

New or little-known Helluonina (Coleoptera: Carabidae) from the Oriental region

Новые и малоизвестные Helluonina (Coleoptera: Carabidae) из Ориентальной области

D.N. Fedorenko
Д.Н. Федоренко

A.N. Severtsov Institute of Ecology and Evolution, Leninsky pr. 33, Moscow 119071 Russia.

Институт проблем экологии и эволюции им. А.Н. Северцова, Российская Академия наук, Ленинский пр-т, Москва 119071 Россия.

Dmitri Fedorenko: dmitri-fedorenko@yandex.ru; ORCID <https://orcid.org/0000-0003-1814-3635>

KEY WORDS: Coleoptera, Carabidae, *Macrocheilus*, *Acanthogenius*, *Creagris*, new genus, new species, new synonym, Vietnam, Oriental region.

КЛЮЧЕВЫЕ СЛОВА: Coleoptera, Carabidae, *Macrocheilus*, *Acanthogenius*, *Creagris*, новый род, новый вид, новый синоним, Вьетнам, Ориентальная область.

ABSTRACT. Helluonine ground beetles (Coleoptera, Carabidae) of Vietnam are reviewed and keyed. All species are re-distributed between two genera. *Macrocheilus* Hope, 1838 (= *Colfax* Andrewes, 1920, **syn.n.**) is considered to include chiefly the Oriental members of the genus that share the elytra with a quadrimaculate pale pattern, and *Acanthogenius* Reiche, 1842 (= *Creagris* Nietner, 1857, **syn.n.**), **stat.rest.**, is resurrected from a junior synonym of *Macrocheilus* to combine the remaining Paleotropical species, except for six recently described from China or India; for these a new genus, *Syntomocheilus* **gen.n.** is erected. New nine species are described: *M. vietnamensis* **sp.n.**, *M. nigrans* **sp.n.**, and *M. obliquatus* **sp.n.** from Vietnam; *M. fuscicornis* **sp.n.** from Vietnam and China; *M. capitatus* **sp.n.** from Indonesia, Thailand and Vietnam; *M. annulicornis* **sp.n.** from Thailand, *M. pusillus* **sp.n.** from Laos and Thailand; *M. lankaensis* **sp.n.** from Sri Lanka, and *M. kryzhanovskiy* **sp.n.** from Yunnan, China. *Macrocheilus infuscatus* Bates, 1892 (= *M. gigas* Zhao et Tian 2010, **syn.n.**), **stat.rest.**, is resurrected from synonymy of *M. bensoni* Hope, 1838. New synonymy also includes *A. distactus* (Wiedemann, 1823) = *A. bisignatus* Landin, 1955, **syn.n.**, **comb.n.** The genus *Polistichus* Bonelli, 1810, is transferred from Zuphiini to Helluonina once again, which subtribe corresponds with the former tribe Helluonini downgraded to a subtribe of the tribe Anthiini. This latter tribe along with Zuphiini and Dryptini (= Galeritini; = Planetina; = Physocrotaphini) is placed within the supertribe Dryptitae *sensu* Erwin et Sims, 1984, of the subfamily Harpalinae.

РЕЗЮМЕ. Дан обзор жуужелиц-хеллюонин (Coleoptera, Carabidae) Вьетнама, составлены таблицы для их определения. Виды перераспреде-

лены между 2 родами. *Macrocheilus* Hope, 1838 (= *Colfax* Andrewes, 1920, **syn.n.**) включает главным образом ориентальных представителей рода, а восстановленный из его синонимов *Acanthogenius* Reiche, 1842 (= *Creagris* Nietner, 1857, **syn.n.**), **stat.rest.**, содержит все прочие виды из Палеотропического доминиона. Исключение составляют 6 видов, недавно описанных из Китая и Индии, для которых установлен новый род *Syntomocheilus* **gen.n.** Описаны 9 новых видов: *M. vietnamensis* **sp.n.**, *M. nigrans* **sp.n.**, и *M. obliquatus* **sp.n.** — из Вьетнама, *M. fuscicornis* **sp.n.** — из Вьетнама и Китая, *M. capitatus* **sp.n.** из Индонезии, Таиланда и Вьетнама, *M. annulicornis* **sp.n.** — из Таиланда, *M. pusillus* **sp.n.** — из Лаоса и Таиланда, *M. lankaensis* **sp.n.** — с Шри Ланки и *M. kryzhanovskiy* **sp.n.** — из Юннани. *Macrocheilus infuscatus* Bates, 1892 (= *M. gigas* Zhao et Tian 2010, **syn.n.**), **stat.rest.**, восстановлен из синонимов *M. bensoni* Hope, 1838. Новая синонимика включает также *A. distactus* (Wiedemann, 1823) = *A. bisignatus* Landin, 1955, **syn.n.**, **comb.n.** Род *Polistichus* Bonelli, 1810, возвращён из Zuphiini в подтрибу Helluonina, которая соответствует прежней трибе Helluonini, пониженной в ранге до подтрибы в составе трибы Anthiini. Последняя вместе с Zuphiini и Dryptini (= Galeritini; = Planetina; = Physocrotaphini) помещена в надтрибу Dryptitae в смысле Ирвина и Симса [Erwin, Sims, 1984] подсемейства Harpalinae.

Introduction

The carabid subtribe Helluonina Hope, 1838 (= Omphrina Jedlička, 1941) is largely pantropical. In the Paleotropical realm, it is represented by seven genera, including the Madagascan *Erephognathus* Alluaud, 1932 (two species), Afrotropi-

cal *Meladroma* Motschulsky, 1855 (four species) and *Triae-nogenius* Chaudoir, 1977 (eleven species), and three Oriental genera: *Omphra* Dejean, 1825 (seven species from India and Sri Lanka), *Creagris* Nietner, 1857 (ten species, among them single Australian one), and *Colfax* Andrewes, 1920 (single species from India and Indochina). Yet, the bulk of the species diversity is in the genus *Macrocheilus* Hope, 1838, which includes 35 species in the Afrotropical region, four in the Madagascan region and about 23 species in the Oriental region. The adults are macropterous and mostly medium-sized carabid beetles, with the bodies densely pilose, more or less parallel-sided and either dark coloured or with the pronotum pale, or with a pale, more or less cruciform elytral pattern modified to tri- or bimaculate one in many species. They mostly inhabit open places such as forest edges and some agroecosystems. Many specimens have been taken at light in the evening or at night.

The genera *Creagris* and *Colfax* are by comparison very little different from *Macrocheilus*, so that Schaum [1863: 80] recognized *Creagris* as congeneric with *Acanthogenius* Reiche, 1842, now a junior synonym of *Macrocheilus*, from which he substituted the name *A. piceus* for *A. labrosus* (non Dejean, 1831): Nietner, 1857 (*Creagris labrosa*). Then Bates [1892: 391] treated all the species other than *Creagris* as *Acanthogenius*, including *A. bensoni* (Hope, 1838), with no mention of *Macrocheilus*, and concluded that 'the genus *Creagris*, Nietner, Chaudoir, is distinguished from *Acanthogenius* in nothing but the bilobed penultimate joint of the tarsi'. Finally, in erecting the monotypic genus *Colfax* Andrewes [1920] found no character other than a peculiar structure of the mouthparts to differentiate it from *Macrocheilus* (as *Macrochilus*).

Some new species were described from Africa to China since [Serrano, 2000, 2023; Felix, Muilwijk, 2007; Shiju *et al.*, 2012; Zhao, Tian, 2010, 2012; Akhil *et al.*, 2019; Allegro *et al.*, 2021]. The Afrotropical species [Serrano, 2023] and those from China [Zhao, Tian, 2010] have been reviewed, illustrated and keyed. My comparison between these species in form of specimens or illustrations of their habitus, mouthparts and aedeagi has revealed that *Macrocheilus sensu lato* is a complex if not collective taxon composed of a number of species groups or subgenera, or even genera. To supply this defect the genus *Macrocheilus* is here re-defined, with its species being re-distributed among a few genera resultant from this division, accordingly. Alternatively, *Macrocheilus* should incorporate not only *Colfax* but also *Creagris* as subgenera or species groups, which would hardly be appropriate.

In this paper we also describe a new genus and six new species, review all the species hitherto recorded in Vietnam, and briefly discuss probable relationships between Helluonini and some other carabid tribes based on morphological characters, including those of male and female genitalia. Major part of material was collected during expeditions to highlands of Central and northern Vietnam, sponsored by the Joint Russia-Vietnam Tropical Centre, Moscow-Hanoi. Species not recorded in Vietnam are in square brackets in the text.

Acronyms used are as follows: BMNH — Natural History Museum, London; ISEA — Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Novosibirsk; MSPU — the Moscow State Pedagogical University; SIEE — the author's reference collection at A.N. Severtsov Institute of Ecology & Evolution, Russian Academy of Sciences, Moscow; ZISP — Zoological Institute, Russian Academy of Sciences, St. Petersburg; ZMMU — Zoological Museum of the Moscow State University.

The following parameters were analyzed (Table): maximum body length measured between apices of closed mandibles and apex of elytra, including apical membrane (BL);

length of elytron, measured from the highest point of basal margin to apical margin of apical membrane (EL); maximum width of elytra (EW); width of head across eyes (HW); length (mstm2L) and width (mstm2W) of mesotarsomere 2; width of pronotum between apical (PA) or basal (PB) angles; length of pronotum along median line (PL); maximum width of pronotum (PW). Analyzed in some species were also lengths and widths of antennomere 7 and of maxillary palpomere 4, as well as width of neck just behind eyes (NW). Because of its complicated shape maxillary palpomere 3 was roughly measured along its inner margin. Measurements were taken using an eyepiece micrometer within the accuracy of two decimal places. The means are put in parentheses for the ratios.

All labels are printed. Data on labels of type and some non-type, mostly older, specimens are in quotes, new line is marked with slash, and a handwritten text is italicized.

Male aedeagi were boiled for two minutes in diluted KOH solution, then rinsed and afterwards examined in glycerin. The internal sac of aedeagus was at first everted and maximally inflated with water or air, or both, using needle-syringe, and then air-dried.

Results

Subfamilia Harpalinae Bonelli, 1810

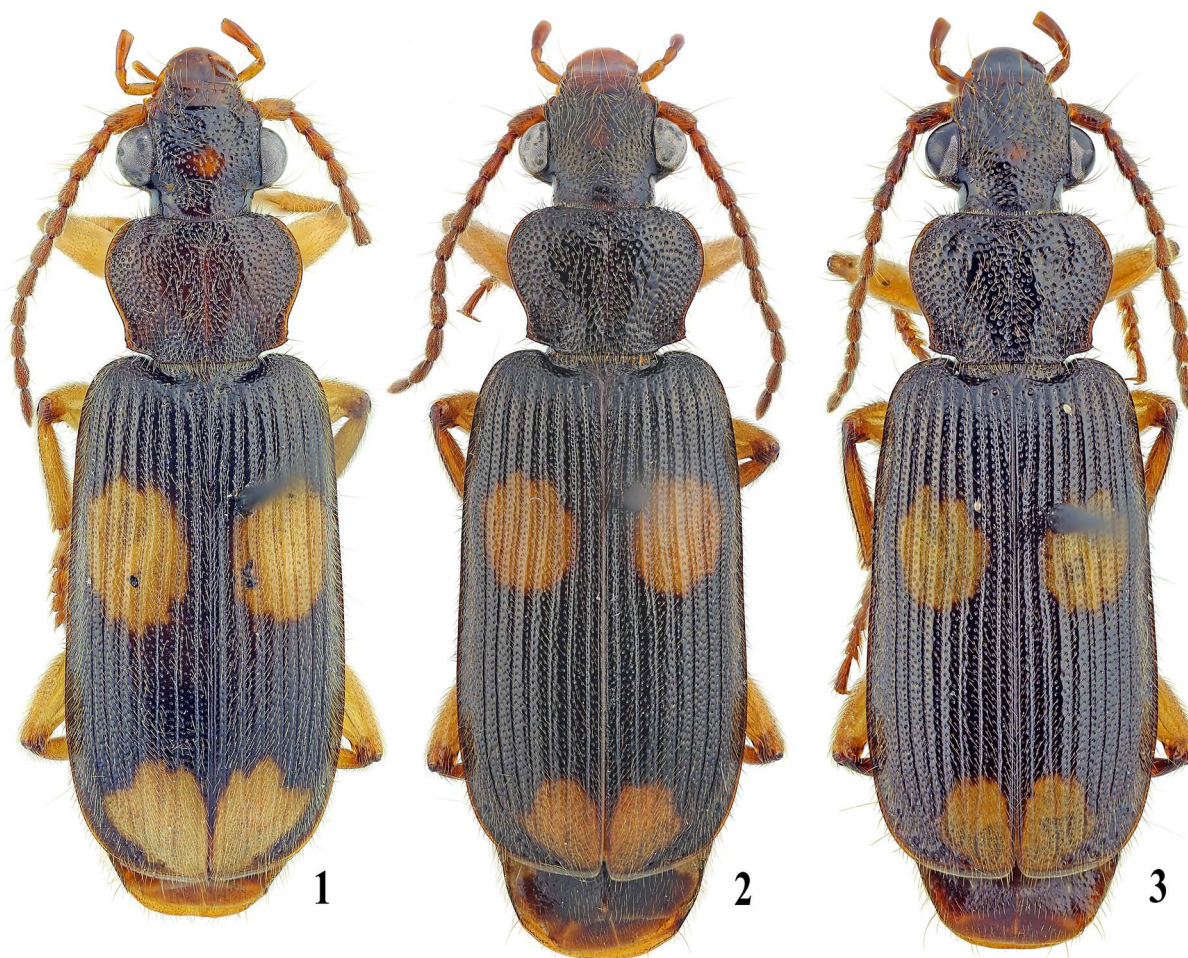
Supertribus Dryptitae Bonelli, 1810

Tribus Anthiini Bonelli, 1813

Subtribe Helluonina Hope, 1838

KEY TO THE GENERA OF HELLUONINA OF THE ORIENTAL REGION

- 1(2) Labrum very transverse and short, about two thirds as long as very transverse and subtruncate clypeus, with inner four setae distant far from apex. Mandibles widely exposed. Body apterous, large, BL 12–22 mm, and black. Elytra rounded on sides, without apical membrane, stria 8 as deep as 7th, interval 7 with multiple and strong discal setae. Head and pronotum sparsely punctate on discs. Protarsi not dilated in male, with tarsomeres 1–3 each having ventral pad slender and very obliquely set. Labial ligula thick, subquadrate, rounded apically, with a deep ventro-medial groove to receive apex of a wide mentum tooth, and distal setae apical in position. Antennae compressed; antennomeres 5–11 double-edged, with dense primary pubescence, and 4th with a similar rudimentary pubescence at apex; glabrous median stripes between dorsal and ventral pubescent regions complete and sharply carinate along sides. — India, Nepal, Sri Lanka. [Omphra Dejean, 1825]
- 2(1) Labrum more or less pentagonal, distinctly, often much, longer than clypeus, with inner two or four setae marginal or invisible in dorsal view. Mandibles exposed or concealed with labrum. Body macropterous, smaller, unicolored black or bicoloured, or with a pale elytral pattern. Elytra parallel-sided, with a well-developed apical membrane, stria 8 obliterate or hardly traceable in apical half only; intervals 3, 5 and 7 with discal setae ill-defined or inseparable from dorsal pilosity. Protarsi not or barely dilated in male, tarsomeres 1–3 each without or with a longitudinal ventral pad. Mentum tooth very slender, ligula thin to thick. Antennae compressed or not, mostly rounded or blunt dorsally and ventrally, with glabrous median stripes not carinate along sides. Body macropterous, smaller, unicolored black or bicoloured, or with a pale elytral pattern.



Figs 1–3. Dorsal habitus: 1 — *Macrocheilus lankaensis* sp.n., holotype; 2 — *M. bensoni* from Haridwar Distr., India; 3 — *M. fuscicornis* sp.n. from Ninh Binh Province.

Рис. 1–3. Габитус дорзально: 1 — *Macrocheilus lankaensis* sp.n., голотип; 2 — *M. bensoni* из округа Харидвар, Индия; 3 — *M. fuscicornis* sp.n. из пров. Нинбинь.

3(4) Mandibles exposed due to labrum small. Clypeus narrow and deeply sinuate between widely rounded apical angles. Protarsi neither dilated nor squamose ventrally in male. Maxillary palps short, palpomere 4 more than twice as long as 3rd, both oblong-oval combined. Labial ligula fairly thin, slightly attenuated basad, angulate on each side of a rounded apex, with ventromedial groove, distal pair of setae apical in position; paraglossae lateral and distinct in ventral view; labial palpomere 2 short triangular and sparsely pilose. Protibia without spinules in latero-apical angle. Head large, eyes small, hemispherical and prominent (Fig. 9). Elytra dark, each with a yellow macula in second fourth. Frontoclypeal suture deep. Antennomeres 4–11 very dull from very dense microgranules and very fine pubescence. Tarsomere 4 sinuate apically.

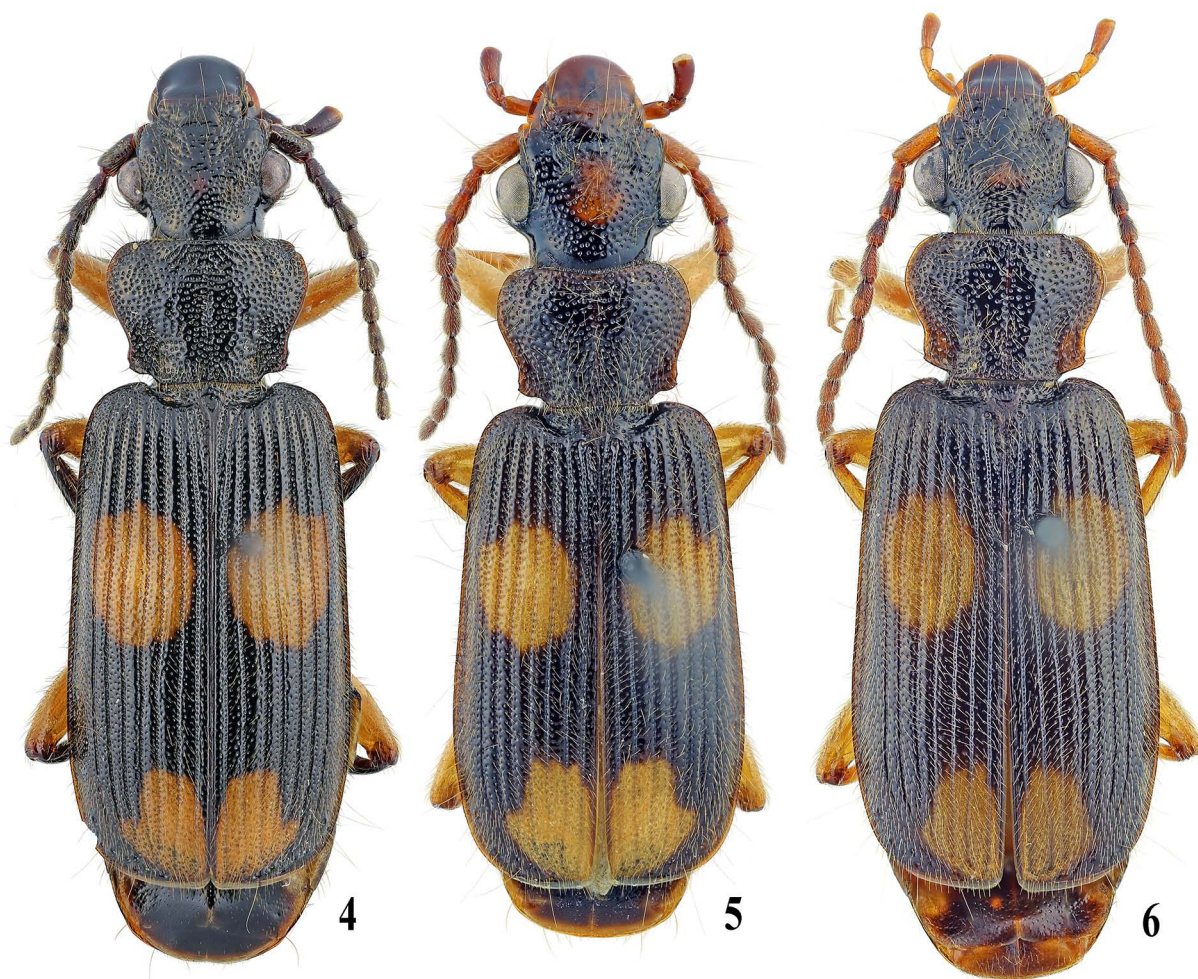
..... 2. *Syntomocheilus* Fedorenko, gen.n.

4(3) Mandibles concealed with a large, pentagonal to almost round, labrum. Clypeus wide and subtruncate apically. Protarsomeres 1–3 each with a ventral pad in male. Maxillary palpomere 4 dilated apicad, long or short, funnel-shaped to flat. Labial ligula moderately thick or flattened, with apical margin truncate or round, or subsinuate; distal

pair of setae preapical to distant rather far from apical margin. Elytral pale pattern same or different. Frontoclypeal suture deep to indistinct. Tarsomere 4 apically truncate to bilobed. Antennomeres 3– or 4–, or 5–11 with dense primary pubescence.

5(6) Labial ligula short, in lateral view very thick, in ventral view with apex more or less sinuate and angles widely rounded; medioventral groove to receive apex of mentum tooth obliterate except at extreme base; distal pair of setae preapical; paraglossae vestigial, dorsal, invisible in ventral view. Frontoclypeal suture imperceptible or very fine. Labial palpomere 2 straight and bisetose at inner margin. Antennomeres 5–11 with dense primary pubescence, those 1–4 sparsely pilose. Elytra with a quadrimaculate pattern (Figs 1–8, 10–15), posterior spots contiguous or fused along suture, no microsculpture. Tarsomere 4 apically truncate to sinuate. Protibia with two proximate spinules in latero-apical angle. — The Oriental region.

..... 1. *Macrocheilus* Hope, 1838
6(5) Labial ligula longer, in lateral view moderately thick or flattened, with apical margin rounded or truncate, or slightly sinuate; medioventral groove for receipt of apex of men-



Figs 4–6. Dorsal habitus: 4 — *Macrocheilus infuscatus* from An Toan; 5 — *M. capitatus* **sp.n.**, paratype; 6 — *M. annulicornis* **sp.n.**, holotype.
Рис. 4–6. Габитус дорзально: 4 — *Macrocheilus infuscatus* из Антоан; 5 — *M. capitatus* **sp.n.**, паратип; 6 — *M. annulicornis* **sp.n.**, голотип.

tum tooth reaching or almost reaching apex. Frontoclypeal suture (mostly) deep. Labial palpomere 2 angulate and beaded or carinate, bisetose to plurisetose at inner margin. Tarsomere 4 apically truncate to bilobed. Antennomeres 3– or 4– (or 5–11 in at least some African species) with dense primary pubescence. Body unicoloured or bicoloured, or dark elytra with a pale, bi- or quadrimaculate, pattern (Figs 62–67); sometimes elytra with isodiametric microsculpture. — Throughout the Palearctic realm east to Australia. **3. *Acanthogenius* Reiche, 1842**

1. *Macrocheilus* Hope, 1838

Hope, 1838: 166; Schmidt-Göbel, 1846: 64; Andrewes, 1930: 206 (part.); Jeannel, 1949: 1041 (part.); Basilevsky, 1960: 39 (part.); Lorenz, 1998: 485 (part.); Serrano, 2000: 37; 2023: 1 (part.); Zhao, Tian, 2010: 4 (part.); Shiju *et al.*, 2012: 98 (part.); Huber, Marggi, 2017: 577 (part.). — *Macrocheilus* Andrewes, 1920: 494 (part.); Jedlička, 1964: 468 (part.). — *Acanthogenius*: Schaum, 1863: 80 (part.); Chaudoir, 1872: 212 (part.); Bates, 1892: 389 (part.). — *Colfax* Andrewes, 1920: 504 (type species: *stevensi* Andrewes, 1920, by monotypy); 1924: 54; Jedlička, 1964: 471, **syn.n.**

Type species: *Macrocheilus bensoni* Hope, 1838, by original designation and monotypy.

DIAGNOSIS. Elytra black or dark brown, with a pale quadrimaculate to trimaculate pattern due to posterior spots fused along suture in the latter case. Microsculpture missing.

Mandibles entirely concealed with a large labrum; labral setae three on each side, all marginal or medial seta ventral. Ligula very thick in lateral view, slightly sinuate at apex, with angles widely rounded, in ventral view; ventromedial groove obliterate except at extreme base to be concealed with mentum tooth at rest; this latter fairly short (relative to the allied genera) and more or less straight on sides; paraglossae vestigial and invisible in ventral view. Labial palpomere 2 with inner margin bi- or plurisetose and straight or barely angulate, neither longitudinally sulcate nor sharply angulate. Frontoclypeal suture indistinct or very fine. Maxillary palpomere subcylindrical to funnel-shaped (except in *M. stevensi*). Meso- and metatibiae sulcate longitudinally at outer margins; protibia with this sulcus reduced to a sharp anterolateral carina in apical half, no or vestigial longitudinal sulcus on anterior face and two spinules in latero-apical angle. Tarsomere 4 subtruncate to subsinuate.

Median lobe of aedeagus (Figs 16–49, 52–59) with basal bulb normal (neither enlarged nor reduced in size), wide medially or very so; dorsal ligules paramedian, contiguous or barely separated, narrow and long, in lateral view extended basad halfway or more, being widely separated by lateral membrane from sclerotized ventral wall.

REDESCRIPTION. Unnecessary here, except for some details as follows.

Head with a more or less distinct pale spot on vertex, anterior elytral spot mostly rounded, posterior one reaching sutural angle and mostly angulate laterally.

Head with two supra-ocular setae on each side, clypeus with shorter setae additional to fixed lateral ones. Antennal scape with a long to indistinct ventro-apical seta additional to fixed dorso-apical seta. Ligula short and inflated, with distal seta at a short distance from apex and 1–2 shorter setae toward base.

Pronotum cordate, bisetose on each side, with sides sinuate about a third from base. Base distinctly produced due to its sides deeply emarginate, oblique and more or less rounded behind; basal angles right to obtuse, mostly minutely toothed, with lateral edge minutely indented at posterolateral seta, thus forming obtuse denticle just in front. Apex truncate to subsinuate, with angles widely rounded. Sides and sides of base finely beaded.

Elytra parallel-sided, barely wider a third from apex, with humeri rounded, outer angles widely rounded, apices truncate combined or slightly rounded, with highly obtuse, almost straight re-entrant angle in between; base pedunculate, the peduncle limited on each side by a very deep groove that curves posteromesad and almost reaches base of stria 2 or 3; sides of base convex to slightly angulate at peduncle. Striae moderately deep, intervals nearly flat, those 1–7 coarsely and densely punctate and pubescent, punctures being arranged in two, even, longitudinal rows toward striae in at least intervals 3, 5 and 7; these with multiple discal setigerous pores detectable only by their setae being barely to distinctly longer than those of elytral pubescence. Strial adjoining parascutellar seta. Marginal umbilicate seta series multiple, 29–44 in number depending on species, continuous and inseparable from apical setae, running close to the site of stria 8 while distant from stria 9 in apical three quarters.

Leg setation: procoxa trisetose, mesocoxa with single posterior and three or more anterolateral setae, metacoxa with anterolateral seta; trochanters with seta; profemur asetose on anterior face, with apical seta and 1–3 medioventral setae on posterior.

Female genitalia: Laterotergite IX along posteromesal margin fringed with multiple, long and dense, setae; gonocoxite IX crescent, distinctly wider medially than basally and apically, evenly concave at outer margin, densely and rather finely setose on dorsal side and along inner margin.

DISTRIBUTION. The member species that surely belong to the genus are confined to the Oriental region from India to China, Java and the Philippines, while slightly penetrating into the adjacent parts of the Palearctics. Single species, *M. saulcyi* (Chevrolat, 1854) is known from the Middle East and another one, *M. vanharteni* Felix et Muilwijk, 2007, from the north-easternmost Afrotropical region.

COMMENTS. The former genus *Macrocheilus* is here reduced in volume to include the Oriental, Indian to Indochinese, species and very few ones from the adjacent regions. Of the Afrotropical species, *M. persimilis* Basilewsky, 1970, and *M. philippeorum* Serrano, 2023, may belong to, while forming a separate species group within, the genus. Both have the body pale, combined with a cruciform black pattern of the elytra, which has evolved from a quadrimaculate pale pattern or *vice versa*. *Colfax stevensi* is distinctive from all the species of not only *Macrocheilus* but also *Acanthogenius* and *Creagris* in having the mouth parts very peculiar in structure. These certainly apotypic features include the labrum with inner seta ventromarginal and intermediate seta miss-

ing, the ligula and the labial and maxillary palps glabrous (which is uncharacteristic of great majority of carabid beetles), the maxillary palpomere 3 flat and securiform, and the incurved apex of the lacinia almost totally reduced (*vs.* long in most carabids, but *Pleuracanthus* Gray, 1832, and some *Helluobrochus* Reichardt, 1974, have lacinia similar to that of *Colfax*). Each of these characters taken separately each or some of them combined may have come from ancestral adaptation to very peculiar sort of hunt or prey, or both, but a mutation occurred seems to be the best explanation of the total. Because *Colfax* otherwise is very little, if at all, different from the other species of *Macrocheilus* (*sensu novo*) and monobasic besides it is here considered as synonymous with *Macrocheilus*, without subgenus status maintained yet.

KEY TO THE SPECIES OF *MACROCHEILUS* OF VIETNAM

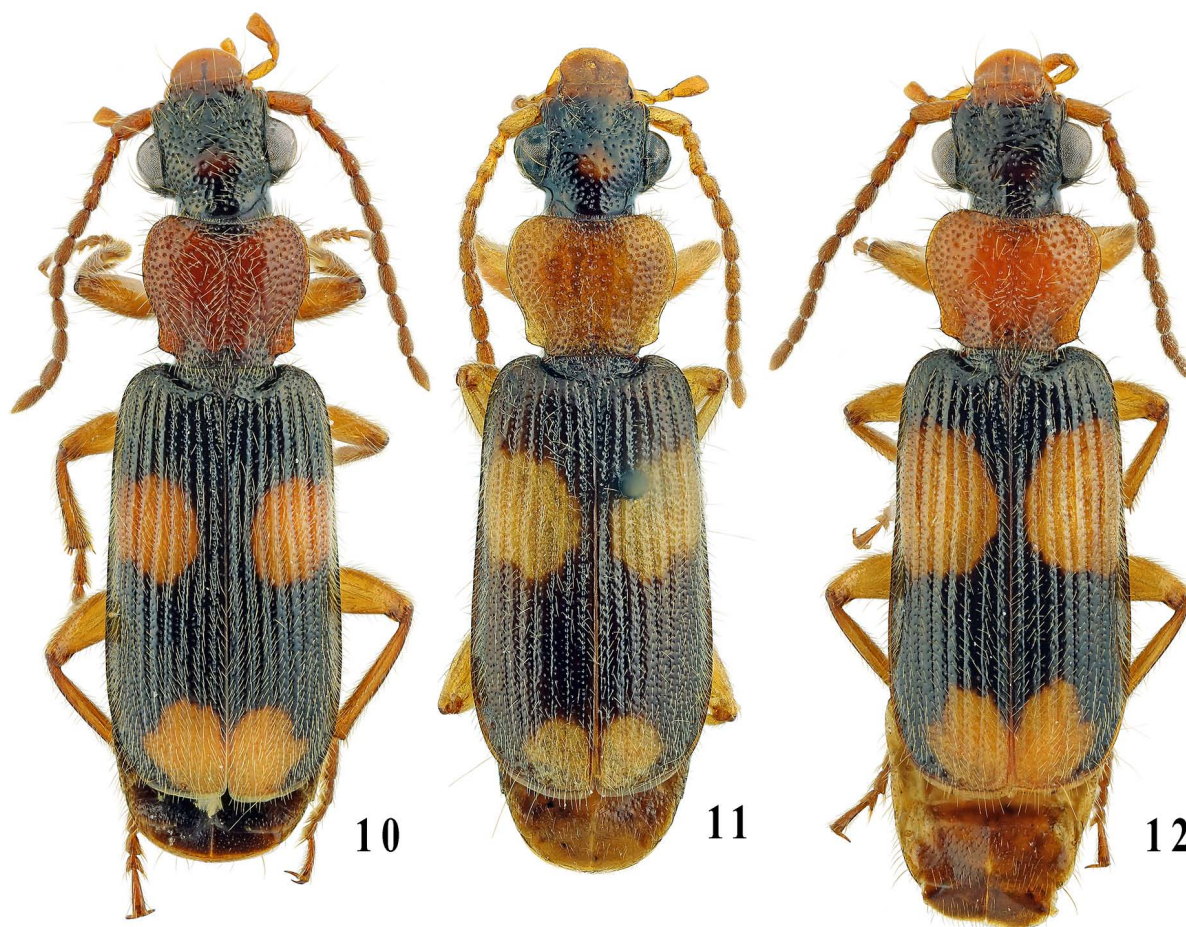
- 1(2) Palps glabrous, maxillary palpomere 4 flat, wide, securiform. Labrum subrectangular, slightly transverse, entirely yet very shallowly concave on each side of (visional) median line, with no laterobasal grooves, apical angles widely rounded, apex slightly rounded or subtruncate, and lateral seta distinct only. Antennal scape without long ventro-apical seta. Antennomeres 1–4 with pubescence, short and only slightly sparser than obligatory pubescence (on antennomeres 5–11). BL 10.2–11.7 mm. 1. *M. stevensi* (Andrewes, 1920), **comb.n.** (the *stevensi*-group)
- 2(1) Palps glabrous or sparsely pubescent, penultimate palpomeres with long apical setae, labial palpomere 2 bi- or plurisetose at inner margin; maxillary palpomere 4 round or elliptic in cross-section, subcylindrical to funnel-shaped. Labrum pentagonal or almost so, with apex rounded, apical angles indistinct and at least two setae on each side.
- 3(22) Elytra with a distinct sutural bead. Pronotum black. Body mostly larger.
- 4(9) Antennal scape with a long ventro-apical seta additional to fixed dorso-apical seta. Ultimate palpomeres glabrous, maxillary one narrow, more than twice as long as wide and broadest before apex. Tarsi rather wide and flattened, metatarsomeres 1–3 with apices subsinuate and latero-apical angles sharp, anterior (inner) acute, posterior subacute to right. Labrum flat in lateral view, with an extensive yet vague dorsolateral impression on each side of a slight apical convexity and with very short and fine laterobasal grooves. Profemur posterior face with single medioventral seta. BL 11.5–15 mm. the *bensoni*-group
- 5(8) Meso- and metatibiae distinctly flattened to very flat, with outer grooves indistinct or nearly so; tarsi wide and rather flat. Antennae, legs and labrum often pale.
- 6(7) Median lobe of aedeagus with ventral margin straight in lateral view and apex wide in dorsal view (Figs 18–19, 28–29). Elytra barely shorter, 1.81–1.86 times as long as wide. Labrum pale entirely or along margins only, venter mostly infuscate. — India. .. [2. *M. bensoni* Hope, 1838]
- 7(6) Median lobe of aedeagus with ventral margin slightly concave in lateral view and apex narrow in dorsal view (Figs 16–17, 26–27). Elytra barely longer, 1.88 times as long as wide. Labrum and venter pale. — Sri Lanka. [3. *M. lankaensis* sp.n.]
- 8(5) Meso- and metatibiae slightly flattened, with outer grooves distinct and mostly reaching apices; Tarsi slightly narrower and less flat. Median lobe of aedeagus (Figs 20–21) in lateral view with evenly convex at middle of ventral margin, apex in dorsal view as in couplet 6. Labrum (except narrow margins), antennomeres 1–4 dor-



Figs 7–9. Dorsal habitus: 7 — *Macrocheilus vietnamensis* **sp.n.**, holotype; 8 — *M. pusillus* **sp.n.**, holotype; 9 — *Syntomocheilus fuscipennis* from Laos.

Рис. 7–9. Габитус дорзально: 7 — *Macrocheilus vietnamensis* **sp.n.**, голотип; 8 — *M. pusillus* **sp.n.**, голотип; 9 — *Syntomocheilus fuscipennis* из Лаоса.

- sally and knees infuscated (often tibiae and tarsi more or less infuscated, too). — Indochina, China. 4. *M. fuscicornis* **sp.n.**
- 9(4) Antennal scape without long ventro-apical seta. At least maxillary palpomere 4 with uneven and short yet distinct pubescence, and mostly less than twice as long as wide. Labrum mostly with rather small dorsolateral impressions extended into deep laterobasal grooves.
- 10(11) Body large, BL 15.6–17 mm, and black but pale femora and elytral pattern. Tarsi rather wide and flattened, tarsomeres short, mesotarsomere 2 barely shorter than wide. Labrum convex in apical half, rather widely rounded on sides, with extreme apex truncate and intermediate seta slightly distant from lateral margin; dorsolateral impressions shallow, yet extended into deep laterobasal grooves. 5. *M. infuscatus* Bates, 1892, **stat.rest.**
- 11(10) Body smaller, legs and antennae more or less pale. Lateral two labral setae marginal.
- 12(15) Labrum in lateral view very convex in apical half. BL 11.1–12.5 mm.
- 13(14) Head very large, PW/HW 1.02–1.08, with neck wide, PW/NW~1.65; elytra shorter, three fourths as long as wide. — Indonesia, Indochina. 6. *M. capitatus* **sp.n.**
- 14(15) Head medium-sized, PW/HW 1.14, neck narrower, PW/NW 1.77; elytra long, EL/EW~1.9. — Java, Myanmar. [*M. tripustulatus* (Dejean, 1825)]
- 15(12) Labrum in lateral view rather flat. Tarsi fairly narrow, slightly flattened to nearly round in cross-section, meta- and especially in mesotarsomeres with latero-apical angles (especially with anterior one) very blunt or rounded and thence indistinct.
- 16(19) Body larger, BL 10.4–11.8 mm. Antennae pale, with segments 3 and 4 infuscated. Labrum apically rounded, pale entirely or along sides.
- 17(18) Head slightly smaller, PW/HW 1.81–1.86, with eyes larger, neck narrow, HW/NW 1.67–1.70, genae short, GL/OL 0.25–0.27, and subtransverse basally, contracted to neck at very slightly obtuse angle. Maxillary palpomere 4 not more than half as long as wide. — Thailand. [*M. annulicornis* **sp.n.**]



Figs 10–12. Dorsal habitus: 10 — *Macrocheilus chaudiroidi* from Nong Bunnak, Thailand; 11 — *M. walterrossii* from Kep, Cambodia; 12 — *M. obliquatus* **sp.n.**, holotype.

Рис. 10–12. Габитус дорзально: 10 — *Macrocheilus chaudiroidi* из Nong Bunnak, Таиланд; 11 — *M. walterrossii* из Кеп, Камбоджа; 12 — *M. obliquatus* **sp.n.**, голотип.

18(17) Head slightly larger, PW/HW 1.77, with eyes smaller, neck wider, HW/NW 1.57, genae longer, GL/OL 0.37, and oblique basally, contracted to neck at obtuse angle. Maxillary palpomere 4 almost twice as long as wide. 8. *M. vietnamensis* **sp.n.**

19(16) Body smaller, BL 7.7–9.6 mm. Palpomere 4 slender, more than twice as long as wide. Head barely larger.

20(21) Head large, very slightly narrower than pronotum, PW/HW 1.07–1.14, with neck wide, PW/NW 1.62–1.70, eyes small, HW/NW ~1.5, genae oblique to neck. Labrum pale, slightly pentagonal. — Thailand, Laos. [9. *M. pusillus* **sp.n.**]

21(20) Head wide, PW/HW 1.04, due to large eyes, HW/NW 1.76, with neck narrower, PW/NW 1.82, and genae contracted to neck at slightly obtuse angle. Labrum infuscated, rounded apically. — Philippines. [M. *deuvie* Zhao et Tian, 2012]

22(3) Elytra without sutural bead, parallel-sided, EL/EW ~1.8. Body small, BL 8–10 mm. Elytral spots, especially anterior one, large, mostly spanning intervals 2–8, often rounded inside and straight laterally. Maxillary palpomere 4 mostly short funnel-shaped, 1.3–1.5 times as long as wide. Antennal scape mostly with a ventro-apical seta much shorter than fixed dorso-apical one. Labrum subquadrate, with

sides barely diverging toward apical angles, these and apex widely rounded; in lateral view rather flat, with laterobasal grooves indistinct and dorsolateral impressions rather small and mostly vague, situated closer to apex than to base; lateral setae marginal, inner four setae ventral. Tarsi slightly flattened, metatarsomeres with latero-apical angles indistinct or almost so, except only for tarsomeres 2 and/or 3 with apices oblique and posterior angles slightly acute and sharp. the *chaudoiri*-group

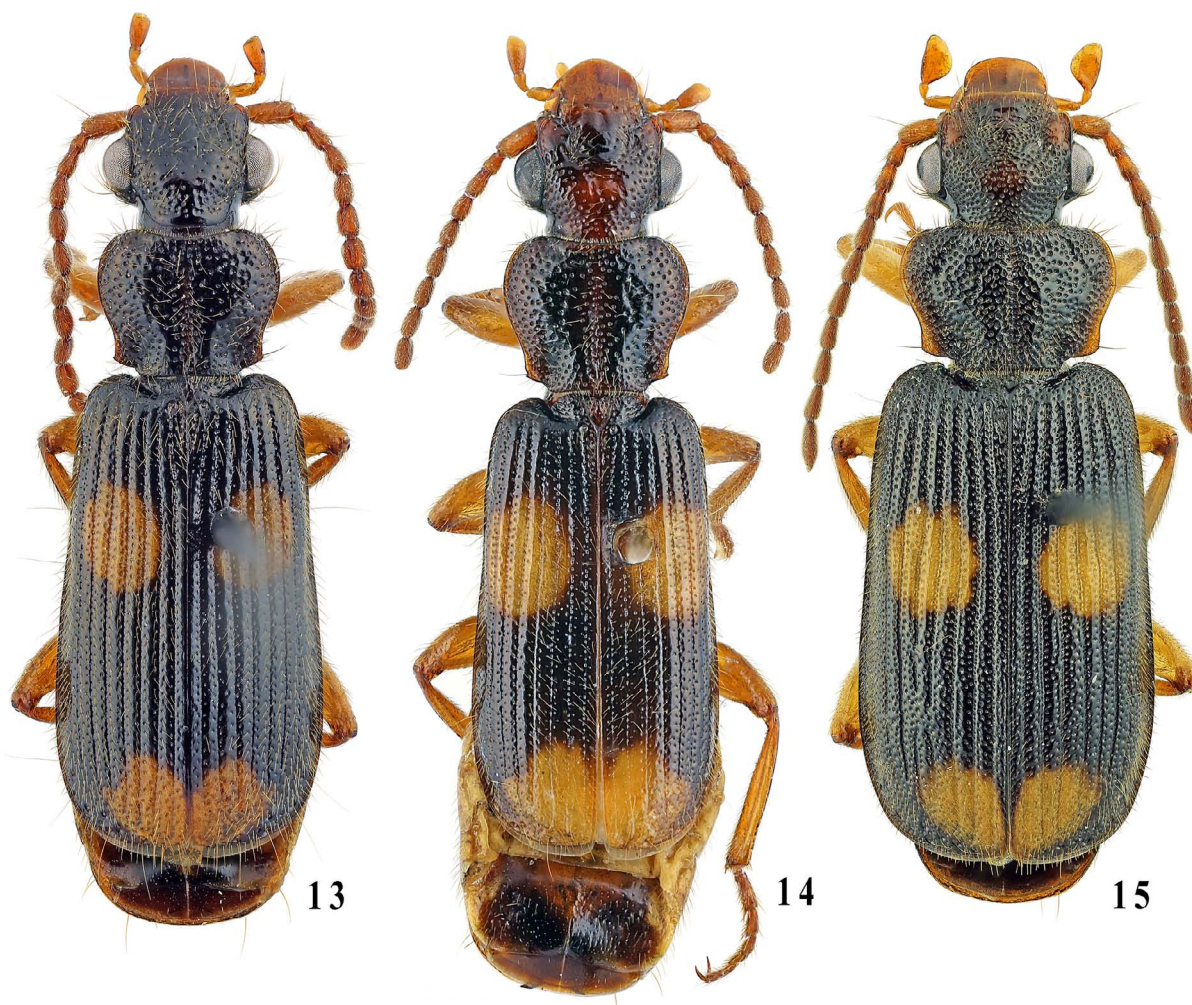
23(28) Pronotum black and fairly wide, about a third wider than long. Anterior elytral spot rounded.

24(25) Antennomeres 1–4, tibiae and tarsi infuscated, vertex with a pale spot. BL 8–10 mm. — N-Celebes, Sumatra?, Borneo? [M. *nigrotibialis* Heller, 1900]

25(24) Antennae and legs pale.

26(27) Body more robust, elytra and pronotum slightly shorter, EL/EW 1.79 and PW/PL 1.35, pronotum more convex. Head without pale spot, elytral spots small, anterior spanning intervals 3–7. Abdomen brown, except for widely reddish sides and apical margins of sternites. BL 8.8 mm. — S-Vietnam. 13. *M. nigrans* **sp.n.**

27(26) Body slender, elytra and pronotum longer, EL/EW 1.87 and PW/PL 1.29, pronotum rather flat. Head with a cloudy



Figs 13–15. Dorsal habitus: 13 — *Macrocheilus nigrans* sp.n., holotype; 14 — *M. kryzhanovskiyi* sp.n., holotype; 15 — *M. stevensi* from Bu Gia Map NP.

Рис. 13–15. Габитус дорзально: 13 — *Macrocheilus nigrans* sp.n., голотип; 14 — *M. kryzhanovskiyi* sp.n., голотип; 15 — *M. stevensi* из нац. парка Бузямап.

- pale spot on vertex, elytral spots large, anterior spanning intervals 3–8. Abdomen yellow. BL 9 mm. — Yunnan, China. [*M. kryzhanovskiyi* sp.n.]
- 28(23) Pronotum pale.
- 29(30) Pronotum narrow, PW/PL 1.1–1.2. BL 8.5–10 mm. Median lobe of aedeagus convex at ventral margin in lateral view. Labral dorsolateral impressions small and vague. Venter infuscate. 10. *M. chaudoiri* (Andrewes, 1919)
- 30(29) Pronotum wider, about two thirds wider than long. Labral dorsolateral impressions fairly distinct.
- 31(32) At least abdomen and prosternum pale. Median lobe of aedeagus with ventral margin nearly straight in lateral view (Figs 46–47). Labral dorsolateral impressions larger, running on apical two thirds and curved posterolaterad. Anterior elytral spot large, more or less wider laterally than medially. Body barely smaller, BL 8.2–8.4 mm. — Cambodia. [11. *M. walterrossii* Allegro et Giachino, 2021]
- 32(31) Venter infuscated. Median lobe of aedeagus convex at ventral margin in lateral view (Figs 44–45). Labral dorsolateral impressions round and confined to apical half.

Anterior elytral spot oblique anterolaterad. BL 8.5 mm. — S-Vietnam. 12. *M. obliquatus* sp.n.

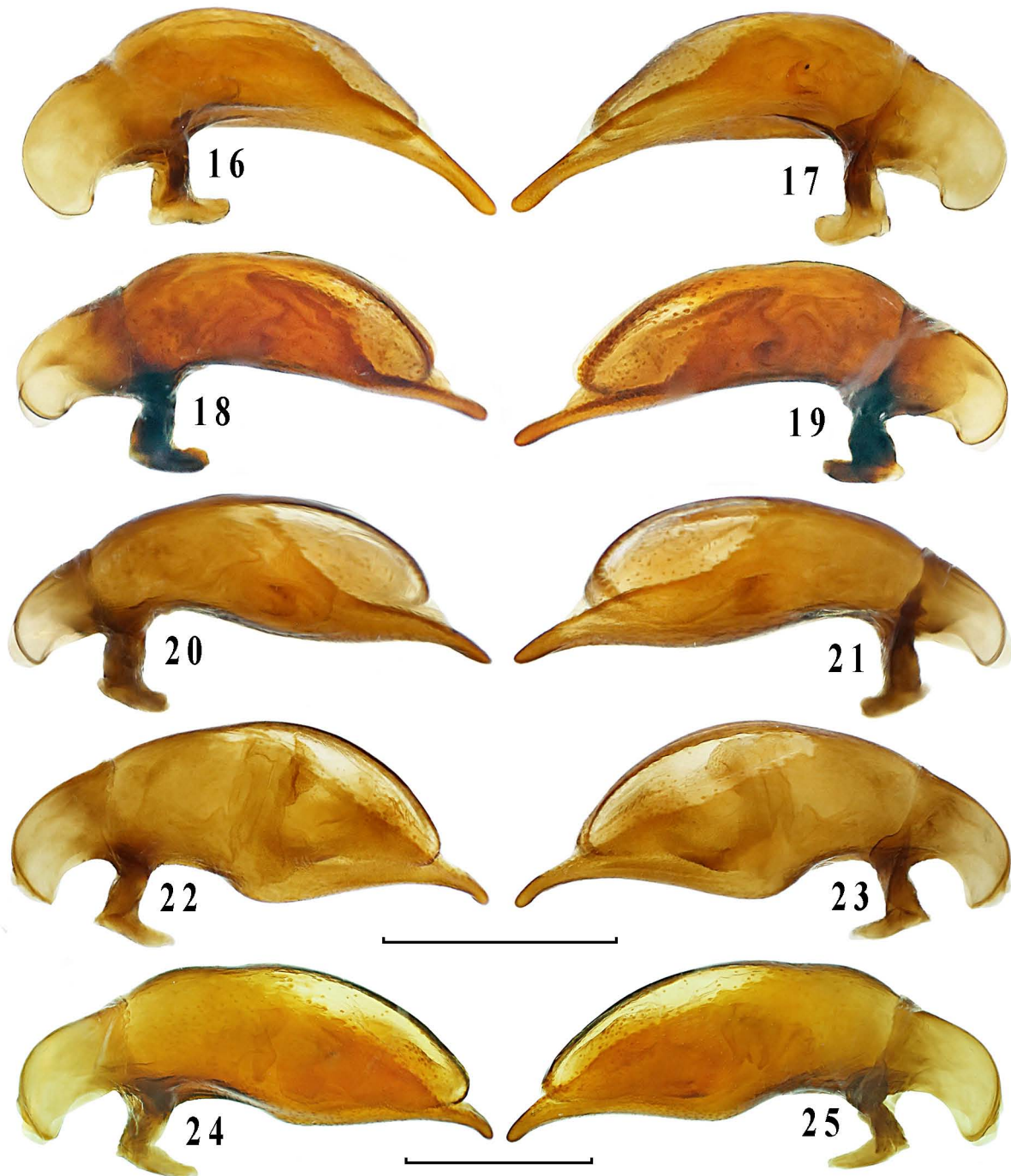
1. *Macrocheilus stevensi* (Andrewes, 1920), **comb.n.**
Figs 15, 48–49, 58–59.

Andrewes, 1920: 505 (*Colfax*; Gopaldhara, Sikkim); 1924: 55, pl.3, fig.6; Jedlička, 1964: 471; Habu, 1979: 18; Huber, Marggi, 2017: 577.

MATERIAL. ♂ (ZISP), **India**, New Delhi, 25.IX.1957 (Alexandrov); ♀ (ZISP), **Nepal**, Dolakha, Jiri - Charikot, 27°37.63'N, 86°05.38'E, 13.V.2000 (Nepal Expedition: A. Konstantinov, S. Lingafelter, M. Volkovitch); ♂ (SIEE), **Thailand**, Chiang Mai env., 19°56.4'N, 98°51.2'E, 12–16. XI.2009 (N. Vikhrev); ♀ (SIEE), **Laos**, Province Ventiane, env. Van Vieng, 18°55'12"N, 102°26'E, h~230 m, at light, 7–9. XI.2015 (I. Melnik); 3 ♂♂ (ZISP), **Vietnam**, Lao Cai City, 200 m, 3. and 13.VIII.1962 and 5.VI.1963 (O.N. Kabakov); ♀ (ZISP), Ha Noi, at light, 18.IV.1962 (O.N. Kabakov); ♂ (ZISP), Son La Province, Song Ma, at light, 3.V.1986 (Tryapitsyn); 2 spms (ZISP), Hoa Binh [formerly Ha Son Binh]

Province, Da Bac, Tuly forest, 20.X.1990 (Belokobylsky); 3♀♀ (ZISP), Nghe An Province, mountains SW of Cuy Chau, 200 m, 10.III.1962 and 11.I.1963 (O.N. Kabakov); ♂ (MSPU), Hoa Binh, 'Cho Bo', 17.X.1976 (Expedition of SIEE);

♀ (SIEE), Binh Phuoc Province, Bu Gia Map National Park, 12°11'38"N, 107°12'22"E, h=350–540 m, 26.IV–4.V.2013 (D. Fedorenko); ♀ (SIEE), same data except '... at light...'; ♀ (SIEE), Dong Nai Province, Cat Tien National Park, 30.III–



Figs 16–25. Median lobe of aedeagus: 16–17 — *Macrocheilus lankaensis* sp.n., holotype; 18–19 — *M. bensoni* from Haridwar Distr., India; 20–21 — *M. fuscicornis* sp.n. paratype from Thach Thanh District; 22–23 — *M. capitatus* sp.n., holotype; 24–25 — *M. infuscatus*; 16, 18, 20, 22, 24 — left lateral aspect; 17, 19, 21, 23, 25 — right lateral aspect. Scale bars: 1 mm.

Рис. 16–25. Средняя доля эдеагуса: 16–17 — *Macrocheilus lankaensis* sp.n., голотип; 18–19 — *M. bensoni* из округа Харидвар, Индия; 20–21 — *M. fuscicornis* sp.n., паратип из округа Тхачтхань; 22–23 — *M. capitatus* sp.n., голотип; 24–25 — *M. infuscatus*; 16, 18, 20, 22, 24 — слева; 17, 19, 21, 23, 25 — справа. Масштаб 1 мм.

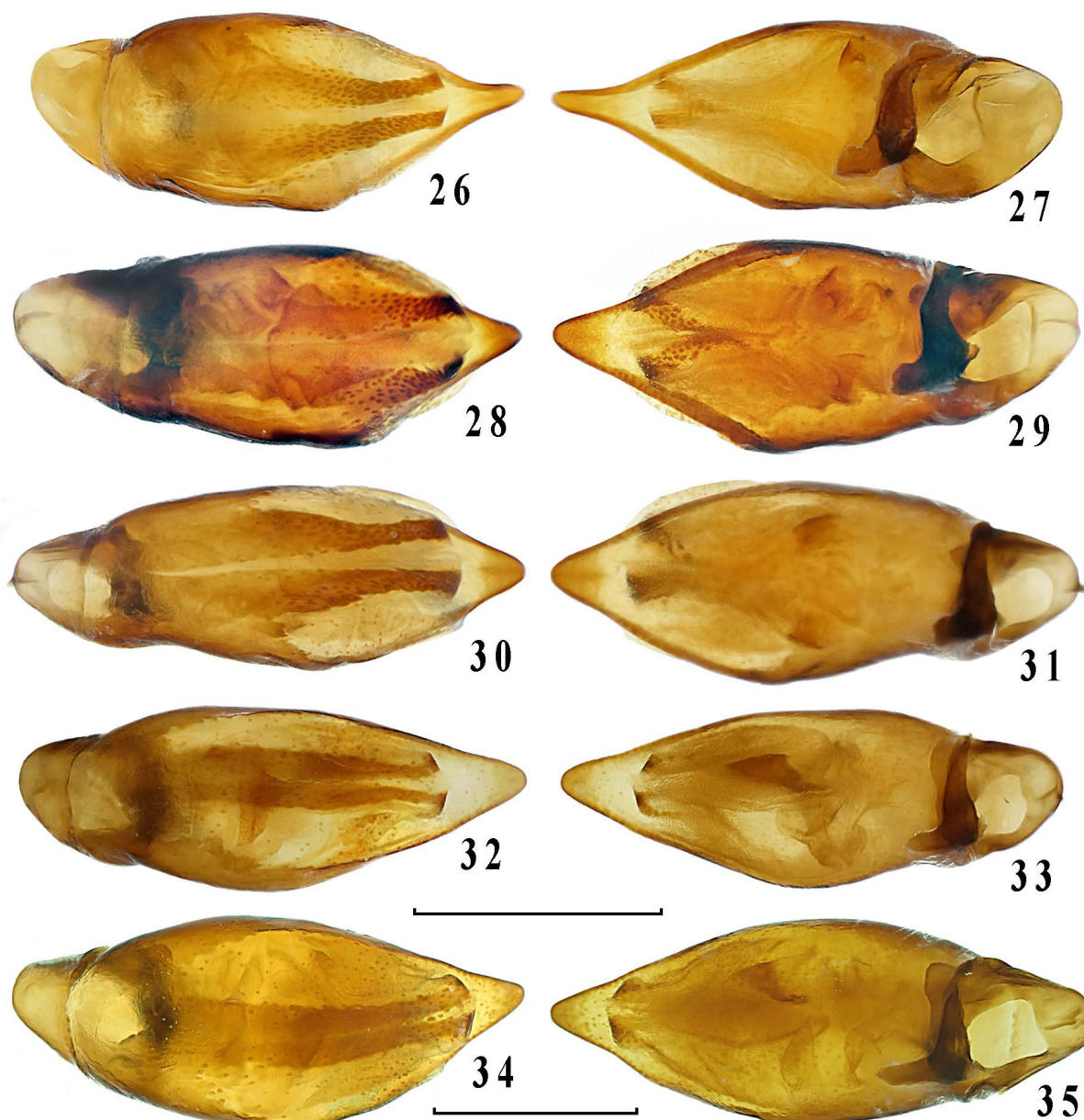
3.IV.2009 (A. Polilov); ♀ (ZISP), **China**, Yunnan, Puer, Lao Yao ... ['Лаояовэнь'], 1.V.1955 (Yan Sin-chi). — Aedeagus examined in three males, genitalia and reproductive tract examined in a female.

DIAGNOSIS. See the key.

REDESCRIPTION. BL 10–11.7. Body (Fig. 15) black or brown black, with appendages reddish-yellow, antennomeres 5–11 testaceous, cloudy transverse spot on vertex, sides of frons, and narrow lateral margins of pronotum red (specimen from India has head and pronotum entirely red); femora and elytral spots yellow, anterior round, spanning intervals 3–6,

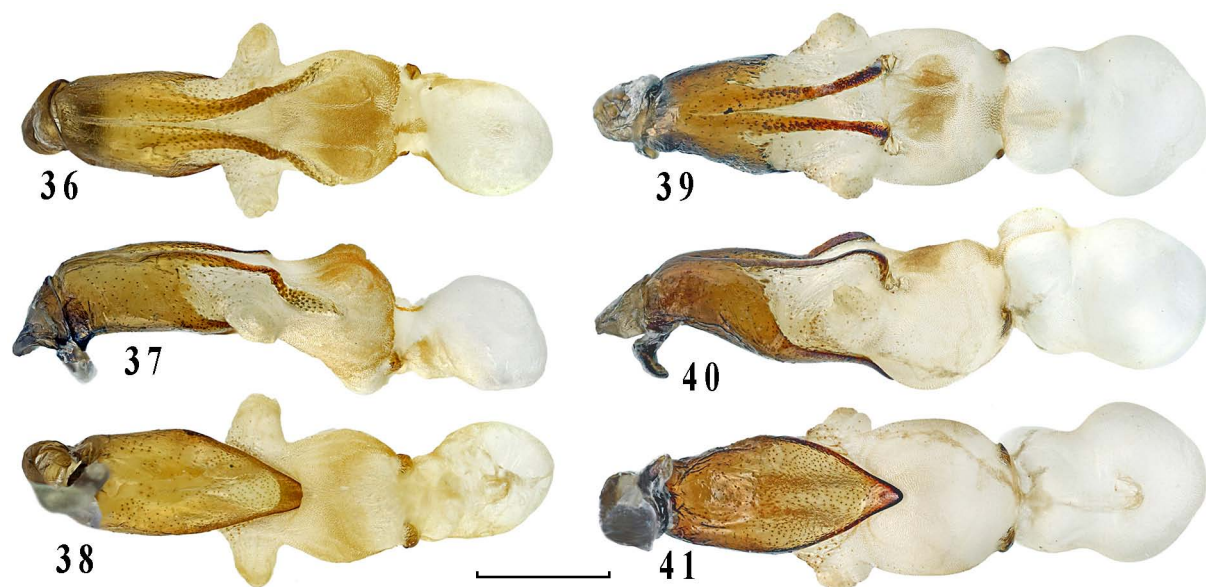
posterior spots very narrowly to indistinctly separated along suture, angulate at sutural angle, laterally reaching and slightly hooked at stria 6 antero-laterad; sometimes tarsi, tibiae and antennomeres 5–11 slightly infuscated.

Head moderately and very densely punctate; punctures confluent on sides and on neck, very sparse on clypeus and on sides of frons but a rugose-punctate area on each side just behind clypeus. Frons with a wide and rather shallow U-shaped impression, its sides slightly deeper, with a few, fine and dense, lines. Clypeus quadrisetose, setae being long and equidistant. Antennae fairly long, surpassing elytral base



Figs 26–35. Median lobe of aedeagus: 26–27 — *Macrocheilus lankaensis* sp.n., holotype; 28–29 — *M. bensoni* from Haridwar Distr., India; 30–31 — *M. fuscicornis* sp.n. paratype from Thach Thanh District; 32–33 — *M. capitatus* sp.n., holotype; 34–35 — *M. infuscatus*; 26, 28, 30, 32, 34 — dorsal aspect; 27, 29, 31, 33, 35 — ventral aspect. Scale bars: 2 mm.

Рис. 26–35. Средняя доля эдегуса: 26–27 — *Macrocheilus lankaensis* sp.n., голотип; 28–29 — *M. bensoni* из округа Харидвар, Индия; 30–31 — *M. fuscicornis* sp.n., паратип из округа Тхачтхань; 32–33 — *M. capitatus* sp.n., голотип; 34–35 — *M. infuscatus*; 26, 28, 30, 32, 34 — сверху; 27, 29, 31, 33, 35 — снизу. Масштаб 1 мм.



Figs 36–41. Everted and inflated internal sac of aedeagus: 36–38 — *Macrocheilus bensoni*; 39–41 — *M. fuscicornis* sp.n.; 36, 39 — dorsal aspect; 37, 40 — left lateral aspect; 38, 40 — ventral aspect. Scale bar: 1 mm.

Рис. 36–41. Вывернутый и надутый внутренний мешок эдеагуса: 36–38 — *Macrocheilus bensoni*; 39–41 — *M. fuscicornis* sp.n.; 36, 39 — сверху; 37, 40 — слева; 38, 40 — снизу. Масштаб 1 мм.

by three apical segments, moderately flattened on sides, antennomeres 5–10, rectangular, with antennomere 7 *ca* 1.4 times as long as wide, dorsal and ventral pubescent regions barely separated because median stripe in between is underdeveloped, barely concave and rather densely pubescent; primary pubescence (of antennomeres 5–11) barely shorter secondary pubescence (of antennomeres 1–4); apical verticillate setae very short.

Pronotum very transverse, sides parallel or barely converging in front of basal angles; these obtuse, minutely to indistinctly toothed, lateral indentation at posterolateral seta indistinct. Punctuation coarse, very dense at middle of disc, otherwise confluent, more so along apex, along base, including basal fovea, and close to median line. Basolateral foveae small, round and very deep. Median line moderately deep, deeper in basal half; apical transverse impression vague, limited on each side a fourth from lateral margin by a short and oblique impression. Lateral margin in front of fixed anterolateral seta with 3–4, shorter, additional setae.

Elytral stria 8 hardly traceable in apical half, obliterate before. Intervals subconvex and indistinctly carinate due to their punctures arranged in two rows closer to striae except basally and apically, 4th (not seldom 6th and some others) behind middle with about three uneven rows of punctures, 8th just behind the level of anterior spot with 4–6 punctures across. Parascutellar striole vague.

Legs as for the genus. Profemur with two medioventral setae on posterior face. Protibia with anterior longitudinal sulcus indistinct. Meso- and metatarsi moderately wide, slightly flattened, metatarsomeres 1–3 truncate apically, with apical angles distinct, anterior one subacute.

Aedeagus (Figs 48–49, 58–59): ventral margin of median lobe nearly straight in lateral view; dorsal ligules starting just proximal to base; apex in lateral view thick and rounded, in dorsal view obtrapezoidal due to its tip truncate.

Female genitalia: as for the genus (abdominal tergite IX very similar to at least *M. fuscicornis* sp.n.).

DISTRIBUTION. Nepal, NE-India (Sikkim), Myanmar, Thailand, Laos, Vietnam, S-China (Fujian).

HABITATS AND HABITS. No data except that most specimens have been collected at light.

COMMENTS. This species appears to be closely related to the other species of *Macrocheilus*, which follows from the fact that no significant difference between them has been found but abnormal structure of the mouth parts. This make me only recognize it as forming hardly more than a species group of itself within *Macrocheilus*. The closest allies appear to be the members of the *chaudoiri*-group, which share rather a short, flat, subquadrate (*i.e.*, less pentagonal than in many other species) labrum, narrow tarsi, the sutural bead missing, and the labral setae similar in position; the clypeus is quadrisetose in some of them, too. Besides, a pale coloured forebody is characteristic of the *chaudoiri*-group, which character is observed in some specimens of *M. stevensi*.

The *bensoni* species group

This group includes three species; all being very similar *inter se* and thence apparently much described under different names. The interspecific differences concern chiefly the aedeagus and the remainder includes minor details of the colouration of the body appendages, as well as shape and structure of the legs. It follows from both the material examined and the descriptions of the species that at least some of them have largely been confused.

[2. *Macrocheilus bensoni* Hope, 1838] Figs 2, 18–19, 28–29, 36–38.

Hope, 1838: 166, Pl. 1, fig. 5 (Madras); Bates, 1892: 389 (*Acanthogenius*, part.); Andrewes, 1919: 176, 202 (*Macrochilus*, part.); Lorenz, 1998: 485 (*Macrocheilus*, part.); Zhao, Tian, 2010: 10 (part.); Shiju *et al.*, 2012: 100 (part.); Huber, Marggi, 2017: 577 (part.). — *trimaculata*

tus Olivier, 1790 (non Villers, 1789): 347; 1795: 88; 1808: pl.7, fig.85 (*Carabus*; type locality unknown); Andrewes, 1919: 176 (*Macrocheilus*, part.), 1920: 502; 1926c: 352; 1930: 208 (*Macrocheilus*, part.). — *quadrimaculatus* Guérin-Méneville, 1840: 38 (*Helluo*; 'Neelgheries [= Nilgiri]'). — *tripustulatus* (non Dejean, 1825): Guérin-Méneville, 1843 (*Helluo*; 'Pondicheri [Puducherry]; Neelgheries'); Schmidt-Göbel, 1846: 65; Redtenbacher, 1868: 4; Heller, 1916: 269; Andrewes, 1923: 460. — *quadripustulatus* Schmidt-Göbel, 1846: 65 (as syn. of *tripustulatus*). — *benarensis* Jedlička, 1964: 470, pl.6, fig.47 (*Macrocheilus*; Benares, India), n.nud.

MATERIAL. ♂ (SIEE), **India**, Uttarakhand, Haridwar distr., Chilla env., Gangga River, floodland forest, 29°58'09"N, 78°12'16"E - 28°58'39"N, 78°12'54"E, 14–16.IV.2012 (I. Melnik); 2 ♂♂, 2 ♀♀ (ZMMU, ZISP), 'WALLARDI/ (Travancore)/ R.P. Favre, 5. 9. 1903.'; ♀ (ZISP), 'TRAVANCORE/ WALLARDI'; ♂ (ZMMU), 'Bengale'; ♀ (ZISP), with three yellow labels: 'India orient.', 'Chaudoir', 'Acanthogenius/ Bensoni Hope'. — Aedeagus examined in four males, including two with everted and inflated internal sac.

Additional material: digital images of a syntype of *M. quadripustulatus* [National Museum, Praha].

DIAGNOSIS. Distinctive from the other two species of the *bensoni*-group chiefly in having the aedeagus distinctive, combined with the tarsi rather flat and wide, the meso- and metatibiae flattened and lacking distinct outer sulci. Often the labrum, the antennae and the legs are pale coloured.

REDESCRIPTION. BL 13–15 mm. Body (Fig. 2) dark brown to black, small cloudy spot on vertex, mouthparts, including labrum, lateral bead of pronotum, tibiae, tarsi and antennomeres 1–4 red, those 5–11 pale testaceous; clypeus more or less reddish. Femora and elytral spots yellow or reddish-yellow, anterior spot round, spanning intervals 3–7 or surpassing stria 2 inwardly and 7 laterally, posterior spots as in the previous species, yet laterally reaching stria 5 or 6, or 7. Venter infuscated to slightly reddish along middle and at base of abdomen. Darker coloured specimens have labrum except along sides, antennomeres 1–4 and knees infuscated.

Head moderately and very densely punctate, slightly less so medially and just inside supra-antennal plates, sparsely on clypeus, more finely and almost confluent on neck. Frons barely convex, frontal foveae short and vague. Clypeus mostly sessile, with inner four setae shorter than lateral ones. Antennae fairly long, surpassing elytral base by apical three segments, distinctly flattened on sides, antennomeres 5–10 nearly quadrate, with antennomere 7 1.19–1.29 (1.25) times as long as wide, dorsal and ventral pubescent regions widely separated by concave and glabrous median stripe; secondary pubescence sparse and much longer than primary one; apical verticillate setae long, those of middle antennomeres being barely shorter than antennomere proper. Maxillary palpomere 3 about half as long as 4th, which is 2.0–2.10 (2.06) times as long as wide.

Pronotal sides slightly converging in front of basal angles; these subrectangular, minutely toothed, lateral edge with indentation at posterolateral seta distinct or not. Punctuation coarse and very dense, slightly less so at middle of lateral half. Basolateral foveae round and moderately deep. Median line fine, slightly deeper in basal half; apical transverse impression vague.

Elytra as in *M. stevensi*. Otherwise intervals with punctures arranged in two rows, those 2, 4 and 6 with three punctate rows behind middle (sometimes interval 4 with four); 5–6 punctures across interval 8 just behind the level of anterior spot. Parascutellar striole vague.

Legs as for the genus. Protibia anterior face with longitudinal sulcus indistinct. Meso- and metatibiae rather flat in frontal plane, with outer longitudinal sulcus fine, shallow and obliterate apically; metatarsi moderately wide, slightly flat-

tened, metatarsomeres 1–3 truncate apically and very slightly asymmetric, with apical angles distinct, anterior subrectangular, posterior subacute; mesotarsomere 2 slightly longer than wide, mstm2L/W 1.12–1.30 (1.23).

Aedeagus (Figs 18–19, 28–29, 36–38): median lobe straight at ventral margin, apex triangular and wide in dorsal view. Dorsal sclerotized ligules long, surpassing much laterobasal bulbs of internal sac; this latter with apical part rounded and rather small.

DISTRIBUTION. Throughout India, Myanmar [Schmidt-Göbel, 1846]. All former records of this species in Sri Lanka, as well as in Indochina, South China and Luzon, Philippines [Heller, 1916; Andrewes, 1926c] might refer to different species.

Zhao & Tian [2010, 2012] reported this species from eight southern provinces of China and depicted the aedeagus characteristic of *M. bensoni* [Zhao, Tian, 2010]. Unfortunately, they provided no data to realize whether the dissected male specimen originated from China or not.

HABITATS AND HABITS. No exact data.

[3. *Macrocheilus lankaensis* Fedorenko sp.n.]

Figs 1, 16–17, 26–27.

— ? *bensoni* auct. (part.).

MATERIAL. Holotype ♂ (ZMMU), 'Sri Lanka/ Anuradhapura env./ Amaya Lake Hotel/ at light 16./ leg. S. Dementiev X.2009'. Paratype ♀ (ZISP), a piece of paper '...pustulatus F./ Ceylon'.

DIAGNOSIS. The median lobe of aedeagus with the apex elongated and ventral margin slightly concave (Figs 16–17, 26–27), combined with pale venter, only differentiates this species from *M. bensoni*.

DESCRIPTION. BL 13.4 mm. Body (Fig. 1) as for *M. bensoni*, except for venter reddish yellow and the pale colour still paler: clypeus red, legs and elytral spots yellow, and these larger, both surpassing stria 7 laterally and anterior surpassing stria 2 inwardly. Besides, very narrow lateral margin of pronotum reddish yellow.

The other differences are as follows if any: clypeal setae subequally long, antennomeres 1–4 with secondary pubescence barely longer, antennomeres barely shorter, 7th a fifth longer than wide. Maxillary palpomere 3 three fifths as long as 4th, this latter 2.06 times as long as wide.

Pronotum a bit more densely punctate.

Meso- and metatarsomeres 1–3 barely sinuate at apical margins, inner latero-apical angle being slightly more acute than outer one; mesotarsomere 2 nearly as long as wide, mstm2L/W 1.07.

DISTRIBUTION. While being known from the type locality only, this species is not unlikely to be more widespread in India.

NAME. Toponymic, given after the country from which this species is described.

HABITATS AND HABITS. No data except that the holotype specimen was taken at light.

4. *Macrocheilus fuscicornis* Fedorenko sp.n.

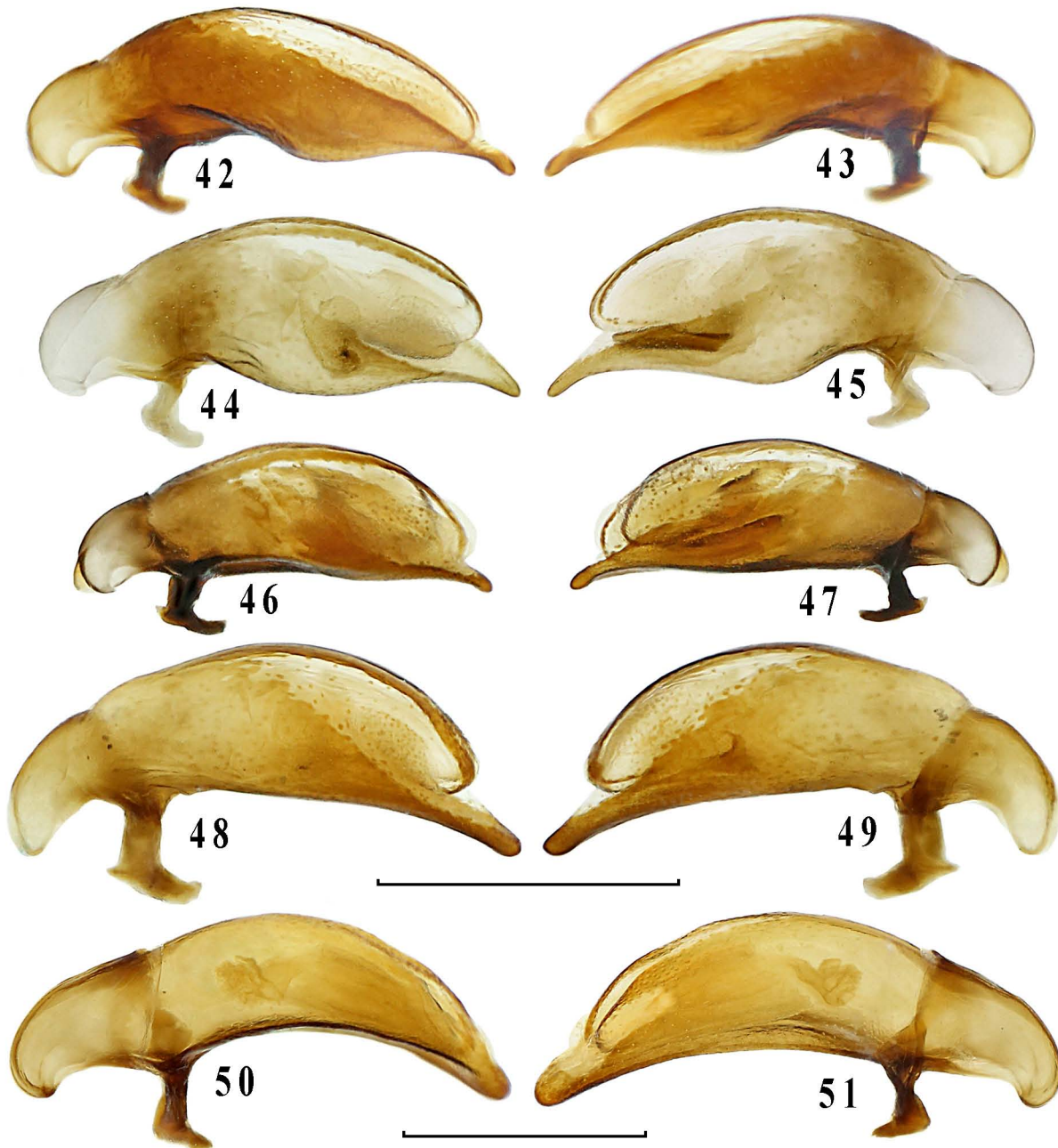
Figs 3, 20–21, 30–31, 39–41.

— *bensoni* auct. (part.).

MATERIAL. Holotype ♂ (SIEE) with label 'Vietnam centr[al]/ Quang Binh Prov[ince]/ Distr[ict]. Minh Hoa/ env[irons of]. Yen Hop/ 18.III.1999/ leg. A. Deviatkin'. Paratypes: ♀ (SIEE), labelled 'S[outh] Vietnam, N[orthern part of] Dongnai [= Dong Nai] Pr[ovince]/ Nam Cat Tien Nat[ional]. Park/ Exped[ition of]. Russ[ian].-Vietnamese/ Tropical Cen-

tre/ at light HQL 450 1–2./ leg. D. Fedorenko .XII.2004’;
 ♀, same data except ‘... 23./ leg. D. Fedorenko .X.2004’;
 ♀ (SIEE), same data except ‘... 24./ leg. D. Fedorenko .
 V.2005’; ♀ (SIEE), ‘Vietnam, Gia Lai Province/ ~40 km
 NEE of Pleiku./ 14°12’11”N 108°18’54”E/ Kon Ka Kinh
 Nat[io]n[al]. Park./ h = 890 m 9–22.V./ D.Fedorenko leg.
 2016’; ♀ (ZISP), ‘Vietnam, Gia Lai Province./ 35 km N of

K’Bang Town./ Kon Chu Rang Nat. Res./ 14°28’27.44”N
 108°32’32.78”E, 830 m./ 19–23.VI.2022, L.N. Anisyutkin
 leg. (Exp. of Russia-Vietnam Tropical Centre)’; ♂ (ZISP),
 ‘Vietnam, Thanh hoa/ 1500 m/ 15 XI 2003 Averianov’; ♂
 (ZISP), ‘ВЬЕТНАМ горы у Ту-ле 1000 м. / 10.I.1962 г.
 Кабаков’ [Vietnam, env. Ha Noi, mountains near Tu Le ...]; ♀
 (ZISP), ‘TONKIN/ COLLECTION LE MOULT’; ♂ (SIEE),

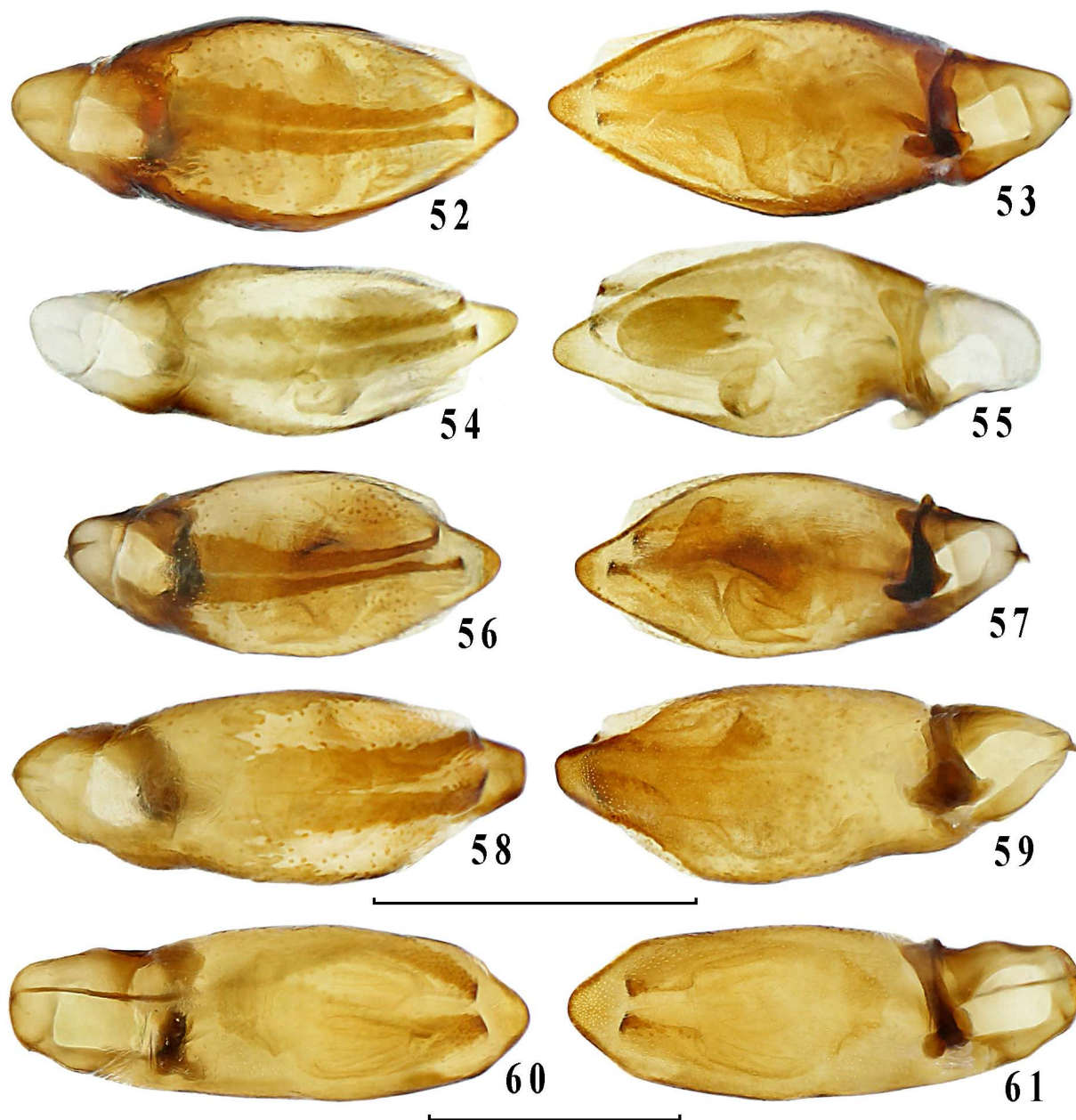


Figs 42–51. Median lobe of aedeagus: 42–43 — *Macrocheilus annulicornis* sp.n., holotype; 44–45 — *M. obliquatus* sp.n., holotype; 46–47 — *M. walterrossii*; 48–49 — *M. stevensi*; 50–51 — *Syntomocheilus fuscipennis* from Laos; 42, 44, 46, 48, 50 — left lateral aspect; 43, 45, 47, 49, 51 — right lateral aspect. Scale bars: 1 mm.

Рис. 42–51. Средняя доля эдеагуса: 42–43 — *Macrocheilus annulicornis* sp.n., голотип; 44–45 — *M. obliquatus* sp.n., голотип; 46–47 — *M. walterrossii*; 48–49 — *M. stevensi*; 50–51 — *M. stevensi*; 50–51 — *Syntomocheilus fuscipennis* из Лаоса; 42, 44, 46, 48, 50 — слева; 43, 45, 47, 49, 51 — справа. Масштаб 1 мм.

'N-Vietnam, Ninh Binh Prov./ 10 km SSW of Ninh Binh/ Cuc Phuong National Park./ 20°14'37"N 105°42'55"E/ foothills, at light 13-/ leg.M.A.Dzhus 15.IV.2012'; 2♂♂ (SIEE), 'Vietnam, Thanh Hoa Prov./ Thach Thanh District./ 20°17'44"N 105°33'06"E/ at light HQL250/ h~40 m, 16–26.IV.2024/ D. Fedorenko leg.'; 2♀♀ (SIEE), 'Vietnam, Ha Giang Prov./ Tay Con Linh N[ational]P[ark]/ Cao Bo, h~570 m/ 22°45'23"N, 104°52'06"E/ 15–27.IV.2023/ leg.D. Fedorenko'; ♀ (MSPU), 'Вьетнам / Ханой/ 5.XII.1989/ leg. Ю. Зайцев [Vietnam/ Ha Noi/ .../ leg. Yu. Zaitsev]'; ♀ (ZISP),

'ВЬЕТНАМ город/ Лао-Кай на свет/ 3.8.1962 г. Кабаков' [Vietnam, Lao Cai City, 3.VIII.1962, O.N. Kabakov leg.]; ♀ (ZISP), 'ВЬЕТНАМ горы NO/ Шон-Зуонг Там-Дао/ 20.II.1962 г. Кабаков' [... mountains NE of Tam Dao Mt. Ridge, ...]; ♂ (ZISP), 'ВЬЕТНАМ NW хр./ ТАМ-ДАО ШОН-ЗУОНГ/ 200 м/ 25.2.1962 г. Кабаков'; 2♂♂ (ZISP), supposedly same locality, with label 'ВЬЕТНАМ горы SW/ Бай Зуонг 300 м/ 27.2.1962 г. Кабаков' or 'ВЬЕТНАМ горы ЮЗ/ Бай-Туонг / 5.1.1963 г. Кабаков'; ♀ (ZISP), 'ВЬЕТНАМ/ Тин-Тук/ 13.IV.1969/ Соляник'; ♀ (ZISP),



Figs 52–61. Median lobe of aedeagus: 52–53 — *Macrocheilus annulicornis* sp.n., holotype; 54–55 — *M. obliquatus* sp.n., holotype; 56–57 — *M. walterrossii*; 58–59 — *M. stevensi*; 60–61 — *Syntomocheilus fuscipennis* from Laos; 52, 54, 56, 58, 60 — dorsal aspect; 53, 55, 57, 59, 61 — ventral aspect. Scale bars: 1 mm.

Рис. 52–61. Средняя доля эдеагуса: 52–53 — *Macrocheilus annulicornis* sp.n., голотип; 54–55 — *M. obliquatus* sp.n., голотип; 56–57 — *M. walterrossii*; 58–59 — *M. stevensi*; 60–61 — *Syntomocheilus fuscipennis* из Лаоса; 52, 54, 56, 58, 60 — сверху; 53, 55, 57, 59, 61 — снизу. Масштаб 1 мм.

same label, except different date: 16.IV.1968 [VIETNAM, Cao Bang Province, Tinh Tuc, ..., Solyannik leg.]; ♀ (ZISP), 'ВЬЕТНАМ горы W/ ХА-ТИНЬ КИМ-КУОНГ/ 29.3.1963 г. Кабаков' [Vietnam, mountains W of Ha Tinh, Kim Quang, ...]; ♀ (ZISP), 'о-в Хайнань/ Баотин/ 15.6.1951 Стрелков' [China, Hainan Island, Baoting, ..., Strelkov leg.]; ♀ (ZISP), with labels 'China', 'Bensoni/ hope/ hong-hong.' [Hong-kong]; ♂ (ZISP), 'Юннань. Цзинду-на, 1200 м. 6.V.1957./ А. Мончадский' [China, Yunnan, Jinpingzhen, ..., A. Montshadsky]; ♀ (ZISP), same locality except '... 1250 м 2.VII.1956./ Загуляев' [... Zagulyaev]; ♂ (ZISP), same data except '... 1170 м. На свет. 2.VII.1956./ Крыжановский' [... At light. ... Kryzhanovskiy], the latter three paratypes from Yunnan each bears the respective locality label in Chinese characters. — Additional material: ♂ (ZMMU), 'Japonia [*patria errata*?], ex coll G. Basilewsky', '*bimaculatus*, M.-L.'; .

Aedeagus examined in nine males, including two with everted and inflated internal sac, female genitalia and reproductive tract examined in a female from Cat Tien NP.

DIAGNOSIS. This species is distinguished from the previous two chiefly by the aedeagus distinctive. Other features include the labrum, the antennomeres 1–4, the knees and the venter constantly infuscate.

DESCRIPTION. No difference from *M. bensoni* but the following: BL 11.6–14.3 mm. Body as in Fig. 3. Labrum constantly black or brown black, with margin only pale; antennomeres 1–4 dorsally infuscated, scape mostly black and the other three brown rather dark to black; often the tarsi being infuscated to brown rather dark and the tibiae throughout or in basal halves slightly less so. Anterior elytral spot spanning intervals 3–7 or slightly surpassing striae 2 inwardly and 7 laterally, posterior spots laterally reaching stria 6 or 7. Venter black or brown black, mostly with apical margin of sternite VII only red.

Frontal foveae barely deeper and longer, reaching the level of anterior supra-ocular seta and slightly diverging. Clypeus with two fixed lateral setae, and 2–4 additional, mostly shorter, setae in between. Labrum flat, with no or very slight dorsal impressions. Antennae still shorter, antennomeres 5–10, quadrate, 7th 1.14–1.24 (1.19) times as long as wide. Maxillary palpomere 3 about half as long as 4th, this latter 2.10–2.42 (2.27) times as long as wide.

Parascutellar striole more or less distinct to vague.

Mesotarsomere 2 slightly longer than wide, mstm2L/W 1.25–1.30 (1.28).

Aedeagus (Figs 39–40, 47–48): median lobe with ventral margin convex and the apex triangular and wide in dorsal view. Dorsal sclerotized ligules short, barely extended beyond laterobasal bulbs of internal sac; its apical part large, slightly constricted before middle, with dorsobasal part subdivided longitudinally into two.

DISTRIBUTION. Vietnam, China (Hainan, Yunnan, Hong-Kong). Apparently more widely spread in at least Indochina. Because of confusion with *M. bensoni*, many former records of that species need verification.

NAME. Refers to the infuscated antennal bases.

HABITATS AND HABITS. Adults of his species occur very occasionally and never in numbers. Most of them were collected at lights positioned near or amid fields at lower altitudes, and some others were taken by hands in similar habitats.

COMMENTS. Colour of the antennae vary in this species. The antennomeres 1–4 are infuscated in great majority of the specimens examined from Vietnam. Some specimens, especially those from northern Vietnam and China, have these antennomeres rather pale, mostly with scape only infuscated dorsally.

The *infuscatus* species group

DIAGNOSIS. (1) Elytra with a distinct and long sutural bead; (2) antennal scape without long ventro-apical seta; (3) maxillary palpomeres 3 and 4 with short and decumbent, sparse yet distinct, pubescence. Labrum very convex in apical half, with (4) dorsolateral impressions distinct and extended to clypeus into deep laterobasal grooves; lateral and intermediate setae marginal or nearly so, apical setae ventral submarginal. Head more or less enlarged. Palps short, with apical palpomeres slightly curved and slightly dilated apicad.

COMMENTS. This group is certain to include at least *M. infuscatus*, *M. capitatus* sp.n., *M. parvimaculatus*, as well as *M. saulcyi* (Chevrolat, 1854) from Near East, all sharing the first four diagnostic features with *M. annulicornis* sp.n., *M. vietnamensis* sp.n. and *M. pusillus* sp.n. Besides, *M. infuscatus*, *M. capitatus* sp.n. and *M. annulicornis* sp.n. exhibit the internal sacs of the aedeagi similar in shape owing to the presence of a triangular sclerite, or sclerotized fold, at middle of right half in ventral view (Figs 33, 35, 53). This argues for the placement of the latter three species within the *infuscatus*-group rather than within another one. *Macrocheilus tripustulatus* and *M. deuvie* are not unlike and thence may belong here, too. The latter five species are defined chiefly by the labrum flat, and the tarsi are fairly narrow in *M. annulicornis* sp.n. and *M. pusillus* sp.n.

5. *Macrocheilus infuscatus* (Bates, 1892), **stat.rest.**

Figs 4, 24–25, 34–35.

Bates, 1892: 389 (*Acanthogenius*; Bhamo, Burma). — *trimaculatus* var.: Andrewes, 1920: 496 (*Macrochilus*); 1930: 208 (*Macrocheilus*). — *bensoni* auct. (part.) — *gigas* Zhao et Tian 2010: 8 (Zhanjiang, Guangdong, China); 2012: 80, 90, **syn.n.**

MATERIAL. 10 ex.: 2 ♀♀ (MSPU), Vietnam, Gialai [former Gialai – Kon Tum] Province, [Thei-Nguen Plateau = Central Highlands], Bhuon Loi, at light at night, 28.V.1983, Expedition of A.N.Sevrtsov Institute; ♀♀ (ZISP), same locality, 25. or 30.IV.1995 (A.V. Gorokhov); ♀ (SIEE), same locality, Kon Ha Nung Mts., 29.I.1999 (N. Belyayeva); ♀ (SIEE), Binh Dinh Prov., An Lao Distr., An Toan, 14°32'49"N 108°41'10"E, h~950 m, 5–15.V.2024 (D. Fedorenko); ♀ (ZISP), Gialai – Contum Prov., Kabang Distr., Tram Lap vill., VI–VII.1996 (N.L. Orlov); 2 ♂♂, ♀ (ZISP), Thanh Hoa Province, mountains NW of 'Bai Thuong' [? Ba Thuoc = Canh Nang], lang Thanh', 20.IV.1963 (O.N. Kabakov) [in Russian].

Aedeagus examined in two males.

DIAGNOSIS. The body is large-sized and dark coloured, a small cloudy spot on vertex, trochanters and femora reddish-yellow; palps black or labial palpomere 2 dark brown, antennomeres 5–11 dark brown, slightly reddish along and including dorsal and ventral ridges. Labrum very convex in apical half, dorsolateral impressions medium-sized and moderately deep, each extended basad into a deep laterobasal groove.

REDESCRIPTION. BL 15.6–17 mm (16–16.6 mm in specimens from Vietnam). Barely different from *M. bensoni* and its allies in body shape (Fig. 4) and proportions (Table), except for a slightly larger head. Abdomen black to more or less reddish, more distinctly so toward sides of base and along apical margin of sternite VII.

Head slightly wider in male than in female, PW/HW 1.07–1.08 (vs. 1.11–1.17). Frons rather flat, with a deep and rather wide semicircular impression widely interrupted medially and formed by convergent frontal foveae. Dorsum very densely punctate, with punctures confluent on each side of vertex to

ward eyes and along frontal foveae, while being slightly rugulose in the latter region due to some short striation traceable. Clypeus more sparsely and very unevenly punctate in basal half, with two fixed setae and a row of coarse punctures in between, bearing altogether 6–8 slightly shorter setae. Antennomeres 6–10 subquadrate, 7th 1.18–1.26 (1.22) times as long as wide; dorsal and ventral pubescent regions formed by fairly long setae and not well delimited by a median stripe, which is wide, moderately shiny, indistinctly concave, with sparse setae here and there. Palps short, apical palpomeres slightly curved at apex, funnel-shaped. Maxillary palpomeres 3 and 4 with a distinct decumbent pubescence, 3rd about a third as long as 4th, which is 1.44–1.50 (1.47) times as long as wide. Labial palpomere 2 bisetose at inner margin, setae arranged in a subtransverse row.

Pronotal sides slightly converging in front of base. Base with deep lateral excavations and sides rounded. Basal angles subrectangular and minutely toothed; lateral edge with a distinct indentation at posterolateral seta, thus forming a distinct and very obtuse tooth in front, sometimes with an additional, microscopic, denticle in the indentation. Punctuation coarse and very dense, confluent or nearly so in basal foveae, along extreme base, at middle of apex and within basal angles. Basolateral foveae very deep and long, traceable in basal half, slightly converging apicad in their basal thirds and then diverging. Median line fine yet entire or nearly so, deeper in basal two thirds; apical transverse impression vague.

Elytral striae very deep. Intervals each with two longitudinal rows of punctures, those 2 to 7 with 2–3 uneven rows behind middle; 8th just behind the level of anterior spot with 5–6 punctures across. Parascutellar striole deep.

Profemur bisetose at posteroventral margin, basal 1/2 protibia with a fine longitudinal sulcus on anterior face. Meso- and metatarsi moderately wide, slightly flattened, metatarsomeres 1–3 apically truncate to barely concave and very slightly asymmetric, with apical angles distinct, anterior subrectangular, blunted at extreme tip, posterior acute; mesotarsomere 2 short, mstm2L/W 0.92–0.93.

Aedeagus (Figs 24–25, 34–35): median lobe as for the previous species, except for ventral margin more angulate, apex shorter and more curved ventrad.

DISTRIBUTION. Eastern India (Assam), Myanmar to South China, Vietnam (Gialai and Thanh Hoa provinces).

HABITATS AND HABITS. The female specimen has been collected by me on the road amid cultivated lands in the night time.

COMMENTS. This species was described as very similar to, yet very distinctive from *M. bensoni* (as *Acanthogenius bensoni*) in having the body larger, 16–18 mm in length, and the elytra relatively longer in addition to peculiar body colouration specified in the description. My resurrection of the Bates' species from a variety of *M. bensoni* [Andrewes, 1920, 1930] is here based also on considerable differences between *M. infuscatus* and the species of the *bensoni*-group in the shape and the structure of the aedeagus.

Distinctive features of *M. gigas* include the mentum with the lateral lobes rounded apically and the median tooth subangulate at middle of lateral margin. However, the mentum tooth is not or faintly angulate on sides and the lateral lobes pointed in all specimens listed above but one having the lateral lobes rounded as a result of probable abrasion. The fact that these characters vary individually, combined with no difference found between male specimens examined and those illustrated in Zhao & Tian [2010], makes me consider *M. infuscatus* and *M. gigas* as conspecific.

6. *Macrocheilus capitatus* Fedorenko sp.n.

Figs 5, 22–23, 32–33.

? *tripustulatus* (non Dejean, 1825): Andrewes, 1920: 501 (*Macrochilus*).

MATERIAL. Holotype ♂ (ZISP), with labels 'о. Ринджа Индонезия/ Даревский 12 VII 962' [Indonesia, Is. Rinca, Darevsky ...] and 'кокосовая роща' [coconut grove]. Paratypes: ♀ (SIEE), labelled: 'S[outhern] Vietnam, Dongnai [Dong Nai] Pr[ovince]./ Nam Cat Tien Nat[ional]. Park/ Exped. Russ[ian].-Vietnamese/ Tropical Centre/ at light HQL 450 30./ leg. D. Fedorenko VI.2005'; ♀ (MSPU), 'Thailand./ prov[ince]. Suratthani./ Khao Sok/ by light/ 2.XI.1995/ leg. M. Mostovsky'; ♀ (ZISP), with yellow label 'India orient.'.

DIAGNOSIS. A medium-sized species, with head very large, labrum and body appendages pale, and venter infuscated. Labrum very convex in apical half, still more convex than in *M. infuscatus*, with dorsolateral impressions medium-sized and moderately deep, each extended basad into a deep laterobasal groove. According to the description, a very similar species, *M. parvimaculatus* Zhao et Tian, 2010, from Luizhou (Guangxi, China) is distinguished by the body smaller, BL 10.7–11 mm, the elytral spots small, and the maxillary palpomere 4 peculiar in shape, straight at the inner margin and sinuate at the outer one.

DESCRIPTION. BL 11.1–13.4 mm. Body (Fig. 5) black. Reddish-yellow spot on vertex large to indistinct. Antennomeres 1–4 red to dark brown, those 5–11 brown to dark brown. Palps reddish-brown, more or less infuscated apicad. Elytral spots yellow, anterior from small and round, spanning intervals 3–7, to large, oblong and also extended onto intervals 2 and 8; posterior smaller or larger, on intervals 1–4, or still larger, with lateral angulate extension reaching stria 7. Venter black, Abdomen dark brown to nearly black, reddish along apical margins of sternites.

Frontal foveae short and moderately deep. Dorsal punctuation even, coarser and very dense. Antennae surpassing elytral base by apical 2.5 segments. Antennomeres thick, those 6–10 subquadrate, with angles rounded, 7th 1.18–1.24 (1.22) times longer than wide; dorsal and ventral pubescent regions separated by glabrous median stripe, which is subtriangular, slightly grooved in basal two thirds, and less distinct in apical third. Maxillary palpomeres 3 and 4 with a distinct decumbent pubescence, palpomere 3 about a third as long as palpomere 4, which is 1.75–2.45 times as long as wide, almost round in cross-section at middle, slightly broadened to and incurved at apex. Labial palpomere 3 similar yet slenderer, mostly bisetose at inner margin.

Pronotal basal angles minutely toothed, with a minute to indistinct indentation at posterolateral seta, thus forming very obtuse, distinct to imperceptible, tooth in front. Punctuation coarse and very dense, slightly less so at middle of lateral halves. Basolateral foveae round, moderately deep, traceable in basal third only or still smaller. Apex subsinuate, apical transverse impression rather ill-defined, a third from lateral margin limited by a small rounded convexity.

Elytra parallel-sided. Striae deep, with punctures barely smaller than those in intervals, not confluent apically. Intervals convex basally, almost flat behind, those 1–7 each with two longitudinal rows of medium-sized punctures, 8th behind the level of anterior spot with 4–5 uneven punctate rows across.

Tarsi short, meso- and metatarsomeres 1–3 apically truncate, with latero-apical angles slightly acute and blunt, mstm2L/W 0.96–1.09 (1.03).

Aedeagus (Figs 22–23, 32–33): just as for *M. infuscatus*, but much smaller, median lobe in lateral view conspicuously dilated at middle, and its apex being slightly longer.

DISTRIBUTION. Only known from three localities scattered in Vietnam, Thailand and Indonesia.

HABITATS AND HABITS. No data other than those on the labels.

COMMENTS. This species is very similar to and probably conspecific with that re-described by Andrewes [1920] under the name of *M. tripustulatus*, based on a single specimen from the British Museum. It is worthy of mention here that some body ratios made by me from the holotype of *M. parvimaculatus* as illustrated in Zhao & Tian [2010] disagree with the ratios in its original description in the same paper: PW/HW 1.09 (vs. 1.0), EW/PW 1.35 (vs. 1.12), EL/EW ~1.8 (vs. 2.16), respectively.

7. *Macrocheilus annulicornis* Fedorenko sp.n.

Figs 6, 42–43, 52–53.

MATERIAL. Holotype ♂ (ZMMU), labelled: 'N[orthern] Thailand, Mae Hong Son/ Prov[ince], env[irons of]. Pai/ 19°21'42"N 98°27'46"E –/ 19°22'N, 98°30'29"E/ h=600 m, 27.IV.–/ leg. I. Melnik 9.V.2013'. Paratypes: ♂ (SIEE), 'N-Thailand, Prov. Mae/ Hong Son, Pai Distr[ict]./ Sang, Nan Sambung vill./ 20–31.III.2014/ leg. I. Uchevatov'; ♂ (ISEA), 'Thailand, Province Nakhon/ Ratchasima (Korat), Saeng Sang/ Lam Sae Dam/ National Park Tha Plan, h=250 m./ 14°16'40"N 102°25'28.5"E/ 7–12.VIII.2013/ A.V. Korshunov leg.'.

Aedeagus examined in the males listed.

DIAGNOSIS. This species is distinctive in the combination of the body medium-sized, maxillary palpomeres with a short decumbent pubescence, the antennal scape without ventro-apical seta; the labrum flat, with distinct dorsolateral impressions and deep laterobasal grooves, the tarsi rather narrow, and the antennomeres 3 and 4 infuscated, with latero-apical angles indistinct.

DESCRIPTION. BL 10.4–11.8 mm. Body (Fig. 2) as for *M. bensoni* but the following. Cloudy to very distinct spot on vertex and body appendages pale. Pronotal lateral bead and basal margin outside basolateral foveae reddish to reddish-yellow. Anterior elytral spot spanning intervals 3–7, posterior on intervals 1–5, with its small, subangulate extension onto interval 6 or also 7. Anterior and posterior elytral spots spanning intervals 3–7 or 1–5, respectively. Antennomeres 3 and 4 black (scape and pedicel slightly infuscated in specimen from Nan Sambung village). Labrum red to black, with pale margins. Venter black, abdominal sternite VII narrowly to widely red along apical margin.

Head very slightly enlarged, coarsely and densely punctate, less so along middle of frons, sparsely on clypeus. Eyes large, genae short, 0.25–0.27 times as long as eyes, contracted to eyes at very slightly obtuse angles. Frons flat, frontal foveae rather deep short and parallel to each other. Clypeus with two, long, fixed, lateral setae, and a transverse row of 5–6 coarse punctures giving rise to 2–6 slightly shorter setae. Antennae long, surpassing elytral base by more than apical three segments, flattened on sides, antennomeres 5–10 rectangular elongated, 7th 1.46–1.62 times longer than wide; dorsal and ventral pubescent regions widely separated by glabrous median stripe, rather a groove, which is long, tapered, and concave. Maxillary penultimate palpomere 3 about two thirds as long as terminal one, which is 1.31–1.50 (1.42) times as long as wide.

Pronotal sides parallel or slightly converging in front of base, basal angles subrectangular or obtuse, with a minute tooth preceded laterally by minute indentation at posterolateral seta. Sides of base oblique, straight to convex, in the latter case this resulting in basal angles rounded. Punctuation coarse and

dense on disc, less so and very dense to confluent along sides. Basolateral foveae large and deep, round or slightly oblong, running on basal two fifths to half, respectively. Median line fine, slightly deeper in basal half; apical transverse impression vague, barely deeper on sides and impressed in form of a mall pit at meeting point with apical margin laterally.

Elytral intervals each with two longitudinal rows of punctures, 2nd or 2nd and 4th or 2nd, 4th and 6th with three uneven punctate rows in apical third or before apex; 8 just behind the level of anterior spot with 3–5 punctures traceable across.

Legs as for the genus. Protibia with indistinct longitudinal sulcus on anterior face. Meso- and metatarsi moderately wide, very slightly flattened, metatarsomeres 1–3 truncate apically and very slightly asymmetric, with latero-apical angles distinct yet more or less blunt; mesotarsomere 2 slightly longer than wide, mstm2L/W 1.14–1.33 (1.22).

Aedeagus (Figs 42–43, 52–53) small, a fourth shorter than in the species of the *bensoni*-group, ventral margin of median lobe very convex and subangulate, thus forming a ventral concavity just distal to base; dorsal ligules narrow and very long, starting about two fifth from base.

DISTRIBUTION. Thailand, Vietnam.

NAME. Refers to the infuscated antennomeres 3 and 4 that form a dark ring against paler background of the antenna.

HABITATS AND HABITS. No exact data.

8. *Macrocheilus vietnamensis* Fedorenko sp.n.

Fig. 7.

MATERIAL. Holotype ♀ (SIEE), 'S[outhern] Vietnam, N[orthern part of] Dongnai [=Dong Nai] Pr [ovince]./ Nam Cat Tien Nat[ional]. Park/ Exped[ition of]. Russ[ian].-Vietnamese/ Tropical Centre/ at light HQL 450 II./ leg. D. Fedorenko .VI.2005'.

DIAGNOSIS. Very slightly different from the previous species in having the head slightly larger, the genae barely longer and contracted obliquely to the neck, which is wider, HW/NW 1.57. Besides, maxillary palpomere 4 is slender, almost twice as long as wide, and antennae shorter, with antennomere 7 slightly less than a half longer than wide.

DESCRIPTION. As for *M. annulicornis* sp.n., except for the following. BL 10.9 mm. Body as in Fig. 7. Small and round spot on vertex, labrum, body appendages, antennal scape and pedicel reddish-yellow. Antennomeres 3 and 4 black, those 5–11 brown, slightly paler apicad. Anterior elytral spot round, spanning intervals 3–7, posterior on intervals 1–5, with a small, subangulate extension onto interval 6.

Head enlarged, eyes smaller, genae longer, 0.37 times as long as eyes, and oblique, contracted to genae at obtuse angles. Antennomere 7 shorter, 1.46 times as long as wide. Terminal maxillary palpomere 1.93 times as long as wide.

Elytral intervals each with punctures arranged in two longitudinal rows, interval 2 before apex with three and interval 8 just behind the level of anterior spot with 3–4 irregular punctate rows. Parascutellar striole mostly moderately deep.

DISTRIBUTION. Known from the type locality only.

NAME. Refers to the country from where the holotype has originated.

HABITATS AND HABITS. The only specimen was taken at light positioned at the edge of a lowland, semideciduous, monsoon forest.

COMMENTS. It is hard to deduce from an analysis of very limited material whether the differences between *M. vietnamensis* sp.n. and *M. annulicornis* sp.n. are actually interspecific or they have come from sexual dimorphism or geographic variability of a single species. On the other hand, many other

species of *Macrocheilus* reviewed here are not sexually dimorphic in the body proportions we consider among distinctive features. Accordingly we recognize these species as separate ones until otherwise proved elsewhere.

9. *Macrocheilus pusillus* Fedorenko **sp.n.**

Fig. 8.

MATERIAL. Holotype ♀ (ZISP), with label 'Laos, Vientiane Prov. 70 km/ NNW of Vientiane, Nam Lik/ Eco Vill. on Nam Lik River./ 200 m, 18.61469°N/ 102.40847°E 10-30.VI.2017/ A.V. Gorokhov, M. Omel'ko'. Paratype ♀ (SIEE), labelled: 'Thailand, Province/ Tak, South-East Mae Sot./ 23-25.07.2013/ A. V. Korshunov leg.'.

DIAGNOSIS. A small species distinctive from *M. annulicornis* **sp.n.** chiefly in having the labrum and the body appendages pale, the head large, with genae slightly longer and more oblique, the tarsi and the maxillary palps slender and elliptic in cross-section, the antennae shorter, the labrum more pentagonal in shape and slightly longer, width/length ratio 1.27 vs. 1.32–1.44 (1.37).

DESCRIPTION. BL 7.7–9.6 mm. Body (Fig. 8) black, tibiae, tarsi and mouthparts reddish yellow, labrum and antennomeres 1–4 red, with those 2 to 4 barely infuscated, antennomeres 5–11 testaceous rather pale; femora and fairly small elytral spots more or less yellow, anterior round, spanning intervals 3–7, posterior on intervals 1–4 and extended onto 5. No distinct spot on vertex, pronotum narrowly reddish along sides, more widely so at base. Venter infuscated, with about 1/3 apical margin of sternite VII reddish.

Head large, coarsely and very densely punctate, confluent in frontal foveae and along sides in basal half, clypeus and frons along middle nearly smooth. Frons flat, frontal foveae vague, with a few very fine and dense rugosities just behind clypeus, forming combined almost indistinct U-shaped impression. Clypeus with 1–2, shorter, intermediate setae additional to fixed lateral ones. Antennae short, surpassing elytral base by less than apical three antennomeres, flattened on sides, antennomeres 6–10 subquadrate, with angles more or less rounded, 7th 1.30–1.38 times as long as wide; pubescence as in *M. annulicornis* **sp.n.**, except for median stripe being shorter and less deep. Maxillary palp slender, palpomere 3 nearly two fifths as long as 4th, which is about 2.6 times as long as wide, thus been longest among those of the species reviewed.

Pronotum moderately convex, sides rounded in apical two thirds, sinuate and parallel in front of base; basal angles more or less obtuse, each with a minute tooth and a nearly indistinct lateral indentation at posterolateral seta. Base produced, its sides oblique, almost straight to rounded toward basal angles. Punctuation coarse and very dense on disc, less coarse and confluent along sides. Basolateral foveae round, deep, running on basal 1/3–2/5; lateral margin explanate outside. Median line fine and entire, being at bottom of an oblong, deep and rather wide median impression in basal three fifths; apical transverse impression vague.

Elytral sutural bead distinct in apical half only, intervals each with two, interval 2 before apex with three, slightly uneven, punctate rows; interval 8 just behind the level of anterior spot with 3–4 punctures across. Parascutellar striole shallow to indistinct.

Legs as for the genus. Protibia with entire longitudinal sulcus on anterior face. Meso- and metatarsi narrow, transversely elliptic in cross-section, tarsomeres 1–3 with latero-apical angles rounded and thence indistinct; mesotarsomere 2 two fifths longer than wide.

DISTRIBUTION. Indochina (Thailand, Laos).

NAME. Refers to body size, which is smaller in this than in other species.

HABITATS AND HABITS. No data.

The *chaudoiri* species group

DIAGNOSIS. Smaller-sized and slender species, with heads large, eyes large and convex, and genae subtransverse at posterior margins. Elytral sutural bead obliterate or vestigial just in front of apex, spots large or very so. Maxillary palpomere 4 mostly short funnel-shaped, palps otherwise glabrous or with individual, very short and thence nearly indistinct setules. Labrum flat and fairly transverse, with laterobasal grooves missing or indistinct and dorsolateral impressions rather small and mostly vague, situated closer to apex than to base. Antennal scape mostly with a ventro-apical seta much shorter than fixed dorso-apical one. For details see also key couplet 22.

COMMENTS. The group is here established for 5–7 species, of which two have been described just recently and the next three are described below.

Allegro *et al.* [2021] revised *M. chaudoiri* (Andrewes, 1919) and allied species, and described new two. They stated provisional distinctness of *M. chaudoiri* and its junior synonym, *M. ruficollis* Heller, 1923, while specifying no difference they found between them. Because I have found subtle or no difference between the only specimen at my hand and published illustrations of *M. chaudoiri*, *M. ruficollis*, and *M. cambodianus* Allegro et Giachino, 2021, I have to recognize *M. chaudoiri* only and refrain from synonymizing *M. cambodianus* until otherwise stated elsewhere from more material examined.

A little-known *M. bandipurensis* Akhil *et al.*, 2019, from Karnataka, India, is very similar in many characters, including body size and colour, except only that the maxillary palpomere 4 is very slender, which is not characteristic of the group. In the Afrotropical fauna, only three species may belong to this group. Of them, *M. vanharteni* Felix et Muilwijk, 2007, from Yemen matches well the diagnosis of the group, but the body is slightly larger, BL 10.8 mm. *M. philippeorum* Serrano, 2023, from the western Africa and *M. persimilis* Basilewsky, 1970, from the southern Africa are less similar, both being still larger, either 11.5 or 13.5 mm in length, respectively.

10. *Macrocheilus chaudoiri* (Andrewes, 1919)

Fig. 10.

Andrewes, 1919: 130 (*Macrochilus*); 1920: 497, 502; 1926c: 351; 1930: 207; Kirschenhofer, 2003; Zhao, Tian, 2010: 11; 2012: 80, 91; Allegro *et al.*, 2021: 88. — *trimaculatus* Chaudoir, 1872 (non Villers, 1789, nec Olivier, 1790): 171 (*Acanthogenius*; 'Deccan' [= Dacca?]); Bates, 1889: 280. — *ruficollis* Heller, 1923: 296 (*Macrochilus*; Luzon, Philippines); Allegro *et al.*, 2021: 90. — *lindemannae* Jedlička, 1963: 6 (*Macrochilus*; Rawalpindi, Pakistan); Lorenz, 2005: 512 (*Macrochilus*); Huber, Marggi, 2017: 577. — ? *cambodianus* Allegro et Giachino, 2021: 90 (Cambodia).

MATERIAL. ♀ (SIEE), Thailand, Province Nakhon Ratchasima (Korat), Nong Bunnak, h=200 m, deciduous gallery forest, 14°41'N 102°27'E, 26–31.X.2011 (A.V. Korshunov).

DIAGNOSIS. Distinctive from the other species of the group chiefly in having the pronotum long, PW/PL 1.11–1.20 (vs. 1.33–1.36), and more convex. Because this species is much described, a brief re-description is only provided here.

REDESCRIPTION. BL 8.3–10 mm. Body (Fig. 10): head and elytra black, pronotum red, labrum and body appendages reddish yellow, elytral spots yellow or reddish yellow; a fairly large cloudy spot on vertex red or the head medially to entirely

reddish brown. Venter more or less infuscated except along apical margin. Anterior elytral spot round, spanning intervals 3 to 8 (or 2–8 and/or extended to 9th), posterior spots fused along suture in their apical halves, each spanning intervals 1–5, with angulate lateral extension reaching stria 7.

Head coarsely and very densely punctate, rather sparsely along middle, very sparsely on clypeus, confluent within short and vague frontal foveae; these convergent to form a semicircular figure, yet widely interrupted medially, frons otherwise rather flat. Clypeus quadrisetose, setae being equidistant *inter se*. Labrum flat, with laterobasal groove indistinct and dorsolateral impressions nearly so, being very small and hardly traceable in apical half. Antennae fairly long, surpassing elytral base by apical two antennomeres, distinctly flattened on sides, antennomeres 5–10 oblong rectangular, with angles rounded; 7th 1.45 times as long as wide, dorsal and ventral pubescent regions separated by glabrous, rather narrow and concave, median stripe in basal three fifths; scape with ventro-apical seta rudimentary, much shorter than fixed dorso-apical one. Maxillary palpomere 3 about half as long as 4th, which is 1.38 times as long as wide.

Pronotum with apex slightly sinuate, sides barely converging in front of basal angles; these subrectangular, minutely toothed, indentation of lateral edge at posterolateral seta slight. Punctuation coarse and almost confluent along both margins and along median line, rather sparse in between. Basolateral foveae round, deep and small, confined to basal quarter only. Median line fine, at bottom of a shallow median impression; apical transverse impression vague.

Elytral intervals barely convex, with punctures arranged in two rows, three punctures traceable across intervals 2 and 4 close to apex and 4–5 punctures across interval 8 just behind the level of anterior spot. Parascutellar striae moderately deep posterior to parascutellar seta; sutural bead very fine and hardly traceable in apical third only.

Legs as for the genus. Protibia with longitudinal sulcus distinct in basal 2/3 anterior face. Meso- and metatarsi narrow, round in cross-section, with apices rounded, metatarsomeres 3 obliquely truncate, with posterior latero-apical angle slightly acute and sharp; mstm2L/W 1.43.

DISTRIBUTION. Pakistan, India and Nepal to Cambodia, South China and Philippines. Bates [1889] reported this species from Hue, Central Vietnam, whereas the record in Bhamo, Myanmar [Bates, 1892], was most likely based on a misidentified specimen of a different species defined by a black (vs. red) pronotum.

HABITATS AND HABITS. No exact data, except for this species, including all the type specimens of *M. cambodianus*, often come to lights or light traps.

COMMENTS. Having been reported from Nepal and synonymized with *M. chaudiroidi* by Kirschenhofer [2003], *M. lindemannae* was repeatedly listed as valid species [Lorenz, 2005; Huber, Marggi, 2017], with no comments, and not accordingly listed by Zhao & Tian [2010, 2012] among synonyms of *M. chaudiroidi*, until this synonymy was then revived again [Allegro *et al.*, 2021].

[11. *Macrocheilus walterrossii* Allegro *et al.*, 2021]
Figs 12, 46–47, 56–57.

Allegro *et al.*, 2021: 93 (Cambodia).

MATERIAL. ♂ (SIEE), Cambodia, Kep Province, env. Kep, 19°29'56"N 104°17'39"E, h=40 m, at light, 13.VI.2014 (I. Melnik).

DIAGNOSIS. Distinctive features include chiefly a pale red and transverse pronotum, pale venter, large elytral spots,

especially anterior one, which is longer laterally than medially. Median lobe of aedeagus straight at ventral margin in lateral view differentiates this species well from the other two species of the group with described male genitalia.

REDESCRIPTION. Only some features of the only specimen examined to complement or modify the original description. BL 8.8 mm, body as in Fig. 12: clypeus reddish-yellow, vertex with no median spot; sides of head ventrally, meso- and metaventrites and pleurites red, metaventrite slightly infuscated at middle, gula paler, venter otherwise yellow, with abdominal sternites narrowly and slightly infuscated along sides. Anterior elytral spot spanning intervals 2–8 and extended onto 9, posterior spots fused along suture in their apical halves, each reaching interval 5 laterally, with posterolateral extension extended to stria 7.

Frons flat, with foveae very short and moderately deep, clypeus with two intermediate setae shorter than fixed lateral ones. Labrum slightly concave in lateral view, dorsolateral impressions medium-sized yet shallow, deeper just inside lateral setae and reaching lateral margins medially, laterobasal grooves missing. Antennae as for *M. chaudiroidi*, except for scape without ventro-apical seta, antennomeres 5–10 with glabrous median stripe deep and narrow, and antennomere 7 1.36 times as long as wide. Maxillary palpomere 3 almost half as long as 4th, which is 1.34 times as long as wide.

Pronotum short, PW/PL 1.35, coarsely and moderately densely punctate, very sparsely on disc except along margins and along median line; otherwise as for *M. chaudiroidi*, except for base slightly less produced and median line obliterate both basally and apically.

Elytral sutural bead reduced to a vague remnant close to apex only, intervals with punctures much finer than those on pronotum and fairly sparse, arranged in two rows, with 3–4 punctures traceable across interval 8 just behind the level of anterior spot; interval 1 with single punctate row along stria 1 and solitary punctures here and there inside.

Protibia with entire longitudinal sulcus on anterior face; mstm2L/W 1.36.

Aedeagus (Figs 46–47, 56–57): median lobe in lateral view nearly straight at ventral margin, apex widely triangular and rounded in dorsal view; dorsal sclerotized ligules very narrow and long, almost reaching basal bulb. Internal sac in lateral view with two slight sclerotizations, shorter dorsal and longer ventral.

DISTRIBUTION. Hitherto only known from two localities in Cambodia. Records in southern Vietnam seem to be very probable.

HABITATS AND HABITS. All the specimens were collected at light.

12. *Macrocheilus obliquatus* Fedorenko **sp.n.**
Figs 11, 44–45, 54–55.

MATERIAL. Holotype ♂ (ZMMU), 'S[outhern] Vietnam, N[orthern part of] Dongnai [=Dong Nai] Pr [ovince]./ Nam Cat Tien Nat[ional]. Park/ Exped[ition of]. Russ[ian].-Vietnamese/ Tropical Centre/ at light HQL 450 11./ leg. D. Fedorenko .VI.2005'.

DIAGNOSIS. Very slightly different from *M. walterrossii* chiefly in the following points: venter infuscated but pale gula and prothoracic parts, apical 1/2 labrum with dorsolateral impressions in form of a fairly deep round pit distant from margins, frontal foveae forming a deep semicircular impression combined, and elytral intervals more densely punctate.

Aedeagus (Figs 44–45, 54–55): median lobe with ventral margin very convex in lateral view, apex in dorsal view barely

narrower, dorsal sclerotized ligules similar. Internal sac in lateral view with a strong ventral sclerotization only.

DESCRIPTION. BL 8.6 mm, body as in Fig. 11: head black, elytra brown black, a large median spot on vertex, labrum, clypeus in anterior half, pronotum, elytral spots, body appendages and prothorax ventrally yellow to reddish yellow; apical abdominal tergites pale brown. Venter brown, rather dark, gula paler, abdomen with sides of base, extreme apices of sternites, and apical margin of sternite VII rather widely pale. Anterior elytral spot large, oblique posteromesad, spanning intervals 2 to 8, posterior smaller, on intervals 1 to 5 and extended slightly onto 6th.

Head coarsely and very densely punctate, rather sparsely along middle of frons to vertex, very sparsely on clypeus, confluent within semicircular frontal impression, frons otherwise flat. Clypeus quadrisetose (setae abraded). Labrum barely concave, with sides slightly diverging in basal two thirds, apex widely and evenly rounded and angles nearly indistinct in between. Antennae as in previous species yet longer, surpassing elytral base by apical three antennomeres, 7th half as long as wide. Maxillary palpomere 3 half as long as 4th, the latter almost quite a third longer than wide.

Pronotum with apex barely sinuate, basal angles with both apical tooth and indentation of lateral edge at posterolateral subtle. Punctuation moderately coarse and very dense, confluent along margins and at bottom of basal foveae. Basolateral foveae round and very deep, running on basal third. Median line fine, median impression shallow and traceable in basal half only; apical transverse impression obliterate but a small impression of apical margin on each side.

Elytral intervals barely convex anteriorly, flat behind, densely punctate; punctures arranged in two rows, three punctures traceable across intervals 2 and 4 before apex and four punctures across interval 8 just behind the level of anterior spot; interval 1 with punctures forming 1–2 very uneven longitudinal rows. Sutural bead very fine and hardly traceable in apical third only.

Protibia with entire longitudinal sulcus on anterior face; mstm2L/W 1.43.

DISTRIBUTION. Only known from the type locality.

NAME. Refers to oblique anterior spots of the elytra.

HABITATS AND HABITS. The only specimen was taken at light positioned at the edge of a tropical, semideciduous, monsoon forest not far from the Dong Nai River.

13. *Macrocheilus nigrans* Fedorenko **sp.n.**

Fig. 13.

MATERIAL. Holotype ♀ (SIEE), 'S[outhern] Vietnam, / Dongnai [= Dong Nai] Province./ Cat Tien National Park/ 11°25'24"N 107°25'41"E/ at light, 10–20.XI.2005/ leg. N. Belyaeva'.

DIAGNOSIS. A darker coloured similar of *M. walterrossii*, distinctive from that species chiefly in having the body dorsum black, with the anterior elytral spots rather small, venter infuscated except rather pale abdomen, combined with the labral dorsolateral impressions and laterobasal grooves indistinct. For minor details see the description.

DESCRIPTION. BL 8.8 mm, body as in Fig. 13: dorsum black, apical abdominal tergites infuscated in general, clypeus along apical margin and pronotal lateral bead in basal third reddish, labrum, mouthparts, tibiae and tarsi reddish yellow, antennomeres 1–4 pale red, those 5–11 reddish brown, femora and elytral spots yellowish. Venter dark brown to brown black, abdomen reddish brown, rather pale. Anterior elytral spot round, spanning intervals 3 to 7, posterior spots fused along

suture in their apical halves, each spanning intervals 1–5, with angulate lateral extension reaching stria 6.

Head coarsely, unevenly and rather sparsely punctate, more so at middle, densely on neck. Frons flat, frontal foveae slightly diverging and ill-defined. Clypeus bisetose, with additional intermediate setae, right two slightly shorter than fixed lateral one, left two as short as pubescence around. Labrum flat, with sides rounded and barely diverging in basal two thirds, and apex evenly rounded. Antennae short, surpassing elytral base by apical two antennomeres, distinctly flattened on sides, antennomeres 5–10 subquadrate, with angles blunt; 7th 1.27 times as long as wide; dorsal and ventral pubescent regions separated by glabrous median stripe in form of a narrow and deep groove in basal three fifths; scape without ventro-apical seta. Maxillary palpomere 3 almost half as long as 4th, which is 1.39 times as long as wide.

Pronotum with apex slightly sinuate, sides barely sinuate a third from base and slightly diverging basad; basal angles very slightly obtuse, minutely toothed, with indistinct indentation just in front. Punctuation coarse and fairly dense, sparser on each side of median line, which is fine, obliterate apically, being at bottom of a shallow median impression. Basolateral foveae round, large and deep, occupying basal two fifths and reaching lateral bead. Apical transverse impression vague, with a shallow pit on each side.

Elytra and legs just as for *M. walterrossii*, except for interval 1 with single punctate row along stria 1.

DISTRIBUTION. Only known from the type locality.

NAME. Refers to the dark coloured body.

HABITATS AND HABITS. The only specimen was taken at light.

[*Macrocheilus kryzhanovskiy* Fedorenko **sp.n.**]

Fig. 14.

– ? *trimaculatus* (non Villers, 1789; nec Olivier, 1790; nec Chaudoir, 1872): Bates, 1892: 390 (*Acanthogenius*; Bhamo [= Banmaw, = Manmaw], Myanmar).

MATERIAL. Holotype ♀ (ZISP), with label 'Дол[ина]. Салуэна, W Бао-/ шаня, 800 м. Юньнань/ 11 У 1955. Крыжановск[ий]' [China, Yunnan, Salween (= Thanluin, = Nujiang) River Valley, W of Baoshan, 11.V.1955, O.L. Kryzhanovskiy leg.] and a similar label in Chinese.

DIAGNOSIS. Distinctive from the other species of the group in having the pronotum black, combined with minor features indicated in the key.

DESCRIPTION. BL 9 mm, body (Fig. 14) dorsum very dark brown, nearly black, legs, antennomeres 1–4, mouthparts, labrum, apical 1/2 clypeus, and cloudy spot on vertex reddish-yellow; antennomeres 5–11 pale brown, supra-antennal plates, neck, very narrow apical, basal and lateral margins toward bases reddish. Abdomen and large elytral spots yellow, anterior round, spanning intervals 3–8, posterior extended laterally to interval 7. Venter otherwise dark brown, reddish along middle.

Head coarsely and densely punctate, clypeus, supra-antennal plates and frons to vertex at middle almost smooth and glabrous. Frons nearly flat, frontoclypeal suture totally obliterate, dorsum otherwise with ill-defined U-shaped impression formed by round, shallow, slightly converging frontal foveae and a subtle median impression on vertex. Clypeus quadrisetose. Labrum short, three fifths wider than long (vs. ~1.4–1.5 times as wide as long in the other species of the group), flat, semicircular in apical half, with sides barely converging basad; dorsolateral impressions round, fairly deep, isolated from lateral margin, occupying area between basal two fifths and apical fifth. Antennae short,

surpassing elytral base by apical two segments, distinctly flattened on sides, antennomeres 5–10 subquadrate, with angles blunt; 7th a fourth longer than wide; dorsal and ventral pubescent regions separated by glabrous median stripe in form of a narrow and deep groove in basal three fifths; scape without ventro-apical. Maxillary palpomere 3 almost half as long as 4th, which is 1.37 times as long as wide.

Pronotum flat, convex to apical angles, with apex sinuate, sides sinuate a third from and slightly diverging toward base. Base truncate, distinctly produced due to its sides sinuate and oblique to basal angles; these minutely toothed, each with a minute indentation just in front, preceded by a minute and very obtuse angle. Punctuation coarse and sparse on disc, dense along margins and along middle. Disc in basal half with a wide median impression, fine median line at its bottom, that reaches base while obliterate apically. Basolateral foveae small round and very deep, distinct in basal fifth only, with basal angles explanate outside. Apical transverse impression vague.

Elytra almost parallel-sided, rounded combined apically, with sutural angles rounded. Striae moderately deep, finely punctate. Intervals slightly convex in basal half, almost flat behind, each with two, even, longitudinal rows of medium-sized punctures toward striae, interval 1 with single row but very few additional punctures, 4 with three rows before apex, 8th with 3–4 irregular rows.

Legs as for the other species of the group.

DISTRIBUTION. Only known from the type locality.

NAME. Patronymic, dedicated to collector of the holotype, an eminent Russian carabidologist and coleopterologist, Oleg Leonidovitch Kryzhanovskiy (1918–1997).

HABITATS AND HABITS. Unknown.

2. *Syntomocheilus* Fedorenko, gen.n.

Type species: *Macrocheilus fuscipennis* Zhao et Tian, 2010.

DIAGNOSIS. See key to the genera.

DESCRIPTION. Body medium-sized, BL 11–13.5 mm, dorsum shiny reddish-brown to black, without microsculpture; body appendages, mandibles, legs and elytral spot in second quarter reddish-yellow, antennomeres 4–11 testaceous; venter largely pale. Dorsum moderately and very densely punctate and pubescent, slightly less so on each side of pronotal median line and on vertex, rather sparsely on frons between frontal foveae, confluent here and there toward pronotal lateral margins; elytral intervals 2–7 each with punctures arranged in 2–3 uneven longitudinal rows, sutural interval with single row of punctures.

Head large relative to pronotum, without neck constriction; eyes rather small yet hemispherical and prominent, genae very short and almost perpendicular to neck. Frons slightly convex, frontal foveae small and shallow, frontoclypeal suture very deep; two supra-ocular setae on each side. Clypeus bisetose, transverse yet rather narrow, deeply sinuate, with widely rounded angles and deep, medially interrupted, impression, nearly sulcus, along base. Labrum subpentagonal, sinuate between apical angles and apex proper, these three rounded yet distinct, sides more rounded; dorsum flat in basal half, elevated in form of a round knob in apical half, with a round, large and deep, impression on each side posterolateral to the knob, that reach clypeus along sides; lateral setae marginal, inner four almost so and equidistant *inter se*, distances between inner/intermediate and intermediate/lateral setae are in the ratio 1 : 2.

Mentum tooth slender, sharp-pointed, in apical half with a sharp, medioventral, slightly oblique carina set to the tooth at a very obtuse angle; submentum very short, gula very nar-

row. Ligula rather flat, slightly broadened apicad and slightly angulate on each side of a rounded apex; two pairs of setae traceable: distal seta apical, proximal distant far from apex; paraglossae contiguous to ligula just proximal to its latero-apical angles, well visible in ventral view. Labial palps short and flat, palpomere 1 very short, those 2 and 3 subequal in length, former broadly triangular, right-angled at inner margin and sparsely setose, latter ovate, wider at base than at apex, very sparsely setulose. Maxillary palps short, slightly flattened; palpomere 2 as long as 4th, with apex very oblique, almost reaching base inwardly and sharply carinate on each side, those 3 and 4 oblong-oval combined and rather rigidly articulated, 3rd broadly triangular and very short, about a fourth as long as 4th, which is ovate, very sparsely setulose, with apex obliquely truncate. Antennae moderately long, surpassing elytral base by about 2.5 apical antennomeres; those 1–3 sparsely pubescent and shiny, 4–11 dull from granulate microsculpture due to short and very dense pubescence; scape with fixed dorso-apical; antennomeres 5–11 slightly compressed in vertical plane, those 5–10 subquadrate, slightly elongated, with angles rounded, 7th about a fifth longer than wide; median stripes in form of very narrow grooves, complete, less distinct at apices.

Pronotum quadrate, bisetose on each side, with sides slightly sinuate toward base. Base very slightly produced due to its sides oblique rather than emarginate; basal angles obtuse, minutely toothed, sides with a shallow indented at posterolateral seta just in front of the tooth. Apex sinuate, with angles widely rounded, lateral bead extremely fine. Basolateral foveae moderately deep and wide, directly extended into widely explanate lateral margin that almost reaches apex. Median line fine and very deep, obliterate basally and apically; triangular area between apex and apical transverse impression depressed and rugose-punctate.

Elytra parallel-sided, with humeri and outer angles widely rounded, apices truncate combined, blunt at sutural angles (not counting apical membrane). Basal peduncle limited behind by an incurved, very deep, and almost complete latero-basal groove; sides of base convex, with a slight indentation at meeting point with peduncle. Striae moderately deep, finely and densely punctate, 1st adjoining parascutellar seta, striae 1 and 2 joined roundly along apex, 8th hardly indistinct in apical half, obliterate before; parascutellar stria entire and deep. Intervals slightly convex, discal setae inseparable from dorsal pilosity. USS multiple, continuous to and inseparable from apical setae, running close to visual stria 8 except in basal third and at apex.

Leg setation as for *Macrocheilus* except that coxal setae are ill-defined but posterior mesocoxal one, and profemur with 1–2 anterior medioventral setae in addition to single posterior medioventral seta.

DISTRIBUTION. Species of this genus are only known from their type localities in Kerala, South India, or Guanxi, South China; one, formerly Chinese, species is here recorded in Central Laos.

NAME. Masculine, a combination of Greek σύντομο (short, small) and χεῖλί (labrum), referred to a small labrum characteristic of the genus.

HABITATS AND HABITS. Of six species included in the genus, three from China were taken at light and another one in a paddy-field; one of totally three specimens of *S. devagiriensis* (Shiju et Sabu, 2012), **comb.n.**, from India was hand collected in an 'agriculture field'.

COMMENTS. This genus seems to represent an earlier derivative of *Acanthogenius*, as it shares similar structure of the mouthparts with at least some species of the latter. Symple-siomorphies include the ligula with a ventromedial groove for

receipt of the sharp-pointed tip of the median tooth of the mentum and paraglossae visible in ventral view while synapotypic characters include (1) the antennomeres 4–11 (vs. 5–11) densely pubescent, (2) the gula being very narrow to absent, *i.e.*, reduced to a suture, and (3) the penultimate labial palpomere triangular and beaded or carinate (vs. subparallel-sided and neither carinate nor beaded).

Aedeagi are similar in both as well, while being less derived in *Syntomocheilus* **gen.n.**; symplesimorphies include chiefly (1) the dorsal sclerotized ligules far apart except apically and (2) very short membranous window only separating each ligule from the lateral wall.

The genus includes six species, *S. cheni* (Zhao et Tian, 2010), **comb.n.**, *S. fuscipennis* (Zhao et Tian, 2010), **comb.n.**, *S. sinuatilabris* (Zhao et Tian, 2010), **comb.n.**, *S. quadratus* (Zhao et Tian, 2010), **comb.n.**, and *S. solidipalpis* (Zhao et Tian, 2010), **comb.n.**, all from China, and *S. devagiriensis* from Kerala, India. Those from China were described (and have hitherto been known) from single male specimens each, and *S. devagiriensis* was described based on three specimens designated females.

Differences between these species, rather specimens, are subtle if any, and they concern smaller details of the body colour, *i.e.*, size and shape of the elytral spot, the shape of the mentum tooth and the setation of the labrum. The aedeagi are a bit more different and allow arranging the species in two groups, of which one includes *S. quadratus* and *S. solidipalpis*. Because *S. devagiriensis* has originally been diagnosed from '*Macrocheilus* *asteriscus*' only, no diagnostic feature in the description discriminates it from the congeners, and examining the illustrated holotype contributes nothing to the procedure. Besides, a photographed specimen seen by me from 'Madras State, Coimbatore, 1400ft, XI-1996, P.S. Nathan' has no difference from a specimen of *S. fuscipennis* at my hand (see below), which suggests probable identity of *S. fuscipennis* with *S. devagiriensis*.

[14. *Syntomocheilus fuscipennis* Zhao et Tian, 2010]
Figs 9, 50–51, 60–61.

Zhao et Tian, 2010: 6, 12 (*Macrocheilus*; Guanxi, China); 2012.

MATERIAL. ♂ (ZISP), Laos, Thakhek, SE of Fontien, 200 m, 17.X.1984 (O.N. Kabakov).

DIAGNOSIS. See 'Comments' to the genus and to the species below.

REDESCRIPTION. BL 12.9 mm. Body (Fig. 9) dark brown, reflexed lateral margin of elytra narrowly and sides of pronotum very narrowly in basal half reddish, venter entirely reddish yellow except brown head capsule (on each side of gula excluded); elytron with a large, subquadrate, yellow macula spanning intervals 2 to 8.

Antennomere 7 1.18 times as long as wide.

Elytral USS 33–35.

Meso- and metatarsi slightly flattened and moderately wide, metatarsomeres 1–3 obliquely truncate and subsinuate apically, those 2 and 3 with postero-apical (inner) angles acute and antero-apical (outer) angles right or acute, respectively, all being sharp; mesotarsomere 2 just as long as wide.

Aedeagus (Figs 50–51, 60–61): median lobe arcuated, with large basal bulb; ventral side evenly sinuate in lateral view and slightly longitudinally concave from base to apex between subcarinate ventrolateral margins, this latter widely triangular and rounded in dorsal view, thick and rounded in lateral view. Dorsal ligules rather faintly sclerotized basally and widely separated except apically.

For other details see 'Description' of the genus.

DISTRIBUTION. Known from eastern Guanxi, South China; here recorded from eastern Central Laos on the border with Thailand.

HABITATS AND HABITS. No data other than the holotype specimen was taken by light trapping.

3. *Acanthogenius* Reiche, 1842, **stat.rest.**

Reiche, 1842: 334; Schaum, 1863: 80 (part.); Chaudoir, 1872: 212 (part.); Bates, 1892: 389 (part.). — *Creagris* Nietner, 1857a: 139; 1857b: 277 (type species: *C. labrosa* Nietner, 1857, by monotypy); Chaudoir, 1872: 212; Gestro, 1875: 868; Bates, 1886: 200; 1892: 390 (part.); Sloan, 1914: 570; Andrewes, 1930: 136 (part.), **syn.n.** — *Pseudohelluo* Laporte, 1867: 18; 1868: 104 (type species: *P. wilsoni* Laporte, 1867, by monotypy). — *Macrocheilus* auct. (part.).

Type species: Type species: *Helluo impictus* Wiedemann, 1823, by original designation.

DIAGNOSIS. Distinguishable from the allied genera chiefly by the mandibles concealed with a large, mostly pentagonal, labrum, combined with the labial ligula having a longitudinal median groove, and the palpomere 2 triangular at, and often longitudinally sulcate along, inner margin; other polythetic characters include at least intermediate labral setae being mostly dorsal in position, *i.e.*, distant from lateral margin, the tarsomere 4 truncate to bilobed (vs. truncate to sinuate), antennomeres 3 and/or 4 with primary-like pubescence; the body mostly unicoloured or the elytra bimaculate combined.

Aedeagus mostly with dorsal sclerotized ligules lateral or widely separated but apically, not seldom modified, with basal bulb reduced in size and/or ventral in position due to the body of aedeagus incrassate just outside.

REDESCRIPTION. Not yet ripe for completion, as six of totally 17 Oriental species have only been examined and the bulk of the species diversity of this genus (36 species, including four Madagascan ones) is in the Afrotropical region, which is far beyond the scope of this paper.

DISTRIBUTION. Africa south of the Sahara Desert east to South China, Philippines and northern Australia.

HABITATS AND HABITS. No original exact data.

COMMENTS. This genus is here recognized in the sense of Reiche [1843] who has considered *Macrocheilus* and *Acanthogenius* as separate genera. It includes species that are very different from one another in the body colour, shape, size and proportion, and apparently forms several species groups, including the *piceus*-group (= *Creagris* Nietner, 1857). Having been erected the genus *Creagris* was synonymized by Schaum [1863] with *Acanthogenius* (= *Macrocheilus*) *sensu* Schaum [1863] until resurrected by Chaudoir [1872] based on differently shaped 4th tarsomere, truncate to sinuate in *Acanthogenius* vs. bilobed in *Creagris*, this difference being traditionally considered of genus level, *i.e.*, sufficient enough to discriminate between genera of the family. A number of species defined by the bilobed tarsomere were described within *Creagris* since, all being exclusively Oriental in distribution. These are rather different from one another, and the fourth tarsomere varies much between some of them as well. In particular, *A. piceus* Schaum, 1863, as the type species of *Creagris*, *A. binoculus* (Bates, 1892), **comb.n.**, *A. distactus* (Wiedemann, 1823), **comb.n.**, etc., share this tarsomere cleft almost to base, with the lobes very long and wide and nearly half as long as the tarsomere 5 or longer, whereas *A. lineollus* has these lobes very short, half as long as the tarsomere 4 and less than a fourth as long as the tarsomere 5 in metatarsi, this latter combination being peculiar to great majority of other *Acanthogenius*. Yet, *A. lineollus* and *A. piceus* otherwise are very similar to each other, arguing for their close affinity thus. Specifically, they

share the antennomeres elliptic, nearly cylindric in cross-section, with the glabrous median stripes vague and the primary pubescence secondarily expanded to not only antennomere 4 but also 3, which is not characteristic of the other species examined. Besides, all the species of '*Creagris*' (e.g., *A. bisignatus*) are barely if at all different from those of *Acanthogenius*, in both shape and structure of the labrum.

On the other hand, it follows from my comparison between Oriental species of *Creagris* and many Afrotropical species of '*Macrocheilus*' (mainly in form of dorsal habitus and aedeagi illustrated in Serrano [2023]) that some of them have the aedeagi very similar and very peculiar in shape, as well as in structure, which makes the development of these complex structures less likely in parallel; *Acanthogenius lineolus* (Andrewes, 1926), **comb.n.** (Figs 86–87, 92–93) in comparison with three species such as *A. kudrnai* (Serrano 2023), **comb.n.**, *A. biguttatus* (Gory, 1832), **comb.n.**, and *A. dorsalis* (Klug, 1834), **comb.n.**, is illustrative example.

Since no characters have been found to discriminate *Creagris* from *Acanthogenius* and intermediate forms do really exist, the two names are here recognized as congeneric, i.e., synonyms. Besides, I see no reason to maintain *Creagris* even as a subgenus of *Acanthogenius* and consider the following two distinctive features of *Creagris*, i.e., a peculiar median lobe of aedeagus and a characteristic pedicel, which is globose and very short, less than half as long as the antennomere 3, as characters of hardly more than species group level.

The Oriental species (17) are as follows: *A. chinnaensis* (Akhil et al., 2019), **comb.n.**, which is very similar to *A. impictus* (Wiedeman, 1823), **comb.n.**, *A. bicolor* (Andrewes, 1920), **comb.n.**, *A. vitalisi* (Andrewes, 1920), **comb.n.**, *A. binotatus* (Andrewes, 1931), **comb.n.**, *A. immanis* (Andrewes, 1920), **comb.n.**, *A. asteriscus* White, 1844, *A. niger* (Andrewes, 1920), **comb.n.**, *A. bigemmis* (Andrewes, 1931), **comb.n.**, *A. rubrothorax* (Louwerens, 1949), **comb.n.**, *A. hamaticollis* (Bates, 1892), **comb.n.**, *A. distactus* (Wiedeman, 1823), **comb.n.**, *A. binoculus* (Bates, 1892), **comb.n.**, *A. macromaculatus* (Louwerens, 1949), **comb.n.**, *A. lineolus* (Andrewes, 1926), **comb.n.**, *A. piceus* Schaum, 1863, and *A. wilsonii* (Laporte 1867), **comb.n.**; the latter nine belonging to the *piceus* species group. Only four species of this list have hitherto been reported from Vietnam.

Some significant characters taken separately each or combined are worthy of note. The first character concerns the tibiae longitudinally grooved along outer margins; it is shared by the Helliunina except the Papuan and Australian taxa. All the tibiae distinctly grooved are here considered as a plesiomorphous character (0), and the protibia with a vestigial to absent groove is a derived one (1), accordingly. The character (0) is a feature of *Triaenogenius* Chaudoir, 1877, *Androchaetus* Basilewsky, 1959, and some *Acanthogenius*, e.g., *A. asteriscus*, *A. labrosus* (Dejean, 1831), **comb.n.**, and *A. lineolus*, whereas (1) has been observed in the remainder of the Helliunina examined, among them New World genera, *Omphra*, *Macrocheilus*, *Syntomocheilus* **gen.n.** and the other of the Oriental *Acanthogenius*, as well as at least some African and Madagascan species, such as *A. cribrarius* (Fairmaire, 1901), **comb.n.**, and *A. crampeli* (Alluaud, 1916), **comb.n.** The fact that two closely related species, *A. asteriscus* and *A. crampeli*, exhibit very different patterns suggests that this difference may have been recent and independent within particular genus-group taxa.

Another character concerns the setation of the labial ligula. It seems to have originally been rather small, thin and short, with 3–4 pairs of ventral setae, the distal seta on each side being just apical in position. This seta appears to evolved toward that increasingly distant from the apical margin in course

of evolution of the ligula toward a longer one. Accordingly the following four gradations can be described, the first corresponding well with the primary pattern (*Triaenogenius*, *Omphra* and *Syntomocheilus* **gen.n.**, as well as all the New World taxa) while the second and fourth gradations are defined by the distal seta either slightly (*Macrocheilus*, *Acanthogenius piceus*, *A. vitalisi*, and *A. cribrarius*) or much (*A. asteriscus*, *A. crampeli*, *A. labrosus*, *Androchaetus*) distant from the apical margin, respectively, with the third gradation encompassing species intermediate in this character, i.e., with the distal setae inserted at a considerable distance from the apical margin (*Acanthogenius lineolus*, *A. distactus*, *A. binoculus*).

The two characters discussed, externally sulcate tibiae and the ligula with distal setae remote from the apical margin, suggests closer affinity between *Androchaetus* and *Acanthogenius* than between *Androchaetus* and *Triaenogenius*, the former couple also similar elytral microsculpture, body shape, macropterous condition, etc. Moreover, *Androchaetus* seems to be rather a slight derivative of *Acanthogenius*, for which reason it may deserve to be combined with this latter rather than within *Triaenogenius*; this being Schaum's [1863] point of view or something.

KEY TO SPECIES OF *ACANTHOGENIUS* OF VIETNAM

- 1(8) Tarsomere 4 sinuate to indistinctly bilobed apically, with lobes half as long as the tarsomere or shorter. Body black or dark brown, elytron with a large, slightly oblong to cruciform, pale macula at middle. Labrum with dorsolateral impressions more or less reduced to fairly deep laterobasal grooves.
- 2(5) Brown to black, with labrum and body appendages more or less pale; elytral spots round to oblong, interval 3 with 3–5 long, fine and thence hardly detectable, discal setae. Inner labral setae marginal, not or barely distant from margin. Pronotal base with median part not produced due to its sides slightly oblique rather than emarginate. Maxillary palpomere 4 subcylindric, labial palpomere 2 triangular and bisetose at inner margin. Mentum tooth fairly wide at base. BL 11.4–14 mm.
- 3(4) Body slightly more robust. Pronotum distinctly sinuate on sides in front of base. Genae barely longer and more oblique. — China, Indochina, Malay Peninsula, Borneo. 17. *A. vitalisi* (Andrewes, 1920), **comb.n.**
- 4(3) Body slightly slenderer. Pronotum subsinuate on sides in front of base. Genae barely shorter and more sharply contracted to neck. — Sumatra, Vietnam. *A. binotatus* (Andrewes, 1931), **comb.n.**
- 5(2) Body entirely black, except for extreme apices of terminal palpomeres and antennomere and more or less cruciform elytral spots, these with pale stripe longest in interval 5, projecting before and behind; interval 3 with 4–5 very long and distinct discal setae. Labral setae distant from lateral margin. Pronotum cordate, sinuate in front of nearly right basal angles, sides of base oblique and slightly yet distinctly emarginate. Maxillary palpomere 4 subtriangular, labial palpomere 2 subangulate, deeply grooved and plurisetose along inner margin. Mentum tooth very slender all along.
- 6(7) Elytra in apical half rather dull due to a distinct isodiametric microsculpture, densely punctate, with striae more shallow apicad. Head large, with neck wide. Body larger, BL 14.6–17 mm. — India and Sri Lanka to China (Yunnan). [16. *A. niger* (Andrewes, 1920), **comb.n.**]
- 7(6) Elytra in apical half shiny due to isodiametric microsculpture vestigial, coarsely and almost confluent punctate. Head medium-sized, with neck moderately wide. Body

- smaller, BL 13–14.5 mm. — Indochina, southern China.
 15. *A. asteriscus* White, 1844
 8(1) Tarsomere 4 conspicuously bilobed, with lobes almost as long as the tarsomere and wide apically.
 9(12) Elytron with a large pale spot. Antennae distinctly flattened, densely pubescent from apex of antennomere 3 onward, pedicel more than half as long as antennomere 3, those 5–11 oblong rectangular. Head less than 1.75 times as long as pronotum. BL 10–15.6 mm. — Indochina.
 10(11) Body black, except only for pale elytral spots, and large, BL 15–15.6 mm. Labrum with very deep and very long laterobasal grooves and fairly deep dorsolateral impressions inside, inner setae marginal; neck impunctate and glabrous. Protibia with 3–4 proximate latero-apical spinules. Pronotum very transverse, three fifths as wide as long. — Myanmar, Laos, Vietnam.
 19. *A. binoculus* (Bates, 1892), **comb.n.**
 11(10) Dorsum black, small cloudy spot on vertex, labrum, body appendages end elytral spots pale, reddish-yellow to red, antennomeres 5–11 brown. Body slender and small, BL 10–10.3 mm. Labrum with dorsolateral impressions small and vague, laterobasal grooves moderately deep and short, half as long as labrum, inner setae slightly distant from margin; neck punctate and setose in at least anterior half. Protibia with two proximate latero-apical spinules. Pronotum longer a third as wide as long. — Myanmar, Vietnam. ... 20. *A. distactus* (Wiedeman, 1823), **comb.n.**
 12(9) Body unicoloured brown black, labrum and mouthparts red, clypeus reddish. Antennae barely flattened, pedicel globose, less than half as long as antennomere 3, those 3–11 elliptic and densely pubescent. Head very large, twice as long as pronotum. Protibia with a seta in latero-apical angle. BL 8.2–10 mm. — India and Sri Lanka east to northern Australia. 21. *A. piceus* Schaum, 1863.

15. *Acanthogenius asteriscus* White, 1844
 Figs 72–73, 80–81.

White, 1844: 422 (Hongkong); Chaudoir, 1872: 172; Bates, 1892: 389; Csiki, 1932: 1573 (*Macrochilus*); Jedlička, 1964: 470; Lorenz, 1998: 485 (*Macrocheilus*); Zhao, Tian, 2010: 6; 2012: 80, 88; Aston, 2016: 243; Hovorka, 2016: 354. — *crucifer* Redtenbacher, 1868: 4, pl.1 (sic!), fig.3 (*Planetes*; Hongkong). — *asteriscus*: Andrewes, 1919: 180 (*Macrochilus*); 1920: 497, 500; 1923: 460; 1924: 470; 1930: 206 (*Macrocheilus*).

MATERIAL. ♂ (ZISP), labelled: 'Annam/ Phuc-Son/ Nov. Dez./ H.Fruhstorfer' [Vietnam, Nghe An Province]; ♀ (ZISP), with labels 'China', '*asteriscus*/ White/ hong-hong.' [Hongkong].

Additional material includes digital image of a female from Laos [Anichtchenko, 2024].

DIAGNOSIS. Very distinctive in having tarsomere 4 sinuate apically, combined with the body entirely black, except for a pale, cruciform, macula at middle of elytron.

REDESCRIPTION. Very similar to *A. niger* in appearance. BL 13–14.1 mm. Body black, with pale apices of terminal palpomeres and cruciform macula spanning elytral intervals 2–7 and extended along interval 5 before and behind. Dorsum dull due to coarse and very dense punctation, which is sparse only on clypeus and sometimes on frons; dorsal pubescence black and dense. Elytra in apical half with almost obliterate isodiametric microsculpture traceable here and there between punctures.

Head medium-sized, eyes very convex, not or barely projecting laterad beyond genae, these oblique and about half as long as eyes. Frontal sulci short, deep, diverging. Frontoclypeal suture very fine. Clypeus with two fixed lateral setae,

two shorter ones in between and multiple, short and dense, setae along apical margin. Labrum evenly convex in lateral view; long, pentagonal, parallel-sided in dorsal view; sides converging and slightly rounded distal to lateral setae; dorsum subcarinate along middle, with wide and fairly deep lateral impressions on each side; these impressions slightly separated from short and deep laterobasal grooves, which also curve inwards, thus forming a more or less distinct M-shaped impression a fourth from base. Labral setae subequally distant from each other, all dorsal, lateral and inner ones slightly, intermediate considerably distant from lateral margin. Antennae densely pubescent from apical half of antennomere 4 onward, those 5-, especially 6–10 rectangular and slightly oblong, 7th about three fourths longer than wide; glabrous median stripe slightly grooved, narrower than pubescent regions it separates. Maxillary palpomere 4 about three fourths as long as wide and about twice as long as 3rd, very slightly dilated apicad, subcylindrical in apical 1/2–2/3. Labial palpomere 2 grooved longitudinally, sharply angulate and plurisetose at inner margin.

Pronotum cordate and very transverse. Sides rounded, sinuate in front of base. Apex subsinuate, with angles widely rounded. Base truncate and distinctly produced, its sides transverse yet rounded laterally; accordingly basal angles generally right while very obtuse at tips, minutely toothed, with nearly indistinct lateral indentation at posterolateral seta. Disc moderately convex. Basolateral foveae rather small and shallow. Median line very fine to nearly indistinct. Punctuation confluent just inside lateral edge and at middle of vague apical transverse impression.

Elytra very slightly dilated apicad, with apices oblique. Elytral striae, as well as parascutellar striae, deep, finely punctate, 8th often distinct, as deep as or slightly more shallow than 7th. Intervals more or less convex, very densely punctate, each mostly with 3 uneven rows of punctures.

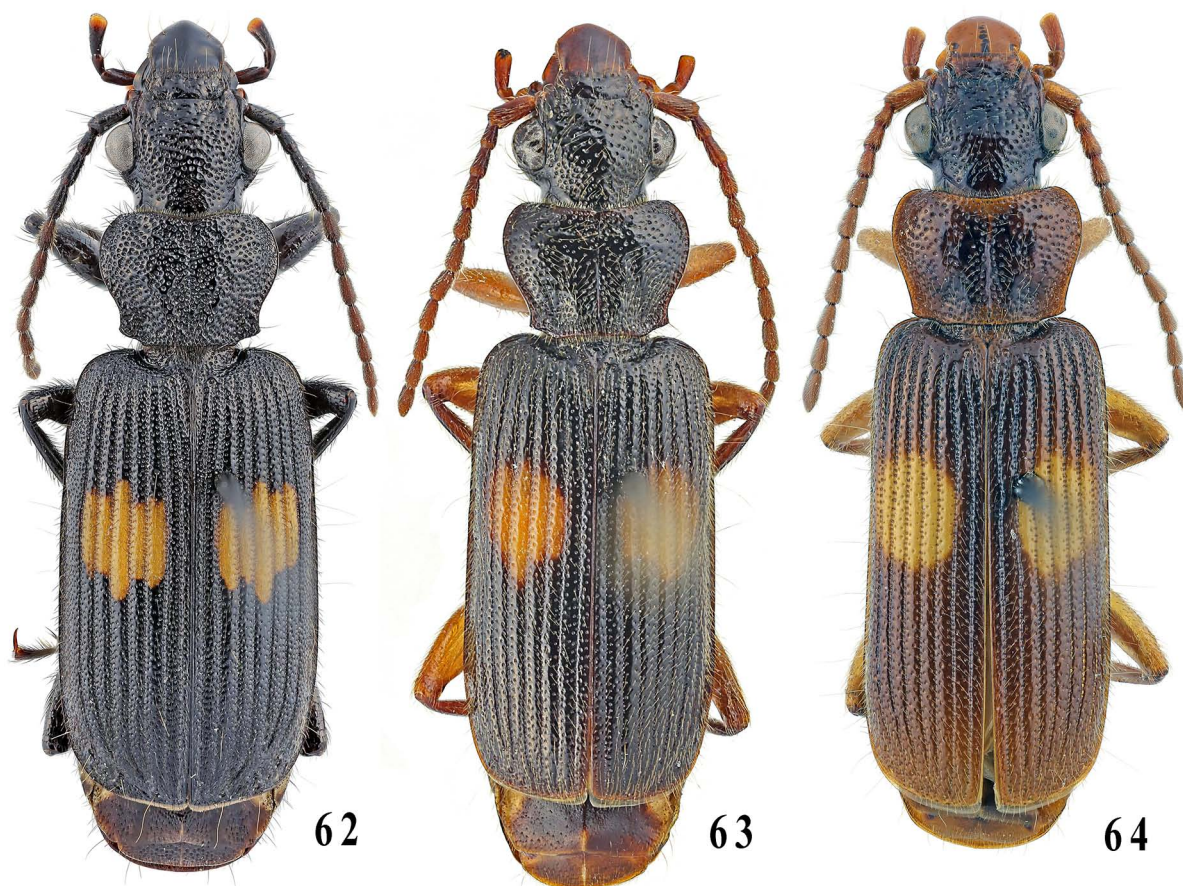
Legs. Protibia with longitudinal sulcus in basal 1/2–2/3 anterior face, without spinules in latero-apical angle. Tarsomere 4 deeply sinuate, with lobes about half as long as the tarsomere; mesotarsomere 2 about as long as wide.

Aedeagus (Figs 72–73, 80–81): median lobe normal in shape, with basal bulb well-developed; apex in dorsal/ventral view widely rounded. Dorsal ligules entire, widely separated from each other and well separated from dorsal membrane both medially and laterally.

DISTRIBUTION. This species ranges from Vietnam to South China (Hong-Kong, Aomen = Macau), including records in Hainan, China, Laos and Java [Zhao, Tian, 2012], as well as in Cambodia [Hovorka, 2016]. Bates [1892] reported it from Bhamo, Myanmar, and Assam, without exact locality indicated, long before *A. niger* was described. For the reason, those two records need verification.

COMMENTS. This species is closely allied to *A. niger*, both belonging to the *bimaculatus*-group of the Afrotropical fauna of the genus, defined chiefly by the body black, the elytra each with a single spot and conspicuous isodiametric microsculpture. The clypeus with fine and very dense pubescence along the apical margin is another feature *A. niger* shares with at least *A. crampeli* (Alluaud, 1916) from this group; the character discussed is especially characteristic of the South American genera *Helluobrochus* Reichardt, 1974, and *Pleuracontus* Gray, 1832. Finally, *A. niger* and *A. viduatus katanganus* (Basilewsky, 1960), **comb.n.**, have the aedeagi with the dorsal ligules shaped in a similar manner (Fig. 13d in Serrano [2023]).

Particular shape of the elytral yellow macula, cruciform vs. quadrate, is not good feature to discriminate between *A. asteriscus* and *A. niger*, because both have this macula



Figs 62–64. Dorsal habitus: 62 — *Acanthogenius asteriscus* from Doi Chang, Thailand; 63 — *A. vitalisi* from Thai Nguen; 64 — *A. binotatus* from Cat Tien NP.

Рис. 62–64. Габитус дорзально: 62 — *Acanthogenius asteriscus* из Doi Chang, Таиланд; 63 — *A. vitalisi* из Тхайнгуен; 64 — *A. binotatus* из нац. парка Каттхен.

varying in on the intervals other than 5 considerably in length, thus being not seldom subequally shaped or even longer in the former species than in the latter.

[16. *Acanthogenius niger* (Andrewes, 1920)]
Figs 62, 74–75, 82–83.

Andrewes, 1920: 497, 499 (*Macrochilus*; Nilgiri Hills); 1930: 207; Zhao, Tian, 2010: 6; 2012: 80, 87.

MATERIAL. ♂ (SIEE), **Thailand**, Chiang Rai Prov, env. Doi Chang, 19°46'N 99°28'11"E — 19°47'44"N, 99°27'06"E, h=640–750 m, 11–15.V.2013 (I. Melnik); ♂ (ZISP), 'Юннань. Цзиндун./ 1200 м. 5.III.1957./ А. Мончадский' [**China**, Yunnan, Jinpingzhen, ..., A. Montshadsky]; ♀ (ZISP), same data except '... 12.III.1957./ Д. Панфилов' [... D. Panfilov].

Additional material: digital images of the holotype (BMNH), from Nilgiri Hills: BMNH(E)989604 [Natural History Museum, 2023]; and of a male specimen from Mhavashi, Satara District, Maharashtra, India, 671 m, V.2017 (S.R. Patil...); det. Shripad Manthen [Anichtchenko, 2017].

DIAGNOSIS. A larger-sized similar of *A. asteriscus*, distinctive chiefly in having forebody, especially head, larger, with neck wide, EW/NW~2.8–3 (vs. 2.3–2.57), pronotum less transverse, eyes slightly larger and thence projecting beyond

genae; elytral microsculpture distinct in apical half, and aedeagus distinctive. Other differences mentioned in the original description and re-descriptions include a longer and thence subquadrate elytral macula and sparser dorsal punctation.

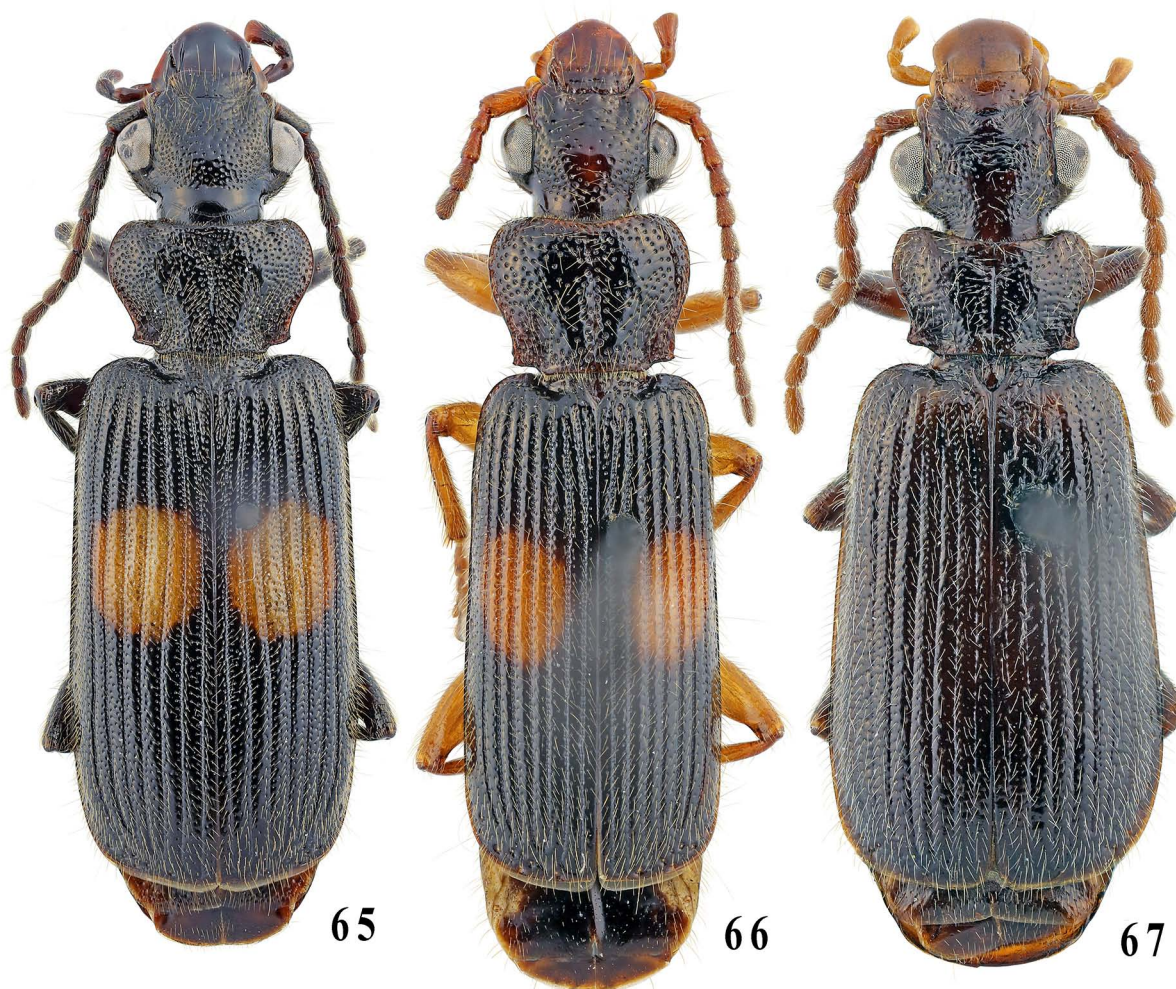
REDESCRIPTION. Other differences from *A. asteriscus* are as follows. Body as in Fig. 62. BL 16–16.5 mm. Antennae barely shorter, antennomere 7 about half as long as wide. Elytral striae 3, 5 and 7 more sparsely punctate in basal half, with punctures generally arranged in two rows.

Aedeagus (Figs 74–75, 82–83): median lobe in lateral view distinctly convex in apical 1/2 ventral margin; apex in dorsal view subtriangular, with a narrowly rounded tip. Dorsal ligules distinct in apical half only, merging into dorsal membrane basally.

DISTRIBUTION. Known from many localities in India; Sri Lanka and Thailand east to Yunnan, China. Apparently allopatric with *A. asteriscus*.

17. *Acanthogenius vitalisi* (Andrewes, 1920), **comb.n.**
Figs 63, 68–69, 76–77.

Andrewes, 1920: 497, 500 (*Macrochilus*; 'China'); 1930: 208 (*Macrocheilus*); Zhao, Tian, 2010: 7; 2012: 80, 89; Hovorka, 2016: 355.



Figs 65–67. Dorsal habitus: 65 — *Acanthogenius binoculus* from Kon Plong Distr.; 66 — *A. distactus* from Bu Gia Map NP; 67 — *A. piceus* from Yok Don Nature Reserve.

Рис. 65–67. Габитус дорзально: 65 — *Acanthogenius binoculus* из округа Kon Plong; 66 — *A. distactus* из нац. парка Bu Gia Map; 67 — *A. piceus* из заповедника Yok Don.

MATERIAL. ♂ (ZISP), **Vietnam**, mountains 50 km NE of Thai Nguen, 300 m, 17.XII.1962 (O.N. Kabakov); ♀ (ZISP), mountains near Tuyen Quang, 12.XI.1961 (O.N. Kabakov); ♀ (ZISP), **Malaysia**, env. Kuala Taham near Natn. Park Taman Negara, Tembeling, 12.VI.1996 (A.V. Gorokhov).

DIAGNOSIS. A medium-sized bimaculate species with pale legs and antennae; tarsomere 4 sinuate, labrum pentagonal, with intermediate setae dorsal, distant from lateral margin. Aedeagus distinctive.

REDESCRIPTION. BL 11.8–14 mm (11.8–12.1 mm in specimens from Vietnam). Body (Fig. 63) shiny brown to black, without microsculpture; labrum, mouthparts, legs, antennomeres 1–4, reddish-yellow to red; antennomeres 5–11 pale testaceous; round to oblong elytral spots yellow to reddish, spanning intervals 3–7 or slightly expanded onto 8. Ventral side along middle and mostly entire abdomen reddish or reddish-brown, Tibiae and tarsi slightly to distinctly infuscated.

Head coarsely and densely punctate and pubescent, more sparsely at middle; clypeus almost glabrous except a transverse row of large punctures along apical margin, some with about

four setae additional to and shorter than two, fixed, lateral setae. Eyes moderately large and convex, genae 1/5–2/5 as long as eyes, sloping to neck at obtuse angle. Frons barely convex, frontal foveae short and vague. Frontoclypeal suture moderately deep. Labrum pentagonal, in lateral view nearly flat, with extreme apex rather abruptly curved ventrad; sides diverging and rounded to rounded lateral angles, then converging and almost straight up to slightly rounded apex; dorsolateral impressions longitudinal, extended into deep laterobasal grooves in basal half or slightly extended apically beyond lateral setae; these and inner setae marginal or nearly so, intermediate setae distant rather far from margin. Antennae fairly long, surpassing elytral base by apical three segments, slightly flattened on sides, densely pubescent from apical 1/2 segment 4 onward; antennomeres 5–10 rectangular, with blunted angles, 7th 1.33–1.50 (1.42) times as long as wide; glabrous median stripe entire (except on antennomere 11), slightly grooved in basal two thirds, almost as wide as pubescent regions of antennomeres 5 and 6, becoming gradually narrower apicad. Labial palpomere 3 oblong, cylindrical and slender, palpomere 2 short triangular and about trisetose toward the angle; both maxillary and labial

penultimate palpomeres deeply longitudinally grooved along inner margin on dorsal side, thereby forming a conspicuous blunt carina.

Pronotum cordate, bisetose on each side, sinuate at apex. Sides rather deeply sinuate, each with a fine bead; basal angles obtuse to subrectangular, sharp, each with a nearly indistinct to conspicuous though minute tooth, indistinctly indented just in front of the tooth. Base truncate, its sides oblique and straight to slightly sinuate. Disc moderately convex, flattened medially; median line fine in apical half, deepened basad, reaching apex, obliterate basally. Basolateral foveae round, deep, running on basal third and almost reaching lateral margin. Apical transverse impression wide and ill-defined. Punctuation coarse and dense, more so along sides, confluent at bottom of basolateral foveae, sparse at middle of lateral halves.

Elytra parallel-sided. Striae and parascutellar striae deep, crenulate, 8th indistinct. Intervals slightly convex, moderately densely and unevenly punctate along striae, with some additional punctures along middle toward apex, intervals 8–9 very densely to confluent punctate.

Legs. Protibia anterior face with longitudinal sulcus deep except apically, latero-apical angle with single, small and slender, spinule, almost seta. Tarsomere 4 sinuate, with lobes slightly less than half as long as the tarsomere.

Aedeagus (Figs 68–69, 76–77): median lobe not modified, not inflated distal to a well-developed basal bulb, straight and slender, with dorsal margin sinuate, in lateral view; dorsal ligules widely separated.

DISTRIBUTION. China (no exact locality), Vietnam, Laos, Thailand, Malay Peninsula and the Sunda Isles (Borneo).

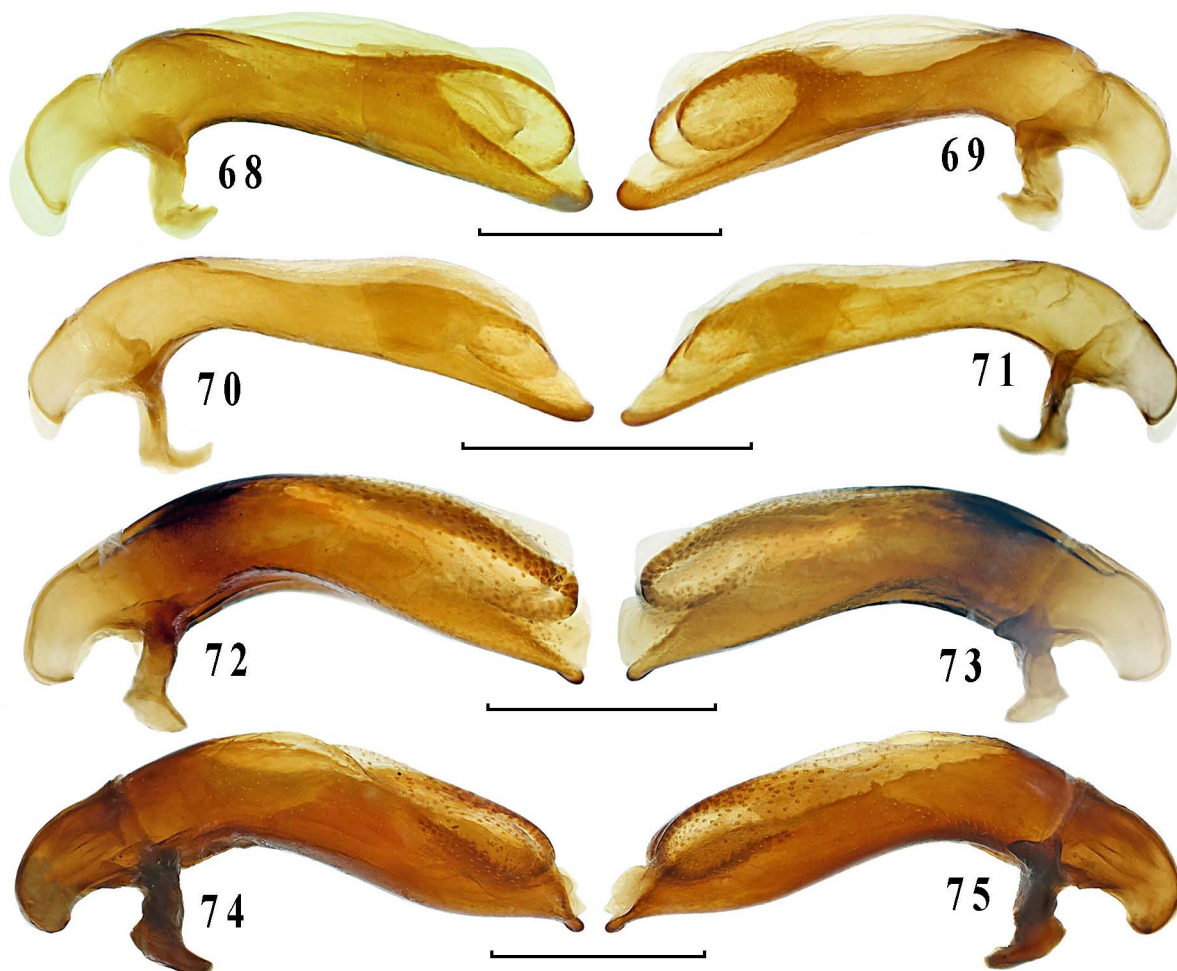
HABITATS AND HABITS. No exact data.

18. *Acanthogenius binotatus* (Andrewes, 1931),
comb.n.

Figs 64, 71–52, 78–79.

Andrewes, 1931: 69 (*Macrocheilus*; Tapanoeli, Sumatra); Zhao, Tian, 2012: 80, 89; Hovorka, 2016: 354.

MATERIAL. ♂ (SIEE), S Vietnam, northern part of Dong Nai Prov., Cat Tien National Park (Expedition of Russia-Vietnam Tropical Centre), 24.V.2006 (S. Golovatch).



Figs 68–75. Median lobe of aedeagus: 68–69 — *Acanthogenius vitalisi*; 70–71 — *A. binotatus*; 72–73 — *A. asteriscus*; 74–75 — *A. niger*; 68, 70, 72, 74 — left lateral aspect; 69, 71, 73, 75 — right lateral aspect. Scale bars: 1 mm.

Рис. 68–75. Средняя доля эдеагуса: 68–69 — *Acanthogenius vitalisi*; 70–71 — *A. binotatus*; 72–73 — *A. asteriscus*; 74–75 — *A. niger*; 68, 70, 72, 74 — слева; 69, 71, 73, 75 — справа. Масштаб 1 мм.

DIAGNOSIS. Very similar to *A. vitalisi* in appearance, as well as in shape and structure of the aedeagus, being distinguished from that species chiefly by the pronotum distinctly less sinuate on sides in front of base and the genae being barely shorter and more transverse behind (this latter character, as well as the elytral intervals being more sparsely punctate, are hardly distinctive features as mentioned in the original description because these characters vary between specimens of at least *A. vitalisi* considerably).

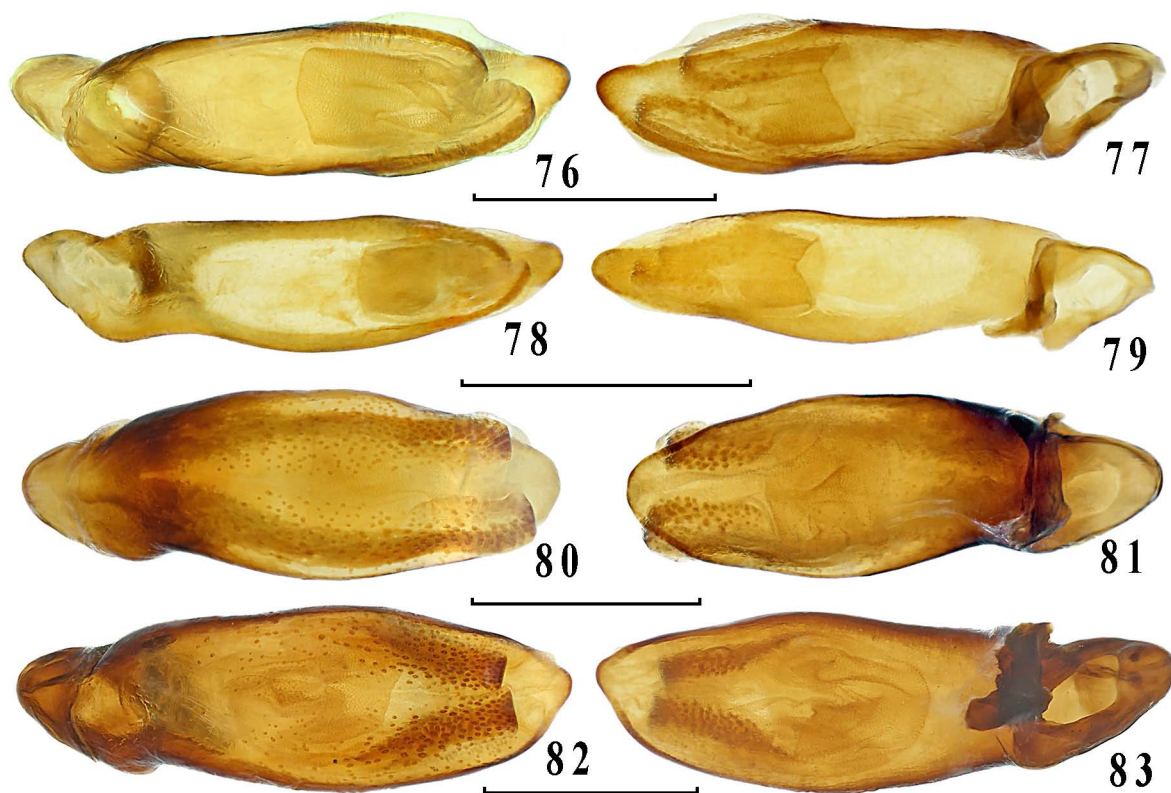
REDESCRIPTION. BL 11.4–14 mm. Body (Fig. 64) shiny brown to black, without microsculpture; labrum, mouthparts, legs, antennomeres 1–4, abdomen, venter otherwise along middle, pale, reddish-yellow to red; antennomeres 5–11 pale testaceous; round to oblong elytral spots yellow to reddish, spanning intervals 3–7 or slightly expanded onto 8. Sometimes tibiae and tarsi slightly infuscated.

Head coarsely and densely punctate and pubescent. Eyes moderately large and convex, genae a third as long, sloping to neck at obtuse angle. Frons barely convex, frontal foveae moderately deep, short, slightly diverging. Clypeus quadrisetose, frontoclypeal suture moderately deep. Labrum pentagonal, with apex narrow, sides rounded and lateral angles rounded and just traceable; dorsolateral impressions vague, being extended into a fairly deep laterobasal grooves in basal half; lateral and inner setae marginal in general, intermediate setae slightly distant from margin. Antennae fairly long, surpassing elytral base by apical 2.5 segments, slightly flattened on sides, densely

pubescent from apical 1/2 segment 4 onward; antennomeres 5–10 nearly quadrate, 7th a fourth longer than wide; glabrous median stripe slightly grooved, as wide as pubescent regions it separated all along but 11th. Maxillary palpomere 3 0.38 times as long as 4th, this latter slightly flattened, 1.75 times as long as wide, barely dilated apicad in apical two thirds, sparsely setulose. Labial palpomere 3 oblong cylindrical, palpomere 2 short triangular and trisetose toward inward angle; both maxillary and labial penultimate palpomere deeply longitudinally grooved along inner margin on dorsal side, thereby forming a conspicuous blunt carina.

Pronotum cordate, bisetose on each side, with apex sinuate and base nearly arcuate in a similar curve due to its sides oblique rather than sinuate; sides subsinuate, with a fine bead, basal angles obtuse, minutely toothed, and indistinctly indented just in front of the tooth. Punctuation coarse and very dense, slightly less so at middle of lateral half, confluent along sides. Basolateral foveae small, round, moderately deep, running on basal third and distant from lateral margin which is slightly explanate and reflexed in basal third. Median line fine and deep; apical transverse impression wide and ill-defined.

Elytra parallel-sided and long. Striae and parascutellar striae deep, finely and very densely punctate, 8th indistinct. Intervals slightly convex, moderately densely and unevenly punctate along striae, punctures being sparser in basal half, intervals 8–9 almost confluent punctate; 3rd with 3–4 setigerous pores along middle, these with setae long yet very thin.



Figs 76–83. Median lobe of aedeagus: 76–77 — *Acanthogenius vitalisi*; 78–79 — *A. binotatus*; 80–81 — *A. asteriscus*; 82–83 — *A. niger*; 76, 78, 80, 82 — dorsal aspect; 77, 79, 81, 83 — ventral aspect. Scale bars: 1 mm.

Рис. 76–83. Средняя доля эдеагуса: 76–77 — *Acanthogenius vitalisi*; 78–79 — *A. binotatus*; 80–81 — *A. asteriscus*; 82–83 — *A. niger*; 76, 78, 80, 82 — сверху; 77, 79, 81, 83 — снизу. Масштаб 1 мм.

Legs. Protibia anterior face with longitudinal sulcus deep except apically, latero-apical angle with a single, small and slender, spinule, almost seta. Tarsomere 4 sinuate, with lobes slightly less than half as long as the tarsomere.

Aedeagus (Figs 71–52, 78–79): as for *A. vitalisi*, except for minute details such as the median lobe smaller, slenderer, with right margin convex (vs. nearly straight) in dorsal view, dorsal ligules shorter, about a forth (vs. a third) as long as median lobe, and the dorsal membrane shorter.

DISTRIBUTION. Sumatra; first recorded here from Vietnam.

HABITATS AND HABITS. No exact data.

19. *Acanthogenius binoculus* (Bates, 1892), **comb.n.**
Figs 65, 84–85, 90–91.

Bates, 1892: 390 (*Creagris*; Bhamo, Burma); Andrewes, 1930: 136, 1947: 11.

MATERIAL. ♂ (SIEE), Vietnam, Kon Tum Prov., Kon Plong Distr., 14°43'20"N, 108°18'58"E, h = 1030 m, Dak Khe River, 4–12.VI.2016 (D. Fedorenko).

DIAGNOSIS. A larger-sized, entirely black species with a large orange spot on each elytron; tarsomere 4 conspicuously bilobed; labrum with a very deep and long laterobasal groove; neck impunctate and glabrous. Otherwise not very unlike *A. asteriscus*,

except that the elytra and the genae are distinctly longer, combined with the pronotum shorter, and the elytral spots round.

A similar species, *A. bigemmis* (Andrewes, 1931), from Sumatra, Malay Peninsula and Java (a female examined, with label 'Fruhstorfer, Java, 1891', ZISP) is distinguished chiefly by the body smaller-sized (BL 12 mm), the pronotum longer, the terminal palpomeres very short and infundibular, the protibia with two proximate spines in the latero-apical angle, and abdominal sternite VII with two (vs. single) paramedian preapical setae on each side.

REDESCRIPTION. BL 15–15.6 mm. Body (Fig. 65) shiny black, without microsculpture; round elytral spots pale, yellow to orange, spanning intervals 2–7. Pubescence yellow.

Head moderately and very densely punctate and pubescent, frons and basal 1/2 clypeus slightly less so. Eyes large and convex, genae long, half as long as eyes, sloping to neck at obtuse angle. Frons barely convex, frontal foveae moderately deep, short, parallel. Clypeus with four, shorter setae between fixed lateral ones, frontoclypeal suture moderately deep. Labrum subpentagonal, with apex widely rounded and lateral angles slightly less so; dorsolateral impressions large and fairly deep, merging into subsulcate laterobasal grooves traceable in basal three fourths; inner setae marginal, lateral setae dorsomarginal, intermediate setae distant rather far from margin. Antennae long, surpassing elytral base by apical three segments, slightly



Figs 84–89. Median lobe of aedeagus: 84–85 — *Acanthogenius binoculus*; 86–87 — *A. lineolus* from Bangkok; 88–89 — *A. piceus*; 84, 86, 88 — left lateral aspect; 85, 87, 89 — right lateral aspect. Scale bars: 1 mm.

Рис. 84–89. Средняя доля эдеагуса: 84–85 — *Acanthogenius binoculus*; 86–87 — *A. lineolus* из Бангкока; 88–89 — *A. piceus*; 84, 86, 88 — слева; 85, 87, 89 — справа. Масштаб 1 мм.

flattened on sides, otherwise as for the previous species, except for antennomeres being slightly longer, with 7th about half longer than wide; glabrous median stripe flat, barely narrower than pubescent regions it separated between. Maxillary palpomeres 3 and 4 rather densely setulose, 3rd three fourths (0.73 times) as long as 4th, this latter triangular, slightly flattened, 1.08 times as long as wide. Labial palpomere 3 similar, 2nd short subtriangular and (?)bisetose in a slightly toothed inward angle; both maxillary and labial penultimate palpomere sculptured as in previous two species.

Pronotum cordate and very transverse, depressed along middle third, with apex slightly sinuate; base slightly produced, more so just medially, its sides emarginate from behind and slightly oblique. Sides finely beaded, deeply sinuate in front of right basal angles; these very minutely toothed, without lateral indentation at posterolateral seta. Punctuation moderate yet very dense, almost confluent here and there. Lateral margin slightly explanate. Basolateral foveae round, large, running on basal half, very deep, more so toward starting points of laterobasal emarginations. Median line fine and shallow; apical transverse impression not well delimited from disc, impressed medially and on each inside round swell toward apical angles.

Elytra parallel-sided and long. Striae and parascutellar striae deep, very finely punctate, 8th missing. Intervals slightly convex, moderately and densely punctate along striae (two-rowed), intervals 2 and 4–7 with three uneven rows in apical half, intervals 8–9 still more densely punctate, with about five punctures traceable across 8th; 3rd with 4–5 setigerous pores along middle, bearing a very fine long seta each.

Legs. Protibia anterior face with longitudinal sulcus entire and deep, latero-apical angle with 3–4 proximate spinules. Tar-

somere 4 strongly bilobed, lobes almost as long as the entire tarsomere.

Aedeagus (Figs 84–85, 90–91): median lobe modified, robust, increasingly inflated basad so that basal bulb is reduced in size and ventral in position; dorsal ligules and membranous area in between subequally wide in apical half.

DISTRIBUTION. Eastern India, Myanmar, Laos; first recorded in Vietnam.

HABITATS AND HABITS. No exact data.

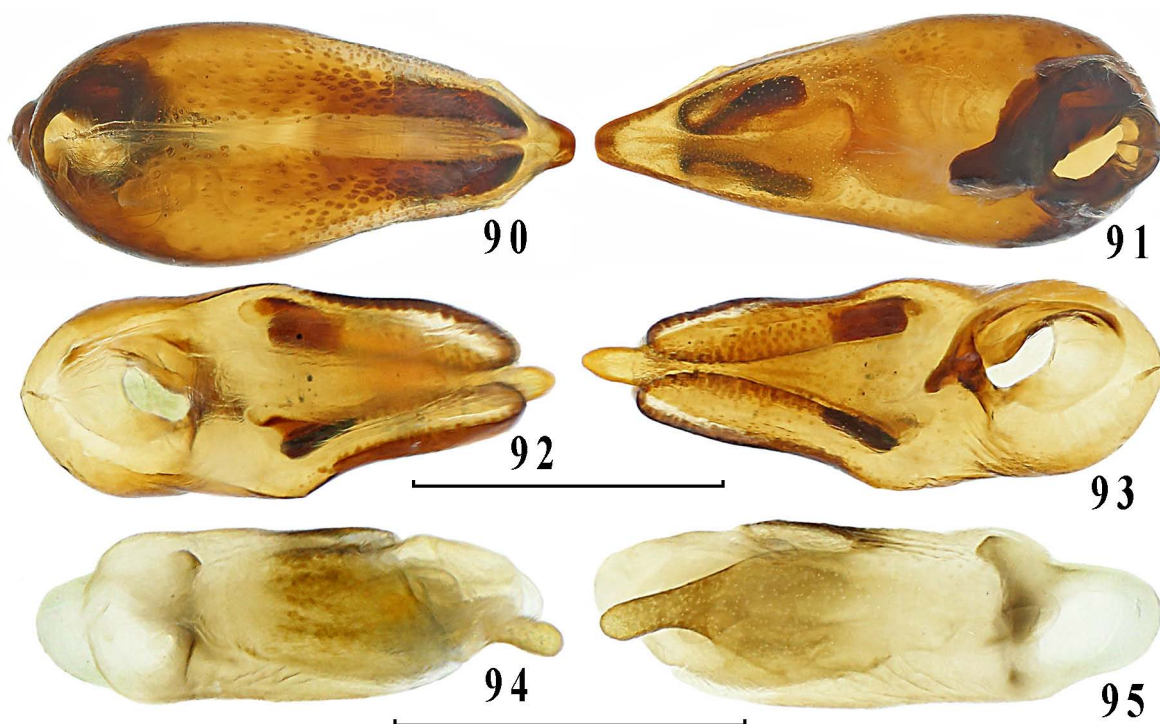
20. *Acanthogenius distactus* (Wiedemann, 1823),
comb.n.
Fig. 66.

Wiedemann, 1823: 49 (*Helluo*; Java); Andrewes, 1919: 169; 1921: 168, 186; 1929: 315; 1930: 137; 1933: 342. — *bisignatus* Landin, 1955: 469 (*Creagris*; Pekkong, Burma), **syn.n.**

MATERIAL. ♀ (SIEE), **Vietnam**, Binh Phuoc Prov., Bu Gia Map National Park, 14°11'37"N, 107°12'21"E, h=350–540 m, 13–23.IV.2009 (D. Fedorenko).

DIAGNOSIS. A smaller species similar to *A. binoculus* and especially to *A. bigemmis* (Andrewes, 1931) in body shape and colouration, with which species it shares also a strongly bilobed tarsomere 4. Major differences from *A. bigemmis* include the body slightly smaller, the appendages pale coloured, pale red (vs. dark brown) and the labrum distinctive, with laterobasal grooves more shallower and distinct in basal half only (vs. rather deep except apically).

REDESCRIPTION. BL 10–10.3 mm. Body (Fig. 66) shiny black, without microsculpture; labrum, mouthparts, legs



Figs 90–95. Median lobe of aedeagus: 90–91 — *A. binoculus*; 92–93 — *A. lineolus* from Bangkok; 94–95 — *A. piceus*; 90, 92, 94 — dorsal aspect; 91, 93, 95 — ventral aspect. Scale bars: 1 mm.

Рис. 90–95. Средняя доля эдеагуса: 90–91 — *A. binoculus*; 92–93 — *A. lineolus* из Бангкока; 94–95 — *A. piceus*; 90, 92, 94 — сверху; 91, 93, 95 — снизу. Масштаб 1 мм.

and antennomeres 1–4 reddish-yellow; antennomeres 5–11 pale testaceous; slightly oblong elytral spots yellow to reddish, spanning intervals 3–7 and slightly expanded onto 8. Venter dark brown to black along sides, reddish brown along middle.

Head coarsely and densely punctate and pubescent along sides and basally except neck, clypeus except apical margin, frons except around frontal foveae, and vertex very sparsely punctate. Eyes moderately large and convex, genae a third as long, contracted to neck at obtuse angle. Frons flat in general, slightly convex between short, deep and parallel frontal foveae. Clypeus quadrisetose, with six, shorter intermediate setae along apical margin; frontoclypeal suture deep. Labrum pentagonal, parallel-sided from base to widely rounded lateral angles, indistinctly sinuate between these latter and a narrowly rounded apex; dorsolateral impressions indistinct, being extended into a fairly deep laterobasal grooves in basal half; lateral setae marginal, the remainder proximate and dorsal, intermediate setae more distant from margin. Antennae surpassing elytral base by apical two segments, slightly flattened on sides, antennomeres 4–11 microgranulate and densely pubescent, those 5–10 nearly quadrate, 7th about two fifths longer than wide; glabrous median stripe between dorsal and ventral pubescent regions very narrow, faintly grooved and not reaching apex of antennomere. Maxillary palpomere 3 less than half as long as 4th, this latter funnel-shaped, slightly flattened, 1.08 times as long as wide at apex, sparsely setulose. Labial palpomere 3 nearly same as maxillary palpomere 4, 2nd short, subtriangular and bisetose; both maxillary and labial penultimate palpomeres with a shallow longitudinal groove each.

Pronotum cordate, bisetose on each side, with a few additional, shorter, marginal setae in front of fixed anterolateral seta. Base straight and transverse, distinctly produced, its sides emarginate and subtransverse, basal angles right, minutely toothed, with a minute lateral indentation at posterolateral seta; apex slightly sinuate, with angles widely rounded. Sides finely beaded, sinuate a third from base, parallel behind. Punctuation coarse and very dense to confluent along both margins and median line, sparser and uneven in between. Basolateral foveae small, round, and rather shallow, traceable in basal third only, with lateral margin barely explanate outside. Median line fine, obliterate basally and apically, yet rather strongly impressed in basal two thirds. Apical transverse impression indistinct.

Elytra as for *A. vitalisi*, except that punctuation is sparser along sides.

Abdominal sternite sternite VII with two (vs. single) paramedian preapical setae on each side.

Legs. Protibia with a deep longitudinal sulcus on anterior face, latero-apical angle with two proximate spinules. Tarsomere 4 strongly bilobed, the lobes being almost as long as the tarsomere.

DISTRIBUTION. Java, Sumatra, Malay Peninsula, Myanmar; recorded here in southern Vietnam.

HABITATS AND HABITS. The female specimen from Vietnam was taken by pitfall trapping on a glade in a semideciduous monsoon forest.

COMMENTS. Andrewes [1921] re-described the Wiedemann's species and compared it with *Creagris binoculus*. Landin [1955] made quite the same, yet with no mention of *C. distincta*, which was different from his *C. bisignata* (as '*bisignatus*') in no character other than vague reddish spot on vertex.

21. *Acanthogenius piceus* Schaum, 1863 Figs 67, 88–89, 94–95.

Schaum, 1863: 80, RN. — *labrosus* (non Dejean, 1831: 402); Nietner, 1857a: 139; 1857b: 277 (*Creagris*); Chaudoir, 1872: 212;

Gestro, 1875: 871; Bates, 1886: 200; Sloane, 1914: 570; Andrewes, 1926a: 258; Darlington, 1968: 229, HN. — *affinis* Gestro, 1875: 870 (*Creagris*; Bangkok).

MATERIAL. ♂ (SIEE), Central Vietnam, Dak Lac Prov., Yok Don Nature Reserve, dry *Dipterocarpus* forest, at light, 20–30.VI.2007 (A. Anichkin).

DIAGNOSIS. A small, uniform dark brown to brown black species, with small and very transverse pronotum, very large head, and tarsomere 4 strongly bilobed. Other features include chiefly the antennal pedicel globose and very short, antennomeres 3–11 densely pubescent, and aedeagus peculiar. Besides, male protarsomeres 1–3 each have ventral pad wide, consisting of squamo-setae diffuse and arranged in about four longitudinal rows (vs. narrow and biserially squamose in the other examined species).

REDESCRIPTION. BL 8.2–10 mm. Body (Fig. 67) dark coloured, without microsculpture; apical 1/2 clypeus, labrum, mouthparts, and tarsi reddish-yellow to red; antennomeres 1–4 dark reddish-brown; antennomeres 5–11 testaceous.

Head large, rather finely and densely punctate and pubescent, vertex more sparsely so, clypeus very sparsely punctate. Eyes moderately large and prominent, genae two fifths as long, sloping to neck at obtuse angle. Frontal foveae in form of a semicircular, wide and fairly deep, impression, with fine and dense striations all along, so that frons enclosed with this impression and clypeus convex. Clypeus bisetose, with six larger punctures along apical margin; frontoclypeal suture very fine medially. Labrum as described for *A. vitalisi*; all setae dorsal, lateral ones almost marginal, the inner two, especially intermediate setae, distant rather far from margin. Antennae submoniliform in dorsal view, surpassing elytral base by apical three segments, barely flattened on sides, antennomeres 3–11 microgranulate and densely pubescent; pedicel globose, very short, two fifths as long as antennomere 3, those 4–6 subglobose in lateral view, remainder increasingly longer, oblong, 7th about a third longer than wide; glabrous median stripe between dorsal and ventral pubescent regions narrow, slightly grooved, reduced to basal half of antennomere in length. Maxillary palpomere 3 three fifths as long as 4th, this latter triangular, slightly flattened, two fifths longer than wide at apex, sparsely setulose. Labial palpomere 3 similar to maxillary palpomere 4, 2nd short, triangular and bisetose; both maxillary and labial penultimate palpomeres deeply sulcate along inner margins.

Pronotum cordate and very transverse, bisetose on each side. Base straight, transverse, and slightly distinctly produced due to its sides emarginate and subtransverse; basal angles slightly acute and slightly blunted, with no toothed or lateral indentation at posterolateral seta; apex moderately sinuate, with angles widely rounded. Sides deeply sinuate a third from, and then diverging toward, base; lateral bead very finely in apical third, slightly wider and vague behind. Punctuation rather fine, dense and even. Basolateral foveae round, very small and deep, distinct in about basal fourth only, slightly cross-striated just in front toward lateral margin. Median line entire, fine and deep. Apical transverse impression moderately deep.

Elytra with sides straight and slightly diverging, broadest about a fourth from apex. Striae and parascutellar striae moderately deep, very finely punctate, 8th traceable in basal half. Intervals barely convex, densely and unevenly punctate, those 1, 3 and 7 with 1–2 punctures, intervals 2 and 4–5 with 2–3 punctures, interval 8 with 4–5 punctures traceable across interval; interval 3 with 3–4 setigerous pores along middle.

Legs. Protibia with a deep longitudinal sulcus on anterior face and a strong seta in latero-apical angle. Tarsomere 4 strongly bilobed, these lobes almost as long as the tarsomere. Tarsomeres 1–3 with ventral pad wide and diffuse.

Aedeagus (Figs 88–89, 94–95): median lobe robust; dorsal ligules strongly modified, broadened and not well separated from each other dorsally.

DISTRIBUTION. India, Sri Lanka, Thailand, Java, New Guinea, northern Australia (Queensland).

HABITATS AND HABITS. Very little is known except adults coming to light at night. Bates [1886] mentioned also 'old trees' for the specimens he referred to.

COMMENTS. Sloane [1914] failed to differentiate between two specimens examined, one from Australia the other from Java, and Andrewes [1926a] found no characters to discriminate *A. labrosus* from *A. affinis* while he mentioned some variability of the pronotum in the former.

Discussion

Systematic position of the Helluonina is worthy of note. Here we only recognize the tribe Anthiini, divided into two subtribes. Accordingly we downgrade the former tribe Helluonini to the subtribe Helluonina (= Omphrina), from which the Papuan and Australian helluonines [Reichardt, 1974] become an unnamed group of infrasubtribal rank. Having been transferred from Dryptini long before [Horn, 1881], the genus *Polistichus* Bonelli, 1810, is here transferred from Zuphiini to Helluonina once again. This placement is due to the following three significant characters of the genus uncharacteristic of Zuphiini: (1) abdominal sternite 7 with (vs. without) an additional, medial, pair of setae that are distant far from apical margin; (2) abdominal tergite VIII in female with two (vs. single) anterolateral, inner large and outer small, apophyses on each side; (3) the head without (vs. deep) neck constriction; the former two features being synapomorphies of Dryptitae except Zuphiini.

Anthiini and Zuphiini, together with Dryptini, are only considered to be members of the supertribe Dryptitae Bonelli, 1810. Physocrotaphini is here synonymized with Galeritini, which tribe is downgraded to a subtribe of Dryptini. The resultant system is as follows:

Subfamilia Harpalinae Bonelli, 1810

Supertribus Dryptitae Bonelli, 1810 (*sensu* Erwin et Sims, 1984)

= Zuphiitae: Ober et Maddison, 2008

Tribus Zuphiini Bonelli, 1810

Tribus Anthiini Bonelli, 1813

Subtribus Anthiina Bonelli, 1813

Subtribus Helluonina Hope, 1838

= Omphrina Jedlička, 1941

Tribus Dryptini Bonelli, 1810

Subtribus Dryptina Bonelli, 1810

Subtribus Galeritina Lacordaire, 1853

= Physocrotaphina Chaudoir, 1863

= Planetina Jedlička, 1941

Supertribe Dryptitae Bonelli, 1810

This group includes truncatipenne carabids with body, especially legs, densely punctate and pilose; head fairly large and constricted behind eyes, thus forming a distinct neck (which often is very narrow and limited anteriorly by a conspicuous constriction); genae mostly well developed, often long, with

multiple curved setae. Elytra mostly parallel-sided (in species with macropterous adults), apically truncate and margined with a distinct apical membrane; base pedunculate, the peduncle limited by a deep impression on each side; humeri mostly proximate to peduncle; basal ridge mostly obliterate inside humeral angle (except in *Planetes* Macleay, 1825, and some Dryptina); striae moderately deep, often less so, with stria 8 shallow to indistinct. Antennomeres 5–11 with primary pubescence, often compressed, scape thick and long, as long as antennomeres 2 and 3 combined or longer. Maxillary stipes trisetose. USS continuous, primarily consisting of about 18 setigerous pores, slightly separated from apical two setigerous pores (these correspond with setigerous pores at bottom of stria 7 in other carabid beetles). Aedeagus distinctive: median lobe well-sclerotized, with an extensive dorsal membranous region and two, narrow, longitudinal, well-sclerotized ligules abruptly incurved at the basal border of ill-defined apical orifice; left paramere short and wide, right paramere reduced much in size and adnate to median lobe.

Besides, some underlying synapomorphies reveal themselves in form of evolutionary trends toward: (1) multiple elytral parascutellar setigerous pores and/or (2) multiple USS; (3) elytral apical membrane wanting; (4) labrum enlarged and more or less pentagonal; (5) protarsomeres 1–3 and/or their ventral pads asymmetrically set in male.

(1) Multiple parascutellar setigerous pores. — Certainly a derived character observed in at least *Galerita* Fabricius, 1801, Dryptina and Anthiina (e.g., *Anthia* Weber, 1801).

(2) USS. — Plesiotypic (17–18 US) or slightly derived (20–24 US) pattern has been retained by Zuphiini, *Polistichus*, *Eunostus*, *Pogonoglossus* Chaudoir, 1862, *Planetes* (*Heteroglossa*), and Dryptini. Virtually all the Anthiini, *Planetes*, and *Galerita* have multiple USS; often such multiplication correlates with the body increased in size in course of evolution, which is also true of the next character.

(3) A well-developed apical membrane has survived within Dryptitae, but very few Anthiini, including *Anthia*, and some Helluonina (*Omphra*, *Helluomorphoides glabratus*) have it lost secondarily. Dryptina is distinctive in having the apical membrane not well-visible in dorsal view from the apical truncations being modified into invaginated along and just in front.

(4) Enlarged labrum. — It is a feature of Anthiini, including great majority of Helluonina and Anthiina. The most primitive, transverse and apically truncate, labrum, with six setae distant from apical margin, has only survived in *Omphra* and some *Helluomorphoides* Ball, 1951, e.g., *H. glabratus* (Bates, 1871). An enlarged labrum is usually combined with the apical setae proximate to apical margin, becoming marginal or nearly so in position. Enlarged pentagonal labrum is peculiar to some Galeritina, such as *Eunostus* Laporte, 1835, and *Trichognathus* Latreille, 1829.

(5) Both ventral pads obliquely set and the basal protarsomeres asymmetric in male are a feature of Dryptini. *Galerita*, *Planetes*, and most of the Dryptina have protarsomeres 1–3 or at least protarsomere 1 dilated asymmetrically, combined with a very oblique ventral pad. A similar pattern is observed in *Eunostus* and *Pogonoglossus*.

A member of Galeritina, *Eunostus* (e.g., *E. microphthalmus* Alluaud, 1919) is illustrative example of how characters have evolved within the supertribe in parallel. Its pentagonal labrum, with medial two setae marginal in position, is characteristic of most Anthiini; the pronotal base, which is slightly emarginate on sides, is observed in many Dryptitae; the body flattened, with the elytral striae shallow, is similar to that of Zuphiini; and the abdominal

Table. Body ratios in species of Helluonina.
Таблица. Пропорции тела видов Helluonina.

Species	n	PW / HW	PW / PL	EW / PW	EL / EW
<i>M.stevensi</i>	2♂♂, 4♀♀	1.15–1.22 (1.19)	1.50–1.58 (1.53)	1.37–1.46 (1.42)	1.59–1.72 (1.67)
<i>M. bensoni</i>	3♂♂, ♀	1.17–1.21 (1.19)	1.37–1.45 (1.41)	1.44–1.47 (1.46)	1.81–1.86 (1.84)
<i>M. lankaensis</i> sp.n.	♂	1.13	1.37	1.42	1.88
<i>M. fuscicornis</i> sp.n.	4♂♂, 4♀♀	1.14–1.26 (1.19)	1.31–1.48 (1.41)	1.38–1.49 (1.44)	1.75–1.81 (1.78)
<i>M. infuscatus</i>	2♂♂, 6♀♀	1.07–1.17 (1.12)	1.40–1.44 (1.42)	1.39–1.49 (1.45)	1.69–1.80 (1.75)
<i>M. capitatus</i> sp.n.	♂, 3♀♀	1.02–1.08 (1.06)	1.39–1.52 (1.47)	1.34–1.46 (1.40)	1.73–1.77 (1.75)
<i>M. annulicornis</i> sp.n.	3♂♂	1.07–1.11 (1.09)	1.37–1.40 (1.38)	1.41–1.49 (1.45)	1.71–1.81 (1.76)
<i>M. vietnamensis</i> sp.n.	♀	1.13	1.43	1.42	1.67
<i>M. pusillus</i> sp.n.	2♀♀	1.07–1.14	1.29–1.38	1.45–1.58	1.68–1.71
<i>M. chaudierei</i>	♀	1.04	1.11	1.42	1.85
<i>M. walterrossii</i>	♂	1.08	1.35	1.36	1.86
<i>M. obliquatus</i> sp.n.	♂	1.07	1.33	1.41	1.81
<i>M. nigrans</i> sp.n.	♀	1.07	1.35	1.46	1.79
<i>M. kryzhanovskiy</i> sp.n.	♀	1.08	1.29	1.33	1.87
<i>S. fuscipennis</i>	♂	1.13	1.58	1.67	~1.76
<i>A. asteriscus</i>	2♂♂, 2♀♀	1.12–1.18 (1.16)	1.53–1.60 (1.57)	1.57–1.66 (1.61)	1.59–1.77 (1.68)
<i>A. niger</i>	2♂♂, 2♀♀	1.07–1.16 (1.10)	1.38–1.56 (1.44)	1.46–1.55 (1.49)	1.67–1.82 (1.75)
<i>A. vitalisi</i>	♂, 2♀♀	1.09–1.17 (1.13)	1.44–1.53 (1.49)	1.39–1.46 (1.42)	1.70–1.78 (1.74)
<i>A. binotatus</i>	♂	1.16	1.52	1.38	1.88
<i>A. binoculus</i>	♂	1.11	1.61	1.42	1.81
<i>A. distactus</i>	♀	1.13	1.35	1.28	1.97
<i>A. piceus</i>	♂	1.02	1.75	1.64	1.56

sternites III and IV, each with a transverse row of strong and dense setae in male, allude a setose pattern observed in *Pogonoglossus* and allied genera.

Planetes (*Heteroglossa*) appears to be the basalmost within this carabid lineage, as it has retained the largest set of plesiomorphies, including a little modified head, the labial palpomere 2 bisetose at inner margin, the ligula bisetose apically and not modified in shape, with the paraglossae membranous and long, the elytra with entire basal ridge and US not multiplied. Characters apotypic for the supertribe are few: the antennomere 11 with a double digitiform appendage at apex, the elytral sculpture ridged, and the metacoxa with a single, anterolateral, seta only (vs. two lateral setae in, e.g., *Galerita*, *Zuphium* and *Omphra* or three in New World Helluonina).

Significant diagnostic features of the tribes are utilized in the key (some of them being absent from certain farther advanced representatives of either tribe):

- 1(4) Antennomere 11 simple at apex. Pronotal sides emarginate on each side of produced base. Mentum tooth simple to indistinct.
- 2(3) Abdominal sternite 7 without median setae much in front of fixed apical setae. Body mostly flattened to very flat, head large, strongly constricted behind eyes, neck narrow, with a deep neck constriction. Scape long or very long, longer than antennomeres 2 and 3 combined. USS: mostly 18, coupled with single, anterior, apical seta. Labrum short and

transverse, mandibles exposed. Tibiae without longitudinal grooves at outer margins. Only meso- and metatrochanter with setae? Tribe **Zuphiini**

- 3(2) Abdominal sternite 7 with one pair of median setae much in front of fixed apical setae in at least female. Body flattened to convex and very large. Scape large, from shorter than antennomeres 2 and 3 combined to as long as those 2 to 5 combined. USS multiple, often oscillating across interval 9. Labrum mostly large, pentagonal, or with median angle to process, thus concealing mandibles. Meso- and metatibiae mostly grooved along outer margins. Trochanteric seta mostly present in all legs. Tribe **Anthiini**
- 4(1) Antennomere 11 with two minute projections at apex. Abdominal sternite 7 with one pair of medial setae much in front of fixed apical setae in at least female (lost by *Galerita*, missing in male *Planetes* (*Heteroglossa*)). Pronotal base mostly not laterally emarginate. Mentum usually bifid. Tribe **Dryptini**
- 5(6) Tarsomere 4 bilobed. Elytra with apical membrane internal and thence indistinct. Trochanteric seta missing. Clypeus without fixed setae. Mouthparts strongly modified: mandibles long, narrow, abruptly incurved at apices; submentum reduced much in size, mentum deeply concave, without median tooth; ligula very narrow, with apex dorsally spiniform or toothed. Labrum short, more or less trilobed. Antennal scape very long, much longer than antennomeres 2 and 3 combined. Tarsal claws smooth or

pectinate. Body, especially pronotum, slender and mostly subcylindric. Subtribe Dryptina
 6(5) Tarsomere 4 apically truncate or sinuate. Elytra with apical membrane well traceable in dorsal view. At least pro- and mesotrochanteric seta present. Clypeus bi- or quadrisetose. Mouthparts not or very little modified, mentum tooth bifid to nearly imperceptible. Labrum short and transverse to pentagonal. Antennal scape mostly about as long as antennomeres 2 and 3 combined or shorter. Tarsal claws smooth. Pronotum cordate and wider.
 Subtribe Galeritina

Compliance with ethical standards.

Ethical approval: No ethical issues were raised during our research.

Acknowledgements. I am much obliged to Dr. Boris Kataev (ZISP), Dr. Kirill Mascarov (MSPU), Dr. Roman Dudko (ISEA), Igor Melnik (Moscow) for the loan of material under their care and/or specimens donated. My cordial thanks to Dr. Jiří Hájek (National Museum, Prague) for digital images of a syntype of *Macrocheilus quadripustulatus*.

References

- Akhil S.V., Divya M., Sabu T.K. 2019. Two new species of *Macrocheilus* Hope (Carabidae: Anthiinae: Helluonini) from the south Western Ghats of India // J. Insect Biodiversity. Vol.9. No.1. P.28–33. <http://dx.doi.org/10.12976/jib/2019.09.1.3>.
- Allegro G., Giachino P.M., Kong V. 2021. Two new species of the genus *Macrocheilus* from Cambodia (Coleoptera: Carabidae, Helluonini) // Boll. Soc. Entomol. Ital. Vol.153. No.2. P.87–98.
- Andrewes H.E. 1919. Notes on the types of Oriental Carabidae in the British Museum, and in the Hope Department of the Oxford University Museum // Trans. Ent. Soc. Lond. P. 119–217.
- Andrewes H.E. 1920. Papers on Oriental Carabidae.–V // Ann. Mag. Nat. Hist. Ser.9. Vol.6. P.493–506.
- Andrewes H.E. 1921. Notes on synonymy and on some types of Oriental Carabidae in various foreign collections // Trans. Ent. Soc. Lond. P.145–195.
- Andrewes H.E. 1923. On the Oriental Carabidae of the “Reise Novara.” // Trans. Ent. Soc. Lond. P.459–468.
- Andrewes H.E. 1924. A list of Carabidae from Macao, South China, with a description of a new species and biological notes // Ann. Mag. Nat. Hist. Ser.9. Vol.13. P.466–472.
- Andrewes H.E. 1926a. Papers on Oriental Carabidae.–XXVI // Ann. Mag. Nat. Hist. Ser.9. Vol.18. P.252–259.
- Andrewes H.E. 1926b. Papers on Oriental Carabidae.–XXVII // Ann. Mag. Nat. Hist. Ser.9. Vol.18. P.273–290.
- Andrewes H.E., 1926c. A catalogue of Philippine Carabidae // Philipp. J. Sci. Vol.31 No.3. P.345–361.
- Andrewes H.E. 1929. Fauna Sumatrensis. (Beitrag Nr.64). Carabidae (Col.) // Tidschr. Entomol. Jg.72. S.303–340.
- Andrewes H.E. 1930. Catalogue of Indian Insects. Calcutta: Government of India. XXII+389+4 pp.
- Andrewes H.E. 1931. Some keys to Sumatran Carabidae, together with descriptions of further new species // Zool. Meded. D1.14. P.54–78.
- Andrewes H.E. 1933. A Catalogue of the Carabidae of Sumatra // Tidschr. Entomol. Jg.76. S.319–382.
- Andrewes H.E. 1947. Entomological results from the Swedish Expedition 1934 to Burma and British India // Arkiv zool. Bd.38A. Nr.20. P.1–49. Pl.1–6.
- Anichtchenko A. 2017. *Macrocheilus niger* Andrewes, 1920 // Anichtchenko A. et al. Carabidae of the world. <http://carabidae.org/taxa/niger-andrewes-1920>
- Anichtchenko A. 2024. *Macrocheilus asteriscus* (White, 1844) // Anichtchenko A. et al. Carabidae of the world. <http://carabidae.org/taxa/asteriscus-white-1844>
- Basilevsky P. 1960. Sur le genre *Macrocheilus* Hope (Col. Carabidae Helluoninae) // Bull. Soc. Ent. Belg. T.96. Nos.3–4. P.39–51.
- Bates H.W. 1886. On the geodephagous Coleoptera collected by Mr. George Levis in Ceylon // Ann. Mag. Nat. Hist. Ser.5. Vol.17. P.199–212.
- Bates H.W. 1889. Contributions a la faune Indo-Chinoise. 3^e Mémoire. Carabidae // Ann. Soc. Ent. France. Sér.6. T.9. P.261–286.
- Bates H.W. 1892. Viaggio di Leonardo Fea in Birmania e regione vicine. XLIV. List of the Carabidae // Ann. Mus. Stor. Nat. Genova. Ser.2. Vol.12(32). P.267–428.
- Chaudoir M. 1872. Descriptions d’espèces nouvelles de Carabiques de la tribu des Truncatipennes, et remarques synonymiques // Rev. Mag. Zool. T.23. P.168–172, 212–221.
- Csiki E. 1932. Carabidae. Harpalinae VII // W. Junk, S. Schenkling (Hrsg.). Coleopterorum Catalogus. V.3. Pt.124. Berlin: W.Junk. S.1279–1598.
- Darlington P.J. 1968. The Carabid beetles of New Guinea Part III. Harpalinae (continued): Perigonini to Pseudomorphini // Bull. Mus. Harvard. Vol.137. N.1. P.1–253.
- Dejean P.F.M.A., 1825. Species général des Coléoptères de la Collection de M. le Comte Dejean. T.1. Paris. P.I–XXX, 1–463.
- Dejean P.F.M.A. 1831. Species général des Coléoptères de la Collection de M. le Comte Dejean. T.5. Paris: Mequignon-Marvis. P.I–VIII, 1–883.
- Erwin T.L., Sims L.L. 1984. Carabid beetles of the West Indies (Insects: Coleoptera): a synopsis of the genera and checklist of tribes of Caraboidea, and of the West Indian species // Quaest. Ent. Vol.20. P.351–466.
- Felix R.F.F.L., Muilwijk J. 2007. A new *Macrocheilus* Hope, 1838 from Yemen (Coleoptera, Carabidae) // Bol. Soc. Entomol. Aragon. No.41. P.83–86.
- Gestro R. 1875. Note sopra alcuni carabici appartenenti al Museo Civico di Genova con descrizioni di specie nuove // Ann. Mus. Stor. Nat. Genova. Vol.7. P. 850–894.
- Guérin-Ménéville F.É. 1840. Coléoptères nouveaux du Plateau des Neelgherries dans les Indes Orientales, découvertes par M. Adolphe Delessert // Rev. Zool. P.37–42.
- Guérin-Ménéville F.É. 1843. Animaux articulées // Delessert A. Souvenirs d’un voyage dans l’Inde exécuté de 1834 à 1839. Paris: Fortin, Masson et Cie Langlois et Leclercq. P.33–98, Pl.11–27.
- Habu A. 1979. On a collection of Carabidae from Nepal made by the Hokkaido University Scientific expedition to Nepal, Himalaya, 1968 (III) // Ent. Rev. Japan. Vol.33. Nos.1/2. P.1–18.
- Heller K.M. 1900. Neue Käfer von Celebes. IV // Abh. Ber. Zool. Mus. Dresden. Bd.9. No.6. S.1–46, t.1.
- Heller K.M. 1916. Philippinische Käfer, gesammelt von Prof. C. Fullen-Baker, Los Banos. — Deutsche Entomologische Zeitschrift. H.7. S.269–311.
- Hope F.W. 1838. The Coleopterist’s Manual. Pt.2. Predaceous land and water beetles of Linnaeus and Fabricius. London: H.G. Bohn. P.I–XVI, 1–168, Pl.1–3.
- Horn G.H. 1881. On the genera of Carabidae with special reference to the fauna of boreal America // Trans. Amer. Ent. Soc. Vol.9. P.91–106.
- Hovorka O. 2016. Notes on Oriental and Palearctic *Macrocheilus* (Coleoptera: Carabidae: Helluonini) // Studies and Reports, Taxonom. Ser. Vol.12. No.2. P.353–356.
- Huber C., Marggi W. 2017. Tribe Helluonini Hope, 1838 // I. Löbl, D. Löbl (eds.). Catalogue of Palearctic Coleoptera. Vol.1. Archostemata – Myxophaga – Adephaga. Revised and Updated Edition. Vol.1. Leiden – Boston: Brill. P.577–578.
- Jeannel R. 1949. Coléoptères Carabiques de la Région Malgache. (Pt.3) // Faune de l’Empire Français. T.11. Paris. P.767–1146.
- Jedlická A. 1964. Monographie der Truncatipennen aus Ostasien. Lebiinae – Odacanthinae – Brachininae (Coleoptera, Carabidae) // Ent. Abh. Mus. Dresden. Bd.28 [1963–1964]. Nr.7. S.305–579.
- Kirschenhofer E. 2003. Neue und wenig bekannte truncatipenne Carabidae aus Süd- und Südost Asien aus dem Ungarischen Naturwissenschaftlichen Museum Budapest (Coleoptera: Carabidae: Brachinini, Lebiini) // Ann. Hist.-nat. Mus. Nation. Hung. Vol.95. S.5–18.
- Landin B.-O. 1955. Entomological results from the Swedish expedition 1934 to Burma and British India. Coleoptera: Carabidae collected by René Malaise // Ark. Zool. Bd.8. Nr.3. P.399–472.
- Laporte F.L.N. de Caumont. 1867. Notes on Australian Coleoptera. Melbourne: R. Soc. Victoria, 139 pp.

- Lorenz W. 1998. Systematic list of extant ground beetles of the world (Insecta Coleoptera "Geadephaga": Trachypachidae and Carabidae incl. Paussinae, Cicindelinae, Rhysodinae). 1st ed. Tutzing. 502 pp.
- Lorenz W. 2005. Systematic list of extant ground beetles of the world (Insecta Coleoptera "Geadephaga": Trachypachidae and Carabidae incl. Paussinae, Cicindelinae, Rhysodinae). 2nd ed. Tutzing. 530 pp.
- Natural History Museum. 2023. *Macrocheilus niger* Andrewes, 1920 [Photograph]. Natural History Museum. Licensed under CC-BY-4.0 (<https://creativecommons.org/licenses/by/4.0>). <https://data.nhm.ac.uk/object/7f722fad-5f4d-467e-9c6f-d3fb39a0e378/1729036800000>.
- Nietner J. 1857a. Entomological papers [continued] // J. Asiat. Soc. Bengal. Vol.26. P.132–153.
- Nietner J. 1857b. Descriptions of new Ceylon Coleoptera // Ann. Mag. Nat. Hist. Ser.2. Vol.20. P.272–282.
- Ober K.A., Maddison D.R. 2008. Phylogenetic relationships of tribes within Harpalinae (Coleoptera: Carabidae) as inferred from 28S ribosomal DNA and the wingless gene // J. Ins. Science. Vol.8. Article 63. P.1–32. Available online: insectscience.org/8.63.
- Olivier G.-A. 1790. Encyclopedie methodique. Histoire naturelle. Insectes. T.5. Paris: Panckoucke. 793 pp.
- Olivier G.-A. 1795. Entomologie, ou Histoire Naturelle des insectes, avec leur caractères génériques et spécifiques, leur descriptions, leur synonymie et leur figure enluminée. Coléoptères, T.3. No.35. Carabe. *Carabus*. P.1–116, I–XXVIII.
- Olivier G.-A. 1808. Entomologie, ou Histoire Naturelle des insectes, avec leur caractères génériques et spécifiques, leur descriptions, leur synonymie et leur figure enluminée. Coléoptères, T.7. Planches. — Genres 1–65. No.35. Carabe. *Carabus*.
- Redtenbacher L. 1868 [1867]. Zoologischer Theil. Zweiter Band. I. Abtheilung A. 1. Coleopteren // Reise der österreichischen Fregatte Novara um die Erde in der Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair. Wien: Karl Gerold's Sohn. S.I–IV, 1–249, Pl.1–5.
- Reichardt H. 1974. Monograph of the Neotropical Helliunini, with notes and discussions on Old World forms (Coleoptera, Carabidae) // Studia Ent. Vol.17. P.211–302.
- Reiche L.J. 1843. Recherches sur les Helliunides, ou revision du genre Helluo, Bonelli et Dejean // Ann. Soc. Ent. France T.11 [1842]. P.323–344.
- Schaum 1863. Beiträge zur Kenntniss einiger Carabiden-Gattungen // Berlin. Ent. Zeitschr. Jg.7. S.61–92.
- Schmidt-Göbel H.M. 1846. Faunula Coleopterorum Birmaniae, adjec-tis nonnullis Bengaliae indigenis. P.I–VIII, 1–94, Pl.I–III.
- Serrano A.R.M. 2000. Beetle species of *Macrocheilus* Hope, 1838 from Africa: Faunistic and description of new species (Coleoptera, Carabidae) // Nouv. Rev. Ent., N.S. T.17 Fasc.2. P.137–145.
- Serrano A.R.M. 2023. Afrotropical ground beetles of *Macrocheilus* Hope, 1838 (Coleoptera, Carabidae): description of four new species and faunistic notes // Zootaxa. Vol.5256. No.1. P.1–35. <https://doi.org/10.11646/zootaxa.5256.1.1>
- Shiju R.T., Madani I.J., Sabu T.K. 2012. A new carabid species of the genus *Macrocheilus* (Coleoptera) from India // Orient. Insects. Vol.46. No.2. P.97–106. doi: 10.1080/00305316.2012.689485
- Sloane T.G. 1914. Revisional notes on Australian Carabidae. Pt.5. // Proc. Linn. Soc. N.S.W. Vol.39. P.568–614.
- White A. 1844. Descriptions of some new species of Coleoptera and Homoptera from China // Ann. Mag. Nat. Hist. Vol.14. P. 422–426.
- Wiedemann C.R.W. 1823. Zweihundert neue Kafer von Java, Bengalen und dem Vorgebirge der guten Hoffnung // Zool. Mag. Bd.2. S.1–135.
- Zhao D., Tian M. 2010. A review of the genus *Macrocheilus* Hope (Coleoptera: Carabidae: Helliunini) of China, with descriptions of seven new species // Polish J. Ent. Vol.29. P.3–23.
- Zhao D., Tian M. 2012. Taxonomic notes on the *Macrocheilus* Hope (Coleoptera, Carabidae, Helliunini) from Oriental Region, with description of one new species from the Philippines // ZooKeys. Vol.228. P.77–100. doi: 10.3897/zookeys.228.3401.