

**A review of Chinese *Aphodius* species (Coleoptera: Scarabaeidae).  
Part 7: *Aphodius (Pseudacrossus) smetanai* sp. nov.  
(Coleoptera: Scarabaeidae: Aphodiinae) from Hubei (China)**

David KRÁL

Department of Zoology, Faculty of Science, Charles University in Prague,  
Viničná 7, CZ-128 44 Praha 2, Czech Republic  
e-mail: kraldavid59@gmail.com

**Taxonomy, new species, new synonym, Coleoptera, Scarabaeoidea, Aphodiinae, *Aphodius*, *Pseudacrossus*, Palaearctic Region**

**Abstract.** *Aphodius (Pseudacrossus) smetanai* sp. nov. from Hubei (China) is described and illustrated. The new species is compared with other Chinese species of the subgenus *Pseudacrossus* Reitter, 1892. Based on a study of the type material, *Aphodius (Platyderides) friedrichi* Petrovitz, 1958 is considered a junior subjective synonym of *A. (Pseudacrossus) przewalskyi* Reitter, 1887.

## INTRODUCTION

According to recent catalogues (Dellacasa 1988, Dellacasa & Dellacasa 2006) the subgenus *Pseudacrossus* Reitter, 1892 of the genus *Aphodius* Illiger, 1798 comprises about 25 described species. They are distributed throughout the Palaearctic Region (cf. e. g., Balthasar 1964, Dellacasa et al. 2001). So far, only one species, *Aphodius (Pseudacrossus) lutulentus* Haldemann, 1843 is confined to the Nearctic region (Tarasov 2008). Only a few recent papers deal with this group, morphological limits of this subgenus are not well defined and therefore a revision of majority species is badly needed (cf. e. g., Král 1997, Dellacasa et al. 2001, Tarasov 2008). Taxonomical review of Chinese representatives was given by Král (1997) with a key to known species from China and adjacent countries. One remarkable new species of this subgenus from the Chinese province Hubei is described below.

## MATERIAL AND METHODS

Specimens were examined with the Olympus SZ61 stereomicroscope, measurements were taken with an ocular graticule. The habitus photographs were taken by using the Canon MP-E 65mm/2.8 1-5x macroon bellows attached to a Canon EOS 550D camera. Partially focused images of each specimen were combined by using the Helicon Focus 3.20.2 Pro software. Specimens of the newly described species are provided with one printed red label: “*Aphodius (Pseudacrossus) smetanai* sp. nov., HOLOTYPUS, or PARATYPUS, ♀, David Král det. 2011”. 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. Author’s remarks and additional comments are found in square brackets.

## TAXONOMY

### *Aphodius (Pseudacrossus) smetanai* sp. nov.

(Figs 1-2)

**Type material.** China, Hubei: Holotype and paratype (♀♀), labelled: “China, W Hubei, 15.VI.2000 / DASHENNONGJIA mts / 31.5N 110.3E, 2800-3000m / Jaroslav Turna lgt. [printed]”. Holotype in David Král collection (deposited in National Museum Prague, Czech Republic), paratype in Jaroslav Turna collection, Kostelec na Hané, Czech Republic.

**Description of holotype.** Dorsum (Fig. 1). Body length 8.6 mm. Elongate, subparallel, moderately convex, dark chestnut brown coloured species, tibiae, tarsi and head appendages somewhat lighter. Dorsal surface entirely glabrous, strongly shiny.

Head trapezoidal, slightly convex at middle. Anterior clypeal margin distinctly upturned only near anterior angles, broadly sinuate at middle. Anterior angles broadly rounded, sides nearly straight, only very slightly notched before genae. Genae obtusely rounded, exceeding distinctly eyes. Clypeal surface widely impressed nearly along whole extent of anterior margin, with obsolete transversal tubercle. Frons with weak convexity medially, frontal suture bisinuate, distinct, interrupted medially. Genal suture distinct. Whole dorsal surface impunctate.

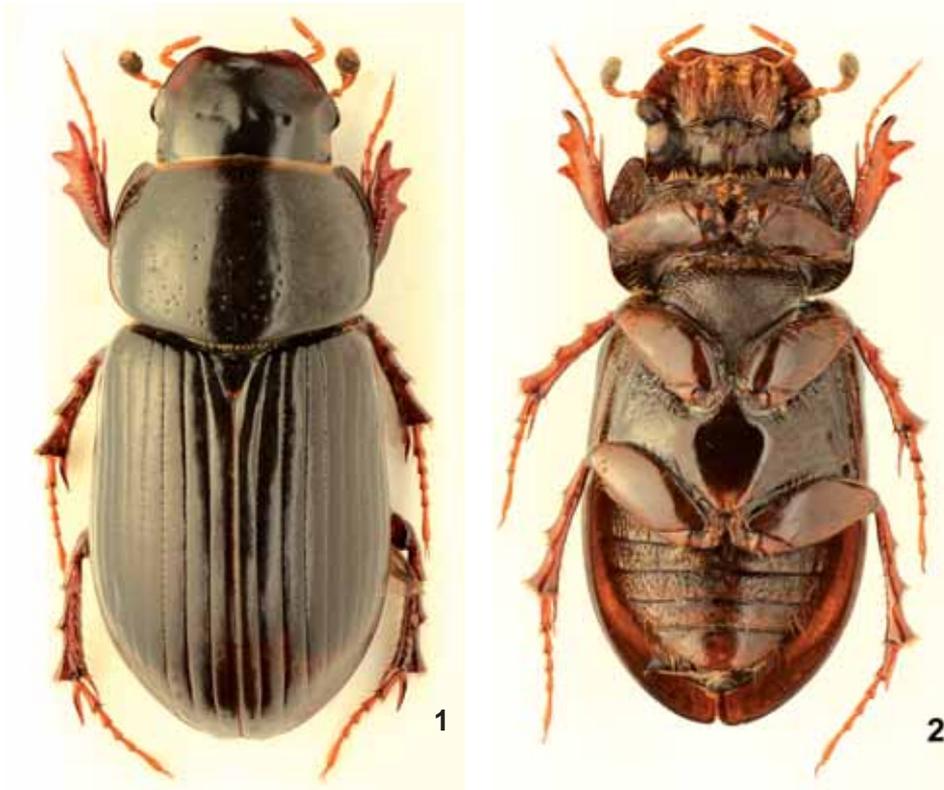
Pronotum subtrapezoidal, weakly convex, scarcely narrowed anteriorly. Anterior angles slightly projecting anteriorly, broadly rounded, sides almost straight, slightly divergent to broadly rounded posterior angles, basis regularly rounded. Anterior angles, lateral margin and basis except middle part distinctly bordered, basal border interruption broad, reaching approximately to elytral stria 5. Punctuation simple, consisting of remarkably coarse, deeply impressed, remarkably irregularly and sparsely distributed punctures, disc almost impunctate, punctuation becoming somewhat denser laterally and laterobasally.

Scutellar shield relatively small, triangulate, longer than wide, impunctate.

Elytra moderately convex, slightly dilated posteriorly, widest at approximately posterior third, humeri not denticulate. Striae distinctly impressed, stria punctures distinct, separated approximately by twice their diameter, slightly crenating margins of elytral intervals. Striae 1, 2, 3 and 10 completely developed reaching nearly apex of elytra, stria 3 joining 8 and 9 just before apex, striae 4-7 shortened before apex and stria 4 and 7, and 5 and 6 joining together. Stria 8 and 9 shortened before humerus. Intervals very weakly convex, impunctate.

Macropterous.

Venter (Fig. 2). Metasternal plate shiny, glabrous and smooth, very weakly concave, midline furrow subobsolete. Abdominal sternites moderately shiny, wrinkled, laterally with pale setae. All femora shiny, impunctate. Protibia regularly developed, slender, with three sharp external teeth, row of external denticles in basal half missing, ventromedial edge with row of small denticles, two of them at middle weakly more developed. Terminal calcar long, stout, acute apically, inserted against medial external teeth, reaching approximately half of protarsomere 2. Apical margin of two well developed transversal carinae of meso- and metatibia fimbriate with only scarcely unequal setae. Basimesotarsomere remarkably shorter than superior terminal calcar, inferior terminal spur acute. Basimetatarsomere distinctly shorter than superior terminal calcar and little longer than next two tarsomeres combined.



Figs 1-2. *Aphodius (Pseudacrossus) smetanai* sp. nov., habitus: 1- dorsal aspect, holotype; 2- ventral aspect, paratype.

**Variability.** Paratype smaller, body length 8.1 mm. Occiput with several minute, irregularly distributed punctures.

**Differential diagnosis.** The newly described species resembles the Asian species *Aphodius (Pseudacrossus) grombczewskyi* D. Koshantschikov, 1891, *A. (P.) kalabi* Král, 1997, *A. (P.) nasutus* Reitter, 1887, *A. (P.) przewalskyi* Reitter, 1887, *A. (P.) qinghaiensis* Král, 1997 and *A. (P.) subsericeus* Ballion, 1878. For separation the species from each other refer Table 1.

**Distribution.** China: Hubei.

**Collection circumstances.** Both specimens collected on a meadow from cattle dung.

**Name derivation.** Patronymic; dedicated to my friend Aleš Smetana (Canada: Ottawa) a recognized specialist in Staphylinidae.

Table 1. Character matrix for separation of females of the Chinese *Pseudacrossus* species (distribution compiled from Král 1997)

| species / character  | <i>A. (P.) grombcewskyi</i><br>D. Koshantschikov                              | <i>A. (P.) kalabi</i> Král  | <i>A. (P.) nasutus</i><br>Reitter   | <i>A. (P.) przewalskyi</i><br>Reitter   | <i>A. (P.) qinghaiensis</i><br>Král   | <i>A. (P.) smetanaei</i><br>sp. nov.  | <i>A. (P.) subsericeus</i><br>Ballion  |
|--|---|---|---|---|---|---|--|
| dorsal surface   | moderately shiny  | shiny   | strongly shiny  | moderately shiny  | weakly shiny  | strongly shiny  | weakly shiny   |
| elytral punctation   | present   | present   | present   | present   | present   | absent  | present  |
| pronotal punctation  | double  | double  | double  | double  | double  | simple  | double   |
| pronotal basis   | bordered  | not bordered  | bordered  | not bordered  | not bordered  | border interrupted medially   | bordered   |
| elytron interval punctation                                    | present   | present   | present   | present   | present   | absent  | present  |
| elytron humerus denticulation                                  | present   | present   | absent  | present   | present   | absent  | present  |
| row of denticles of basal half of external protibia edge       | present   | present   | present   | present   | present   | absent  | present  |
| setation of apical transversal carinae of meso- and metatibiae | strongly unequal  | strongly unequal  | strongly unequal  | strongly unequal  | strongly unequal  | strongly unequal  | strongly unequal   |
| length of basimesotarsite                                      | shorter than superior terminal calcar   | shorter than superior terminal calcar   | longer than superior terminal calcar  | equal to superior terminal calcar   | equal to superior terminal calcar   | shorter than superior terminal calcar   | equal to superior terminal calcar  |
| length of basimetatarsite                                      | equal to superior terminal calcar, longer than two next metatarsites combined | scarcely shorter than superior terminal calcar, equal to two next metatarsites combined | longer than superior terminal calcar, equal to two next metatarsites combined | equal to superior terminal calcar, longer than two next metatarsites combined | longer than superior terminal calcar, equal to two next metatarsites combined | shorter than superior terminal calcar, longer than two next metatarsites combined | longer than superior terminal calcar, longer than two next metatarsites combined |
| distribution   | China: Xinjiang, Kazakhstan, Kyrgyzstan, Uzbekistan                           | China: Qinghai  | China: Qinghai, Mongolia, Russia: Baikal region, Transbaikalia                | China: Sichuan, Qinghai   | China: Qinghai  | China: Hubei  | China: Xinjiang, Kazakhstan, Kyrgyzstan  |

## *Aphodius (Pseudacrossus) przewalskyi* Reitter, 1887

*Aphodius (Platyderides) friedrichi* Petrovitz, 1958: 131 (type locality: W. Szechuan, Balang, Wasuland); Balthasar 1964: 54, fig. 11 (monograph); Dellacasa 1988: 131, 393 (catalogue).  
*Aphodius (Paracrossidius) friedrichi*: Dellacasa & Dellacasa 2006: 132 (catalogue) **syn. nov.**

**Type material examined.** China, Sichuan: Syntypus (♀), labelled: “W. Szechuan, China / Sankiangkou / leg. Fridrich // Balang 7. 1934 / 2000 m / Wasuland // Aph. (Platyderides) / friedrichi m. / det. Petrovitz // Museum Frey / Tutzing [printed]” in coll. Georg Frey (deposited in Naturhistorisches Museum Basel, Switzerland).

**Remark.** After examination of the type material of *Aphodius (Platyderides) friedrichi* (one female syntype in Naturhistorisches Museum, Basel) I consider both species to be identical.

ACKNOWLEDGEMENTS. I am obliged to Eva Sprecher-Uebersax (Naturhistorisches Museum Basel, Switzerland) for allowing me to examine the type of *Aphodius friedrichi* and Martin Fikáček (National Museum, Prague, Czech Republic). The study was supported by the Ministry of Education of the Czech Republic MSM0021620828.

### REFERENCES

- BALTHASAR V. 1964: *Monographie der Scarabaeidae der palaearktischen und orientalischen Region. Bd. 3.* Prag: Verl. Tschechoslowak. Akad. Wiss., 652 pp.
- DELLACASA G., BORDAT P. & DELLACASA M. 2001: A revisional essay of world-genus group of Aphodiinae (Coleoptera Aphodiidae). *Memorie della Società Entomologica Italiana* 79: 1-482.
- DELLACASA M. 1988: Contribution to a world-wide catalogue of Aegialiidae, Aphodiidae, Aulonocnemidae, Termitotrogidae (Coleoptera: Scarabaeoidea). *Memorie della Società Entomologica Italiana* 66 (1987): 1-455.
- DELLACASA M. & DELLACASA G. 2006: Subfamily Aphodiinae Latreille, 1802. Pp. 105-142. In: LÖBL I. & SMETANA A. (eds): *Catalogue of Palaearctic Coleoptera, Vol. 3. Scarabaeoidea – Scirtoidea – Dasciloidea – Buprestoidea – Byrrhoidea.* Stenstrup: Apollo Books, 690 pp.
- KRÁL D. 1997: A review of Chinese *Aphodius* species. Part 4: subgenera *Pseudacrossus* and *Qingaphodius* sbg. n. (Coleoptera: Scarabaeidae). *Acta Societatis Zoologicae Bohemicae* 61: 129-149.
- PETROVITZ R. 1958: Neue asiatische Aphodiusarten (Col. Scarab.). *Entomologische Arbeiten aus dem Museum G. Frey* 9: 131-159.
- TARASOV S. I. 2008: A revision of *Aphodius* Illiger, 1798 subgenus *Amidorus* Mulsant et Rey, 1870 with description of the new subgenus *Chittius* (Coleoptera: Scarabaeidae). *Russian Entomological Journal* 17: 177-192.

Received: 30.4.2011

Accepted: 1.6.2011

