

A review of Chinese *Aphodius* species (Coleoptera: Scarabaeidae). Part 6: *A. (Phaeaphodius) plutenkoi* sp. n. from Shaanxi

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Received September 15, 2001; accepted October 6, 2001
Published April 3, 2002

Abstract. *Aphodius (Phaeaphodius) plutenkoi* sp. n. discovered in the Qinling Shan Mts (China: Shaanxi) is described and its diagnostic characters are illustrated. The new species is the only so far known species of the subgenus with striking dark spot pattern on yellowish brown elytron.

Taxonomy, new species, Coleoptera, Scarabaeoidea, Aphodiinae, *Aphodius*, *Phaeaphodius*, Palearctic region

INTRODUCTION

According to the recent literature the subgenus *Phaeaphodius* Reitter, 1892 (genus *Aphodius* Illiger, 1798) is represented by approximately 12 species known to occur the Palearctic, Oriental and Afrotropical zoogeographical regions (Ahrens & Stebnicka 1997, Balthasar 1964, Dellacasa 1988, 1993, Dellacasa et al. 2001).

Recently collected material of dung beetles from the Chinese province of Shaanxi contains a new *Phaeaphodius* species described in the present paper.

MATERIAL AND METHODS

Specimen chosen for scanning electron micrographs was cleaned by ultrasound. Three specimens (holotype and two paratypes) were dissected for examination of male genitalia.

The following codes (after Arnett et al. 1993) identify the collections housing the material examined:
DKCP – Czech Republic, Charles University, Praha, David Král collection;
KMCT – Japan, Tokyo, Kimio Masumoto collection;
SJCP – Czech Republic, Praha, Stanley Jakl collection.

Specimens of the presently described species are provided with one red printed label: “*Aphodius (Phaeaphodius) plutenkoi* sp. n. HOLOTYPUS, ALLOTYPUS or PARATYPUS [with No. and sex symbol for male or female] David Král det. 2002”. Exact label data are cited for all specimens. Remarks of the author are found in square brackets; [p] – data preceding this mark in quotation marks are printed; [h] – the same but handwritten.

Aphodius (Phaeaphodius) plutenkoi sp. n. (Figs 1–8)

TYPE MATERIAL. Holotype (male), allotype (female) and paratypes Nos 1–7 (males), Nos 8–12 (females), labelled: “China – Shaanxi 1900m Taibaishan range 1.–12. 8. [19]99 Houzhenzi vill. V. Sinaiev + A. Plutenko lgt.” [p]; paratype No. 13 (male), labelled: “Qinling Mts. (1400–1600 m) Chang’an, Shaanxi, China 33° 95’ N 108° 80’ E 27.IV.1993 M. Tabano coll.” [h]; paratype No.14 (male), labelled: “CHINA, 1000–1300 m, Shaanxi, Qinling mts, XUNYANGBA (6 km E), 23.v.–14.vi.2000, V. Kubán lgt.” [p]. Holotype, allotype and paratypes Nos 1, 2, 8, 9, 14 in DKCP; paratypes Nos in 3–7, 10–12 in SJCP and paratype No. 13 in KMCT.

DESCRIPTION OF HOLOTYPE. Body length 8.1 mm. Oblong, strongly convex (Fig. 1); dorsal surface entirely bare, except for apical third of elytron microscopically setaceous, shining, except for finely chagrined and alutaceous elytron; colour black, pronotum with yellowish brown marginal band; elytron bicoloured, yellowish brown with darkened sutura and oblique transversal row of 5 small dark spots situated on interval 2–7 medially; extremities brownish to dark brown; setation pale.

Head (Figs 1, 2) trapezoidal, only slightly convex. Clypeal margin distinctly upturned, anteriorly broadly, shallowly emarginate; anterior angle rounded, side almost straight towards gena. Gena regularly rounded, distinctly exceeding eye, separated from clypeal side by slight sinuation. Medial frontal tubercle remarkably developed, with sharp apex; lateral tubercles vague. Clypeal surface covered with double punctation, fine almost regularly spaced punctures separated by approximately 1–2 their diameter intermixed with coarse more densely spaced punctures, punctation becoming sparser posteriorly of frontal tubercles, coarse punctures here absent.

Pronotum (Figs 1, 3) strongly convex, anteriorly with shallow medial fovea; broadest just before middle of pronotal length, slightly narrowed anteriorly. Anterior angle rounded, only slightly projecting anteriorly; sides in dorsal aspect broadly rounded and distinctly diverging towards approximately half of pronotal length, then rounded to slightly emarginate posterior angles; posterior margin broadly rounded, not bisinuate. Lateral and posterior margins remarkably rimmed, marginal line with several coarse densely, regularly spaced punctures. Punctation of dorsal surface double, consisting of coarse, very irregularly and sparsely spaced punctures, mixed with fine irregularly spaced punctures separated approximately by 2–3 their diameter, punctation missing in anterior fovea and discally.

Scutellum (Fig. 4) triangulate, sides weakly arcuate, surface with several coarse punctures.

Elytra (Fig. 4) strongly convex, nearly parallel, humerus not denticulate. Striae distinctly impressed, stria punctures moderately deeply impressed, regularly spaced, separated by approximately their diameter, crenating margins of intervals remarkably. Striae 1 and 10 completely developed, reaching nearly apex of elytron; stria 2 joining 3 and 9 just before apex, striae 4–6 a little shortened and confluent subapically, striae 7 and 8 distinctly shortened and confluent approximately in apical 1/6 of elytron length. Stria 8 shortened distinctly before humerus. Intervals distinctly convex, very finely, sparsely punctate. Sutural interval strongly angustate apically.

Macropterous.

Metasternal plate concave, with coarse, sparse, regular punctation, and complete longitudinal line. Abdominal sternites remarkably chagrined, with recumbent short setae.

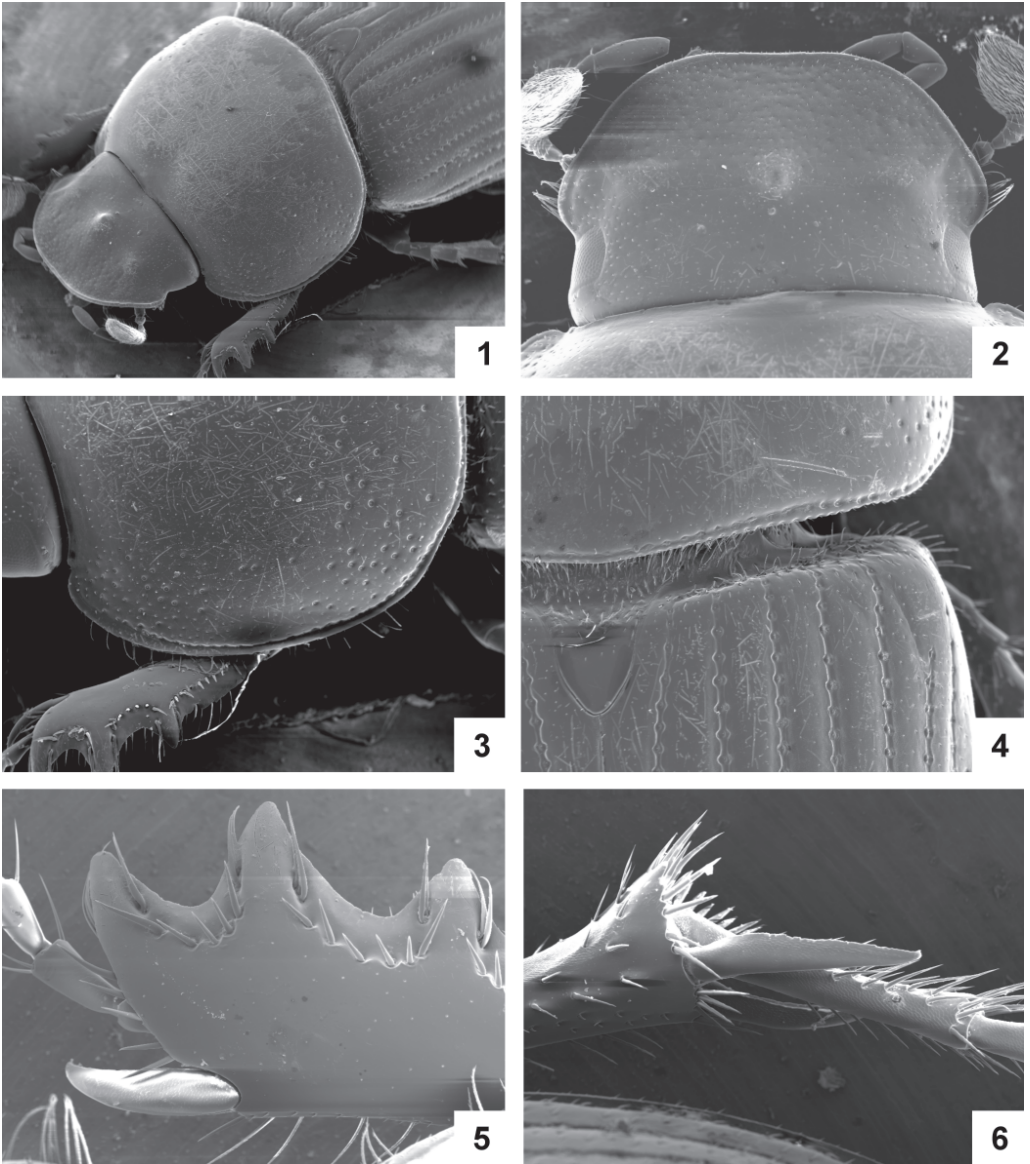
Femora with fine, sparse and irregularly punctation. Protibia (Fig. 5) with three sharp external teeth and row of 3 very feebly developed external denticles in basal half; ventromedial edge with several, remarkably irregularly spaced denticles, apical and medial of them remarkably more developed; terminal calcar inserting against emargination between medial and apical external teeth, stout and long, reaching approximately to apical third of protarsomere 2, obtusely angulate apically. Apical margin and two well developed transversal carinae of meso- and metatibia fimbriate densely with setae distinctly unequal in length. Basimesotarsomere longer than superior terminal calcar of mesotibia, inferior terminal spur simply pointed. Basimetarsomere (Fig. 6) distinctly longer than superior terminal calcar of metatibia and equal approximately to next three tarsomeres combined.

Aedeagus as in Figs 7, 8.

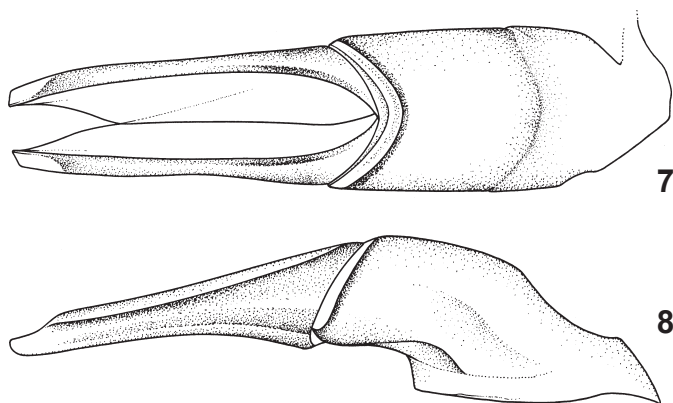
Variability in males. Body length 7.7–8.3 mm.

Female (body length 7.8–8.2 mm; allotype – 8.0 mm) differs from male as follows: frontal tubercles vague to absent; pronotum without anterior fovea, punctation of clypeus and pronotum more coarse and dense; terminal calcar of protibia slender, apically pointed; metasternal plate almost flat.

DIFFERENTIAL DIAGNOSIS. *Aphodius* (*Phaeaphodius*) *plutenkoi* sp. n. differs from all so far known *Phaeaphodius* representatives in combination of the following diagnostic characters: anterior



Figs 1–6. *Aphodius (Phaeaphodius) plutenkoi* sp. n. (paratype No. 1); 1 – forebody (magnification 30×); 2 – head (43×); 3 – pronotum (60×); 4 – basis of pronotum and right elytron (50×); 5 – right protibia with terminal calcar (95×); 6 – right apex of metatibia with basimetatarsomere and superior terminal calcar (110×). Left anterodorsolateral aspect (1), dorsal aspect (2, 4–6), left lateral aspect (3).



Figs 7, 8. *Aphodius (Phaeaphodius) plutenkoi* sp. n. – parameres of holotype, 7 – dorsal aspect, 8 – left lateral aspect.

angles of clypeus rounded, frons trituberculate, lateral and basal margin of pronotum completely rimmed, elytron chagrined and alutaceous, elytral intervals remarkably convex. In addition, it is the only so far known species of this subgenus with striking dark pattern on yellowish brown elytron. DISTRIBUTION. China: Shaanxi prov.

COLLECTION CIRCUMSTANCES. Paratype No. 14 was taken from pitfall trap baited with fish, in a forested area.

NAME DERIVATION. Patronymic, dedicated to my friend Andrey Plutenko (Russia: Smolensk) a recognized specialist of Carabidae, and one of the collectors of the new species.

Acknowledgements

I am indebted to my friends Stanley Jakl (Praha), Vít Kubáň (Moravian Museum, Brno) and Kimio Masumoto (Tokyo) for making me possible to study interesting material collected in China. My thanks are extended to the staff of the Laboratory of Electron Microscopy (Institute of Parasitology, České Budějovice) for their kind assistance in providing scanning electron micrographs, and to Zuzana Čadová (scientific illustrator, Charles University, Praha) for executing drawings of male genitalia. The study was supported in part by grants from the Charles University Grant Agency (GAUK – 135/2002) and from the Ministry of Education (MŠMT ČR J13 – 98113100004).

REFERENCES

- AHRENS D. & STEBNICKA Z. 1997: On the Aphodiinae of the Nepal-Himalayas (Coleoptera: Scarabaeidae). *Stuttgart. Beitr. Naturk. Ser. A (Biol.)* **552**: 1–17.
- ARNETT H. R. JR., SAMUELSON G. A. & NISHIDA G. M. 1993: *The insect and spider collections of the world. Flora & Fauna Handbook No. 11, Second edition*. Gainesville: Sandhill Crane Press, 308 pp.
- BALTHASAR V. 1964: *Monographie der Scarabaeidae der palaearktischen und orientalischen Region. Bd. 3*. Prag: Verl. Tschechoslowak. Akad. Wiss., 652 pp.
- DELLACASA G. 1993: Systematic redefinition of *Aphodius* subgenera *Aphodiellus* A. Schmidt, 1913, *Lunaphodius* Balthasar, 1964, *Phaeaphodius* Reitter, 1892 and their type species. *Mem. Soc. Entomol. Ital.* **71**(1992): 581–592.
- DELLACASA G., BORDAT P. & DELLACASA M. 2001: A revisional essay of world-genus group of Aphodiinae (Coleoptera Aphodiidae). *Mem. Soc. Entomol. Ital.* **79**: 1–482.
- DELLACASA M. 1988: Contribution to a world-wide catalogue of Aegialiidae, Aphodiidae, Aulonocnemidae, Termitotrogidae (Coleoptera: Scarabaeoidea). *Mem. Soc. Entomol. Ital.* **66**(1987): 1–455.