

**A new species of the genus *Aphodius* Illiger, 1798 (subgenus *Loboparius* A. Schmidt, 1913) from the Palearctic region (Coleoptera: Scarabaeoidea: Aphodiidae)**

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**Taxonomy, new species, Coleoptera, Scarabaeoidea, Aphodidae, *Aphodius*, Palearctic region, Oriental region**

**Abstract.** A new species, *Aphodius (Loboparius) drumonti* sp. nov., is described from the Palearctic region (India, Himachal Pradesh) and compared with a closely related allopatric species *Aphodius (Loboparius) mirificus* Balthasar, 1933 occurring in south China and southeast Asia. The latter species is new to Thailand. Differences between the two species are detailed and their photos are presented (the habitus, aedeagus and epipharynx).

## INTRODUCTION

During the study of numerous specimens of Aphodiidae from Thailand, received from the Institute royal des Sciences naturelles de Belgique, Brussels for identification, we encountered 3 specimens of the genus *Aphodius*, subgenus *Loboparius*, exerting characters of the *Aphodius (Loboparius) mirificus* Balthasar, 1933. Re-examination of the Balthasar's holotype and of a series of specimens from Himachal Pradesh (which were formerly considered conspecific with the *A. (L.) mirificus* Balthasar by the present senior author) revealed the fact that the series of specimens from Himachal Pradesh belong to a new species as described below, whereas the above mentioned three specimens from Thailand actually belong to the species *A. (L.) mirificus* Balthasar.

The subgenus *Loboparius* was established by Schmidt (1913) and subsequently treated in monographs (Schmidt, 1922 and Balthasar, 1964) and particularly in an excellent revision by Dellacasa (1983). In addition to 10 palearctic and oriental species included in the revision by Dellacasa, further three species were described (Stebnicka, 1981; Stebnicka, 1985; Emberson & Stebnicka, 2001). Thus, total of thirteen species of the genus have still been known from the Palearctic and Oriental regions. The two species considered in the work presented here are distinctively different from all the other species by markedly auriculate genae.

## MATERIAL AND METHODS

Specimens of two species were examined as specified below.

The following abbreviations stand for institutions/collections, in which the specimens studied here are kept:

IRSNB Institute Royal des Sciences Naturelles de Belgique, Brussels, Belgium;  
LM Ladislav Mencl, private collection, Týnec nad Labem, Czech Republic;  
MR Miloslav Rakovič, private collection, Dobřichovice, Czech Republic;  
NMP National Museum, Prague, Czech Republic.

The specimens were examined with the use of stereoscopic microscopes MBS-10 and ISO 9001 and camera DCM 130.

Measurements were carried out with an ocular micrometer. The “elytra length” was taken as a length from the scutellum base to the elytral apex to avoid uncertainty, which would be encountered in the case of measurements of maximum length from the elytra base.

## RESULTS

### *Aphodius (Loboparius) mirificus* Balthasar, 1933 (Figs 1, 3, 5, 7, 9)

*Aphodius (Loboparius) mirificus* Balthasar, 1933: 58.

*Aphodius (Loboparius) mirificus*: Balthasar, 1964: 58; Dellacasa, 1983: 258.

**Material examined.** Holotype (♂): Yunnan fou (NMP); 1 ♀: Hoa - Biuh [sic! - probably Hoa-Binh], Tonkin, Coll Tesaf (NMP), 1 ♀: China, Yun-nan-sen (NMP); 1 ♀: Thailand, Ban Kong Loy, prov. Chiang Mai, 28.i.1998, T. Rakovič lgt. (MR); 2 ♀♀: Thailand (Loei), Na Haeo, Zebu Dung, 18.v.2003, leg. J. Constant & Smets (IRSNB); 1 ♀: same data (LM). [The holotype is equipped with a pink label bearing the handwritten text “*Aphodius (Loboparius) mirificus* n. sp. Balth.” and printed word “Holotypus”. The remaining specimens are equipped with red labels bearing the printed text as follows “*Aphodius (Loboparius) mirificus* BALTHASAR, compared with holotype, M. Rakovič & L. Mencl det. 2009”].

### *Aphodius (Loboparius) drumonti* sp. nov. (Figs 2, 4, 6, 8, 10)

**Type material.** Holotype (♂): India, HP, Kandaghat (nr. Shimla), 20.v.2001, M. Rakovič lgt. (MR). Allotype (♀): same data (MR). Paratypes (8 specimens): paratypes 1 and 2 (2 ♀♀) (MR); paratypes 3-6 (4 ♀♀) (LM); paratypes 7 and 8 (1 ♂ and 1 ♀, respectively): same data (IRSNB). [Each type specimen is equipped with a red label bearing the printed text as follows: “HOLOTYPE or ALLOTYPE or PARATYPE”, respectively, and “*Aphodius (Loboparius) drumonti* sp. n. M. Rakovič & L. Mencl det. 2009”].

**Description.** Strongly convex, broadly oval, glabrous, shining, prevalently black (antennal clubs testaceous, palpi, antennal flagellum, pronotum anterior margin and tarsi reddish brown



Figs 1-2. Habitus, dorsal aspect: 1- *A. (L.) mirificus* Balthasar (holotype; 6.2 mm); 2- *A. (L.) drumonti* sp. nov. (holotype; 6.0 mm).

to brown). 5.45 to 6.20 mm.

Clypeus broadly rounded each side of round anterior emargination. Clypeus anterior margin considerably turned up along each rounded side (not along median emargination); clypeus lateral margins before genae straight, nearly parallel one with another. Genae markedly auriculate, completely exceeding eyes, bearing short, fine setae. Epistome moderately convex, with rather uneven surface and sparse, poorly defined, medium-sized punctures. Frontal suture as low but distinct elevated line including a central elevation and two lateral ones. Frons with distinctly impressed but irregularly shaped punctures; smooth, impunctate zone behind these punctures.

Pronotum transverse, widest about at middle, strongly narrowed anteriorly and slightly narrowed posteriorly towards moderately truncate posterior corners. Basal margin line missing, lateral margins distinctly margined, bearing pale, hair-like setae, each posterior corner separated by a narrow furrow. Pronotum surface with double, fairly regular punctuation: coarse punctures intermixed with fine ones; gibbosity above posterior corner with only few coarse punctures.

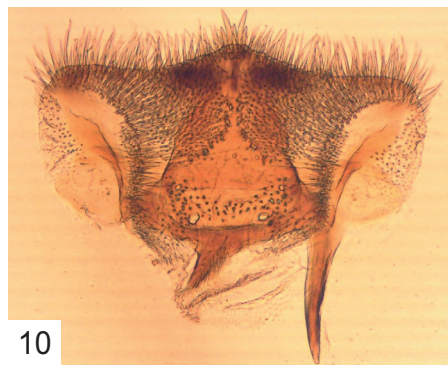
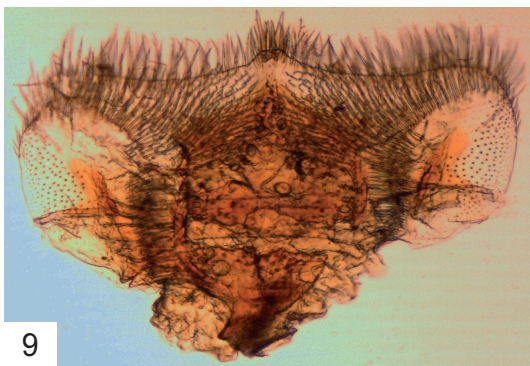
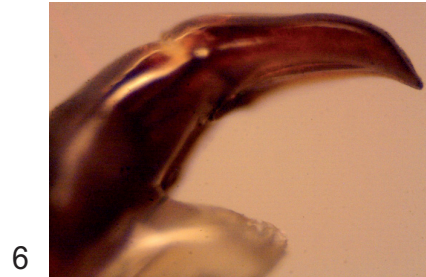
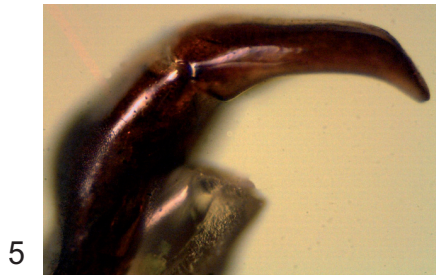
Scutellum triangular, with acute apex. Elytra broad, without humeral teeth, with 10 striae and 10 intervals. Striae deep, intervals rather flat, bordered with undulate lines, finely punctate, punctures partially arranged in two rows in each interval. Seventh stria strongly reduced anteriorly.

Protibia with three blunt teeth anteriorly; apical spine flat, with moderately rounded apex, continuously curved outward from base to apex. Mesotibia with two strong transverse ridges, apex fringed with equal setae, upper terminal spur a little longer than basal tarsite and considerably longer than lower terminal spur. Metatibia with two strong transverse ridges, apex fringed with equal setae; terminal spurs rather flat, upper terminal spur not considerably different in length from lower terminal spur; basimetatarsite about as long as metatarsites 2 to 4 combined.

Ventral side also shining, dark brown to black. Anterior femur finely punctate, with numerous setae; punctures mostly present in anterior half; setae mostly arranged along anterior and posterior margins. Intermediate femur sparsely, finely punctate, with more than ten setae in apical half (some of them along anterior margin, some others arranged in a row parallel with posterior margin. Posterior femur finely punctate, with some setae along anterior margin, otherwise glabrous. Metasternum with numerous considerable punctures



Figs 3-4. Habitus, lateral aspect: 3- *A. (L.) mirificus* Balthasar (holotype; 6.2 mm); 4- *A. (L.) drumonti* sp. nov. (holotype; 6.0 mm).



Figs 5-10. Male genitals and epipharynges: 5- *A. (L.) mirificus* Balth., aedeagus, lateral view (holotype); 6- *A. (L.) drumonti* sp. nov., aedeagus, lateral view (holotype); 7- *A. (L.) mirificus* Balth., parameres, posterodorsal view (holotype); 8- *A. (L.) drumonti* sp. nov., parameres, posterodorsal view (holotype); 9- *A. (L.) mirificus* Balth., epipharynx; 10- *A. (L.) drumonti* sp. nov., epipharynx.

bearing setae; metasternal plate pentagonal, glabrous, only very finely and sparsely punctate, without longitudinal furrow. Abdominal sternites mostly rugosely punctate laterally and rather smooth medially, with few long, pale setae situated laterally. Pygidium rugosely punctate, with few setae on its surface.

**Sexual dimorphism.** It is hard to find differences in secondary characters between males and females. The protibia terminal spine is rather more acute in males compared to females. The inferior protibial carina is lower and smooth in females, higher and notched in males.

**Differential diagnosis.** Due to the characteristic auriculate shape of genae, the species can only be compared with the *A. (Loboparius) mirificus* Balthasar. The two species can be differentiated one from another according to the table below.

Table 1. Differences between characters of the two closely related species

<i>A. (Loboparius) mirificus</i> Balthasar	<i>A. (Loboparius) drumonti</i> sp. nov.
Dorsal surface black, with slight brownish tint, particularly with brown elytral striae and mostly also with brown humeri, lateral elytral intervals and elytral apex	Dorsal surface prevalently black
Pronotum moderately narrowed anteriorly (Fig. 1)	Pronotum strongly narrowed anteriorly (Fig. 2)
Punctures on pronotum coarser (Fig. 1)	Punctures on pronotum less coarse (Fig. 2)
Elytral intervals finely shagreened. The shagreen is distinct under high magnification (56x)	Elytral intervals brighter. The shagreen cannot be observed even under this magnification
Elytra broader, length-to-width ratio between 1:1.102 and 1:1.154	Elytra narrower, length-to-width ratio between 1:1.179 and 1:1.232
Inferior protibial carina is lower and is continuously elevated from tibia base and after achieving its maximum height, it is continuously lowered towards the tibia apex	Inferior protibial carina is higher and is suddenly elevated at the base and more steeply lowered towards the tibia apex
Aedeagus as in Fig. 5	Aedeagus as in Fig. 6
Epipharynx as in Fig. 9	Epipharynx as in Fig. 10

**Name derivation.** Patronymic, dedicated to Alain Drumont (IRSNB) in recognition of our excellent cooperation.

## DISCUSSION AND CONCLUSION

The new species described here is known based on the type series from Himachal Pradesh, India. Based on data from the literature and on the material studied here, the closely related species *A. (Loboparius) mirificus* Balthasar is known from South China (Yunnan) and Southeast Asia (northern areas of Vietnam, Myanmar and Thailand).

Species of the genus *Aphodius* known from Southeast Asia are unlikely to occur in northern parts of India except the most usual and widely distributed species such as for example *Aphodius (Pharaphodius) costatulus* Schmidt. We believe that data on the occurrence of the *A. (Loboparius) mirificus* Balthasar in Himachal Pradesh (Stebnicka 1981) and/or in other

areas of India (Sikkim, “Indes Orients”) (Dellacasa 1983) may actually concern the new species described here.

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