

**A contribution to knowledge of Aphodiidae (Coleoptera) VI.
A new species of the subgenus *Coptochiroides* Balthasar from Laos**

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Abstract. A new species of the subgenus *Coptochiroides* Balthasar, 1938 (genus *Aphodius* Illiger, 1798) from Laos (*A. laotianus* sp. n.) is described and compared with related species. Diagnostic characters including male genitalia are illustrated. The *Aphodius saoudi* Paulian, 1980 is transferred from the subgenus *Coptochiroides* to the subgenus *Bodilus* Mulsant, 1869.

INTRODUCTION

Coptochiroides Balthasar, 1938 is a subgenus of *Aphodius* Illiger, 1798 (Coleoptera Scarabaeoidea: Aphodiidae), described as a monotypic subgenus based on the type species *Aphodius (Coptochiroides) subcostatus* Kolbe, 1886 from Korea. The subgenus was reviewed in Balthasar's (1964) monograph. Later, Paulian (1980) described *Aphodius (Coptochiroides) saoudi* Paulian, 1980 from Saudi Arabia. However, the study of this species showed that except for the tubercle at the inner side of male anterior tibia it has no connection with other *Coptochiroides* Balthasar, 1938 species but it should be placed in the subgenus *Bodilus* Mulsant, 1869. Thus the subgenus *Coptochiroides* Balthasar, 1938 recently contains two species, both of them inhabiting the Eastern Palaearctic region.

MATERIAL AND METHODS

Male genitalia of the described species were extracted and examined with the help of the stereoscopic microscope ARSENAL SZP 1102-T. The specimens of the new species are provided with a red label containing "Name of the new species, sp. n. m., HOLOTYPUS (ALLOTYPUS or PARATYPUS No.), R. Červenka det. 2005". The author's comments are placed in brackets.

Acronyms:

MNHNP	Muséum d'Histoire Naturelle, Paris, France
NHMBA	Naturhistorisches Museum, Basel, Switzerland
RCCP	collection Radek Červenka, Prague, Czech Republic

RESULTS

Aphodius Illiger, 1798

subgenus *Coptochiroides* Balthasar, 1938

Aphodius (Coptochiroides) Balthasar, 1938: 210.

Type species. *Aphodius (Coptochiroides) günterschmidti* Balthasar, 1938 = *subcostatus* Kolbe, 1886 (by monotypy).

Diagnosis. Species of small to medium size, body more or less flat, colour yellow-brown to red-brown. Genae obtuse-angulated, exceeding eyes. Frontal suture indicated or completely indistinct, always without trace of tubercles. Base of pronotum not bordered. Scutellum small, triangular. Elytral intervals normal, feebly convex. Anterior tibiae with three outer teeth and a tooth or tubercle on inner margin. Apical setae of middle and posterior tibiae unequal in length.

Distribution. Korea, China, Russia (Far East), Vietnam, Laos.

Aphodius (Coptochiroides) subcostatus subcostatus (Kolbe, 1886) (Figs 2, 5)

Aphodius (Pharaphodius) subcostatus Kolbe 1886: 189.

Aphodius günterschmidti Balthasar 1938: 210.

Type locality. Korea, Soul. Holotype depository unknown.

Material examined. China, Yunnan, 1800m, Lijiang, 23.vi.-21.vii.1992, 26.53 N 100.18 E, 12 ex., (RCCP).

Aphodius (Coptochiroides) subcostatus perroti (Paulian, 1945)

Pharaphodius subcostatus ssp. *perroti* Paulian 1945: 153.

Aphodius (Coptochiroides) subcostatus ssp. *perroti*: Balthasar 1964: 75.

Type locality. Vietnam, Hanoi. Holotype depository unknown.

Aphodius (Coptochiroides) laotianus sp. n. (Figs 1, 4)

Type locality. C Laos, Saisombun zone, Tad Leuk.

Type material. Holotype (♂) and 3 Paratypes (Nos. 1 - 3): Laos central, Saisombun zone, Phou

Khai Khouay Nat. Park, Tad Leuk, 18°23'N, 103°04'E, 15.-21.v.2001, alt. 150-200m, E. Jendek & O. Šauša leg. (deposited in RCCP); Allotype (female) and 2 Paratypes (Nos. 4 – 5): Laos, 21°09'N 101°19'E, Louangnamtha pr., road Namtha to Muang Sing, 5.-31.v.1997, 900 – 1200m, Vít Kubáň leg. (deposited in RCCP).

Description. Length: 3.2 mm, length of elytra and pronotum combined: 2.65 mm.

Male. Meanly convex, oblong oval, whole body somewhat shining. Elytra glabrous. Body oblong-oval, elytra egg-shaped. Colour of elytra, pronotum and head red-brown, sides of pronotum and clypeus lighter. Legs lighter brown.

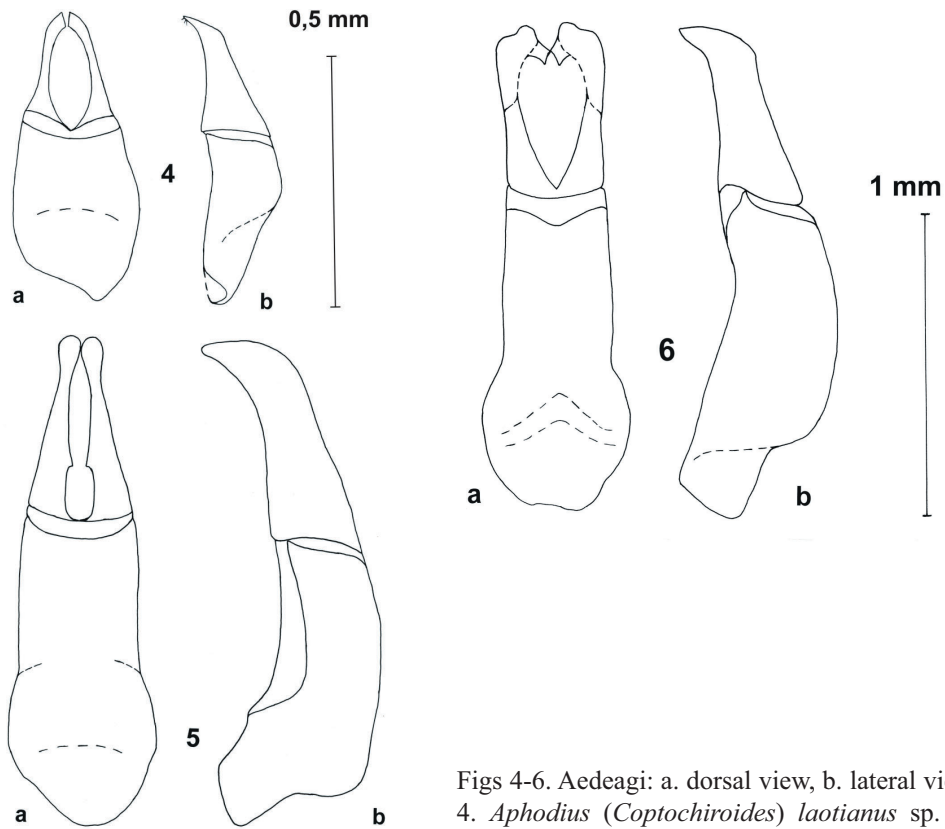
Head trapezoidal. Frontal suture very fine but distinct, without trace of tubercles. Clypeus truncate anteriorly, clypeal angles obtuse, rounded. Sides of clypeus feebly arcuate towards genae. These obtuse-angulated, exceeding eyes, not put aside from sides of clypeus (viewed directly from above), their tips blunt, without hairs. Punctuation of clypeus very fine, uniform. Punctures of vertex larger and denser than those of clypeus.

Anterior margin and base of pronotum without border, sides finely bordered, rimmed. Border of sides reaching level of the third elytral striae. Sides of pronotum straight, diverging towards base. Pronotum widest in front of posterior angles. Anterior angles rounded, posterior ones truncate, anterior tips of the truncation indicated, posterior ones rounded in dorsal view. Base of pronotum arc-shaped towards backwards, emarginate each side besides the arc. Punctuation of pronotum double, prevailing small punctures intermixed with larger ones, which are more abundant near sides and base of pronotum. The distance between punctures larger than their diameter. Near anterior margin almost exclusively with small, not too dense punctures. Base of pronotum (in the place of the widest width of pronotum) a little bit wider than base of elytra.

Elytra shagreened though still somewhat shining. Scutellum narrow, triangular, sides arcuate, surface with two punctures near base. Elytral grooves narrow, punctures of grooves rather fine,



Figs 1-3. Habitus. 1. *Aphodius (Coptochiroides) laotianus* sp. n., 2. *A. (C.) subcostatus* (Kolbe) (China, Yunnan pr., Lijiang), 3. *A. (Bodilus) saoudi* (Paulian) (Saudi Arabia, Hieth)



Figs 4-6. Aedeagi: a. dorsal view, b. lateral view.
 4. *Aphodius (Coptochiroides) laotianus* sp. n.,
 5. *A. (C.) subcostatus* (Kolbe), 6. *A. (Bodilus) saoudi* (Paulian).

feebly but distinctly crenating margins of intervals. Distance of punctures twice, or almost twice, larger than their width. All intervals in discal portion almost flat, with fine, scarcely distributed punctures. In humeral portion punctation coarser. Epipleura visible in whole length of elytral contour in dorsal view. Elytra with small, sharp humeral teeth.

Anterior tibiae with three outer teeth, two apical ones are long, narrow, while the basal one is very small. Outer margin from base of tibia to the basal teeth serrate. Inner margin fitted with a tubercle on the level of the midlength between base of tibia and basal outer tooth. Apical spur of anterior tibiae straight, narrowed towards tip, which is curved inwards and downwards, reaching base of the second tarsal segment. Base of the spur grows out opposite to the base of the apical outer teeth. Lower terminal spur of mesotibiae normal, not reduced, less than twice shorter than the upper one. Apical setae of middle and posterior tibiae relatively long, different in length. Metatarsus very long, as long as the four following tarsal segments combined, and distinctly (about half) longer than the upper terminal spur of posterior tibiae.

Differential diagnosis. The new species is related to *Aphodius subcostatus* from which it differs as follows:

<i>Aphodius subcostatus</i> (Kolbe, 1886)	<i>Aphodius laotianus</i> sp. n.
Body larger, 4.5 – 5.0 mm	Body smaller, 3.0 – 3.3 mm
Body flattened, elongate-oval, colour yellow-brown	Body moderately convex, oblong-oval, colour red-brown
Clypeus less narrowing forwards, anteriorly widely and shallowly but distinctly emarginate	Clypeus more narrowing forwards, anteriorly truncate or indistinctly emarginate
Elytra in humeral portion rounded	Elytra with small but sharp and distinct humeral teeth
Elytral striae deeper, their punctures coarse, distinctly crenate margins of intervals	Elytral striae shallower, their punctures almost indistinct, not at all or very feebly crenate margins of intervals
Gibbosity at the inner side of the anterior tibia in form of an obliquely downwards directed tooth	Gibbosity at the inner side of the anterior tibia in form of a tubercle directed sideways
Metatarsus shorter than upper terminal spur and as long as the two following tarsal segments combined	Metatarsus distinctly longer than upper terminal spur and a little bit shorter than the three following tarsal segments combined

Distribution. Laos (Saisombun zone, Louangnamtha pr.).

Name derivation. The specific adjective name of the species is derived from the country of origin of the type material.

***Aphodius (Bodilus) saoudi* (Paulian, 1980) comb. n.**
(Figs 3, 6)

Aphodius (Coptochiroides) saoudi Paulian, 1980: 144.

Type locality. Saudi Arabia, Hieth, 40km S Riyadh. Holotype male deposited in NHMBA.

Type material examined. 4 Paratypes: Hieth, 40km s Riyadh, Saudi Arabien, 2.v.1976, W. Buttiker (1 ex. MNHNP, 3 ex. RCCP); 5 Paratypes: W. Khumra, Saudi Arabien, 14.v.1976, W. Buttiker (MNHNP); 5 Paratypes: Wadi Hanifa, Saudi Arabien, 7.v.76, W. Buttiker (MNHNP).

Further material examined. Arabia, Hami, 25.v.1936, H. St. J. B. Philby, B. M. 1936, 1 ex., (NHMBA).

Diagnosis and discussion. The species has in fact nothing common with other species of the subgenus *Coptochiroides*, except for the tubercle at the inner side of male anterior tibia. Other features, such as general appearance, shape of legs including shape of apical spurs of the tibiae, presence of the frontal tubercles at the head, form of aedeagus (see Paulian 1980: 145) etc. however, confirm that it belongs to the subgenus *Bodilus* Mulsant, 1869.

According to the description, the type series consists of the male holotype (deposited in NHMBA) and one female paratype (deposited in MNHNP). However, in the collection of MNHNP there are 10 more specimens labelled with red the same type of red label “PARATYPUS” as the official female paratype from Hieth but originating from other two localities of Saudi Arabia. Besides that, 3 specimens of the same locality and with the same label “PARATYPUS” as the paratype from Hieth. are deposited in the author’s collection.

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