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New Bornean Staphylinidae (Coleoptera)

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Abstract: Seven new species of Staphylinidae from Borneo belonging to the genera *Aleochara*, *Hesperus*, *Naddia*, *Ontholestes*, *Philonthus* and *Tympanophorus* are described. *Ontholestes superbus* BERNHAUER is illustrated for the first time; *Ontholestes doriae* GRIDELLI is designated a junior synonym of *Thoracostrongylus sarawakensis* BERNHAUER. A key is given to the *Ontholestes* species of Borneo.

Key words: Borneo, Staphylinidae, new species.

Material

Insects from the Danum Valley conservation area collected by Mann, Slade and Villanueva are deposited in the Oxford University Museum of Natural History; Some paratypes will also be deposited in the collections of the Institute of Tropical Biology and Conservation, Universiti Malaysia Sabah, and the Forest Research Centre, Sepilok.

Insects collected by Ilkka Hanski in Gunung Mulu N. P., Sarawak are in the Natural History Museum, London; some types and other specimens from these collections are in the author's collection in Oxford, and paratypes of four species have been deposited in the Biology Centre, Linz.

Square brackets ([...]) in the lists of material that follow enclose my comments, not words printed on the data labels.

Acronyms:

CRO Rougemont collection, Oxford

LML Biology Centre, Linz

NHML Natural History Museum, London

OUMNH Oxford University Museum of Natural History

Studied material

Staphylininae

The 'Cyaneoviolaceus group' of *Philonthus*

Bernhauer described *Philonthus cyaneoviolaceus* from Java in 1915. Cameron recorded it from Borneo (1933) and Sumatra (1933a). I have compared a specimen of *P. cyaneoviolaceus* from the type locality determined by Cameron with Bornean specimens, described herein as *P. hanskii* nov.sp. The two clearly differ as described below.

The specimen on which the record of *P. cyaneoviolaceus* from Sumatra is based is a female bearing the label "W. Sumatra, Gunung Singgalang, E. Jacobson. B.M. 1932-202 / *Philonthus cyaneoviolaceus* Bnh. (var.) thorax 4-punctate" This specimen is also distinct from *C. cyaneoviolaceus*: the head is more elongate, the antennae longer, the pronotum bears discal series of 3 + 1 large, shallow, irregularly spaced punctures (4+1 smaller and deeper punctures in *P. cyaneoviolaceus*), and the elytra are longer and more densely punctured.

At present this group of small to medium-sized species with metallic coloured forebodies is composed of four populations living at high altitudes in the Sunda sub-region: *P. cyaneoviolaceus* on Gede-Pangrango in Java, an undescribed species on Gunung Singgalang in Sumatra, and slightly vicariant populations of *P. hanskii* nov.sp. described below on Gunung Mulu and Gunung Kinabalu in Borneo

Philonthus hanskii nov.sp. (Fig. 1)

Philonthus sp. cf. *cyaneoviolaceus* BERNH. HANSKI & HAMMOND, 1986: 18.

♂ Holotype: SARAWAK, Gunung Mulu N.P., Camp 4 tube 212, 2011 I. Hanski [NHML]; 100 paratypes: many labelled as above, but camp number either 3 or 4, and tube numbers different; others are labelled: Borneo, Gunung Mulu, I. Hanski, Camp 4, 1700-2300 '240'.

Other mounted specimens are not designated paratypes. Fragments and incomplete bodies of many other individuals were found in Hanski's 2011 trap samples from high altitude sites on Gunung Mulu; altogether 195 specimens were collected in 1978 and about 155 specimens in 2011. [Holotype and 82 paratypes in NHML; 5 paratypes in OUMNH; 10 paratypes in CRO, 3 paratypes in LML]; 1 ♀: [on pink label]: B. N. BORNEO nr. Kinabalu, Tenompok Pass 4200', 18-3-1929 / *Philonthus cyaneoviolaceus* Bnh. / Ex F.M.S. Museum BM 1955-354 / *Philonthus hanskii* Rgmt det. 2015 G. de Rougemont [NHML]; 2 ♀: [on pink label]: B.N.BORNEO, Mt. Kinabalu, Lumu Lumu, 5.500 ft., 15-4-1929 / Ex F.M.S. Museum BM 1955-354 [NHML]; 1 ♂: N. BORNEO Mt. Kinabalu / Ulu Mentaki, 8-10.iv.1964, 900 ft / Royal Soc. Exped. Coll. S. Kueh, BM 1964-250 [NHML].

Description: length: 6.8-10 mm. Holotype: head and pronotum black with a strong brassy reflex, scutellum black, elytra with a strong purple reflex, abdomen black, very shiny; mouthparts, antennae and legs black. All dorsal surfaces glossy, devoid of microsculpture. Head subquadrate, the sides retracted towards bas but posterior angles well marked; eyes large, almost twice as long as temples; puncturation sparse, consisting of a single large setiferous puncture on anterior margins of eyes, a pair of smaller frontal punctures between these, and 6-7 punctures near and behind posterior margins of eyes. Antennae long and stout, segment III a little longer than II, IV shorter and broader than III, VI-X distinctly transverse, Pronotum slightly elongate, the sides a little retracted anteriorly, discal series of 4+1 punctures, with four punctures in anterior half between discal series and lateral margins, not counting the large lateral setiferous puncture

situated on lateral border and bearing a very long black seta; in addition the posterior margin bears a few small punctures. Elytra as long as broad, the sides a little dilated posteriorly; puncturation fairly fine and sparse, the interstices much greater than diameter of punctures; pubescence and setae black, the sides with 5-6 longer setae, the outer half of posterior margins with 4-5 conspicuously longer setae in addition to short pubescence. Abdominal tergites very glossy, very finely and sparsely punctured, each tergite with an unbroken row of small punctures along posterior border, the disc of tergites with only a few scattered fine punctures. First segment of metatarsi broader but scarcely longer than second, the fifth slender and twice as long as fourth.

Male: protarsi dilated; abdominal sternite VIII with a small triangular emargination extending $1/4^{\text{th}}$ the length of sternite; aedeagus (Figs 1 al, 1av) small (1.2 mm), narrow, the median lobe narrow and tapering to an acute apex; paramere (Fig. 1p) narrow and short, the apex truncate and bearing a solid black transverse callosity that appears to be fused peg setae and bearing four small fine apical setae.

Variability: the colour pattern of most specimens is as described above, but in some others the head and pronotum are bronze or greenish, and/or the elytra may be blue instead of purple, a mixture of both colours, or greenish.

The four specimens recorded from Mt. Kinabalu vary in size and colour; the two females from Lumu Lumu are 10 mm long; one has blue and the other purple elytra; the other two specimens measure just under 7 mm, and the (blue) metallic reflex of the male is weaker than in the other specimens. The paramere of this specimen differs slightly from those of the Mulu ones, being distinctly dilated apically, and the truncate tip is concave. This difference may be a function of allopatry of the two populations, but in the absence of more material is not sufficient to warrant the designation of a separate taxon for the Kinabalu form.

The colour of *P. cyaneoviolaceus* also varies; the type is described by Bernhauer as having the same colour pattern as that of the holotype of *P. hanskii* as described above; in the specimen I examined the head and elytra are dark metallic green, the latter with irregular brassy or coppery reflexes, the pronotum dark metallic blue.

P. hanskii nov.sp. differs from *P. cyaneoviolaceus* as follows: averagely smaller; head broader, more quadrate, with more pronounced posterior angles; antennae shorter, with segments VIII-X obconical, distally as wide as long or slightly transverse (elongate in *cyaneoviolaceus*); pronotum shorter, widest at about middle, whereas it is more rectilinear-sided and widest behind middle in *cyaneoviolaceus*); punctures of pronotal discal series of 1 + 4 finer and more regularly spaced. The aedeagus is much smaller and narrower, the short paramere devoid of marginal peg setae; in *P. cyaneoviolaceus* the paramere is large, broadly lanceolate, its apex almost reaching the tip of the median lobe and abruptly recurved towards the ventral face of the median lobe, each margin furnished with about 18 closely and regularly spaced sensory peg setae extending from apex for over half the distance to base.

In spite of the enormous volume of staphylinid material collected in Borneo in the last three decades and extensive trapping programmes, apart from the four specimens of a slightly different form from Mount Kinabalu, this species has only been found in Gunung Mulu N.P. where it is restricted to and common at high altitude (Hanski's "camp 3" covers trap sites situated between 1000 and 1650 m altitude; "camp 4" sites between 1700 and 2300 m); all specimens were collected in dung- or carrion-baited traps.

***Philonthus muluensis* nov.sp. (Fig. 2)**

Philonthus sp. C. HANSKI & HAMMOND, 1986: 18.

♂ Holotype: Borneo: Gunung Mulu, I. Hanski Camp 4, 1700-2300 m, '237' [NHML]; 90 paratypes; some bear the same label as the holotype but camp number variously 3 or 4, and with different last number (tube number); others are labelled "BORNEO, Gunung Mulu N.P., Camp 4 [or 3], tube [no.], I. Hanski 2011 [Holotype and 72 paratypes in NHML; 5 paratypes in OUMNH; 10 paratypes in CRO, 3 paratypes in LML].

As is the case with *P. hanskii* nov. sp., other specimens, plus incomplete bodies and fragments of many others were found in Hanski's 2011 samples from high altitude sites on Gunung Mulu; 499 specimens were collected in 1978 and about 360 in 2011.

D e s c r i p t i o n : length: 6.2-7.4 mm. Head, pronotum and scutellum black; anterior 1/3rd of elytra red, posterior 2/3rd black, the posterior margins narrowly yellow; abdominal urites III-VI black, the posterior margins of tergites narrowly reddish, urites VII-IX entirely pale red; labrum and mouthparts brown; antennomeres I-IX black, the base of II yellowish, X-XI yellowish brown to yellowish white; legs testaceous, the distal 1/3-1/2 slightly infusate; all pubescence and setae black. All dorsal surfaces glossy, devoid of microsculpture. Head a sub-orbicular, a little transverse, the sides slightly retracted before broadly rounded postero-lateral angles; eyes large, longer than temples, not prominent; puncturation consisting of 2 punctures on the inner lateral margins of eyes, a pair of anterior discal punctures between the anterior ocular punctures, a pair of posterior discal punctures spaced like the anterior pair, and 5-6 punctures in post-ocular area. Antennae moderately long (1.9 mm), antennomeres I-IV elongate, III slightly longer than II, V-VI subquadrate, VII-X transverse. Pronotum slightly elongate, widest at middle, the sides rounded; puncturation consisting of a pair of discal series of 4+1 small punctures and 3-4 irregular punctures between the discal series and the anterior lateral setiferous puncture. Scutellum with 8-9 large deep punctures. Elytra about as long as wide, broadest posteriorly; puncturation fine and sparse; lateral and posterior margins each with about six long setae in addition to pubescence. Abdominal tergites glossy, the puncturation consisting only of a row of closely set larger punctures along centre of basal line of tergites IV and V, a transverse irregular row of very small punctures on middle of tergites, and a row of small, slightly asperate punctures along posterior margins. First metatarsomere longer than II and III together, slightly longer than V.

M a l e : protarsi dilated; abdominal sternite VIII with a broad shallow emargination extending little more than 1/8th the length of tergite; aedoeagus (Figs 2a1, 2av), 1.1 mm long, the median lobe slightly widened distally before narrowing to a long blunt point; paramere (Fig. 2p) abruptly narrowed at mid-length, the apex pointed and bearing two short lateral rows each of about 8 small sensory peg setae.

Philonthus muluensis nov.sp. is easily distinguished from several other species on Gunung Mulu and elsewhere in Borneo and southeast Asia with similar colour pattern of the fore-body by the entirely clear red abdominal segments VII-IX.

Like *P. hanski* nov.sp., this species is a common specialist predator in dung and carrion confined to high altitudes on Gunung Mulu.

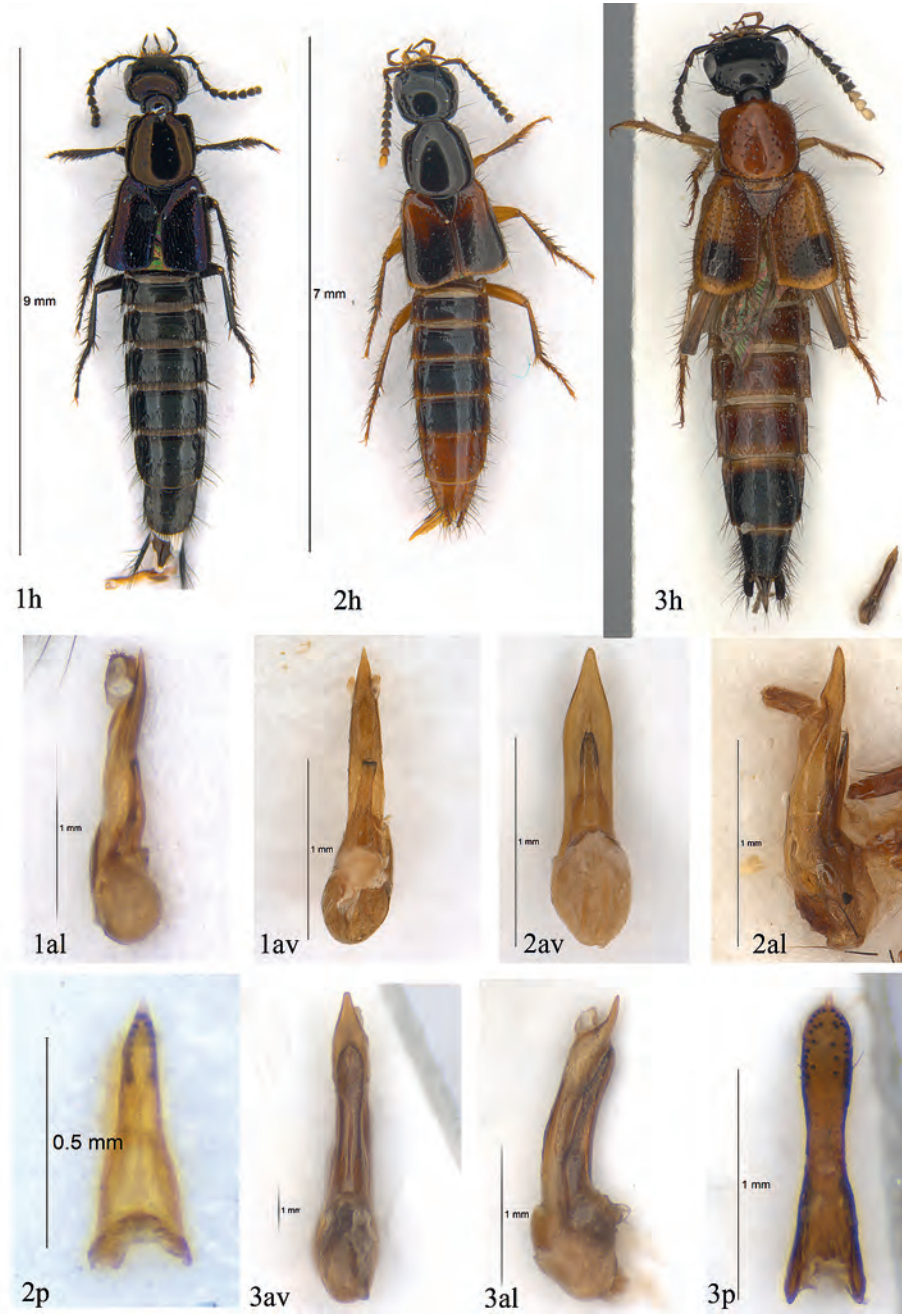


Plate 1: (1) *Philonthus hanskii*; (2) *Philonthus muluensis*; (3) *Hesperus margaretae*; h: habitus, al: aedeagus in lateral view; av: aedeagus in ventral view; p: paramere.

***Hesperus margaretae* nov.sp. (Fig. 3)**

♂ Holotype: Borneo, Gunung Mulu, I. Hanski, Camp 3, 1020-1650 m ASL, '195' [CRO].

D e s c r i p t i o n : length: 13 mm. Head black, thorax red. Scutellum and elytra rufo-testaceous, posterior half of the latter with a large black macula which does not extend to the lateral or posterior margins; abdominal urites III-VI rufo-testaceous, VII-IX black, the anterior margin of tergite VII narrowly reddish; labrum and mandibles brown, palpi pale testaceous; antennomeres I-VIII black, the bases of III and III reddish, antennomeres IX-XI creamy white; legs entirely testaceous. Fore-body devoid of microsculpture. Head large, strongly transverse, trapezoidal; eyes large, much longer than temples but not very prominent; puncturation rather sparse, consisting of a pair of frontal punctures, two punctures near inner margins of eyes, an anterior discal pair between anterior ocular punctures, a posterior discal pair between posterior ocular punctures, and a cluster of 5-6 punctures neat postero-lateral angles; pubescence and setae of head black. Pronotum slightly elongate, almost parallel-sided but very slightly narrowed posteriad; puncturation consisting of about 15 irregularly scattered discal punctures on either side of a broad mid-longitudinal impunctate area; pronotal setae black. Scutellum with about 25 small deep round punctures. Elytra 10 mm long, a little transverse, the puncturation sparse, the interstices everywhere much greater than diameter of small punctures; pubescence yellow; lateral and posterior margins with black setae, some of those on posterior 2/3rd of lateral margins very long (2 mm). First three visible abdominal tergites with two basal lines, the raised surface between lines bearing numerous punctures; puncturation sparse, the punctures on tergites III-V round, becoming elongate on tergite VI and very elongate, almost linear on the anterior half of tergite VII, round again on tergite VIII; tergites III-VII with sparse fine short pale pubescence, the paratergite with a few dark setae; dorsum and sides of tergite VIII covered in dense, numerous erect dark setae.

M a l e : sternite VIII with a small rounded apical emargination; aedoeagus (Figs 3al, 3av).

H. margaretae nov.sp. is similar to the Bornean species *H. rougemonti* Schillhammer 2016, from which it differs most conspicuously by the white three terminal antennomeres, smaller black elytral markings, parallel-sided pronotum (sides retracted towards base in *H. rougemonti*), entirely red abdominal tergite VI, sparser pronotal puncturation and larger and deeper punctures of the elytra.

D e r i v a t i o n of specific name: after Margaret de Windt, Lady Brooke, Rani of Sarawak 1869-1917.

***Naddia barclayi* nov.sp. (Fig. 4)**

♀ Holotype: BORNEO, Sabah, 1240 m, Crocker Range, IV.2013, Kota Kinabalu→Tambunan, N5°51'33.7" E116°17'24.1" General collecting / BMNH{E} 2013-58, M.V.L. Barclay, B.H. Garner, H. Mendel & A. Giusti / BMNH(E) 1222076 [NHML].

D e s c r i p t i o n : Length: 14.7 mm; length of fore-body: 8.6; length of head along central axis: 2.7; total length of head: 3.2; diameter of eye: 9; length of pronotum: 2.8; breadth of pronotum: 2.7; length of elytron: 3.2; breadth of elytra: 3.5. Body, mandibles and legs entirely black, labrum and palpi brown. Fore-body with some exceedingly sparse and short scattered pale pubescence and black setae of varying length; labrum and antennae with longer pale pubescence. Head transverse, the temples dilated; eyes small,

prominent although displaced towards dorsal surface of head, much shorter than temples; sculpture moderately coarse, forming parallel rugae on middle of disc and frons, confused and vermiculate on sides; sides of head with rather dense dark setae directed sideways or slightly anterior. Antennae short, antennomere III longer than II, IV and V sub-globose, V larger than IV, VI-X increasingly transverse, X slightly asymmetrical. Pronotum as long as broad, widest in anterior half, the sides strongly retracted in posterior half; sculpture coarse, the umbilicate punctures enclosed singly or in groups by mostly longitudinal confluent rugae, the centre with an interrupted narrow impunctate mid-longitudinal line; anterior margins between neck and anterior angles with fairly dense short, fine setae and 5-6 long setae on anterior angles. Scutellum densely punctured, with a velvety mat of black pubescence. Elytra quadrate, the sculpture confused, the large umbilicate punctures only clearly visible here and there among vermiculate rugae and pubescence; pubescence and setae black, but antero-lateral parts of elytra with some very sparse scattered short brassy setae. Abdominal tergites very coarsely punctured, the punctures largely obscured by dense black pubescence and setae; punctures on first tergites round, becoming increasingly elongate posteriorly. Sides of tergites III-V with short erect brassy setae, the following tergites without such setae. Tergite III with an antero-median triangular patch of black pubescence; tergites IV-V with such black pubescence on entire middle half of tergites. Tergite VIII with numerous longer black setae in addition to pubescence.

M a l e : unknown.

Because of its colour, coarse puncturation and medium size this new species runs to *N. borneensis* from eastern Sabah in the key to the Bornean species (Rougemont 2014), but differs in its larger size, proportionately smaller and more prominent eyes, and the sculpture of the head and pronotum which is coarser, with more confluent rugae; *N. barclayi* also lacks the patch of coppery pubescence on the humeral areas of the elytra which is characteristic of *N. borneensis*. Its sculpture and pubescence more closely resemble those of the much larger (22 mm) *N. aureomontis* Rougemont, also from the Crocker Range. Apart from its smaller size, *N. barclayi* nov.sp. differs from *N. aureomontis* by the more confused pattern of rugae on the head (rugae coarser and more regularly parallel in *aureomontis*) and the much coarser and deeper puncturation of the abdominal tergites.

Naddia barclayi's eponymous collector, Max Barclay, Curator and Collection Manager at the Natural History Museum in London, provided the circumstantial information that he "stole the beetle from some ants that were carrying it back to their nest" (kleptoparasitism as a collecting technique!). A 90 second video clip of the abduction shows about ten ants attached to the still living or freshly killed beetle's legs, antennae and pygidium and manoeuvring it rapidly over rough terrain. In these pictures the colour patterns of the beetle, which are created by the coloured pubescence, are strikingly brighter than they appear in the dead mounted specimen, whatever the kind or angle of lighting projected on the latter. The sparse short pale pubescence on the lateral half of the elytra makes these appear grey, in contrast to the deep, almost bluish-black head and pronotum; in the video the 3rd, 7th and 8th tergites appear to bear brilliant white markings, yet the specimen has no fasciae of silvery pubescence, such as exist in some other species, that might produce such an effect. These differences, which have been observed in other species, are not due to any physical post-mortem alteration, but probably to rapidly changing

angles of illumination created by motion on microsculpture or pubescence that accentuate the contrasts of colours through effects of reflection and refraction.

E r r a t u m : in the key to the *Naddia* of Borneo in ROUGEMONT 2014 the line at the bottom of page 1740 ("Elytra black or fuscous, sometimes slightly rufescent...") should lead to dichotomy 7, not 11 as printed.



Plate 2: (4) *Naddia barclayi*; (5) *Ontholestes lowi*; (6) *Ontholestes superbus*; h: habitus, al: aedeagus in lateral view; av: aedeagus in ventral view.

***Ontholestes lowi* nov.sp. (Fig. 5)**

♂ Holotype: BORNEO, Sabah, ca. 300 m, SAFE Project xi-xii.2011, Logged forest/Palm oil, N4°63'50"- N77°16" E117°43'83"- E117°70'31", Malaise Pitfall Combination / SAFE Project, Ewers *et al.*, 111129-162b 016068 [CRO].

D e s c r i p t i o n : length:16 mm; length of head: 2.4; breadth of head: 3.3; length of antenna: 4; length of pronotum: 2; breadth of pronotum: 2.8; length of elytron: 3.5; breadth of elytra: 3.9. Integument of head, prothorax and elytra pale brown; vestiture consisting of short, semi-erect coppery pubescence of varying density and orientation variegated with small patches or flecks of silvery pubescence. Abdominal tergites III-IV pale reddish brown, irregularly clothed in pale brassy pubescence, and long slender pale setae on posterior margins; tergite III with a pair of triangular patches of black pubescence near anterior border, such patches lacking on tergite IV which however bears four large black setae on disc in addition to the long pale posterior setae; anterior margin of tergite V narrowly pale brown with brassy pubescence like the preceding tergites as well as a pair of patches of black pubescence like those of tergite III, the posterior part of tergite black, with black pubescence and setae; tergites VI-VIII black, with black pubescence and setae; tergites VII-VIII with an anterior transverse fascia of silvery pubescence. First five antennomeres reddish-brown, the following segments black. Legs entirely testaceous. Head transverse; eyes large, about twice as long as temples, but much smaller than those of other Bornean species. Mandibles very large, asymmetrical, each with a bicuspid molar. Labrum and palpi testaceous. Antennae short, the third segment longer than second, the fourth and fifth small, sub-equal, only a little elongate; segments VI to X strongly transverse, increasingly asymmetrical. Pronotum elongate, widest at anterior angles, the sides concave before arcuate base. Elytra sub-quadrate, the sides slightly rounded, widest at middle.

M a l e : posterior margin of abdominal sternite VIII with a small median emargination with rounded fundus; aedoeagus: Figs 5al, 5av).

O. lowi nov.sp. differs markedly from the other three Bornean species of *Ontholestes* in the features used in the key below.

D e r i v a t i o n of specific name: after Sir Hugh Low, naturalist, colonial administrator and explorer, who made the first recorded ascent of Mt. Kinabalu in 1851.

Key to the *Ontholestes* species of Borneo

- 1 Head, pronotum and elytra predominantly dark; head black with a brassy or dark bronze reflex; lateral and posterior margins of elytra more or less extensively reddish; eyes very large, occupying nearly the whole side of head2
- Head, pronotum and elytra pale brown variegated with patches of short coppery pubescence and small flecks of silvery pubescence; eyes smaller, about twice as long as temples; habitus: Fig. 5h; aedoeagus: Figs 5al, 5av *lowi* nov.sp.
- 2 Legs entirely testaceous; head with a brassy reflex; fore-body variegated with short black and golden-brassy pubescence..... *variegatus* CAM.
- Femora and tibia of front and middle legs with black markings; fore-body variegated with short black and silvery pubescence3
- 3 Antennomeres VII-X short, transverse and asymmetrical..... *borneensis* CAM.

- Antennomeres VII-X dilated, but obconical and as long as broad; habitus: Fig. 6h;
aedeagus: Fig. 6 al, av *superbus* BNH.

***Thoracostrongylus sarawakensis* (BERNHAEUER)**

Amichrotus sarawakensis BERNHAEUER, 1915: 233

Ontholestes (Thoracostrongylus) doriae GRIDELLI, 1924: 207 New Synonymy

Thoracostrongylus sarawakensis HAMMOND, 1984: 195

Amichrotus doriae HAMMOND, 1984: 195

This distinctively coloured species was assumed to be restricted to Borneo, where it is common and widespread, but I have seen specimens from the Malay peninsula: Negri Sembilan [OUMNH] and Cameron Highlands [CRO] and from Hainan [CRO].

***Tympanophorus borneensis* nov.sp. (Fig. 7)**

♂ Holotype and 15 paratypes: MALAYSIA: Sabah, Lahad Datu, Ulu Segama For. Res., Danum Valley Forest Centre, 04°57.9'N 117°48.1'E, 200 m alt / xi.2005 1° For. baited PF, coll. Mann, Slade & Villanueva OUMNH-2006-051 / *Tympanophorus* N. Sp. Det. 2009 G. de Rougemont / *Tympanophorus borneensis* Des. 2015 G. de Rougemont; 7 paratypes: MALAYSIA: Sabah, Lahad Datu, Ulu Segama For. Res., Danum Valley Forest Centre, 04°57.9'N 117°48.1'E, 450 m 20-19.xi.2005 1° for. / Coll. Mann, Slade & Villanueva OUMNH2006-05 Lowland mixed dipterocarp for., West Trail area F.I.Trap; 2 paratypes: MALAYSIA: Sabah, Lahad Datu, Ulu Segama For. Res., Coupe 81 logging area, 04°58.660'N 117°53.410E, iii.2005 FIT 2° Forest, Coll. E. Slade & J. Villanueva / *Tympanophorus* n. sp. det. G. de Rougemont (2011) / Slade colln. Ox. Uni. Mus. Nat. Hist. (OUMNH) OUMNH-2005-062; 16 exx.: [same data as above localities]; 1 paratype: SABAH, Danum Valley, B.R.L. f.i.t. 14-16.II.2007, G. de Rougemont [CRO]; 2 exx.: MALAYSIA, Sabah, Tawau, 11-17.x.2012, 4.66N 117.60E, 100 m alt., Coll. C.L. Gray / SAFE project area, F.I.T Riparian forest strip in oil palm, OUMNH-2013-056.[Holotype, 17 paratypes and 18 other exx in OUMNH; 3 paratypes in CRO; 2 paratypes in LML].

D e s c r i p t i o n : length: 10.5-11.5 mm. length of head: 1.3; breadth of head: 1.5; length of antenna: 2.5; length of pronotum: 2; maximum breadth of pronotum: 1.8; length of elytron: 2.2; breadth of elytra: 2.4. Body black, posterior 1/4th of abdominal urite VIII reddish, antennae and legs pitchy. Vestiture consisting of mixed black and pale pubescence and black setae. Head transverse, eyes large, over three times longer than temples; puncturation rugose, homogenous. Antennomeres II-III obconical, of equal length, IV sub-quadrate, V-X increasingly transverse, Neck densely punctured, the punctures slightly transverse. Pronotum a little elongate, widest at anterior 1/3rd the sides thereafter retracted to posterior angles; puncturation as coarse as that of head, in some individuals the interstices with a slight tendency to longitudinal confluence in middle; mid-line without any trace of impunctate areas. Scutellum strongly and densely punctured, the punctures transverse. Elytra sub-quadrate, the sides slightly dilated posteriad; sculpture coarser, denser and shallower than that of pronotum; antero-lateral parts of disc with sparse, decumbent, long pale setae in addition to short black pubescence. Abdominal tergites shiny, moderately densely punctures, the punctures rounded on tergite III, becoming strongly elongate on segments IV-VI, on tergite VII the punctures are large and elongate near anterior margin, becoming denser, round and finer posteriad, very fine near posterior margin.

M a l e : posterior margin of abdominal sternite VII (Fig. 7s7) slightly and shallowly concave; the sternite bears a small but conspicuous circular shiny impunctate impression just before posterior margin, the anterior rim of the impression with a pair of short stout

hairs directed posteriad; sternite VIII strongly elongate, the posterior margin with a small rounded emargination; apex of sternite IX arcuately excised; aedeagus; Fig. 7al; median lobe in ventral (Fig. 7ml) view asymmetrical; paramere (Fig. 7p) extending beyond tip of median lobe, its apex with a small notch, and bearing an irregular cluster of ca. 15 peg setae and 8 fine pale apical and pre-apical setae.

In all males of this and other species of *Tympanophorus* that I have seen the inner sac of the aedeagus is extruded, as it is in the illustrations of the two species described by SHIBATA (1975).

The large eyes of *T. bornensis* nov.sp. likens it to *T. rugosus* Waterhouse described from Timor, but the new species differs conspicuously in its smaller size and especially narrower build; in the new species the pronotum is elongate and the sides narrowed in posterior 2/3rds whereas in *rugosus* the pronotum is a little transverse and widest in the middle, the elytra are smaller and less transverse, and the punctures of abdominal tergites much finer and sparser. The impression on the male 7th sternite is much smaller than those of the only other species for which this character has been described, *T. hayashidai* SHIBATA, and *T. sauteri* BERNHAUER (SHIBATA 1975).

Aleocharinae

Aleochara (s.str.) *muluensis* nov.sp. (Fig. 8)

♂ Holotype: SARAWAK, Gunung Mulu N.P., Camp 4 tube 243, 2011 I. Hanski [NHML]; 3 paratypes: Ibid.; 3 paratypes: Ibid., but tube 244; 1 paratype: Ibid., but tube 245; 1 paratype: Ibid., but tube 225; 2 paratypes: Ibid., but tube 227; 1 paratype: Borneo, Gunung Mulu, I, Hanski, Camp 4 1700-2300 '238'; 2 paratypes: Ibid, but '240'; 3 paratypes: Camp 3 1020-1650 m ASL vial 19; 2 paratypes: Ibid., but vial 96; 1 paratype: Ibid., but vial #90 [holotype and 14 paratypes in NHML, 5 paratypes in CRO; 1 paratype in LML].

A few other specimens in Hanski's material remain unmounted with other Staphylinidae in tubes of spirit in the NHML.

Description: length: 7.5-9.5 mm. Body black, the outer 1/3rd – 2/3rds of elytra red, the areas of each colour clearly demarcated; all appendages black except pale brown 4th segment of maxillary palps and dark brown tarsi. Head convex, slightly elongate, the temples retracted posteriad to arcuate base; eyes large, as long as temples, fairly prominent; frons produced into a ^-shaped point; surface glossy, the puncturation relatively sparse, interstices everywhere larger than diameter of punctures. Last segment of maxillary palps acicular, half as long as penultimate segment; second antennomere very short, antennomere IV transverse, V-X strongly transverse, over twice as broad as long. Pronotum transverse, widest at about 2/5ths from base, the sides retracted to anterior angles, base broadly arcuate; puncturation similar to that of head; disc with a pair of shallow longitudinal impressions on either side of mid-line, extending to a little more than half the length from base, where they merge with a shallow transverse impression interrupted by a pair of raised callosities. Scutellum densely and finely punctured. Elytra strongly transverse, 2/3rds as wide as long; surface of each elytron with a longitudinal impression bordered internally by a longitudinal elevation; punctures about as large as those of head and pronotum, but much denser and slightly aspirate. Abdominal tergites glossy, each with a row of small aspirate punctures along posterior margin, the puncturation otherwise very sparse and irregular, leaving large areas impunctate.

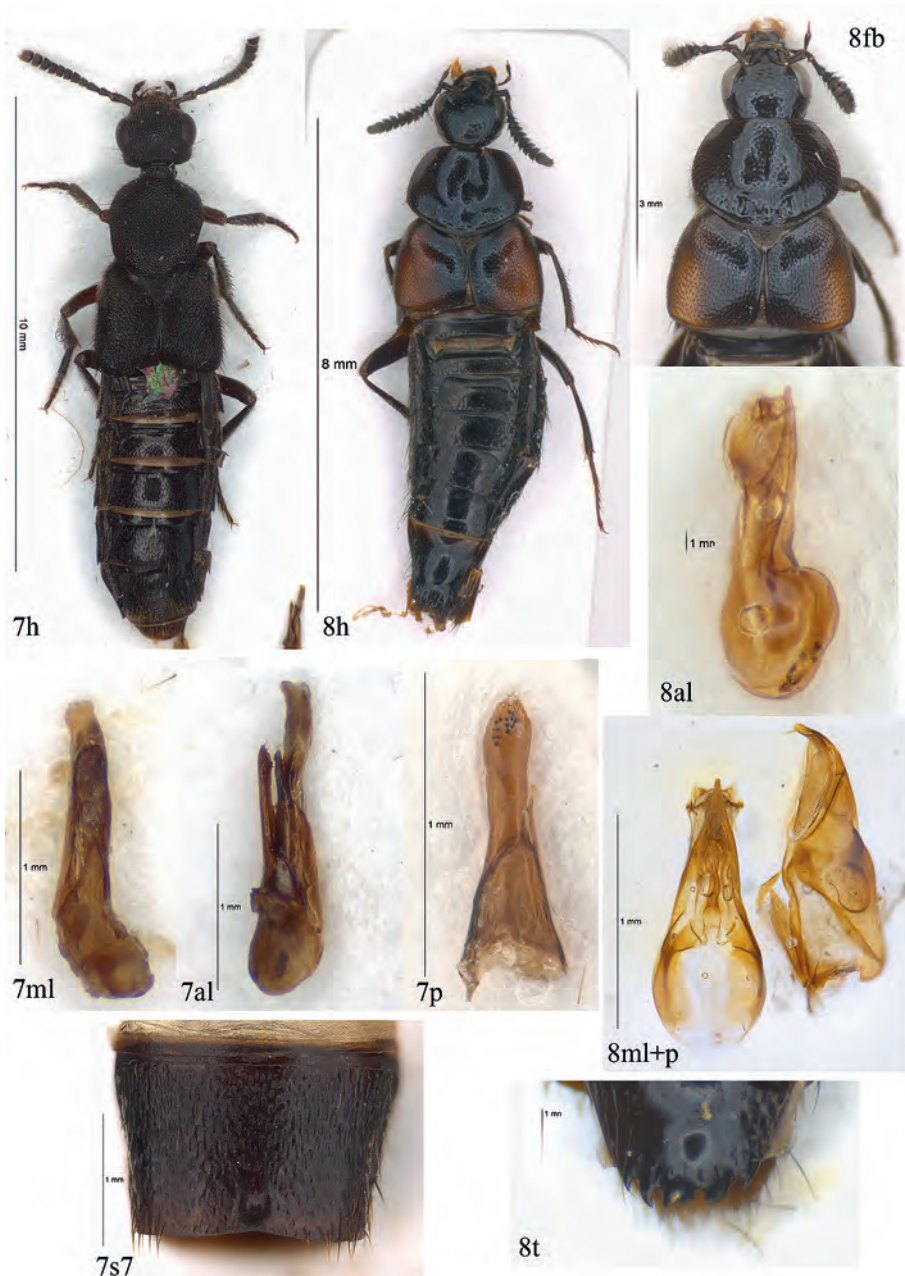


Plate 3: (7) *Tympanophorus borneensis*; (8) *Aleochara muluensis*; h: habitus; fb: fore-body; al: aedeagus in lateral view; ml: median lobe in ventral view; p: paramere; s7: male sternite VII; t: male tergite VIII.

V a r i a b i l i t y : the extent of the red area on the outer part of each elytron varies, as can be appreciated by comparing Figs 8h and 8fb.

M a l e : posterior margin of abdominal tergite VIII (Fig. 8t) with six large, irregular teeth, the outer pair acute, the others larger and mostly blunt. Aedoeagus: Figs 8al, 8av, inner structures membranous, devoid of sclerotised struts or spines; parameres large, broad and complex.

R e c o g n i t i o n : *Aleochara muluensis* nov.sp. is distinguished from the other twelve described species of *Aleochara* known from Borneo by the combination of colour and sculpture. One other species, *A. sabahensis* PACE, has reddish marks on the lateral parts of the elytra but these are smaller and obscure, the pronotum and elytra are devoid of impressions and the abdomen is densely punctured; *A. muluensis* is evidently close to the unicolorous black *A. nigrolucens* CAMERON from northern India and *A. borneensis* KLIMASZEWSKI from Mt. Kinabalu, which has comparable impressions on the pronotum, but not on the elytra, and is less sparsely punctured. The aedoeagi of these two species are also similar, the median lobe being devoid of sclerotised inner structures, and the parameres very broad, but the outlines of both differ both in ventral and lateral views (cf. Figs 18 & 19, KLIMASZEWSKI 1990).

All material of this species was taken in dung- and carrion-baited traps. It appears to be confined to high altitudes on Gunung Mulu where it probably, like many of its congeners elsewhere, preys on the immature stages of Diptera.

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Zusammenfassung

In vorliegender Arbeit werden sieben neue Arten der Familie Staphylinidae aus Borneo beschrieben, die den Gattungen *Aleochara*, *Hesperus*, *Naddia*, *Ontholestes*, *Philonthus* und *Tympanophorus* angehören. Weiters wird die Art *Ontholestes superbus* BERNHAUER erstmalig dargestellt. *Ontholestes doriae* GRIDELLI wird als jüngeres Synonym von *Thoracostrongylus sarawakensis*

BERNHAUER eingestuft. Ergänzend wird ein Schlüssel zur Bestimmung der *Ontholestes*-Arten Borneos vorgestellt.

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