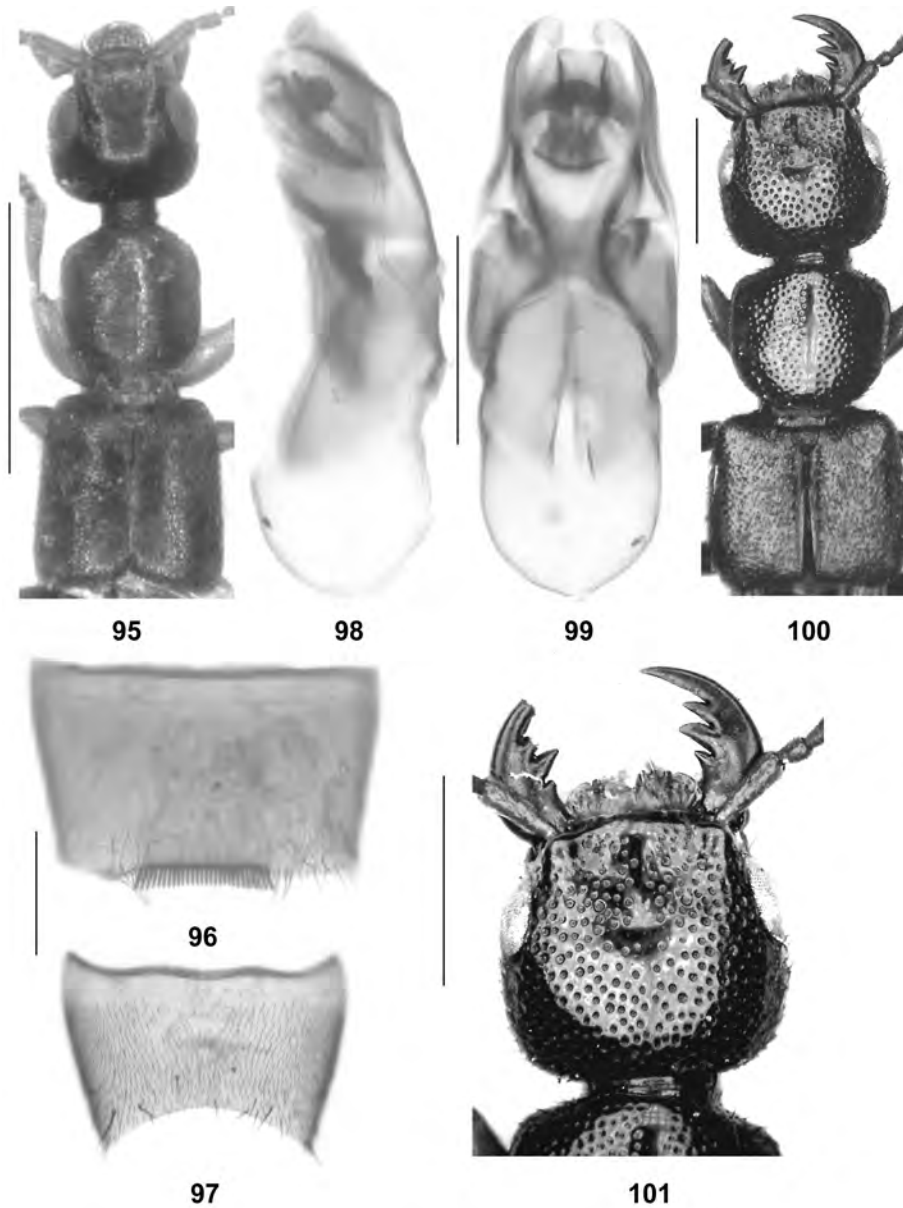


Figs 90-94: *Lithocharis bitriangulata* nov.sp.: (**90**) forebody; (**91**) male sternite VII; (**92**) male sternite VIII; (**93-94**) aedeagus in lateral and in ventral view. Scale bars: 90: 1.0 mm; 91-94: 0.2 mm.

Lithocharis inermis nov.sp. (Figs 95-99)

T y p e m a t e r i a l : Holotype ♂: "Thailand, Chumphon prov., 1.-21.iii.1996, Pha To env. 9°48' 98°47', K. Majer leg. / Holotypus ♂ *Lithocharis inermis* sp. n. det. V. Assing 2013" (NHMB). Paratypes: 1♀ [slightly teneral]: same data as holotype (NHMB); 1♀: same data as holotype, but "27.iii.-14.iv.1996" (cAss).

E t y m o l o g y : The specific epithet (Latin, adjective: unarmed) alludes to the absence of ventral teeth on the ventral process of the aedeagus, one of the characters distinguishing this species from the similar *L. sordidula*.



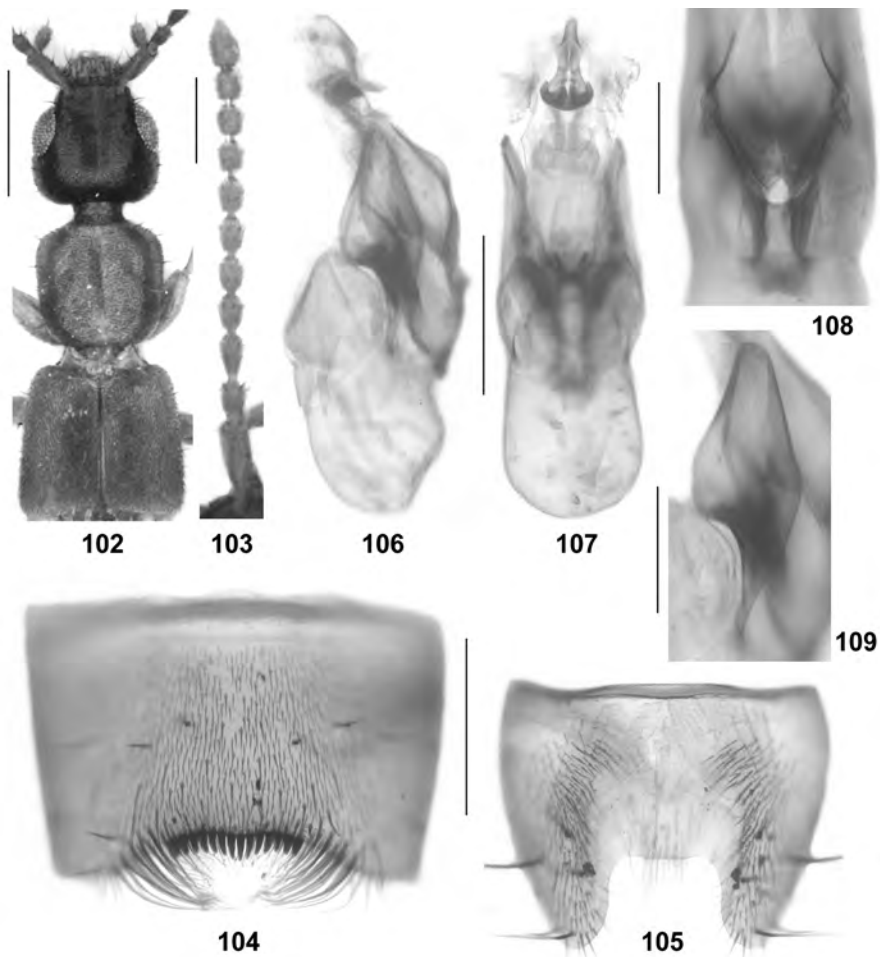
Figs 95-101: *Lithocharis inermis* nov.sp. (**95-99**) and "*Lithocharis*" *gigantea* FAUVEL, syntype (**100-101**): (**95, 100**) forebody; (**96**) male sternite VII; (**97**) male sternite VIII; (**98-99**) aedeagus in lateral and in ventral view; head (**101**). Scale bars: 95, 100-101: 1.0 mm; 96-99: 0.2 mm.

D e s c r i p t i o n : Body length 3.2-3.6 mm; length of forebody 1.9-2.1 mm. Coloration: head blackish; remainder of body pale yellowish-brown; legs yellowish; antennae reddish-yellow.

Head (Fig. 95) 1.06-1.09 times as broad as long; punctation extremely dense and very fine. Eyes conspicuously large, 1.6-1.9 times as long as postocular portion in dorsal view. Antennae approximately 1.2 mm long; preapical antennomeres weakly transverse.

Pronotum (Fig. 95) weakly oblong, approximately 1.03 times as long as broad and 0.92-0.95 times as broad as head; posterior angles rounded, weakly marked; punctation similar to that of head, but slightly more distinct; midline with narrow impunctate band, in posterior half with fine furrow; interstices without microsculpture.

Elytra (Fig. 95) approximately as long as pronotum; punctation very dense and fine. Hind wings present. Protarsomeres I-IV moderately dilated. Metatarsomere I nearly as long as the combined length of II and III.



Figs 102-109: *Lithocharis latexcisa* nov.sp.: (**102**) forebody; (**103**) antenna; (**104**) male sternite VII; (**105**) male sternite VIII; (**106-107**) aedeagus in lateral and in ventral view; median portion of aedeagus in ventral view (**108**); dorso-lateral apophysis in lateral view (**109**). Scale bars: 102: 0.5 mm; 103-107: 0.2 mm; 108-109: 0.1 mm.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 96) strongly transverse, posterior margin nearly truncate and with comb of approximately 30 moderately long palisade setae; sternite VIII (Fig. 97) strongly transverse and with broadly concave posterior margin, pubescence unmodified; aedeagus (Figs 98-99) 0.55 mm long; dorso-lateral apophyses very long, apically distinctly extending beyond apex of ventral process.

Comparative notes: This species is characterized particularly by the conspicuously large eyes, the oblong and slender pronotum, the shapes and chaetotaxy of the male sternites VII and VIII, as well as by the morphhology of the aedeagus, particularly the conspicuously long dorso-lateral apophyses. It is additionally distinguished from the similarly small syntopic *L. sordidula* by the transverse head, the denser punctation of the head, the smaller pronotum (in relation to the head), the much more transverse sternite VII with more numerous and slightly shorter palisade setae at the posterior margin, and by the much more transverse male sternite VIII with a much larger and differently shaped posterior excision.

Distribution and natural history: The type locality is situated in southern Thailand; *L. distinguenda* and *L. sordidula* were found in the same locality. One of the paratypes is slightly teneral.

***Lithocharis latexcisa* nov.sp. (Figs 102-109)**

Type material: Holotype ♂: "Nepal, P: Narayani, D: Chitwan, Sauraha, Rapti River nr. Hotel Riverside, 07.VII.2009 / leg. A. Weigel, 160 m NN, N27°34'29", E84°29'55" (#66) / Holotypus ♂ *Lithocharis latexcisa* sp. n. det. V. Assing 2015" (NME). Paratypes: 15 exs.: same data as holotype (NME, cAss).

Etymology: The specific epithet is an adjective composed of the Latin adjectives latus (broad) and excisus (excised). It alludes to the broad and deep posterior excision of the male sternite VIII.

Description: Small species; body length 3.1-3.6 mm; length of forebody 1.7-1.8 mm. Coloration: head blackish; remainder of body pale-brown; legs yellowish; antennae yellowish-red.

Head (Fig. 102) approximately 1.05 times as broad as long, of subquadrate shape, with moderately marked posterior angles; lateral margins behind eyes subparallel in dorsal view; punctation extremely dense and very fine. Eyes large and strongly convex, approximately 1.5-1.7 times as long as postocular portion in dorsal view. Antennae (Fig. 103) 1.1-1.2 mm long; preapical antennomeres weakly transverse.

Pronotum (Fig. 102) approximately as broad as long or weakly transverse, approximately as broad as head; posterior angles rounded, weakly marked; punctation very dense and fine, but slightly more distinct than that of head; midline with very narrow impunctate band, in posterior half with fine furrow; interstices without microsculpture.

Elytra (Fig. 102) approximately 0.95 times as long as pronotum; punctation very dense and fine. Hind wings fully developed. Protarsomeres I-IV distinctly dilated. Metatarsomere I nearly as long as the combined length of II and III.

Abdomen narrower than elytra; punctation fine and very dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.

♂: sternite VII (Fig. 104) strongly transverse, posterior margin distinctly and broadly concave in the middle and with a comb of approximately 20 moderately long palisade setae, on either side of this comb with a conspicuous tuft of long thin setae directed obliquely postero-mediad; sternite VIII (Fig. 105) strongly transverse and with pronounced posterior excision of subquadrate shape, this excision in the middle of apical margin with a cluster of thin setae, middle of sternite extensively without pubescence, laterally with a longitudinal dense cluster of short setae directed postero-mediad; aedeagus (Figs 106-109) 0.60-0.65 mm long; dorso-lateral apophyses large; internal sac with apical internal structure of distinctive shape.

Comparative notes: This species is characterized by its small size and particularly by the highly distinctive male primary and secondary sexual characters.

Distribution and natural history: The type locality is situated in the south of Central Nepal. The specimens were collected near a river at an altitude of 160 m.

Key to the species of the Palaearctic, Oriental, and Australian regions

Since the identification of *Lithocharis* females is generally problematic or impossible, the key below primarily relies on the male sexual characters. The doubtful *L. fontinalis* is omitted from the key.

1 Elytra yellowish with an extensive and rather defined dark spot posteriorly (Fig. 76). Male sexual characters unknown. Java ..... *preangerana*

- Elytra yellowish to brown, often with paler margin, but without defined dark spot. 2

2 Forebody matt due to extremely dense fine punctation (Fig. 42). Rather dark-coloured species of relatively large size; length of forebody 2.4-2.8 mm. Male sternite VII with a long comb of > 40 short palisade setae (Fig. 43). Male sternite VIII distinctly oblong and densely pubescent (Fig. 44). Aedeagus of distinctive shape (Figs 45-46). Southern East Palaearctic and Oriental regions..... *uvida*

- Forebody often with dense fine punctation and with subdued shine, but not completely matt. Male sexual characters different 3

3 Male sternite VIII on either side of the posterior excision with a brush-like cluster of very dense long setae (e.g., Figs 11, 36) 4

- Male sternite VIII without such modifications.....6

4 Posterior margin of male sternite VIII broadly and not very deeply concave, in the middle with small concavity (Fig. 11). Male sternite VIII posteriorly with a short comb of approximately 15 short palisade setae (Figs 9-10). Aedeagus shaped as in Figs 12-13. North Africa, Canary Islands, Yemen ..... *subochracea*

- Posterior margin of male sternite VIII deeply and broadly V-shaped. Male sternite VIII posteriorly with a longer comb composed of at least approximately 20 palisade setae. Aedeagus of different morphology.....5

5 Male sternite VII with the comb of palisade setae weakly bisinuate, without cluster of long setae on either side of this comb (Figs 34-35). Posterior excision of male sternite VIII more sharply V-shaped (Fig. 36). Aedeagus (Figs 37-41) of highly distinctive morphology; ventral process lamellate and separated from main body of aedeagus. Widespread in the southern East Palaearctic and the Oriental regions. .....*erythroptera*

- Posterior comb of palisade setae of male sternite VII straight, on either side of this comb with a cluster of long setae (ASSING 2012a: figure 145k). Posterior excision of male sternite VIII not sharply V-shaped (ASSING 2012a: figure 145l). Aedeagus of distinctive morphology (ASSING 2012a: figure 145i). West Palaearctic region (including Middle Asia). Records from the East Palaearctic and Oriental regions unconfirmed ..... *ochracea*

6 Male sternite VIII posteriorly with a conspicuous median projection (Fig. 48). Male sternite VII with a strongly curved comb of palisade setae (Fig. 47). Aedeagus as in Figs 49-52. North India ..... *lamellifera*

- Male sternite VIII posteriorly with simple excision, without conspicuous median projection 7

7 Posterior margin of male sternite VII furnished with a conspicuously long and strongly bisinuate comb of long palisade setae (Fig. 86). Male sternite VIII with a broadly U-shaped posterior excision and modified pubescence (Fig. 87). Aedeagus strongly constricted at base of ventral process and with apical portion strongly bent dorsad in lateral view (Figs 88-89). Malaysia, Indonesia ..... *ornatrix*

- Comb of palisade setae of male sternite VII not strongly bisinuate. Male sternite VIII and aedeagus of different shapes 8

8 Male sternite VII on either side of the comb of palisade setae with a pronounced fringe or tuft of dense, long, fine setae (Fig. 104; ASSING 2012a: figure 145h). Head black, strongly contrasting with the paler pronotum and elytra 9

- Male sternite VII without fringe or tuft of dense, long, fine setae on either side of the comb of palisade setae 10

9 Larger species; length of forebody > 1.9 mm. Pronotum pale-reddish; elytra dark-yellowish to pale-reddish. Head with ill-defined posterior angles, posteriorly usually tapering behind eyes. Eyes approximately as long as postocular region in dorsal view. Posterior excision of male sternite VIII of nearly semi-circular shape. Aedeagus shaped as in ASSING (2012a: figure 145f). Extremely common throughout the Palaearctic, Oriental, and Australian regions; distribution cosmopolitan ..... *nigriceps*

- Smaller species; length of forebody 1.7-1.8 mm. Pronotum and elytra pale-brown. Head of subquadrate shape (Fig. 102), with moderately marked posterior angles, lateral margins behind eyes subparallel in dorsal view. Eyes larger, at least 1.5 times as long as postocular region in dorsal view. Posterior excision of male sternite VIII of subquadrate shape (Fig. 105). Aedeagus as in Figs 106-109. Nepal. ..... *latexcisa*

10 Posterior comb of male sternite VII composed of palisade setae of conspicuously unequal shapes and lengths (Figs 27-28). Male sternite VIII on either side of middle extensively without pubescence (Fig. 29). Aedeagus shaped as in Figs 30-33. Widespread in the Palaearctic and Oriental regions; recorded also from the Neotropical and Australian regions..... *sororcula*

- Posterior comb of male sternite VII composed of palisade setae of subequal shapes and lengths. Other male sexual characters different 11

11 Posterior margin of male sternite VIII furnished with a rather dense row of somewhat stouter short or moderately short setae at least in lateral parts 12

- Posterior margin of male sternite VIII without row of modified setae 13

12 Posterior excision of male sternite VIII with rather deep V-shaped excision, whole posterior margin with a fringe of short modified setae (Figs 3-4). Posterior comb of male sternite VII composed of fewer setae (Fig. 2). Aedeagus shaped as in Figs 5-6. Afrotropical region and Middle East eastwards to Pakistan ..... *mateui*

- Posterior excision of male sternite VIII shallow, only lateral portions of posterior margin with modified setae (Fig. 19). Posterior comb of male sternite VII composed of more numerous setae (Fig. 18). Aedeagus as in Figs 20-21. Yemen: Socotra ..... *socotrana*

13 Species from North Africa. Male sternites VII and VIII as in Figs 14-16..... *mauretanica*

- Distribution confined to the East Palaearctic and Oriental regions (except the widespread *L. vilis*) 14

14 Small species; length of forebody 1.8-2.1 mm. Ventral process of aedaegus with a small tooth-shaped median projection best visible in lateral view (Figs 64-65). Male sternites VII and VIII as in Figs 62-63. Thailand, Malaysia ..... *sordidula*

- Mostly larger species. Aedeagus and male secondary sexual characters different..... 15

15 Posterior comb of male sternite VII longer, composed of > 40 relatively short palisade setae 16

- Posterior comb of male sternite VII shorter, composed of < 35 usually longer palisade setae 17

16 Dark-coloured species of larger body size; length of forebody 2.0-2.3 mm. Posterior comb of palisade setae of male sternite VII straight (Fig. 67). Posterior excision of male sternite VIII large, rather deep, and of nearly semicircular shape (Fig. 68). Aedeagus shaped as in Figs 69-70. Singapore, Indonesia, East Timor ..... *timorensis*

- Body more or less reddish with dark head. Small species; length of forebody 1.8-2.1 mm. Posterior comb of palisade setae of male sternite VII curved (Figs 71-72). Posterior excision of male sternite VIII broadly V-shaped (Fig. 73). Aedeagus strongly constricted at base of ventral process and distinctly curved dorsad apically. Burma, Indonesia ..... *carinata*

17 Posterior excision of male sternite VIII very small (Fig. 81). Male sternite VII and aedeagus as in Figs 80, 82-84. Indonesia: Sulawesi ..... *parvincisa*

- Posterior excision of male sternite VIII much larger. Other male sexual characters different 18

18 Posterior comb of palisade setae of male sternite VII somewhat curved. Aedeagus large, at least 0.9 mm long 19

- Posterior comb of palisade setae of male sternite VII more or less straight. Aedeagus usually smaller 20

19 Male sternite VII strongly transverse, posterior margin broadly concave and with longer comb composed of more numerous and shorter setae (ASSING 2008: figure 5). Male sternite VIII rather densely pubescent in anterior half (ASSING 2008: figure 6). aedeagus with dorso-lateral apophyses distinctly visible in ventral view and with internal structures of distinctive shapes (ASSING 2008: figure 3). Widespread and common in the southern East Palaearctic and Oriental regions. Confirmed records also from the Canary Islands, Madeira, Micronesia, and Australia ..... *vilis*

- Male sternite VII moderately transverse, posterior margin narrowly concave in the middle and with shorter comb composed of fewer and longer setae (Fig. 91). Male sternite VIII extensively without pubescence, anteriorly only with very sparse setae (Fig. 92). Aedeagus shaped as in Figs 93-94. Sumatra ..... *bitriangulata*

20 Aedeagus with straight dorso-lateral apophyses of slightly less than half the length of aedaegus in ventral view and with internal structures of distinctive shapes (Figs 25-26). Male sternites VII and VIII as in Figs 23-24. Sumba ..... *boops*

- Aedeagus without, or with very short and inconspicuous, or with much larger dorso-lateral apophyses, and with internal structures of different shapes. Male sternites VII and VIII of different shapes and chaetotaxy 21

21 Aedeagus with string-like process at base of ventral process (lateral view), with very short dorso-lateral apophyses, and with internal structures of distinctive shapes (Figs 57-59). Male sternite VIII weakly transverse and with posterior excision of broadly triangular shape (Fig. 56). Male sternite VII as in Fig. 55. Oriental region ..... *distinguenda*

- Aedeagus without process at base of ventral process, with very large dorso-lateral apophyses apically extending beyond apex of ventral process, and with internal structures of different shapes (Figs 98-99). Male sternite VIII strongly transverse and with broadly and largely concave posterior margin (Fig. 97). Male sternite VII as in Fig. 96. Thailand ..... *inermis*

Catalogue of the *Lithocharis* species of the Palaearctic, Oriental, and Australian regions

In view of frequent previous misidentifications, only confirmed records are listed in the distribution column. The species excluded from *Lithocharis* are omitted from the catalogue. *Lithocharis mauretanica* is included, although, strictly speaking, it has not been recorded from the Palaearctic region; its presence in Northwest Africa, however, appears rather likely. Species of doubtful identity or doubtful generic assignment (male sexual characters unknown) are marked with an asterisk.

Species	Confirmed distribution
bitriangulata **nov.sp.**	Indonesia: Sumatra
boops SCHEERPELTZ, 1957	Indonesia: Sumba
carinata CAMERON, 1928	Burma; Indonesia: Sumatra, Enggano
distinguenda CAMERON, 1928	India; China: Guangxi; Thailand; Singapore; Malaysia: Sabah; Indonesia: Sulawesi Tengah
erythroptera GEMMINGER & HAROLD, 1868; **revalidated** = *fuscipennis* KRAATZ, 1859 = *penicillata* CAMERON, 1928; **nov.syn.**	Sri Lanka; India; China: Guizhou; Taiwan; Hong Kong; Laos; Malaysia; Singapore
**fontinalis* (PEYERIMHOFF, 1929)	Algeria: Hoggar
inermis **nov.sp.**	Thailand
lamellifera CAMERON, 1928	North India
latexcisa **nov.sp.**	Nepal
mateui COIFFAIT, 1968 = *longipennis* COIFFAIT, 1979	Iran; Yemen; Saudi Arabia; Pakistan; Tchad
mauretanica COIFFAIT, 1966	Mauritania
nigriceps KRAATZ, 1859 = *parviceps* SHARP, 1874 = *ardena* SANDERSON, 1945 = *changlingensis* LI, 1992; **nov.syn.**	cosmopolitan
ochracea (GRAVENHORST, 1802) = *rubricollis* (GRAVENHORST, 1806) = *brunniceps* (FAIRMAIRE, 1849) = *fastidiosa* FAIRMAIRE & GERMAIN, 1862 = *alutacea* (CASEY, 1886) = *quadricollis* (CASEY, 1886)	West Palaearctic region (including Middle Asia)

Species	Confirmed distribution
ornatrix **nov.sp.**	Malaysia: Sawarak, Sabah; Indonesia: Sulawesi
parvincisa **nov.sp.**	Indonesia: Sulawesi
**preangerana* CAMERON, 1936	Indonesia: Java
socotrana **nov.sp.**	Yemen: Socotra
sordidula HERMAN, 2003 = *sordida* CAMERON, 1928	Malaysia; Thailand
sororcula KRAATZ, 1859	Canary Islands; India; Sri Lanka; China: Beijing, Yunnan; Hong Kong; Thailand; Malaysia; Singapore; East Timor. Australian Region. Neotropical Region: Peru; West Indies
subochracea COIFFAIT, 1966	Mauritania; Canary Islands; Yemen: Socotra
timorensis CAMERON, 1928	Singapore; Indonesia: Sulawesi Tengah; East Timor
uvida KRAATZ, 1859	Sri Lanka; India; Nepal; China; Taiwan; Hong Kong; Japan; Laos; Malaysia; Singapore; Indonesia
vilis KRAATZ, 1859 = *jacobsoni* CAMERON, 1928; **nov.syn.** = *vexans* CAMERON, 1936; **nov.syn.**	Canary Islands; Madeira; Sri Lanka; China; Laos; Thailand; Malaysia; Singapore; Indonesia; Philippines; Micronesia; Australia

Species excluded from *Lithocharis*

***Panscopaeus lithocharoides* (SHARP, 1874)**

Medon subopacus BERNHAUER, 1907: 382 f.; **nov.syn.**
Type material examined: *Medon subopacus*: Lectotype ♂, present designation: "Kanagawa, Japan. Sauter / subopacus Brh. Typ., det. Bernhauer / subopacus Brh. Typus. / = breviusculus Kr. ? / Chicago NHMus, M.Bernhauer Collection / Lectotypus ♂ *Medon subopacus* Bernhauer, desig. V. Assing 2014 / Panscopaeus lithocharoides (Sharp), det. V. Assing 2014" (FMNH). Paralectotypes: 1♀: same data as lectotype (BMNH); 1 ex.: "Bukenji, Japan. Sauter / subopacus Brh. Cotypus / Chicago NHMus, M.Bernhauer Collection / Paralectotypus *Medon subopacus* Bernhauer, desig. V. Assing 2014 / Panscopaeus lithocharoides (Sharp), det. V. Assing 2014" (FMNH).

Comment: The original description of *Medon subopacus* is based on an unspecified number of syntypes from "Kanagawa, Bukenji, Kuenji. Unter faulenden Schilfhaufen mehrfach gesammelt" (BERNHAUER 1907). Five syntypes from Kanagawa and Bukenji were located in the Bernhauer collection and in the collections of the BMNH. The male from Kanagawa is designated as the lectotype. SCHÜLKE & SMETANA (2015) list the species in *Lithocharis*. An examination of the above type material revealed that it is conspecific with *Panscopaeus lithocharoides* (SHARP, 1874), a species widespread in the East Palaearctic region, from the Himalaya across China eastwards to Japan (ASSING 2011).

"Lithocharis" gigantea FAUVEL, 1878 (Figs 100-101)

Lithocharis gigantea FAUVEL, 1878: 230.

T y p e m a t e r i a l e x a m i n e d : Syntype ♀: "Erima, N^lle Guinée / Wokan (J. Arou[?]) / gigantea Fvl. / Coll. R. I. Sc. N. B. / Ex-Typis" (IRSNB).

A d d i t i o n a l m a t e r i a l e x a m i n e d : Indonesia: 1♀, Pulau Waigeo ["Waigiou"], leg. Wallace (BMNH).

C o m m e n t : The original description is based on two syntypes of unspecified sex, one of them deposited in Museo Civico di Storia Naturale Genova and one in the Fauvel collection at the IRSNB (FAUVEL 1878). The examined female syntype from the Fauvel collection and the additional female from the BMNH belong to an unidentified genus of Medonina, certainly not to *Lithocharis*. The head and the forebody of the syntype are illustrated in Figs 100-101.

Appendix: On the identity of *Xantholinus tricolor* (FABRICIUS)

Xantholinus tricolor (FABRICIUS, 1787)

Staphylinus tricolor FABRICIUS, 1787: 221 f.

T y p e m a t e r i a l e x a m i n e d : Lectotype, present designation: "tricolor / Lectotypus *Staphylinus tricolor* Fabricius, desig. V. Assing 2015 / Xantholinus tricolor (Fabricius), det. V. Assing 2015" (currently in NHMD).

C o m m e n t : The original description of *Staphylinus tricolor* is based on an unspecified number of syntypes from "Daniae Boletis" (FABRICIUS 1787). The interpretation of this rather common and widespread Palaearctic species had largely been uncontroversial until, based on an examination of a putative type, DRUGMAND (1994) stated that this type was conspecific with *Lithocharis ochracea* (GRAVENHORST, 1802), that consequently the binomen for the species previously referred to as *Lithocharis ochracea* was *L. tricolor* (FABRICIUS), and that the species which had been interpreted as *Xantholinus tricolor* was without valid name. Thus, he described it as *X. meyeri* DRUGMAND, 1994. In an article published in the same year, however, CICERONI (1994) found that *Xantholinus tricolor*, which he interpreted in the traditional sense, had four synonyms, all of them older than *X. meyeri*.

HERMAN (2001) doubted and refused to accept Drugmand´s conclusions arguing that DRUGMAND (1994) had failed to produce evidence that he had actually examined a true (and the only) type specimen, that type material in the Fabricius collection had been known to be replaced by non-type specimens, that the "changes proposed by Drugmand [were] too radical to be made so casually", and that the original description was not in agreement with *Lithocharis ochracea*.

Alexey Solodovnikov (NHMD) located two specimens labelled as [*Staphylinus*] *tricolor* in the Fabricius collection, one in the Copenhagen and one in the Kiel collection. (The latter is currently housed in the NHMD, too.) The slightly damaged specimen from the Copenhagen collection had been examined and evidently re-mounted by Drugmand; it is a female *Lithocharis ochracea* labelled "S: tricolor [evidently a curator label] / Type [a red printed recent label] / D. Drugmand Rev. 1992, Lithocharis tricolor (F.), = ochraceus (Grav) / zmuc 00037679". The specimen from the Kiel collection bears the original label "tricolor" in Fabricius´ handwriting. Although it is in very poor condition (abdomen

missing), it is undoubtedly conspecific with the traditional interpretation of *X. tricolor*. While this specimen fits the original description, that from the Copenhagen collection clearly does not ("Caput atrum, nitidum"; "Abdomen nigrum"). Moreover, it would seem most unlikely that FABRICIUS (1787) attributed two specimens that are so different in body size and numerous other characters to one and the same species. Therefore, it is concluded that only the specimen from the Kiel collection represents a true type and that the specimen from the Copenhagen collection is no syntype, but was added to the collection subsequently. In order to stabilize the prevailing interpretation of *X. tricolor*, the syntype from the Kiel collection is designated as the lectotype. It was re-mounted using the original pin.

Acknowledgements

Lee Herman (New York) communicated important and most helpful information on several *Lithocharis* names from his unpublished catalogue of Paederinae; he also made me aware of the pending clarification of the identity of *Xantholinus tricolor*. Alfred Newton (Chicago) provided some hard-to-get literature. Zhong Peng (Shanghai) kindly translated the original description of *Lithocharis changlingensis*. Thanks are extended to the colleagues listed in the material section for the loan of material from their respective collections. Benedikt Feldmann (Münster) proof-read the manuscript.

Zusammenfassung

Die Arten der Gattung *Lithocharis* DEJEAN, 1833 (Subtribus Medonina) der Paläarktis (einschließlich Mauretanien), der Orientalis und der Australis werden revidiert. Insgesamt 23 Arten werden erkannt, eine davon von unklarer Identität (Männchen und Typenverbleib unbekannt) und eine (Männchen unbekannt) von zweifelhafter Gattungszugehörigkeit. Mit Ausnahme einiger, teilweise zuvor revidierter Arten der Westpaläarktis werden alle Arten beschrieben bzw. redeskribiert und abgebildet, sechs davon sind neu: *Lithocharis socotrana* nov.sp. (Jemen: Sokotra); *L. bitriangulata* nov.sp. (Sumatra); *L. inermis* nov.sp. (Thailand); *L. latexcisa* nov.sp. (Nepal); *L. ornatrix* nov.sp. (Malaysia, Indonesien); *L. parvincisa* nov.sp. (Indonesien: Sulawesi). *Lithocharis erythroptera* GEMMINGER & HAROLD, 1868 wird revalidiert. Fünf Namen werden synonymisiert: *L. erythroptera* GEMMINGER & HAROLD, 1868 = *L. penicillata* CAMERON, 1928, nov.syn.; *L. nigriceps* KRAATZ, 1859 = *L. changlingensis* LI, 1992, nov.syn.; *L. vilis* KRAATZ, 1859 = *L. jacobsoni* CAMERON, 1928, nov.syn., = *L. vexans* CAMERON, 1936, nov.syn.; *Panscopaeus lithocharoides* (SHARP, 1874) = *Medon subopacus* BERNHAUER, 1907, nov.syn. *Lithocharis gigantea* FAUVEL, 1878 wird aus *Lithocharis* ausgeschlossen. *Lithocharis ochracea* (GRAVENHORST, 1802) wird als valider Name bestätigt. Dieser Name ist nicht Synonym von *Staphylinus tricolor* FABRICIUS, 1787, dessen aktuell gültige Kombination *Xantholinus tricolor* (FABRICIUS, 1787) ist. Für *Lithocharis sororcula* KRAATZ, 1859, *L. fuscipennis* KRAATZ, 1859, *L. penicillata* CAMERON, 1928, *L. uvida* KRAATZ, 1859, *L. lamellifera* CAMERON, 1928, *L. distinguenda* CAMERON, 1928, *L. sordida* CAMERON, 1928, *L. timorensis* CAMERON, 1928, *Medon subopacus* BERNHAUER, 1907 und *Staphylinus tricolor* FABRICIUS, 1787 werden Lectotypen designiert. Als flugaktive Bewohner von Faulstoffen aller Art sind *Lithocharis*-Arten meist weit verbreitet. Gelegentlich weisen Männchen dieser Gattung auffällige Missbildungen auf; der Aedoeagus und die sekundären männlichen Sexualmerkmale können vollständig reduziert sein. Eine Bestimmungstabelle und ein Katalog der *Lithocharis*-Arten der Paläarktis, der Orientalis und der Australis werden erstellt.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Linzer biologische Beiträge

Jahr/Year: 2015

Band/Volume: 0047_2

Autor(en)/Author(s): Assing Volker

Artikel/Article: A revison of the Lithocharis species of the Palaearctic, Oriental and Australian regions (Coleoptera: Staphylinidae: Paederinae: Medonina) 1133-1178