A Revisional Study of the Subfamily Alleculinae (Coleoptera: Tenebrionidae) from Taiwan (Part 5). New Species of Genera *Allecula, Angusthes, Borbonalia* and *Borboresthes*

Kimio MASUMOTO[1)], Vladimír NOVÁK[2)], Katsumi AKITA[3)] & Chi-Feng LEE[4)]

[1)]Higashi-Ikebukuro 2-13-7-502, Toshima-ku, Tokyo, 170-0013 Japan
e-mail: kimio_masumoto@yahoo.co.jp
[2)]Nepasické náměstí 796, CZ 190 14, Prague 9 - Klánovice, Czech Republic
e-mail: alleculinae.vn@centrum.cz
[3)]Higashitakato-machi 170-2, Tsu City, Mie Pref., 514-1136 Japan
e-mail: plesiophthalmus@gmail.com
[4)]Applied Zoology Division, Taiwan Agricultural Research Institute, Wufeng, Taichung, 413 Taiwan
e-mail: chifeng@tari.gov.tw

Taxonomy, Alleculinae, Taiwan, new species, new distribution, check list, *Allecula, Angusthes, Borbonalia, Borboresthes*, Palaearctic Region

Abstract. Ten new alleculine species are described from Taiwan: *Allecula fenchihus* sp. nov., *Angusthes yutashanus* sp. nov., *Borbonalia hsinchuensis* sp. nov., *B. liyuanus* sp. nov., *B. ongi* sp. nov., *B. tengchihensis* sp. nov., *Borboresthes chungi* sp. nov., *B. hsinanshanus* sp. nov., *B. lilungshanus* sp. nov., *B. tahanshanus* sp. nov. One genus is recorded from Taiwan for the first time: *Angusthes* Novák, 2023. All known species of *Hymenalia* Mulsant, 1856 were transferred to the genus *Doranalia* Novák, 2020 by Novák (2020). The latest version of a check list of the subfamily Alleculinae from Taiwan is also provided.

INTRODUCTION

Taiwan is one of the richest areas of the alleculine habitat. In their Catalogue, Ando et al. (2016) enumerated 2 tribes, 10 genera and 41 species. We have been researching the Taiwanese Tenebrionidae, including its subfamily Alleculinae for more than five decades. As a result, up until 2019, we have recognized 2 tribes, 19 genera and 96 species belonging to this subfamily.

Recently, among our collections, we found 10 unknown species, and confirmed that they are new to science. We are going herein to describe them as new species. Of those, one new species belongs to the recently erected genus *Angusthes* Novák, 2023, and all known *Hymenalia* Mulsant, 1856 species were transferred to the genus to *Doranalia* Novák, 2020. Thus, 106 species of the subfamily Alleculinae, belonging to 2 tribes and 20 genera, are known from Taiwan.

In addition, we have prepared the latest version of a check list of the subfamily Alleculinae from Taiwan.

MATERIAL AND METHODS

The material specimens used for this study were offered mainly from collections in the Taiwan Agricultural Research Institute, Wufeng, Taiwan (TARI), the National Museum of Natural Science, Taichung, Taiwan (NMNST) and partly from our collections.

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

The label data of the analysed specimens 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.

The holotypes will be deposited in the Taiwan Agriculture Research Institute, Wufeng, Taichung, Taiwan (TARI), or the National Museum of Natural Science, Taiwan (NMNST). The paratypes will be preserved the National Museum of Nature and Science, Tsukuba, Japan (NSMT).

Abbreviations used herein are as follows: BL = Body length (labrum to apices of elytra along midline in dorsal view); BW = Body width (at widest part of body, mostly in elytra); LAI-XI = Length of antennomere I to XI in mm; WE/ED = Width between eyes / Eye transverse diameter; PW = Pronotal width (at widest part); PL = Pronotal length (along the midline) ; EL = Elytral length (along the elytral suture); EW = Elytral width (at widest part) ; LTB-A = Lengths of pro-, meso- and metatarsi from baso- to apicomeres in mm; AL = Aedeagus length (apicale apex to basale base); AW = Aedeagus width (at widest part in dorsal view); AbL = Basale of aedeagus length (in dorsal view); AaL = Apicale of aedeagus length (in dorsal view); co. = county.

TAXONOMY

Allecula fenchihus Masumoto, Novák, Akita & Lee sp. nov.

(Fig. 1)

Type locality. Taiwan, Chiayi co., Fenchihu.

Type material. Holotype (♀): "Taiwan: Chiayi, CCCC (Chang-Chin Chen's Collection) / Fenchihu / 30.V. 2020 / leg. Y.-T. Chung" (TARI).

Description of holotype. Body rather elongate-elliptical, BL 6.39 mm, BW 2.42 mm, BL/BW 2.6; gently convex longitudinally. Black, antennae, tibiae, tarsi and anterior portions of ventral surface with feeble brownish tinge, hairs on surfaces black to brownish yellow; head, legs and ventral surface almost sericeously shining, ventral part of neck vitreously shining, pronotum weakly sericeously shining, scutellum and elytra almost matt, dorsal surface and legs fairly densely clothed with fine, subdecumbent hairs, antennae densely clothed with short fine hairs, ventral surface minutely haired except for ventral side of neck glabrous.

Head subhexagonal, fairly flattened, weakly mircrosculptured, closely punctate, the punctures often connected with each other and rugulose; clypeus somewhat semicircular with apex gently truncate, feebly, transversely convex in middle, clothed with rather long hairs in lateral parts; fronto-clypeal border curved, with each lateral end barely reaching to exterior margin; genae narrow, weakly raised anterior-laterad; frons wide-Y shaped, gently inclined anteriad, clothed with short, suberect hairs; vertex weakly convex, closely, irregularly punctate and rugulose; areas around eyes gently grooved. Eyes fairly large, somewhat inverted comma-shaped in dorsal view, strongly convex laterad, roundly inlaid into head, WE/ED 1.5. Antennae filiform, tip of antennomere XI reaching to apical 2/5 of elytra, LAI-XI 0.21, 0.13, 0.33, 0.40, 0.39, 0.40, 0.39, 0.39, 0.38, 0.37, 0.36.

Pronotum subtrapezoidal, PL 1.09 mm, PW 1.59 mm, PW/PL 1.5, widest at base, gently, slightly roundly narrowed anteriad, weakly sinuous in basal fourth; apex nearly straight, finely bordered, the border interrupted in medial part; base bisinuous, slightly produced and truncate opposite to scutellum, bordered in lateral parts; sides gently inclined, with lateral margin growing anterior-ventrad, slightly enveloping underbody, and finely bordered, thus the borders invisible from above; front angles rounded; hind angles rectangular; disc gently convex, microsculptured, closely punctate and finely haired, the punctures small, often fused with one another and forming

rugulosties, the hairs sparse and short in medial portion, becoming longer in lateral portions. Scutellum triangular with slightly rounded sides, nearly flat, minutely granulo-punctate.

Elytra elongate-elliptical, EL 4.94 mm, EW 2.42 mm, EL/EW 2.0, EL/PL 4.5 and EW/PW 1.5, widest slightly after middle, very weakly narrowed at basal fifth; dorsum rather strongly convex longitudinally, with anterior-medial portion becoming flat, highest at basal third; disc punctate grooved, the grooves becoming shallower and finer posteriad, the punctures in grooves small and closely set, those in posterior portions becoming finer; intervals moderately convex, microsculptured, minutely punctate, and fairly densely clothed with fine subdecumbent hairs; the hairs in medial portion black, and those in lateral and posterior portions yellowish; sides steeply declined to lateral margins, which are bordered by punctate grooves and fine ridges, hardly visible from above due to the marginal parts slightly enveloping hind body; humeri weakly swollen, coarsely microsculptured; apices rounded.

Fig. 1. *Allecula fenchihus* sp. nov., holotype, ♀, habitus. Scale: 5.0 mm.

Maxilla rather slender, with terminal palpomere triangular with apical side rounded. Mentum subhexagonal, granulate. Gula vaguely, parabolically bordered, slightly convex, rather smooth, finely transversely wrinkled, impressed on the borders near apex.

Prosternum medium-sized, apex roundly emarginate and entirely bordered; anterior part raised posteriad, coarsely ruguloso-punctate; medial part strongly raised and narrowed; posterior part longitudinally bordered by ridges from procoxae, with area between ridges microsculptured and finely punctate; prosternal process inverted subhexagonal, strongly depressed, microsculptured, minutely ruguloso-punctate. Mesoventrite short; anterior part strongly depressed; posterior part strongly ridged in V-shape, ruguloso-punctate and minutely granulate. Metaventrite medium-sized, clothed with subdecumbent hairs, longitudinal medial impression in posterior third; anterior part coarsely ruguloso-punctate; medial and posterior parts gently convex, closely punctate, the punctures often transversely connected with each other, and forming rugulose; lateral parts scattered with fairly large and shallow punctures, each with rather long hairs. Abdomen medium-sized, microsculptured, shallowly ruguloso-punctate, clothed with fairly long subdecumbent hairs; ventrite V microsculptured, weakly punctate, shallowly, ovately depressed close to apex, with apex truncate.

Legs medium-sized, closely, finely punctate and haired. Femora subclavate. Tibiae feebly becoming bolder apicad, with longer yellowish hairs on exterior faces and shorter blackish hairs on interior faces; protibiae slightly curved ventrad; mesotibiae slightly gouged on interior-ventral faces; metatibiae nearly straight. Tarsi slender, pro- and mesotarsi with two penultimate tarsomeres dilated, and metatarsi with the penultimate ones dilated. LTB-A 0.39, 0.14, 0.13, 0.13, 0.33; 0.61, 0.23, 0.14, 0.13, 0.28; 0.84, 0.24, 0.12, 0.20.

Male. Unknown.

Differential diagnosis. Similar species living in Taiwan are *Allecula dahanshana* Masumoto, Novák, Lee & Akita, 2017, *Allecula fenghuangshana* Masumoto, Novák, Lee & Akita, 2017, *Allecula formosana* Pic, 1910, *Allecula matsudai* Masumoto, Novák, Lee & Akita, 2019 and *Allecula maxima* Pic, 1910.

Allecula fenchihus sp. nov. clearly differs from similar species *A. dahanshana*, *A. fenghuangshana*, *A. formosana* and *A. matsudai* mainly by antennae, maxillary palpi and legs completely black; while *A. dahanshana*, *A. fenghuangshana*, *A. formosana* and *A. matsudai* have antennae, maxillary palpi and legs pale.

Allecula fenchihus sp. nov. is clearly different from the species *Allecula maxima* Pic, 1910 by the body length (BL 6.39 mm); while *A. maxima* is a very large species (BL 19 mm).

Etymology. The specific name, *fenchihus*, is given after the type locality, Fenchihu, in the central part of Taiwan.

Distribution. Central Taiwan.

Angusthes yutashanus Masumoto, Novák, Akita & Lee sp. nov.

(Fig. 2)

Type locality. Taiwan, Kaohsiung city, Yutashan.

Type material. Holotype (♀): "Taiwan: Kaoshiung [sic: Kaohsiung] / CCCC (Chang-Chin Chen's Collection) / Yutashan / 29. IV. 2019, Leg. B.-X. Guo" (TARI).

Description of holotype. Body subfusiform, BL 8.17 mm, BW 2.88 mm, BL/BW 2.9; fairly strongly convex longitudinally. Dorsal surface almost black with brownish tinge, mouth parts, femora and tibia dark brown, antennae and tarsi yellowish brown, ventral surface black with brownish tinge; head and pronotum weakly sericeously shining, scutellum elytra and legs moderately shining, antennae matt, ventral surface mostly weakly sericeously shining (only ventral side of neck vitreously shining); dorsal surface clothed with rather long subdecumbent hairs, legs densely clothed with fine substraight hairs;ventral surface mostly minutely haired.

Head subhexagonal though the basal portion is covered by the pronotum; clypeus subtrapezoidal, noticeably produced and gently inclined anteriad, weakly microsculptured, minutely punctate and finely haired; fronto-clypeal border lying at levels of antennae, widely curved, with each lateral end reaching to exterior margin; genae subtriangular, nearly flat in major parts, but weakly depressed in area before eyes, microsculptured and sparsely scattered with minute punctures, with exterior margin nearly oblique and straight; frons gently raised posteriad, microsculptured, rather closely punctate, the punctures shallow and subovate, fairly densely clothed with subdecumbent hairs. Eyes large, strongly convex laterad, obliquely, subelliptically inlaid into head, WE/ED 1.2. Antennae filiform, tip of antennomere XI reaching to apical third of elytra. LAI-XI 0.34, 0.17, 0.48, 0.83, 0.56, 0.55, 0.53, 0.52, 0.48, 0.45, 0.53.

Pronotum subtrapezoidal with apex gently produced, PL 1.46 mm, PW 2.33 mm, PW/PL 1.6, widest at base; apex finely entirely ridged; base widely bisinuous, sides rather steeply (particularly in anterior portions) declined to lateral margins, which are weakly, roundly produced ventrad, finely ridged, and hardly visible from above; hind angles rather acute; disc gently convex, softly flattened in medial and posterior portions, microsculptured, closely punctate, the punctures rather shallow, each with fine suberect hair in medial portion, and with longer decumbent hair in lateral portions. Scutellum short linguiform, weakly convex, microsculptured, scattered with minute punctures with fine hairs.

Elytra elongate-subovate, thought the basal portion is truncated by the pronotum, EL 6.25 mm, EW 2.88 mm, EL/EW 2.2, EL/PL 4.3 and EW/PW 1.2, widest at basal third; dorsum rather strongly convex, very weakly flattened in anterior-medial portion, highest at basal third; disc punctate-striate, the punctures in striae rather small and closely set and slightly notching intervals, those in lateral portions becoming larger and those in posterior portions becoming finer; intervals moderately convex, microsculptured, minutely granulo-punctate, each puncture with a subdecumbent hair, the hairs in anterior-medial portion fine and not so long, those in lateral and posterior portions becoming a little bolder and longer; sides steeply declined laterad, and slightly enveloping hind body; lateral margins bordered by narrow punctate grooves and fine ridges, and hardly visible from above; humeri convex, weakly microsculptured, minutely punctate and haired; apices rounded.

Maxilla with terminal palpomere strongly dilated, with apical side longest and nearly straight. Mentum semicircular with basal part rounded, strongly raised anteriad, almost smooth, impressed at apico-medial part. Gula parabolical and short, convex, smooth, with a pair of impressions near apex.

Prosternum rather short, with apex shallowly, widely emarginate and entirely ridged; anterior part gently raised posteriad, microsculptured, scattered with minute punctures; medial part (area between procoxae) narrowed and abruptly raised, rugulose and sparsely scattered with microscopic punctures; posterior part (=prosternal process) steeply inclined posteriad, with apex blunt, and margined at bottom. Mesoventrite short; anterior part strongly depressed; posterior part raised in V-shape, minutely ruguloso-punctate, and sparsely, finely haired. Metaventrite medium-sized and gently convex in medial portion, subelliptically depressed in medio-basal part,

longitudinally impressed in posterior half on median line, scattered with round punctures with fine hairs, the punctures becoming sparser and the hairs becoming longer and subdecumbent in lateral parts. Abdomen medium-sized; ventrite I weakly microsculptured and scattered with finely haired punctures; ventrite II noticeably microsculptured, weakly, transversely rugulose, finely haired, scattered with smaller punctures than on ventrite I; ventrite III weakly microsculptured and more weakly, transversely rugulose, scattered with haired smaller punctures than on ventrite II; ventrite IV weakly microsculptured, scattered with haired smaller punctures than on ventrite III; ventrite V microsculptured, scattered with minute punctures, clothed with longer hairs than on ventrite I to IV, shallowly, subelliptically depressed in apical part, with apex mildly rounded.

Fig. 2. *Angusthes yutashanus* sp. nov., holotype, ♀, habitus. Scale: 5.0 mm.

Legs medium-sized. Femora short subclavate, closely finely punctate and finely haired; profemora gouged in apical two thirds on anterior-ventral faces; metafemora gouged in apical

two thirds on posterior-ventral faces. Tibiae weakly becoming bolder apicad, closely punctate and haired; protibiae weakly curved exterior-ventrad; meso- and metatibiae nearly straight. Tarsi finely haired particularly densely so on dorsal faces and in marginal parts; protarsi with basal tarsomere (tarsomere I) moderately becoming bolder apicad, tarsomere II gently widened apicad, tarsomeres III and IV strongly widened apicad, and tarsomere V gently becoming wider apicad; mesotarsi with tarsomere I moderately becoming bolder apicad, tarsomere II somewhat elongate, tarsomeres III and IV noticeably becoming wider apicad, and tarsomere V moderately becoming bolder apicad; metatarsi with penultimate tarsomeres noticeably widened apicad. LTB-A 0.40, 0.13, 0.19, 0.20, 0.46; 0.58, 0.16, 0.19, 0.17, 0.46; 1.13, 0.39, 0.17, 0.47.

Male. Unknown.

Differential diagnosis. No similar species of the genus *Angusthes* Novák, 2023 is known from Taiwan.

Etymology. The specific name, *yutashanus*, is named after the place, Yushan, Kaohsiung city, where the holotype was collected.

Distribution. Southern Taiwan.

***Borbonalia hsinchuensis* Masumoto, Novák, Akita & Lee sp. nov.**

(Figs. 3-5)

Type locality. Taiwan, Hsinchu co., Talulindao.

Type material. Holotype (♂): "Taiwan: Hsinchu / Talulindao / 22. VIII. 2009 / leg. Y.-L. Lin" (TARI). Paratype: 1 ♂, same data as for the holotype.

Description of holotype. Body slightly elongate-ovate, BL 6.19 mm, BW 2.50 mm, BL/BW 2.5; fairly strongly convex longitudinally. Head, pronotum, abdomen dark reddish brown, scutellum, antennae, mouth parts, elytra and legs yellowish brown, ventral surface dark brown; hairs on each surface brownish yellow and partly darker in color; head, pronotum and scutellum sericeous and gently shining, elytra weakly sericeously shining, legs weakly shining, ventral surface gently shining; dorsal surface finely haired, antennae densely clothed with fine hairs, legs densely clothed with substraight hairs; ventral surface finely haired.

Head medium-sized, with basal part transversely elliptical and apical part trapezoidally produced, weakly microsculputured; clypeus semicircular, gently produced, feebly depressed, scattered with minutely haired punctures, with apex mildly truncate; fronto-clypeal border roundly, fairly deeply sulcate, with each lateral end reaching to exterior margin; genae moderate in size, weakly raised anterior-laterad, depressed in areas before eyes, ruguloso-punctate, with exterior margins nearly oblique, without clear borders from frons; frons feebly convex, microsculptured, noticeably punctate, sparsely clothed with fine subdecumbent hairs; areas around eyes weakly grooved. Eyes large, roundly convex laterad, subelliptically inlaid into head, WE/ED 1.6. Antennae filiform, LAI-XI 0.30, 0.12, 0.35, 0.59, 0.35, 0.34, 0.34, 0.35, 0.26, 0.27, 0.29.

Pronotum semicircular, PL 1.09 mm, PW 1.80 mm, PW/PL 1.7, widest at base; apex finely ridged; base rather noticeably bisinuous, slightly emarginate opposite to scutellum; sides declined to lateral margins, which are weakly, roundly produced ventrad, finely bordered and

ridged, and visible from above only in anterior parts; hind angles subrectangular; disc gently convex, weakly microsculptured, fairly closely, punctate, the punctures umbilicate; surface clothed with subdecumbent hairs, those in medial portion fine and sparse, those in lateral portions becoming longer and denser. Scutellum triangular with rounded sides, microsculptured and minutely punctate.

Elytra subelliptical, thought the basal portion is truncated by the pronotum, EL 4.62 mm, EW 2.50 mm, EL/EW 1.8, EL/PL 4.2 and EW/PW 1.4, widest slightly before middle; dorsum rather strongly convex, highest 3/10; disc punctate-striate, the striae fine, the punctures in striae small and closely set in interior portions, becoming larger and coarser in lateral portions, and finer in posterior portions; intervals gently convex, weakly microsculptured, minutely punctate and granulate, with fine subdecumbent hairs, which become longer in lateral and posterior portions; sides roundly declined to lateral margins, which are bordered by slightly explanate, punctate grooves and fine ridges, and barely visible from above; humeri fairly strongly swollen, microsculptured, minutely punctate and finely haired; apices slightly produced and rounded.

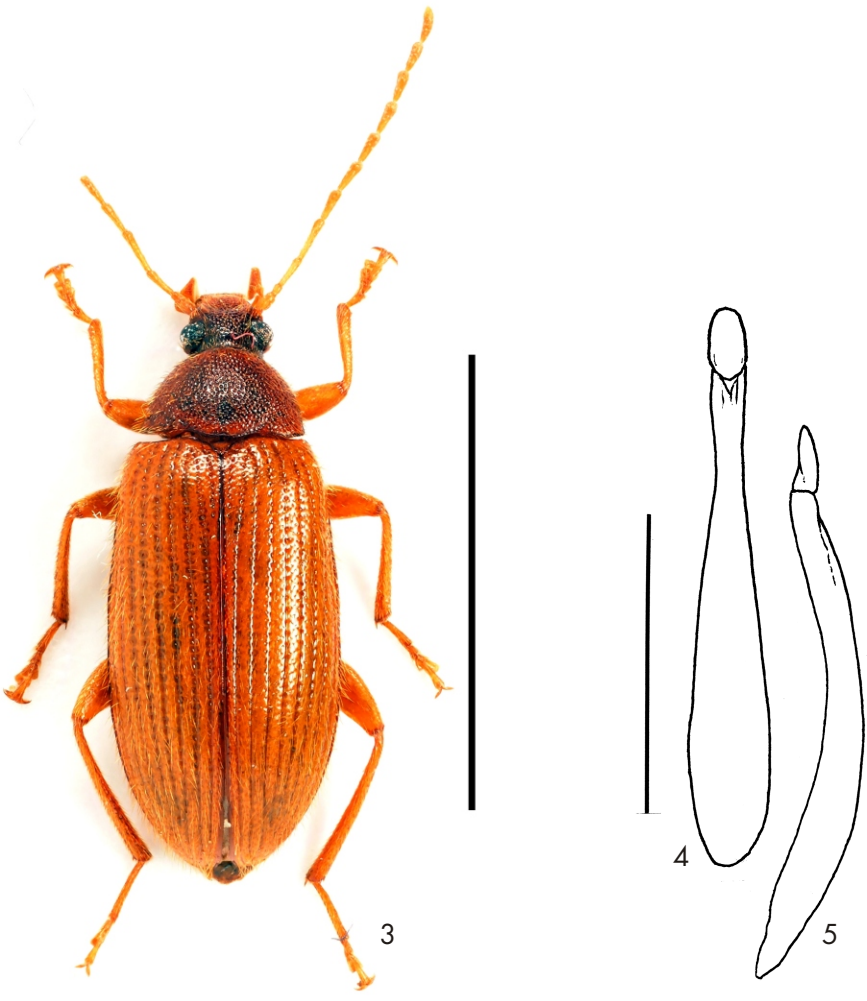
Maxilla with terminal palpomere large, strongly dilated. Mentum subpentagonal, raised anteriad, longitudinally convex in medial and posterior part, transversely impressed on both sides, with apical and lateral margins micro-granulate and sparsely haired. Gula somewhat triangularly bordered, though borders are not connected in the apical part, gently convex in medial part, weakly, transversely wrinkled.

Prosternum short, with apex rounded and entirely ridged; anterior part weakly raised posteriad, microsculptured, ruguloso-punctate; posterior part (=area between coxae) noticeably narrowed and convex, closely microscopically punctate; prosternal process subelliptically produced and inclined posteriad. Mesoventrite short; anterior part strongly depressed; posterior part raised in narrow V-shape, microscopically rugulose. Metaventrite medium-sized and convex, longitudinally impressed in posterior five sixths on median line, weakly microsculptured; medial part rather closely punctate, the punctures often connected with each other, each with a subdecumbent hair; lateral parts a little sparsely punctate, each puncture with a little longer subdecumbent hair than in medial part. Abdomen medium-sized, weakly microsculptured, punctate and finely haired; ventrite I to III weakly, longitudinally wrinkled in lateral parts; ventrite V roundly flattened and longitudinally impressed in medio-posterior part, with apex mildly rounded.

Legs medium-sized. Femora elongate-subelliptical, minutely wrinkled, fairly closely punctate and finely haired. Tibiae feebly becoming bolder apicad, closely punctate and haired; protibiae weakly curved ventrad; mesotibiae slightly curved interior-ventrad; metatibiae slightly curved interior-ventrad. Tarsi rather stout, finely haired particularly on dorsal faces and marginal parts; protarsi with basal tarsomere (=tarsomere I) gently becoming bolder apicad, tarsomere II to IV noticeably widened apicad, and tarsomere V gently becoming bolder apicad; mesotarsi with tarsomere I moderately becoming bolder apicad, II to IV noticeably becoming wider apicad, V moderately becoming bolder apicad; metatarsi with the penultimate tarsomeres dilated. LTB-A 0.27, 0.10, 0.12, 0.13, 0.22; 0.42, 0.16, 0.13, 0.15, 0.27; 0.60, 0.13, 0.11, 0.25.

Aedeagus rather long, with AL 1.83 mm, AW 0.23 mm (widest point across basale), gently curved in lateral view; basale with AbL 1.72 mm, gently convex longitudinally, constricted in apical two elevenths; apicale with AaL 0.20 mm, AaL/AL 0.12, subelliptical, flattened, with apices fused and round.

Variability (n=2). BL 6.19-6.28 mm, BW 2.48-2.50 mm, BL/BW 2.5; PL 1.06-1.09 mm, PW 1.77-1.80 mm, PW/PL 1.7; EL 4.52-4.62 mm, EW 2.50-2.52 mm, EL/EW 1.8, EL/PL 4.1-4.2, EW/PW 1.4; AL 1.78-1.83 mm, AW 0.23-0.27 mm, AaL/AL 0.12-0.15.



Figs. 3-5. *Borbonalia hsinchuensis* sp. nov., holotype, ♂, 3- habitus; 4- aedeagus (dorsal view); 5-ditto (lateral view). Scales: 5.0 mm for 3; 1.0 mm for 4 & 5.

Female. Unknown.

Differential diagnosis. Similar species of the genus *Borbonalia* Novák, 2014 with pale dorsal surface of the elytra are *Borbonalia barclayi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia chiangmeilingae* Masumoto, Novák, Lee & Akita, 2019a, *Borbonalia ewersi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia liyuanus* Masumoto, Novák, Akita & Lee sp. nov. and *Borbonalia tengchihensis* Masumoto, Novák, Akita & Lee sp. nov.

Borbonalia hsinchuensis sp. nov. clearly differs from similar species *B. barclayi*, *B. ewersi*, *B. liyuanus* and *B. tengchihensis* mainly by antennomeres V-VIII approximately as long as the antennomere III and by shape of the aedeagus as in Figs. 4 and 5; while *B. barclayi* (shape of

the aedeagus as in Masomoto et al. 2019b: 40: figs. 19 and 20), *B. liyuanus* (shape of the aedeagus as in Figs. 7 and 8), and *B. tengchihensis* (shape of the aedeagus as in Figs. 11 and 12) have antennomeres V-VIII longer than the antennomere III and *B. ewersi* (shape of the aedeagus as in Masomoto et al. 2019b: 40: figs. 21 and 22) shorter than the antennomere III.

Borbonalia hsinchuensis sp. nov. is clearly different from similar species *B. chiangmeilingae*, mainly by the antennomere IV 1.69 times longer than the antennomere III, by ultimate antennomere shorter than the antennomere III and by shape of the aedeagus as in Figs. 4 and 5; while *B. chiangmeilingae* has the antennomere IV only 1.32 times longer than the antennomere III, the ultimate antennomere is approximately as long as the antennomere III and shape of the aedeagus is as in Masumoto at al. 2019a: plate 2: figs. 17 and 18.

Etymology. The specific name, *hsinchuensis*, is given after the county in the northern part of Taiwan where the types were collected.

Distribution. Northern Taiwan.

Borbonalia liyuanus Masumoto, Novák, Akita & Lee sp. nov.

(Figs. 6-8)

Type locality. Taiwan, Taitung co., Liyuan.

Type material. Holotype (♂): "TAIWAN: Taitung / Liyuan / 21. IV. 2020, sweeping / Uika Ong leg." (NMNST). Paratype: 1 ♀, same data as for the holotype (NSMT).

Description of holotype. Body elongate-subovate, BL 6.35 mm, BW 2.53 mm, BL/BW 2.5; gently convex longitudinally. Head and pronotum blackish brown, scutellum and elytra dusty yellowish brown, antennae, mouth parts, legs lighter in color, ventral surface mostly blackish brown; head and pronotum weakly, sericeously shining; scutellum, elytra and legs very weakly sericeously, moderately shining, ventral surface mostly weakly shining; dorsal surface clothed with rather long subdecumbent hairs, the hairs particularly noticeable in posterior and lateral portions, antennae densely clothed with minute hairs, legs densely clothed with fine substraight hairs; ventral surface mostly minutely haired.

Head subtriangular though the apex is gently truncate, weakly microsculputured; clypeus subtrapezoidal, gently inclined apicad, weakly depressed broadly in medial part, rather closely minutely punctate and finely haired; fronto-clypeal border widely curved, with each lateral end reaching to exterior margin; genae moderate in size, rather strongly dilated and weakly raised anterior-laterad, depressed in areas before eyes, weakly microsculptured and sparsely granulate, with exterior margin nearly oblique, anterior part slightly produced and posterior part sightly emarginate; frons gently convex, noticeably closely punctate, each puncture with a subdecumbent hair. Eyes rather large, roundly convex laterad, subelliptically inlaid into head, WE/ED 1.6. Antennae filiform. LAI-XI (antennomeres VII-XI lacking in the holotype) 0.25, 0.13, 0.38, 0.42, 0.42, 0.40, -, -, -, -, -.

Pronotum semicircular, PL 0.93 mm, PW 1.75 mm, PW/PL 1.8, widest at base; apex finely ridged, the ridge interrupted in middle; base bisinuous, weakly produced and slightly emarginate opposite to scutellum; sides rather steeply declined to lateral margins, which are weakly, roundly produced anterior-ventrad, finely bordered and ridged, and barely visible from above; front angles widely rounded; hind angles subrectangular with rounded corners; disc gently convex,

microsculptured, closely punctate, the punctures shallow, mostly weakly umbilicate, often connected with each other and forming rugulose, and each puncture with fine hair, the hairs in central portion shorter and finer, longer and bolder in lateral portions. Scutellum triangular with mild apex, slightly convex, microsculptured, sparsely scattered with minute punctures.

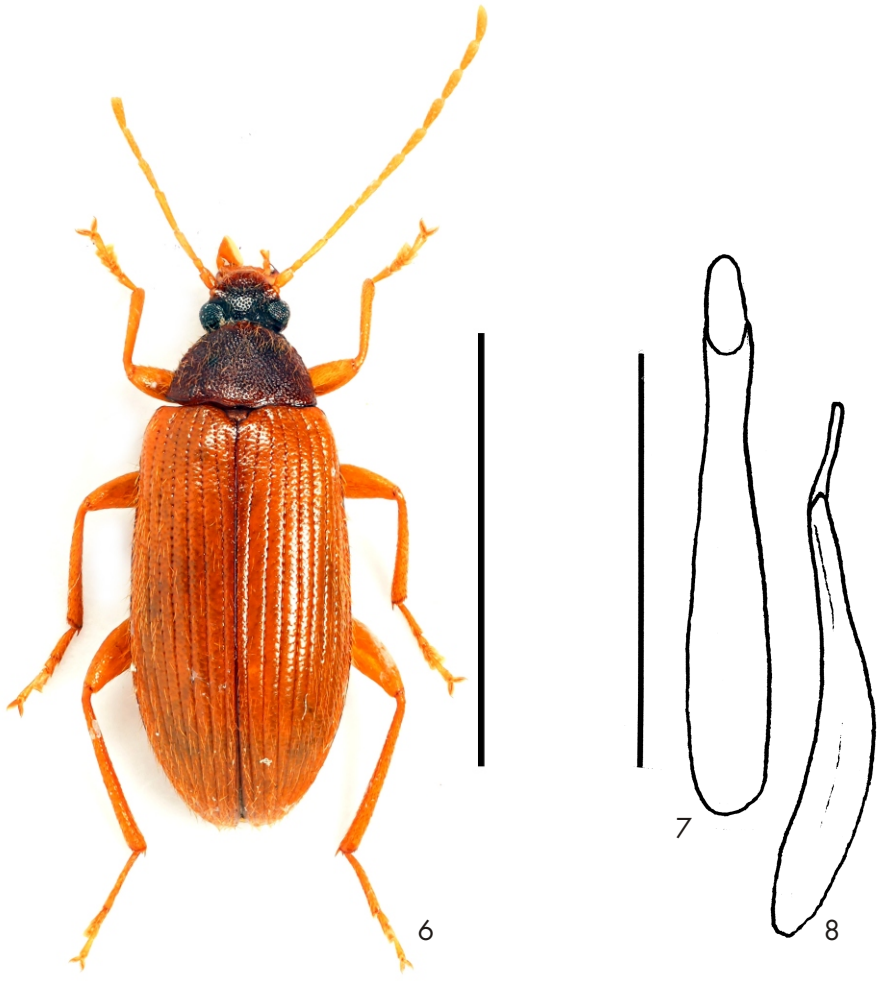
Elytra elongate-subovate, thought the basal portion is truncated by the pronotum, EL 4.50 mm, EW 2.35 mm, EL/EW 1.9, EL/PL 4.8 and EW/PW 1.3, widest at middle; dorsum rather strongly convex, highest at middle; disc punctate-striate, the punctures in striae not so large, slightly notching intervals, those in interior portions small and round to subovate, 0.5-1 times of own diameter distant with each other, those in lateral portions becoming larger and sparser, and those in posterior portions becoming finer and indistinct; intervals moderately convex, microsculptured, scattered with small punctures, each with a hair, the hairs in anterior-medial portion fine and not so long, those in lateral and posterior portions becoming a little bolder and longer; sides steeply declined laterad, and slightly enveloping hind body; lateral margins bordered by narrow punctate grooves and fine ridges, and hardly visible from above; humeri gently swollen, microsculptured, minutely punctate and sparsely haired; apices rounded.

Maxilla with terminal palpomere strongly dilated, with apical side longest and nearly straight. Mentum inverted-trapezoidal, raised anterior-medially, minutely punctate, sparsely haired in anterior part, weakly depressed in lateral parts. Gula parabolically bordered, weakly convex, weakly, transversely wrinkled.

Prosternum rather short, with apex rounded and entirely ridged; anterior part gently raised posteriad, microsculptured and minutely ruguloso-punctate; posterior part (=area between procoxae) narrowed and moderately convex, sparsely scattered with microscopic punctures; prosternal process rather acutely produced, inclined apicad, with row of granules posteriorly, obtusely triangularly produced in basal part. Mesoventrite short; anterior part strongly depressed; posterior part raised in Y-shape. Metaventrite medium-sized and gently convex, longitudinally impressed in posterior four fifths on median line; medial part weakly rather closely punctate, each puncture with minute hair; lateral parts microsculptured, sparsely shallowly punctate, each puncture with a longer subdecumbent hair than in medial part. Abdomen medium-sized, with ventrite I to IV shallowly punctate, the punctures transversely connected with each other and forming fine transverse wrinkles; lateral parts of ventrite I to IV weakly longitudinally wrinkled and sparsely haired; ventrite V microsculptured, scattered with round punctures, clothed with rather long hairs in lateral and posterior parts, and apex mildly rounded.

Legs medium-sized. Femora short-subclavate, fairly closely finely punctate and haired. Tibiae weakly becoming bolder apicad, closely punctate and haired; protibiae weakly curved ventrad; mesotibiae slightly curved ventrad; metatibiae slightly curved interior-ventrad. Tarsi rather stout, finely haired, particularly on dorsal faces and marginal parts; protarsi with basal tarsomere (=tarsomere I) gently becoming bolder apicad, tarsomere II to IV noticeably becoming wider apicad, and tarsomere V gently becoming bolder apicad; mesotarsi with tarsomere I moderately becoming bolder apicad, tarsomere II gently becoming wider, tarsomeres III and IV noticeably becoming wider apicad, V moderately becoming bolder apicad; metatarsi with penultimate tarsomeres widened. LTB-A 0.30, 0.13, 0.13, 0.14, 0.21; 0.44, 0.17, 0.16, 0.14, 0.23; 0.80, 0.23, 0.18, 0.26.

Aedeagus slender with AL 1.33 mm, AW 0.20 mm (widest point across basale); basale with AbL 1.07 mm, gently convex longitudinally, constricted in anterior fifth, weakly curved in lateral view; apicale with AaL 0.20 mm, AaL/AL 0.15, subparallel, with anterior parts weakly constricted, flattened, with apices fused and round.



Figs. 6-8. *Borbonalia liyuanus* sp. nov., holotype, ♂, 6- habitus; 7- aedeagus (dorsal view); 8- ditto (lateral view). Scales: 5.0 mm for 6; 1.0 mm for 7 & 8.

Female (n=1). Body more parallel-sided, with dorsal surface more densely haired. BL 5.80 mm, BW 2.45 mm, BL/BW 2.4; PL 1.01 mm, PW 1.79 mm, PW/PL 1.8; EL 4.57 mm, EW 2.45 mm, EL/EW 1.9, EL/PL 4.5, EW/PW 1.4.

Differential diagnosis. Similar species of the genus *Borbonalia* Novák, 2014 with pale dorsal surface of elytra are *Borbonalia barclayi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia chiangmeilingae* Masumoto, Novák, Lee & Akita, 2019a, *Borbonalia ewersi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia hsinchuensis* Masumoto, Novák, Akita & Lee sp. nov. and *Borbonalia tengchihensis* Masumoto, Novák, Akita & Lee sp. nov.

Borbonalia liyuanus sp. nov. clearly differs from similar species *B. hsinchuensis* and *B. chiangmeilingae* mainly by antennomeres V and VI longer than the antennomere III and by

shape of the aedeagus as in Figs. 7 and 8; while *B. hsinchuensis* (shape of the aedeagus is in Figs. 4 and 5) and *B. chiangmeilingae* (shape of the aedeagus is as in Masumoto et al. 2019a: plate 2: figs. 17 and 18) have antennomeres V and VI approximately as long as the antennomere III.

Borbonalia liyuanus sp. nov. is clearly different from similar species *B. barclayi* mainly by antennomeres V and VI longer than the antennomere III and by shape of the aedeagus as in Figs. 7 and 8; while *B. barclayi* (shape of the aedeagus as in Masomoto et al. 2019b: 40: figs. 19 and 20) has antennomeres V and VI shorter than the antennomere III.

Borbonalia liyuanus sp. nov. clearly differs from similar species *B. ewersi* and *B. tengchihensis* by the pronotum slightly wider (EW/PW 1.3 and PW/PL 1.8) and by shape of the aedeagus as in Figs. 5 and 6; while *B. ewersi* (shape of the aedeagus is as in Masomoto et al. 2019b: 40: figs. 21 and 22) and *B. tengchihensis* (shape of the aedeagus is as in Figs. 11 and 12) have the pronotum narrower (EW/PW 1.4 respectively 1.5 and PW/ PL 1.6 respectively 1.7).

Etymology. The specific name, *liyuanus*, is given after the place Liyuan, in Taitung co. where the type series were collected.

Distribution. Southeastern Taiwan.

***Borbonalia ongi* Masumoto, Novák, Akita & Lee sp. nov.**

(Fig. 9)

Type locality. Taiwan, Taichung City, Liyuan.

Type material. Holotype (♀): "TAIWAN: Taitung co. / Liyuan / 21. IV. 2020. sweeping / Uika Ong leg." (NMNST).

Description of holotype. Body elongate-elliptical, BL 11.80 mm, BW 4.60 mm, BL/BW 2.6; fairly strongly convex longitudinally. Medial and posterior portions of head, pronotum dark brown with feeble reddish tinge, elytra dark brown, antennae, mouth parts, anterior portion of head, legs a little dusty brownish yellow, ventral surface mostly blackish brown, with abdomen lighter in color; hairs mostly brownish yellow, but partly becoming darker in color; head and pronotum sericeous and gently shining, scutellum and elytra weakly, sericeously shining; legs mostly weakly shining, ventral surface mostly weakly sericeously shining; dorsal surface haired, the hairs noticeable in anterior, lateral and posterior portions, antennae densely clothed with fine hairs, legs densely clothed with short, substraight hairs; ventral surface mostly minutely haired, with lateral portions clothed with longer hairs.

Head subtriangular though the apex is gently truncate, weakly microsculputured; clypeus subtrapezoidal with base gently rounded, and apex slightly bi-bulged, feebly depressed, rather closely minutely punctate and haired; fronto-clypeal border widely rounded, with each lateral end reaching to exterior margin; genae moderate in size, weakly raised anterior-laterad, depressed in areas before eyes, punctate, with exterior margin nearly oblique, without clear borders from frons; frons gently convex, microsculptured, noticeably closely punctate, each puncture with a minute hair; areas around eyes weakly grooved. Eyes large, roundly convex laterad, subelliptically inlaid into head, WE/ED 1.5. Antennae filiform, tip of antennomere XI reaching to apical third of elytra. LAI-XI 0.68, 0.22, 0.70, 1.12, 0.73, 0.63, 0.62, 0.60, 0.58, 0.53, 0.62.

Pronotum semicircular with medio-apical margin slightly produced, PL 2.02 mm, PW 3.39 mm, PW/PL 1.7, widest at base; apex finely ridged; base bisinuous, weakly produced and slightly

emarginate opposite to scutellum; sides declined to lateral margins, which are weakly, roundly produced anterior-ventrad, finely bordered and ridged, and only visible in anterior parts from above; hind angles subrectangular; disc gently convex, weakly microsculptured, fairly closely punctate, the punctures small and umbilicate, those in lateral portions clothed with subdecumbent hairs. Scutellum semicircular, flat, sparsely scattered with minute punctures and haired.

Elytra subelliptical, thought the basal portion is truncated by the pronotum, EL 8.44 mm, EW 4.60 mm, EL/EW 1.8, EL/PL 4.2 and EW/PW 1.4, widest at basal third; dorsum rather strongly convex, highest three tenths; disc punctate-striate, the punctures in striae small and closely set in interior portion, becoming larger and a little sparser in lateral portions, and finer in posterior portions; intervals moderately convex, weakly microsculptured, minutely ruguloso-punctate, with subdecumbent hairs, which become denser in the medio-basal portion, longer in lateral portions and denser and finer in posterior portions; sides steeply declined to lateral margins in anterior portions and gently so in lateral portions; margins bordered by punctate grooves which are slightly explanate, and finely ridged, visible from above in anterior-medial portions; humeri fairly gently swollen, microsculptured, minutely punctate and finely haired; apices rounded.

Maxilla with terminal palpomere moderately dilated, subrectangular, with apical side roundly curved. Mentum semicircular, weakly raised anteriad, slightly depressed in lateral parts, minutely microsculptured, minutely punctate and finely haired. Gula triangularly bordered, weakly convex, microscopically, transversely wrinkled.

Prosternum fairly short, with apex nearly straight widely in medial part, rounded in lateral parts, and entirely ridged; anterior part weakly raised posteriad, microsculptured, transversely ruguloso-punctulate; posterior part (=area between coxae) narrowed and raised, scattered with minute punctures; prosternal process narrowly produced, inclined posteriad, micro-granulate, with subhexagonal base. Mesoventrite short; anterior part strongly depressed; posterior part raised in Y-shape, weakly microsculptured, closely finely punctate and clothed with minute, decumbent hairs. Metaventrite medium-sized and rather strongly convex, longitudinally impressed in posterior three fourths on median line; medial part rather closely punctate; lateral parts microsculptured, a little sparsely punctate, each puncture with a subdecumbent hair. Abdomen medium-sized, weakly microsculptured; ventrite I with medial part closely punctate, lateral parts microsculptured, weakly longitudinally wrinkled, rather sparsely punctate, each puncture with long hair; ventrite II to IV similar to I but punctures becoming weaker or hairs shorter; ventrite V microsculptured, scattered with shallow punctures, sparsely haired, with medio-apical part slightly flattened, and apex mildly truncate.

Legs medium-sized. Femora elongate-subelliptical, weakly microsculptured, fairly closely finely punctate and haired. Tibiae weakly becoming bolder apicad, closely punctate and haired; protibiae weakly curved ventrad; mesotibiae slightly curved interior-ventrad; metatibiae slightly curved interior-ventrad. Tarsi rather stout, finely haired particularly on dorsal face and marginal parts; protarsi with basal tarsomere (tarsomere I) gently becoming bolder apicad, tarsomere II to IV noticeably widened apicad, and tarsomere V gently becoming bolder apicad; mesotarsi with tarsomere I moderately becoming bolder apicad, tarsomere II to IV noticeably becoming wider apicad, tarsomere V moderately bolder apicad; metatarsi with two penultimate tarsomeres (particularly tarsomere IV noticeable) dilated. LTB-A 0.53, 0.32, 0.33, 0.40, 0.67; 0.87, 0.26, 0.33, 0.38, 0.67; 1.47, 0.47, 0.46, 0.66.

Male. Unknown.

Fig. 9. *Borbonalia ongi* sp. nov., holotype, ♀, habitus. Scale: 5.0 mm.

Differential diagnosis. New species *Borbonalia ongi* Masumoto, Novák, Akita & Lee sp. nov. clearly differs from other *Borbonalia* Novák, 2014 species with dark dorsal surface mainly by large body (BL 11.80 mm); while other known species with dark dorsal surface from Taiwan have small body (BL 5.3-8.5 mm).

Etymology. The specific name, *ongi*, is given in honor of the type collector, Uika Ong.

Distribution. Central Taiwan.

Borbonalia tengchihensis Masumoto, Novák, Akita & Lee sp. nov.

(Figs. 10-12)

Type locality. Taiwan, Kaohsiung city, Tengchih.

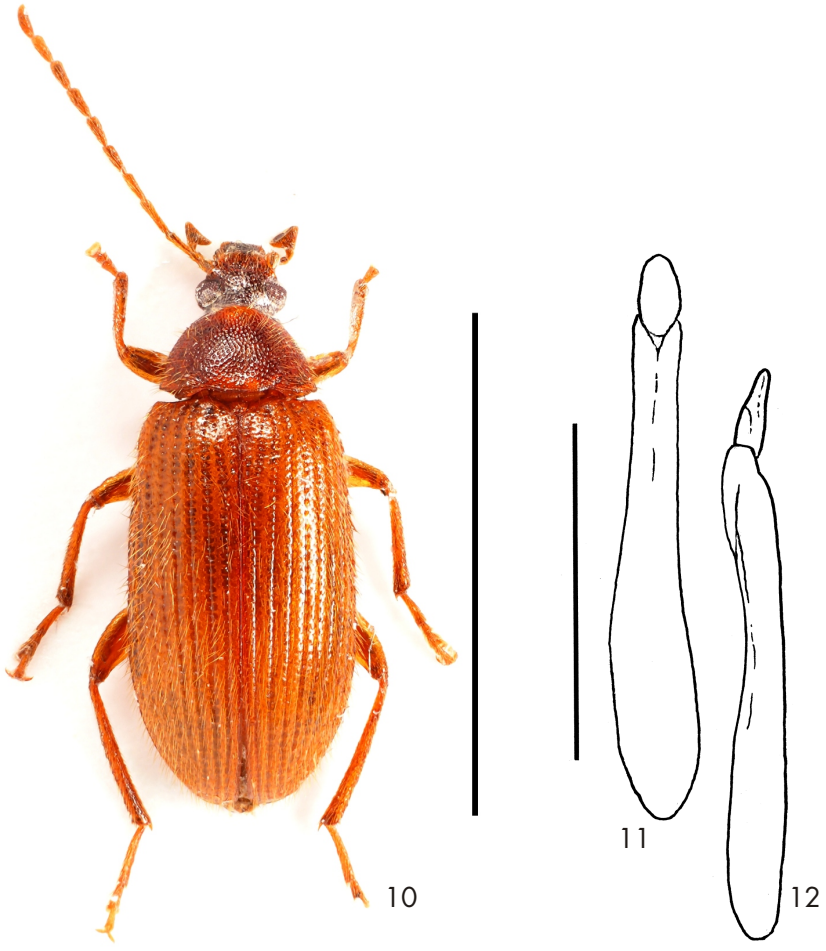
Type material. Holotype (♂): "TAIWAN: Kaoshiang [sic:Kaohsiung] / Tengchih / 28. VIII. 2008, / leg. C.-T. Yao" (TARI). Paratype: 1 ♀, Same locality, 15. IX. 2019, S.-P. Wu. (NSMT).

Description of holotype. Body elongate-elliptical, BL 5.57 mm, BW 2.21 mm, BL/BW 2.5; gently convex longitudinally. Head black with brownish tinge, pronotum blackish brown, scutellum, elytra, legs and basal parts of antennae dark brown, apical part of antennae and mouth parts lighter in color, hairs on surfaces mostly yellow with feeble brownish tinge, ventral surface blackish brown with lateral portions of abdomen lighter in color; dorsal surface sericeous and gently shining, anterior legs gently shining, medial and posterior legs weakly shining; ventral surface mostly weakly shining; head, pronotum and scutellum minutely haired, elytra clothed with rather substraight hairs, those particularly noticeable in lateral portions, antennae densely clothed with minute hairs, legs densely clothed with fine substraight hairs; ventral surface finely haired.

Head subtriangular though the apex is gently truncate, weakly microsculputured; clypeus transversely subhexagonal, gently inclined apicad, weakly depressed broadly in medial part, rather closely minutely punctate and haired; fronto-clypeal border widely rounded, with each lateral end reaching to exterior margin; genae moderate in size, gently dilated and weakly raised anterior-laterad, depressed in areas before eyes, minutely punctate, with exterior margins nearly oblique, feebly incised near anterior ends; frons gently convex, noticeably closely punctate, each puncture with a minute hair, the hairs short and dark in medial area, those becoming longer and lighter in color in lateral area; areas around eyes grooved. Eyes rather large, roundly convex laterad, slightly obliquely, subelliptically inlaid into head, WE/ED 1.6. Antennae filiform, tip of antennomere XI reaching to basal third of elytra. LAI-XI 0.20, 0.11, 0.27, 0.42, 0.31, 0.33, 0.30, 0.32, 0.28, 0.27, 0.34.

Pronotum subtrapezoidal, though the apex gently produced anteriad, PL 0.90 mm, PW 1.55 mm, PW/PL 1.7, widest at base; apex finely ridged; base bisinuous, slightly produced opposite to scutellum; sides declined to lateral margins, which are weakly, roundly produced anterior-ventrad, finely bordered and ridged, and barely visible from above; front angles widely rounded; hind angles subrectangular with rounded corners; disc gently convex, weakly microsculptured, fairly closely punctate, the punctures often connected with each other, each with a fine hair, the hairs becoming longer and bolder laterad. Scutellum triangular with rounded sides, flat, sparsely scattered with minute punctures.

Elytra elongate-subelliptical, thought the basal portion is truncated by the pronotum, EL 4.17 mm, EW 2.21 mm, EL/EW 1.9, EL/PL 4.6 and EW/PW 1.4, widest at basal two fifths; dorsum rather strongly convex, feebly flattened in medio-basal portion, highest at basal third; disc punctate-striate, the punctures in striae notching intervals, those in interior portions small and closely set, those in lateral portions larger and sparser, and those in posterior portions finer; intervals moderately convex, microsculptured, scattered with small punctures, each with a hair, the hairs fine and not so long in anterior-medial portion, those in lateral and posterior portions becoming a little bolder and longer; sides steeply declined to lateral margins, which are bordered by punctate grooves and fine ridges, and barely visible from above; humeri gently swollen, microsculptured, minutely punctate and finely haired; apices rounded.



Figs. 10-12. *Borbonalia tengchihensis* sp. nov., holotype, ♂, 10- habitus; 11- aedeagus (dorsal view); 12- ditto (lateral view). Scales: 5.0 mm for 10; 1.0 mm for 11 & 12.

Maxilla with terminal palpomere strongly dilated, with apical side longest and nearly straight. Mentum semicircular, weakly raised anteriad, minutely punctate in anterior part, transversely impressed in medial part, weakly depressed and microsculptured in lateral parts, raised in posterior-medial part. Gula finely, triangularly bordered, weakly convex, minutely, transversely wrinkled.

Prosternum fairly short, with apex roundly emarginate and entirely ridged; anterior part gently raised posteriad, microsculptured and minutely punctate; posterior part (=area between procoxae) narrowed and raised, microsculptured; prosternal process rather acutely produced, depressed in apical part, microsculptured, with triangular base. Mesoventrite short; anterior part strongly depressed; posterior part raised in narrow V-shape, with rows of haired punctures. Metaventrite medium-sized and rather strongly convex, longitudinally impressed in posterior

three fourths on median line; medial part weakly microsculptured, punctate, each puncture with a fine hair; lateral parts sparsely punctate, each puncture with a longer subdecumbent hair. Abdomen medium-sized, with ventrite I to IV weakly microsculptured, longitudinally wrinkled and finely haired in lateral parts; ventrite I closely punctate; ventrite II to IV more sparsely punctate; ventrite V microsculptured, scattered with shallow punctures, clothed with rather long hairs in lateral and posterior parts, with medio-apical part slightly flattened, and apex mildly truncate.

Legs medium-sized. Femora short subclavate, fairly closely, finely punctate and haired. Tibiae weakly becoming bolder apicad, closely punctate and haired; protibiae weakly curved ventrad; mesotibiae slightly curved ventrad, with interior-ventral faces weakly gouged; metatibiae slightly curved interior-ventrad, with interior-ventral faces slightly gouged. Tarsi rather stout, finely haired particularly on dorsal face and marginal parts; protarsi with basal tarsomere (tarsomere I) gently bolder apicad, tarsomere II to IV noticeably widened apicad, and tarsomere V gently becoming bolder apicad; mesotarsi with tarsomere I moderately becoming bolder apicad, tarsomere II to IV noticeably becoming wider apicad, tarsomere V moderately bolder apicad; metatarsi with penultimate tarsomeres widened. LTB-A 0.21, 0.13, 0.16, 0.18, 0.22; 0.37, 0.16, 0.14, 0.14, 0.21; 0.56, 0.12, 0.11, 0.20.

Aedeagus slender with AL 1.57 mm, AW 0.20 mm (widest point across basale); basale with AbL 1.39 mm, gently convex longitudinally, constricted in anterior fourth, weakly curved in lateral view; apicale with AaL 0.20 mm, AaL/AL 0.13, subelliptical, flattened, with apices fused and round.

Female (n=1). Dorsal surface a little more coarsely punctate, more densely haired. BL 6.14 mm, BW 2.41 mm, BL/BW 2.5; PL 0.98 mm, PW 1.73 mm, PW/PL 1.8; EL 4.53 mm, EW 2.41 mm, EL/EW 1.9, EL/PL 4.6, EW/PW 1.4.

Differential diagnosis. Similar species of the genus *Borbonalia* Novák, 2014 with pale dorsal surface of the elytra are *Borbonalia barclayi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia ewersi* Masumoto, Novák, Lee & Akita, 2019b, *Borbonalia hsinchuensis* Masumoto, Novák, Akita & Lee sp. nov. and *Borbonalia liyuanus* Masumoto, Novák, Akita & Lee sp. nov.

Borbonalia tengchihensis sp. nov. clearly differs from similar species *B. hsinchuensis* and *B. chiangmeilingae* mainly by antennomeres V and VI longer than the antennomere III and by shape of the aedeagus as in Figs. 7 and 8; while *B. hsinchuensis* (shape of the aedeagus is in Figs. 4 and 5) and *B. chiangmeilingae* (shape of the aedeagus is as in Masumoto et al. 2019a: plate 2: figs. 17 and 18) have antennomeres V and VI approximately as long as the antennomere III.

Borbonalia tengchihensis sp. nov. is clearly different from similar species *B. barclayi* mainly by antennomeres V and VI longer than the antennomere III and by shape of the aedeagus as in Figs. 7 and 8; while *B. barclayi* (shape of the aedeagus as in Masomoto et al. 2019b: 40: figs. 19 and 20) has antennomeres V and VI shorter than the antennomere III.

Borbonalia tengchihensis sp. nov. clearly differs from similar species *B. ewersi* by the pronotum slightly wider (EW/PW 1.4 and PW/PL 1.7) and by shape of the aedeagus as in Figs. 11 and 12; while *B. ewersi* (shape of the aedeagus is as in Masomoto et al. 2019b: 40: figs. 21 and 22) has the pronotum narrower (EW/PW 1.5 and PW/ PL 1.6).

Borbonalia tengchihensis sp. nov. is clearly different from similar species *B. liyuanus* by the pronotum slightly narrower (EW/PW 1.4 and PW/PL 1.7) and by shape of the aedeagus as in Figs. 11 and 12; while *B. liyuanus* (shape of the aedeagus is as in Figs. 4 and 5) has the pronotum wider (EW/PW 1.3 and PW/PL 1.8).

Etymology. The specific name, *tengchihensis*, is given after the place where the type series were collected.

Distribution. Southern Taiwan.

***Borboresthes chungi* Masumoto, Novák, Akita & Lee sp. nov.**

(Figs. 13-15)

Type locality. Taiwan, Pingtung co., Tahanshan.

Type material. Holotype (♂): "Taiwan: Pingtung, CCCC (Chang-Chin Chen's Collection) / Tahanshan / 19. VI. 2020 / leg. Y.-T. Chung" (TARI).

Description of holotype. Body elongate-elliptical, BL 8.38 mm, BW 3.39 mm, BL/BW 2.5; fairly strongly convex longitudinally. Dorsal surface dusty pale brown, antennae and legs lighter in color, ventral surface mostly dusty brown; hairs on dorsal surface brownish yellow and partly golden yellow, those on ventral surface brownish yellow; head and pronotum slightly sericeous and gently shining, scutellum and elytra weakly sericeous and almost matt, legs weakly shining, ventral surface weakly shining except for ventral side of neck vitreously shining, central part of metaventrite nearly matt; dorsal surface clothed with long, subdecumbent hairs, antennae densely clothed with fine hairs, legs clothed with substraight hairs; ventral surface partly clothed with fine hairs.

Head rather small, with basal part transversely elliptical and apical part trapezoidally produced, weakly microsculputured; clypeus semicircular with apical parts lightly roundly truncate, weakly depressed, with surface nearly flat, coarse, and sparsely finely haired; fronto-clypeal border roundly sulcate, with each lateral end reaching to exterior margin; genae moderate in size, weakly raised anterior-laterad, scattered with minutely punctures, with exterior margins weakly emarginate in anterior parts, slightly produced and depressed in posterior part, without clear borders from frons; frons feebly convex, closely punctate, clothed with fine subdecumbent hairs; vertex granulo-punctate; areas around eyes indefinitely bordered. Eyes medium-sized, roundly convex laterad, subelliptically inlaid into head, WE/ED 1.2. Antennae filiform, LAI-XI (XI is lacking in the holotype) 0.47, 0.11, 0.54, 0.85, 0.74, 0.69, 0.73, 0.68, 0.62, 0.60, -.

Pronotum semicircular, thought the basal portion is weakly widened, PL 1.51 mm, PW 2.34 mm in width, PW/PL 1.5, widest at base; apex finely ridged; base very weakly bisinuous, slightly produced and truncate opposite to scutellum; sides gently declined to lateral margins, which are roundly produced anteriad, finely ridged, and barely visible from above; hind angles obtuse; disc weakly convex, flattened in posterior-medial portion, weakly microsculptured, fairly closely, shallowly punctate, the punctures in medio-basal portion small and closely set, those in other portions larger and not closely set, often fused with each other and forming rugulose; surface fairly densely clothed with subdecumbent hairs, those becoming longer in lateral portions. Scutellum triangular, depressed in latero-basal part, microsculptured, minutely ruguloso-punctate in posterior-lateral parts.

Elytra elongate-elliptical, thought the basal portion is truncated by the pronotum, EL 6.58 mm, EW 3.39 mm, EL/EW 1.9, EL/PL 4.4 and EW/PW 1.3, widest at basal two sevenths; dorsum moderately convex longitudinally, highest at basal fifth; disc punctate-striate, the striae becoming bolder laterad and clearer posteriad, the punctures in striae small, round to subovate, closely set,

and those in lateral portions becoming larger and coarser, and those in posterior portions becoming finer; intervals gently convex, microsculptured, scattered with minute punctures, each with a fine, long, subdecumbent hair, the hairs in lateral and posterior portions often suberect; sides steeply declined to lateral margins, which are bordered by slightly explanate grooves and fine ridges, and barely visible from above; humeri weakly swollen, microsculptured; apices rounded.

Maxilla with terminal palpomere large, fairly strongly dilated, with apical side slightly obliquely straight. Mentum somewhat semicircular with apex bisinuous, raised anteriad, minutely microsculptured, sparsely clothed with minute hairs. Gula triangularly bordered by ridges, gently convex in medial part, minutely, transversely wrinkled, with a few rather long hairs near apex.

Prosternum rather short, apex nearly straight widely in middle, and entirely finely ridged; anterior and medial parts raised posteriad, microsculptured and minutely punctate; posterior part narrowed and strongly raised, finely punctate; prosternal process strongly depressed and widened, with posterior margins rimmed at bottom. Mesoventrite short; anterior part strongly depressed; posterior part raised in Y-shape, microsculptered and minutely haired. Metaventrite medium-sized, with medial part convex, longitudinally impressed in posterior four fifths on median line, weakly microsculptured, shallowly punctate and sparsely haired; lateral parts scattered with rather strong punctures, each with a long decumbent hair. Abdomen medium-sized, microsculptured, fairly closely punctate and finely haired; ventrite V semicircularly depressed in medio-posterior part, with apex mildly rounded.

Legs medium-sized, weakly microsculptured, closely, minutely punctate and closed with fine hairs. Femora elongate-subelliptical, though posterior margins of two posterior femora nearly straight. Tibiae feebly becoming bolder apicad, with longer, straight hairs on exterior faces; protibiae slightly curved ventrad; mesotibiae very slightly curved ventrad; metatibiae very slightly curved ventrad. Tarsi medium-sized, pro- and mesotarsi with three penultimate tarsomeres dilated, and metatarsi with penultimate tarsomeres dilated. LTB-A 0.39, 0.26, 0.24, 0.25, 0.48; 0.64, 0.23, 0.18, 0.19, 0.30; 1.14, 0.23, 0.14, 0.55.

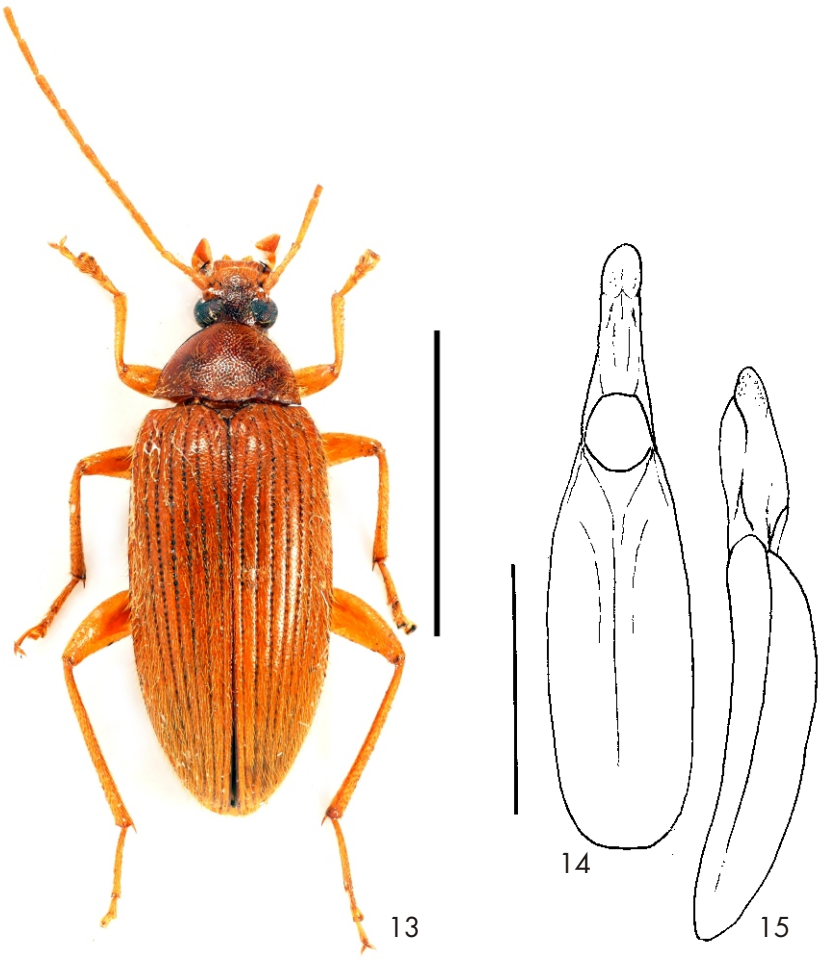
Aedeagus elongate-subfusiform, AL 2.42 mm, AW 0.61 mm (widest point in basale), gently curved in lateral view; basale with AbL 1.68 mm, elongate-ovate, though the apical part is truncated by the apicale, convex longitudinally, with groove on median line; apicale with AaL 0.76 mm, AaL/AL 0.31, elongate-triangular, with apical part subelliptically bulged and apices fused and rounded.

Female. Unknown.

Differential diagnosis. Similar species is *Borboresthes hsinanshanus* Masumoto, Novák, Akita & Lee sp. nov. with the dusty pale brown dorsal surface.

Borboresthes chungi sp. nov. clearly differs from similar species *B. hsinanshanus* mainly by the narrower and longer pronotum (PW/PL 1.5), by anterior margin of the pronotum distinct in middle, by denser setation of the dorsal surface and by shape of the aedeagus as in Figs. 14 and 15; while *B. hsinanshanus* has the pronotum shorter and wider (PW/PL 1.7), anterior margin of the pronotum is indistinct in middle, setation of the dorsal surface is sparser and shape of the aedeagus is as in Figs. 17 and 18.

Etymology. The specific name, *chungi*, is given in honor of the type specimen collector, Y.-T. Chung.



Figs. 13-15. *Borboresthes chungi* sp. nov., holotype, ♂, 13- habitus; 14- aedeagus (dorsal view); 15-ditto (lateral view). Scales: 5.0 mm for 13; 1.0 mm for 14 & 15.

Distribution. Southern Taiwan.

***Borboresthes hsinanshanus* Masumoto, Novák, Akita & Lee sp. nov.**
(Figs. 16-18)

Type locality. Taiwan, Khaohsiung City, Hsinanshan.

Type material. Holotype (♂): "Taiwan: Khaoshiung [sic: Kaohsiung], CCCC (Chang-Chin Chen's Collection) / Hsinanshan / 12.VI. 2020 / leg. Y.-T. Chung" (TARI).

Description of holotype. Body elongate-elliptical, BL 8.40 mm, BW 3.30 mm, BL/BW 2.5; rather gently convex longitudinally. Dorsal surface dusty pale brown, antennae and legs dusty yellow, ventral surface lighter in color than dorsal surface, hairs on surfaces brownish yellow;

head, pronotum weakly sericeously shining, scutellum and elytra almost matt, legs weakly shining, ventral surface gently shining; head and scutellum sparsely clothed with fine, subdecumbent hairs, antennae densely clothed with fine hairs, pronotum clothed with fine hairs, which become longer and more distinct in lateral parts, elytra fairly densely clothed with long decumbent hairs, legs rather closely clothed with substraight hairs, ventral surface clothed with rather short, subdecumbent hairs.

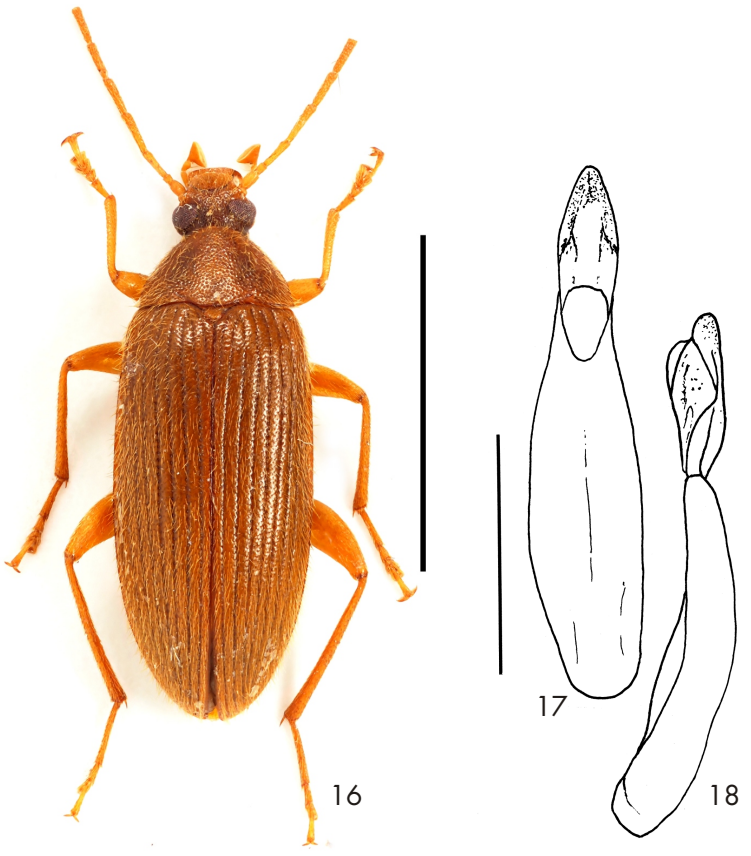
Head rather small, with basal part transversely elliptical and apical part strongly produced and gently widened anteriad; clypeus semicircular, gently truncate apex, nearly flat, microsculptured, minutely punctate in medial part, a little coarsely punctate in lateral parts, with large subrectangular labium exposed in front; fronto-clypeal border roundly curved, with each lateral end reaching to exterior margin; genae small, weakly raised anterior-laterad, microsculptured, ruguloso-punctate, sparsely, finely haired, with exterior borders oblique and ridged; frons wide-Y shaped, without borders of genae, nearly flat, only inclined before fronto-clypeal border, noticeably microsculptured and punctate, sparsely clothed with fine decumbent hairs; vertex slightly convex medially, ruguloso-punctate; areas around eyes weakly grooved. Eyes fairly large, roundly convex laterad, roundly inlaid into head, WE/ED 0.83. Antennae slender (three apical segments lacking in the holotype), LAI-XI (antennomeres VIII-XI lacking in the holotype) 0.39, 0.17, 0.46, 0.75, 0.61, 0.59, 0.57, -, -, -, -.

Pronotum semicircular, PL 1.46 mm, PW 2.42 mm, PW/PL 1.7, widest at base, gently roundly narrowed anteriad; apex finely bordered; base weakly bisinuous, slightly produced and truncate opposite to scutellum; sides declined to lateral margins, which are roundly produced anterior-ventrad, bordered and finely reflected, the reflections visible from above in posterior halves; front angles rounded; hind angles obtuse; disc weakly convex, slightly depressed in posterior-medial portion, microsculptured, closely, shallowly punctate and fairly densely haired, the hairs long and decumbent. Scutellum short-linguiform, feebly convex, microsculptured, sparsely haired.

Elytra elongate-elliptical, EL 6.39 mm, EW 3.30 mm, EL/EW 1.9, EL/PL 4.4 and EW/PW 1.4, widest at basal three sevenths; dorsum rather moderately convex longitudinally, highest at basal fourth; disc punctate-grooved, the grooves becoming shallower and finer posteriad, the punctures in grooves small and closely set, those in posterior portions becoming finer; intervals moderately convex, weakly microsculptured, minutely punctate, each puncture with a fine, long hair; the hairs distinct in lateral and posterior portions; sides roundly declined to lateral margins, which are bordered by punctate-grooves and fine ridges, and visible from above, the grooves a little wide (explanate) in basal part from one seventh to three sevenths; humeri weakly swollen, microsculptured and rugulose; apices rounded.

Maxilla with terminal palpomere large, strongly dilated, apical side straight. Mentum subhexagonal, convex medially, smooth. Gula triangularly bordered, not convex, rather smooth, impressed on borders near apex.

Prosternum medium-sized, apex gently, widely emarginate and entirely finely ridged; anterior and medial parts weakly raised posteriad, microsculptured; posterior part narrowed and strongly convex, sparsely haired; prosternal process strongly depressed, inverted subhexagonal, rather smooth, with exterior margins ridged. Mesoventrite fairly short; anterior part strongly depressed; posterior part strongly triangularly raised, rather smooth, scattered with minute punctures with short fine hairs. Metaventrite medium-sized, moderately convex, longitudinally impressed on median line, weakly microsculptured, scattered with shallow punctures, which are often fused with each other and form rugulosities, and decumbently haired, the hairs becoming longer laterad. Abdomen medium-sized, microsculptured, closely ruguloso-punctate, clothed with fairly long subdecumbent hairs; ventrite V sparsely, vaguely punctate, with apex rounded.



Figs. 16-18. *Borboresthes hsinanshanus* sp. nov., holotype, ♂, 16- habitus; 17- aedeagus (dorsal view); 18- ditto (lateral view). Scales: 5.0 mm for 16; 1.0 mm for 17 & 18.

Legs medium-sized, closely, minutely punctate and densely, decumbently haired. Femora elongate-subelliptical, though posterior margins are less produced. Tibiae feebly becoming bolder apicad, with longer hairs on exterior faces; protibiae slightly curved exterior-ventrad; mesotibiae nearly straight, weakly gouged on interior-ventral faces; metatibiae very slightly curved interior-ventrad, very weakly gouged in apical parts on interior-ventral faces. Tarsi medium-sized, pro- and mesotarsi with two penultimate tarsomeres dilated, and metatarsi with penultimate ones dilated. LTB-A 0.34, 0.19, 0.15, 0.14, 0.33; 0.59, 0.20, 0.14, 0.13, 0.21; 1.00, 0.24, 0.18, 0.30.

Aedeagus extremely elongate-subfusiform, constricted in bordering area of basale and apicale, gently curved in lateral view, AL 2.18 mm, AW 0.44 mm (widest point across basale); basale with AbL 1.55 mm, elongate-elliptical, though the apical part is truncated by the apicale, convex longitudinally; apicale with AaL 0.67 mm, AaL/AL 0.43, subelliptical with triangular apices.

Female. Unknown.

Differential diagnosis. Similar species is *Borboresthes chungi* Masumoto, Novák, Akita & Lee sp. nov. with dusty pale brown dorsal surface.

Borboresthes hsinanshanus sp. nov. clearly differs from similar species *B. chungi* mainly by the pronotum shorter and wider (PW/PL 1.7), by anterior margin of the pronotum is indistinct in middle, by denser setation of the dorsal surface and by shape of the aedeagus as in Figs. 17 and 18; while *B. chungi* has the narrower and longer pronotum (PW/PL 1.5), anterior margin of the pronotum is distinct in middle, setation of the dorsal surface is sparser and shape of the aedeagus is as in Figs. 14 and 15.

Etymology. The specific name, *hsinanshanus*, is given after the type localityin the southern part of Taiwan.

Distribution. Southern Taiwan.

Borboresthes lilungshanus Masumoto, Novák, Akita & Lee sp. nov.

(Figs. 19-21)

Type locality. Taiwan, Pingtung co., Lilungshan.

Type material. Holotype (♂): "Taiwan: Pingtung, CCCC (Chang-Chin Chen's Collection) / Lilungshan / 2020. VII.7 / leg. Y.-T. Chung" (TARI). Paratype: 1 ♂, 6. VIII. 2020, same collecting place and collector (NSMT).

Description of holotype. Body slightly elongate-elliptical, BL 5.18 mm, BW 2.30 mm, BL/BW 2.3; fairly strongly convex longitudinally. Dorsal surface dark reddish brown, head, antennae, pronotum, elytra with humeri and apical spots and legs lighter in color, ventral surface mostly dark yellowish brown; hairs on each surface brownish yellow, and partly lighter in color; head, pronotum, scutellum and basal portions of elytra slightly sericeous and gently shining, major portions of elytra sericeously, feebly shining, legs weakly shining, ventral surface gently shining; dorsal surface with anterior portions mostly finely haired and posterior portions densely clothed with long, subdecumbent hairs, antennae densely clothed with fine hairs, legs densely clothed with substraight hairs; ventral surface partly clothed with fine hairs.

Head rather small, with basal part transversely elliptical and apical part subtrapezoidally produced, weakly microsculputured; clypeus semicircular with apex slightly roundly truncate, weakly depressed in basal part, slightly convex in medial part, weakly punctate and clothed with finely decumbent hairs; fronto-clypeal border roundly, fairly deeply sulcate, with each lateral end reaching to exterior margin; genae moderate in size, weakly raised anterior-laterad, depressed in areas before eyes, finely rugulose, with exterior margin nearly oblique, without clear borders from frons; frons feebly convex, noticeably punctate, clothed with fine subdecumbent hairs in lateral parts; areas around eyes indefinitely bordered. Eyes large, roundly convex laterad, slightly obliquely inlaid into head, WE/ED 1.6. Antennae filiform, LAI-XI (XI is lacking in the holotype) 0.32, 0.11, 0.31, 0.35, 0.34, 0.34, 0.34, 0.33, 0.32, 0.24, -.

Pronotum semicircular, PL 0.90 mm, PW 1.62 mm, PW/PL 1.8, widest at base; apex finely ridged; base rather noticeably bisinuous, truncate opposite to scutellum; sides declined to lateral margins, which are weakly, roundly produced anteriad, finely bordered and ridged, and hardly visible from above; hind angles subrectangular; disc weakly convex, flattened in posterior-medial portion, weakly microsculptured, fairly closely punctate, the punctures often fused with each other and forming rugulose near base; surface clothed with subdecumbent hairs, those in medial

portion fine and sparse, and becoming longer and denser in lateral portions. Scutellum short linguiform, microsculptured, ruguloso-punctate.

Elytra subelliptical, thought the basal portion is truncated by the pronotum, EL 3.83 mm, EW 2.30 mm, EL/EW 1.7, EL/PL 4.3 and EW/PW 1.4, widest at middle; dorsum moderately convex, highest at middle; disc punctate-striate, the striae rather fine, the punctures in striae fairly large, mostly round, closely set, notching intervals in medial portion, and those in lateral portions becoming ovate, and those in posterior portions becoming finer; intervals gently convex, weakly microsculptured, weakly, obliquely rugulose, scattered with minute punctures, each with a fine subdecumbent hair, the hairs in lateral and posterior portions becoming longer; sides steeply declined to lateral margins, which are bordered by slightly explanate grooves and fine ridges, and hardly visible from above; humeri weakly swollen, microsculptured, minutely punctate and finely haired; apices slightly produced and rounded.

Maxilla with terminal palpomere large, strongly dilated, with interior side shortest. Mentum subhexagonal with narrow base and wide apex, weakly convex medially, minutely punctate and sparsely clothed microscopic hairs. Gula triangularly bordered by grooves, gently convex in medial part, minutely punctate.

Prosternum short with apex roundly emarginate and entirely ridged; anterior part weakly depressed, longitudinally microsculptured; posterior part noticeably narrowed and strongly raised; prosternal process acutely produced and inclined posteriad. Mesoventrite short; anterior part strongly depressed; posterior part raised in Y-shape, bordered from mesocoxiae by rows of punctures. Metaventrite rather short, with medial part convex, weakly flattened in posterior-medial part, longitudinally impressed in posterior three fourths on median line, transversely micro-wrinkled, punctate, each puncture with a subdecumbent hair; lateral parts microsculptured, scattered with stronger punctures, each with decumbent hair. Abdomen medium-sized, microsculptured, punctate and finely haired; ventrite I to III longitudinally wrinkled, ventrite V flattened in medio-posterior part, with apex mildly rounded.

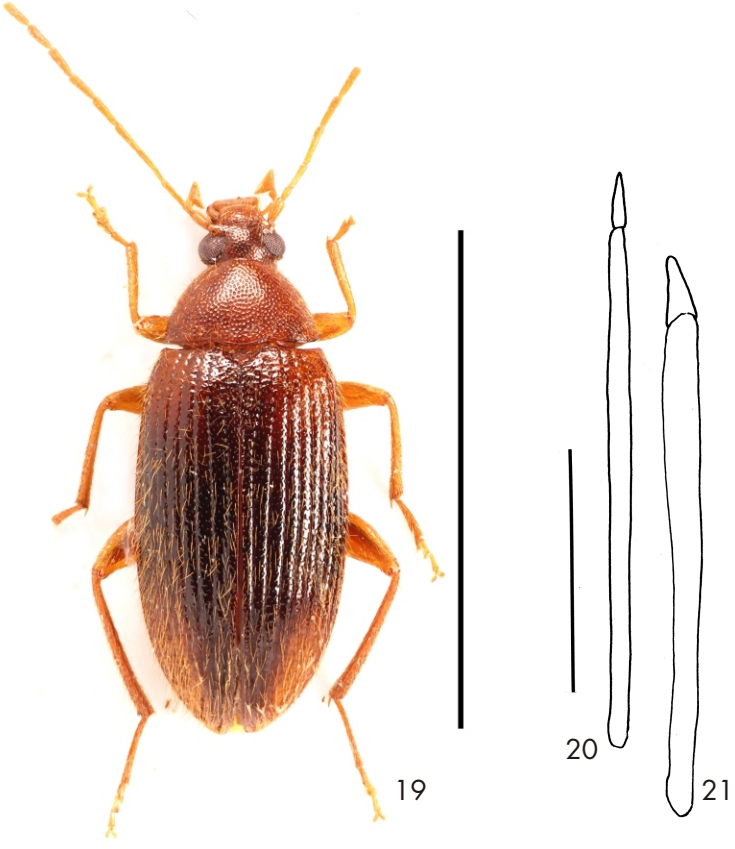
Legs medium-sized, weakly microsculptured, closely, minutely punctate and closed with fine hairs. Femora elongate-subelliptical. Tibiae feebly becoming bolder apicad, clothed with long, straight hairs on exterior faces; protibiae slightly curved ventrad; mesotibiae very slightly curved ventrad, weakly gouged on interior-ventral faces; metatibiae very slightly curved ventrad. Tarsi fairly stout, pro- and mesotarsi with three penultimate tarsomeres dilated, and metatarsi with the penultimate tarsomeres dilated, claws rather bold. LTB-A 0.23, 0.10, 0.12, 0.13, 0.15; 0.37, 0.17, 0.13, 0.15, 0.24; 0.73, 0.17, 0.16, 0.28.

Aedeagus long and thin, AL 2.33 mm, AW 0.14 mm (widest point across basale), nearly straight in lateral view; basale with AbL 1.77 mm, weakly convex and widened in basal two fifths, flattened and slightly narrowed apicad in three fifths; apicale with AaL 0.56 mm, AaL/AL 0.24, extremely elongate-triangle with apical part curved ventrad, with apices fused and acute.

Variability (n=2). BL 5.18-5.54 mm, BW 2.20-2.30 mm, BL/BW 2.3-2.5; PL 0.87-0.90 mm, PW 1.53-1.62 mm, PW/PL 1.8; EL 3.83-4.02 mm, EW 2.20-2.30 mm, EL/EW 1.7-1.8, EL/PL 4.3-4.6, EW/PW 1.4; AL 2.33-2.40 mm, AW 0.14-0.16 mm, AaL/AL 0.21-0.24.

Female. Unknown.

Differential diagnosis. No similar species of the genus *Borboresthes* Fairmaire, 1897 with bicolor dorsal surface of elytra is known from Taiwan until now except *Borboresthes cinctipennis* (Pic, 1909) which has elytra yellow with wide longitudinal blackish brown spot near suture.



Figs. 19-21. *Borboresthes lilungshanus* sp. nov., holotype, ♂, 19- habitus; 20- aedeagus (dorsal view); 21- ditto (lateral view). Scales: 5.0 mm for 19; 1.0 mm for 20 & 21.

Etymology. The specific name, *lilungshanus*, is given after the collected place of type series, Mt. Lilungshan, in the southern part of Taiwan.

Distribution. Southern Taiwan.

***Borboresthes tahanshanus* Masumoto, Novák, Akita & Lee sp. nov.**

(Figs. 22-24)

Type locality. Taiwan, Pingtung co., Tahanshan.

Type material. Holotype (♂): "Taiwan: Pingtung, CCCC (Chang-Chin Chen's Collection) / Tahanshan / 19. VI. 2020 / leg. Y.-T. Chung" (TARI).

Description of holotype. Body elongate-elliptical, BL 9.60 mm, BW 3.31 mm, BL/BW 2.9; fairly strongly convex longitudinally. Dorsal surface dark brown, antennae and legs brownish yellow, ventral surface mostly blackish brown; hairs on dorsal surface yellow with feebly brownish

tinge, those on ventral surface mostly blackish brown; head and pronotum weakly sericeously, moderately shining, scutellum and elytra weakly sericeously shining, legs weakly shining, ventral surface weakly shining except for ventral side of neck vitreously shining; dorsal surface clothed with long, subdecumbent hairs, antennae densely clothed with fine hairs, legs clothed with substraight hairs, ventral surface partly clothed with fine hairs.

Head medium-sized, with basal part transversely elliptical and apical part trapezoidally produced, weakly microsculputured; clypeus subtrapezoidal, though the basal part (=fronto-clypeal border) is gently curved and theapex is gently truncate, with surface nearly flat, shallowly punctate, clothed with decumbent hairs; fronto-clypeal border roundly curved, with each lateral end reaching to exterior margin; genae small, triangular, weakly raised anterior-laterad, minutely punctate, sparsely, finely haired, with exterior borders oblique, nearly straight and finely ridged; frons bold-based Y-shaped, indefinitely bordered from genae, feebly convex, closely punctate, clothed with fine decumbent hairs; vertex slightly convex medially, granulo-punctate, irregularly haired; areas around eyes deeply grooved. Eyes large, roundly convex laterad, a little narrowly inlaid into head, WE/ED 0.77. Antennae filiform, LAI-XI (XI is lacking in the holotype) 0.48, 0.14, 0.52, 0.77, 0.69, 0.64, 0.62, 0.60, 0.60, 0.56, -.

Pronotum semicircular, PL1.50 mm, PW 2.49 mm, PW/PL 1.5, widest at base, gently, substraightly narrowed anteriad in basal half, then roundly narrowed apicad; apex finely bordered; base weakly bisinuous, truncate opposite to scutellum; sides gently declined to lateral margins, which are bordered, finely reflected and visible from above; hind angles obtuse; disc weakly convex, slightly depressed in posterior-medial portion, weakly microsculptured, coarsely, closely ruguloso-punctate, and fairly densely haired, the hairs distinctly long and subdecumbent in lateral portions. Scutellum triangular, feebly convex medially, microsculptured, minutely ruguloso-punctate and sparsely haired.

Elytra elongate-elliptical, thought the basal portion is truncated by the pronotum, EL 6.46 mm, EW 3.29 mm, EL/EW 2.0, EL/PL 4.3 and EW/PW 1.3, widest at basal three sevenths; dorsum moderately convex longitudinally, highest at basal two sevenths; disc punctate-striate, the striae becoming a little bolder laterad and clearer posteriad, the punctures in striae small, round to subovate and closely set with each other, those in lateral portions becoming larger and coarser, and those in posterior portions becoming finer; intervals moderately convex, weakly microsculptured, scattered with minute punctures, each with fine long hair, the hairs subdecumbent, and becoming distinct in lateral and posterior portions; sides declined to lateral margins, which are bordered by slightly explanate grooves and fine ridges, and visible from above, the grooves become a little wider (explanate) in basal from one eighth to three eighths; humeri weakly swollen, microsculptured, with a small protuberance; apices rounded.

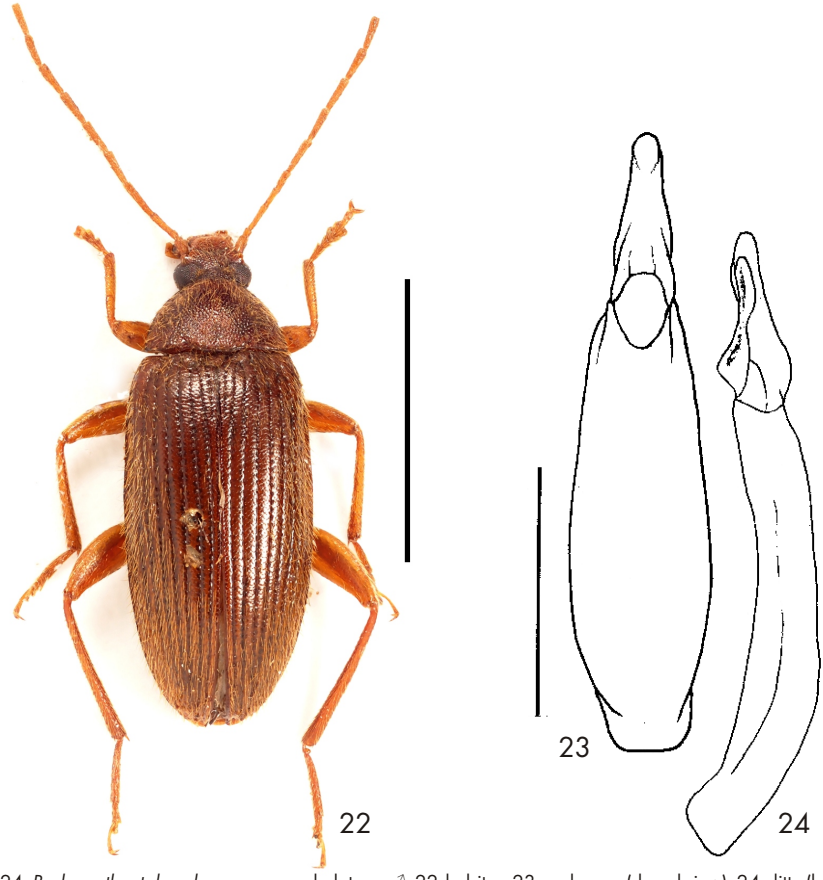
Maxilla with terminal palpomere large, strongly dilated and obtusely triangle, with apical side straight. Mentum transversely subelliptical, weakly convex medially, minutely microsculptured, sparsely scattered with minute punctures with microscopic hairs. Gula triangularly bordered, gently convex, minutely, transversely wrinkled, with a pair of curved impressions on the borders near apex.

Prosternum medium-sized, apex widely emarginate and entirely, finely ridged; anterior and medial parts weakly raised posteriad, microsculptured, weakly rugulose; posterior part narrowed and strongly raised, finely haired; prosternal process finger-shaped and steeply inclined, with a small tubercle at apex, and bottom rounded. Mesoventrite short; anterior part strongly depressed; posterior part raised posteriad, with area between mesocoxae narrow, ruguloso-punctate and sparsely haired. Metaventrite medium-sized, with medial part convex posteriad, longitudinally impressed on median line, weakly microsculptured, fairly closely punctate and

weakly transversely wrinkled. Abdomen medium-sized, microsculptured, closely ruguloso-punctate, sparsely haired; ventrite V scattered with smaller punctate, clothed with fine hairs, weakly parabolically depressed in medio-posterior part, with apex subtruncate.

Legs medium-sized, weakly microsculptured, closely, minutely punctate and clothed with fine hairs. Femora elongate-subelliptical, though posterior margins of two posterior femora are nearly straight. Tibiae feebly becoming bolder apicad, with longer, straight hairs on exterior faces; protibiae slightly curved interior-ventrad, weakly gouged on interior-ventral faces; mesotibiae nearly straight, weakly gouged on interior-ventral faces; metatibiae very slightly curved interior-ventrad, very weakly gouged on interior-ventral faces. Tarsi medium-sized, pro- and mesotarsi with three penultimate tarsomeres dilated, and metatarsi with the penultimate tarsomeres dilated. LTB-A 0.24, 0.20, 0.22, 0.16, 0.40; 0.63, 0.17, 0.29, 0.19, 0.69; 1.19, 0.31, 0.28, 0.42.

Aedeagus elongate-subfusiform, AL 2.29 mm, AW 0.60 mm (widest point across basale), gently curved in lateral view; basale with AbL 1.63 mm, extremely elongate-ovate, though the apical part is truncated by the apicale, convex longitudinally; apicale with AaL 0.67 mm, AaL/AL 0.41, strongly convex longitudinally, subparallel-sided in basal half, then narrowed apicad, with apices fused and rounded.



Figs. 22-24. *Borboresthes tahanshanus* sp. nov., holotype, ♂, 22- habitus; 23- aedeagus (dorsal view); 24- ditto (lateral view). Scales: 5.0 mm for 22; 1.0 mm for 23 & 24.

Female. Unknown.

Differential diagnosis. Similar species with dark brown dorsal surface are *Borboresthes lanyenchiuae* Masumoto, Novák, Lee & Akita, 2019a and *Borboresthes nanxienensis* Masumoto, Novák, Lee & Akita, 2019a.

Borboresthes tahanshanus sp. nov. clearly differs from similar species *B. lanyenchiuae* and *B. nanxienensis* mainly by the longer and narrower pronotum (PW/PL 1.5), by the anterior margin indistinct in middle of the pronotum, by the dorsal surface semi-matte: covered with denser setation and by shape of the aedeagus as in Figs. 23 and 24; while *B. lanyenchiuae* and *B. nanxienensis* have the pronotum shorter and wider (PW/PL 1.75), anterior margin of the pronotum is distinct in middle, the dorsal surface is shiny with sparser setation and shape of the aedeagus is as in Masumoto et al. 2019a: plate 1: fig. 4 and plate 2: figs. 19 and 20 (for *B. nanxienensis*), plate 1: fig. 9 and plate 2: figs. 29 and 30 (for *B. lanyenchiuae*).

Etymology. The specific name, *tahanshanus*, is given after the type locality, Mt. Tahanshan, located in the southern part of Taiwan.

Distribution. Southern Taiwan.

CHECK LIST OF THE SUBFAMILY ALLECULINAE FROM TAIWAN

Subfamily Alleculinae Laporte, 1840
Tribe Alleculini Laporte, 1840
Subtribe Alleculina Laporte, 1840

Genus ***Allecula*** Fabricius, 1801

Allecula Fabricius, 1801: 21. Type species: *Cistela morio* Fabricius, 1787.
A. dahanshana Masumoto, Novák, Lee & Akita, 2017: 3. Distr.: Taiwan.
A. fenghuangshana Masumoto, Novák, Lee & Akita, 2017: 6. Distr.: Taiwan.
A. fenchihus Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
A. formosana Pic, 1910b: 94. Distr.: Taiwan.
A. matsudai Masumoto, Novák, Lee & Akita, 2019b: 25. Distr.: Taiwan.
A. maxima Pic, 1910b: 94. Distr.: China, Taiwan.

Genus ***Angusthes*** Novák, 2023

Angusthes Novák, 2023. (First record from Taiwan). Type species: *Angusthes laosensis* Novák, 2023.
A. yutashanus Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.

Genus ***Bobina*** Novák, 2015

Bobina Novák, 2015a: 125. Type species: *Bobina jendeki* Novák, 2015a.
B. fikaceki Novák, 2015a: 132. Distr.: Taiwan, China.

Genus ***Bolbostetha*** Fairmaire, 1896

Bolbostetha Fairmaire, 1896b: 117. Type species: *Bolbostetha soleata* Fairmaire, 1896.
B. sauteri (Borchmann, 1925): 341 (*Alleculodes*). Distr.: Taiwan.
B. yoshitakei Masumoto, Novák, Lee & Akita, 2017: 8. Distr.: Taiwan.

Genus ***Borbonalia*** Novák, 2014

Borbonalia Novák: 2014: 136. Type species: *Borbonalia brancuccii* Novák, 2014.

B. *akiyamai* Masumoto, Novák, Lee & Akita, 2017: 10. Distr.: Taiwan.
B. barclayi Masumoto, Novák, Lee & Akita, 2019b: 27. Distr.: Taiwan.
B. beinanica Masumoto, Novák, Lee & Akita, 2017:13. Distr.:Taiwan.
B. chiangmeilingae Masumoto, Novák, Lee & Akita, 2019a: 94. Distr.: Taiwan.
B. ewersi Masumoto, Novák, Lee & Akita, 2019b: 48. Distr.: Taiwan.
B. hsinchuensis Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. moraveci Novák, 2023b: 90. Distr.: Taiwan.
B. ongi Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. tengchihensis Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. tienchica Masumoto, Novák, Lee & Akita, 2019a: 92. Distr.: Taiwan.
B. wangtaichuani Masumoto, Novák, Lee & Akita, 2019a: 90. Distr.: Taiwan.
B. xueshana Masumoto, Novák, Lee & Akita, 2017:16. Distr.: Taiwan.

Genus ***Borboresthes*** Fairmaire, 1897

Borboresthes Fairmaire, 1897: 253. Type species: *Allecula cruralis* Marseul, 1876.
B. baxienshanus Masumoto, Novák, Lee & Akita, 2018: 106. Distr.: Taiwan.
B. chungi Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. cienus Masumoto, Novák, Lee & Akita, 2019a: 103. Distr.: Taiwan.
B. cinctipennis (Pic, 1909) (Allecula): 19. Distr.: Taiwan (Hua, 2002), China.
B. dahanshanus Masumoto, Novák, Lee & Akita, 2018: 81. Distr.: Taiwan.
B. fainanensis Pic, 1922a: 102. Distr.: Taiwan, China.
B. formosensis Pic, 1934: 21. Distr.: Taiwan.
B. fuliginosus Fairmaire, 1897: 254. Distr.: China, Taiwan (Borchmann, 1912; Miwa, 1931).
B. fushanus Masumoto, Novák, Lee & Akita, 2017: 16. Distr.: Taiwan.
B. howangus Masumoto, Novák, Lee & Akita, 2018: 76. Distr.: Taiwan.
B. hsiehi Masumoto, Novák, Lee & Akita, 2017: 19. Distr.: Taiwan.
B. hsinanshanus Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. huangfuchengi Masumoto, Novák, Lee & Akita, 2019a: 110. Distr.: Taiwan.
B. keiichii Masumoto, Novák, Lee & Akita, 2019a: 106. Distr.: Taiwan.
B. klapperichi Pic, 1955: 30. Distr.: China, Taiwan, Lanyu.
B. kuanwuensis Masumoto, Novák, Lee & Akita, 2018: 91. Distr.: Taiwan.
B. lanyenchiuae Masumoto, Novák, Lee & Akita, 2019a: 108. Distr.: Taiwan.
B. lijianus Masumoto, Novák, Lee & Akita, 2018: 86. Distr.: Taiwan.
B. lilungensis Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. litungashanus Masumoto, Novák, Lee & Akita, 2017: 19. Distr.: Taiwan.
B. lushanensis Masumoto, Novák, Lee & Akita, 2019b: 27. Distr.: Taiwan.
B. nanxienensis Masumoto, Novák, Lee & Akita, 2019a: 96. Distr.: Taiwan.
B. niisatoi Masumoto, Novák, Lee & Akita, 2018: 96. Distr.: Taiwan.
B. obscurithorax Pic, 1922b: 24. Distr.: Taiwan.
B. ongi Masumoto, Novák, Lee & Akita, 2019b: 32. Distr.: Taiwan.
B. pahsienshanus Masumoto, Novák, Lee & Akita, 2019a: 101. Distr.: Taiwan.
B. piceus Borchmann, 1941:27. Distr.: Taiwan, Lanyu, China.
B. ruficollis Borchmann, 1940: 155. Distr.: Taiwan.
B. rufinus rufinus Borchmann, 1940: 156. Distr.: Taiwan.
B. rufinus piceicollis Borchmann, 1940: 156. Distr.: Taiwan.
B. shedingshanus Masumoto, Novák, Lee & Akita, 2018: 83. Distr.: Taiwan.
B. suni Masumoto, Novák, Lee & Akita, 2017: 22. Distr.: Taiwan.
B. suzukii Masumoto, Novák, Lee & Akita, 2018: 88. Distr.: Taiwan.
B. tahanshanus Masumoto, Novák, Akita & Lee sp. nov. Distr.: Taiwan.
B. tengchihensis Masumoto, Novák, Lee & Akita, 2018: 98. Distr.: Taiwan.
B. tomokunii Masumoto, Novák, Lee & Akita, 2919b: 34. Distr.: Taiwan.
B. tsaijinfui Masumoto, Novák, Lee & Akita, 2019a: 99. Distr.: Taiwan.

B. tulanshannus Masumoto, Novák, Lee & Akita, 2019a: 113. Distr.: Taiwan.
B. umbilicatus (Seidlitz, 1896): 38 (*Allecula*). Distr.: Taiwan (Hua, 2002), China, Japan (C.-F. Wu, 1937; Hua 2002).
B. walamiensis Masumoto, Novák, Lee & Akita, 2018: 93. Distr.: Taiwan.
B. wangi Masumoto, Novák, Lee & Akita, 2019b: 36. Distr.: Taiwan.

Genus ***Cistelopsis*** Fairmaire, 1896

Cistelopsis Fairmaire, 1896a: 39. Type species: *Cistelopsis rufina* Fairmaire, 1896.
C. sp. indet. Distr.: Taiwan.

Genus ***Doranalia*** Novák, 2020

Doranalia Novák, 2020: 481. Type species: *Cistela rufipennis* Marseul, 1876.
D. klapperichi (Pic, 1955): 30. (*Hymenalia*) Distr.: Taiwan, Lanyu, China.
D. merkli (Novák, 2010): 210. (*Hymenalia*) Distr.: Taiwan.
D. rufipennis (Marseul, 1876): 328 (*Cistela* (*Gonodera*), *Hymenalia*). Distr.: Japan, Taiwan, China, Ryukyus, Korea, Siberia.

Genus ***Gerdacula*** Novák, 2015

Gerdacula Novák, 2015b: 145. Type species: *Gerdacula fujianica* Novák, 2015.
G. taiwana Masumoto, Novák, Lee & Akita, 2017: 23. Distr.: Taiwan.

Genus ***Microsthes*** Novák, 2011

Microsthes Novák, 2011: 320. Type species: *Microsthes barborae* Novák, 2011.
M. taiwana Masumoto, Novák, Lee & Akita, 2017: 25. Distr.: Taiwan, Lanyu, Lutao.

Genus ***Netopha*** Fairmaire, 1893

Netopha Fairmaire, 1893a: 299. Type species: *Netopha pallidipes* Fairimare, 1893.
N. pallidipes Fairmaire, 1893a: 300. Distr.: Taiwan, China, Vietnam.

Genus ***Stilbocistela*** Borchmann, 1932

Stilbocistela Borchmann, 1932: 319. Type species: *Stilbocistela luzonica* Borchmann, 1932.
S. sp. indet. Distr.: Taiwan.

Genus ***Upinella*** Mulsant, 1856

Upinella Mulsant, 1856b: 17. Type species: *Allecula aterrima* Rosenhauer, 1847.

Subgenus ***Tibinella*** Novák, 2019

Tibinella Novák, 2019: 90. Type species: *Upinella pahangica* Novák, 2019.
U. (*T.*) *meifengensis* Masumoto, Novák, Lee & Akita, 2018: 101. Distr.: Taiwan.
U. (*T.*) *lanrenxiensis* (Masumoto, Akita & Lee, 2015): 307 (*Allecula*). Distr.: Taiwan.
U. (*T.*) *taiwana* (Masumoto, Akita & Lee, 2015): 306 (*Allecula*). Distr.: Taiwan.

Subgenus ***Upinella*** Mulsant, 1856

Upinella Mulsant, 1856b: 17. Type species: *Allecula aterrima* Rosenhauer, 1847.
U. (*U.*) *frankenbergeri* (Mařan, 1940): 168 (*Allecula*). Distr.: China, Taiwan.
U. (*U.*) *hirokii* (Akita & Masumoto, 2012): 286 (*Allecula*). Distr.: Taiwan, SW Is. of Japan.
U. (*U.*) *jingfui* Masumoto, Novák, Lee & Akita, 2019a: 115. Distr.: Taiwan.
U. (*U.*) *mendeli* Masumoto, Novák, Lee & Akita, 2019b: 21. Distr.: Taiwan.

Subtribe Gonoderina Seidlitz, 1896

Genus ***Isomira*** Mulsant, 1856

Isomira Mulsant, 1856a: 52. Type species: *Chrysomela murina* Linnaeus, 1758.
I. formosana Pic, 1917a: 20. Distr.: Taiwan.
I. konoi Miwa, 1931. 171. Distr.: Taiwan.
I. matsumurai Kôno, 1930: 95. Distr.: Taiwan.
I. subelongata Pic, 1917b: 20. Distr.: Taiwan.
I. tonkinea Pic, 1917b: 19. Distr.: Vietnam, Taiwan (Record source unclear).

Genus ***Pseudocistela*** Crotch, 1873

Pseudocistela Crotch, 1873: 108. Type species: *Cistela brevis* Say, 1824.
P. semirubra Pic, 1910a: 75. Distr.: Taiwan.

Genus ***Pseudohymenalia*** Novák, 2008

Pseudohymenalia Novák, 2008: 213. Type species: *Pseudohymenalia yunnanica* Novák, 2008.
P. saliica Masumoto, Novák, Lee & Akita, 2019b: 41. Distr.: Taiwan.
P. taiwana Masumoto, Novák, Lee & Akita, 2019b: 38. Distr.: Taiwan.
P. sp. indet. Distr.: Taiwan.

Subtribe Mycetocharina Gistel, 1848

Genus ***Mycetochara*** Guérin-Méneville, 1827

Mycetochara Guérin-Méneville, 1827: 346. Type species: *Cistera scapularis* Illiger, 1805 (=*C. humeralis* Fabricius, 1787).

Subgenus ***Ernocharis*** C. G. Thomson, 1859

Ernocharis C. G. Thomson, 1859: 118. Type species: *Cistela brevis* Illiger, 1794 (=*C. maura* Fabricius, 1792).
M. (*E.*) sp. indet. Distr.: Taiwan.

Tribe Cteniopodini Solier, 1835

Genus ***Cistelina*** Seidlitz, 1896

Cistelina Seidlitz, 1896: 195. Type species: *Cistela davidis* Fairmaire, 1878.
C. crassicornis Borchmann, 1917: 103. Distr.: Taiwan, China.
C. tricolor Borchmann, 1917:101. Distr.: Taiwan (Miwa, 1931). Oriental Region (Distributions unclear).

Genus ***Cistelomorpha*** L. Redtenbacher, 1868

Cistelomorpha L. Redtenbacher, 1868: 134. Type species: *C. straminea* L. Redtenbacher, 1868.
C. bina Fairmaire, 1899: 631. Distr.: Taiwan, China.
C. mausonensis Borchmann, 1938: 296. Distr.: Vietnam, Taiwan.
C. melanopyga Fairmaire, 1893b: 322. Distr.: Vietnam, Taiwan (Miwa, 1931), China (Ren & M. Bai, 2002).
C. nigripilis Borchmann, 1940: 154. Distr.: Taiwan.
C. nigrotibialis Fairmaire, 1893b: 301. Distr.: Vietnam, Taiwan (Miwa 1931), (Ren & M. Bai, 2002), China.
C. rufina Fairmaire, 1893b: 322. Distr.: Tonkin, Taiwan (Borchmann, 1912).
C. sp. indet. Distr.: Taiwan.

Genus ***Cteniopinus*** Seidlitz, 1896

Cteniopinus Seidlitz, 1896: 200. Type species: *C. altaica* Gebler, 1830.
C. ater Borchmann, 1930: 160. Distr.: Taiwan.
C. elegans Nomura, 1961: 39. Distr.: Taiwan, China (Bai & Ren, 2004), Japan (National digital-museum of animal specimens).
C. foveicollis Borchmann, 1930. Distr.: Taiwan.

C. impressithorax Pic, 1910c: 272. Distr.: Taiwan.
C. subobscurus Pic, 1910c: 271. Distr.: Taiwan.
C. taiwanus Kôno, 1930: 38. Distr.: Taiwan.
C. unicolor Kôno, 1930: 98. Distr.: Taiwan.
C. sp. indet. Distr.: Taiwan.

ACKNOWLEDGEMENTS. We thank Chiang-Chin Chen and Uika Ong (Taiwan) for offering material specimens for this study. We also thank Mei-Ling Chan and Jing-Fu Tsai (National Museum of Natural Science, Taiwan) for making various arrangements for our survey. Thanks are also expressed to Makoto Kiuchi (Tukuba, Japan) for taking the photographs inserted in this paper. Finally, we are indebted to Michiya Kawai (Huron University, Canada) for editorial suggestions on this manuscript.

REFERENCES

Akita K. & Masumoto K. 2012: New or little-known tenebrionid beetles (Coleoptera, Tenebrionidae) from Japan. (11) Descriptions of seven new species, up-grading of a subspecies to the species rank, and a new distributional record of a species. *Elytra, Tokyo*, (n. ser.). 1 [2011]: 275-294.

*Akita K. & Masumoto K. 2016: The Tenebrionid beetles of Japan. *Mushi-Sha's Iconographic Series of Insects, 9*, Mushi-Sha, Tokyo, Pp. 302.

*Ando K., Merkl O., Jeng M.-L, Chan M.-L. & Hayashi Y. 2016: *Catalogue of Formosan Tenebrionidae (Insecta: Coleoptera). Japanese Journal of Systematic Entomology, Supplementary Series*, (1): 1-112.

Bai M. & Ren G.-D. 2004: Coleoptera: Tenebrionidae, Alleculinae. Pp. 320-323. In: Yang X.-K. (ed.): *Insects from Mt. Shiwandashan area of Guangxi*. Beijing: China Forestry Publishing House, 668 pp. (In Chinese, with English abstract).

Borchmann F. 1912: H. Sauter's Formosa-Ausbeute. Lagriidae, Alleculidae, Cantharidae (Col.). *Supplementa Entomologica* 1: 6-12.

Borchmann F. 1917: H. Sauter´s Formosa-Ausbeute: Alleculidae und Othnidae (Col.). *Archiv für Naturgeschichte* A, 82 (5) [1916]: 101-108.

Borchmann F. 1925: Neue Heteromeren aus dem Malayischen Gebiete. *Treubia* 6: 329-354.

Borchmann F. 1930: Die Gattung *Cteniopinus* Seidlitz. *Koleopterologische Rundschau* 16: 143-164.

Borchmann F. 1932: Die Alleculiden-Fauna der Philippinen. *The Philippine Journal of Science* 48: 305-381.

Borchmann F. 1938: Neue Alleculiden aus dem Museum der Stadt Stettin. (Col.). *Stettiner Entomologische Zeitung* 99: 292-298.

Borchmann F. 1940: *Alleculidae* aus dem Deutschen Entomologischen Institut. (*Coleoptera*). *Arbeiten über Morphologische und Taxonomische Entomologie* 7: 154-158.

Borchmann F. 1941: Über die von Herrn J. Klapperich in China gesammelten Heteromeren. *Entomologische Blätter* 37: 22-29.

Crotch G. R. 1873: *Checklist of the Coleoptera of America, north of Mexico*. Salem, Mass.: Naturalists´Agency, 136 pp.

Fabricius J. C. 1787: *Mantissa insectorum sistens eorum species nuper detectas adiectis characteribus genericis differentiis specificis, emendationibus, observationibus. Tom I.*, Hafniae: Christ. Gottl. Proft, xx+348 pp.

Fabricius J. C. 1792: *Entomologica systematica emendata et aucta. Secundum classes, ordines, genera, species, adjectis synonymis, locis, observationibus, descriptionibus.Tom. I, Pars 1*. Hafniae: Christ. Gottel. Proft, xx+330 pp.

Fabricius J. C. 1801: *Systema eleutheratorum secundum ordines, genera, species: adiectis synonymis, locis, observationibus, descriptionibus. Tomus II*. Kiliae: Binliopolii Academici Novi, 687 pp.

Fairmaire L. 1878: In: Deyrolle H. & L. Fairmaire: Descriptions de coléoptères recueillis par M. l'abbé David dans la Chine central. *Annales de la Société Entomologique de France* (5)8: 87-140.

Fairmaire L. 1893a: Note sur quelques coléoptères des environs de Lang-Song. *Annales de la Société Entomologique de Belgique* 37: 287-302.

Fairmaire L. 1893b: Coléoptères du Haut Tonkin. *Annales de la Société Entomologique de Belgique* 37: 303-325.

Fairmaire L. 1896a: Hétéromeres de l'Inde recueillis par M. Andrewes. *Annales de la Société Entomologique de Belgique* 40: 6-62.

Fairmaire L. 1896b: Coléoptères de l´ Inde boréale, Chine et Malaisie. *Notes from the Leyden Museum* 18: 81-129.

Fairmaire L. 1897: Coléoptères du Szé-tchouen et de Koui-tchéou (Chine). *Notes from the Leyden Museum* 19: 241-255.

Fairmaire L. 1899: Descriptions de coléoptères nouveaux recueillis en Chine par M. de Latouche. *Annales de la Société Entomologique de France* 68: 616-643.

Guérin-Méneville F. E. 1827: Mycétochare. *Mycetochara*. P. 346. In: Bory de Saint-Vincent J. B. G. (ed.): *Dictionnarie classique d'histoire naturelle, par Messieurs Audouin, Isid. Bourdon, Ad. Brongniart, De Candolle, G. Delafosse, Deshayes, E. Deslonchamps, Drapiez, Dumas, Edwards, H.-M. Edwards, A. Fée, d'Audebard de Férussac, Geoffroy Saint-Hilaire, Isid. Geoffroy Saint-Hilaire, Guérin, Guillemin, A. de Jussieu, Kunth, Latreille, C. Prévost, A. Richard, et Bory de*

Saint-Vincent. Ouvrage dirigé par ce dernier collaborateur, et dans lequel on a ajouté, pour le porter au niveau de la science, un grand nombre de mots qui n'avaient pu faire partie de la plupart des Dictionnaires antérieurs. Tome onzième.MO-NSO. Paris: Rey et Gravier; Baudouin Frères, [2]+615+[1] pp.

*Hua L.-Z. 2002: Alleculidae. Pp. 132-133. In: *List of Chinese Insects. Vol. II*. Guangzhou, China: Zhongshan (Sun Yat-sen) University Press, 612 pp.

Kôno H. 1930: Einige Alleculiden-Arten aus Japan und Formosa (Col.). *Insecta Matsumurana* 4: 95-99.

Marseul S. A. de 1876: Coléoptères du Japan recueillis par M. Georges Lewis. 2e mémoire (1). Énumération des hétéromères avec la description des espèces nouvelles, 2e partie. *Annales de la Société Entomologique de France* (5)6: 315-340.

Masumoto K., Akita K. & Lee C.-F. 2015: New Tenebrionid (Coleoptera) beetles from Taiwan. (12) Descriptions of five new species and reports of two new occurring records. *Japanese Journal of Systematic Entomology* 21: 305-312.

Masumoto K., Novák V., Lee C.-F. & Akita K. 2017: A revisional study of the subfamily Alleculinae (Coleoptera: Tenebrionidae) of Taiwan. *Miscellaneous Reports of the Hiwa Museum for Natural History* 58: 1-49 (incl. 2 pls.).

Masumoto K., Novák V., Akita K. & Lee C.-F. 2018: A revisional study of the subfamily Alleculinae (Coleoptera: Tenebrionidae) of Taiwan (Part 2). *Miscellaneous Reports of the Hiwa Museum for Natural History* 59: 75-125 (incl. 2 pls.).

Masumoto K., Novák V., Akita K. & Lee C.-F. 2019a: A revisional study of the subfamily Alleculinae (Coleoptera: Tenebrionidae) of Taiwan (Part 3). *Miscellaneous Reports of the Hiwa Museum for Natural History* 60: 89-121 (incl. 2 pls.).

Masumoto K., Novák V., Akita K. & Lee C.-F. 2019b: A revisional study of the subfamily Alleculinae (Coleoptera: Tenebrionidae) of Taiwan (Part 4). *Folia Heyrovskyana, Series A* 27: 20-51.

Mařan J. 1940. Generis *Allecula* Fabr. regionis palaearkticae orientalis species novae. *Sborník Entomologického Oddělení Národního Musea v Praze* 18: 168-171. (In Czech).

*Miwa Y. 1931: A systematic catalogue of Formosan Coleoptera, *Report of the Department of Agriculture of the Government Research Institute*. Taihoku 55: 1-359. (Alleculidae. Pp. 169-172).

Mulsant M. É. 1856a: *Histoire naturelle des coléoptères de France. Pectinipèdes*. Paris: L. Maison, [7]+96+[11: Supplément].

Mulsant M. É. 1856b: Notes relatives à quelques insectes coléoptères de la tribu des pectinipèdes. *Opuscules Entomologiques* 7: 17-59.

Nomura S. 1961: Two new *Cteniopinus*-species from Japan and Formosa (Alleculidae). *The Entomological Review of Japan* 12: 38-40, pl. 6.

Novák V. 2008: New Alleculinae from China (Coleoptera: Tenebrionidae). *Vernate* 27: 207-220.

Novák V. 2010: Review of *Hymenalia* species (Coleoptera: Tenebrionidae: Alleculinae) from China. *Studies and Reports, Taxonomical Series* 6(1-2): 190-231.

Novák V. 2011: New genera of Alleculinae (Coleoptera: Tenebrionidae) from Oriental region. Part III. *Microsthes* gen. nov. *Studies and Reports, Taxonomical Series* 7: 319-334.

Novák V. 2014: New genera of Alleculinae (Coleoptera: Tenebrionidae) from the Palaearctic region. Part I - *Borbonalia* gen. nov. *Studies and Reports, Taxonomical Series* 10: 135-159.

Novák V. 2015a: New genera of Alleculinae (Coleoptera: Tenebrionidae) from Palaearctic and Oriental regions. Part III - *Bobina* gen. nov. *Studies and Reports, Taxonomical Series* 11: 123-141.

Novák V. 2015b: New genera of Alleculinae (Coleoptera: Tenebrionidae) from Palaearctic and Oriental regions. Part IV - *Gerdacula* gen. nov. *Studies and Reports, Taxonomical Series* 11: 143-158.

Novák V. 2019: Contribution to the knowledge of the genus *Upinella* Mulsant (Coleoptera: Tenebrionidae: Alleculinae: Alleculini) with description of a new species and a *Thornella* subgen. nov. and *Tibinella* subgen. nov. *Folia Heyroskyana, Series A* 27(1): 81-104.

Novák V. 2020: New genera of Alleculinae (Coleoptera:Tenebrionidae: Alleculinae: Alleculini) based on morphological differences in the genus *Hymenalia* Mulsant, with descriptions of two species. *Studies and Reports, Taxonomical Series* 16(2): 477-515.

Novák V. 2023a: New genera of Alleculinae (Coleoptera: Tenebrionidae: Alleculinae: Alleculini) from the Palaearctic and the Oriental Regions XIV - *Angusthes* gen. nov. *Folia Heyrovskyana, Series A* 31(2): 50-56.

Novák V. 2023b: New species of Alleculini (Coleoptera: Tenebrionidae: Alleculinae) from the Palaearctic Region I - genus *Borbonalia* Novák, 2014. *Studies and Reports, Taxonomical Series* 19(1): 87-96.

Novák V., Masumoto K. & Akita K. 2017: New contributions in the tribe Alleculini (Coleoptera: Tenebrionidae: Allecuinae) from the Palaearctic Region. *Folia Heyrovskyana, Series A* 25: 56-60.

*Novák V., & Pettersson R. 2008: Subfamily Alleculinae. Pp. 319-339. In: Löbl I. & Smetana A. (eds.): *Catalogue of Palaearctic Coleoptera. Volume 5. Tenebrionoidea*. Stemtrup: Apollo Books, 670 pp.

Pic M. 1909: Divers coléoptères exotiques nouveaux. *Le Naturaliste* 31: 19.

Pic M. 1910a: Coléoptères exotiques nouveaux ou peu connus (Suite). *L'Échange, Revue Linnéenne* 26: 74-78.

Pic M. 1910b: Coléoptères exotiques nouveaux ou peu connus (Suite). *L'Échange, Revue Linnéenne* 26: 94-95.

Pic M. 1910c: Malacodermes et hétéromères nouveaux d´Afrique et d´Asie. *Le Naturaliste* 32: 271-272.

Pic M. 1917a: Descriptions abrégées diverses. *Mélanges Exotico-entomologiques* 22: 2-20.

Pic M. 1917b: Descriptions abrégées diverses. *Mélanges Exotico-entomologiques* 23: 2-20.

Pic M. 1922a: Coléoptères hétéromères exotiques nouveaux. *Bulletin de la Société Zoologique de France* 47: 100-103.

PIC M.1922b: Coléoptères exotiques en partie nouveaux (suite). *L'Échange, Revue Linnéenne* 38: 23-24.
PIC M. 1934: Nouveautés diverses. *Mélanges Exotico-entomologiques* 64: 1-36.
PIC M. 1955: Coléoptères nouveaux de Chine (Suite). *Bulletin de la Société Entomologique de Mulhouse*, 1955: 29-32.
REDTENBACHER L. 1868: Zoologischer Theil. Zweiter Band. 1. Abtheilung A. 1. Coleopteren. In: *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Wüllerstorf-Urbair.* [1867]. Wien: Karl Gerold´s Sohn, iv + 249 pp., 5 pls.
*REN G.-D. & BAI M. 2002: Progress in the taxonomy research of the Alleculinae in the world (Coleoptera: Tenebrionidae). *Journal of Hebei University (Natural Science Edition)* 22: 307-312 (In Chinese, with English abstract).
SEIDLITZ G. 1896: Alleculidae. Pp. 1-304. In: *Naturgeschichte der Insecten Deutschlands. Begonnen von Dr. W. F. Erichson, fortgesetzt von Prof. Dr. H. Schaum, Dr. G. Kraatz, H. v. Kiesenwetter, Julius Weise, Edm. Reitter und Dr. G. Seidlitz. Erste Abtheilung. Coleoptera. Fünfter Band. Zweite Hälfte. Lieferungen 1-3.* Berlin: Nicolaische Verlags-Bauchhandlung, 968 pp.
THOMSON C. G. 1859: *Skandinaviens Coleoptera, synoptiskt bearbetade. 1. Tom.* Lund: Berlingska Boktryckeriet, [4] + 290 pp.
*WU C.-F. 1937: *Catalogus insectorum sinensium (Catalogue of Chinese insects). Vol. III.* Peiping: The Fan Memorial Institute of Biology. 1312 pp.
*Institute of Zoology, Chinese Academy of Sciences. *National digital-museum of animal specimens. Alleculinae.* http://museum.ioz.ac.cn/topic_detail.aspx?id=7890. (31/VII/2016).
*We partly used those catalogues or lists as distributional information for the present list.

Published: 15. 7. 2024