

Descriptions of three new *Enoplotrupes* species from China and Himalaya (Coleoptera: Geotrupidae)

David KRÁL¹), Vladislav MALÝ²) & Jan SCHNEIDER³)

¹) Department of Zoology, Faculty of Science, Charles University, Viničná 7, CZ–128 43 Praha 2, Czech Republic;
e-mail: kral@natur.cuni.cz

²) Podskalská 393/5, CZ–128 00 Praha 2, Czech Republic; e-mail: entotera@login.cz

³) Husinecká 4, CZ–130 00 Praha 3, Czech Republic; e-mail: nicrophorus@hotmail.com

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Abstract. The following three new species from China and the Eastern Himalaya are described: *Enoplotrupes* (*Enoplotrupes*) *frater* sp. nov. (China: Fujian), *E. (Gynoplotrupes) irregularis* sp. nov. (China: Sichuan and Yunnan) and *E. (Gynoplotrupes) mishmi* sp. nov. (India: Arunachal Pradesh). Described species are compared with similar and probably related species. Relevant diagnostic characters of the new species including external male genitalia are illustrated.

Key words. Taxonomy, new species, Coleoptera, Scarabaeoidea, Geotrupidae, Geotrupinae, Enoplotrupini, *Enoplotrupes*, *Gynoplotrupes*, China, India, Palearctic region, Oriental region.

INTRODUCTION

Currently the genus *Enoplotrupes* P. H. Lucas, 1869 includes 21 known taxa on species level classified in three subgenera distributed in the northern parts of South and Southeast Asia and China (Nikolajev et al. 2016, Ochi et al. 2017, Gupta et al. 2019). In the course of a study of geotrupid material from China and the Himalaya, the authors found three additional undescribed species of this genus whose formal description are presented below. The number of formally described taxa on species level thus increased to 24.

MATERIAL AND METHODS

Materials were examined with an Olympus SZ61 stereomicroscope, measurements were taken with an ocular grid. The habitus photographs were taken using a Canon EF-S 60 mm f/2.8 Macro USM lens attached to a Canon EOS 70D camera. Partially focused images of each specimen were combined using Zerene stacker software.

The following acronyms identify the collections housing the material examined (curators in parenthesis):

- BMNH – Natural History Museum, London, United Kingdom (Maxwell V. L. Barclay, Malcolm Kerley);
- IECA – Institute of Entomology, Biology Centre CAS, České Budějovice, Czech Republic (Aleš Bezděk);
- EKCS – Emil Kučera collection, Soběslav, Czech Republic;
- IZAS – Institute of Zoology, Chinese Academy of Sciences, Beijing, China (Ming Bai);
- JMCH – Jan Matějčíček collection, Hradec Králové, Czech Republic;
- JSCP – Jan Schneider collection, Praha, Czech Republic;
- JZCJ – Jaroslav Žák collection, Jezernice, Czech Republic;
- LMCT – Ladislav Mencl collection, Týnec nad Labem, Czech Republic;
- MJCS – Miroslav Janata collection, Sázava, Czech Republic;
- MNHN – Muséum national d'Histoire naturelle, Paris, France (Antoine Mantilleri, Olivier Montreuil);
- NMPC – National Museum, Praha, Czech Republic (Jiří Hájek);
- OHCB – Oliver Hillert collection, Schöneiche bei Berlin, Germany;
- RCC – †Radek Červenka collection, deposited in NMPC;

RSCU – Rostislav Sehnal collection, Unhošť, Czech Republic;
SJCP – Stanley Jákl collection, Praha, Czech Republic;
TTCO – Tomáš Tichý collection, Opava, Czech Republic;
VKCB – Vladimír Kremítovský collection, Brno, Czech Republic;
VMCP – Vladislav Malý collection, Praha, Czech Republic;
VTCZ – Václav Týr collection, Žihle, Czech Republic;
ZJCP – Zdeněk Jindra collection, Praha, Czech Republic;
ZZCP – Zdeněk Znamenáček collection, Praha, Czech Republic.

Specimens of described species are provided with one red printed label “Name of a taxon sp. nov., HOLOTYPUS ♂ [or] ALLOTYPUS ♀ [or] PARATYPUS ♂ [or] ♀, David Král, Vladislav Malý & Jan Schneider det. 2019”. Verbatim label data are cited for the type material, individual labels are indicated by a double slash (//), individual lines of every label by a single slash (/), [p] – preceding data within quotation marks are printed, [hw] – the same but handwritten. Our remarks and additional comments are found in brackets.

Morphological terminology largely follows Král et al. (2001, 2012) and Ochi et al. (2017).

TAXONOMY

Enoplotrupes (Enoplotrupes) frater sp. nov.

(Figs. 1–4, 19–21)

TYPE LOCALITY. China, E Fujian, Shiniushan [mts.], 25°38'N 118°28', 1600–1700 m a. s. l.

TYPE MATERIAL (2 specimens). **China: Fujian.** Holotype, ♂ (NMPC), “China, E Fujian, 24.VI.–15.VII. | Shiniushan, 1600–1700 m | 25°38'N, 118°28' [p]”. Paratypes: allotype, ♀ (NMPC), same data as holotype.

DESCRIPTION OF HOLOTYPE (♂). Colour of dorsal surface blackish with bluish tinge, labrum, extremities including mandibles and venter black, clypeo-frontal and pronotal horn, and genae blackish; macrosetation of head appendages including labrum blackish, that of antennae and other parts of body black (habitus as in Figs. 1, 3, 4).

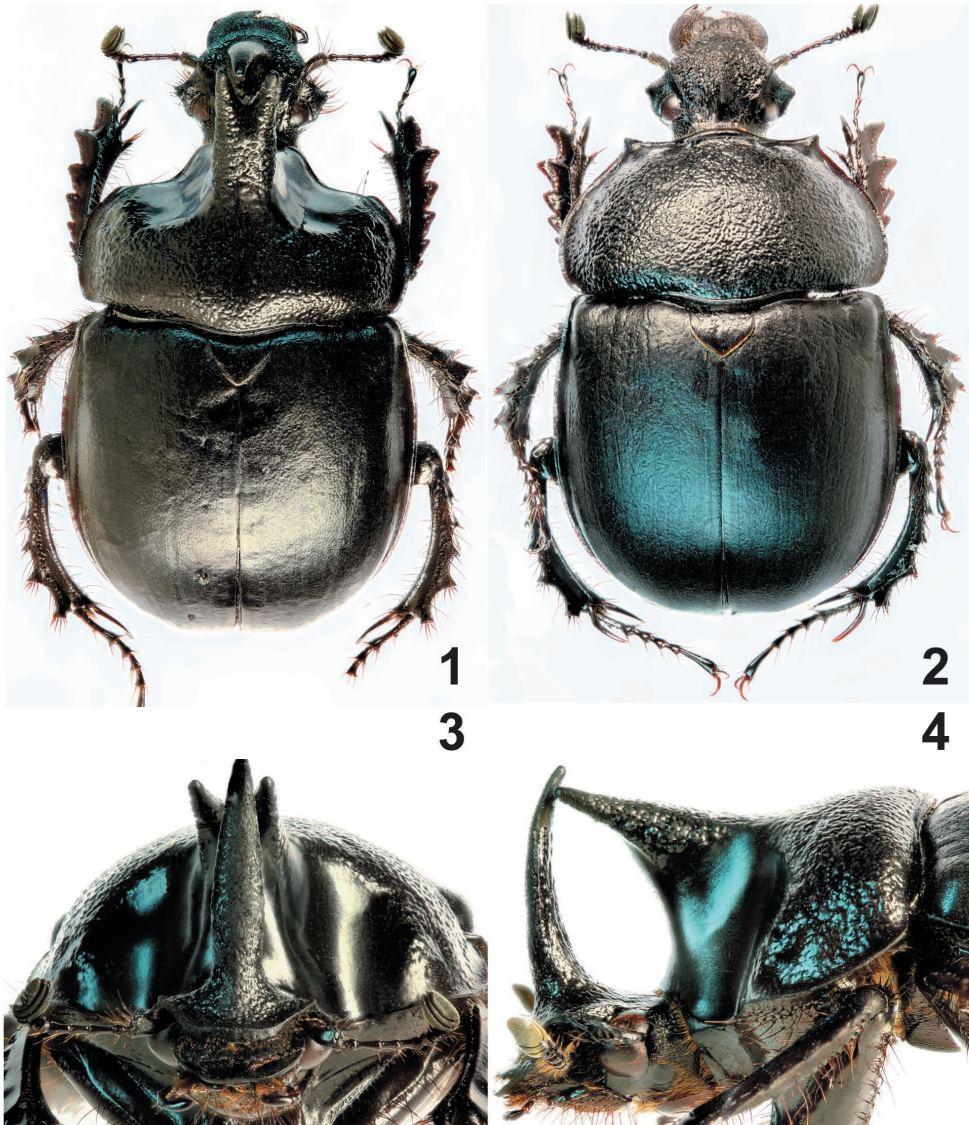
Head. Labrum semicircular, bilobed, anterior margin shallowly emarginate, finely, broadly, irregularly serrate; mandibles simply regularly arcuate externally (without any tooth or sinuations). Clypeus ogival, coarsely rugous, rugosities confluent, simple punctures missing; clypeo-frontal horn relatively long, extending furca of pronotum horn apically, moderately curved backwards to almost acuminate apex (Figs. 1, 3, 4), considerably rugose (as in clypeus) anteriorly, and with irregular more or less longitudinal streaks posteriorly; genal sutures distinct, straight and convergent posteriad; anterolateral angles of genae considerably pointed, points directed laterad (Fig. 1), genal surface very sparsely, irregularly, longitudinally wrinkled, with simple punctures mainly along genal suture; occiput glabrous and alutaceous.

Pronotum (Figs. 1, 3, 4) of irregular hexagon in shape, anterior angles acute-angulate, lateral margin broadly rounded, converging posteriad; smooth area laterally of horn considerably flat, longitudinal connection between pronotum and horn without bridge, dorsal sculpture considerably coarsely, irregularly rugose to vermiculate, somewhat confluent. Horn (Figs 1, 3, 4) moderately bifid, only slightly divergent apicad, with distinctly rugose dorsal side, rugosities transversally confluent, ventral side smooth.

Scutellum (Fig. 1) broadly triangulate in outline, broadly sinuate anteriorly, sides broadly rounded, surface alutaceous, impunctate, coarsely rugose.

Elytra convex, with distinct impunctate humeral umbone, finely microsculptured, large irregularly shaped microsculptured areas divided by fine, smooth, narrow, irregularly shaped furrows, confluent often in longitudinal rows resembling rather elytron striae (Figs. 1, 4).

Macropterous.



Figs. 1–4. *Enplotrupes (E.) frater* sp. nov. 1, 3, 4 – holotype (♂), 2 – allotype (♀). 1, 3 – habitus, dorsal view; 3 – head and pronotum, frontal view; 4 – same, left lateral view. Not to scale.

Legs. Femora unarmed, glabrous, impunctate, with two macrosetaceous transversal carinae. Protibiae with six external teeth regularly diminishing basad; ventromedial edge unarmed, with two robust macrosetae subapically; meso- and metatibiae with three transversal external carinae, each with 3–4 long, robust macrosetae.

Abdominal ventrites scabrous, setaceous.

Aedeagus. Parameres of characteristic shape as in Figs. 19–21.

FEMALE (allotype) (Fig. 2). It differs from male as follows: dorsal surface more bluish, clypeus with short, pointed tubercle; pronotum with straight transversal carina.

MEASUREMENTS. Total body length of holotype, ♂ – 23 mm and allotype, ♀ – 24 mm.

DIFFERENTIAL DIAGNOSIS. The new species is classified in the nominotypical subgenus by having pronotal horn in male slender or stout, bifid or broadly furcate apically; in female pronotum with transversal carina or furcate horn; elytra shagreened, microstriolate, as a rule alutaceous or moderately shiny; colour of dorsum blackish, bluish, dark blue, often with weak brownish, greenish, cuprous or violet tinge (for details see also Král et al. 2012, 2015a, b, Ochi et al. 2017). *Enoplotrupes (E.) frater* sp. nov. is similar and presumably closely related to *E. (E.) chaslii* (Fairmaire, 1886) by approximately the same colour of dorsal surface and analogical shape of horns of head and pronotum. But it clearly differs mainly as follows:

- pronotal surface considerably vermiculate, without intermixed simple punctures, see Figs. 1, 2, 4 (pronotal surface irregularly and incompletely reticulate, with intermixed simple punctures especially discally in *E. (E.) chaslii* – Figs. 13, 15);
- pronotal horn in male stout, almost parallel-sided, see Figs 1, 3, 4 (pronotal horn in male short, distinctly divergent anteriorly in *E. (E.) chaslii* – Figs 13, 14).

ETYMOLOGY. Derived from mediavel Latin word *frater*, meaning brother, a member of religious community; noun in apposition.

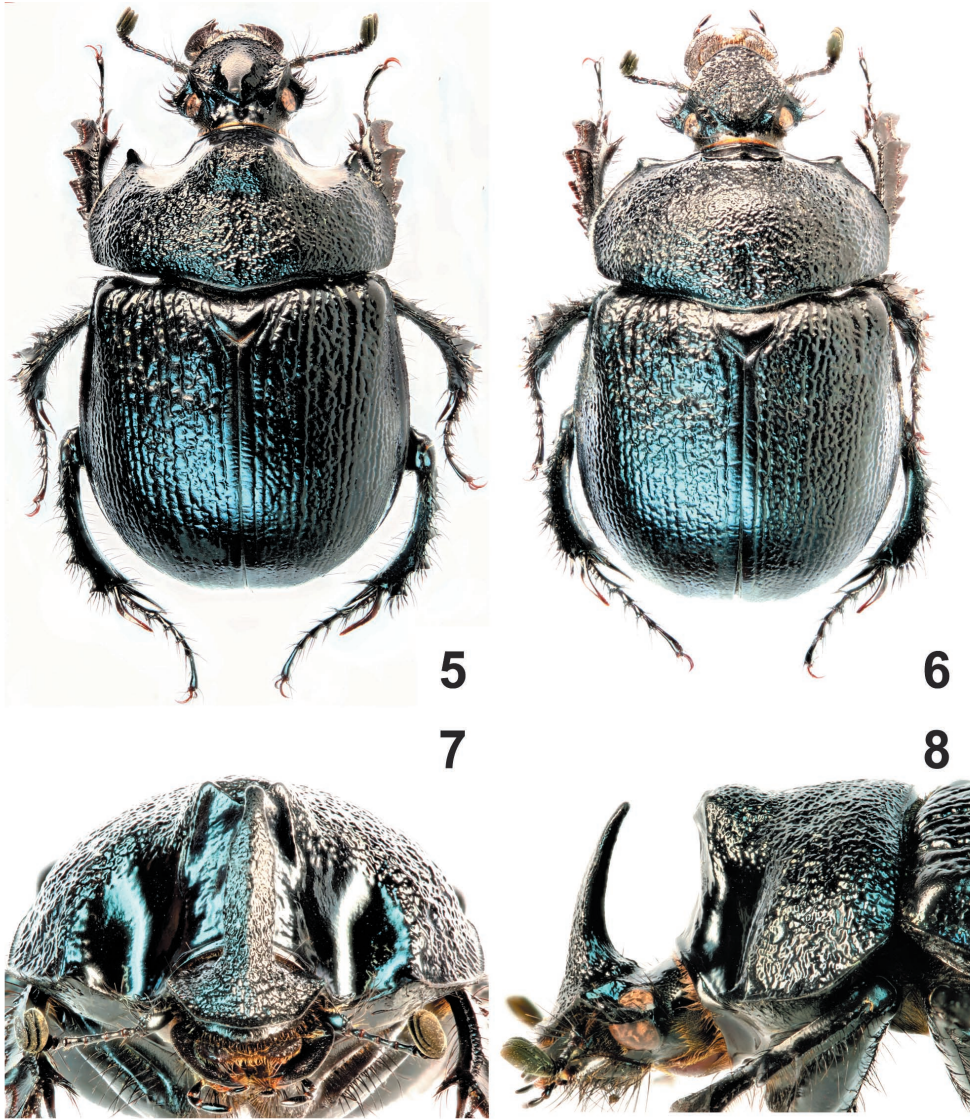
DISTRIBUTION. So far known only from the Shiniu Mts. in south-eastern part of Fujian.

Enoplotrupes (Gynoplotrupes) irregularis sp. nov.

(Figs. 5–8, 22–24)

TYPE LOCALITY. China, N-Yunnan, Yulongshan mts., Ganhaizi pass, 27°06'N, 100°15'E, 3000–3500 m a. s. l.

TYPE MATERIAL (315 specimens). **China: Yunnan.** Holotype: ♂ (NMPC), “China, N-Yunnan, 27°06'N, 100°15'E, Yulongshan mts., 3000–3500 m, Ganhaizi pass, lgt. David Král, 18–23/7/1990 [p]”. Paratypes: allotype: ♀ and 2 ♂♂, 3 ♀♀ (NMPC), same data as holotype; “China N-Yunnan | 27°13'N, 100°16'E | Yulongshan mts. 3200 m E slope | lgt. D. Král, 14.7.[19]90 [p]”, 3 ♂♂, 2 ♀♀ (NMPC); “China N-Yunnan | 27°08'N, 100°14'E | Yulongshan mts. 2900–| 3500 m, BAISHUI vill. | lgt. D. Král, 7–12/7.[19]90 [p]”, 4 ♂♂, 6 ♀♀ (NMPC); “YUNNAN, 2000–3000 m | 27.20°N, 100.11°E | HABASHAN mts. | SE slope, 10.–13.7.[19]92 | David Král lgt. [p]”, 3 ♂♂, 4 ♀♀ (NMPC); “YUNNAN, 3800–4600 m | 27.19°N, 100.08°E | HABASHAN mts. | SE slope, 10.–15/7.[19]92 | David Král lgt. [p]”, 1 ♀ (NMPC); “YUNNAN 3500–4000 m | 27.10°N, 100.13°E 1993 / YULONGSHAN mts. 16–| Vít Kubáň leg. –19/6. [p]”, 1 ♂ (JSCP); “N Yunnan, 22–24.vi.1994 | 27.49°N, 99.34°E, 3800–4200 m – mts 15 km W of ZHONGDIAN | lgt. D. Král & J. Farkač [p]”, 2 ♂♂, 3 ♀♀ in (NMPC) and 1 ♂, 1 ♀ (MNHN); “CHINA N Yunnan | Zhongdian env. 3200 | –3300 m, 21.–22.VI.1996 | 27°50'N, 99°36'E, P. Kabátek lgt. [p]”, 1 ♀ (NMPC); “CHINA N Yunnan, Xue | Shan [= Shangrila Shika Mts.] nr. Zhongdian | 3800 m 23.–26.VI.1996 | 27°49'N, 99°34'E, P. Kabátek lgt. [p]”, 1 ♂, 1 ♀ (NMPC); “CHINA-YUNNAN | Yanmen | 13.6.–23.6. [p] | 2005 [hw] | lgt. E. Kučera [p]”, 1 ♂ (NMPC); “Yunnan, Lijiang Yulong Xue Shan 3000 m, 1990.VI.2 | co: Cong Shaoguang [p, original in Chinese pictographs]”, 2 spec. (IZAS); “Yunnan, Lijiang Yulong Xueshan, 3200 m 1984.VII.15 co: Wang Shu Yong [p, original in Chinese pictographs]” 1 spec. (IZAS); “Yunnan, Lijiang, Yulong Xueshan, 3500 m, 1984.VII.18 co: Wang Ruiqi [p, original in Chinese pictographs]”, 1 spec. (IZAS); “Yunnan, Lijiang, Yulong Xueshan, 3200 m, 1984.VII.15 co. Wang Ruiqi [p, original in Chinese pictographs]”, 1 spec. (IZAS); “Yunnan, Lijiang, Zhiben Shan, 3200 m, 1981.VI.23, co: Wang Shuyong [p, original in Chinese pictographs]”, 1 spec. (IZAS); “Yunnan, Lijiang, Yulong Xueshan, 3800 m, 1984.VII.16, co: Wang Shuyong [p, original in Chinese pictographs]”, 1 spec. (IZAS); “Yunnan, Ninglang Xian, Lugu Hu, Gouzhuangdong Yakou, 3352 m, 2012.VI.3, 27.63215°N, 100.81777°E, co: Liu Ye [p, original in Chinese pictographs]”, 2 ♂♂, 1 ♀ (IZAS); “CHINA: Yunnan province | 32 km Lijiang, 18.VI.2007 | Maoniuping [Yak meadows] | 27°09.9'N, 100°14.5'E, 3540 m | J. Hájek & J. Růžička leg. || individually collected in and | under fresh and older | excrements of yak (*Bos mutus*) | wet pasture [p]”, 8 ♂♂, 13 ♀♀ (NMPC); “CHINA, pr. Yunnan bor. | Heishui env. | 24.–28.5.1992 | R. Červenka lgt. [p]”, 1 ♀ (RCC); “CHINA, Yunnan prov. | Heishui 35 km Lijiang | 18.6.–4.7.1993 | 27.13°N; 100.19°E | leg. S. BECVAR [p]”, 2 ♂♂, 1 ♀ (IECA); “CH. NW Yunnan | prov. env. Bailakou



Figs. 5–8. *Enoplotrupes (Gynoplotrupes) irregularis* sp. nov. 5, 7, 8 – holotype (♂), 6 – allotype (♀). 5, 6 – habitus, dorsal view; 7 – head and pronotum, frontal view; 8 – same, left lateral view. Not to scale.

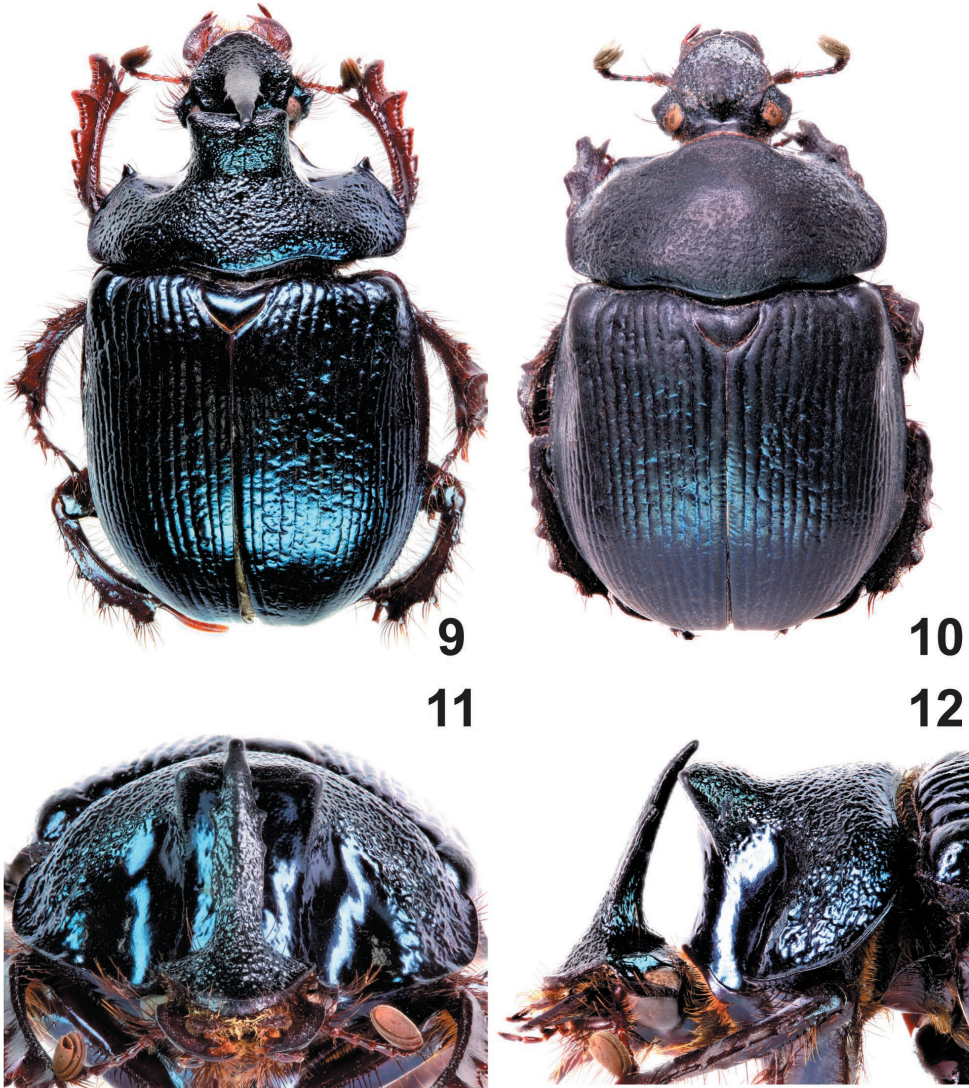
pass 3400 m | 28.V.–7.VI.2006 | S. Murzin et I. Shokhin lgt. [p]”, 33 ♂♂, 25 ♀♀ (VMCP); “CH.- N.YUNNAN | Haba Mts. 9.7.2002 | Bailakou pass 3300 m | S. Murzin & | I. Shokhin lgt. [p]”, 2 ♂♂, 2 ♀♀ (VMCP); “CH.- N. YUNNAN | Haba Mts. Bailakou pass | h – 3450 m, 10.7.2002 | S. Murzin, I. Shokhin lgt. [p]”, 2 ♀♀ (VMCP); “CH.- YUNNAN | 25 km E Zhongdian | env. Bita-lake 3500 m | 22.6.1998 S.Murzin lgt. [p]”, 1 ♂, 2 ♀♀ (VMCP); “CH. mer. Yunnan prov. | pass 50 km W from Judian | 11.–13.6.2005 | Oto Nakládal lgt. [p]”, 1 ♂ (VMCP); “CH. Yunnan prov. | pass 20 km

NW from Zhongdian | 15.–16.6.2005, Oto Nakládal lgt. [p]”, 4 ♂♂, 6 ♀♀ (VMCP); “CH. Yunnan | Luijiang [= Lijiang] | 11.–15.6.1995 | E. Kučera lgt. [p]”, 1 ♂ (EKCS); “CH. Yunnan | Haba Shan | 1.–6.7.2005 | E. Kučera lgt. [p]”, 1 ♂ (EKCS); “Yunnan | 28.7.–1.8.2015; China | Habashan | above Haba | T. Tichý; 2900–4500 m [p]”, 1 ♂ (JSCP), 1 ♂, 1 ♀ (TTCO); “8.6.2006, Čína [= China] | Zhongdian | N27°67', E99°86' | Křemítovský [p]”, 1 ♂ (VKCB); “YUNNAN 3000 m | 27.05°N, 100.15°E | YULONGSNAN mts. | Ganhaizi pass 4/7. | Vít Kubáň leg. [19]92 [p]”, 1 ♂ (LMCT); “CHINA-YUNNAN | HABASHAN-Habashan mts. | 12.–16.6.2004, alt. 3500–4000 m, 27°19'N, 100°08'E | lgt. Fouqué R.+ H. (WGS 84) [p]”, 14 ♂♂, 6 ♀♀ (JSCP); “CHINA-YUNNAN / HABASHAN-Habashan mts. | 11.–16.6.2004, alt.3150–3500 m, 27°19'N, 100°08'E | lgt. Fouqué R.+ H. (WGS 84) [p]”, 1 ♂, 1 ♀ (JSCP); “CHINA-YUNNAN | HABASHAN-Habashan mts. | 7.–10.6.2002, alt. 3500–4000 m | WGS 84, 27°19'N, 100°08'E | lgt. Bečvář S. & Fouqué R.+ H. [p]”, 1 ♂, 2 ♀♀ (JSCP), 1 ♂, 1 ♀ (SJCP); “China, N.W.Yunnan, 3200 m | Haba Shan-Haba | N27°22'54.3", E100°06'03.2" | 2.7.2005, lgt. Janata M. [p]”, 1 ♂ (JSCP), 1 ♂ (JZCJ); “YUNNAN 3300–2500 m | 27,14N 100,15E | YULONGSHAN mts. | N slope 5/7. [19]92 / David Král leg. [p]”, 1 ♂, 1 ♀ (JMCH); “CHINA 3000 m | NW Yunnan 9.7. [19]96 | env. Zhongdian [p]”, 5 ♂♂, 5 ♀♀ (SJCP); “China NW Yunnan | Haba mts. | 21.–23.7.1996 | S. Murzin lgt. [p]”, 2 ♂♂, 1 ♀ (SJCP); “YUNNAN 3000–3800 m | 27.20°N, 100.09°E | HABASHAN mts. | E slope 13–17/7. 92 | Vít Kubáň leg. [p]”, 1 ♂ (SJCP); “Yunnan NW, 3600–3700 m | Yulongshan Mt. | 14–22/VI/1996 S. Mourzine Leg. [p]”, 1 ♂ (SJCP); “YUNNAN 3300–3500 m | 27.07°N, 100.13°E, 1993 | YULONGSHAN mts. 20– | Vít Kubáň leg. –21/6. [p]”, 1 ♂ (SJCP), 1 ♂, 1 ♀ (VMCP); “YUNNAN 3300 m | 27.07°N, 100.14°E | YULONGSHAN mts. | 28/5. 1993 | Vít Kubáň leg. [hw]”, 1 ♂ (SJCP); “China N-YUNNAN | 27°13'N, 100°16'E | Yulongshan mts. | 3200 m E slope | lgt. D. Král 14.7. [19]90 [p]”, 1 ♂ (SJCP); “China, N.W.Yunnan, 3300 m | Hengduan Shan-Yanmen | N28°00'48.4", E098°50'20.1" | 15.6.2005, lgt. Janata M. [p]”, 1 ♂, 1 ♀ (JSCP), 4 ♀♀ (MJCS); “China N-YUNNAN | 27°06'N, 100°15'E | YULONGSNAN mts. 3000–3500 m GANHAIZI pass / lgt. D. Král 18–23/7. [19]90 [p]”, 1 ♂ (JSCP); “CHINA: Yunnan province | 32 km N LIJIANG, 16.VI.2007 | MAONIUPING (Yak meadows) | 27°09.9'N, 100°14.5'E, 3540 m | J. Hájek & J. Růžička leg. [p] || individually collected in and | under fresh and older / excrements of yak (*Bos mutus*) | wet pasture [p]”, 1 ♂ (JSCP); “CHINA, Yunnan prov. | pass 20 km NW from Zhongdian | 15.–16. 6. 2005 | Oto Nakládal lgt. [p]”, 1 ♂, 1 ♀ (JSCP); “CHINA, YUNNAN prov. | 18.6.–4.7.1993 | HEISHUI, 35 km N Lijiang | 27,13°N, 100,19°E | lgt. S. Becvar [p]”, 1 ♀ (JMCH), 1 ♂, 1 ♀ (VTCZ), 2 ♂♂ (ZZCP); “CHINA, YUNNAN prov. | HEISHUI, 35 km N Lijiang | 27,13°N, 100,19°E | 18.6.–4.7.1993 | lgt. S. Becvar [p]”, 1 ♂ (VTCZ); “CHINA pr. Yunnan bor. | Heishui env. | 24.–28.5.1993 | R. Červenka lgt. [p]”, 4 ♂♂, 3 ♀♀ (RCC), 4 ♂♂, 2 ♀♀ (VMCP); “CHINA Yunnan | Yulongxue Shan, 3200 m | N Liliang [= Lijiang] 12.VI.[19]98 | A. Goroginsky lg. [p]”, 1 ♂, 1 ♀ (OHCB); “China, NW Yunnan, 11.6.2018 | cca 25 km SE of Shangri-La (Zhongdian) | Xueshan Mts, 3740 m | N27°43'20", E99°57'58" | lgt. M. Janata, R. Sehnal [p]”, 6 ♂♂, 9 ♀♀ (MJCS), 9 ♂♂, 8 ♀♀ (RSCU), 1 ♂, 1 ♀ (JSCP); “China, NW Yunnan, 16.6.2018 | Mts. W of pass 17 km NW of Shangri-La | (Zhongdian), elev. 4050 m | N27°55'34", E99°34'43" | lgt. R. Sehnal, M. Janata [p]”, 16 ♂♂, 6 ♀♀ (MJCS), 9 ♂♂ (RSCU), 2 ♂♂, 1 ♀ (JSCP); “China, N Yunnan, 29.vi.2010 | S of LUGU HU lake | by road, 27°37'55.06"N | 100°48'31.09"E, 3350 m | David Král lgt. [p]”, 3 ♂♂, 2 ♀♀ (NMPC).

ADDITIONAL MATERIAL EXAMINED (106 specimens). **China: Sichuan.** Daliang Shan mts., road Meigu-Leibo vill., pass 15 km NE of Meigu, 28°25'N, 103°17'E, 9.–11.vi.1998, 1 ♀ (JMCH), 1 ♂ (VTCZ), M. Trýzna lgt.; Daliang Shan mts., road Meigu-Leibo vill., pass 15 km NE of Meigu, 28°25'N, 103°17'E, 9.–11.vi.1998, 1 ♂, 1 ♀ (JSCP), 2 ♀♀ (ZJCP), Zd. Jindra & M. Trýzna lgt.; Daliang Shan mts., road Meigu-Leibo, pass 15 km NE of Meigu, 28°25'N 103°17'E, 27.vii.1997, 1 ♀ (SJCP), M. Trýzna & O. Šafránek lgt.; Daliang Shan mts., pass Xichang-Meigu vill., Zhaojue vill. env., 12.–14.vi.1998, 1 ♂ (NMPC), 1 ♂, 2 ♀♀ (JSCP), Zd. Jindra & M. Trýzna lgt.; Daliang Shan mts., Zhaojue vill. env. pass Xichang–Meigu vill. Zhaojue vill. env., 12.–14.vi.1998, 1 ♂ (NMPC), 3 ♂♂, 1 ♀ (JSCP), M. Trýzna lgt.; pass btw Xiahe-Hongxi, Ta Yan Ping, 3000 m, 17.–25.v.1999, 2 ♂♂ (JSCP), lgt. dr.V. Beneš; 20 km S Xichang, Mt. Sungjiangshan, 2500–2900 m, 20.–22.vii.2005, 1 ♂, 1 ♀ (JSCP), S. Murzin lgt.; pass 30 km SW Mianning, 3000–3400 m, 11.–13.viii.2007, 1 ♀ (JSCP) S. Murzin lgt.; road Xixang–Yanyuan, pass 15 km SW Pingchuan, 27.33°N, 101.94°E, 3200 m, 2 ♂♂, 1 ♀ (NMPC), Jaroslav Turna lgt.; Mts. 40 km N Meigu, (N Xichang), 2900 m 17.–9.vi.2006, S. Murzin & I. Shokhin lgt., 44 ♂♂, 30 ♀♀ (VMCP); Mts. 20 km S. Xichang, 2900 m, 20.–23.vi.2006, S. Murzin & I. Shokhin lgt., 2 ♂♂ (VMCP); Mt. Sunjiangshan, 20.–22.vii.2005, 20 km S Xichang 2500–2900 m, S. Murzin lgt. 1 ♂, 1 ♀ (VMCP); Xihe env. 6.1999, VI. Beneš lgt. 1 ♂, 1 ♀ (VMCP). **China: Yunnan.** Qiaojia Co., Yao Shan Mts., 27°01'–03'N, 103°11'–16'N, 2400–3900 m, 19.–30.vii.1998, 2 ♀♀ (NMPC), L. & R. Businský lgt.

DESCRIPTION OF HOLOTYPE (♂). Body convex, dorsal surface distinctly shiny. Colour of dorsal surface blackish; labrum, extremities including mandibles blackish; macrosetation of head appendages including labrum brownish to black (Figs. 5, 7, 8). Ventral surface black, macrosetation blackish to brown.

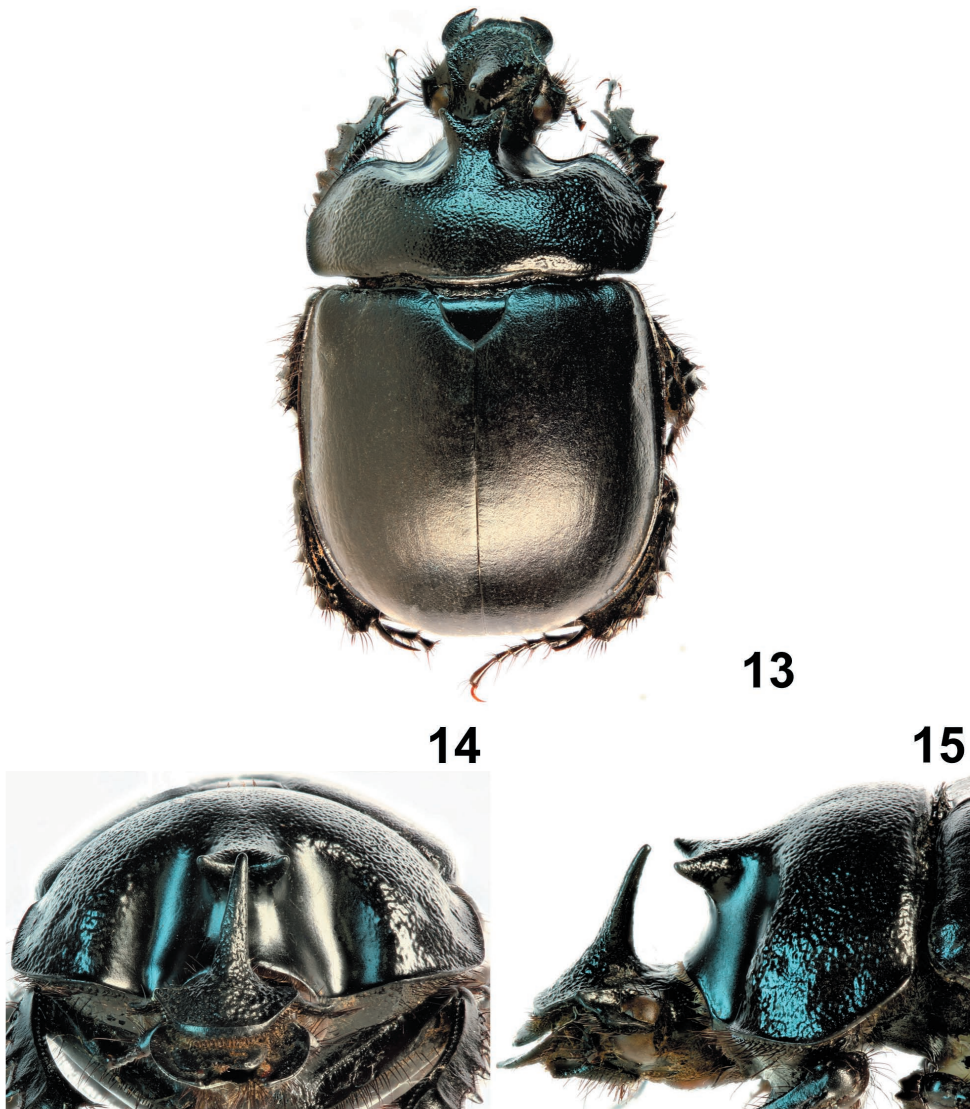
Head (Figs. 5, 7, 8). Labrum semicircular, bilobed, anterior margin shallowly but distinctly emarginate; mandibles simply regularly arcuate externally. Clypeus ogival, coarsely rugose, rugosities



Figs. 9–12. *Enoplotrupes (Gynoplotrupes) mishmi* sp. nov. 9, 11, 12 – holotype (♂), 10 – allotype (♀). 9, 10 – habitus, dorsal view; 11 – head and pronotum, frontal view; 12 – same, left lateral view. Not to scale.

confluent, simple punctures missing; fronto-clypeal horn long, but not extending emargination of pronotal horn apically (Fig. 7), moderately curved posteriad to almost acuminate apex, rugosely wrinkled distally; genal sutures distinct, short, straight and convergent posteriad with parallel anterior tips extending only indistinctly outline of head; anterolateral angles of genae pointed, points directed anterolaterad; genal and occipital surface glabrous to slightly wrinkled and shiny.

Pronotum (Figs. 5, 8) transversal, anterior angles extending to pointed tip, lateral margin broadly rounded, converging posteriad; smooth area and concavities laterally of horn glabrous and shiny; dorsal sculpture extremely irregularly rugose, somewhat confluent. Horn considerably stout and short, almost straight apically, facing almost forward, dorsal surface considerably rugose, rugosities transversally confluent.



Figs. 13–15. *Enoplotrupes (E.) chaslui* (Fairmaire, 1886). (♂, China: “Kiang Si [= Jiangxi”]; body length 28 mm; MNHN). 13 – dorsal view, 14 – head and pronotum, frontal view, 15 – same, left lateral view. Not to scale.



Figs. 16–18. *Enoplotrupes* (*Gynoplotrupes*) *yunnanus* (Fairmaire, 1888). (♂, China: “Ta-pin-tze [= approximately Jizushan Mts., Yunnan]”; body length 21 mm; MNHN). 16 – dorsal view, 17 – head and pronotum, frontal view, 18 – same, left lateral view. Not to scale.

Scutellum (Fig. 5) broadly triangular in outline, broadly sinuate anteriorly, sides broadly rounded; surface shiny, glabrous.

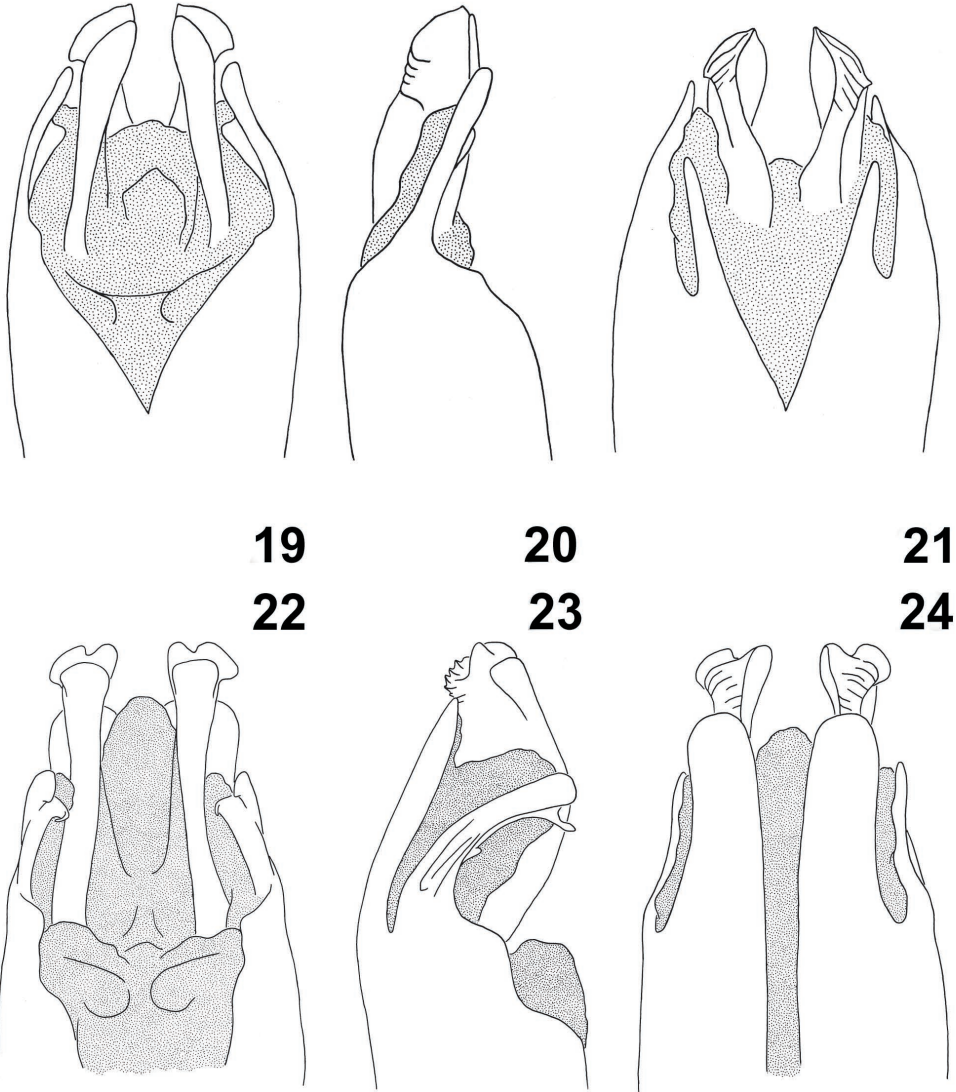
Elytra convex, with distinct humeral umbone; considerably rugose and multistriate, multistria-tion vanishing in rugosities; sutural interval distinct, almost not wrinkled (Fig. 5).

Macropterous.

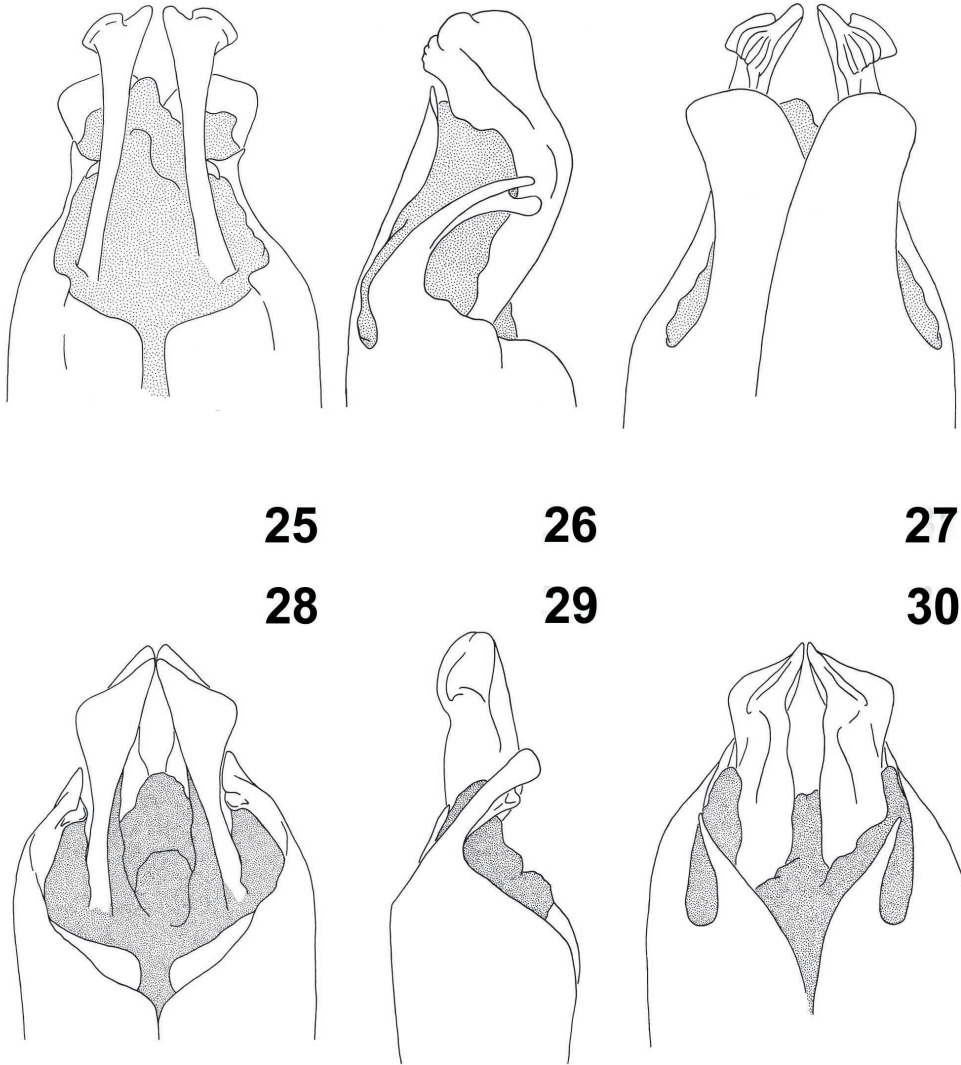
Legs. Femora unarmed, glabrous, impunctate, with two macrosetaceous transversal carinae. Protibiae with seven external teeth regularly diminishing basad; ventromedial edge unarmed; meso- and metatibiae with three transversal external carinae.

Abdominal ventrites scabrous, almost alutaceous.

Aedeagus. Parameres of characteristic shape as in Figs. 22–24.



Figs. 19–24. Parameres. 19–21 – *Enoplotrupes (E.) frater* sp. nov., 22–24 – *E. (Gynoplotrupes) irregularis* sp. nov. 19, 22 – dorsal view; 20, 23 – left lateral view; 21, 24 – ventral view. Schematically, not to scale.



Figs. 25–30. Parameres. 25–27 – *Enoplotrupes (Gynoplotrupes) mishmi* sp. nov., 28–30 – *E. (G.) chaslii* (Fairmaire, 1886). 25, 28 – dorsal view; 26, 29 – left lateral view; 27, 30 – ventral view. Schematically, not to scale.

VARIABILITY IN MALES. Fronto-clypeal horn in medium developed and underdeveloped (hypothelic) specimens short, more or less straight; horn of pronotum less developed, with only weak furca. FEMALE (Fig. 6). differs from male as follows: clypeus with short, pointed tubercle; pronotum with straight transversal carina.

MEASUREMENTS. Total body length 20–27 mm (holotype, ♂: 24 mm; allotype, ♀: 25 mm).

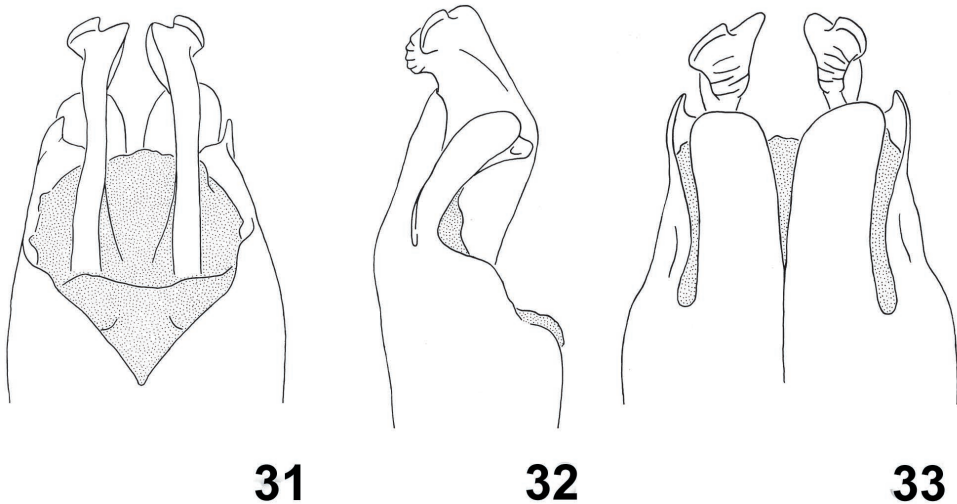
DIFFERENTIAL DIAGNOSIS. The new species is classified in the subgenus *Gynoplotrupes* R. Oberthür, 1883 by having pronotal horn in male short, obtuse, rounded or shallowly emarginate apically; in female pronotum with transversal carina; elytra more or less multistriolate, as a rule moderately shiny; colour of dorsum black, often with weak bluish or brownish tinge (for details see also Král et al. 2012, 2015a, b, Ochi et al. 2017). *Enoplotrupes (Gynoplotrupes) irregularis* sp. nov. is similar and presumably closely related to *E. (G.) yunnanus* (Fairmaire, 1888) by approximately the same colour of dorsal surface and analogical shape of horns of head and pronotum. It clearly differs mainly as follows:

- dorsal surface moderately shiny, see Figs. 5–8 (dorsal surface almost alutaceous in *E. (G.) yunnanus* – Fig. 20);
- scutellum as a rule impunctate, see Figs. 5, 6 (scutellum as a rule punctate at least in basal half in *E. (G.) yunnanus* – Fig. 20);
- humeral umbone prominent, see Figs 5, 6 (humeral umbone less prominent in *E. (G.) yunnanus* – Fig. 20);
- elytra multistriolate, see Figs. 5, 6) (elytra considerably vermiculate, not multistriolate at all in *E. (G.) yunnanus* – Fig. 20);
- larger species (total body length 20–27 mm) (smaller species – total body length 18–21 mm in *E. (G.) yunnanus*).

ETYMOLOGY. The specific epitheton reflects the considerably wrinkled dorsal surface.

DISTRIBUTION. Sichuan and Yunnan (China).

NOTE. We decided to include in the type series only material from the type locality and its vicinity (to minimize the possibility of including multiple taxa in the type material (possible presence of morphologically very similar, allopatrically distributed species of the genus).



Figs. 31–33. Parameres. *Enoplotrupes (Gynoplotrupes) yunnanus* (Fairmaire, 1888). 31 – dorsal view, 32 – left lateral view, 33 – ventral view. Schematically, not to scale.

***Enoplotrupes (Gynoplotrupes) mishmi* sp. nov.**
(Figs. 9–12, 28–30)

TYPE LOCALITY. Assam, Mishmi Hills, Delai valley, Taton.

TYPE MATERIAL (3 specimens). **India: Arunachal Pradesh.** Holotype, ♂ (BMNH), “ASSAM: | Mishmi Hills, | Delai Valley, | Taton. [p] | 25.xi. [h, bi] 1936 || Alt. [p] 8700–9000 [h, bi] ft. | M. Steele. / B.M. 1937-324 [p]”. Paratypes: Allotype, 1 ♀ (BMNH), “ASSAM: | Mishmi Hills, | Delai Valley, | Cha Che. [p] | 16.xi. [h, bi] 1936 || Alt. [p] 5320 [h, bi] ft. | M. Steele. | B.M. 1937-324 [p]”; “Arunachal Pradesh | Dibang vall. | local collector [p]”, 1 ♂ (RCC).

DESCRIPTION OF HOLOTYPE (♂). Colour of dorsal surface black, with strong bluish tinge; labrum, extremities including mandibles black-brown; macrosetation of head appendages including labrum brownish to black (Figs. 9, 11, 12). Ventral surface black, macrosetation brownish.

Head (Figs. 9, 11, 12). Labrum semicircular, bilobed, anterior margin shallowly but distinctly emarginate; mandibles simply regularly arcuate externally. Clypeus ogival, coarsely rugose, rugosities confluent, simple punctures missing; fronto-clypeal horn long, extending emargination of pronotal horn apically (Figs. 11, 12), moderately curved postariad to almost acuminate apex, almost regularly punctate distally; genal sutures distinct, straight and divergent posteriad, excepting parallel anterior points extending distinctly outline of head; anterolateral angles of genae considerably pointed, points directed anterolaterad, genal surface very sparsely, irregularly, longitudinally wrinkled; occiput glabrous and alutaceous.

Pronotum (Figs. 9, 11, 12). of irregular hexagon in shape, anterior angles acute-angular, lateral margin broadly rounded, converging posteriad; smooth area and concavities laterally of horn glabrous and shiny; dorsal sculpture extremely irregularly rugose, somewhat confluent. Horn considerably stout and considerably square (Figs. 9, 11), slightly emarginate apically, directed remarkably obliquely upwards (Fig. 12); with considerably rugose dorsal side, rugosities transversally confluent.

Scutellum (Fig. 9) broadly triangular in outline, broadly sinuate anteriorly, sides broadly rounded; surface shiny, smooth.

Elytra convex, with distinct humeral umbone; considerably rugose and multistriate, multistria-tion vanishing in rugosities (Fig. 9).

Macropterous.

Legs. Femora unarmed, glabrous, impunctate, with two macrosetaceous transversal carinae. Protibiae with six external teeth regularly diminishing basad; ventromedial edge unarmed; meso- and metatibiae with three transversal external carinae.

Abdominal ventrites scabrous, almost alutaceous.

Aedeagus. Parameres of characteristic shape as in Figs. 25–27.

VARIABILITY IN MALES. Fronto-clypeal horn in male paratype (medium developed specimen) short, more or less straight; horn of pronotum less developed, with stright apex.

FEMALE (Fig. 10). differs from male as follows: clypeus with short, pointed tubercle; pronotum with straight transversal carina.

MEASUREMENTS. Total body length of holotype, ♂: 26 mm; allotype, ♀: 27 mm; and paratype, ♂: 24 mm.

DIFFERENTIAL DIAGNOSIS. The new species is classified in the subgenus *Gynoplotrupes* by having pronotal horn in male short, obtuse, rounded or shallowly emarginate apically; in female pronotum with transversal carina; elytra more or less multistriate, as a rule moderately shiny; colour of dorsum black, often with weak bluish or brownish tinge (for details see also Král et al. 2012, 2015a, b, Ochi et al. 2017). *Enoplotrupes (Gynoplotrupes) mishmi* sp. nov. is similar and presumably closely related to *E. (G.) bieti* (R. Oberthür, 1883) by approximately the same colour

of dorsal surface and analogical shape of horns of head and pronotum. It clearly differs mainly in pronotal horn stout and considerably square, with sides parallel and slightly emarginate apex, see Figs. 9, 11 (horn short, with sides slightly convergent anteriorly, and almost straight or slightly bilobed apex).

ETYMOLOGY. Toponymic; derived from the area of origin of the new species, the Mishmi Mts.; noun in apposition.

DISTRIBUTION. So far known only from the Mishmi Hills in eastern part of Arunachal Pradesh, India.

Acknowledgements

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