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Three new myrmecophiles of the tribes Sahlbergiini and Aenictoteratini from Laos and Malaysia (Borneo) (Coleoptera: Staphylinidae: Aleocharinae)

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ASSING V. 2020: Three new myrmecophiles of the tribes Sahlbergiini and Aenictoteratini from Laos and Malaysia (Borneo) (Coleoptera: Staphylinidae: Aleocharinae). *Acta Musei Moraviae, Scientiae biologicae* **105(2):** 153–162. – *Malayloeblius laoticus* sp. nov. (Northwest Laos) and *M. tensus* sp. nov. (Borneo: Sabah) of the Sahlbergiini, and *Dentaphila iniqua* sp. nov. of the Aenictoteratini (Northwest Laos) are described, illustrated, and distinguished from previously described species of the respective genera. Two additional records of *Malayloeblius borneensis* PACE, 2014 are reported from Borneo. The host ants of the new species are unknown, but available evidence suggests that these species may be associated with army ants.

Keywords. Coleoptera, Staphylinidae, Aleocharinae, Sahlbergiini, Aenictoteratini, *Malayloeblius*, *Dentaphila*, taxonomy, new species, Oriental region, Laos, Malaysia, Borneo, myrmecophily, army ants

Introduction

Malayloeblius was described by HLAVÁČ & MARUYAMA (2004) to include the type species, *M. sausai* HLAVÁČ & MARUYAMA, 2004, from Malaysia and an undescribed species from Laos. PACE (2014) subsequently described *M. borneensis* from Borneo (Malaysia: Sabah). The genus was – and still is – attributed to the Sahlbergiini (NEWTON 2019). *Malayloeblius sausai* was collected from colonies of the army ant *Dorylus laevigatus* (Smith, 1857). The host ant of *M. borneensis* is unknown.

The genus *Dentaphila* Kistner, 1997 previously included three species, the type species *D. malaysiensis* Kistner, 1997 (Malaysia), *D. mirabilis* (Pace, 1998) (Hong Kong), and *D. australis* Ashe, 2004 (Australia). Originally assigned to the subtribe Aenictobiina of the Lomechusini, the genus was subsequently moved to the tribe Aenictoteratini (HLAVÁČ *et al.* 2011). According to KISTNER (1997), the host of *D. malaysiensis* is the army ant *Aenictus dentatus* Forel, 1911. The host ants of the other species are unknown.

Material of Staphylinidae from Laos made available to me by Matthias Borer, Naturhistorisches Museum Basel, included a substantial number of specimens of *Malayloeblius* and one of *Dentaphila*. An examination of this material revealed that they represented two undescribed species. Two additional specimens of *Malayloeblius*, one of them representing yet another new species, were found among Aleocharinae material collected by Andreas Floren (University of Würzburg) by canopy fogging in Borneo.

Material and methods

The material treated in this study is deposited in the following collections:

MMB . . . . . Moravian Museum Brno (P. Bařnař)
MNB . . . . . Museum für Naturkunde Berlin (J. Frisch)
NHMB . . . . . Naturhistorisches Museum Basel (M. Borer)
cAss . . . . . author´s private collection

The morphological studies were conducted using Stemi SV 11 (Zeiss) and Discovery V12 (Zeiss) microscopes, and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using digital cameras (Axiocam ERc 5s, Nikon Coolpix 995), as well as Labscope and Picolay software.

Body length was measured from the anterior margin of the labrum to the posterior margin of tergite VIII, the length of the forebody from the anterior margin of the labrum to the posterior margin of the elytra, head length from the anterior margin of the clypeus to the posterior constriction of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Results

Malayloeblius laoticus sp. nov. (Figs 1–8)

Type material. Holotype ♂: "LAOS – Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 20°27–28′N, 100°45′E, 500–700 m, 4–18.V.2011, leg. Brancucci et al. / Holotypus ♂ *Malayloeblius laoticus* sp. n., det. V. Assing 2020" (NHMB). Paratypes: 51 exs. [partly teneral]: same data as holotype (MMB, MNB, NHMB, cAss).

Description. Body length 2.7–3.3 mm; length of forebody 1.4–1.6 mm. Habitus as in Fig. 1. Coloration of mature specimens: forebody brown to dark-brown with the pronotum often more or less distinctly paler; abdomen pale-brown to brown with the anterior portions of the anterior tergites and paratergites more or less extensively yellow; legs yellowish with the apical portions of the femora often slightly darker; antennae reddish-brown to dark-brown.

Head (Fig. 2) oblong, approximately 1.35 times as long as broad, broadest across eyes, and gradually tapering behind eyes; punctation fine and rather dense; interstices with irregular microsculpture and some shine. Eyes situated in anterior portion of lateral surface, weakly convex in cross-section, and approximately half as long as distance from posterior margin of eye to posterior constriction of head in dorsal view. Antenna (Fig. 3) approximately 1.2 mm long and distinctly clavate; antennomeres III–X strongly transverse and contiguous; antennomere XI of conical shape and large, but shorter than antennomeres VII–X combined.

Pronotum (Fig. 2) approximately 1.20–1.25 times as long as broad and 1.1 times as broad as head, broadest anteriorly; lateral margins sinuate in posterior half; punctation

more distinct and less dense than that of head; pubescence sparse, pale, and erect; interstices without microsculpture.

Elytra (Fig. 2) approximately 0.8 times as long as pronotum; punctation moderately fine; interstices with irregular micropunctation; pubescence similar to that of pronotum. Hind wings fully developed. Legs with weakly clavate femora (i.e., femora stouter near apex than at base); metatarsus very elongate, nearly as long as metatibia; metatarsomere I as long as, or slightly longer than combined length of metatarsomeres II and III.

Abdomen (Fig. 4) broader than elytra, usually broadest at segments IV and V; segments III and IV rather long and large; paratergites pronounced and usually folded mediad (i.e., partly concealing lateral portions of tergites III–VI); punctation moderately dense and distinct on tergite III, finer and sparser on tergite IV–VII; interstices with very shallow microsculpture; posterior margin of tergite VIII with palisade fringe; posterior margins of tergite and sternite VIII convex.

♂: median lobe of aedeagus very weakly sclerotized, more or less transparent, shaped as in Figs 5–6.

♀: spermatheca very weakly sclerotized, nearly fully transparent, shaped as in Figs 7–8.

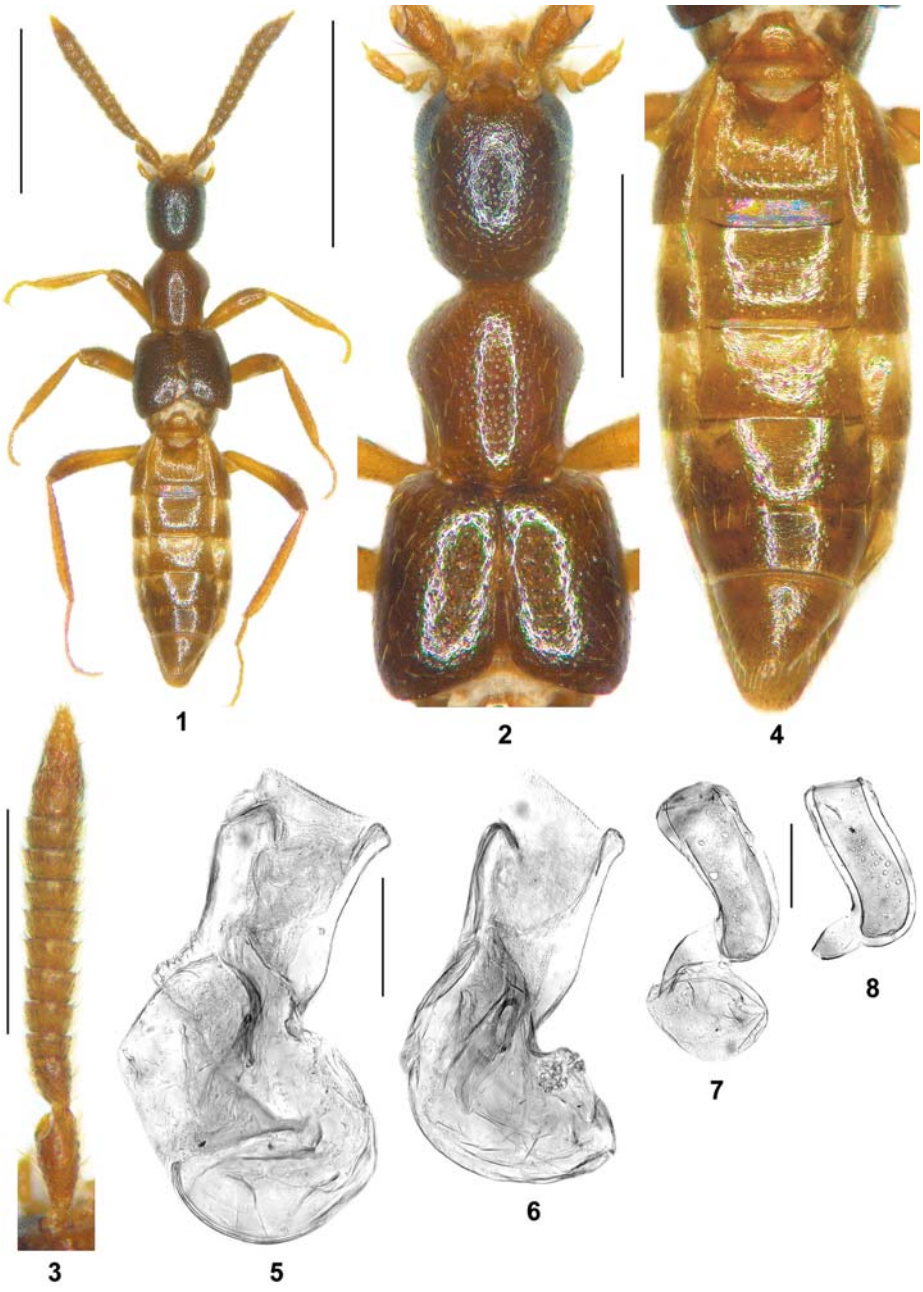
Comparative notes. The new species is distinguished from the two previously described congeners as follows:

- from *M. sausai* by larger body size (*M. sausai*: body length 1.5–1.7 mm; length of forebody 0.8–0.9 mm), longer legs with relatively longer metatarsi, a posteriorly more distinctly tapering head, antennae with less transverse antennomeres IV–X and a relatively shorter antennomere XI (*M. sausai*: antennomere XI significantly longer than the combined length of antennomeres VII–X combined), and an aedeagus and spermatheca of different shapes;
- from *M. borneensis* (specimen from the type locality examined) by significantly larger body size (*M. borneensis*: body length 2.3–2.5 mm; length of forebody 1.2 mm), sparser punctation and much longer and more erect pubescence of the pronotum and the elytra, the shape of the metatibia (*M. borneensis*: metatibia clavate, i.e., slender in basal half and distinctly dilated in apical half; inner face of apical half distinctly flattened), and by the primary sexual characters.

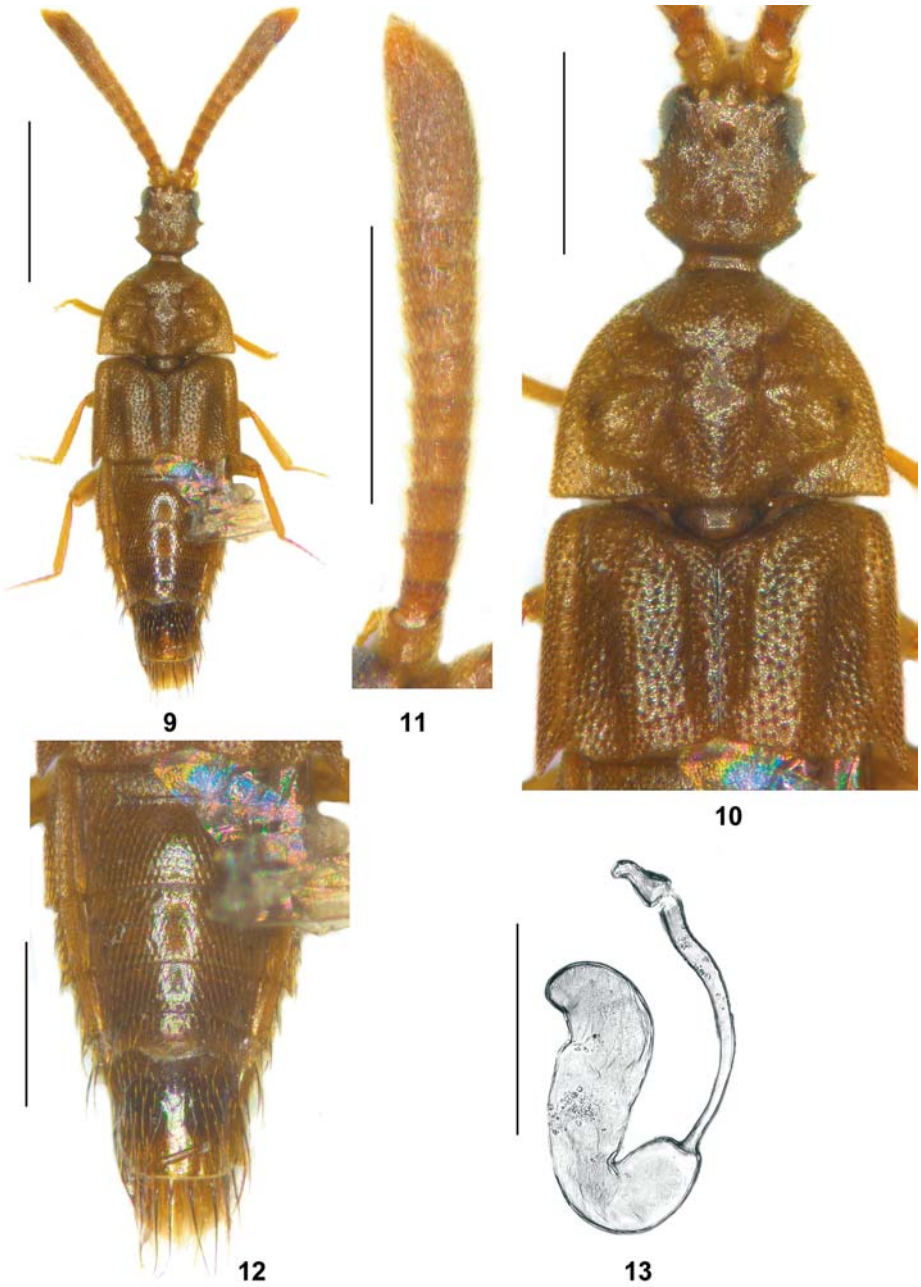
For illustrations of *M. sausai* and *M. borneensis* see Hlaváč & Maruyama (2004) and Pace (2014), respectively.

Distribution and natural history. The type locality is situated in Bokeo province, Northwest Laos. The specimens were collected on the wing, probably with a Malaise trap, at an altitude of 500–700 m. Part of the material is more or less distinctly teneral. The fact that *M. sausai* is associated with army ants of the genus *Dorylus* Fabricius, 1793 suggests that the same may apply to *M. laoticus*.

Etymology. The specific epithet is an adjective derived from Laos, where this species was discovered.



Figs 1–8. *Malayloeblius laoticus* sp. nov. 1 – habitus; 2 – forebody; 3 – antenna; 4 – abdomen; 5–6 – aedeagus in lateral view; 7 – spermatheca; 8 – distal portion of spermatheca. Scale bars: 1: 1.0 mm; 2–4: 0.5 mm; 5–8: 0.1 mm.



Figs 9–13. *Dentaphila iniqua* sp. nov. 9 – habitus; 10 – forebody; 11 – antenna; 12 – abdomen; 13 – spermatheca. Scale bars: 9: 1.0 mm; 10–12: 0.5 mm; 13: 0.1 mm.

Figs 14–16. *Malayloeblius tensus* sp. nov. 14 – habitus; 15 – forebody; 16 – antenna. Scale bars: 14: 1.0 mm; 15: 0.5 mm; 16: 0.2 mm.

Malayloeblius borneensis Pace, 2014

Material examined. Malaysia: 1 ex., Sabah, Danum Valley, B.R.L., f.i.t., 14–16.II.2007, leg. Rougemont (cAss); 1 ex. [teneral], Sabah, Poring Hot Springs, 6°03′N, 116°42′E, canopy fogging *Ficus parietalis*, 9.VIII.2009, leg. Floren (cAss).

The above specimens represent the first records since the original description, which is based on type material from Danum Valley (Malaysia: Sabah) (Pace 2014).

Malayloeblius tensus sp. nov. (Figs 14–16)

Type material. Holotype ♀: "Bergil, My SW2, N6 17.278 E116 42.305, V. pinnata B4 F4, A. Floren 1.3.97 / Holotypus ♀ *Malayloeblius tensus* sp. n., det. V. Assing 2020" (cAss).

Description. Body length 2.5 mm; length of forebody 1.5 mm. Habitus as in Fig. 14. Coloration: forebody reddish to reddish-brown; abdomen yellowish-brown with segments VI–VIII slightly darker; legs yellow with the pro- and mesofemora and the

apical halves of the metafemora slightly darker; antennae brown with the basal portion and antennomere XI paler.

Head (Fig. 15) conspicuously oblong, approximately 1.7 times as long as broad, broadest across eyes, and gradually tapering behind eyes; punctation fine and extremely dense; interstices much narrower than diameter of punctures, without microsculpture and glossy. Eyes situated in anterior portion of lateral surface, weakly convex in cross-section, and slightly less than half as long as distance from posterior margin of eye to posterior constriction of head in dorsal view. Antenna (Fig. 16) 1.1 mm long and distinctly clavate, broadest at antennomere IX; antennomeres II approximately as broad as long and of conical shape, III–X transverse and contiguous, III–IX of gradually increasing width, VIII approximately twice as broad as long, IX slightly longer than VIII and less than twice as broad as long, X narrower than IX and weakly transverse, and XI of conical shape and apically acute, approximately as long as antennomeres VIII–X combined.

Pronotum (Fig. 15) approximately 1.4 times as long as broad and 1.1 times as broad as head, broadest anteriorly; lateral margins strongly sinuate in posterior half; punctation similar to that of head; interstices without microsculpture.

Elytra (Fig. 15) approximately 0.7 times as long as pronotum; punctation similar to that of head and pronotum, but slightly less dense. Hind wings fully developed. Legs with weakly clavate metafemora; metatarsus very elongate, nearly as long as metatibia; metatarsomere I significantly shorter than combined length of metatarsomeres II and III.

Abdomen broader than elytra, broadest at segments IV and V; segment III longer than the following segments; middle of tergite III with conspicuous extensive flat area of orbicular shape; paratergites pronounced and folded mediad (i.e., partly concealing lateral portions of tergites III–VI); punctation moderately dense composed of a mix of fine and more distinct punctures; tergite III with distinct, tergites IV–VII with indistinct microsculpture; posterior margin of tergite VIII with palisade fringe; posterior margins of tergite and sternite VIII strongly convex.

♀: spermatheca not found in holotype.

Comparative notes. *Malayloeblius tensus* is easily distinguished from all other species of the genus by several conspicuous and distinctive characters, particularly an extremely oblong head, an antenna of characteristic morphology, and a flat area on the abdominal tergite III.

Distribution and natural history. The type locality is situated in the northeastern extensions of Mount Kinabalu, North Sabah (Malaysia), North Borneo. The holotype was collected by canopy fogging.

Etymology. The specific epithet is the past participle of the Latin verb tendere (to stretch) and alludes to the conspicuously long head.

***Dentaphila iniqua* sp. nov.** (Figs 9–13)

Type material. Holotype ♀: "LAOS – Bokeo prov., 5 km W Ban Toup, Bokeo Nature Reserve, 20°27–28′N, 100°45′E, 500–700 m, 4–18.V.2011, leg. Brancucci et al. / Holotypus ♀ *Dentaphila iniqua* sp. n., det. V. Assing 2020" (NHMB).

Description. Body length 3.2 mm; length of forebody 1.8 mm. Habitus as in Fig. 9. Coloration: forebody pale-brown; abdomen reddish with tergite VII infuscate; legs yellow; antennae reddish.

Head (Fig. 10) oblong, 1.4 times as long as broad (lateral spine-shaped processes not included), of roughly oblong quadrangular shape; laterally with a pronounced spine-shaped process behind eyes and postero-laterally with an angular projection on either side; dorsal surface with an erect and apically pointed median tubercle approximately at level of posterior margins of eyes, with an additional, much smaller tubercle near margin of eye on either side, and with a pair of indistinct tubercles near posterior constriction; punctation moderately dense, rather fine, and weakly granulose; interstices with pronounced microreticulation. Eyes situated very close to antennal insertions (practically contiguous), moderately convex in cross-section, and approximately half as long as distance from posterior margin of eye to posterior constriction of head in dorsal view. Antenna (Fig. 11) 1.3 mm long and strongly clavate, gradually broadened and flattened apicad, broadest and flattest at antennomere XI; antennomeres III–XI contiguous; antennomeres I–II transverse, III approximately as long as broad, IV–X of gradually increasing width and increasingly transverse, X slightly more than twice as broad as long, and XI very large, nearly as long as the combined length of VI–X.

Pronotum (Fig. 10) of nearly semi-circular shape, 0.88 mm broad, 1.38 times as broad as long and 2.3 times as broad as head (without lateral processes), broadest at posterior angles; posterior margin very weakly convex in the middle; dorsal surface very uneven, with conspicuous elevations and impressions; punctation distinct, rather dense, and granulose; interstices with pronounced microreticulation.

Elytra (Fig. 10) 0.83 times as long as pronotum; postero-lateral angles acutely produced; lateral margins sharply keeled; each elytron with an additional keel along suture and one (slightly oblique) in the middle; all keels with conspicuously dense and coarsely granulose punctation; punctation on remainder of elytral surface moderately dense and granulose; interstices without microsculpture. Hind wings fully developed. Legs: meso- and metatibiae flattened; meso- and metafemora each with long sulcus (to accommodate the tibiae); metatarsomere I as long as combined length of metatarsomeres II and III.

Abdomen (Fig. 12) of conical shape, broadest anteriorly; punctures minute and regularly spaced, connected by a regular network of microstriae, thus conveying the impression of a regular and very distinct micro-network composed of rhomboid meshes; other microsculpture absent; pubescence very short, erect, and yellowish; posterior margin of tergite VIII with palisade fringe; tergites VIII–X with conspicuously long black setae.

♂: unknown.

♀: spermatheca shaped as in Fig. 13.

Comparative notes. *Dentaphila iniqua* is distinguished from the three previously known congeners as follows:

- from *D. malaysiensis* by larger body size (*D. malaysiensis*: breadth of pronotum 0.64–0.67 mm), less pronounced and less acute postero-lateral projections of the head, much more strongly clavate antennae with distinctly contiguous antennomeres, significantly more transverse antennomeres IV–X, and a relatively longer antennomere XI, a relatively larger and broader pronotum with less acute posterior angles and with a conspiucously uneven surface, an abdomen of more conical shape, and a spermatheca of different shape;
- from *D. mirabilis* by much larger body size (*D. mirabilis*: body length 2.0 mm; length of forebody approximately 1.0 mm), darker coloration, a much larger pronotum of different outline (*D. mirabilis*: posterior margin strongly produced in the middle) and with differently shaped elevations and impressions, an abdomen with much sparser punctation, a spermatheca of different shape, and most likely numerous other characters not mentioned in the original description of *D. mirabilis*;
- from *D. australis*, a species evidently most similar to *D. iniqua*, by much larger body size (*D. australis*: body length 1.4 mm), a more oblong head with less pronounced postero-lateral projections, larger eyes, much longer antennae, a larger pronotum of different outline (*D. australis*: posterior margin strongly produced in the middle) and with differently shaped elevations and impressions, elytra with pronounced keels with densely and coarsely granulose punctation, an abdomen with much sparser punctation, a spermatheca of different shape, and most likely numerous other characters not mentioned in the original description of *D. australis*.

For illustrations of *D. malaysiensis*, *D. mirabilis*, and *D. australis* see KISTNER *et al.* (1997), PACE (1998), and ASHE (2004), respectively.

Distribution and natural history. The type locality and circumstances of collection are identical to those of *Malayloeblius laoticus*. *Dentaphila iniqua* may be associated with army ants of the genus *Aenictus* SHUCKARD, 1840, as is suggested by the observation that this is true also of *D. malaysiensis*.

Etymology. The specific epithet (Latin, adjective: uneven, rough) alludes to the conspicuous elevations and impressions on the pronotum.

Acknowledgements

Matthias Borer (NHMB) provided numerous Staphylinidae from Laos, which also included most of the specimens which this study is based on. Andreas Floren (University of Würzburg), assisted by Peter Sprick (Hannover), provided the holotype of *Malayloeblius tensus*. The comments and suggestions of two anonymous reviewers are appreciated.

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