

Descriptions of two new *Enoplotrupes* (Coleoptera: Geotrupidae) species from Kachin, Myanmar

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Abstract. *Enoplotrupes* (*Gynoplotrupes*) *howdeni* sp. nov. and *E. (G.) kachinensis* sp. nov. are described from the Kachin State, Myanmar. Both new species are compared with a similar and probably closely related species *E. (G.) latus* Boucomont, 1909. Relevant diagnostic characters of the new species including external male genitalia are illustrated. A list of Geotrupinae species so far known from Myanmar is compiled.

INTRODUCTION

The subfamily Geotrupinae with about 25 genera and more than 150 described species is mainly distributed in the Holarctic Region with the European species *Geotrupes spiniger* (Marsham, 1802) introduced to Australia (Scholtz & Grebennikov 2005). Several genera are known to penetrate also to the transitional zone between the Nearctic and Neotropical Regions in Central America (e. g. Howden 1964, Jameson 2002), the Palearctic and Afrotropical Regions in south-western part of the Arabian Peninsula (*Geotrupes lenardoi* Petrovitz, 1973 - e. g. Ziani et al. (2015)). This is most evident in the transitional zone between the Palearctic and Oriental Regions (see e.g. Boucomont 1905, 1912; Král et al. 2001, 2012, 2015; Löbl et al. 2006; Nikolajev 2005, 2006, 2007a,b, 2009a,b, 2014a,b; Nikolajev & Kolov 2014a,b; Ochi et al. 2010), especially in the Himalaya, south-western China and also in so far only little explored "hot spot" region of Myanmar. However, a considerable recent progress in the investigation of the group in this region can be documented by the fact that descriptions of 13 new species and three new country records out of the total 18 species (including two described below) so far known from Myanmar were published in the course of the last ten years (Howden 2006, Král et al. 2012, Ochi et al. 2010 and Ochi & Kon 2015). All Geotrupinae species so far known from Myanmar are listed below. Recently collected *Enoplotrupes* P. H. Lucas, 1869 material in the Kachin State of Myanmar, revealed another two undescribed species whose formal descriptions are presented here.

MATERIAL AND METHODS

The following acronyms identify the collections housing the material examined:

- CMNC Canada Museum of Nature, Entomology Division, Ottawa, Canada (Aleš Smetana, François Génier);
DKCP David Král collection, deposited in NMPC;

HAHC	†Henry F. & Anne T. Howden collection (deposited in CMNC);
JSCP	Jan Schneider collection, Praha, Czech Republic;
MNHN	Muséum national d'Histoire naturelle, Paris, France (Yves Cambefort, Olivier Montreuil);
NMPC	Národní Muzeum, Praha, Czech Republic (Jiří Hájek);
PFAC	Patrick Florent Arnaud collection, France;
SJCP	Stanislav Jákl collection, Praha, Czech Republic;
VMCP	Vladislav Malý collection, Praha, Czech Republic.

Material was examined with Olympus SZ61 and MBS-10 stereomicroscopes. Measurements were taken with an ocular grid. The habitus photographs were taken using a Canon MPE 65mm/2.8 Macro lens with 5:1 optical magnification on bellows attached to a Canon EOS 550D. Partially focused images of the specimen were combined using Helicon Focus 3.20.2Pro software.

Specimens of described species are provided with one red printed label "Name of the taxon sp. nov., HOLOTYPE ♂ [or] ALLOTYPUS ♀ [or] PARATYPE ♂ [or] ♀, David Král, Vladislav Malý & Jan Schneider det., followed by the year of identification". Exact 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. (2012, 2015).

TAXONOMY

Enoplotrupes (Gynoplotrupes) howdeni sp. nov.

(Figs. 1-4, 12-14)

Type locality. Myanmar, Kachin [State], Putao.

Type material. Myanmar, Kachin: Holotype, ♂ (MNHN): "Putao Kachin / N. Myanmar / Aug. 2001 [p]". Paratypes: 1 ♀ (allotype) (MNHN), 1 ♀ (DKCP), 2 ♀♀ (JSCP), 2 ♂♂ and 7 ♀♀ (PFAC), 1 ♂ and 4 ♀♀ (VMCP), same data as holotype; 1 ♂ (HAHC), "North Burma Kachin State 1998 [hw] // H. & A. Howden collection Ottawa, Canada [p]"; 1 ♂ (DKCP), "Myanmar 1995 / Nam Tamai / loc. coll. [hw]".

Description of holotype. Colour of dorsal surface black, labrum, extremities including mandibles and venter black-brown; macrosetation of head appendages including labrum brownish to black (Fig. 1). Macrosetation of ventral surface brownish.

Head (Figs. 1, 3-4). 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, serrate laterally, extending emargination of pronotal horn apically, moderately curved posteriad to almost acuminate apex, almost regularly punctate distally; genal sutures distinct, straight and diverging 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. 1, 3-4) 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 stout, relatively long, directed obliquely forward and upward in lateral view (Fig. 4), sides slightly



Figs. 1-4. *Enoplotrupes* (*Gynoplotrupes*) *howdeni* sp. nov. 1, 3-4- holotype (♂), 2- allotype (♀). 1-2- habitus, dorsal view; 3- head and pronotum, frontal view; 4- same, left lateral view. Not to scale.

converging anteriad, distinctly emarginate anteriorly in dorsal view (Fig. 1), dorsal side considerably rugose, rugosities transversally confluent (Fig. 1).

Scutellar plate broadly triangular in outline, broadly sinuate anteriorly, sides broadly rounded;

surface shiny, rugose, rugosities confluent.

Elytra convex, with distinct humeral umbone; considerably rugose and multistriate, intervals moderately convex (Fig. 1).

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. 12-14.

Variability in males. Fronto-clypeal horn in medium developed specimens shorter, more or less straight; pronotal horn less developed, small.

Sexual dimorphism. Female (Fig. 2) differs from male as follows: clypeus with short, pointed tubercle; pronotum with straight transversal carina.

Measurements. Total body length 27-28 mm (holotype (♂) - 27 mm, allotype (♀) - 28 mm).

Differential diagnosis. The new species is classified in the subgenus *Gynoplotrupes* by having the pronotal horn in males short, obtuse, rounded or shallowly emarginate apically; in females the pronotum with a transversal carina; elytra more or less multistriate, as a rule moderately shiny; colour of the dorsum black, often with weak bluish or brownish tinge (for details see also Král et al. 2012, 2015). *Enoplotrupes* (*Gynoplotrupes*) *howdeni* sp. nov. is habitually similar and probably closely related to *E. (G.) latus* Boucomont, 1909 described from Sichuan and Yunnan (China) (Král et al. 2015) and to *E. (G.) kachinensis* sp. nov. by the serrate fronto-clypeal horn in males and striate elytra. To distinguish these three species use the key below.

Collecting circumstances. Unknown.

Distribution. So far known only from the Kachin State, Myanmar.

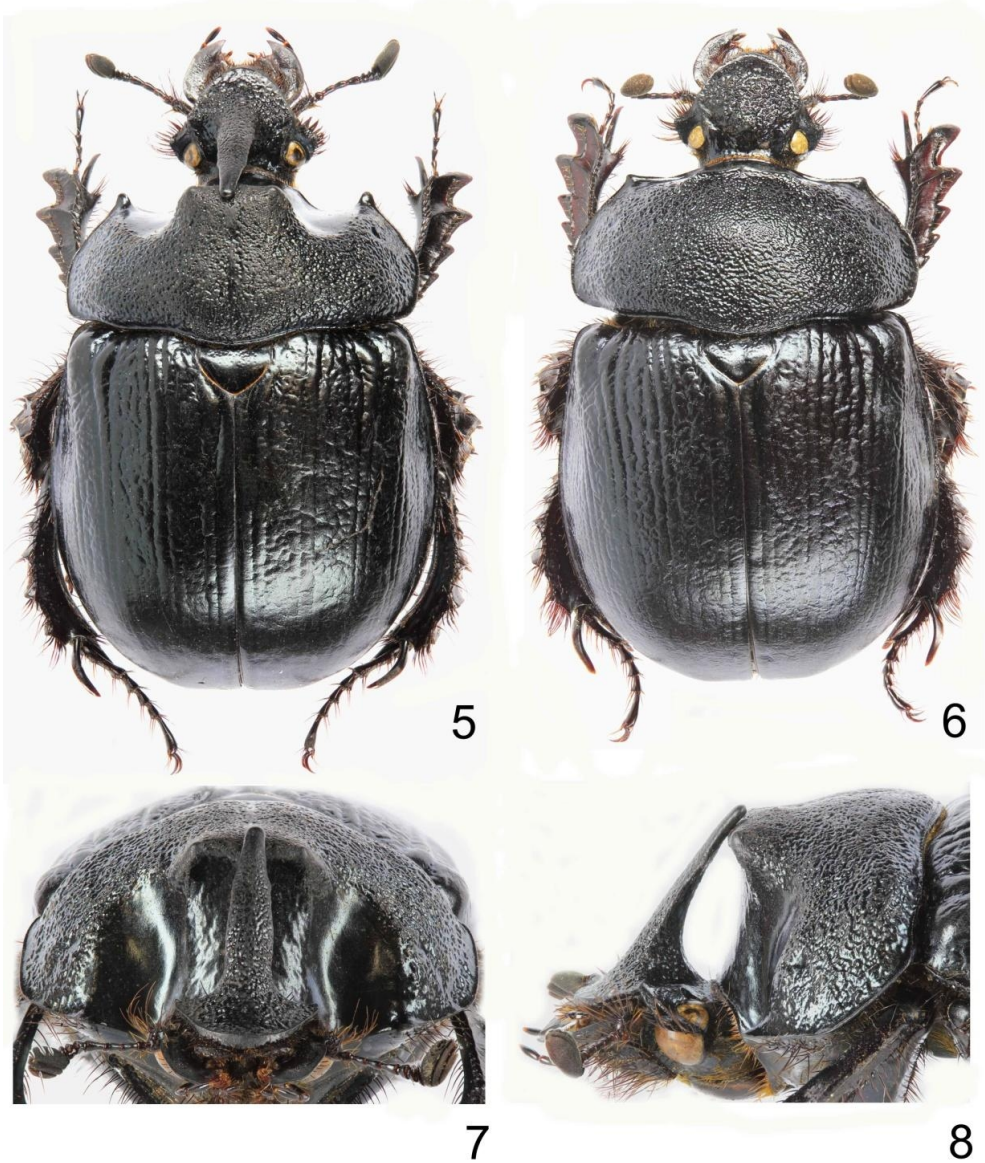
Etymology. Patronymic; named in honour of our friend, the late Henry F. Howden (Ottawa, Canada), a renowned specialist in world Scarabaeoidea.

***Enoplotrupes* (*Gynoplotrupes*) *kachinensis* sp. nov.** (Figs. 5-8, 15-17)

Type locality. North Myanmar, Kachin [State].

Type material. Myanmar, Kachin: Holotype, ♂ (MNHN): "North BURMA / KACHIN 5.1999 / N. Myanmar [p]". Paratypes: 1 ♀ (allotype) (MNHN), 1 ♂ and 1 ♀ (DKCP), 1 ♂ and 1 ♀ (JSCP), 5 ♂♂ and 5 ♀♀ (PFAC), 7 ♂♂ and 3 ♀♀ (VMCP), same data as holotype; 1 ♂ (HAHC), "Kachin / N. Myanmar // N. Myanmar / Kachin [p] / 16 V [hw] 1999 // H. & A. HOWDEN / COLLECTION / Ottawa. Canada [p]"; 1 ♀ (HAHC), "Kachin / N. Myanmar // N. Myanmar / Kachin [p] / 14 V [hw] 1999 // H. & A. HOWDEN / COLLECTION / Ottawa. Canada [p]"; 1 ♂ (SJCP), "Laukaung / Myitryna Kachin / N. MYANMAR / MAY [p] 16th [hw] 1999 [p]". 1 ♀ (SJCP), "Laukaung / Myitryna Kachin / N. MYANMAR / MAY [p] 14th [hw] 1999 [p]"; 1 ♀ (SJCP), "nr. Putao / N. Kachin BURMA / MAY 1999 [p]".

Description of holotype. Colour of dorsal surface black, labrum, extremities including mandibles and venter black-brown; macrosetation of head appendages including labrum



Figs. 5-8. *Enoplotrupes (Gynoplotrupes) kachinensis* 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.

brownish to black (Fig. 5). Macrosetation of ventral surface brownish.

Head (Figs. 5, 7-8). 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, vaguely serrate laterally,

extending emargination of pronotal horn apically, moderately curved posteriad to almost acuminate apex, almost regularly punctate distally; genal sutures distinct, straight and diverging 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. 5, 7-8) 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 stout, relatively long, directed distinctly forward in lateral view (Fig. 8), sides almost parallel, anterior margin almost straight in dorsal view (Fig. 5), dorsal side considerably rugose, rugosities transversally confluent.

Scutellar plate broadly triangular in outline, broadly sinuate anteriorly, sides broadly rounded; surface shiny, rugose, rugosities confluent.

Elytra convex, with distinct humeral umbone; considerably rugose and multistriate, elytral intervals flat (Fig. 5-6) (Fig. 5).

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. 15-17.

Variability in males. Fronto-clypeal horn in medium developed specimens shorter, more or less straight; pronotal horn less developed, small.

Sexual dimorphism. Female (Fig. 6) differs from male as follows: clypeus with short, pointed tubercle; pronotum with straight transversal carina.

Measurements. Total body length 25-28 mm (holotype (♂) - 27 mm, allotype (♀) - 28 mm).

Differential diagnosis. The new species is classified in the subgenus *Gynoplotrupes* by having the pronotal horn in males short, obtuse, rounded or shallowly emarginate apically; in females pronotum with transversal carina; elytra more or less multistriate, as a rule moderately shiny; colour of the dorsum black, often with weak bluish or brownish tinge (for details see also Král et al. 2012, 2015). *Enoplotrupes* (*Gynoplotrupes*) *kachinensis* sp. nov. is habitually similar and probably closely related to *E. (G.) latus* Boucomont, 1909 described from Sichuan and Yunnan (China) (Král et al. 2015) and to *E. (G.) howdeni* sp. nov. by serrate fronto-clypeal horn in males and striate elytra. To distinguish these three species use the key below.

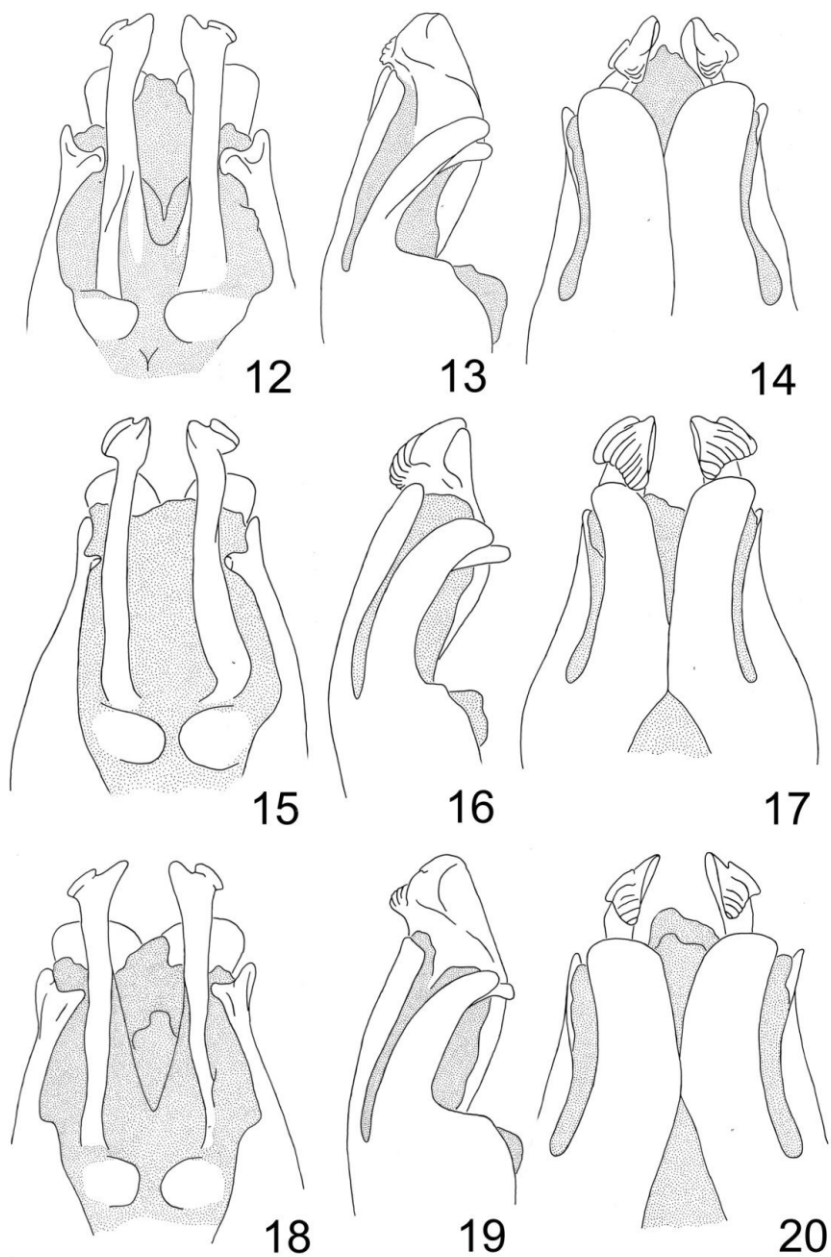
Collecting circumstances. Unknown.

Distribution. So far known only from the Kachin State, Myanmar.

Etymology. Toponymic; an adjective derived from the name of the Myanmar State of Kachin where the new species was collected.



Figs. 9-11. *Enoplotrupes* (*Gynoplotrupes*) *latus* Boucomont, 1909 (♂, China: "Sutchuen, Ouy-Sy, R. P. Mombelg 1911"; body length 30 mm; MNHN). 9- dorsal view, 10- head and pronotum, frontal view, 11- same, left lateral view. Not to scale.



Figs. 12-20. Parameres. 12-14- *Enoplotrupes* (*Gynoplotrupes*) *howdeni* sp. nov., 15-17- *E. (G.) kachinensis* sp. nov., 18-20- *E. (G.) latus* Boucomont, 1909. 12, 15, 18- dorsal view; 13, 16, 19- left lateral view; 14, 17, 20- ventral view. Schematically, not to scale.

KEY TO IDENTIFICATION OF *ENOPLOTRUPES* SPECIES
CLOSELY RELATED TO *E. (GYNOPLOTRUPES) LATUS*

- 1 (2, 3) Pronotal horn relatively longer, directed obliquely forward and upward in lateral view (Fig. 4), with sides slightly converging anteriorly, distinctly emarginate anteriorly in dorsal view (Fig. 1); elytral intervals moderately convex (Figs. 1-2). Parameres of different shape (Figs. 12-14). Body length 27-28 mm. Myanmar: Kachin. *E. (G.) howdeni* sp. nov.
- 2 (1, 3) Pronotal horn relatively longer, directed distinctly forward in lateral view (Fig. 8), with sides almost parallel and almost straight anterior margin in dorsal view (Fig. 5); elytral intervals flat (Fig. 5-6). Parameres of different shape (Figs. 15-17). Body length 25-28 mm. Myanmar: Kachin. *E. (G.) kachinensis* sp. nov.
- 3 (1, 2) Pronotal horn relatively shorter, directed distinctly forward in lateral view (Fig. 11), with sides distinctly convergent anteriorly, shallowly emarginate anteriorly in dorsal view (Fig. 9); elytral intervals convex (Fig. 9). Parameres of different shape (Figs. 18-20). Body length. 28-30 mm. China: Sichuan, Yunnan. *E. (G.) latus* Boucomont, 1909

LIST OF GEOTRUPINAE SPECIES CURRENTLY KNOWN FROM MYANMAR

subfamily Geotrupinae Latreille, 1802

tribe Enoplotrupini Paulian, 1945

genus *Enoplotrupes* P. H. Lucas, 1869

subgenus *Enoplotrupes* P. H. Lucas, 1869

Enoplotrupes (*Enoplotrupes*) *barmanicus* Gestro, 1888

Enoplotrupes (*Enoplotrupes*) *rhinoceros* Král, Malý & Schneider, 2012

Enoplotrupes (*Enoplotrupes*) *splendens* Rothschild & Jordan, 1893

subgenus *Gynoplotrupes* R. Oberthür, 1883

Enoplotrupes (*Gynoplotrupes*) *howdeni* sp. nov.

Enoplotrupes (*Gynoplotrupes*) *kachinensis* sp. nov.

subgenus *Tyrannotrupes* Král, Malý & Schneider, 2012

Enoplotrupes (*Tyrannotrupes*) *tyrannus* Král, Malý & Schneider, 2012

genus *Phelotrupes* Jekel, 1866

subgenus *Chromogeotrupes* Bovo & Zunino, 1983

Phelotrupes (*Chromogeotrupes*) *masudai* Ochi, Kon & Kawahara, 2010

subgenus *Eogeotrupes* Bovo & Zunino, 1983

Phelotrupes (*Eogeotrupes*) *amethystinus* (Jekel, 1866)

Phelotrupes (*Eogeotrupes*) *schoolmeestersi* Ochi, Kon & Kawahara, 2010

subgenus *Phelotrupes* Jekel, 1866

Phelotrupes (*Phelotrupes*) *abei* Ochi & Kon, 2015

Phelotrupes (*Phelotrupes*) *brunipennis* Ochi & Kon, 2015

Phelotrupes (*Phelotrupes*) *businskyorum* Král, Malý & Schneider, 2001

Phelotrupes (*Phelotrupes*) *holzshuhi* Král, Malý & Schneider, 2001

Phelotrupes (*Phelotrupes*) *kachinensis* Ochi & Kon, 2015

Phelotrupes (*Phelotrupes*) *tsukamotoi* Ochi, Kon & Kawahara, 2010

tribe Geotrupini Latreille, 1802

genus *Odontotrupes* Fairmaire, 1887

subgenus *Odontotrupes* Fairmaire, 1887

Odontotrupes (*Odontotrupes*) *arnaudi* Howden, 2006

Odontotrupes (*Odontotrupes*) *fuiokai* Ochi, Kon & Kawahara, 2010

Odontotrupes (*Odontotrupes*) *maedai* Howden, 2006

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REFERENCES

- BOUCOMONT A. 1905: Étude sur les *Enoplotrupes* et *Geotrupes* d'Asie. *Revue d'Entomologie* 23(1904): 209-251.
- BOUCOMONT A. 1912: Scarabaeidae: Taurocerastinae, Geotrupinae. In: JUNK W. & SCHENKLING S. (eds.): *Coleopterorum Catalogus, Pars 46*. Berlin: W. Junk, 47 pp.
- HOWDEN H. F. 1967: The Geotrupinae of North and Central America (Coleoptera, Scarabaeidae). *Memoirs of the Entomological Society of Canada* 39: 1-91.
- HOWDEN H. F. 2006: Two new species of *Odontotrupes* Fairmaire from Northern Myanmar (Coleoptera: Geotrupidae). *Acta Zoologica Cracoviensia* 49B: 13-16.
- KRÁL D., MALÝ V. & SCHNEIDER J. 2001: Revision of the genera *Odontotrupes* and *Phelotrupes* (Coleoptera: Geotrupidae). *Folia Heyrovskyana, Supplementum* 8: 1-178.
- KRÁL D., MALÝ V. & SCHNEIDER J. 2012: *Enoplotrupes* (*E.*) *rhinoceros* sp. nov. and *E.* (*Tyrannotrupes*) *tyrannus* subgen. nov., sp. nov. (Coleoptera: Geotrupidae) from India and Myanmar. *Les Cahiers Magellanes, Hors-série* 34: 1-11.
- KRÁL D., MALÝ V. & SCHNEIDER J. 2015: Descriptions of four new *Enoplotrupes* (Coleoptera: Geotrupidae) species from China. *Studies and Reports, Taxonomical Series* 11: 323-337.
- JAMESON M. L. 2002: Chapter 27. Geotrupidae Latreille, 102. Pp. 32-36. In: ARNETT R. H., THOMAS M. C., SKELLEY P. E. & FRANK J. H. (eds.): *American Beetles, Vol. 2*. Boca Raton: CRC Press, 452 pp.
- LÖBL I., NIKOLAJEV G. V. & KRÁL D. 2006: Subfamily Geotrupinae Latreille, 1802. Pp. 84-92. In: LÖBL I. & SMETANA A. (eds.): *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea - Scirtoidea - Dasciloidea - Buprestoidea - Byrrhoidea*. Stenstrup: Apollo Books, 690 pp.
- NIKOLAJEV G. V. 2005: Novyi vid roda *Odontotrupes* Fairm. (Coleoptera, Scarabaeoidea, Geotrupidae). A new species of the genus *Odontotrupes* Fairm. (Coleoptera, Scarabaeoidea, Geotrupidae). *Tethys Entomological Research* 11: 29-30.
- NIKOLAJEV G. V. 2006: Novyi vid roda *Odontotrupes* Fairmaire (Coleoptera, Geotrupidae) iz Kitaya. *Izvestiya Ministerstva Obrazovaniya i Nauki - Natsionalnoy Akademiyi Nauk Respubliki Kazakhstan, Seriya Biologicheskaya i Meditsinskaya* 258: 43-44.
- NIKOLAJEV G. V. 2007a: Vtoroy korotkokrylyi vid roda *Phelotrupes* Jekel, 1865 (Coleoptera, Scarabaeidae, Geotrupinae). Second brachyterous species of the genus *Phelotrupes* Jekel, 1865 (Coleoptera, Scarabaeidae, Geotrupinae). *Evrasijskiy Entomologicheskij Zhurnal* 6: 8-9.
- NIKOLAJEV G. V. 2007b: Novyi vid roda *Ceratophyus* Fischer (Coleoptera, Geotrupidae) iz Kitaya. *Izvestiya Ministerstva Obrazovaniya i Nauki - Natsionalnoy Akademiyi Nauk Respubliki Kazakhstan, Seriya Biologicheskaya i Meditsinskaya* 5: 55-57.
- NIKOLAJEV G. V. 2009a: Novyye vidy roda *Odontotrupes* Fairmaire (Coleoptera, Geotrupidae) iz Sychuani. New species of the genus *Odontotrupes* Fairmaire (Coleoptera, Geotrupidae) from Sichuan. *Evrasijskiy Entomologicheskij Zhurnal* 8: 47-49.
- NIKOLAJEV G. V. 2009b: Sistema roda *Odontotrupes* Fairmaire, 1887 (Coleoptera: Geotrupidae) v svyazi s osobennostyami rasprostraneniya vidov. On the taxonomic structure of the genus *Odontotrupes* Fairmaire, 1887 (Coleoptera: Geotrupidae) according to geographical distribution of species. *Kavkazskiy Entomologicheskij Byulleten* 5: 53-62.
- NIKOLAJEV G. V. 2013a: Dva novykh vida roda *Odontotrupes* Fairmaire, 1887 iz Yuzhnogo Kitaya, blizkorodstvennykh tipovomu vidu roda (Coleoptera: Geotrupidae). Two new species of the genus *Odontotrupes* Fairmaire, 1887 from Southern China close related to the type species (Coleoptera: Geotrupidae). *Kavkazskiy Entomologicheskij Byulleten* 9: 243-245.
- NIKOLAJEV G. V. 2013b: Dopolnitelnyye dannyye o vidakh podroda *Thorectomimus* Nikolajev roda *Odontotrupes* Fairmaire (Coleoptera, Geotrupidae). Additional data on the subgenus *Thorectomimus* Nikolajev of the genus *Odontotrupes* Fairmaire (Coleoptera, Geotrupidae). *Evrasijskiy Entomologicheskij Zhurnal* 12: 355-357.
- NIKOLAJEV G. V. & KOLOV S. V. 2014a: New species of the genus *Odontotrupes* Fairmaire, 1887 from Yunnan Province (China). *Caucasian Entomological Bulletin* 10: 223-226.
- NIKOLAJEV G. V. & KOLOV S. V. 2014b: New data on the genus *Odontotrupes* Fairmaire, 1887 from Yunnan Province. *Euroasian Entomological Journal* 13: 149-153.
- OCHI T. & KON M. 2015: Three new species of the genus *Phelotrupes* Jekel (Coleoptera, Geotrupidae) from Myanmar. *Giornale Italiano di Entomologia* 14: 191-200.
- OCHI T., KON M. & BAI M. 2010: Four new species of the genus *Phelotrupes* from China (Coleoptera: Geotrupidae). *The Entomological Review of Japan* 65: 141-150.
- OCHI T., KON M. & KAWAHARA M. 2010: Four new species of the genera *Odontotrupes* and *Phelotrupes* (Coleoptera: Geotrupidae) from Kachin, Myanmar. *Kogane* 11: 101-109.
- SCHOITZ C. H. & GREBENNIKOV V. V. 2005: Scarabaeiformia Crowson, 1960. Pp. 345-365. In: BEUTEL R. G. & LESHEN R. A. B. (volume eds.): *Coleoptera, Beetles. Volume 1: Morphology and systematics* (Archostemata, Adephaga, Myxophaga, Polyphaga partim). In: KRISTENSEN N. P. & BEUTEL R. G. (eds.): *Handbook of Zoology. A natural history of the phyla of the animal kingdom. Volume IV. Arthropoda: Insecta. Part 38*. Walter de Gruyter, Berlin - New York, xi + 567 pp.
- ZIANI S., BEZDĚK A., BRANCO T., HILLERT O., JÁKL S., KRÁL D., MANTIĆ M., RÖSSNER E. & SEHNAL R. 2015: New country records of Scarabaeoidea from the Palaearctic region (Coleoptera). *Insecta Mundi. A Journal of World Insect Systematics* No. 409: 1-36.