Derosphaerus J. Thomson species from Thailand and Laos (Coleoptera, Tenebrionidae, Stenochiinae, Cnodalonini)

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Abstract. Species of the genus *Derosphaerus* J. Thomson, 1858 (Tenebrionidae, Stenochiinae, Cnodalonini) from Thailand and Laos were dealt with. Ten new species were described as follows: *Derosphaerus yupae* sp. nov., *D. higurashii* sp. nov., *D. chiangraiensis* sp. nov., *D. wiangpapaoensis* sp. nov., *D. doisuthepensis* sp. nov., *D. huaphanensis* sp. nov., *D. akiyamai* sp. nov., *D. phupanensis* sp. nov., *D. miyakei* sp. nov., and *D. chiangdaoensis* sp. nov. Six new records from these areas were also reported: *D. crassicrus* Fairmaire, 1903 from Thailand, *D. subsulcatus* (Fairmaire, 1893) from Thailand and Laos, *D. pici* Kaszab, 1987 from Thailand, *D. binhanus* (Pic, 1922) from Thailand, *D. viridistriatus* (Fairmaire, 1893) from Thailand and Laos, and *D. laosensis* Pic, 1922 from Thailand. A diagnostic key to all the species from Thailand and Laos was provided.

INTRODUCTION

The genus *Derosphaerus* was erected by J. Thomson (1858) for *D. globicollis* J. Thomson, 1858. In the past, three species were described from Laos by Pic: *D. laosensis* Pic, 1922, *Encyalesthus laosensis* Pic, 1923 and *Encyalesthus aeneus* Pic, 1929. As the genus *Encyalesthus* Motschulsky, 1860 is a synonym of the genus *Derosphaerus,* the second species was treated as a homonym, and given the replaced name, *D. pici* by Kaszab, 1987. The third species is synonymized with *Helops* (= *Derosphaerus*) *aeruginosus* Fabricius, 1787 by Schawaller (2011). Meanwhile, one species, *Helops* (= *Derosphaerus*) *aeruginosus* Fabricius, 1787 was recorded from "Siam" by Gebien (1941). This species was originally described from " Cap. Bon. Spei."

In the recent study by Schawaller (2011), *Derosphaerus aeruginosus* was not recorded from Thailand but widely from other Southeast Asian areas: Nepal, Northeast India, Laos, West Malaysia, Borneo (the type locality), Sumatra and Java. Until now, no species from Thailand and only three species from Laos have hitherto been known. We thus deeply studied unknown members of this genus from Thailand and Laos over recent years.

We found many specimens belonging to this genus from Thailand and Laos preserved in the National Museum of Nature and Science, Tsukuba, Japan. After careful examination, we recognized several species to be new to science and some known species to be newly recorded. Ten new species and six species new records are presented below. A key to all of the species from the areas considered is also provided.

Holotypes are deposited in the National Museum of Nature and Science, Tsukuba, Japan (NSMT). Paratypes will be shared and deposited in some museums such as the Natural History Museum, London UK (NHML), the Khon Kaen University Museum, and so on in future.

MATERIAL AND METHODS

The material specimens used for this study are offered from the National Museum of Nature and Science, Tsukuba, Japan (K. Masumoto Collection) and the K. Akita private collection in Tsu City, Japan. They were compared with types preserved in the collections of several major museums in Europe, and also referred to original descriptions.

External morphology and male genitalia were examined using an Olympus SZ60 and a Leica MS5 stereoscopic microscope. Pictures were taken using an Olympus PEN E-P3 digital camera equipped with an extension tube and a ZUIKO AUTO-MACRO 50 mm f3.5 lens or a 80 mm f4 lens, and stacked using the free software Combine ZM from Alan Hadley.

The label data of the holotypes are verbatim cited between quotation marks. A slash is used to separate lines of the data on the label, and a double slash separates the labels.

Abbreviations used herein are as follows: NSMT= National Museum of Nature and Science, Tsukuba, Japan; NHML = The Natural History Museum, London, UK; BL = Body length; BW = Body width; LAI-XI = Length of antennomere I to XI in mm; WE/ED = Width between eyes / Eye transverse diameter; PW = Pronotal width; PL = Pronotal length; EL = Elytral length; EW = Elytral width; LTB-A = Length of pro-, meso- and metatarsi from baso- to apicomeres in mm; AL: Aedeagus length. AW: Aedeagus width; AbL = Basale of aedeagus length; AaL = Apicale of aedeagus length.

TAXONOMY

Genus *Derosphaerus* J. Thomson, 1858

Derosphaerus J. Thomson, 1858: 99. Type species: *Derosphaerus globicollis* J. Thomson, 1858.
Cholipus Pascoe, 1866: 471. Type species: *Cholipus brevicornis* Pascoe, 1866.
Encyalesthus Motschulsky, 1860: 139. Type species: *Encyalesthus subviolaceus* Motschulsky, 1860.
Euphron Dejean, 1834: 206. Type species: *Helops coerulescens* Guérin-Méneville, 1831.
Falsoencyalesthus Pic, 1923: 29. Type species: *Falsoencyalesthus latipennis* Pic, 1923.
Neandrosus Pic, 1921: 12. Type species: *Neandrosus singularipes* Pic, 1921.
Notiolesthus Motschulsky, 1872: 25. Type species: *Notiolesthus natalensis* Motschulsky, 1872.
Pachyurgus LeConte,1862: 230. Type species: *Iphthinus aereus* Melsheimer, 1846.

Derosphaerus yupae sp. nov.

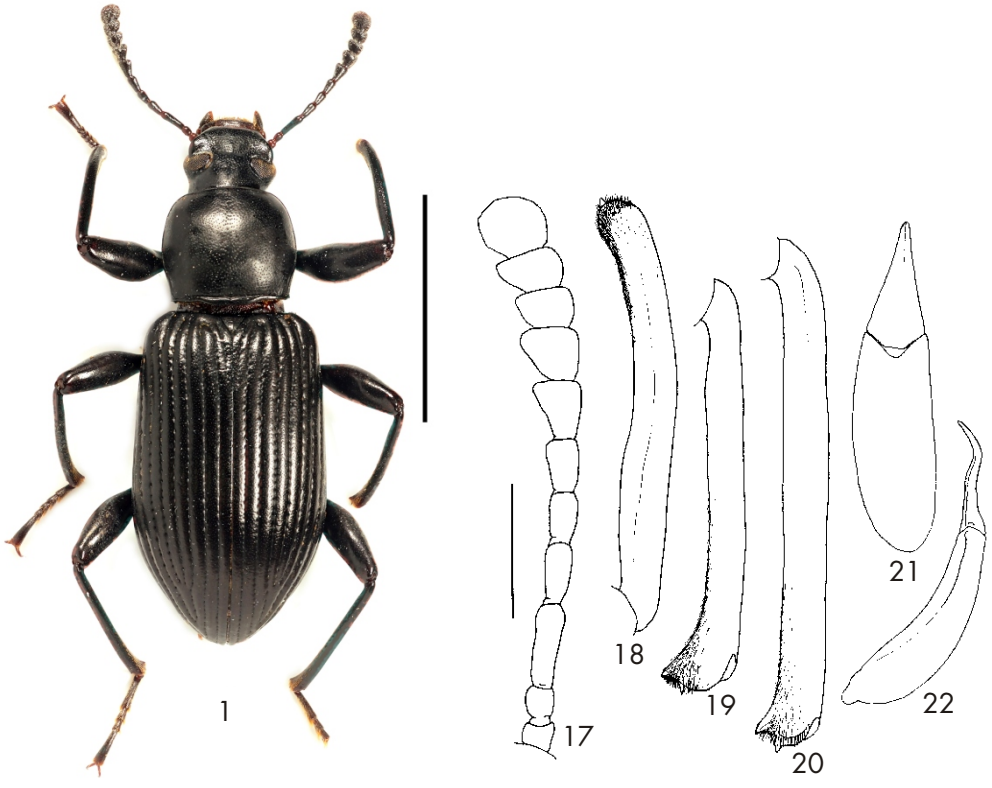
(Figs. 1, 17-22)

Type series. Holotype (♂): "Nanon Tum, Khon Kaen / Thailand, 10. V. 2011 / K. Masumoto & K. Takahashi leg. // Coll. Masumoto / 2014", (NSMT). Paratypes: (1 ♂): "Pak Chong / Nakhon Ratchashima-P., / C-THAILAND / 9 V 2008 / Shigeo TSUYUKI leg. // Coll. Masumoto / 2014"; (1 ♀): " Chiang Mai, Thai- / Date: 13-VIII-2005 / K. Masumoto leg. // Coll. Masumoto / 2005"; (1 ♀): "Thailand, Chiang Mai, / Chiang Dao Hill Resort, / 3-7. V. 2013 / K. Takahashi leg. // Coll. Masumoto / 2013"; (1 ♀): "Thailand, Chianthaburi, / Khao Soi Dao, / 17-21. V. 2012 / K. Takahashi leg. // Coll. Masumoto / 2014". (Temporarily, all the paratypes will be deposited in "NSMT, but shared and deposited in some major museum in Europe, such as NHML, and also in the university collection of Khon Kaen University in future).

Description of holotype. BL 11.7 mm. BW (apical 4/9 of elytra) 4.4 mm. Body elongate subelliptical, strongly convex longitudinally; almost wholly black, basal parts of antennae, tarsi dark brownish, hairs on apico-ventral faces of tibiae and ventral sides of tarsi light brown; head, scutellum and elytra gently shining, pronotum weakly, sericeously shining, six basal antennomeres and legs moderately shining, five apical antennomeres matt; body surface almost glabrous, four apical antennomeres densely, finely haired, apico-ventral parts of tibiae finely haired, ventral sides of tarsi densely with short setaceous hairs.

Head somewhat hexagonal, gently inclined apicad; clypeus subhexagonal with basal part long and apical part short, weakly convex and microsculptured medially, closely punctate, the punctures larger in basal part and becoming smaller apicad; clypeo-genal borders becoming indistinct apicad; fronto-clypeal border clearly impressed and widely curved; genae gently

dilated and raised antero-laterad, weakly depressed before eyes, closely, finely punctate; frons subquadrate, gently elevated posteriad, rather closely punctate. Eyes somewhat transversely comma-shaped, bordered by grooves from head, gently convex laterad, nearly horizontally inlaid into head, WE/ED 1.4. Antennae subclavate, antennomere XI nearly round with its tip reaching to base of elytra, LAI-XI: 0.29, 0.16, 0.52, 0.34, 0.23, 0.26, 0.28, 0.28, 0.22, 0.26, 0.29.



Figs. 1, 17-22. *Derosphaerus yupae* sp. nov., holotype, ♂: 1- habitus; 17- antenna; 18- protibia; 19- mesotibia; 20- metatibia; 21- aedeagus (dorsal view); 22- ditto (lateral view). Scales: 5.0 mm for 1; 1.0 mm for 17-22.

Ultimate maxillary palpomere gently dilated, subsecuriform. Mentum subelliptical with basal part briefly truncate, strongly ridged on median line, sides of the ridge steeply inclined, microsculptured, flattened, and rugulose in antero-lateral parts. Gula subquadrate, weakly microsculptured, weakly depressed in median part, also weakly depressed in areas of anterior corners.

Pronotum subquadrate with rounded sides, PW/PL 1.1 (PL 2.7 mm, PW 3.0 mm), wholly microsculptured; apex nearly straight, margined in lateral parts, the margin tapering laterad; base weakly produced, sinuate on both sides, margined by deep impression, marginal part sparsely scattered with minute punctures; sides rather steeply, roundly declined to lateral margins, which are finely ridged, the ridges visible from above; front angles rounded; hind angles obtuse but the corners fairly acute; disc moderately convex, irregularly scattered with small punctures, which are inconspicuous in lateral portions. Scutellum triangular, slightly convex medially, finely

microsculptured, and very sparsely scattered with minute punctures.

Elytra subovate, EL/EW 1.7 (EL 7.5 mm, EW 4.3 mm); EL/PL 2.8 and EW/PW 1.4, widest at apical 4/9; dorsum strongly convex, highest at basal 1/4; disc rather deeply punctate-striate, the striae fine, the punctures in interior portions small and rather closely set, those in lateral portions larger and sparsely set, and those in apical portions minute and closely set; intervals well convex, finely microsculptured, fairly closely, finely punctate; sides roundly and steeply declined to lateral margins, which are bordered by punctate-grooves, and invisible from above; humeri moderately swollen; apical portions weakly, roundly produced.

Prosternum moderate in size; apex widely, roundly curved, finely margined; anterior part gently raised posteriad, microsculptured; medial part rather gently raised, with part of the summit (intercoxal space) rather wide and smooth, weekly microsculptured and slightly rugulose, concave and weakly rugulose in median part, raised and scattered with minute punctures in lateral parts; posterior part gently inclined; prosternal process widely linguiform, gently depressed, microsculptured and irregularly rugulose and minutely punctate. Mesoventrite short; anterior part depressed, microsculptured, micro-granulate, with median ridge reaching to posterior part; posterior part weakly depressed medially, then gently raised in V-shape along the borders of mesocoxae (opposite to prosternal process), the raise rather smooth, finely microsculptured and sparsely scattered with minute punctures. Metaventrite medium-sized, wholly microsculptured, with longitudinal median impression in posterior 4/5; anterior part slightly convex, sparsely minutely punctate, rugulose along the borders of prosternum and coxal cavities; medial and posterior parts gently convex, weakly depressed in medial part, rather closely punctate; lateral parts with the punctures becoming weaker. Abdomen rather short and slightly convex in median portion, wholly microsculptured; ventrite I to major basal part of III strongly, closely punctate and weakly longitudinally wrinkled, apical part of III, IV and V closely minutely punctate, apex of ventrite V simply rounded.

Femora rather stout and subclavate, smooth but minutely punctate. Tibiae (see Figs. 18-20) closely punctate, finely, setaceously haired in apico-ventral parts; protibiae with apical part gently curved ventrad; meso- and metatibiae with intero-apex angularly projected. Tarsi weakly dilated to each apex, densely, setaceously haired beneath, LTB-A: 0.32, 0.16, 0.12, 0.11, 0.84; 0.61, 0.28, 0.25, 0.18, 0.82; 0.92, 0.30, 0.27, 0.96.

Aedeagus (see Figs. 21 and 22) short subfusiform, AL 2.29 mm, AW 0.59 mm, AbL 1.54 mm, AaL 0.78 mm, AaL/AL 0.34; basale gently curved in lateral view; apicale depressed in basal 1/3, prolonged and curved ventrad in apical part, with acute apices.

Variation of males (n=2). BL 11.7-12.5 mm; BW 4.4-5.0 mm; WE/ED 1.3-1.4; PW 3.0-3.5 mm; PL 2.7-3.1 mm; EL 7.5-8.1 mm; AL 2.29-2.51 mm.

Female (n=3). Compared to male, the body a little wider, the antennae shorter, the eyes smaller, the legs not modified. BL 11.7-13.5 mm; BW4.6-5.3 mm; WE/WD 1.30; PW 3.3-3.6 mm; PL 2.6-3.2 mm; EL 7.3-7.9 mm.

Differential diagnosis. See the key below.

Etymology. The specific name is given in honour of Yupa Hanboonsong, Khon Kaen University, Thailand.

Distribution. Thailand.

***Derosphaerus higurashii* sp. nov.**

(Figs. 2, 23-28)

Type series. Holotype (♂): "[LAOS] XIANG KHOUANG, / Hot Spring, alt 570 m / 19.559172° 103.687003° / April 28, 2015 / leg. T. HIGURASHI / Permit No. 25-04-2015 // Coll. Masumoto / 2019", (NSMT). Paratypes: (1 ♂): "Xiang Khouang, / Hot Spring / 19 °33́ N,103 ° 41́ E / 29-30, IV. 2018, / Hideaki Sekine leg. // K. AKITA /Collection / KAC 166726", (NHML); (1 ♀): " Vientian / Lao / 21. IV. 1992 / Y. Miyake // Coll. Masumoto / 2005", (NSMT).

Description of holotype. BL 15.0 mm. BW (apical 1/3 of elytra) 6.2 mm. Body a little stout and elongated subelliptical, convex longitudinally; wholly black, hairs on apico-ventral faces of tibiae and ventral sides of tarsi light brown; head weakly, sericeously shining, six basal antennomeres, pronotum, scutellum and elytra gently shining, five apical antennomeres matt, legs moderately shining; body surface almost glabrous, five apical antennomeres densely, finely haired, apico-ventral parts of tibiae finely haired, ventral sides of tarsi densely with short setaceous hairs.

Head subhexagonal, gently inclined apicad; clypeus widely hexagonal with basal part long and apical part short, weakly convex medially, depressed on both sides, straight truncate and bent ventrad at apex, with surface microsculptured and punctate, the punctures in medial part larger and sparser, those in lateral parts smaller, and those in apical parts closer and minute; clypeo-genal borders finely impressed; fronto-clypeal border clearly impressed and widely curved; genae dilated and raised antero-laterad, depressed before eyes, closely, minutely punctate; frons subquadrate, gently elevated posteriad, closely punctate, the punctures smaller than those of clypeus. Eyes clearly bordered from head by grooves, convex laterad, slightly obliquely inlaid into head, WE/ED 1.4. Antennae subclavate, antennomere XI nearly subquadrate and its tip reaching to base of elytra, LAI-XI: 0.44, 0.36, 0.70, 0.55, 0.41, 0.37, 0.39, 0.35, 0.30, 0.32, 0.40.

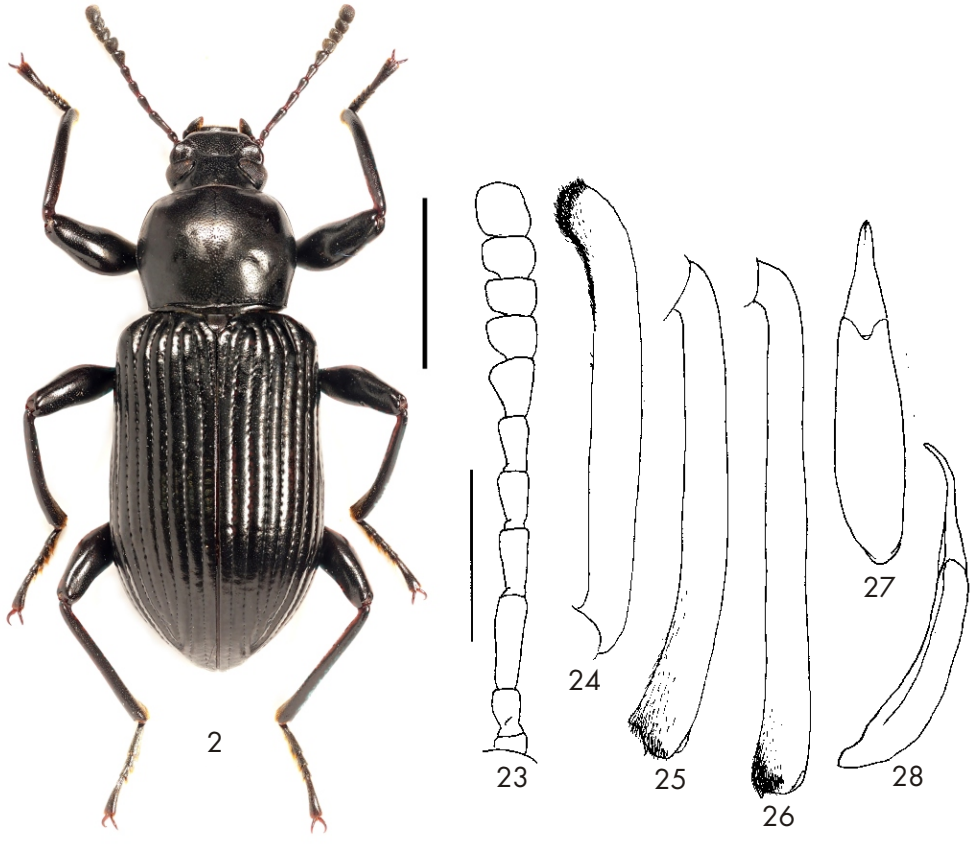
Ultimate maxillary palpomere gently dilated, subsecuriform. Mentum elongated subquadrate with basal part narrowed, strongly raised in antero-median part, microsculptured, sparsely granulate and sparsely haired, and with several setaceous hairs in lateral parts. Gula subparabolic, weakly convex, finely microsculptured, impressed in apical part on both sides.

Pronotum subquadrate with rounded sides, PW/PL 1.2 (PL 3.7 mm, PW 4.5 mm), wholly weakly microsculptured; apex nearly straight, margined and weakly sinuate in lateral parts, the margin tapering laterad; base slightly produced in medial part, weakly sinuate on both sides, margined by deep impression, the marginal part weakly ridged and sparsely scattered with minute punctures; sides roundly declined to lateral margins, which are bordered by fine, sparsely punctate grooves, and wholly visible from above; front angles rounded; hind angles subrectangular; disc moderately convex, weakly depressed along median line, weakly microsculptured, fairly closely, finely, irregularly punctate. Scutellum triangular with slightly rounded sides, weakly microsculptured, sparsely scattered with minute punctures.

Elytra subelliptical, EL/EW 1.5 (EL 10.7 mm, EW 6.2 mm), EL/PL 2.9, EW/PW 1.6, widest at apical 1/3; dorsum strongly convex, highest at basal 2/5; disc rather strongly punctate-striate, the punctures in interior portions small and rather closely set, those in lateral portions larger and sparsely set, and those in apical portions minute and closely set; intervals well convex, weakly microsculptured, fairly closely, finely punctate; sides roundly and steeply declined to lateral margins, which are bordered by punctate-grooves, and invisible from above; humeri moderately swollen; apical portions weakly, roundly produced.

Prosternum moderate in size; apex widely indented, wholly margined, the margin tapering

laterad; anterior part gently raised posteriad, microsculptured; medial part rather weakly raised, with inter-coxal space grooved longitudinally, rather strongly raised on both sides, weekly microsculptured and rugulose; posterior part gently inclined; prosternal process widely linguiform, gently depressed, microsculptured, irregularly rugulose and sparsely, minutely punctate. Mesoventrite short; anterior part depressed, microsculptured, transversely rugulose, with the median ridge reaching near posterior part; posterior part rather strongly raised in V-shape along the borders of mesocoxae (opposite to prosternal process), the raise finely microsculptured and scattered with minute punctures. Metaventrite medium-sized, wholly microsculptured; anterior part slightly convex, sparsely minutely punctate, rugulose; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, weakly depressed in postero-medial part, rather closely punctate and rugulose; lateral parts more noticeably microsculptured and punctures becoming inconspicuous. Abdomen rather short and slightly convex in median portion, wholly weakly microsculptured; ventrite I to major basal part of III strongly, closely punctate and longitudinally wrinkled; apical parts of III, IV and V closely, minutely punctate; V with very minute punctures often connected with each other, and the apex simply rounded.



Figs. 2, 23-28. *Derosphaerus higurashii* sp. nov., holotype, ♂: 2- habitus; 23- antenna; 24- protibia; 25- mesotibia; 26- metatibia; 27- aedeagus (dorsal view); 28- ditto (lateral view). Scales: 5.0 mm for 2; 1.0 mm for 23-28.

Femora rather stout and subclavate, smooth but minutely punctate. Tibiae (see Figs. 24-26) closely, minutely punctate; protibiae with apical part curved ventrad; mesotibiae with intero-apex angularly projected; metatibia without projection. Tarsi weakly dilated to each apex, densely, setaceously haired beneath, LTB-A: 0.40, 0.26, 0.24, 0.27, 1.28; 0.81, 0.35, 0.26, 0.18, 1.30; 1.10, 0.39, 0.30, 1.32.

Aedeagus (see Figs. 27 and 28) short subfusiform, AL 2.91 mm, AW 0.62 mm, AbL 2.00 mm, AaL1.15 mm, AaL/AL 0.40; basale gently curved in lateral view; apicale depressed in basal 1/3, prolonged and curved ventrad in apical part, with acute apices.

Variation of males (n=2). BL 15.0-18.0 mm; BW 6.2-6.6 mm; WE/ED 1.4; PW 4.1-4.5 mm; PL3.7-4.3 mm; EL 10.6-10.7 mm; AL 2.91-3.02 mm.

Female (n=1). Compared with male, the antennae shorter, the eyes smaller and obliquely set, the head and pronotum more clearly punctate, the elytra less clearly punctate, each puncture a little larger, and legs a little shorter and not modified. BL; 13.6 mm, BW 4.3 mm; WE/ED 1.4; PW 3.6 mm; PL 3.2 mm; EL 9.0 mm.

Differential diagnosis. See the key below.

Etymology. The specific name is given in honour of Takashi Higurashi, Yachimata City, Japan, who collected the holotype.

Distribution. Laos.

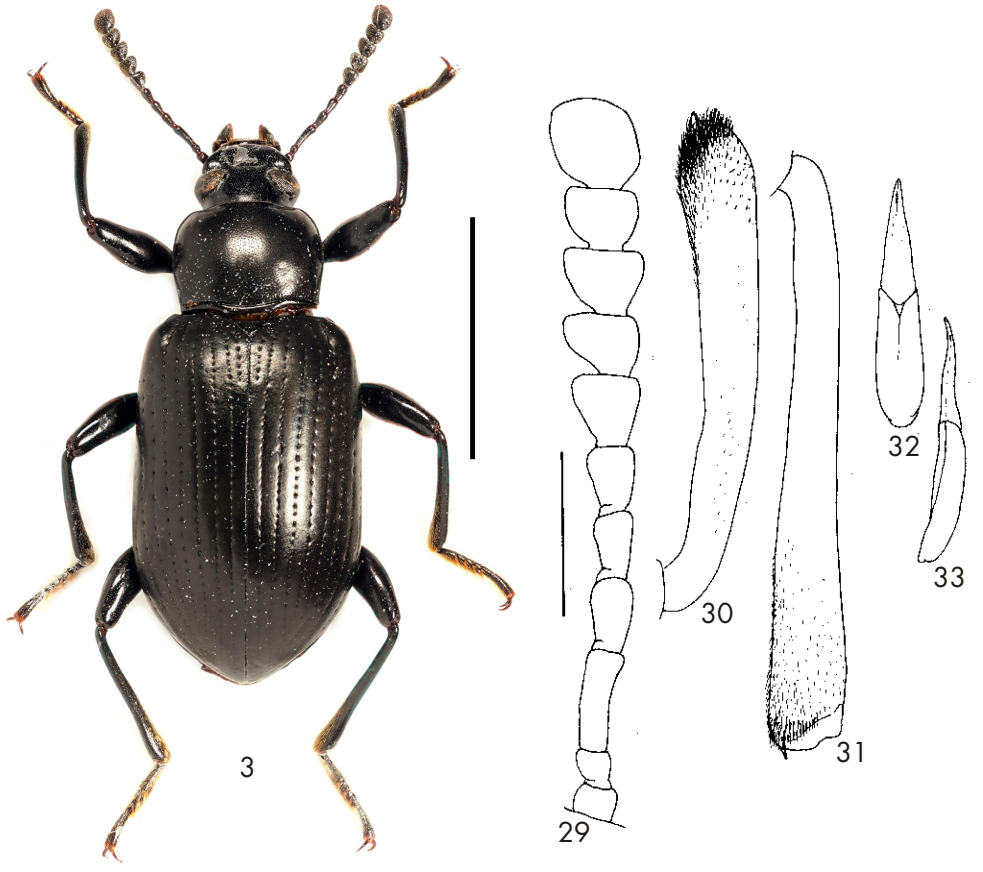
Derosphaerus chiangraiensis sp. nov.

(Figs. 3, 29-33)

Type series. Holotype (♂): "Thailand, Chiang / Rai, Wiang Pa Papo / 27. IV-1. V. 2013 / K. Takahashi leg. // Coll. Masumoto / 2013", (NSMT).

Description of holotype. BL 11.6 mm, BW 4.9 mm (apical 4/9 of elytra). Body elongate subelliptical, convex longitudinally; wholly black, hairs on apico-ventral faces of tibiae and ventral sides of tarsi light brown, those on antennae pale brown; dorsal surface weakly, slightly sericeously shining, six basal antennomeres and legs gently shining, five apical antennomeres rather matt; body surface almost glabrous, five apical antennomeres densely, finely haired, apico-ventral parts of tibiae finely haired, ventral sides of tarsi densely with short setaceous hairs.

Head widely subhexagonal, gently inclined apicad; clypeus widely hexagonal with basal part long and weakly depressed and apical part short, rather transversely impressed in basal 1/4, straight truncate and bent ventrad at apex, with whole surface microsculptured and punctate, the punctures in baso-medial part often fused with one another and forming rugulose, and those in apical parts minute and closely set; clypeo-genal borders finely impressed; fronto-clypeal border nearly straight impressed; genae dilated and weakly raised antero-laterad, depressed before eyes, closely, minutely punctate; frons gently elevated posteriad but somewhat flattened, fairly closely punctate. Eyes rather large, clearly bordered from head by grooves, particularly in posterior parts, rather strongly convex laterad, slightly obliquely, roundly inlaid into head, WE/ED 1.3. Antennae subclavate, antennomere XI nearly subquadrate and its tip easily reaching to basal parts of elytra, LAI-XI: 0.40, 0.18, 0.60, 0.30, 0.28, 0.29, 0.30, 0.32, 0.31, 0.33, 0.38.



Figs. 3, 29-33. *Derosphaerus chiangraiensis* sp. nov., holotype, ♂: 3- habitus; 29- antenna; 30- protibia; 31- metatibia; 32- aedeagus (dorsal view); 33- ditto (lateral view). Scales: 5.0 mm for 3; 1.0 mm for 29-33.

Ultimate maxillary palpomere gently dilated, apical side oblique. Mentum subhexagonal, strongly raised in antero-median part, weakly microsculptured, sparsely haired. Gula subparabolic, weakly convex, finely microsculptured, impressed in apical part on both sides.

Pronotum subquadrate with rounded sides, PW/PL 1.3 (PL 2.5 mm, PW 3.3 mm), wholly weakly microsculptured; apex slightly produced in medial part, margined and weakly sinuate in lateral parts, the margin tapering laterad; base slightly produced in medial part, weakly sinuate on both sides, bordered by rather deep impression, the marginal part rather thick and sparsely scattered with minute punctures; sides gently declined to lateral margins, which are bordered by fine, sparsely punctate grooves, and wholly visible from above; front angles rounded; hind angles subrectangular; disc moderately convex, weakly microsculptured, scattered with minute punctures. Scutellum slightly wide-based triangular with feebly rounded sides, weakly microsculptured, sparsely scattered with minute punctures.

Elytra subelliptical, EL/EW 1.6 (EL 8.1 mm, EW 5.0 mm); EL/PL 3.3, EW/PW 1.5, widest at apical 4/9; dorsum moderately convex, highest at basal 4/9; disc with rows of punctures,

the punctures mostly connected with fine striae, rarely the striae faded out and punctures isolated, those in interior portions small and closely set, those in lateral portions larger and remoted with each other, and those in apical portions minute and closely set; intervals feebly convex, weakly microsculptured, shallowly, minutely punctate, sparsely, transversely, and very weakly impressed; sides roundly and steeply declined to lateral margins, which are bordered by sparsely punctate-grooves, and hardly visible from above; humeri gently swollen; apical portions weakly, roundly produced.

Prosternum moderate in size, weakly microsculptured and wrinkled, almost wholly clothed with fine hairs; apex weakly, roundly indented, margined in lateral parts; anterior part gently convex in medial part, weakly raised posteriad; medial part (inter-coxal space) widely grooved, gently raised on both sides, minutely punctate; posterior part gently inclined; prosternal process semicircular, gently depressed, rather thickly, roundly margined, microsculptured, irregularly rugulose and scattered with haired punctures. Mesoventrite short; anterior part depressed, weakly ridged on midline, microsculptured, ruguloso-punctate, each puncture with a minute hair; medial part concave and microsculptured; posterior part rather strongly raised in V-shape along the borders of mesocoxae (opposite to prosternal process), the raise finely microsculptured, weakly rugulose and scattered with minute punctures, each with a fine hair. Metaventrite medium-sized, wholly, weakly microsculptured; anterior part slightly raised, transversely impressed; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, weakly depressed in postero-medial part, rather obliquely rugulose, sparsely minutely punctate; lateral parts more noticeably microsculptured. Abdomen rather short and gently convex in median portion, wholly weakly microsculptured; ventrite I and basal parts of II and III longitudinally wrinkled and weakly punctate; apical parts of II and III rather closely finely punctate; IV and V fairly closely, minutely punctate; V with simply rounded apex.

Femora stout and subclavate, smooth but minutely punctate. Tibiae (see Figs. 30 and 31) more or less slightly thicker apicad, closely, minutely punctate and haired; protibiae curved ventrad in middle. Tarsi weakly dilated to each apex, densely, setaceously haired beneath, LTB-A: 0.21, 0.13, 0.14, 0.13, 0.89; 0.39, 0.19, 0.17, 0.16, 0.91; 0.76, 0.27, 0.25, 1.03.

Aedeagus (see Figs. 32 and 33) short subfusiform, AL 1.37 mm, AW 0.30 mm, AbL 0.76 mm, AaL 0.65 mm, AaL/AL 0.47; basale weakly curved in lateral view; apicale flattened in basal 3/5, then weakly curved ventrad, with acute apices.

Differential diagnosis. See the key below.

Etymology. The specific name is given after the place where the holotype was collected.

Distribution. Thailand.

Derosphaerus wiangpapaoensis sp. nov.

(Figs. 4, 34-38)

Type series. Holotype (♂): "Thailand, Chiang Rai, / Wiang Pa Papo / 20-29. V. 2017 / K. Takahashi leg. // Coll. Masumoto / 2017", (NSMT). Paratypes: (1 ♂): "Thailand, Mae Hong / Son, Pang Mapha, 9-12. V 2013, K. Takahashi leg. // Coll. Masumoto / 2013", (NHML); (1 ♂): "[Thailand] / Chiang Mai / Mae Rim, Mae Sa / 27-IV-2000 / K. OKAJIMA leg. // Coll. Masumoto / 2002", (Khon Kaen University); (1 ♀): "Wiang Pa Pao, Chiang / Rai, Thailand, 5-10. VI. / 2016, K. Takahashi leg. // Coll. Masumoto / 2016", (NSMT).

Description of holotype. BL 11.9 mm, BW 4.6 mm (apical 4/9 of elytra). Body elongate,

subovate, convex posteriad; almost wholly black, hairs on apico-ventral faces of tibiae pale brown, those on ventral sides of tarsi a little more brownish, and those on antennae paler; dorsal surface slightly shining, six basal antennomeres and legs gently shining, five apical antennomeres rather matt; body surface almost glabrous, five apical antennomeres densely, finely haired, apico-ventral parts of tibiae finely haired, ventral sides of tarsi densely with short setaceous hairs.

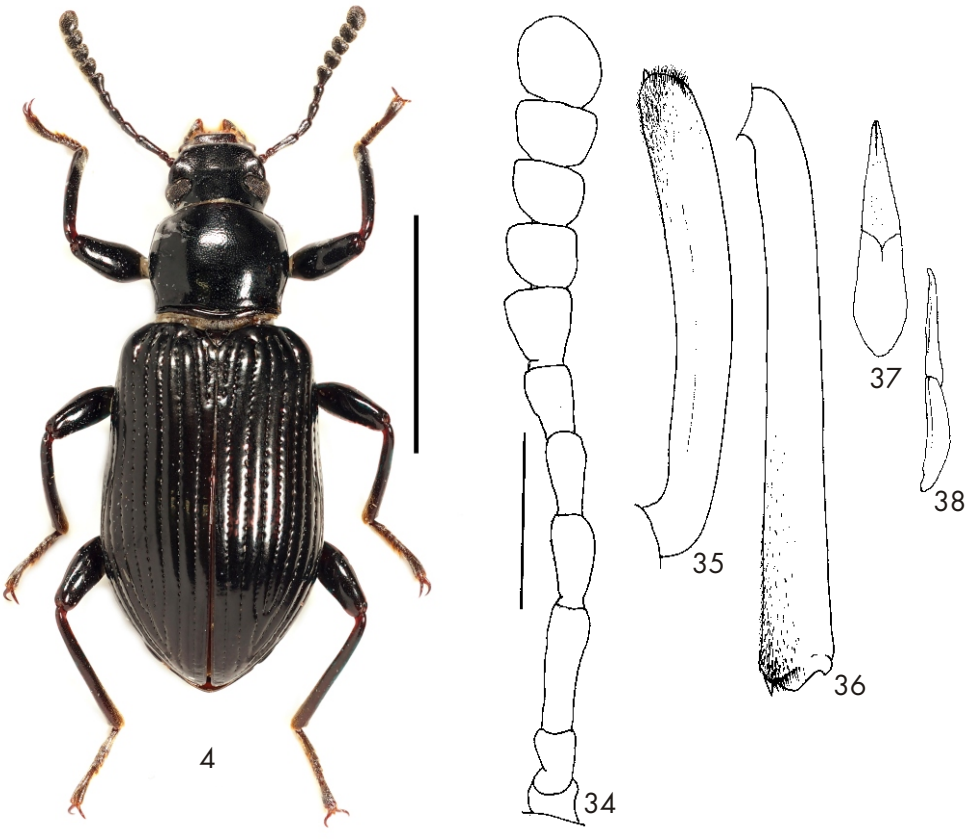
Head subhexagonal, gently inclined apicad; clypeus widely hexagonal with basal part long and weakly depressed, and apical part short, gently truncate and bent ventrad at apex, whole surface weakly microsculptured and punctate, the punctures round, becoming smaller and closer apicad; clypeo-genal borders deeply impressed in basal parts, the impression becoming weaker apicad; fronto-clypeal border nearly straight impressed; genae dilated and gently raised antero-laterad, depressed before eyes, closely, minutely punctate; frons rather steeply elevated posteriad, fairly closely punctate, the punctures smaller than those on clypeus. Eyes gently subovate, clearly bordered by grooves from head, particularly in posterior parts, gently convex laterad, obliquely, roundly inlaid into head, WE/ED 1.5. Antennae subclavate, antennomere XI nearly subquadrate and its tip reaching to basal 1/6 of elytra, LAI-XI: 0.45, 0.12, 0.59, 0.38, 0.39, 0.32, 0.35, 0.33, 0.31, 0.31, 0.51.

Ultimate maxillary palpomere gently dilated, apical side oblique. Mentum inverted short-trapezoidal, strongly raised longitudinally in antero-median part, depressed in posterior parts on both sides, weakly microsculptured, coarsely rugoso-punctate. Gula triangular, weakly convex, finely microsculptured, impressed in apical part on both sides.

Pronotum subquadrate with rounded sides, PW/PL 1.3 (PL 2.4 mm PW 3.0 mm), wholly very weakly microsculptured; apex weakly produced and densely, finely fringed and margined, the margin tapering in lateral parts; base produced in medial part, weakly sinuate on both sides, bordered by rather deep impression, the marginal part rather thick and sparsely scattered with minute punctures; sides gently declined to lateral margins, which are bordered by fine, sparsely punctate grooves, and wholly visible from above; front angles rounded; hind angles slightly acute; disc gently convex, very weakly microsculptured, microscopically aciculate. Scutellum triangular, feebly convex, very weakly microsculptured, weakly impressed at middle on both sides.

Elytra subelliptical, EL/EW 1.7 (EL 7.6 mm, EW 4.6 mm); EL/PL 2.9, EW/PW 1.5, widest at apical 4/9; dorsum rather strongly convex, highest at basal 1/3; disc punctate-striate, the punctures notching intervals, those in interior portions small and closely set, those in lateral portions larger, and those in apical portions minute and closely set; intervals well convex, very slightly microsculptured, sparsely shallowly, minutely punctate; sides roundly and steeply declined to lateral margins, which are bordered by sparse punctate-grooves, and hardly visible from above; humeri gently swollen; apical portions weakly, roundly produced.

Prosternum moderate in size, weakly microsculptured and sparsely punctate; apex weakly, roundly indented; anterior part gently convex in medial part, weakly raised posteriad, depressed in lateral parts before procoxal areas, irregularly punctate; medial part (inter-coxal space) wide and rather flat, gently raised on both sides, minutely punctate; posterior part rather steeply inclined; prosternal process semicircular, gently depressed, rather thickly, roundly margined, microsculptured, scattered with haired punctures. Mesoventrite short; anterior part depressed, weakly, finely ridged on midline, weakly microsculptured, closely, finely punctate; medial part transversely convex and weakly microsculptured, depressed posteriad; posterior part gradually raised in somewhat V-shape along the borders of mesocoxae (opposite to prosternal process), the raise finely microsculptured, weakly rugulose and scattered with minute punctures.



Figs. 4, 34-38. *Derosphaerus wiangpapaoensis* sp. nov., holotype, ♂: 4- habitus; 34- antenna; 35- protibia; 36- metatibia; 37- aedeagus (dorsal view); 38- ditto (lateral view). Scales: 5.0 mm for 4; 1.0 mm for 34-38.

Metaventrite medium-sized, wholly, weakly microsculptured; anterior part slightly elevated, irregularly, transversely impressed; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, weakly depressed in postero-medial part, weakly, rather obliquely rugulose, sparsely minutely punctate; lateral parts more noticeably punctate. Abdomen rather short and gently convex in median portion, wholly weakly microsculptured; ventrite I and basal parts of II and III longitudinally wrinkled and minutely punctate; apical parts of II and III rather closely finely punctate; IV weakly, indistinctly punctate; V fairly closely, minutely punctate, each puncture with a minute hair, with apex simply rounded.

Femora stout and subclavate, smooth but minutely punctate; profemora with a haired part at basal 2/5 on interior face. Tibiae (see Figs. 35 and 36) closely, minutely punctate; protibiae gently curved ventrad. Tarsi haired, particularly densely, setaceously haired beneath, LTB-A: 0.16, 0.12, 0.11, 0.13, 0.79; 0.35, 0.18, 0.16, 0.14, 0.80; 0.61, 0.29, 0.24, 0.90.

Aedeagus (see Figs. 37 and 38) short subfusiform, weakly curved in lateral view, AL1.26 mm, AW 0.24 mm, AbL 0.61 mm, AaL 0.60 mm, AaL/AL 0.47; basale weakly curved in lateral view; apicale tapering apicad, with acute apices.

Variation of males (n=3). BL 11.9-12.0 mm; BW 4.6-4.7 mm; WE/WD 1.52; PW 3.0-3.3 mm; PL 2.4-2.6 mm; EL 7.6-8.3 mm; AL 1.26 mm.

Female (n=1). Compared to male, the antennae shorter, the eyes smaller, and legs a little shorter and not modified. BL 11.8 mm; BW 4.8 mm; WE/ED 1.6; PW 3.3 mm, PL 2.6 mm; EL 7.7 mm.

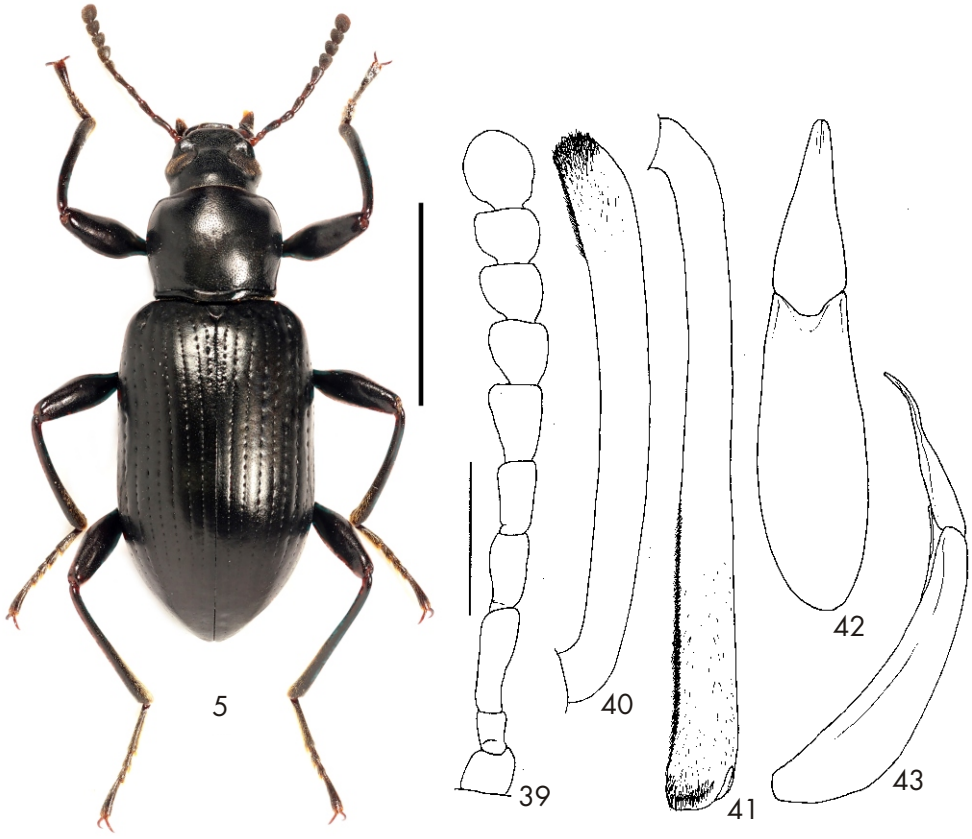
Etymology. The specific name is given after the place where the holotype was collected.

Differential diagnosis. See the key below.

Distribution. Thailand.

Derosphaerus crassicrus Fairmaire, 1903
(Figs. 5, 39-43)

Derosphaerus crassicrus Fairmaire, 1903: 14 (Phue Son, Annam).



Figs. 5, 39-43. *Derosphaerus crassicrus* Fairmaire, 1903, ♂: 5- habitus; 39- antenna; 40- protibia; 41- metatibia; 42- aedeagus (dorsal view); 43- ditto (lateral view). Scales: 5.0 mm for 5; 1.0 mm for 39-43.

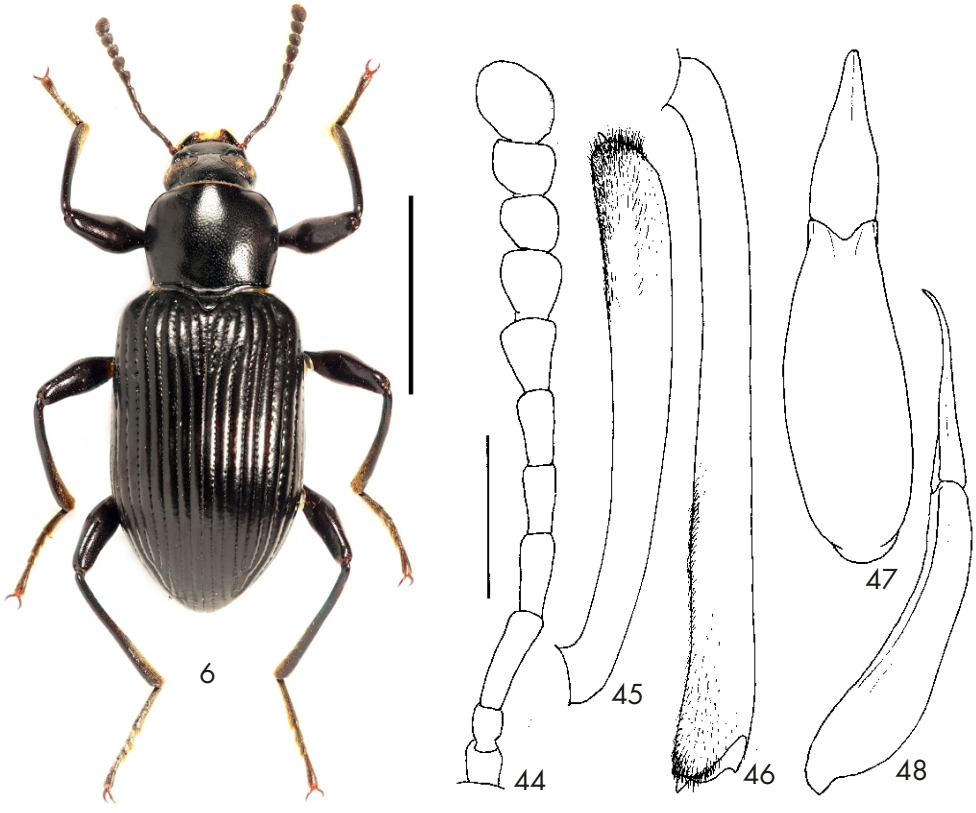
Specimens examined: 1 ♂, "Phuping Palace (1200 m) / Chiang Mai Prov., / N. Thailand / 6. V. 1984 / M. Nishimura leg. // Coll. Masumoto / 2004"; 1 ♂, "Mon-Angget / near Chiang Mai / North THAILAND / 11-V-1990" / K. Masumoto leg. // Coll. Masumoto / 2004"; 5 ♂♂, "Thailand, Chiang / Rai, Wiang Pa Pao, / 27. IV.-1. V. 2013 / K.Takahashi leg. // Coll. Masumoto / 2013"; 2 ♂♂, "Thailand, Chiang / Rai, Wiang Pa Pao, / 20. IV.-1. V. 2017 / K. Takahashi leg. // Coll. Masumoto / 2017"; 8 ♀♀, "Thailand, Chiang / Rai, Wiang Pa Pao, / 27. IV.-1. V. 2013 / K.Takahashi leg. // Coll. Masumoto / 2013".

Distribution. Vietnam, Thailand (new record).

***Derosphaerus subsulcatus* (Fairmaire, 1893)**

(Figs. 6, 44-48)

Encyalesthus subsulcatus Fairmaire, 1893: 318 (Haut Tonkin).
Derosphaerus subsulcatus: Kaszab, 1987: 45 (nec Fairmaire, 1893).



Figs. 6, 44-48. *Derosphaerus subsulcatus* (Fairmaire, 1893), ♂: 6- habitus; 44- antenna; 45- protibia; 46- metatibia; 47- aedeagus (dorsal view); 48- ditto (lateral view). Scales: 5.0 mm for 6; 1.0 mm for 44-48.

Specimens examined: 1 ♂, "Mon-Angget / near Chiang Mai / North THAILAND / 11-V-1990" / K. Masumoto leg. // Coll. Masumoto / 2004"; 1 ♂, "Doi Suthep / Chiang Mai / N. Thailand / 14-V-1998 / K. Masumoto leg. // Coll. Masumoto / 2004"; 2 ♂♂,Thailand, Chiang / Rai, Wiang Pa Pao, / 13. IX. 2012 / K.Takahashi leg. // Coll. Masumoto / 2013"; 1 ♂, "Thailand, Chiang Rai / Wiang Pa Pao, / 27. V.-1. VI. 2013 / K.Takahashi leg. // Coll. Masumoto / 2013"; 1 ♂, "NE Laos / Hua Phan prov., / MT. PHU PANE / 1200-1900 / m, 18. V-2.VI 2012. 20°12́N 103 ° 59́2 E / St. JAKL / and Lao collectors

lgt. // Coll. Masumoto / 2013"; 1 ♀, Doi Suthep / Chiang Mai / N. Thailand / 14-V-1998" / K. Masumoto leg. // Coll. Masumoto / 2004"; 2 ♀♀, "Thailand, Chiang / Rai, Wiang Pa Pao, / 27. IV.-1. V. 2013 / K.Takahashi leg. // Coll. Masumoto / 2013"; 7 ♀♀, Thailand, Chiang / Rai, Wiang Pa Pao, / 13. IX. 2012 / K.Takahashi leg. // Coll. Masumoto / 2013"; 1 ♀, Thailand, Chiang Rai, / Wiang Pa Pao, / 14. IX. 2012 / K.Takahashi leg. // Coll. Masumoto / 2013"; 1 ♀, "Laos / HUA PHAN, Mt. Phu Pane / 900-1600 m alt. / 20°12′ N 103°59′ E / 10-21 VI 2010. St. JAKL / and Lao collectors lgt. // Coll. Masumoto / 2013".

Distribution. Vietnam, Thailand (New record), Laos (New record).

Derosphaerus aeruginosus (Fabricius, 1787)

Helops aeruginosus Fabricius, 1787: 213 (Cap. Bon. Spei.).
Encyalesthus aeneus Pic, 1929: 30 (Borneo) [syn.].
Derosphaerus aeruginosus: Schawaller, 2011 [nec Fabricius, 1787].

Specimen examined. Up until now, we were not able to find the specimen of this species collected in Thailand and Laos. See the notes below.

Distribution. Nepal, Northeast India, Laos, Thailand, West Malaysia, Borneo, Sumatra, Java.

Notes. This species was originally described from "Cap. Bon. Spei.", and recorded from "Siam" by Gebien (1941) in the "Katalog der Tenebrioniden". In the recent study by Schawaller (2011), this species was not recorded from Thailand. Widely occurring in Southeast Asia, the occurrence in Thailand is thus likely to be expected in the future.

Derosphaerus pici Kaszab, 1987

(Figs. 7, 49-51)

Derosphaeus pici Kaszab, 1987: 45.
Encyalesthus laosensis Pic, 1923: 31 (Laos). [homonym].

Specimens examined: 1 ♀, Lanpang, Hang Chat, Doi Pa Muang, 18. V. 1985, M. Sawai leg.; 1 ♀, Chiang Mai, Chiang Dao, 1989; 1 ♀, Chiang Mai, Mon-Angget, 31. V. 1990, K. Masumoto leg.; 1 ♀, Chulaphorn Dam, 11. V. 2011, K. Masumoto & K. Takahashi leg.; 1 ♀, Khon Kaen, Nanong Tum, 10. V. 2011, K. Masumoto & K. Takahashi leg.; 1 ♂, Pang Mapha, 18-19. V. 2011, K. Masumoto & K. Takahashi leg.; 1 ♂, Chiang Mai, Chiang Dao, 12. V. 2012, K. Masumoto & K. Takahashi leg.; 3 ♂♂, 4 ♀♀, Mae Hong Son, Pang Mapha, 9-12. V. 2013, K. Takahashi leg.; 2 ♂♂, 1 ♀, Chiang Mai, Chiang Dao Hill Resort, 3-7. V. 2013, K. Takahashi leg.; 4 ♂♂, 1 ♀, ditto, 30. V.-2. VI. 2017, K. Takahashi leg.; 1 ♂, 1 ♀,Chiang Mai, Mae Rim, Ban Nong Hoi Kao, 14-16. V. 2015, K. Takahashi leg.; 1 ♀, ditto, 24-26. V. 2014, K. Takahashi leg.; 1 ♀, Chiang Mai, Doi Saket, 22-25. V. 2015, K. Takahashi leg.; 1 ♀, Chiang Mai,Wiang Pa Pao, 20-29. V. 2017, K. Takahashi leg. : 1 ♀, Xieng Khouang, Hot Spring, 29. IV. 2015, T. Higurashi leg.; 1 ♀, ditto, 29-30. IV. 2018, K. Akita leg.; 2 ♂♂, ditto, 28-30. IV. 2018, H. Sekine leg.; 1 ♂, ditto, 8-13. VI. 2012, T. Yoro leg.; 1 ♀, Ban Houay Suon, E-Ban Ban 31 km, 30. IV. 2010, H. Wakahara leg.; 1 ♂, Bolikhamsai, Lak Sao (alt. 525 m), 2-3. V. 2016, H. Akiyama leg.

Distribution. Laos, Thailand (New record).

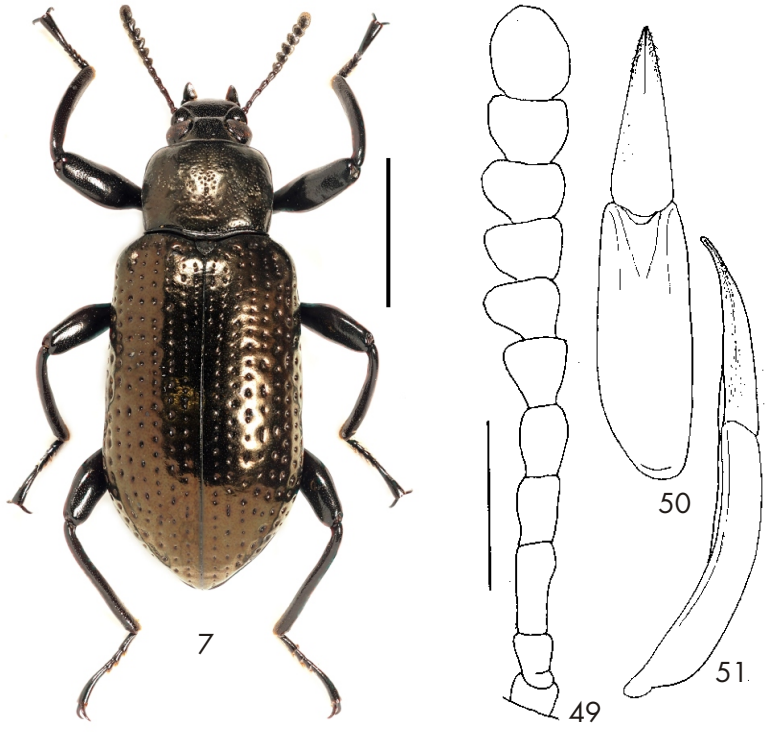
Derosphaerus doisuthepensis sp. nov.

(Figs. 8, 52-56)

Type series. Holotype (♂): "Doi Suthep / Thailand / 31 – III -10 V 1977 / Y. Miyake leg. // Coll. Masumoto / 2004", (NSMT).

Description of holotype. BL 11.6 mm, BW 4.4 mm (apical 3/5 of elytra). Body elongated subovate, convex longitudinally; brownish black, posterior portion of head, pronotum with bluish

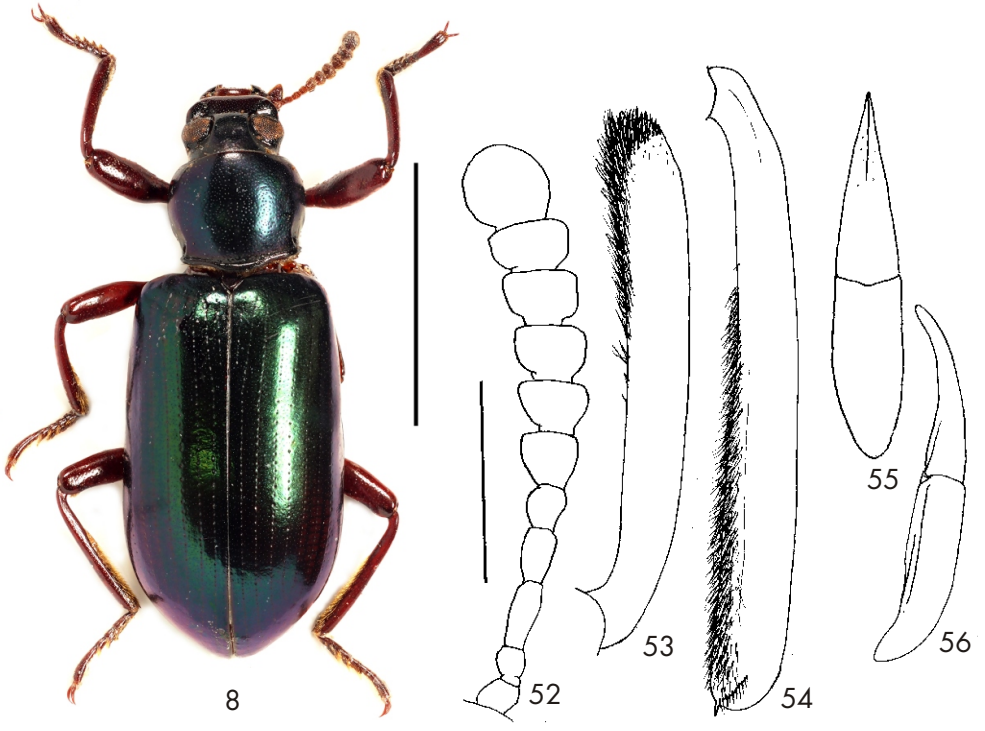
tinge, elytra with dark greenish lustre, four basal antennomeres and legs dark brown; hairs on apico-ventral faces of tibiae and ventral sides brownish yellow; anterior portion of head, scutellum, elytra and legs moderately shining, posterior portion of head and pronotum weakly sericeously shining, six basal antennomeres weakly shining, five apical antennomeres rather mat; body surface almost glabrous, seven apical antennomeres densely, finely haired, intero-apical parts of tibiae clothed with rather fine hairs, ventral sides of tarsi densely clothed with setaceous hairs.



Figs. 7, 49-51. *Derosphaerus pici* Kaszab, 1987, ♂: 7- habitus; 49- antenna; 50- aedeagus (dorsal view); 51- ditto (lateral view). Scales: 5.0 mm for 7; 1.0 mm for 49-51.

Head subhexagonal, gently inclined apicad; clypeus widely hexagonal with basal part long and anterior part short, feebly convex in medial part, gently inclined in major basal part, steeply inclined in anterior part, and bent ventrad and truncate at apex, weakly microsculptured, rather closely punctate, the punctures fairly small and mostly round; clypeo-genal borders obliquely, finely impressed; fronto-clypeal border finely, straight impressed; genae gently dilated and weakly raised obliquely exteriad, weakly depressed before eyes, weakly microsculptured, rather closely, minutely punctate; frons subquadrately elevated, weakly depressed in posterior part, weakly microsculptured, fairly closely punctate, the punctures smaller and shallower than those on clypeus. Eyes subreniform in lateral view, bordered from head by grooves which become deeper in interior parts, gently convex laterad and obliquely, roundly inlaid into head in dorsal view, WE/ED 1.1. Antennae subclavate and rather short, antennomere XI nearly round and its tip reaching to the apical 2/5 of pronotum, LAI-XI: 0.21, 0.07, 0.30, 0.26, 0.24, 0.22, 0.26, 0.26, 0.26, 0.24, 0.30.

Ultimate maxillary palpomere gently dilated. Mentum semicircular, strongly raised anteromedially on median line, inclined on both sides, microweakly sculptured, sparsely finely haired, micro-granulate in anterior part. Gula subtriangular with the top angle not acute, slightly convex, microsculptured, sparsely punctate, transversely weakly rugulose.



Figs. 8, 52-56. *Derosphaerus doisuthepensis* sp. nov., holotype, ♂: 8- habitus; 52- antenna; 53- protibia; 54- metatibia; 55- aedeagus (dorsal view); 56- ditto (lateral view). Scales: 5.0 mm for 8; 1.0 mm for 52-56.

Pronotum subquadrate with rounded sides, which are rather noticeably sinuous near base, PW/PL 1.2 (PL 2.3 mm, PW 2.7 mm), weakly microsculptured; apex feebly produced, finely ridged in lateral parts; base weakly produced in medial part, slightly sinuate on both sides, clearly bordered by an impression, exterior marginal part raised and scattered with minute punctures, and fringed with fine short hairs; sides steeply, roundly declined to lateral margins, which envelope the ventral side; postero-lateral portions suppressed from both sides, and with a deep comma-shaped impression close to the hind angle and briefly ridged above it; front angles nearly rounded; hind angles rather acute; disc rather strongly, subhemispherically convex, weakly microsculptured, fairly closely punctate, the punctures mostly round and small. Scutellum sublinguiform, slightly elevated, nearly flat, microsculptured, scattered with minute punctures.

Elytra elongated subovate, EL/EW 1.7 (EL 7.4 mm, EW 4.4 mm); EL/PL 2.7, EW/PW 1.9, widest at apical 3/5; dorsum moderately convex, highest at basal 3/8; disc rows of small punctures, the punctures in interior part finely striated, those in medial portions remote with each other and mostly not striated, those in lateral portions becoming larger and much more remote with each other, and those in apical portions becoming minute and closer with each other;

intervals nearly flat, microsculptured, scattered with minutely punctate, often weakly wrinkled and aciculate; sides roundly and steeply declined to lateral margins, which are bordered by sparsely punctate-grooves, and visible in medial portions from above (invisible in humeral and posterior portions due to convexities); humeri gently swollen; apical portions rounded.

Prosternum rather short; apex widely, weakly, roundly indented, fringed with fine hairs, weakly margined in medial part; anterior part microsculptured, weakly transversely rugulose, rather steeply raised posteriad; medial part (inter-coxal space) rather wide, gently raised longitudinally, weakly microsculptured, sparsely, minutely punctate, with longitudinal impression in lateral parts; prosternal process semicircular, roundly, gently depressed, microsculptured and irregularly impressed. Mesoventrite short; anterior part depressed, weakly ridged in basal half on midline, fairly closely micro-granulate; medial part rather steeply raised, sparsely minutely punctate; posterior part somewhat thick V-shapely ridged at the middle (opposite to prosternal process), rather smooth but sparsely minutely punctate. Metaventrite medium-sized, wholly, weakly microsculptured; anterior part convex, weakly irregularly wrinkled, bordered from medial part by a transverse depression; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, minutely punctate, weakly, transversely rugulose; lateral parts more noticeably scattered with larger shallow punctures. Abdominal parts lost in the holotype.

Femora short-subclavate, smooth but fairly closely, finely punctate. Tibiae (see Figs. 53 and 54) closely, minutely punctate; protibiae weakly gouged on whole ventral surface, haired in apical halves on ventral sides, the hairs in medial part fine and short, those becoming thicker, denser and subsetaceous apicad; mesotibiae weakly gouged on whole ventral surface, and densely haired in apico-ventral halves; metatibiae weakly gouged on whole interior surface, which is noticeably densely haired in apico-interior 2/3. Tarsi with ventral faces densely, setaceously haired, LTB-A: 0.14, 0.11, 0.10, 0.12, 0.78; 0.35, 0.20, 0.17, 0.15, 0.84; 0.55, 0.24, 0.22, 0.88.

Aedeagus (see Figs. 55 and 56) subfusiform, weakly curved in lateral view, AL1.79 mm, AW 0.32 mm, AbL 0.84 mm, AaL 0.96 mm, AaL/AL 0.54; basale subelliptical, gently curved in lateral view; apicale moderately curved in lateral view, gently tapering apicad, with acute apices.

Female. Unknown.

Differential diagnosis. See the key below.

Etymology. The specific name is given after the place where the holotype was collected.

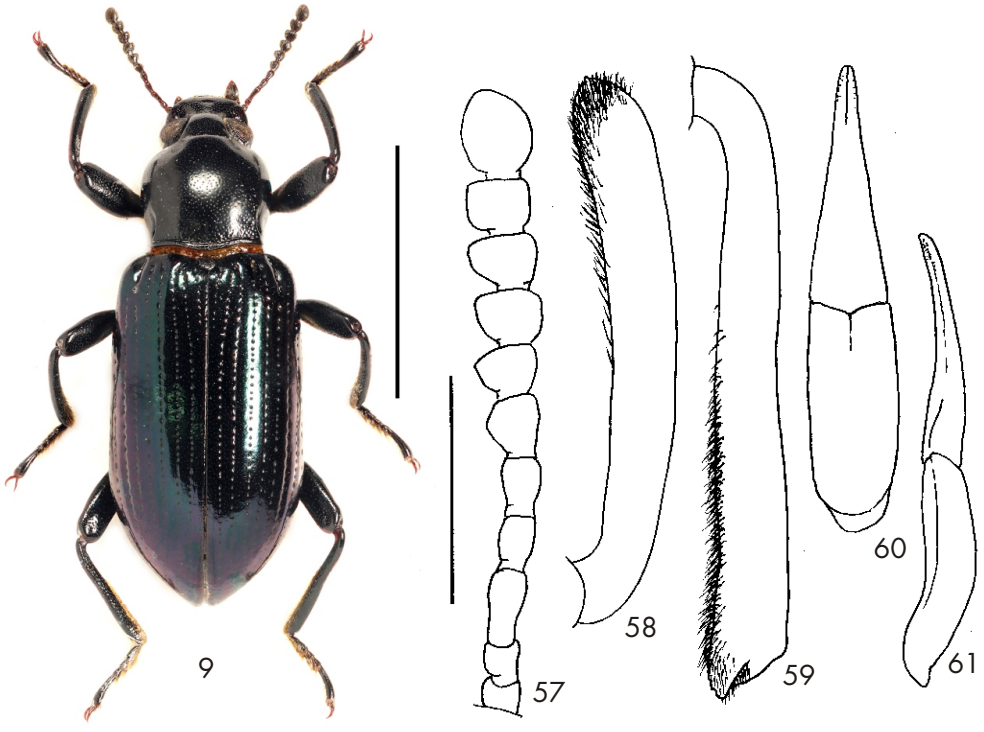
Distribution. Thailand.

***Derosphaerus huaphanensis* sp. nov.**

(Figs. 9, 57-61)

Type series. Holotype (♂): "NE Laos, Hua Phan, / Mt. Pu Pane, / 10-21. VI. 2010, / St. Jakl & natives lgt. // Coll. Masumoto / 2017", (NSMT). Paratypes: (2 ♂♂1 ♀): "Laos / Huaphane prov., Mt. PhuPane, 1200-1900 m, / Ban Saluel v. env., 1-20 V / 2014, 20°12′ N 103°59′ / E, St. Jakl and Lao. // Coll. Masumoto / 2015//"; (5 ♂♂, 1 ♀):" LAOS / NE Laos, Hua Phan prov. / MT PHU PANE, 1200-1900 / m, 18. V,-2. VI, 2012, / 20°12′ N 103°59′ E, St. Jakl / and Lao Collectors lgt. // Coll. Masumoto / 2021 //"; (1 ♀): " LAOS / Hua Phane, / Mt. Phu Pane, Ban Saluel / v. env. alt. 1200-1900 m / 20°12′ N 103°59′ E, / 26 IV-10 VI, 2013 / St. Jakl and Lao / collectors leg. // Coll. Masumoto / 2013//"; (1 ♀): " LAOS / HUA

PHANE, / Mt. Phu Pane / alt. 1200-1900 m / 18. V-2 VI, 2012 // St. Jakl and Lao / collectors lgt. // Coll. Masumoto / 2013 //"; (1 ♂): "Ban Nong Kan / near Pakson LAOS / N15/21/50 E106/23/11 / 6-7/7/2011 alt. 1200m / Takeshi Yoro leg. // K. AKITA / Collection / KAC 83807". (Temporarily, all the paratypes will be deposited in NSMT, but shared and preserved in some major museums in Europe, such as the Natural History Museum, London, and also in some local museums in Japan in future).



Figs. 9, 57-61. *Derosphaerus huaphanensis* sp. nov., holotype, ♂: 9- habitus; 57- antenna; 58- protibia; 59- metatibia; 60- aedeagus (dorsal view); 61- ditto (lateral view). Scales: 5.0 mm for 9; 1.0 mm for 57-61.

Description of holotype. BL 10.5 mm, BW 4.0 mm (apical 1/3 of elytra). Body elongate subelliptical, strongly convex longitudinally, obviously constricted at the border of fore and hind bodies; almost black, anterior 1/4 of elytra with bluish tinge, hairs on apico-ventral faces of tibiae and ventral sides of tarsi pale brown; head, pronotum and scutellum weakly shining, five basal antennomeres, elytra, major parts of legs moderately shining; body surface almost glabrous, six apical antennomeres densely finely haired, apico-ventral parts of tibiae finely haired, ventral sides of tarsi densely with short setaceous hairs.

Head somewhat hexagonal, gently inclined apicad, microsculptured; clypeus subhexagonal with basal part long and apical part short, weakly impressed at apical 1/3, widely truncate at apex, closely punctate, the punctures large in basal part and becoming smaller apicad; clypeogenal borders finely impressed with areas around the impressions depressed; fronto-clypeal border nearly straight and impressed; genae gently dilated, weakly raised antero-laterad, depressed in interior parts, closely, finely punctate; frons gently elevated, vaguely depressed in posterior half along median line, rather closely punctate, the punctures in anterior and lateral parts becoming smaller. Eyes subcordate, gently convex laterad, obliquely inlaid into head,

WE/ED 1.4. Antennae subclavate, antennomere XI subovate and its tip reaching to base of pronotum, LAI-XI: 0.17, 0.11, 0.29, 0.16, 0.14, 0.17, 0.21, 0.23, 0.21, 0.23, 0.30.

Ultimate maxillary palpomere fairly large and subsecuriform. Mentum inverted subquadrate, front obvious wider than base triangular, strongly raised on median line with rather sharply pointed near apex, sides of the raise steeply inclined, microsculptured and scattered with microscopic punctures. Gula triangular, weakly convex, weakly microsculptured and weakly, transversely aciculated.

Pronotum subquadrate with basal portion fairly noticeably narrowed, PW/PL 1.0 (PL 2.6 mm, PW 2.7 mm), wholly microsculptured; apex gently produced, finely margined, the margin tapering laterad; base widely bisinuate, marginal part bordered by deep impression scattered with minute punctures; sides rather steeply, roundly inclined antero-laterad and enveloping underside; lateral portions weakly ridged in anterior 1/3, and deeply impressed in basal 1/3, the impression subparabolic, and the posterior part becoming deeper; front angles rounded; hind angles fairly acute; disc strongly convex and rather hemispherical, scattered with small punctures. Scutellum semicircular, weakly depressed, slightly convex medially, vaguely, longitudinally impressed on both sides, finely microsculptured, and scattered with minute punctures.

Elytra subovate, EL/EW 1.80 (EL 7.2 mm, EW 4.0 mm); EL/PL 2.8, EW/PW 1.5, widest at apical 1/3; dorsum strongly convex, highest at basal 1/5; disc with rows of punctures, those in interior portions small and closely set, often connected with each other, those in lateral portions larger and sparsely set, and those in apical portions minute and finely striated; intervals slightly convex, weakly microsculptured, scattered with minute punctures and very weakly, transversely wrinkled; sides roundly and steeply declined to lateral margins, which are bordered by punctate-grooves, and visible from above in medial portions; humeri moderately swollen; apical portions weakly produced.

Prosternum moderate in size; apex widely roundly curved, finely margined and pubescent; anterior part gently raised posteriad, microsculptured and weakly rugulose; medial part rather steeply raised, with the summit (inter-coxal space) somewhat rather wide and smooth, weakly microsculptured and slightly concave in median part, raised and scattered with small punctures in lateral parts; posterior part steeply inclined; prosternal process widely linguiform, depressed, microsculptured and irregularly wrinkled. Mesoventrite short; anterior part depressed, microsculptured, irregularly rugulose, with median ridge in anterior half; posterior part strongly depressed medially, then steeply raised in V-shape along the borders of mesocoxae (opposite to prosternal process), the raise microsculptured and scattered with small punctures. Metaventrite medium-sized; apical part weakly convex, microsculptured, ruguloso-punctate, with a transverse groove at basal 1/5; medial and posterior parts gently convex, longitudinally impressed in posterior 3/5, weakly microsculptured, scattered with microscopic punctures; lateral parts microsculptured and scattered with larger punctures than those in other parts. Abdomen rather short and slightly convex in medial portion, wholly microsculptured; ventrite I to III strongly, closely punctate and longitudinally wrinkled; ventrite IV and V closely minutely punctate, apex of ventrite V simply rounded.

Femora short subclavate, closely, minutely, punctate. Tibiae (see Fig. 59 59) more or less slightly thicker apicad and weakly curved ventrad, closely, minutely punctate; apico-ventral parts of tibiae rather densely, setaceously haired. Tarsi weakly dilated to each apex, densely, setaceously haired beneath, LTB-A: 0.19, 0.12, 0.12, 0.11, 0.79; 0.30, 0.21, 0.18, 0.19, 0.80; 0.42, 0.24, 0.20, 0.79.

Aedeagus (see Figs. 60 and 61) subfusiform, AL 1.80mm, AW 0.29 mm; basale AbL 0.82 mm, AaL 0.98 mm, AaL/AL 0.54; apicale gently tapering apicad.

Variation of males (n=7). Colours of elytral basal portions vary by individuals, dark bluish to dark purplish. Ranges of major body portions are as follow: BL 10.3-10.5 mm; BW 4.2-4.3 mm; WE/ED 1.4-1.5; PW 2.6-2.8 mm; PL 2.3-2.7 mm; EL 6.8-7.2 mm; AL 1.69-1.80 mm.

Female (n=3). Compared to male, female with the antennae shorter, the eyes smaller, and the elytra a little less strongly produced apicad. BL 10.1-10.6 mm; BW 3.7-4.0 mm; WE/ED 1.4; PW 2.5-2.6 mm, PL 2.4-2.5 mm, EL 7.1-7.5 mm.

Differential diagnosis. See the key below.

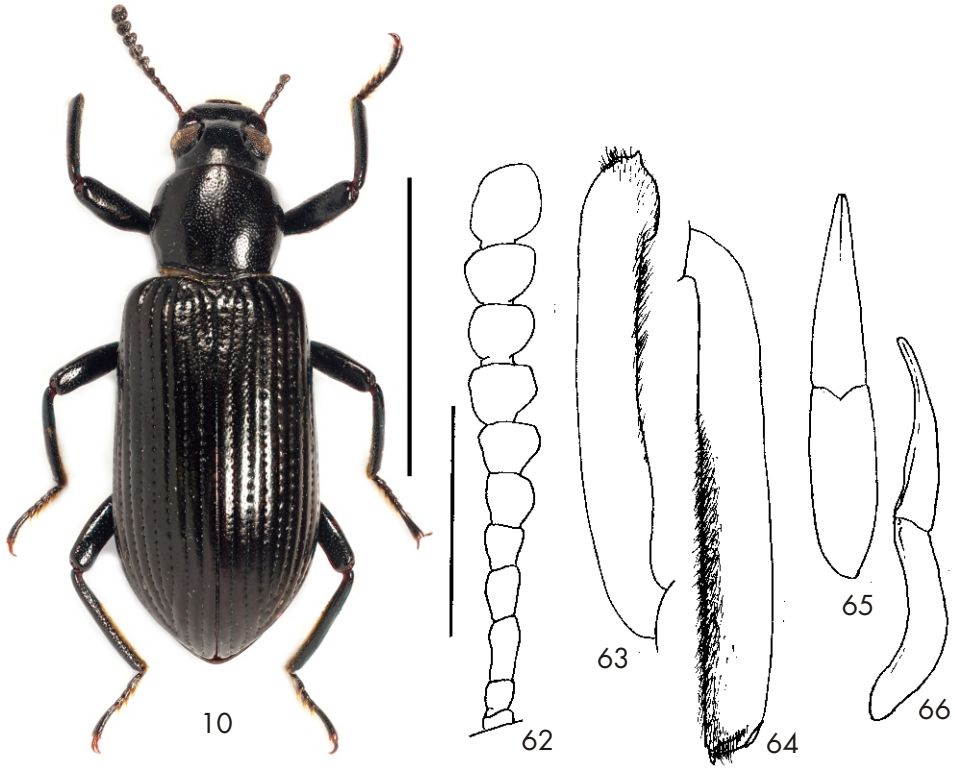
Etymology. The specific name is given after the place where the major type series were collected.

Distribution. Laos.

***Derosphaerus binhanus* (Pic, 1922)**

(Figs. 10, 62-66)

Necrobioides binhanus Pic, 1922: 26 (Tonkin).



Figs. 10, 62-66. *Derosphaerus binhanus* (Pic, 1922), ♂: 10- habitus; 62- antenna; 63- protibia; 64- metatibia; 65- aedeagus (dorsal view); 66- ditto (lateral view). Scales: 5.0 mm for 10; 1.0 mm for 62-66.

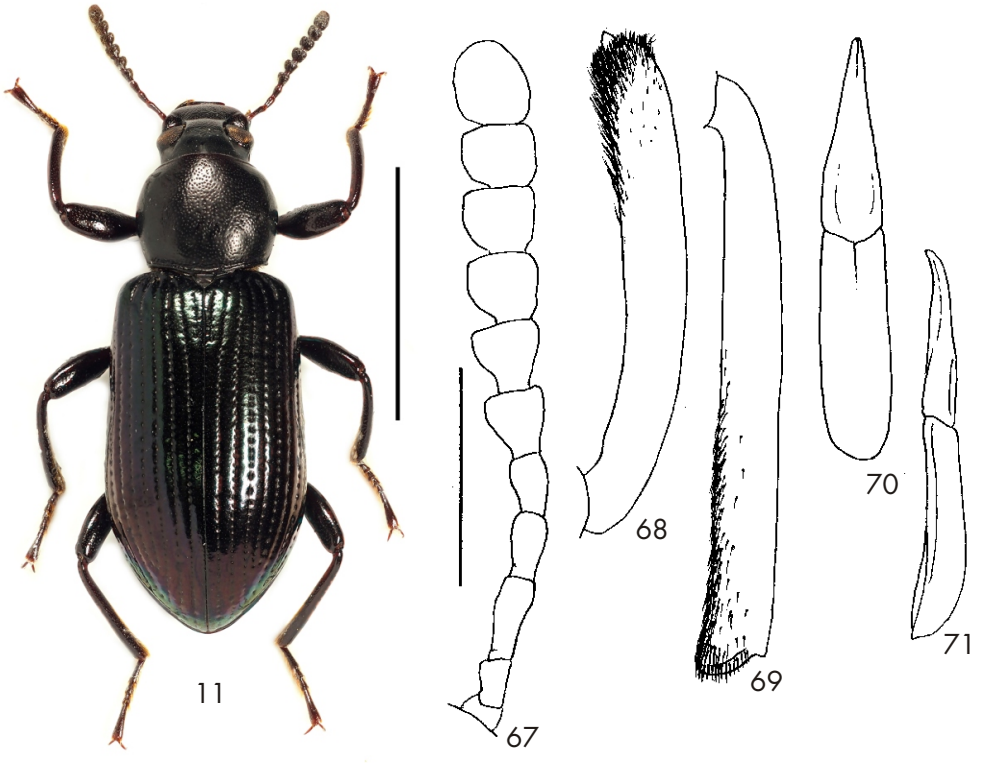
Specimens examined: Thailand: 1 ♂,"THAILAND / CHIANG RAI / Wiang Pa Pao / 20-29. V. 2017 / K. Takahashi leg. // Coll. Masumoto / 2020"; 1 ♀,"Ban Mung, 630 m / Wang Nua vill. / North Thailand / 5-V-1989 / H. Hirasawa leg. // Coll. Masumoto / 2004"; 1 ♀, "Pang Ma Pha, Thailand, 18-19. V. 2011 / K. Masumoto & K. Takahashi leg. // Coll. Masumoto / 2013."

Distribution. Thailand (New Record), Vietnam.

***Derosphaerus akiyamai* sp. nov.**

(Figs. 11, 67-71)

Type series. Holotype (♂): "Thailand, Chiang Mai, / Chiang Dao Hill Resort, / 3-7. V. 2013 / K. Takahashi leg. // Coll. Masumoto / 2013", (NSMT). Paratypes: (1 ♂): "Thailand, Chiang Mai / Wiang Haeng, / 12. V 2012, K. Masumoto & K. Takahashi leg. // Coll. Masumoto / 2014", (NHML); (1 ♀): "Lak Sao (alt. 525m) / N18 11.585, E104.58.300 / Bolikhamsai Prov., C. Laos / 2~3-V-2016, / H. Akiyama leg. // Coll. Masumoto / 2016", (NSMT).



Figs. 11, 67-71. *Derosphaerus akiyamai* sp. nov., holotype, ♂: 11- habitus; 67- antenna; 68- protibia; 69- metatibia; 70- aedeagus (dorsal view); 71- ditto (lateral view). Scales: 5.0 mm for 11; 1.0 mm for 67-71.

Description of holotype. BL 10.8 mm, BW 4.2 mm (apical 4/9 of elytra). Body elongated subelliptical, convex longitudinally; almost black, elytra with very feeble bluish tinge, five apical antennomeres, tarsi slightly brownish, hairs on apico-ventral faces of tibiae and ventral sides of tarsi pale yellowish brown; anterior portion of head, elytra and legs moderately shining, posterior portion of head, pronotum and scutellum weakly, sericeously shining, five basal antennomeres vitreously shining, six apical antennomeres rather matt; body surface almost glabrous, six apical

antennomeres densely, finely haired, apico-ventral parts of tibiae clothed with rather short setaceous hairs, ventral sides of tarsi densely with setaceous hairs.

Head subquadrate, inclined apicad; clypeus widely hexagonal and gently transversely convex, truncate and bent ventrad at apex, weakly microsculptured in postero-medial part, and rather closely punctate, the punctures mostly round, becoming smaller and closer apicad and laterad; clypeo-genal borders deeply impressed; fronto-clypeal border nearly straight; genae gently dilated, weakly depressed, weakly microsculptured, closely, minutely punctate; frons raised posteriad, fairly closely punctate, the punctures smaller than those on clypeus. Eyes thickly comma-shaped, clearly bordered from head by grooves, particularly in posterior parts, gently convex laterad, slightly obliquely, roundly inlaid into head, WE/ED 1.3. Antennae subclavate, antennomere XI subovate and its tip barely reaching to the base of pronotum, LAI-XI: 0.25, 0.15, 0.40, 0.24, 0.23, 0.25, 0.24, 0.28, 0.26, 0.24, 0.38.

Ultimate maxillary palpomere gently dilated, with apical side oblique. Mentum shield-shaped, strongly raised longitudinally antero-medially, strongly depressed in posterior parts on both sides, weakly microsculptured, minutely punctate and haired in lateral parts. Gula subparabolic, weakly convex, minutely microsculptured, finely impressed in apical parts along the borders.

Pronotum subquadrate with rounded sides, 1.2 times as wide as long (2.4 mm in length, 2.8 mm in width), weakly microsculptured; apex feebly produced, finely margined in lateral parts; base gently produced widely in medial part, very slightly sinuate on both sides, bordered by fine impression with small punctures sparsely set, the exterior marginal part microsculptured and sparsely scattered with minute punctures; sides gently, roundly declined to lateral margins, which are completely bordered by fine grooves, and which are barely visible from above; front angles rounded; hind angles obtuse; disc gently, subhemispherically convex, weakly microsculptured, fairly closely, irregularly punctate, the punctures round and small. Scutellum triangular with slightly rounded sides, feebly elevated, weakly microsculptured, scattered with microscopic punctures.

Elytra subelliptical, EL/EW 1.7 (EL 7.2 mm, EW 4.2 mm); EL/PL 3.0, EW/PW 1.5, widest at apical 4/9; dorsum rather strongly convex, highest at basal 1/3; disc punctate-striate, the striae fine and often interrupted, the punctures notching intervals, those in interior portions small and closely set, those in lateral portions large, and those in apical portions minute and closely set; intervals gently convex, very slightly microsculptured, minutely punctate, sparsely minutely aciculate; sides roundly and steeply declined to lateral margins, which are bordered by sparsely punctate grooves, and hardly visible from above due to lateral convexities; humeri gently swollen; apical portions rounded.

Prosternum rather short, weakly microsculptured and sparsely minutely punctate; apex weakly, roundly indented, gently ridged in lateral parts; anterior part gently elevated in medial part, depressed in lateral parts, weakly raised posteriad; medial part (inter-coxal space) rather wide, gently raised on both sides, sparsely, minutely punctate and weakly, longitudinally impressed; posterior part moderately inclined; prosternal process rather widely semicircular, roundly ridged along posterior margin, rather closely scattered with weak punctures. Mesoventrite short; anterior part depressed, weakly, finely ridged on midline, weakly microsculptured, closely micro-granulate; medial part rather gradually raised; posterior part somewhat thickly V-shaped along the borders of mesocoxae (opposite to prosternal process). Metaventrite medium-sized, wholly, weakly microsculptured; anterior part slightly convex, scattered with minute punctures, sparsely transversely impressed; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, weakly depressed in postero-medial part, weakly, rather obliquely

aciculate, minutely punctate; lateral parts scattered with larger shallow punctures. Abdomen rather short, fairly strongly convex in medial portion, wholly weakly microsculptured, punctate on whole ventrites, the punctures becoming smaller and closer apicad; posterior half of ventrite I, basal halves of II and III weakly, longitudinally wrinkled; posterior part of ventrite III and whole part of ventrite IV with punctures transversely connected with each other; V fairly closely, minutely punctate and feebly rugulose, with apex simply rounded.

Femora stout and subclavate, smooth but fairly closely, minutely punctate. Tibiae (see Figs. 68 and 69) closely, minutely punctate; pro- and mesotibiae gently curved ventrad. Tarsi with ventral faces densely, setaceously haired, LTB-A: 0.25, 0.18, 0.15, 0.13, 0.79; 0.28, 0.17, 0.15, 0.16, 0.80; 0.53, 0.24, 0.22, 0.82.

Aedeagus (see Figs. 70 and 71) subfusiform, AL 1.62 mm, AW 0.26 mm, AbL 0.86 mm, AaL 0.78 mm, AaL/AL 0.48; basale weakly curved in basal part in lateral view; apicale tapering apicad, with weakly prolonged apices.

Variation of males (n=2). BL 10.6-10.8 mm; BW 4.2-4.3 mm; WE/ED 1.3; PW 2.8 mm; PL 2.4 mm; EL 7.0-7.2 mm; AL 1.62-1.70 mm.

Female (n=1): Compared to male, the body a little thicker, the antennae shorter and a little thicker, and legs a little shorter and thicker. BL 12.3 mm; BW 5.3 mm; WE/ED 1.2; PW 4.5 mm; PL 3.4 mm; EL 10.0 mm.

Differential diagnosis. See the key below.

Etymology. The specific name is given in honour of Hideo Akiyama (Yokohama City, Japan) for offering us a precious specimen for the paratype.

Distribution. Thailand, Laos.

***Derosphaerus phupanensis* sp. nov.**

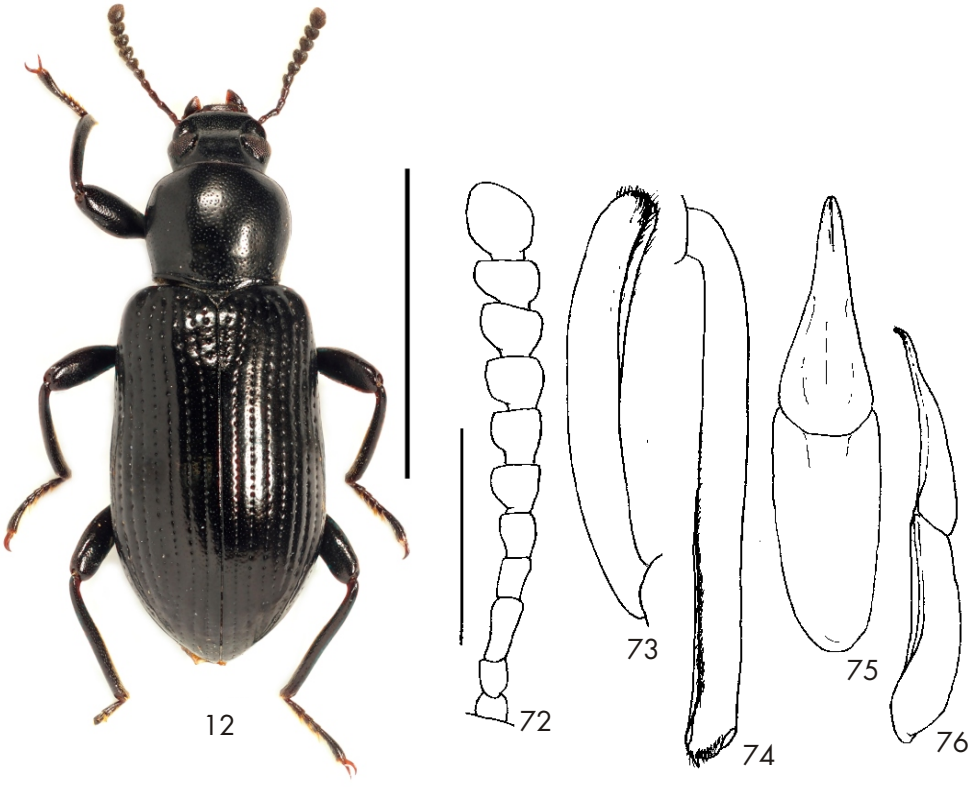
(Figs. 12, 72-76)

Type series. Holotype (♂): "LAOS HUA PHANNE, / Mt. Phu Pane, Ban Saluel / v. env. alt. 1200-1900 m / 20°12́ N 103°59́ E / 26 IV-10 V 2013 / St. Jakl & / Lao collectors lgt. // Coll. Masumoto / 2013", (NSMT).

Description of holotype. BL 9.4 mm, BW 3.5 mm (apical 3/7 of elytra). Body elongated subovate, convex longitudinally; almost wholly black, mouth parts, six basal antennomeres and tarsi brownish black; hairs on apico-ventral faces of tibiae and ventral sides of tarsi brownish yellow; anterior portion of head, scutellum, elytra and legs moderately shining, posterior portion of head and pronotum weakly, sericeously shining, five basal antennomeres somewhat vitreously shining, six apical antennomeres rather matt; body surface almost glabrous, six apical antennomeres densely, finely haired, apical parts of tibiae clothed with rather short setaceous hairs, ventral sides of tarsi densely clothed with setaceous hairs.

Head somewhat transversely elliptical, gently inclined apicad; clypeus widely hexagonal and weakly transversely convex, bent ventrad and truncate at apex, weakly microsculptured, rather closely punctate, the punctures fairly small and mostly round; clypeo-genal borders deeply impressed; fronto-clypeal border finely, straight impressed; genae gently dilated, weakly

depressed before eyes, very weakly microsculptured, rather closely, minutely punctate; frons somewhat inverted pentagonally, weakly elevated, weakly microsculptured, fairly closely punctate, the punctures smaller than those on clypeus. Eyes subcordate in lateral view, bordered from head by grooves which become deeper in interior parts, gently convex laterad and obliquely, roundly inlaid into head in dorsal view, WE/ED 1.3. Antennae subclavate, antennomere XI subovate and its tip barely reaching to base of pronotum, LAI-XI: 0.27, 0.11, 0.26, 0.23, 0.18, 0.16, 0.22, 0.23, 0.22, 0.19, 0.32.



Figs. 12, 72-76. *Derosphaerus phupanensis* sp. nov., holotype, ♂: 12- habitus; 72- antenna; 73- protibia; 74- metatibia; 75- aedeagus (dorsal view); 76- ditto (lateral view). Scales: 5.0 mm for 12; 1.0 mm for 72-76.

Ultimate maxillary palpomere subsecuriform. Mentum subhexagonal with posterior part short, strongly raised antero-medially on median line, strongly inclined in posterior parts on both sides, weakly closely, irregularly punctate. Gula subtriangular with the top rather mild, weakly convex, finely microsculptured, very shallowly punctate, partly weakly rugulose and finely haired in basal part.

Pronotum subquadrate with rounded sides, which are very slightly sinuous near base, PW/PL 1.2 (PL 2.0 mm, PW 2.3 mm), weakly microsculptured; apex feebly produced, nearly straight in medial part, finely margined in lateral parts; base weakly produced in medial part, slightly sinuate on both sides, clearly bordered by impression in major medial part, exterior marginal part ridged and scattered with minute punctures; sides gently, roundly declined to lateral margins,

which are completely bordered by fine ridges, and which are barely visible from above; front angles rounded; hind angles a little acute; disc rather strongly, subhemispherically convex, weakly microsculptured, fairly closely punctate, the punctures mostly round and small. Scutellum triangular, very slightly depressed, nearly flat, microsculptured, scattered with microscopic punctures.

Elytra subelliptical, EL/EW 1.8 (EL 6.4 mm, EW 3.5 mm); EL/PL 3.2, EW/PE 1.5, widest at apical 3/7; dorsum strongly convex, highest at basal 4/9; disc punctate-striate, the striae fine, the punctures notching intervals, those in interior portions small and very close with each other, those in lateral portions becoming larger and a little remote with each other, and those in apical portions minute; intervals gently convex, very slightly microsculptured, minutely punctate, barely weakly aciculate; sides roundly and steeply declined to lateral margins, which are bordered by sparsely punctate-grooves, and visible from above in medial portions (invisible in humeral and posterior portions due to convexities); humeri gently swollen; apical portions rounded.

Prosternum rather short; apex widely, weakly, roundly indented, weakly margined; anterior part weakly microsculptured and sparsely, shallowly punctate, weakly raised posteriad; medial part (inter-coxal space) rather wide, gently raised longitudinally and weakly microsculptured in median and lateral parts, briefly inclined in posterior part; prosternal process sublinguiform, roundly, coarsely ridged along posterior margin, microsculptured and shallowly scattered with minute impressions. Mesoventrite short; anterior part depressed, weakly, finely ridged in basal half on midline, weakly microsculptured, closely micro-granulate; medial part rather steeply raised; posterior part ridged in thick V-shape at the middle (opposite to prosternal process). Metaventrite medium-sized, wholly, weakly microsculptured; anterior part coarsely rugose, bordered from posterior part by irregularly shaped depression; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, minutely punctate; lateral parts more noticeably microsculptured and scattered with larger shallow punctures. Abdomen rather short, gently convex in medial portion, wholly weakly microsculptured; ventrite I with shallow longitudinal depression along the midline, rather closely, coarsely punctate; II and III with baso-lateral parts longitudinally wrinkled, medio-postal parts closely punctate; IV wholly minutely punctate; V coarsely punctate, the punctures becoming smaller and denser apicad, apical punctures minute and somewhat transverse, with apex simply rounded.

Femora thick and subclavate, smooth but fairly closely, minutely punctate. Tibiae (see Figs. 73 and 74) closely, minutely punctate, with a deep groove in apical 2/3 on ventral side of each tibia; pro- and mesotibiae gently curved ventrad, protibiae entirely gouged on interior face. Tarsi with ventral faces densely, setaceously haired, LTB-A: 014, 0.10, 0.11, 0.12, 0.60; 0.25, 0.14, 0.13, 0.12, 0.62; 0.36, 0.15, 0.12, 0.64.

Aedeagus (see Figs. 75 and 76) a little thickly subfusiform, weakly curved in basal part in lateral view, AL 1.90 mm, AW 0.50 mm, AbL 1.02 mm, AaL 0.98 mm, AaL/AL 0.51; basale subovate; apicale gently tapering apicad in basal 2/5, then rather strongly narrowed toward apices, with weakly prolonged apices.

Differential diagnosis. See the key below.

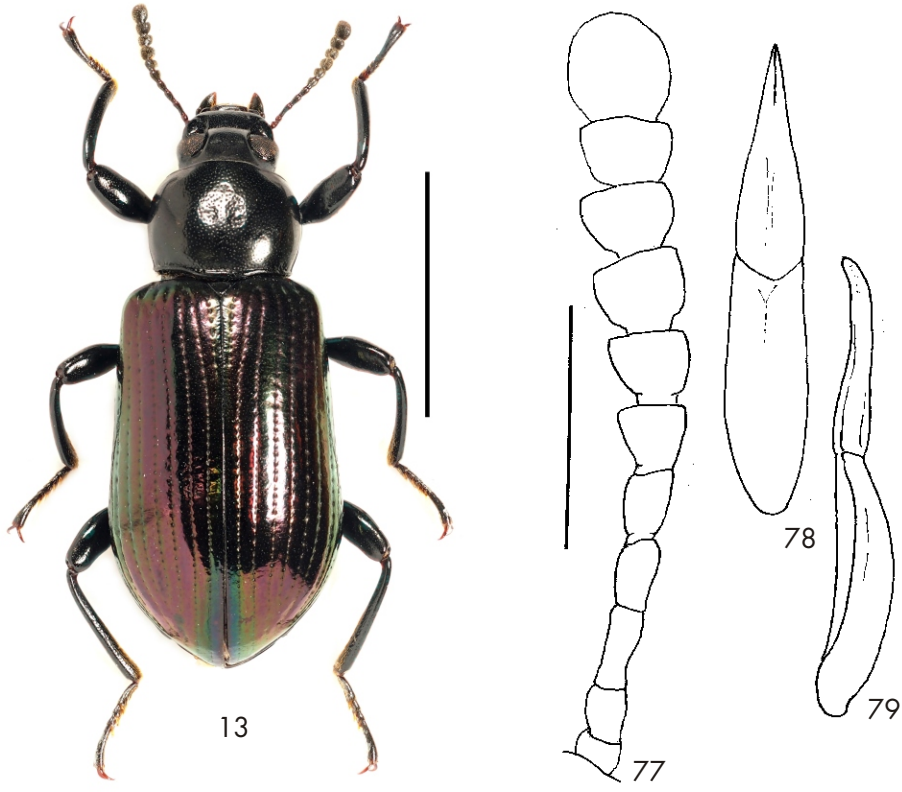
Etymology. The specific name is given after the local name where the holotype was collected.

Distribution. Laos.

***Derosphaerus viridistriatus* (Fairmaire, 1893)**

(Figs. 13, 77-79)

Encyalesthus viridistriatus Fairmaire, 1893: 319 (Haut Tonkin).
Derosphaerus viridistriatus: Kaszab 1987: 46 (nec Fairmaire, 1893).
Encyalesthus dohertyi Pic, 1923: 30 (Malacca).
Encyalesthus sumatrensis Pic, 1923: 29 (Sumatra).



Figs. 13, 77-79. *Derosphaerus viridistriatus* (Fairmaire, 1893), ♂: 13- habitus; 77- antenna; 78- aedeagus (dorsal view); 79- ditto (lateral view). Scales: 5.0 mm for 13; 1.0 mm for 77-79.

Specimens examined: Thailand: 1 ♀, Mae Hong Son, 18. V. 1986, H. Miyama leg.; 3 ♂♂, Mae Hong Son, Pang Mapha, 9-12. V. 2013, K. Takahashi leg.; 1 ♀, ditto, 14. V. 2012, K. Masumoto & K. Takahasi leg.; 2 ♀♀, nr. Chiang Mai, VII. 1998, Native coll.; 1 ♀, ditto, 1988; 2 ♂♂, Chiang Mai, Mae Rin, Ban Nong Hoi Kao,24-26. V. 2014, K. Masumoto leg.; 1 ♀, Chiang Rai, Wiang Pa Pao, 15. V. 1996, Native coll.; 1 ♂, 1 ♀, ditto, 11. V. 2012, K. Takahashi leg.; 5 exs., ditto, 27. IV.-1. V. 2013, K. Takahashi leg.; 3 exs., ditto, 27. IV.-1. V. 2014, K. Takahashi leg.; 2 ♂♂, ditto, 17-21. V. 2015, K. Takahashi leg.; 1 ♀, ditto, 10. VI. 2016, K. Takahashi leg.; 11 exs., ditto, 20-29. V. 2017, K. Takahashi leg. Laos: 1 ♀, Xieng Khouang, Ban To, 1220 m, 28. IV. 2018, K. Akita leg.; 1 ♂, 2 ♀♀, Ban Nong Kan, near Pakson, 1200 m, 6-7. VII. 2011, T. Yoro leg.; 4 exs., Paksong, 10. VIII. 2013, H. Wakahara leg.; 7 exs., Hua Phane , Mt. Phu Pane, 10-21. VI. 2010, St. Jakl & Lao Collectors; 1 ♂, 1 ♀, ditto, 10-22. V. 2011, St. Jakl & Lao Collectors; 2 ♂♂, 1 ♀, ditto, 18. V.-2. VI. 2-12, St. Jakl & Lao Collectors; 1 ♂, ditto, 26. IV.-10. V. 2013, St. Jakl & Lao Collectors; 1 ♂, ditto, 1-20. V. 2014, St. Jakl & Lao Collectors; 1 ♂, Sekong, ca 51 km N. of Sekong river, Ho Chi Minh trail,14-15. V. 2010, St. Jakl leg.

Distribution. Vietnam, Malacca, Sumatra, Thailand (New record), Laos (New record).

***Derosphaerus miyakei* sp. nov.**

(Figs. 14, 80-85)

Type series. Holotype (♂): "Samneua / N. E. Lao / 25. V. 1992 / Y. Miyake // Coll. Masumoto / 2005", (NSMT). Paratype: (1 ♂): same data as for the holotype, (NHML).

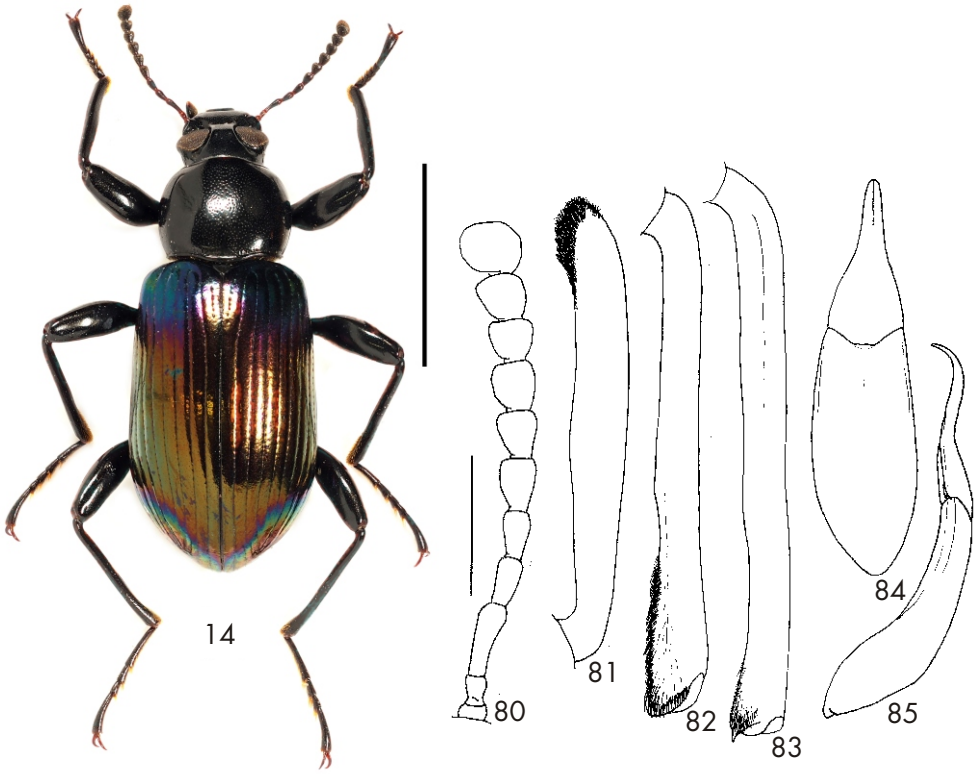
Description of holotype. BL 11.4 mm, BW 7.4 mm (apical 4/9 of elytra). Body moderately elongated subovate, gently convex dorsad; elytra mostly brassy, with basal portions and parts of apical portions bearing blue or purple or violet lustre, mouth parts, six basal antennomeres and tarsi brownish black; hairs on apico-ventral faces of tibiae and ventral sides of tarsi brownish yellow; almost wholly moderately shining, posterior portion of head weakly sericeously shining, five apical antennomeres rather matt; almost wholly glabrous, six apical antennomeres densely, minutely haired, intero (ventro)-apical parts of tibiae clothed with short setaceous hairs, ventral sides of tarsi densely clothed with setaceous hairs.

Head subhexagonal, gently inclined apicad; clypeus widely subhexagonal and weakly transversely convex, bent ventrad and slightly indented at apex, weakly microsculptured, fairly closely punctate, the punctures rather small and mostly round, and becoming smaller apicad; clypeo-genal borders grooved; fronto-clypeal suture nearly straight bordered; genae gently dilated, weakly depressed, very weakly microsculptured, rather closely, minutely punctate, exterior margins gently rounded; frons fairly narrow, gently raised posteriad, weakly microsculptured, fairly closely punctate, the punctures smaller than those on clypeus. Eyes large, somewhat comma-shaped in dorsal view, bordered from head by rather thick grooves, gently convex laterad, widely, roundly inlaid into head, WE/ED 0.6. Antennae subclavate, antennomere XI round and its tip reaching to the basal 1/5 of pronotum, LAI-XI: 0.26, 0.11, 0.48, 0.39, 0.30, 0.32, 0.30, 0.31, 0.30, 0.30, 0.34.

Ultimate maxillary palpomere subsecuriform. Mentum wide cordiform, weakly microsculptured, scattered with microscopic punctures, elongated triangularly raised along median line, transversely wrinkled on both sides. Gula parabolically bordered, weakly convex, weakly microsculptured, sparsely minutely punctate.

Pronotum subquadrate with rounded sides, PW/PL 1.2 (PL 2.8 mm, PW 3.4 mm), very weakly microsculptured; apex feebly produced, finely margined in lateral parts; base gently produced in medial part, weakly sinuate on both sides, bordered by a fine but clear groove, exterior (posterior) marginal part ridged, the ridge weakly microsculptured and closely, minute punctate; sides roundly declined to lateral margins, which are completely bordered by fine grooves, and barely visible from above; front angles rounded; hind angles obtuse; disc gently convex, very weakly microsculptured, fairly closely punctate, the punctures mostly round and small, a little larger than those on clypeus. Scutellum a little wide-based triangular, nearly flat, microsculptured, scattered with microscopic punctures.

Elytra subelliptical, EL/EW 1.6 (EL 7.4 mm, EP 4.6 mm); EL/PL 2.7, EW/PW 2.7, gently widened in basal 1/3, then roundly widened in the remaining portion, widest at apical 4/9; dorsum strongly convex, highest at basal 1/3; disc punctate-striate, the striae clear, the punctures rather weakly notching intervals, those in interior portions small and rather remote with each other, those in lateral portions becoming larger and much more remote with each other, and those in apical portions becoming smaller and closer; intervals gently convex, weakly microsculptured, minutely punctate, often weakly, transversely wrinkled; sides roundly declined to lateral margins, which are bordered by sparsely punctate-grooves, and visible from above in medial portions; humeri gently swollen; apical portions rounded.



Figs. 14, 80-85. *Derosphaerus miyakei* sp. nov., holotype, ♂: 14- habitus; 80- antenna; 81- protibia; 82- mesotibia; 83- metatibia; 84- aedeagus (dorsal view); 85, ditto (lateral view). Scales: 5.0 mm for 14; 1.0 mm for 80-85.

Prosternum rather short; apex widely, weakly, roundly indented, margined, fringed with fine hairs; anterior part weakly microsculptured, weakly, transversely wrinkled and sparsely, minutely punctate; medial part rather abruptly raised; inter-coxal space fairly wide, weakly microsculptured, longitudinally impressed in lateral parts, gently inclined and sparsely scattered with finely haired punctures in posterior part; prosternal process semicircular, depressed, microsculptured, scattered with minute punctures, each with a fine hair. Mesoventrite short; anterior part depressed, weakly raised on midline, closely micro-granulate; medial part rather steeply raised; posterior part somewhat ridged in thick V-shape at the middle (opposite to prosternal process). Metaventrite medium-sized, wholly, weakly microsculptured; anterior part weakly convex, the convexity with semicircularly concave anteriorly, and weakly rugulose posteriorly; medial and posterior parts gently convex, with rather large, shallow depression in medial part, both sides of the depression minutely punctate; lateral parts minutely granulate. Abdomen rather short, gently convex in medial portion, wholly weakly microsculptured, with a shallow depression lying from posterior part of ventrite I to anterior part of ventrite III along the median line; ventrite I to medio-basal part of III with shallow longitudinal wrinkles; I to IV rather closely, shallowly punctate; ventrite V closely, minutely punctate, with apex simply rounded.

Legs slender. Femora stout, smooth but fairly closely, minutely punctate. Tibiae (see Figs. 81-83) closely, minutely punctate, finely rugulose; protibiae gouged in apical 2/5 on ventral surface,

densely clothed with short setaceous hairs in apical 1/6 on ventral (interior) face; mesotibiae weakly gouged 5/7 on intero-ventral face, densely clothed with short setaceous hairs in apical 1/3 on ventral (interior) face; metatibiae wholly haired in apical 1/6, very weakly gouged at apical 2/5 on interior face. Tarsi fairly slender, with ventral faces densely, setaceously haired, LTB-A: 0.18, 0.14, 0.13, 0.12, 0.85; 0.72, 0.32, 0.26, 0.24, 1.16; 1.18, 0.41, 0.31, 1.26.

Aedeagus (see Figs. 84 and 85) subfusiform, rather strongly curved in lateral view, AL 2.60 mm, AW 0.61 mm, AbL 1.65 mm, AaL 1.18 mm, AaL/AL 0.63; basale subelliptical; apicale gently tapering apicad in basal half, then strongly narrowed toward a little prolonged apices, with apices strongly curved ventrad in lateral view.

Variation of male (n=2). BL 11.4-12.4 mm; BW 4.6-4.7 mm; WE/ED 0.6; PW 3.4-3.6 mm; PL 2.8-3.0 mm; EL 7.4-8.2 mm; AL 2.6 mm.

Female. Unknown.

Differential diagnosis. See the key below.

Etymology. The specific name is given in honour of the late Yoshikazu Miyake who collected the type series.

Distribution. Laos.

Derosphaerus laosensis Pic, 1922
(Figs. 15, 86-90)

Derosphaerus laosensis Pic, 1922: 27 (Laos).
Derosphaerus jeanvoiei Pic, 1927: 20 (Than-Moi).

Specimens examined: Thailand: 1 ♂, "Doi Pui, Thailand / Date: 18. IV. 1985, K. Maaumoto leg. // Coll. Masumoto / 2014"; 1 ♀, "Mt. Doi Suthep, 1100m, Chiang Mai,14-V-1882 / T. Shimomura leg. // Coll. Masumoto / 2001"; 1 ♀, "Thailand, Chiang Mai, /24-26. V. 2014, / K. Takahashi leg. / Coll. Masumoto / 2014"; 1 ♀, "Chiang Mai, Thailand, /-. -. 1988 / (no collector's name) // Coll. Masumoto / 2001"; 1 ♀, "Doi Suthep, near Chiengmai [sic] / Thailand / 3-6. V. 1985 / H. Yui leg. // Coll. Masumoto / 2004".

Distribution. Laos, Thailand (new record), Vietnam.

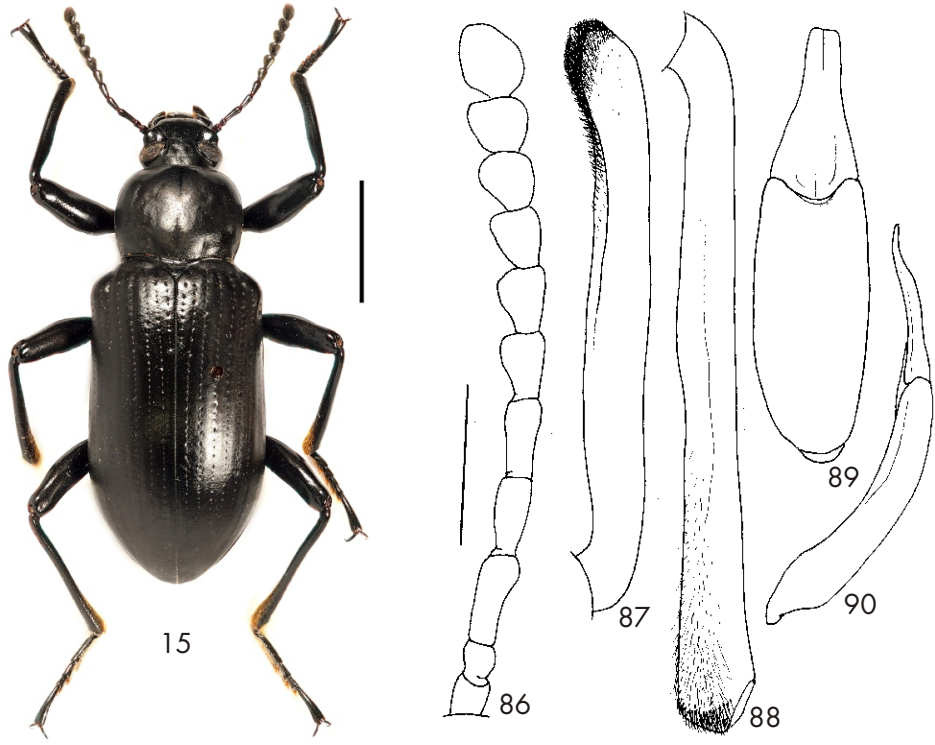
Derosphaerus chiangdaoensis sp. nov.
(Figs. 16, 91-95)

Type series. Holotype (♂): "Thailand, Chiang Mai, / Chiang Dao Hill Resort, / 30. V-2. VI. 2017 / K. Takahashi leg. // Coll. Masumoto / 2017", (NSMT).

Description of holotype. BL 16.5 mm, BW 5.9 mm (apical 1/3 of elytra). Body elongate, somewhat subparallel-sided, strongly convex posteriad; almost wholly black, hairs on apico-ventral faces of tibiae pale brown, those on ventral sides of tarsi a little more brownish, and those on antennae paler; head and pronotum weakly, sericeously shining, scutellum and elytra moderately, weakly sericeously shining, six basal antennomeres and legs gently shining, five apical antennomeres rather matt, legs moderately shining; body surface almost glabrous, six apical antennomeres densely, minutely haired, apico-ventral parts of tibiae setaceously haired,

ventral sides of tarsi densely with short setaceous hairs.

Head subhexagonal, gently inclined apicad; clypeus widely hexagonal with basal part long and apical part short, gently truncate and bent ventrad at apex, weakly microsculptured and minutely punctate, the punctures round and shallow, becoming smaller and closer apicad; clypeogenal borders clearly, obliquely impressed, the impression reaching to exterior margins; frontoclypeal border nearly straight, but the impression not clear; genae dilated and gently raised antero-laterad, depressed before eyes, weakly microsculptured and closely, minutely punctate; frons gently elevated posteriad, weakly microsculptured, irregularly, shallowly punctate, the punctures almost of the same size of those on clypeus. Eyes subcordate, clearly bordered by grooves from head, gently convex laterad, weakly obliquely, roundly inlaid into head, WE/ED 1.4. Antennae subclavate but rather slender, antennomere XI subovate and its tip reaching to basal 1/5 of elytra, LAI-XI:0.50, 0.19, 0.78, 0.68, 0.60, 0.62, 0.61, 0.60, 0.52, 0.53, 0.64.

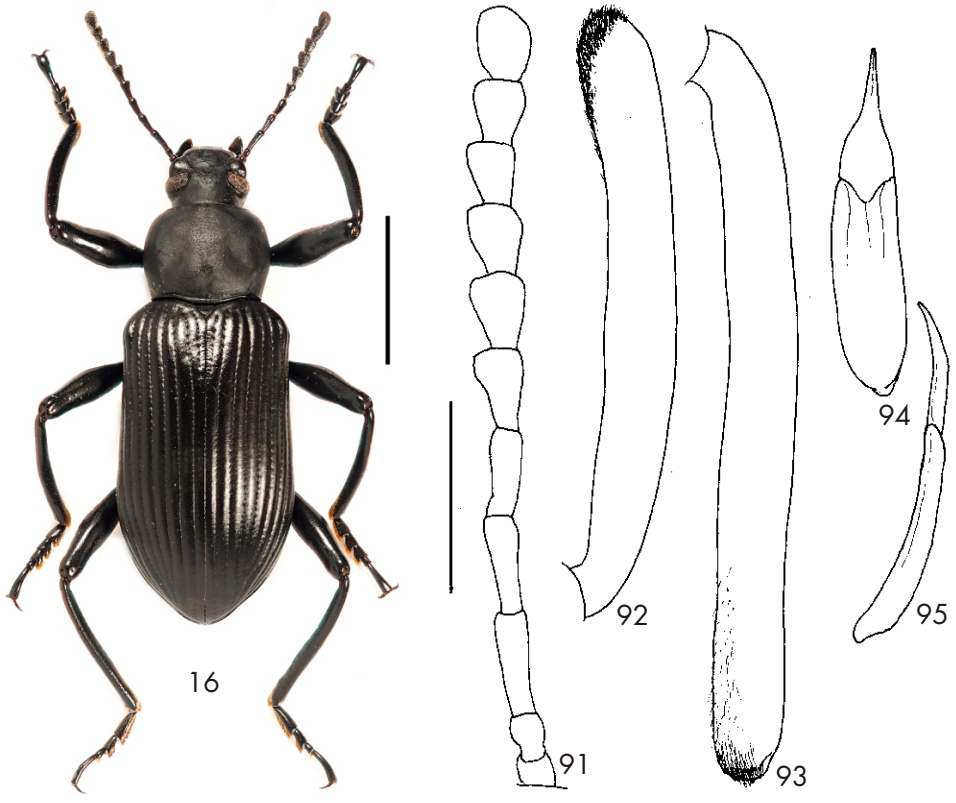


Figs. 15, 86-90. *Derosphaerus laosensis* Pic, 1922, ♂: 15- habitus; 86- antenna; 87- protibia; 88- metatibia; 89- aedeagus (dorsal view); 90- ditto (lateral view). Scales: 5.0 mm for 15; 1.0 mm for 86-90.

Ultimate maxillary palpomere gently dilated, apical side oblique. Mentum inverted trapezoidal, longitudinally, strongly raised in antero-median part, impressed in medial parts on both sides, weakly microsculptured. Gula finely parabolically bordered, slightly convex, finely microsculptured, transversely aciculate, briefly impressed in apical part on both sides.

Pronotum subquadrate with rounded sides, PW/PL 1.3 (PL 3.4 mm, PW 4.3 mm); apex very feebly produced and densely fringed by short fine hairs in medial part, margined in lateral parts,

and the margin tapering laterad; base produced in medial part, sinuate in lateral parts, bordered by rather deep impression, marginal part sparsely scattered with minute punctures; sides gently, roundly inclined laterad, enveloping ventral body, without marginal borders; front angles rounded; hind angles obtuse; disc gently convex, vaguely, weakly depressed in posterior portions on both sides, weakly microsculptured, scattered with shallow, minute punctures. Scutellum semicircular, feebly convex in posterior part, weakly microsculptured, sparsely scattered with minute punctures.



Figs. 16, 91-95. *Derosphaerus chiangdaoensis* sp. nov., holotype, ♂: 16- habitus; 91- antenna; 92- protibia; 93- metatibia; 94- aedeagus (dorsal view); 95- ditto (lateral view). Scales: 5.0 mm for 16; 1.0 mm for 91-95.

Elytra elongated subelliptical, EL/EW 2.1 (EL 12.4 mm, EW 5.9 mm); EL/PL 3.7, EW/PW 1.4, widest at apical 1/3; dorsum rather strongly convex, highest at basal 2/5; disc punctate-striate, the punctures notching intervals, those in interior portions small and rather closely set, those in medial portions becoming a little larger and sparsely set, those in lateral portions larger and coarsely set, and those in apical portions minute and round; intervals well convex, weakly microsculptured, shallowly, minutely punctate, and often transversely aciculate; sides roundly and steeply declined to lateral margins, which are sparsely punctate, bordered by fine punctate-grooves, and hardly visible from above; humeri gently swollen; apical portions weakly, roundly produced.

Prosternum moderate in size, weakly microsculptured; apex weakly, roundly indented; anterior

part weakly raised posteriad, irregularly aciculate; medial part rather strongly raised, inter-coxal space weakly hollowed, gently raised on both sides; posterior part gradually inclined and microsculptured; prosternal process widely triangular, microsculptured. Mesoventrite short; anterior part depressed, weakly, finely ridged on midline, weakly microsculptured, irregularly granulate; medial part slightly convex, weakly microsculptured and irregularly granulate, with a depression at the middle near the border of posterior part; posterior part gradually raised in somewhat V-shape along the borders of mesocoxae (opposite to prosternal process), the raise finely microsculptured, sparsely rugulose. Metaventrite medium-sized; anterior part slightly convex, microsculptured and sparsely, transversely wrinkled; medial and posterior parts longitudinally impressed on median line, gently convex on both sides, weakly depressed in postero-medial part, microsculptured, weakly, rather obliquely rugulose, sparsely minutely punctate; lateral parts weakly convex, microsculptured and weakly rugulose. Abdomen rather short and gently convex in median portion, wholly weakly microsculptured and punctate; lateral parts of ventrites I and II, and basal part of III longitudinally wrinkled; medial parts of I and II, basal part of III, and wholly parts of IV and V rather closely punctate; ventrite V with apical part very closely minutely punctate and microscopically pubescent, and with apex rounded.

Femora thick and subclavate, weakly microsculptured, minutely punctate. Tibiae (see Figs. 92 and 93) closely, minutely punctate; pro- and mesotibiae gently curved ventrad; protibiae densely clothed with short setaceous hairs in apical 1/5 on ventral (interior) face; metatibiae rather sparsely clothed with long hairs in apical 1/4 on interior face. Tarsi gently dilated to each apex, densely, setaceously haired beneath, LTB-A: 0.37, 0.35, 0.32, 0.30, 1.23; 0.68, 0.48, 0.44, 0.30, 1.23; 1.13, 0.56, 0.32, 1.30.

Aedeagus (see Figs. 94 and 95) short subfusiform with apical parts prolonged, weakly curved in lateral view, AL 2.70 mm, AW 0.61 mm, AbL 1.68 mm, AaL 1.16 mm, AaL/AL 0.43; basale weakly curved in lateral view; apicale gently narrowed in basal 1/2, and then abruptly narrowed, thin in apical half.

Differential diagnosis. See the key below.

Etymology. The specific name is given after the place where the holotype was collected.

Distribution. Thailand.

Diagnostic Key to the All the *Derosphaerus* Species from Thailand and Laos

1 (2) Five apical antennomeres clavate 3
2 (1) Six apical antennomeres clavate 13
3 (4) Protibiae with apical parts curved ventrad; meso- and /or metatibiae each with an angular projection in intero-apical part 5
4 (3) Tibiae without noticeable modifications 7
5 (6) Metatibiae with intero-apex angularly projected ..... *D. yupae* sp. nov.
6 (5) Metatibiae without intero-apex angularly projected ..... *D. higurashii* sp. nov.
7 (8) Legs short; metatibiae less than half of elytra in length. Aedeagus extremely small, less than 1.6 mm 9
8 (7) Legs long; metatibia more than half of elytra in length. Aedeagus large, more than 3.0 mm in length 11
9 (10) Dorsal surface weakly shining; eyes large (WE/ED 1.3), the groove along the internal margins of them shallow; pronotum wide (PW/PL 1.3) with the lateral margins hardly sinuate before hind

angles; elytral striated punctures weak, and the striae shallow; intervals hardly convex; tibiae becoming thicker apicad; aedeagus thin ..... *D. chiangraiensis* sp. nov.

10 (9) Dorsal surface strongly shining; eyes small (WE/ED 1.5), the groove along the internal margins of them deep; pronotum narrow (PW/PL 1.2) with the lateral margins sinuate before hind angles; elytral striated punctures strong, and the striae deep, intervals strongly convex; tibiae hardly becoming thicker apicad; aedeagus thick ..... *D. wiangpapaoensis* sp. nov.

11 (12) Body thin; pronotum narrow (PW/PL 1.0), widest at apical 1/3, apex weakly sinuate, front angles weakly produced and angulate; elytra shallowly striate, intervals hardly convex .... *D. crassicus* Fairmaire, 1903

12 (11) Body thick; pronotum wide (PW/PL 1.1), widest at the middle, apex not sinuate, front angles rounded; elytra deeply striate, intervals strongly convex ..... *D. subsulcatus* (Fairmaire, 1893)

13 (14) Pronotum strongly, irregularly punctate and rugulose 15

14 (13) Pronotum regularly punctate, the punctures small and not becoming rugulose 17

15 (16) Elytra without coppery lustre, with rows of punctures, which are clearly grooved, punctures in striae small, intervals flat; AaL/AL 0.3. ..... *D. aeruginosus* (Fabricius, 1787)

16 (15) Elytra with coppery lustre, with rows of punctures, which are not clearly grooved, punctures in striae very large and deep, intervals undulate; AaL/AL 0.4 ..... *D. pici* Kaszab, 1987

17 (18) Pronotum with deep impressions before hind angles 19

18 (17) Pronotum without deep impressions before hind angles 21

19 (20) Pronotum with bluish tinge, elytra with dark greenish lustre, legs dark brown; elytra with striated punctures very small, intervals flat ..... *D. doisuthepensis* sp. nov.

20 (19) Pronotum and legs black, elytra with bluish to dark purplish tinge; elytra with striated punctures large, intervals convex ..... *D. huaphanensis* sp. nov.

21 (22) Body small (less than 14 mm in length); antennomere VI-XI widened, at least one antennomere wider than long 23

22 (21) Body large (more than 16 mm in length); antennomere VI-XI not so wide, longer than wide in all of them 31

23 (24) Elytra black, often bearing feeble bluish tinge 25

24 (23) Elytra with brassy to purplish lustre 29

25 (26) Pronotal margins not bordered from episternum; protibiae gouged in apical 3/5 on interior face; metatibiae thick, clothed with long hairs in apico-interior 3/4 ..... *D. binhanus* (Pic, 1922)

26 (25) Pronotal margin completely bordered from episternum by fine grooves; protibiae not gouged on interior face; metatibiae thin 27

27 (28) Tibiae without groove on ventral face ..... *D. akiyamai* sp.nov.

28 (27) Tibiae with groove on ventral face ..... *D. phupanensis* sp. nov.

29 (30) Elytra mostly with dull reddish purple lustre, and basal, lateral and sutural parts with rather greenish lustre; legs short, protibiae moderately curved interiad; eyes small, inter-ocular space wider than an eye diameter; apicale hardly curved ventrad ..... *D. viridistriatus* (Fairmaire, 1893)

30 (29) Elytra mostly brassy, with basal portions and parts of apical portions bearing blue, or purple and or violet lustre; legs long, protibiae gouged in apical 2/5 on ventral surface; eyes large (WE/ED 0.6); apicale strongly curved ventrad ..... *D. miyakei* sp. nov.

31 (32) Eyes large (WE/ED 1.1); elytra with rows of punctures, which are not clearly grooved, intervals flat; protibiae in apico-interior 3/5 and metatibiae in apico-interior half shallowly gouged; aedeagus large (AL 3.8 mm), apicale truncate at apices ..... *D. laosensis* Pic, 1922

32 (31) Eyes small (WE/ED 1.4); elytra with rows of punctures clearly grooved, intervals convex; protibiae not gouged on interior faces; aedeagus small (AL 2.7 mm), apicale with acute apices .... *D. chiangdaoensis* sp. nov.

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