

**A Revisional Study of the Subfamily Alleculinae
(Coleoptera: Tenebrionidae) from Taiwan (Part 4)
Ten New Species of Genera *Allecula*, *Borbonalia*, *Borboresthes*,
Pseudohymenalia and *Upinella***

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Taxonomy, Alleculinae, Taiwan, new species, *Allecula*, *Borbonalia*, *Borboresthes*, *Pseudohymenalia*, *Upinella*, check list

Abstract. Ten new alleculine species are described from Taiwan: *Upinella mendeli* sp. nov., *Allecula matsudai* sp. nov., *Borbonalia barclayi* sp. nov., *B. ewersi* sp. nov., *Borboresthes lushanensis* sp. nov., *B. ongi* sp. nov., *B. tomokunii* sp. nov., *B. wangi* sp. nov., *Pseudohymenalia taiwana* sp. nov. and *P. salicia* sp. nov.

INTRODUCTION

Over several recent years, we have continued studying members of the subfamily Alleculinae from Taiwan. Succeeding our previous papers - Masumoto et al. (2017, 2018 and 2019), we are going herein to describe ten new species, and prepare a new version of the check list of the Taiwanese subfamily Alleculinae.

MATERIAL AND METHODS

The specimen materials used for this study were offered from several museum, institutes and private collections.

The external morphology and male genitalia were examined using an Olympus SZ60 and a Leica MS5 stereoscopic microscope. Pictures inserted in this paper were taken by Makoto Kiuchi using Olympus PEN E-P3 digital camera equipped with an extension tube and a ZUIKO AUTO-MACRO 50 mm f. 3.5 lens or a 80 mm f4 lens, and stacked using the free software Combine ZM from Alan Hadley. The measurement was done under a stereoscopic microscope equipped with an ocular micrometer. The body length was measured to an accuracy of 0.1 mm, other parts to 0.01 mm. The ratio is indicated to the first decimal place.

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

The holotypes will be deposited in museums and institutes mentioned in each text, and the paratypes will be preserved in some other museums and institutes.

The abbreviations herein used are as follows: NHML: The Natural History Museum, London, UK; NMNSTT: National Museum of Natural Science, Taichung, Taiwan; NMNSTJ: National Museum of Nature and Science, Tsukuba, Japan; TARI: Taiwan Agricultural Research Institute,

Wufeng, Taichung, Taiwan; BL/BW=body length/body width; LAI-XI=length of antennomere I to XI in mm; WE/ED=width between eyes/eye transverse diameter; PW/PL=pronotal width/pronotal length; EL/EW=elytral length/elytral width; EL/PL=elytral length/pronotal length; EW/PW=elytral width/pronotal width; LTB-A=lengths of pro-, meso- and metatarsomeres from baso- to apicomeres in mm.

TAXONOMY

Upinella mendeli Masumoto, Novák, Akita & Lee sp. nov.

(Figs. 1, 13-14)

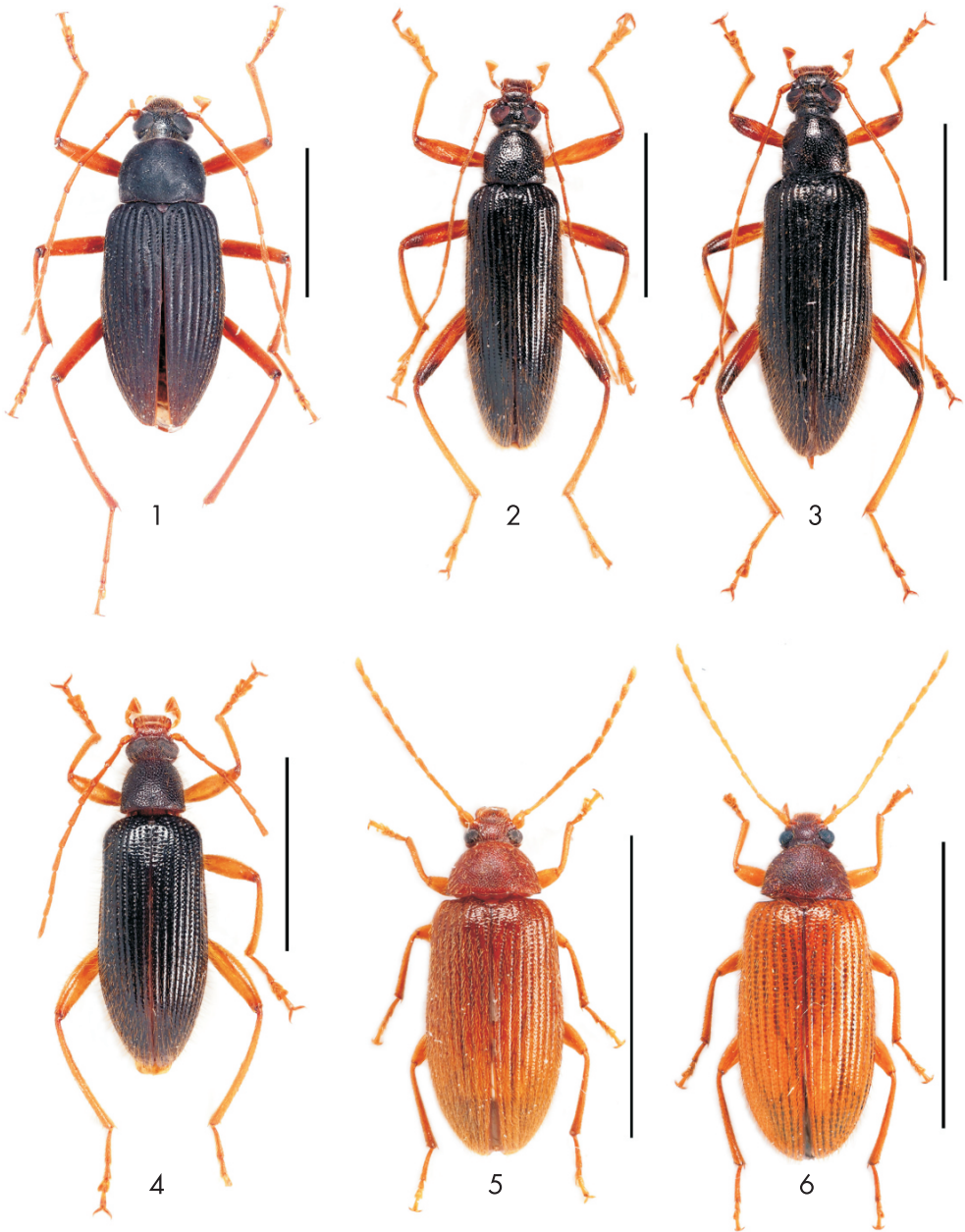
Type locality. Taiwan, Pingtung County, Eluanbi Park.

Type material. Holotype (♂): "TAIWAN, Pingtung County, / Eluanbi Park, 1. viii. 2008 / N 21°54.075 E120°51.076 / night collecting, H. Mendel, / MVL Barclay & R. Ewers / MMNH(E) 2008-85.", (NHML). Paratypes: 17 ♂♂, 8 ♀♀, same data as for the holotype, (NHML); 1 ♂, 1 ♀, same data as for the holotype, (NMNSTJ); 2 ♂♂ and 1 ♀, same data as for the holotype (in coll. V. Novák); 1 ♂, "Taiwan Pingtung [sic: Pingtung] / Henchung Oulanpi / 20/1/1994 / W. T. Yang / By hand // MNNS ENT / 1722-79.", (NMNSTJ); 1 ♂, Taiwan, Hsinchu, Guanwu, 07.VII. 2007, leg. Y.-L. Lin, (TARI).

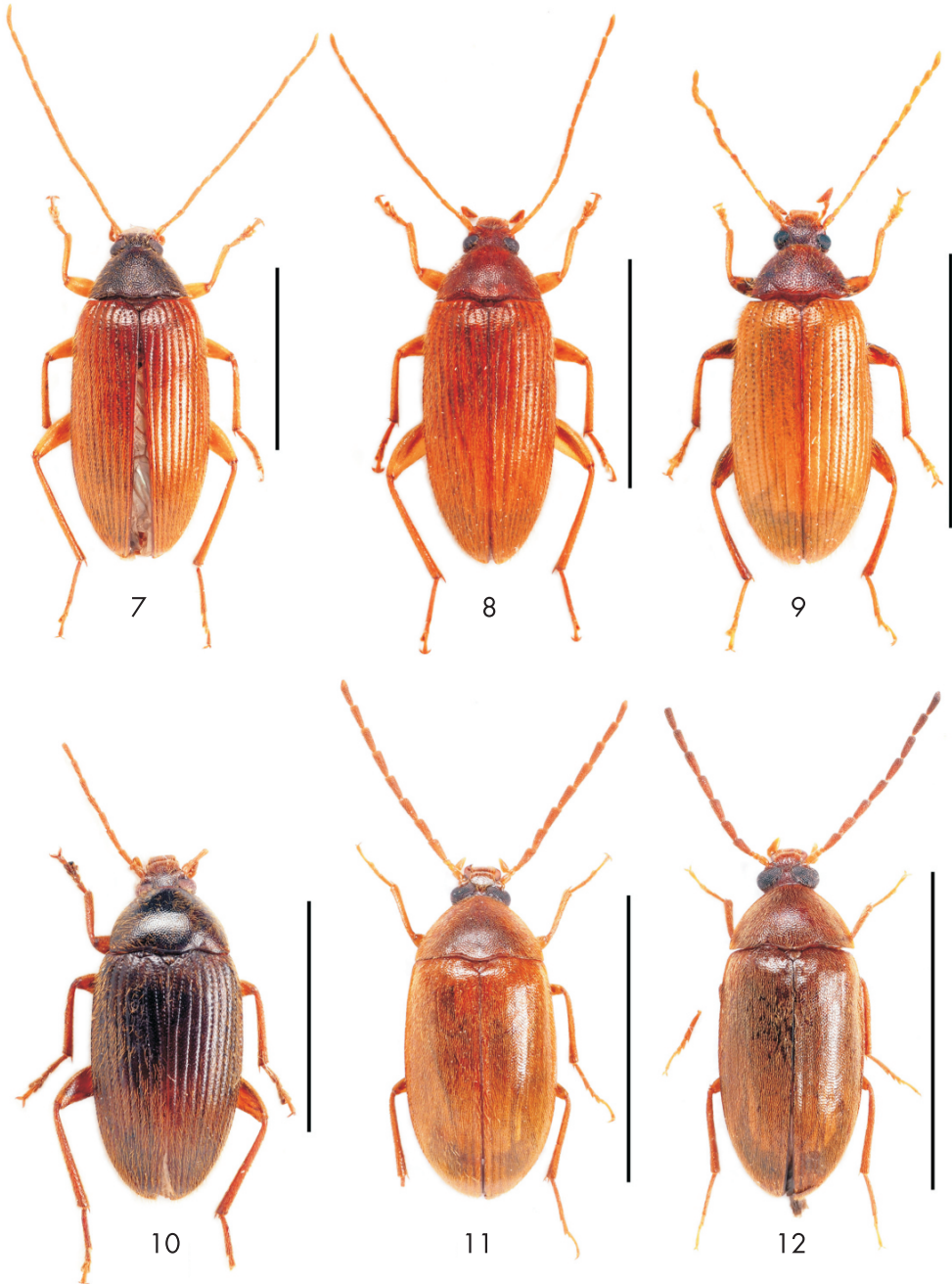
Description of holotype. Body 11.0 mm in length; BL/BW 2.7; oblong subovate, rather strongly convex dorsad. Dorsal surface brownish black; ventral surface mostly blackish brown; antennae, mouth parts, legs brownish yellow and partly darkened; hairs on surfaces pale yellow; anterior portion of head and major ventral surfaces weakly shining; posterior portion of head, pronotum, scutellum and elytra weakly, sericeously shining; basal five antennomeres, legs moderately shining; apical six antennomeres mat; head, antennae, ventral sides of femora densely haired; pronotum and scutellum sparsely haired; elytra and major ventral sides of body moderately haired; tibia and tarsi densely, setaceous haired.

Head subrhombical, slightly convex in medial portion, wholly microsculptured; clypeus semicircular with apex gently rounded, flattened in major basal part, gently inclined in apical part, closely ruguloso-punctulate, densely clothed with fine subdecumbent hairs; fronto-clypeal suture roundly grooved, with each lateral end barely reaching exterior margin; genae rather strongly dilated, raised antero-laterad in medial part, finely punctate and haired, the punctures often fused with each other in basal part; frons subquadrate, gently inclined anteriorly, vaguely, longitudinally impressed in medial part, closely, irregularly punctate, the punctures a little larger than those on clypeus and each with a short, fine hair; vertex weakly convex, moderately closely punctate, each puncture with a minute hair. Eyes somewhat inverted comma-shaped in dorsal view, strongly convex laterad, nearly transversely inlaid into head, WE/ED 0.8. Antennae filiform, reaching apical 1/3 of elytra, LAI-XI 0.48, 0.16, 1.24, 1.05, 1.00, 0.91, 0.85, 0.83, 0.82, 0.80, 0.81.

Pronotum subtrapezoidal, PW/PL 1.3, widest at basal 3/7, roundly narrowed anteriorly and posteriorly from the widest point, very slightly sinuous in basal 2/7; apex weakly produced in medial part, weakly sinuous in lateral parts, wholly, finely margined; base weakly produced in medial part, slightly truncate in area opposite to scutellum, sinuous in lateral parts, wholly bordered by a rather deep impression and a fine margination; sides rather steeply inclined antero-laterad, mildly so postero-laterad, with lateral margin rounded and bordered by a thin groove and a fine margination, the borders wholly, easily visible from above; front angles obtuse with rounded corners, hardly visible from above; hind angles rectangular, visible from above; disc gently convex, weakly microsculptured, punctate and haired, the punctures fine and rather closely set, the hairs very short in medial portion, becoming longer laterad. Scutellum triangular



Figs. 1-6. Habitus (dorsal view). 1- *Upinella mendeli* sp. nov., holotype, ♂; 2- *Allecula matsudai* sp. nov., holotype, ♂; 3- ditto, paratype, ♀; 4- *Allecula formosana* Pic, 1910, ♂; 5- *Borbonalia barclayi* sp. nov. holotype, ♂; 6- *B. ewersi* sp. nov., holotype, ♂. Scales: 5.0 mm.



Figs. 7-12. Habitus (dorsal view), holotype, ♂. 7- *Borborestes lushanensis* sp. nov.; 8- *B. ongi* sp. nov.; 9- *B. tomokunii* sp. nov.; 10- *B. wangi* sp. nov.; 11- *Pseudohymenalia taiwana* sp. nov.; 12- *P. salica* sp. nov. Scales: 5.0 mm.

with a little wide base and slightly rounded sides, weakly raised posteriad, very weakly microsculptured, sparsely, minutely punctate and finely haired.

Elytra slightly elongate ovate, EL/EW 1.9, EL/PL 3.3 and EW/PW 1.3, widest at the middle, roundly narrowed basad and nearly straight so apicad from the widest point, very slightly sinuous at basal 1/9; dorsum strongly convex, very weakly flattened in antero-medial part, highest at basal 1/4; disc punctate grooved, the punctures in grooves small and closely set in interior portion, becoming larger and sparser laterad, and finer posteriad; intervals rather strongly convex, microsculptured, minutely punctate and finely haired, the hairs short and sparse in interior portion, becoming longer and denser laterad and posteriad; sides rather steeply declined to lateral margins, which are bordered by punctate grooves and fine marginations, and barely visible from above; humeri gently swollen, microsculptured; apices very slightly truncate.

Maxilla with apical palpomere strongly dilated, apical side nearly straight and 1.7 times the length of nearly straight exterior side and 2.5 times the length of curved interior side. Abdomen weakly microsculptured, rather closely, coarsely punctate, the punctures becoming smaller posteriad, each with a fine subdecumbent hair; ventrite V sparsely and weakly punctate in basal and medial parts, weakly bent, closely and strongly punctate in apical part, with apex rounded and pubescent.

Legs closely, finely punctate and haired. Femora elongate subclavate. Tibiae slightly curved interiad. Pro- and mesotarsi with tarsomeres III and IV noticeably dilated apicad; metatarsi with tarsomere III gently dilated apicad, LTB-A: 0.70, 0.33, 0.28, 0.34, 0.80; 1.05, 0.45, 0.26, 0.35, 0.82; 1.77, 0.72, 0.35, 0.80.

Genitalia subfusiform, 2.06 mm in length and 0.39 mm in width, gently curved in lateral view; basale 1.40 mm in length, slightly produced laterad in medial part; apicale 0.66 mm in length, elongated triangular, weakly prolonged in apical part, with rather acute apices.

Variability (n=18). Body length: 9.6-10.9 mm. Coloration not so noticeably variable. BL/BW 2.7-3.1; WE/ED 0.8-1.1; PW/PL 1.3; EL/EW 1.8-1.9; EL/PL 3.2-3.3; EW/PW 1.3-1.4

Female (n=9). Body length: 11.7-13.3 mm. Body mostly larger; head less strongly produced apicad; antennae slightly thicker and shorter, reaching the midst of elytra; eyes smaller, distance between eyes wider; pronotum a little more noticeably punctate, with hind angles mostly rounded; elytra a little more produced apicad; legs thicker and shorter. BL/BW 2.5-3.0; WE/ED 1.2-1.3; PW/PL 1.2-1.3; EL/EW 1.8-1.9; EL/PL 3.1-3.3; EW/PW 1.37-1.42.

Differential diagnosis. This new species somewhat resembles *Upinella frankenbergeri* Mařan, 1940, originally described from "Fukien, Yen Ping Fu". The former can be distinguished from the latter by the body a little smaller (about 12 mm in length in the latter) and more robust (BL/BW 3.0 in the latter), the eyes smaller and more obliquely set (larger and less obliquely set, WE/ED 0.7 in the latter), the pronotum slightly narrower (PW/PL 1.3 in the latter) with smoother surface, the elytra obviously shorter (EL/EW 2.2 in the latter), the striae thicker, punctures larger, and the intervals thinner, the male genitalia slenderer (2.09 mm in length and 0.52 mm in width in the latter).

Etymology. The specific name is given in honour of H. Mendel who was a member of the researching group in Taiwan and a specimen collector of the present new species.

Distribution. Taiwan.

***Allecula matsudai* Masumoto, Novák, Akita & Lee sp. nov.**

(Figs. 2-3, 15-16)

Type locality. Taiwan, Nantou Hsien, Kuantaoshan.

Type material. Holotype (♂): "Kuantaoshan / Nantou Hsien / Taiwan / 22. V. 2018 / K. Matsuda leg.", (NMNSTT). Paratypes: 3 ♂♂, 2 ♀♀, same data as for the holotype, (NMNSTT); 1 ♂, 1 ♀, same data as for the holotype (in coll. V. Novák); 4 ♂♂, 4 ♀♀, "Kaofeng / Nantou Hsien / Taiwan / 1. VI. 2018 / K. Matsuda leg. // Coll. Masumoto / 2018.", (NMNSTT); 2 ♂♂, "Aowanda / Nantou Hsien / Taiwan / 2. VI. 2018 / K. Matsuda leg.", (NMNSTT); 3 ♂♂, "Kao Feng / Nantou Hsien / FORMOSA / 7 V 2009 / S. TSUYUKI leg. // Coll. Masumoto / 2013", (NMNSTT); 1 ♂, "Taiwan: Hsinchu / Mamei / 06. V. 2008, leg. S.-F. Yu.", (TARI); 1 ♀, "Taiwan: Taipei / Maokung / 29. V. 2008, leg. S.-F. Yu.", (TARI); 1 ♂, "Taiwan, Pingtung / Siangyang / 09. V. 2013, leg. J.-C. Chen", (TARI); 1 ♀, "Taiwan: Hsinchu / Talulindao / 24. V. 2009, leg. Y.-L. Lin", (TARI); 1 ♂, "Taiwan: Hsinchu / Litungshan / 06. VI. 2010, leg. Y.-L. Lin", (TARI).

Description of holotype. Body 11.3 mm in length; BL/BW 4.04; rather elongate, gently convex longitudinally. Dorsal surface brownish black; ventral surface blackish brown; antennae, mouth parts, legs brownish yellow; apical parts of femora and basal parts of tibiae often darkened in color; hairs on each surface brownish yellow; dorsal surface rather strongly, vitreously shining; femora, tibiae and ventral surface moderately shining; five basal antennomeres, scutellum and tarsi weakly shining; six apical antennomeres mat; dorsal surface and legs densely clothed with long, suberect hairs; ventral surface clothed with rather short hairs; antennae densely clothed with short hairs.

Head subtriangular, raised in medial portion, wholly, weakly microsculptured; clypeus somewhat inverted trapezoidal with apex moderately rounded, depressed in major basal part, transversely convex in middle, gently inclined in apical part, moderately closely punctate, sparsely clothed with long hairs in apico-lateral parts; fronto-clypeal suture straight, deeply grooved, bent apico-laterad in lateral parts, with each lateral end barely reaching exterior margin; genae gently, triangularly dilated, weakly raised antero-laterad in medial part, finely punctate and haired, with exterior margin rounded; frons rather narrow, gently inclined anteriorly, vaguely, longitudinally impressed in medial part, closely, irregularly punctate and partly rugose, each puncture with a short, fine hair; vertex weakly convex, closely, irregularly punctate, each puncture with a minute hair. Eyes fairly large, somewhat inverted comma-shaped in dorsal view, strongly convex laterad, slightly obliquely inlaid into head, WE/ED 0.58. Antennae filiform, reaching apical 2/7 of elytra, LAI-XI 0.50, 0.12, 0.82, 0.96, 0.98, 0.96, 0.98, 0.90, 0.90, 0.82, 0.82.

Pronotum subtrapezoidal, PW/PL 1.16, widest at base, weakly narrowed anteriorly, noticeably sinuous at basal 3/7; apex weakly produced, wholly, finely marginate; base weakly produced in medial part, slightly truncate in area opposite to scutellum, sinuous in lateral parts, wholly bordered by a fine impression and a fine margination; sides rather steeply inclined laterad, with lateral margin bordered by a groove and a fine margination, the borders invisible from above; front angles rounded, invisible from above; hind angles rectangular, hardly visible from above; disc gently convex, punctate and haired, the punctures rather strong, closely set, and often fused with one another, the hairs short in medial portion, becoming longer in lateral portions, with an ovate area at medial 1/3 on midline which is microsculptured and sparsely, minutely punctate. Scutellum triangular with slightly rounded sides, weakly raised posteriorly, weakly microsculptured, minutely punctate, and longitudinally impressed at middle and obliquely so in lateral parts.

Elytra rather elongate, EL/EW 2.8, EL/PL 5.0 and EW/PW 1.5, widest at the middle, very weakly narrowed basad and gently, roundly so apicad from the widest point, very slightly sinuous

at basal 1/5; dorsum rather strongly convex longitudinally, with medial portion mildly so, highest at basal 1/5; disc punctate grooved, the grooves becoming shallower and thinner posteriad, the punctures in grooves rather strong, small and closely set in interior portion, becoming larger and sparser laterad and weaker and finer posteriad; intervals moderately convex, weakly microsculptured, sparsely, minutely punctate, and finely haired, the hairs becoming longer and denser laterad and posteriad; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, and mostly visible from above except for humeral and apical portions; humeri gently swollen, smooth; apices rounded.

Maxilla with apical palpomere moderately dilated, apical side nearly straight and 1.2 times the length of nearly straight exterior side and 1.5 times the length of gently curved interior side. Abdomen noticeably microsculptured, rather closely punctate, the punctures becoming smaller posteriad, often connected with each other, each with a fine subdecumbent hair; ventrite V weakly depressed in major medial part, with apex truncate, very slightly emarginate.

Legs closely, finely punctate and haired. Femora elongated subclavate. Protibiae weakly curved ventrad, with apical half gently gouged and finely, setaceously haired on ventral face; mesotibiae weakly curved ventrad, with apical 3/5 very weakly gouged on ventral face; metatibiae slightly curved interiad and ventrad. Tarsi rather slender, penultimate tarsomeres dilated, LTB-A 0.61, 0.34, 0.41, 0.47, 0.83; 0.78, 0.30, 0.41, 0.43, 0.73; 1.15, 0.46, 0.50, 0.82.

Genitalia subfusiform with prolonged apical part, 2.17 mm in length and 0.50 mm in width, gently curved in lateral view; basale 1.49 mm in length, moderately produced laterad in medial part; apicale 0.68 mm in length, elongated triangular, weakly prolonged in apical part, with a small rhombic shaped apices.

Variability (n = 17). Coloration not so noticeably variable; pronotum with very weakly impression in basal part on midline in some specimens; body length: 10.4-11.3 mm. BL/BE 3.7-4.0, WE/ED 0.6-0.7, PW/PL 1.1-1.3, EL/EW 2.7-2.8, EL/PL 5.0, and EW/PW 1.5-1.6.

Female (n = 9). Body length: 11.4-11.6 mm. External shape similar to male; antennae nearly of the same length of those of males; eyes more rounded, distance between them wider; pronotum a little more noticeably punctate, with hind angles mostly rounded; elytra a little more produced apicad; abdominal ventrite V with apex obtusely rounded; legs slightly thicker and shorter, with tibiae not modified. BL/BE 3.4-3.6; WE/ED 0.7-0.8; PW/PL 1.0-1.1; EL/EW 2.6-2.7; EL/PL 5.1-5.2; EW/PW 1.5-1.6.

Differential diagnosis. This new species resembles *Allecula formosana* Pic, 1910, (Figs. 4, 17-18) but can be distinguished from it in males by following points: Body slenderer (BL/BW 3.1 in *A. formosana*); eyes less obliquely inlaid into head, distance between them wider (WE/ED 0.5 in *A. formosana*); head and pronotum less closely punctate; elytra with punctures in grooves finer and closer; legs slenderer; genitalia larger (1.65 mm in length and 0.30 mm in width in *A. formosana*).

Etymology. The specific name is given in honour of Kiyoshi Matsuda, Takarazuka, Japan, who is one of our old friends in entomology, collected the type specimens and offered us for this study.

Distribution. Taiwan.

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

(Figs. 5, 19-20)

Type locality. Taiwan, Nantou Hsien, Len-ai Village.

Type material. Holotype (♂): "TAIWAN, Nantou County / Len-ai Village, sheep farm / 07.viii.2008, 1916m, by hand / N24°03.121 E121°09.643 / M.V.L. Barclay & H. Mendel / BMNH (E) 2008-85.", (NHML). Paratypes: 1 ♂, 1 ♀, same data as for the holotype, (NMNSTJ); 1 ♂, 1 ♀, same data as for the holotype (in coll. V. Novák).

Description of holotype. Body 5.7 mm in length; BL/BW 2.48; slightly elongated elliptical, strongly convex dorsad. Dorsal and ventral surfaces almost wholly yellowish brown; three basal antennomeres, mouth parts and legs a little brownish yellow and partly darker in color; head, three basal antennomeres, scutellum, elytra, tibiae and major portion of ventral surface moderately shining; pronotum weakly, sericeously shining; femora weakly shining; eight apical antennomeres and tarsi nearly mat; dorsal surface densely clothed with fine subdecumbent hairs; ventral surface rather sparsely clothed with short decumbent hairs; legs densely clothed with rather short setaceous hairs; antennae densely clothed with much more short hairs.

Head subtriangular though the apical angle is gently truncate, moderately convex in medial portion; clypeus semicircular and weakly depressed in basal part, subparallel-sided in anterior part, gently inclined anteriad and antero-laterad, weakly microsculptured, closely punctate; fronto-clypeal suture roundly impressed, with each lateral end reaching exterior margin; genae weakly raised antero-laterad in medial part, weakly microsculptured and sparsely punctate, with exterior margin weakly, roundly produced; frons rather short and narrow, gently inclined anteriad, closely, irregularly punctate; vertex gently convex and rather closely punctate. Eyes somewhat inverted comma-shaped, strongly convex laterad, nearly transversely inlaid into head, WE/ED 2.0. Antennae filiform, reaching apical 1/3 of elytra, LAI-XI 0.30, 0.11, 0.33, 0.32, 0.30, 0.29, 0.28, 0.28, 0.27, 0.27, 0.26.

Pronotum subtrapezoidal with anterior portion roundly produced, PW/PL 1.55, widest at base, rather straightly narrowed anteriad in basal 3/5, then roundly narrowed in apical 2/5; apex roundly produced, wholly, very finely grooved and marginate; base weakly produced in medial 1/3, slightly emarginate in area opposite to scutellum, sinuous in lateral parts, wholly, finely grooved and marginate; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, the borders barely visible from above; front angles rounded; hind angles obtusely angulate; disc moderately convex, more steeply inclined antero-laterad than postero-laterad, very slightly, obliquely impressed on both sides close to base, microsculptured, punctate and haired, the punctures closely set, mostly subovate, ocellate and often fused with one another, the hairs short and thin in medial portion, becoming longer and thicker laterad. Scutellum wide-based triangular, weakly raised posteriad, rather smooth, sparsely punctate.

Elytra subovate, EL/EW 1.9, EL/PL 4.1 and EW/PW 1.5, widest at the middle, weakly narrowed basad and gently, roundly so apicad from the widest point, very slightly sinuous at basal 1/3; dorsum rather strongly convex, with medial portion mildly flattened, highest at basal 1/3; disc punctate striate, the striae rather thin in antero-interior portion, becoming thicker laterad and posteriad, the punctures in striae round and closely set, becoming a little larger and sparser laterad, weaker and finer posteriad; intervals moderately convex, microsculptured, closely, minutely punctate, finely rugulose, microgranulate, and finely haired, the hairs becoming longer and denser laterad and posteriad; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, the border hardly visible from above;

humeri gently swollen, weakly microsculptured, sparsely microgranulate, and finely haired; apices rounded.

Maxilla with apical palpomere strongly dilated, apical side nearly straight and about 1.7 times the length of nearly straight exterior side and 2.2 times the length of nearly straight interior side. Abdomen weakly microsculptured, rather closely, finely punctate, the punctures becoming weaker posteriorly, each with a fine subdecumbent hair; ventrite V sparsely and weakly, sparsely punctate, with apex rounded and sparsely, minutely pubescent.

Legs closely, finely punctate and finely haired. Femora short subclavate. Protibiae nearly straight, with rather short setaceous hairs on interior face; mesotibiae very weakly curved dorsad; metatibiae nearly straight, very weakly gouged in apical half on interior face. Pro- and mesotarsi with tarsomeres III and IV noticeably dilated to each apex, metatarsi with tarsomere III also dilated, LTb-A 0.20, 0.08, 0.09, 0.13, 0.30; 0.35, 0.10, 0.14, 0.16, 0.32; 0.65, 0.15, 0.16, 0.31.

Genitalia very slender, 1.74 mm in length and 0.16 mm in width; basale 1.40 mm in length, rather strongly curved and twisted in medial part; apicale subfusiform, 0.34 mm in length, flattened, with apices rather acute.

Variability (n=2). Coloration similar with each other; body length 5.4 - 5.8 mm; ratio ranges of each parts as follows: BL/BW 2.3-2.5, WE/ED 1.9-2.0; PW/PL 1.5-1.6; EL/EW 1.9-2; EL/PL 4.2-4.7; EW/PW 1.3-1.4.

Female (n=2). Body length: 5.3-5.4 mm. Antennae thicker and shorter, tip of antennomere XI reaching the midst of elytra; distance between eyes them wider, pronotum with apex less strongly produced anteriorly; elytra less densely clothed with hairs, striae punctures a little closely set; legs slightly thicker and shorter, with tarsi less noticeably dilated. BL/BW 2.3; WE/ED 2.2-2.4; PW/PL 1.6; EL/EW 1.8-1.9; EL/PL 4.1-4.4; EW/PW 1.4.

Differential diagnosis. This new species resembles *Borbonalia chanmeilingae* Masumoto, Novák, Akita & Lee, 2019. The former (= *B. barclayi* sp. nov.) can be distinguished from the latter (= *B. chanmeilingae*) by the body a little smaller (5.5-6.2 mm in length in the latter), the head a little closely punctate, with WE/ED narrower (2.2 in the latter), the pronotum narrower (PW/PL 1.8 in the latter) more shallowly, irregularly punctate, the elytra slenderer, (EL/EW 1.9 in the latter) and more clearly punctate striate, and the male genitalia absolutely different shaped (shorter, 1.32 mm in length and simply shaped in the latter).

Etymology. The specific name is given in honour of Maxwell V. L. Barclay who has been supporting our entomological study for long time, and collected invaluable specimens for our present study.

Distribution. Taiwan.

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

(Figs. 6, 21-22)

Type locality. Taiwan, Nantou County.

Type material. Holotype (♂): "TAIWAN, / Nantou County / N24°02.530'; E121°12.555' / V. 2018 / beating etc. 1920 m / 6.viii.2008, M.V.L. Barclay, / H. Mendel & R. Ewers / BMNH(E) 2008-85", (NHML).

Description of holotype. Male. Body 5.8 mm in length; BL/BW 2.32; subovate, rather strongly convex dorsad. Head, pronotum, ventral side of head, prosternum, meso- and metaventrites brown; apical six antennomeres, scutellum, elytra, abdomen and legs brownish yellow; basal five antennomeres paler; hairs on each surface mostly pale yellow; head, basal five antennomeres, scutellum, elytra, abdomen and legs moderately shining; pronotum weakly, sericeously shining; ventral side of head, prosternum, meso- and metaventrites weakly shining; apical six antennomeres mat; dorsal surface and legs densely clothed with rather long fine hairs; ventral surface clothed with rather short, decumbent hairs; antennae densely clothed with short fine hairs.

Head somewhat triangular though the apex is subtruncate, gently convex in medial portion, wholly, weakly microsculptured; clypeus semicircular, weakly depressed in major basal part, gently inclined apicad, scattered with punctures, with apex very weakly truncate; fronto-clypeal suture roundly impressed, with each lateral end barely reaching exterior margin; genae weakly raised antero-laterad in medial part, sparsely punctate, with exterior margin obliquely, weakly rounded; frons rather short, gently inclined anteriorly, closely, coarsely punctate, the punctures often connected with each other; vertex rather noticeably convex and moderately punctate. Eyes strongly convex laterad, nearly transversely inlaid into head, WE/ED 1.6. Antennae filiform, reaching apical 3/7 of elytra, LAI-XI 0.39, 0.11, 0.34, 0.44, 0.37, 0.38, 0.38, 0.37, 0.35, 0.33, 0.39.

Pronotum subtrapezoidal, PW/PL 1.6, widest at base, weakly narrowed anteriorly in basal 2/3, roundly narrowed in apical 1/3, very slightly sinuous in basal half; apex gently produced, wholly, finely grooved and marginate; base weakly produced in medial 1/3, slightly truncate in area opposite to scutellum, sinuous in lateral parts, wholly, finely grooved and marginate; sides moderately inclined laterad, then rather steeply so to lateral margins, each of which is bordered by a punctate groove and a fine margination, the borders barely visible from above; front angles rounded; hind angles rectangular; disc weakly convex, more steeply inclined antero-laterad than postero-laterad, very weakly, obliquely impressed in basal portion on both sides close to base, weakly microsculptured, punctate and haired, the punctures closely set, mostly subovate, ocellate and often fused with one another, the hairs short and thin in medial portion, becoming longer and thicker laterad. Scutellum short linguiform, weakly raised posteriorly, weakly microsculptured, minutely punctate.

Elytra subovate, EL/EW 1.8, EL/PL 4.3 and EW/PW 1.5, widest at apical 4/5, weakly narrowed basad and gently, roundly so apicad from the widest point, very slightly sinuous at basal 1/4; dorsum rather strongly convex, mildly so in medial portion, highest at basal 1/4; disc punctate striate, the striae rather weak in antero-interior portion, the punctures in striae small and closely set, those becoming larger and sparser laterad, and weaker and finer posteriorly; intervals moderately convex, weakly microsculptured, sparsely, minutely punctate, and finely haired, the hairs becoming longer and denser laterad and posteriorly; sutural intervals forming a low ridge in posterior 3/5 and with rows of setaceous hairs; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, and mostly wholly visible from above except for humeral and apical portions; humeri gently swollen, scattered with fine punctures and finely haired; apices rounded.

Maxilla with apical palpomere strongly dilated, apical side weakly curved and 1.5 times the length of nearly straight exterior side and 2.1 times the length of weakly curved interior side. Abdomen weakly microsculptured, rather closely, coarsely punctate, the punctures becoming smaller posteriorly, each with a fine subdecumbent hair; ventrite V sparsely and weakly punctate in

basal and medial parts, closely and strongly punctate in apical part, weakly, roundly depressed in apical part close to apex, with apex rounded and pubescent.

Legs closely, finely punctate and haired. Femora short subclavate. Protibiae nearly straight, with rather short setaceous hairs on interior face; mesotibiae very weakly curved dorsad; metatibiae slightly curved interiad and dorsad. Pro- and mesotarsi with tarsomeres III and IV noticeably dilated; metatarsi with tarsomere III dilated, LTB-A 0.19, 0.09, 0.13, 0.16, 0.31; 0.35, 0.10, 0.12, 0.10, 0.26; 0.63, 0.13, 0.14, 0.32.

Genitalia slender, 1.50 mm in length and 0.18 mm in width, gently curved in lateral view; basale 1.32 mm in length, moderately produced laterad in medial part, constricted at apical 1/4, with the narrowest point 0.07 mm in width; apicale subovate, 0.18 mm in length, with flattened and minutely punctate surface, and apices rounded.

Female. Unknown.

Differential diagnosis. This new species also resembles *Borbonalia chanmeilingae* Masumoto, Novák, Akita & Lee, 2019. The former (= *B. ewersi* sp. nov.) can be distinguished from the latter (= *B. chanmeilingae* sp. nov.) by the head narrower (WE/WD 2.2 in the latter) and more noticeably microsculptured with antennae slenderer, the pronotum narrower (more roundly shaped and PW/PL 1.8 in the latter) and more closely, ocellately punctate, with lateral margins more noticeably sinuous before hind angles, the elytra a little wider (EL/EW 1.9 in the latter) and more clearly punctate striate, and male genitalia slenderer and constricted in anterior part (simple in shape, 1.32 mm in length, 0.22 mm in width in the latter), with the basale noticeably narrowed in anterior part.

Etymology. The specific name is given in honour of R. Ewers who was a member of the Taiwan researching group and a specimen collector of the present new species.

Distribution. Taiwan.

***Borboresthes lushanensis* Masumoto, Novák, Akita & Lee sp. nov.**
(Figs. 7, 23-25)

Type locality. Taiwan, Nantou Hsien, 0.5km NW of Lushan.

Type material. Holotype (♂): "TAIWAN, Nantou County / 0.5km NW of Lushan / N24°01.481 E121°10.876 / 08.viii.2008, 1268m / Coll. H. Mendel, U. Ong / M.V.L. Barclay & R. Ewers / BMNH(E) 2008-85.", (NHML). Paratypes: 1 ♀, same data as for the holotype, (NHML); 1 ♂, same data as for the holotype, (NMNSTJ); 1 ♂, 1 ♀, same data as for the holotype, (in coll. V. Novák).

Description of holotype. Body 8.8 mm in length; BL/BW 2.3, slightly elongate elliptical, strongly convex dorsad. Major basal portion of head and pronotum brownish black; apical portion of head, basal five antennomeres, scutellum, basal and apical portion of elytra, tibiae and tarsi brown; apical six antennomeres and femora brownish yellow; ventral surface dark reddish brown; hairs on each surface mostly slightly brownish yellow, partly darker in color; dorsal surface weakly sericeously shining; ventral surface mostly moderately, partly weakly sericeously shining; basal three antennomeres and legs weakly shining; apical eight antennomeres almost mat; dorsal surface wholly, finely haired, the hairs becoming thicker and longer laterad; ventral surface rather sparsely, finely haired; antennae densely clothed with fine short hairs; legs densely

clothed with hairs and ventral sides of tibiae and tarsi densely clothed with rather short setaceous hairs.

Head somewhat wide-based triangular, though the apex is attached with a transversely elliptical part (= major part of clypeus), weakly, widely convex in medial portion, wholly, weakly microsculptured; clypeus longitudinally subelliptical, well-produced and weakly inclined apicad, closely, shallowly punctate and minutely haired, with apex gently truncate; fronto-clypeal suture clearly, roundly impressed, with each lateral end reaching exterior margin; genae raised antero-laterad in medial part, weakly microsculptured, minutely punctate and haired, with exterior margin weakly roundly produced; frons rather closely punctate and microscopically haired; vertex very weakly convex, closely punctate. Eyes inverted comma-shaped, convex laterad, obliquely, roundly inlaid into head, WE/ED 1.35. Antennae subfiliform, reaching apical 1/3 of elytra, LAI-XI 0.40, 0.09, 0.49, 0.83, 0.78, 0.80, 0.74, 0.76, 0.73, 0.70, 0.72.

Pronotum subtrapezoidal, PW/PL 1.59, widest at base, straightly narrowed in basal half, then roundly so to apex; apex gently, rounded, wholly, finely marginate; base weakly produced in medial 1/3, slightly truncate in area opposite to scutellum, sinuous in lateral parts, wholly grooved and marginate, very weakly, obliquely impressed on both sides close to base; sides obliquely, steeply declined to lateral margins, which are wholly grooved and finely marginate, and barely visible from above; front angles rounded and directed ventrad, invisible from above; hind angles rectangular, visible from above; disc weakly convex, very weakly depressed in postero-medial portion, punctate and haired, the punctures closely set, rather shallow, subcellate and microsculptured, the hairs subdecumbent, short and fine in medial portion, becoming longer and thicker laterad. Scutellum triangular with slightly rounded sides, weakly microsculptured, minutely punctate and finely haired.

Elytra slightly elongated elliptical, though the basal portion is truncated, EL/EW 2.1, EL/PL 4.5 and EW/PW 1.3, widest at basal 3/8, weakly, roundly narrowed basad and apicad from the widest point, very slightly sinuous at basal 1/4; dorsum rather strongly convex, highest at basal 3/8; disc punctate striate, the striae rather fine, the punctures in striae small and closely set in antero-medial portion, those becoming a little larger and sparser laterad, and finer posteriad; intervals moderately convex, microsculptured, punctate and haired, the hairs rather short and thin in interior portion, becoming longer and thicker laterad and posteriad; sides inclined laterad, rather steeply so in anterior portion, and mildly so in posterior portion, the lateral margin bordered by a rows of punctures, slightly explanate, finely marginate, and almost wholly visible from above; humeri gently swollen, microsculptured, minutely punctate and finely haired; apices slightly, roundly produced.

Maxilla with apical palpomere strongly dilated, apical side nearly straight and 1.6 times the length of nearly straight exterior side and 2.1 times the length of gently curved interior side. Abdomen weakly microsculptured, abdominal ventrites I to III sparsely, microscopically punctate and minutely haired, IV rather closely punctate and haired in lateral parts, V rather closely, shallowly punctate and almost wholly, minutely haired, with apex slightly truncate and pubescent.

Legs closely, finely punctate and haired. Femora short subclavate. Protibiae slightly curved dorsad; mesotibiae weakly becoming thicker apicad, nearly straight; metatibiae nearly straight, very weakly becoming thicker apicad. Pro- and mesotarsi with tarsomeres III and IV and metatarsi with tarsomere III noticeably dilated, LTB-A 0.33, 0.15, 0.22, 0.31, 0.55; 0.69, 0.19, 0.21, 0.25, 0.61; 2.20, 0.40, 0.32, 0.50.

Genitalia slender with very complicate-shaped apicale (Figs. 23-25), 2.59 mm in length and 0.35 mm in width, gently curved in lateral view; basale 2.35 mm in length, gradually narrowed

anteriad; apicale 0.24 mm in length in dorsal view, vent ventrad in apical half, with apex triangularly reflexed.

Variability (n=3). Body length: 8.3-8.8 mm. Coloration not so noticeably variable; BL/BW 2.4-2.5; WE/ED 1.3-1.4; PW/PL 1.6-1.8; EL/EW 1.9-2.1, EL/PL 4.2-4.5; EW/PW 1.2-1.3.

Female (n=2). Body length: 7.7-9.4 mm. Head narrower; antennae shorter, reaching the midst of elytra; eyes smaller, more transversely inlaid into head, distance between them wider; elytra with punctures in striae a little stronger, intervals rougher; maxilla with apical palpomere less strongly dilated; legs shorter with tarsomeres less strongly dilated.

BL/BW 2.3-2.9; WE/ED 1.50; PW/PL 1.7-1.8; 2.0-2.1; EL/PL 4.2-4.5; EW/PW 1.3.

Differential diagnosis. This new species apparently resembles *Borboresthes cienus* Masumoto, Novák, Akita & Lee, 2019, but can be easily distinguished from not only this species but also from other species by possessing very complicated apicale of male genitalia.

Etymology. The specific name, *lushanensis*, which is named after the place of collecting located in Nantou Hsien, central Taiwan.

Distribution. Taiwan.

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

(Figs. 8, 26-27)

Type locality. Taiwan, Nantou Hsien, 0.5 km NW of Lushan.

Type material. Holotype (♂): "TAIWAN, Nantou County / 0.5km of Lushan / N2401.481 E12110.876 / 08.viii.2008, 1268m / Coll. H. Mendel, U. Ong / M.V.L. Barclay & R. Ewers / BMNH(E) 2008-85.", (NHML).

Description of holotype. Body 7.6 mm in length; BL/BW 2.5, slightly elongate elliptical, strongly convex dorsad. Dorsal and ventral surfaces mostly dark yellowish brown; mouth parts and elytra slightly lighter in color; basal four antennomeres, and legs brownish yellow; hairs on surfaces mostly brownish yellow, and partly paler; head moderately shining; pronotum, scutellum and elytra weakly sericeously shining; apical four antennomeres and ventral surface moderately, partly weakly shining; femora and tibiae moderately shining; apical seven antennomeres and tarsi mostly mat; anterior portion of head, medial portion of pronotum, antero-medial portions of elytra, and major ventral surface clothed with rather short fine hairs; posterior portion of head, lateral portions of pronotum, lateral portions of elytra and femora clothed with rather long hairs; antennae densely clothed with fine hairs; ventral faces of tibiae and tarsi densely clothed with setaceous hairs.

Head transversely subelliptical in basal portion and subquadrate in anterior portion, very weakly convex in medial portion, wholly, weakly microsculptured; clypeus weakly depressed in basal part, gently produced and weakly inclined apicad, shallowly punctate and minutely haired, with apex slightly roundly truncate; fronto-clypeal suture finely, roundly impressed, with each lateral end reaching exterior margin; genae weakly raised antero-laterad in medial part, rather smooth, minutely punctate and haired, with exterior margin oblique and weakly roundly produced; frons short, very weakly inclined anteriad, punctate and haired, the punctures sparser

and smaller and the hairs thicker and longer than those on clypeus, respectively; vertex very weakly convex, with a narrow impunctate area at the middle. Eyes somewhat inverted comma-shaped, strongly convex laterad, gently, slightly obliquely inlaid into head, WE/ED 1.62. Antennae subfiliform, reaching apical 1/3 of elytra, LAI-XI 0.29, 0.14, 0.41, 0.67, 0.61, 0.59, 0.57, 0.55, 0.53, 0.50, 0.53.

Pronotum semicircular, PW/PL 1.58, widest at base, roundly narrowed anteriorly; apex gently, rounded, wholly, finely marginate; base weakly produced in medial 1/3, slightly truncate in area opposite to scutellum, sinuous in lateral parts; wholly, finely grooved, very weakly, obliquely impressed on both sides close to base; sides rather steeply declined to lateral margins, which are wholly, finely marginate, and barely visible from above; front angles weakly roundly produced ventrad, barely visible from above; hind angles rectangular, easily visible from above; disc gently convex, punctate and haired, the punctures closely set, rather shallow, mostly subovate, microsculptured, and often fused with one another, the hairs subdecumbent, short and thin in medial portion, becoming longer and thicker in lateral portions. Scutellum semicircular, weakly elevate, closely punctate.

Elytra slightly elongated elliptical, though the basal portion is truncated, EL/E 2.1, EL/PL 4.2 and EW/PW 1.3, widest at basal 1/3, gently, roundly narrowed basad and apicad from the widest point; dorsum rather strongly convex, highest at basal 1/3; disc punctate striate, the striae rather thin in antero-interior and posterior portions, and becoming a little thicker in lateral portion, the punctures in striae small and closely set in antero-medial portion, those becoming larger and coarser laterad, and weaker and thinner posteriorly; intervals moderately convex, weakly microsculptured, minutely punctate, and haired, the hairs rather short and thin in interior portion, becoming longer and thicker laterad and posteriorly; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, and visible from above except for humeral and apical portions; humeri gently swollen, microsculptured, minutely punctate and finely haired; apices slightly, roundly produced.

Maxilla with apical palpomere strongly dilated, apical side nearly straight, 1.6 times the length of nearly straight exterior side and 1.7 times the length of gently curved interior side.

Abdomen microsculptured, rather closely punctate and finely haired, the punctures becoming finer and connected with each other posteriorly; ventrite V weakly punctate, weakly, longitudinally depressed in apico-medial part, with apex gently rounded and pubescent.

Legs closely, finely punctate and haired. Femora short subclavate. Protibiae nearly straight, weakly becoming bolder apicad, very weakly gouged and densely clothed with short setaceous hairs in apical half on ventral face; mesotibiae weakly becoming bolder apicad, very weakly curved dorsad; metatibiae nearly straight, very weakly becoming bolder apicad. Pro- and mesotarsi with tarsomeres III and IV and metatarsi with tarsomere III noticeably dilated, respectively, LTB-A 0.25, 0.12, 0.22, 0.27, 0.45; 0.50, 0.15, 0.16, 0.23, 0.45; 0.94, 0.20, 0.23, 0.43.

Genitalia slender, 2.15 mm in length and 0.32 mm in width, gently curved in lateral view; basale 1.58 mm in length, longitudinally impressed in apical 1/3 on midline; apicale prolonged triangular, 0.57 mm in length, with apices fused and pointed.

Female. Unknown.

Differential diagnosis. This new species somewhat resembles *Borboresthes kuanwuensis* Masumoto, Novák, Akita & Lee, 2018, originally described from Kuanwu, Hsinchu Co., Taiwan.

The former can be distinguished from the latter by the body a little smaller and more robust (7.6 mm in length, BL/BE 2.6 in the latter), the head more finely punctate, antennae thinner, eyes a little smaller, distance between them a little narrower (WE/ED 0.7 in the latter), the pronotum more finely, clearly punctate, the elytra more clearly punctate striate, more densely and constantly haired (sparsely and irregularly haired in the latter), and the male genitalia obviously slenderer (1.25 mm in length in the latter).

Etymology. The specific name is given in honour of U. Ong who was a member of the researching survey in Taiwan and a specimen collector of the present new species.

Distribution. Taiwan.

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

(Figs. 9, 28-29)

Type locality. Taiwan, Taichung Hsien, Huping, Szuyuan-Yushong Chi.

Type material. Holotype (♂): "(TAIWAN) Szuyuang- / Yushong Chi, 1920- / 2300m alt., Huping / Taichung Hsien, / 1. Aug. 1990 / M. Tomokuni leg. // Coll. Masumoto / 2015.", (NMNSTJ). Paratypes: 1 ♂, "(TAIWAN) Wuling-Chika / Sanchuang, 1900-2400m / Mt. Tsueshuan, / Hoping, Taichung Hsien, 13. Aug. / 1990, M. Tomokuni leg.", (NMNSTT); 1 ♂, "(TAIWAN) Wuling-Chika / Sanchuang, 1900-2400m / Mt. Tsueshuan, / Hoping, Taichung Hsien, 13. Aug. / 1990, M. Tomokuni leg." (in coll. V. Novák); 1 ♀, "(TAIWAN) Wuling Guest / House, 1900m / Hoping, Taichung Hsien / 20. Aug. / 1990, M. Tomokuni leg.", (NMNSTJ), 1 ♀, "(TAIWAN) Wuling Guest / House, 1900m / Hoping, Taichung Hsien / 20. Aug. / 1990, M. Tomokuni leg." (in coll. V. Novák).

Description of holotype. Body 6.3 mm in length; BL/BW 2.5; oblong ovate, rather strongly convex dorsad. Head, pronotum, scutellum, and ventral surface dark reddish brown; antennae, elytra, legs brownish yellow; dorsal surface, tibiae and tarsi weakly shining; ventral surface and femora moderately shining; antennomeres mostly mat; head, medial portion of pronotum, antero-medial portions of elytra, major ventral surface and legs clothed with rather short hairs; lateral portions of pronotum, lateral portions of elytra clothed with long hairs; antennae densely clothed with fine hairs.

Head subtriangular though the apical portions is subtruncate, weakly convex in medial portion, wholly, weakly microsculptured; clypeus semicircular, weakly depressed in major basal part, gently inclined apicad in anterior part, wholly punctate, particularly in medio-basal part closely, finely punctate, with apex slightly roundly truncate; fronto-clypeal suture clearly, roundly impressed, with each lateral end reaching exterior margin; genae weakly raised antero-laterad in medial part, sparsely punctate, with exterior margin oblique and weakly roundly produced; frons short, weakly inclined anteriad, closely punctate, the punctures often connected with each other; vertex weakly convex, rather closely, finely punctate. Eyes strongly convex laterad, nearly transversely inlaid into head, WE/ED 2.0. Antennae subfiliform, reaching apical 4/9 of elytra, LAI-XI 0.26, 0.14, 0.39, 0.45, 0.34, 0.33, 0.32, 0.35, 0.34, 0.33, 0.39.

Pronotum semicircular, PW/PL 1.7, widest at base, roundly narrowed anteriad, slightly sinuous in basal 2/5; apex gently, roundly produced, finely grooved in lateral parts; base weakly produced in medial 1/3, slightly truncate in area opposite to scutellum, sinuous in lateral parts, wholly, finely grooved and marginate, obliquely impressed on both sides close to base; sides rather steeply inclined antero-laterad, with lateral margins produced ventrad in middle, wholly finely marginate, and hardly visible from above; front angles obtusely produced ventrad, invisible

from above; hind angles rectangular, visible from above; disc weakly convex, weakly microsculptured, punctate and haired, the punctures closely, irregularly set, mostly subovate, ocellate and fused with one another, the hairs short and thin in medial portion, becoming longer and thicker laterad. Scutellum triangular, weakly raised posteriad, weakly microsculptured, minutely punctate and finely haired.

Elytra subovate, EL/EW 1.9, EL/PL 4.3 and EW/PW 1.4, widest at apical 4/9, weakly narrowed basad and gently, roundly so apicad from the widest point, very slightly sinuous in basal 1/3; dorsum rather strongly convex, with medial portion mildly so, highest at basal 1/3; disc punctate striate, the striae rather thin in antero-interior portion, and becoming a little thicker laterad, the punctures in striae small and closely set, those becoming larger and sparser laterad, and weaker and finer posteriad; intervals moderately convex, weakly microsculptured, sparsely, minutely punctate and haired, the hairs rather short and thin in interior portion, becoming longer and thicker laterad and posteriad; sides rather steeply declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, and mostly wholly visible from above except for humeral and apical portions; humeri gently swollen, sparsely punctate; apices simply rounded.

Maxilla with apical palpomere strongly dilated, apical side nearly straight and 1.7 times the length of nearly straight exterior side and 2.1 times the length of gently curved interior side.

Abdomen weakly microsculptured, rather closely punctate, the punctures each with a fine subdecumbent hair; ventrite V weakly punctate, weakly depressed in medial part, with apex slightly truncate and pubescent.

Legs closely, finely punctate and haired; femora short subclavate. Protibiae nearly straight, weakly becoming bolder apicad, densely clothed with setaceous hairs in apical 3/5 on interior face; mesotibiae weakly becoming bolder apicad, very weakly curved dorsad; metatibiae weakly becoming bolder apicad, weakly curved interiad. Pro- and mesotarsi with tarsomeres III and IV and metatarsi with tarsomere III noticeably dilated, LTb-A 0.19, 0.13, 0.21, 0.17, 0.32; 0.40, 0.12, 0.16, 0.19, 0.39; 0.70, 0.15, 0.14, 0.34.

Genitalia slender, 1.32 mm in length and 0.24 mm in width, gently curved in lateral view; basale 1.11 mm in length, moderately produced laterad in medial part, weakly prolonged anteriad; apicale slightly elongated triangular, 0.21 mm in length, with surface flattened and apices fused and weakly pointed.

Variability (n=3). Coloration not so noticeably various; Body length: 5.6-6.3 mm. BL/BW 2.4-2.6, WE/ED 2.0-2.1; PW/PL 1.6-1.8; EL/EW 1.9-2.0; EL/PL 4.3-4.6; EW/PW 1.4-1.5.

Female (n=2). Body length: 6.3-6.5 mm. Head more closely punctate; antennae thicker and shorter, reaching the midst of elytra; eyes smaller, distance between them wider; pronotum a little less strongly produced apicad and more closely punctate; elytra with intervals more noticeably transversely wrinkled; maxilla with apical palpomere less strongly dilated; legs slightly thicker and shorter. BL/BW 2.5-2.6; WE/ED 2.2-2.3 PW/PL 1.7; EL/EW 1.9; EL/PL 4.4-4.7; EW/PW 1.4.

Differential diagnosis. This new species somewhat resembles *Borboesthes lijianus* Masumoto, Novák, Akita & Lee, 2018, originally described from Lijia Lindao, Beinan Township, Taitung County, Taiwan. The former can be distinguished from the latter by the body slightly slenderer (BL/BW 2.4 in the latter), the head a little more strongly convex, with the distance

between eyes wider (WE/ED 1.3 in the latter), the pronotum more straight narrowed apicad, the elytra a little narrower (EL/EW 1.8 in the latter), with intervals more smooth and shining, the punctures in striae mostly rounded (slightly ovate in the latter), and the male genitalia obviously shorter and simple in shape (1.90 mm in length and strongly curved in the latter).

Etymology. The specific name is given in honour of Masaaki Tomokuni, who has been a curator of the National Science Museum, Tokyo, and constantly encouraged us for long time. Recently, he offered his collection of Taiwanese tenebrionid beetles, of those we could find a present new tenebrionid species.

Distribution. Taiwan.

***Borboresthes wangi* Masumoto, Novák, Akita & Lee sp. nov.**
(Figs. 10, 30-31)

Type locality. Taiwan, Taitung, Lanyu.

Type material. Holotype (♂): "Taiwan: Taitung / Lanyu / 02. IV. 2011. leg. Y.-T. Wang", (TARI). Paratypes: 1 ♂, 1 ♀, same data as for the holotype, (NMNSTT); 1 ♂, 1 ♀, same data as for the holotype, (in coll. V. Novák); 1 ♀, same data as for the holotype, (NMNSTT); 1 ♀, Lanyu, 5. IV. 2011, Y.-T. Wang leg., (NMNSTT).

Description of holotype. Body 7.3 mm in length; BL/BW 2.2; slightly elongated elliptical, rather strongly convex dorsad. Body blackish brown; antennae and mouth parts brownish yellow; legs dark reddish brown; hairs on dorsal surface dark brown in antero-central portion, becoming paler laterad and posteriad; head weakly, sericeously shining; pronotum strongly, slightly sericeously shining; scutellum and elytra weakly sericeously shining; basal four antennomeres and ventral surface moderately, partly weakly shining; femora and tibiae moderately shining; remaining antennomeres (V-IX in the holotype: X and XI lacking) and tarsi mostly mat; dorsal surface clothed with fine subdecumbent hairs, which become longer in lateral portions; ventral surface clothed with rather short fine hairs; antennae densely clothed with short, fine hairs; ventral faces of tibiae and tarsi densely clothed with setaceous hairs.

Head transversely subelliptical in basal portion, and subtrapezoidal in anterior portion, gently convex in medio-basal portion, wholly microsculptured, clothed with subdecumbent hairs; clypeus subquadrate with weakly rounded base, gently convex medially, weakly produced apicad, weakly inclined in medial part, and rather strongly so in lateral parts, closely, minutely punctate, with apex slightly roundly truncate; fronto-clypeal suture indefinite, with arcuate row of minute punctures; genae triangular, inclined posteriad, minutely punctate, with exterior margin only slightly produced; frons short, very weakly inclined anteriad, closely punctate; vertex very weakly convex, rather closely punctate. Eyes somewhat inverted comma-shaped, strongly convex laterad, gently, slightly obliquely inlaid into head, WE/ED 1.2. Antennae subfiliform (within I to IX), LAI-IX 0.23, 0.15, 0.38, 0.49, 0.40, 0.42, 0.39, 0.44, 0.40, -, -.

Pronotum semicircular, PW/PL 1.6, widest very near base, roundly narrowed anteriad; apex gently rounded, wholly, finely marginate; base weakly produced in medial 2/5, slightly truncate in area opposite to scutellum, sinuous in lateral parts; wholly, finely punctulate-grooved, very weakly, obliquely impressed on both sides close to base; sides gradually declined to lateral margins, which are wholly, finely marginate, and barely visible from above; front angles rounded; hind angles rectangular, easily visible from above; disc rather strongly convex, punctate and haired, the punctures small, closely set and somewhat ocellate, the hairs short and thin in

medial portion, becoming longer and thicker in lateral portions. Scutellum semicircular, nearly flat, closely, minutely punctate, sparsely clothed with fine decumbent hairs.

Elytra subelliptical, though the basal portion is truncated, EL/EW 1.8, EL/PL 3.5 and EW/PW 1.3, widest at basal 1/3, gently, roundly narrowed basad and apicad from the widest point; dorsum strongly convex, highest at basal 1/4; disc punctate striate, the striae rather thin in antero-interior portions, and becoming thicker in lateral and posterior portions, the punctures in striae small and closely set in antero-interior portion, and becoming sparser in lateral and posterior portions; intervals moderately convex, weakly microsculptured, rather closely, minutely punctate, and haired, the hairs rather short and thin in interior portion, and becoming longer and thicker laterad and posteriad; sides gradually declined to lateral margins, each of which is bordered by a punctate groove and a fine margination, and almost wholly visible from above; humeri gently swollen, microsculptured, minutely punctate and finely haired; apices very slightly, roundly produced.

Maxilla lacking in the holotype.

Abdomen microsculptured, closely punctate and finely haired in basal two ventrites, the punctures becoming sparser in apical three ventrites; ventrite V weakly depressed in apico-medial part, with apex gently rounded and finely pubescent.

Legs closely, minutely punctate and finely haired. Femora short subclavate. Protibiae nearly straight and slightly becoming bolder apicad in dorsal view, very weakly curved ventrad in lateral view, densely with short setaceous hairs on ventral face; mesotibiae slightly curved interiad and becoming bolder apicad in dorsal view, nearly straight in lateral view; metatibiae nearly straight, very weakly becoming bolder apicad in dorsal view, very slightly curved dorsad in lateral view. Pro- and mesotarsi with tarsomeres III and IV and metatarsi with tarsomere III noticeably dilated, respectively, LTb-A 0.25, 0.15, 0.25, 0.23, 0.40; 0.48, 0.15, 0.17, 0.29, 0.40; 0.85, 0.24, 0.25, 0.41.

Genitalia extremely slender and elongately spoon-shaped, 1.80 mm in length and 0.30 mm in width, very slightly curved in lateral view; basale 1.50 mm in length, constricted in apical 1/5; apicale subovate, 0.26 mm in length, with fused apices.

Female (n=4). Body length: 7.6-7.8 mm; antennae thicker and shorter, reaching the midst of elytra; eyes smaller, WE/ED 1.6; legs slightly thicker and shorter. BL/BW 2.3-2.4; WE/ED 1.4-1.5; PW/PL 1.6-1.8; EL/EW 1.7; EL/PL 3.4; EW/PW 1.1-1.2.

Differential diagnosis. This new species resembles *Borboresthes satoi* Akita & Masumoto, 2015, originally described from Yonaguni-jima Is. the Ryukyus. The former can be distinguished from the latter by the body relatively smaller (7.9-8.6 mm in the latter) and more compact, the eyes a little smaller, the antennae slenderer, the pronotum narrower in the basal portion, the elytra shorter, the punctures in striae smaller and closer, the legs thinner and shorter, with tarsomeres III and IV of pro- and mesotarsi and tarsomere III of metatarsi more noticeably dilated, and the male genitalia with basale more strongly constricted in apical 1/5 and the fused apices of the apicale less acute.

Etymology. The specific name is given in honour of Y.-T. Wang who collected type specimens of the present new species.

Distribution. Taiwan.

***Pseudohymenalia taiwana* Masumoto, Novák, Akita & Lee sp. nov.**
(Figs. 11, 32-35)

Type locality. Taiwan, Nantou Hsien, Penpuxi.

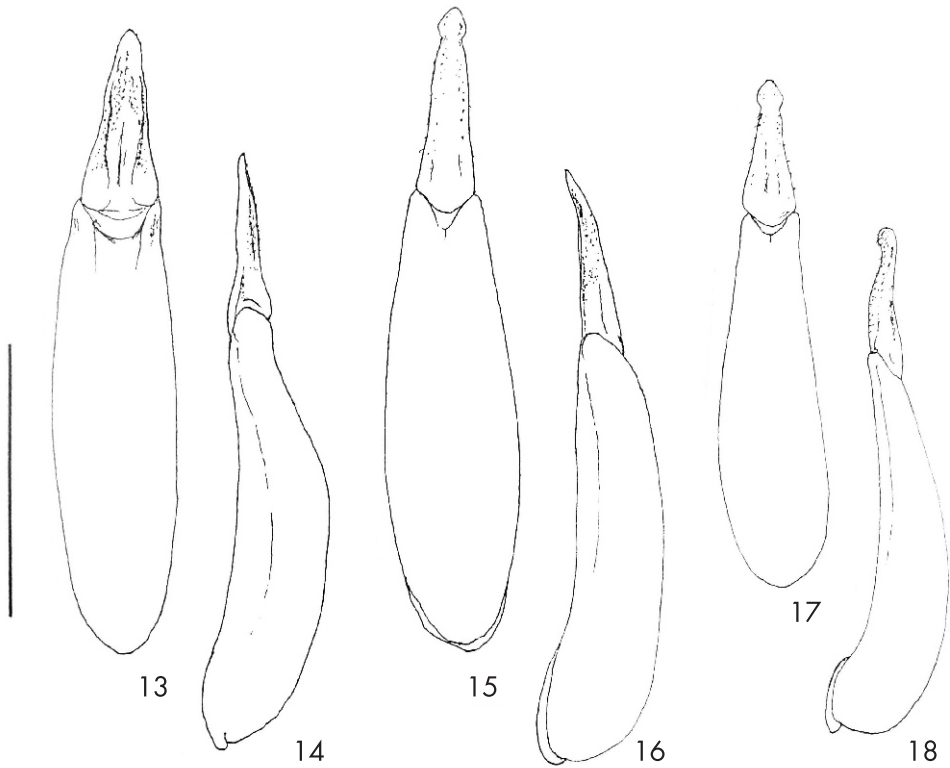
Type material. Holotype (♂): "Penpuxi / Nantou Hsien / Taiwan / 5. IV. 2017 / K. Matsuda leg.", (NMNSTJ). Paratypes: 1 ♂, same data as for the holotype, (NMNSTJ); 2 ♀♀, 5-6. IV. 2017, same locality and collector as for the holotype, (NMNSTJ); 1 ♂, 4 ♀♀, 6. IV. 2017, same locality and collector as for the holotype, (NMNSTJ); 1 ♂, 1 ♀, 6. IV. 2017, same locality and collector as for the holotype (in coll. V. Novák); 1 ♀, 8. IV. 2017, same locality and collector as for the holotype, (NMNSTJ); 4 ♂♂, 6 ♀♀, Nantou Hsien, Kuantaoshan, 7. IV. 2017, K. Matsuda leg., (NMNSTJ); 1 ♂, 1 ♀, Nantou Hsien, Kuantaoshan, 7. IV. 2017, K. Matsuda leg., (NHML); 1 ♀, Nantou Hsien, Kaofeng, 1. VI. 2018, K. Matsuda leg., (NMNSTJ); 3 ♂♂, 1 ♀, Kaoshiung Hsien, Duona Trail, alt. 800 m, 2-3. IV. 2017, K. Matsuda leg., (NMNSTJ); 1 ♀, Hualien Hsien, Walami Trail, Jiashin, alt. 820 m, 3. III. 2016, M. Kiuchi leg., (NMNSTJ); 1 ♀, Hualien Hsien, Walami Trail, alt. 600~820 m, 1. III. 2016, K. Masumoto leg., (NMNSTJ); 1 ♂, 1 ♀, Taichung, Heping, Songhe, alt. 972 m, 6-7. IV. 2019, T. Higurashi leg., (TARI); 7 ♂♂, 2 ♀♀, Taichung, Heping, Songhe, alt. 972 m, 6-7. IV. 2019, T. Higurashi leg., (NMNSTJ).

Description of holotype. Body 5.7 mm in length; BL/BW 2.1, ovate, strongly convex dorsad. Major basal portion of head and ventral side of body brownish black; apical portion of head, pronotum and scutellum blackish brown; nine apical antennomeres, elytra, tibiae and tarsi dark brown; two basal antennomeres, mouth parts and femora dark brownish yellow; hairs on each surface mostly slightly brownish yellow, partly darker in color; dorsal and ventral body surfaces weakly sericeously shining; two basal antennomeres and legs weakly shining; nine apical antennomeres almost mat; dorsal surface wholly, finely haired; the hairs on pronotum becoming thicker and longer laterad; those on elytra thicker and denser in medial and lateral portions; ventral surface rather sparsely, finely haired; antennae densely clothed with short hairs; legs densely clothed with hairs; ventral sides of tibiae and tarsi densely clothed with rather short setaceous hairs.

Head somewhat transversely elliptical, with a transversely subquadrate part (= major part of clypeus), very slightly convex in medio-posterior portion, wholly, weakly microsculptured; clypeus somewhat transversely hexagonal, weakly depressed and flattened in basal part, gently produced and weakly inclined in apical part, closely punctate and minutely haired, with apex gently truncate; fronto-clypeal suture nearly straight and coarsely punctate in major medial part, bent anteriorly in lateral parts, with each end reaching exterior margin; genae raised antero-laterad in medial part, minutely punctate and haired, with exterior margin weakly roundly produced; frons narrow and weakly inclined anteriorly, rather closely, finely punctate and microscopically haired; vertex weakly convex, closely punctate and haired. Eyes large, somewhat inverted comma-shaped, strongly convex laterad, slightly obliquely, roundly inlaid into head, WE/ED 0.5. Antennae subfiliform and a little thick, reaching the middle of elytra, LAI-XI 0.28, 0.13, 0.14, 0.46, 0.46, 0.49, 0.50, 0.54, 0.49, 0.46, 0.48.

Pronotum semicircular, PW/PL 1.7, widest at base, roundly narrowed apically; apex roundly produced, wholly, finely marginate; base weakly produced in medial 1/3, slightly truncate in area opposite to scutellum, sinuous in lateral parts, bordered by fine groove; sides gradually declined to lateral margins, which are wholly grooved and visible from above; front angles indefinite; hind angles subrectangular, visible from above; disc gently convex, very weakly depressed in postero-medial portion, closely punctate and densely haired, the punctures small and subocellate, the hairs short and fine in medial portion, becoming longer and thicker laterad and posteriorly. Scutellum triangular with slightly rounded sides, rather closely, minutely punctate and finely haired.

Elytra longitudinally subelliptical, though the basal portion is truncated, EL/EW 1.7, EL/PL 3.1



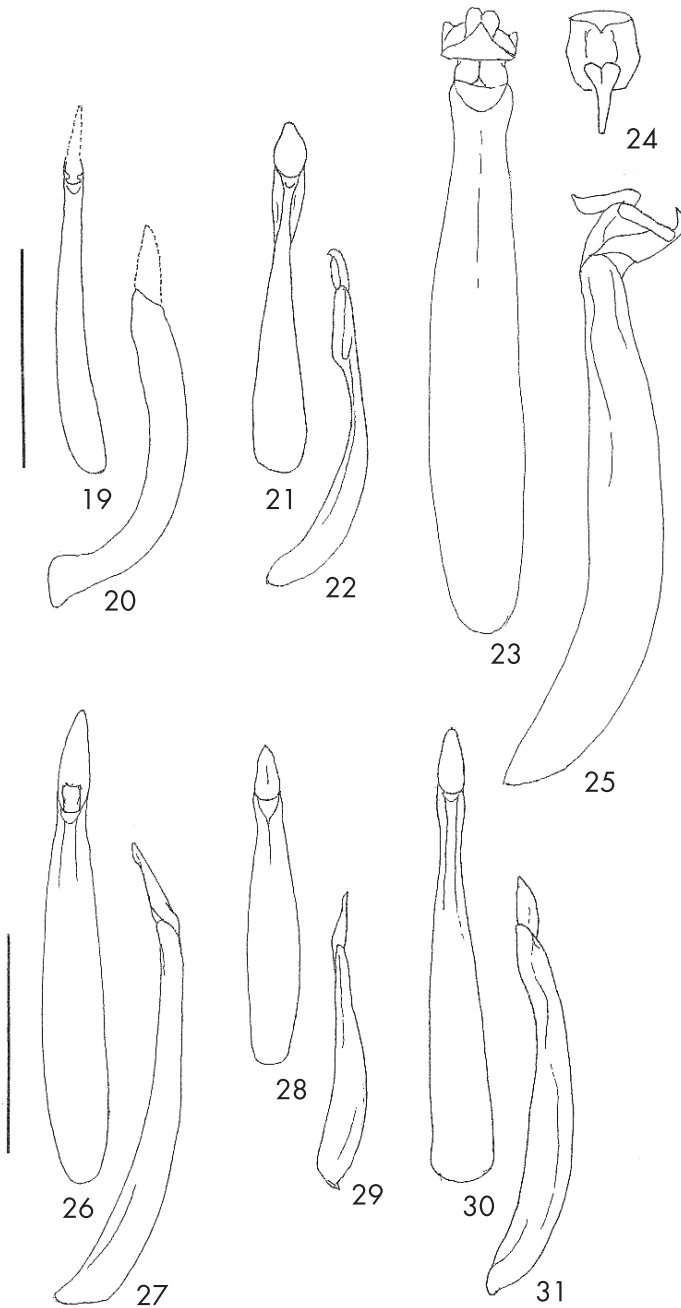
Figs. 13-18. Male genitalia of *Upinella* and *Allecula* spp. 13-14- *Upinella mendeli* sp. nov., holotype; 15-16- *Allecula matsudai* sp. nov., holotype; 17-18- *A. formosana* Pic, 1910; 13, 15 & 17: dorsal view; 14, 16 & 18: lateral view. Scale: 1.00 mm.

and EW/PW 1.2, widest at basal 3/7, roundly narrowed basad and apicad from the widest point; dorsum strongly convex, highest at basal 1/7; disc punctate striate, the striae indefinite in anterior and medial portions, becoming clearer posteriad, the punctures in striae very small and closely set in anterior portion, becoming a little larger and stronger posteriad; intervals almost flat in anterior portion, weakly convex in posterior portion, wholly weakly microsculptured, microscopically granulate-punctate and densely haired, the hairs rather short and thin in antero-interior portion, becoming longer and thicker in lateral and posterior portions; sides inclined laterad, rather steeply so in anterior portion, and mildly so in posterior portion; lateral margin explanate, closely, irregularly punctate, finely marginate, and almost wholly visible from above; humeri weakly swollen, microscopically granulo-punctate; apices rounded.

Maxilla with apical palpomere strongly dilated, apical side nearly straight and about 1.2 times the length of weakly curved exterior side and 3.6 times the length of nearly straight interior side.

Abdomen weakly microsculptured, abdominal ventrites I to IV rather closely, microscopically punctate and minutely haired, ventrite V rather closely, shallowly punctate and minutely haired, with apex slightly truncate and pubescent.

Legs closely, minutely punctate and finely haired. Femora short subclavate. Tibiae nearly straight, weakly becoming thicker apicad. Protarsi with tarsomeres III weakly dilated, LTB-A 0.33,



Figs. 19-31. Male genitalia of *Borbonalia* and *Borboesthes* ssp., holotype. 19-20- *Borbonalia barclayi* sp. nov.; 21-22- *B. ewersi* sp. nov.; 23-25- *Borboesthes lushanensis* sp. nov.; 26-27- *B. ongi* sp. nov.; 28-29- *B. tomokunii* sp. nov.; 30-31- *B. wangi* sp. nov.; 19, 21, 23, 26, 28 & 30: dorsal view; 20, 22, 25, 27, 29 & 31: lateral view; 24: apices of apicale, frontal view. Scales: 1.00 mm.

0.13, 0.10, 0.07, 0.35; 0.45, 0.14, 0.13, 0.06, 0.33; 0.73, 0.26, 0.08, 0.40.

Genitalia subfusiform, 1.33 mm in length and 0.25 mm in width, gently curved in lateral view; basale 0.99 mm in length, gradually narrowed anteriorly; apicale 0.34 mm in length, triangular, longitudinally ridged, with apical part weakly reflexed and rather acutely pointed.

Variability (n=19). Body length: 5.2-5.9 mm. Some specimens become darker in color; BL/BW 2.1-2.3; WE/ED 0.5-0.8; PW/PL 1.6-1.7; EL/EW 1.6-1.7; EL/PL 3.1-3.2; EW/PW 1.2-1.3.

Female (n=20). Body length: 5.1-6.2 mm. Head narrower; antennae shorter, reaching basal 1/5 of elytra, antennomere III about 2.3 times the length of that of II (almost same length in male); eyes smaller, less strongly inlaid into head, distance between them wider; maxilla with apical palpomere less strongly dilated. BL/BW 2.1; WE/ED 1.0-1.1; PW/PL 1.6-1.7; EL/EW 1.7; EL/PL 3.1-3.2; EW/PW 1.18-1.26.

Differential diagnosis. This new species somewhat resembles *Pseudohymenalia guizhouica* Novák, 2016, from China, W. Guizhou, but can be distinguished from the *P. guizhouica* (the latter) by the body a little more convex dorsad, the head larger, WE/ED 0.35 (WE/ED 1 in the latter), the pronotum narrower in basal portions, a little shorter, EL/PL 1.7 (1.4 in the latter); the elytra slightly elongate, WL/EW 1.7 in the latter (1.6 in the latter), with the striae obviously shallower and the punctures finer, and male genitalia a little simpler in shape, subfusiform, with the species not so narrowed like that of the latter.

Etymology. The specific name, *taiwana*, is given after Taiwan, from where the first species belonging to the genus *Pseudohymenalia* was collected and described. Up until now members of this genus have been collected in mainly SW. China (Zhejiang, Guizhou, Sichuan, Hubei, Yunnan), Vietnam and Laos.

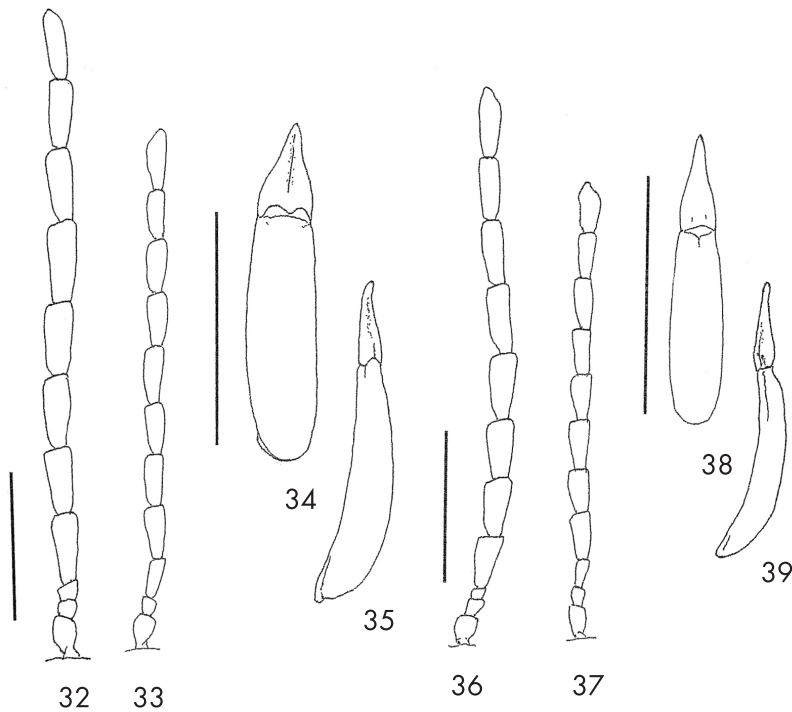
Distribution. Taiwan.

***Pseudohymenalia saliiica* Masumoto, Novák, Akita & Lee sp. nov.**
(Figs. 12, 36-39)

Type locality. Taiwan, Nantou Hsien, Sali Lindao.

Type material. Holotype (♂): "Taiwan: / Nantou Hsien, / Sali lindao / 6-7. IV. 2017 / K. Masumoto leg. // 6-7. IV. 2017 // Coll. Masumoto / 2017", (NMNSTT). Paratypes: 1 ♂, 1 ♀, Nantou Hsien, Penpuxi, 5-6. IV. 2017, K. Matsuda leg., (NMNSTJ); 1 ♂, 1 ♀, Nantou Hsien, Penpuxi, 5-6. IV. 2017, K. Matsuda leg. (in coll. V. Novák); 1 ♂, 1 ♀, Nantou Hsien, Penpuxi, 5-6. IV. 2017, K. Matsuda leg., (NHML); 1 ♀, Nantou Hsien, Renai, Aowanda, alt. 1,400 m, 2. IV. 2014, M. Kiuchi leg., (NMNSTT); 1 ♀, Nantou Hsien, Renai, Aowanda, alt. 1,400 m, 2. IV. 2014, M. Kiuchi leg., (NMNSTJ); 1 ♂, 2 ♀♀, Hualien, Walami Trail, 19-20. IV. 2016, F.-H. Huang leg., (NMNSTJ); 1 ♀, Hualien, Jhousi, Walami Trail, Walami, alt. 1,070 m, 19. IV. 2016, J.-F. Tsai & K.-H. Chuang leg., (TARI); 1 ♂, Kaohsiung, Meilungshan, 15. VI. 2016, B.-X. Guo leg., (TARI).

Description of holotype. Body 5.4 mm in length; BL/BW 2.3, elongated elliptical, strongly convex dorsad. Dorsal body surface almost wholly brownish black; basal two antennomeres, ventral body surface and legs lighter in color; hairs of body mostly pale brown; dorsal body surface weakly sericeously shining; ventral body surface weakly sericeously, partly vitreously shining; basal three antennomeres and legs weakly shining; eight apical antennomeres almost mat; dorsal surface wholly, fairly densely, finely covered with decumbent hairs; the hairs on pronotum and elytra becoming thicker and longer, somewhat golden and easily recognized in



Figs. 32-39. *Pseudohymenalia* spp. 32-35- *Pseudohymenalia taiwana* sp. nov.; 36-39- *P. saliiica* sp. nov.; 32-33 & 36-37: antenna; 34 & 38: Male genitalia (dorsal view); 35 & 39: ditto (lateral view); 32, 34-35, 36 & 38-39: holotype, ♂; 33 & 37: paratype, ♀. Scales: 1.00 mm.

lateral portions; ventral surface rather sparsely, finely haired; antennae densely clothed with short hairs; legs densely clothed with hairs; ventral sides of tibiae and tarsi densely clothed with rather short setaceous hairs.

Head somewhat transversely elliptical, with a transversely subquadrate part (= major part of clypeus), moderately convex in medio-posterior portion, wholly, weakly microsculptured; clypeus semicircular, depressed and flattened, gently produced and widened in apicad, closely punctate and minutely haired, the punctures longitudinally connected with each other and forming grooves; apex well-produced, gently inclined, sparsely minutely punctate, with apex gently, roundly truncate; fronto-clypeal suture indefinite in medial part, grooved and obliquely extending to external margins in lateral parts; genae small, weakly raised antero-laterad in medial part, sparsely punctate and finely haired, with exterior margin very weakly roundly produced; frons narrow and rather steeply declined to fronto-clypeal border, rather closely, finely punctate and microscopically haired; vertex rather well convex, closely punctate and haired. Eyes very large, transversely subovate, strongly convex laterad, slightly obliquely, deeply inlaid into head, WE/ED 0.3. Antennae subfiliform, reaching apical 2/5 of elytra, LAI-XI 0.16, 0.10, 0.06, 0.40, 0.39, 0.43, 0.41, 0.40, 0.39, 0.38, 0.37.

Pronotum semicircular, PW/PL 1.7, widest at base, roundly narrowed apicad; apex roundly produced, wholly, finely marginate; base weakly produced in medial 1/4, bordered by fine groove; sides gradually inclined laterad, very weakly reflexed in posterior portion, with lateral margins wholly finely grooved and visible from above; front angles indefinite; hind angles

subrectangular, visible from above; disc gently convex, closely punctate and densely haired, the punctures small, subocellate and fused with each other, the hairs rather long, subdecumbent and mostly directing posteriorad. Scutellum triangular with slightly rounded sides, closely, minutely punctate and densely, finely haired.

Elytra subelliptical, though the basal portion is truncate, EL/EW 1.7, EL/PL 3.5 and EW/PW 1.1, widest at basal 2/5, gently narrowed basad and apicad from the widest point; dorsum rather strongly convex, highest at basal 2/7; disc punctate striate, the striae extremely fine and hardly recognized under low magnification, the punctures in striae minute; intervals very slightly convex, wholly weakly microsculptured, closely, microscopically granulate-punctate and densely haired, the hairs rather short and thin in antero-interior portion, becoming longer and thicker in antero-lateral and posterior portions; sides inclined laterad, rather steeply so in anterior portion and mildly so in posterior portion with lateral margin slightly explanate, closely, irregularly punctate, finely marginate, and almost wholly visible from above; humeri weakly swollen, closely, microscopically punctate, the punctures a little ocellate; apices rounded.

Maxilla with apical palpomere somewhat ox-shaped, apical side nearly straight and about 0.8 times the length of nearly straight exterior side and 3.0 times the length of nearly straight interior side.

Abdomen weakly microsculptured; abdominal ventrites I to IV closely, microscopically punctate and minutely haired; ventrite V rather sparsely punctate and minutely haired, with apex rounded and finely pubescent.

Legs rather thin, closely, minutely punctate and finely haired. Femora short subclavate. Protibiae very weakly curved interiad in dorsal view, very slightly curved ventrad in lateral view; mesotibiae very slightly curved interiad in dorsal view, very slightly curved dorsad in lateral view; metatibiae nearly straight. Protarsi with tarsomere III dilated; LTB-A 0.22, 0.08, 0.20, 0.08, 0.30; 0.40, 0.12, 0.07, 0.05, 0.28; 0.60, 0.13, 0.08, 0.29.

Genitalia subfusiform, 1.10 mm in length and 0.25 mm in width, slightly curved in lateral view; basale 0.80 mm in length, gradually narrowed anteriorad; apicale 0.30 mm in length, elongated triangular, with apical part weakly prolonged.

Variability (n=6). Body length: 5.2-6.2 mm. Some specimens become darker in color. WE/ED 0.2-0.4; PW/PL 1.7-1.8; EL/EW 1.7; EL/PL 3.3-3.6; EW/PW 1.1-1.2.

Female (n=8). Head narrower; antennae shorter, reaching basal 1/5 of elytra, antennomere III 1.7 times the length of that of II (0.6 times in male); eyes smaller, less strongly inlaid into head, distance between them wider; maxilla with apical palpomere less strongly dilated. WE/ED 1.0-1.1; PW/PL 1.6; EL/EW 1.6-1.7; EL/PL 3.3-3.4; EW/PW 1.2.

Differential diagnosis. This new species resembles the preceding new species, *P. taiwana* Masumoto, Novák, Akita & Lee sp. nov. The former can be distinguished from the latter by the body slightly slenderer, the dorsal surface constantly covered with fine subdecumbent hairs, the antennae slenderer, with antennomere III short: 0.6 times the length compared with II in male, 1.2 times the length in female (1.0-1.1 times the length in male, 2.1-2.3 times the length in female in *P. taiwana*), the male genitalia small, with apicale 0.3 times the total length of genitalia (0.2 times the length in *P. taiwana*).

Etymology. The specific name, *saliica*, is given after the Sali Trail, Nantou County, where the holotype was collected.

Distribution. Taiwan.

Check List of the Subfamily Alleculinae from Taiwan (The Latest Version)

Subfamily Alleculinae Laporte, 1840

Tribe Alleculini Laporte, 1840

Subtribe Alleculina Laporte, 1840

Genus *Allecula* Fabricius, 1801: 21. Type species: *Cistela morio* Fabricius, 1787.

Allecula dahanshana Masumoto, Novák, Lee & Akita, 2017: 3. Type locality: Taiwan: Pingtung, Dahanshan (=Tahanshan). Distr.: Taiwan.

Allecula fenghuangshana Masumoto, Novák, Lee & Akita, 2017: 6. Type locality: Taiwan, Nantou, Fenghuangshan. Distr.: Taiwan.

Allecula formosana Pic, 1910a (Fig. 4, 17-18): 94. Type locality: Ile Formose. Distr.: Taiwan.

Allecula matsudai Masumoto, Novák, Akita & Lee sp. nov. (Figs. 2-3, 15-16). Distr.: Taiwan.

Allecula maxima Pic, 1910b: 94. Type locality: Chine méridionale: Yunnan. Distr.: Taiwan (Fuhosho, Kosempo, Taihorinsho, Hoozan: Borchmann 1912; Fuhôshô, Kôsempo, Taihôrînshô, Hoozan: Miwa 1931); Southwest of China: Fujian; (Novák & Pettersson 2008); Yunnan (Hua 2002).

Genus *Bobina* Novák, 2015a: 125. Type species: *Bobina jendeki* Novák, 2015.

Bobina fikaceki Novák, 2015a: 132. Type locality: China, Guangdong prov., W of Qixing, Heishiding nature reserve, forested stream valley, 23°27.9' N, 111°54.3' E, 190 m. Distr.: Taiwan (locality of paratypes); China: Guangdong (locality of holotype), Vietnam (locality of paratypes).

Genus *Bolbostetha* Fairmaire, 1896b: 117. Type species: *Bolbostetha soleata* Fairmaire, 1896. (= *Alleculodes* Borchmann, 1925: 335. Type species: *Alleculodes discrepans* Borchmann, 1925).

Bolbostetha sauteri (Borchmann, 1925): 341. Type locality: Formosa, Fuhosho; Kosempo; Taihorinsho und Hoozan. Distr.: Taiwan.

Bolbostetha yoshitakei Masumoto, Novák, Lee & Akita, 2017: 8. Type locality: Taiwan: Xinbei City, Wulai, Jhongihih, Mt. Datongshan, N24.890383, E121.558403, 404 m. Distr.: Taiwan.

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

Borbonalia akiyamai Masumoto, Novák, Lee & Akita, 2017: 10. Type locality: Taiwan, Taitung, Haiduan, Xiangyang. Distr.: Taiwan.

Borbonalia Barclayi Masumoto, Novák, Akita & Lee sp. nov. (Figs. 5, 19-20). Distr.: Taiwan.

Borbonalia beinamica Masumoto, Novák, Lee & Akita, 2017: 13. Type locality: Taiwan, Taitung Pref., Benan Township, Lijia Lindao. Distr.: Taiwan.

Borbonalia chanmeilingae Masumoto, Novák, Akita & Lee, 2019: 94. Type locality: Taiwan, Chiayi Hsien / Nanxilindao. Distr.: Taiwan.

Borbonalia ewersi Masumoto, Novák, Akita & Lee sp. nov. (Figs. 6, 21-22). Distr.: Taiwan.

Borbonalia tienchihica Masumoto, Novák, Akita & Lee, 2019: 92. Type locality: Taiwan: Kaohsiung / Tienchihl. Distr.: Taiwan.

Borbonalia wangtaichuani Masumoto, Novák, Akita & Lee, 2019: 90. Type locality: Taiwan: Nantou / Shalihshientrail. Distr.: Taiwan.

Borbonalia xueshana Masumoto, Novák, Lee & Akita, 2017: 16. Type locality: Taiwan, Taichung, Xueshan, alt. 2500 m. Distr.: Taiwan.

Genus *Borboresthes* Fairmaire, 1897: 253. Type species: *Allecula cruralis* Marseul, 1876.

Borboresthes baxienshanus Masumoto, Novák, Akita & Lee, 2018: 78. Type locality: Taiwan, Taichung, Baxienshan. Distr.: C. Taiwan (Mountainous Area).

Borboresthes bilamellatus (Marseul, 1876): 323 (*Allecula*?). Type locality: Hiogo. Novák, Masumoto & Akita, 2017: 57 [nec Marseul, 1876]. Distr.: Taiwan: Taihorinsho (Borchmann 1912), Taihorin (Miwa 1931); China (Hua 2002), Japan: Honshu, Oki, Shikoku, Kyushu, Tsushima (Akita & Masumoto 2016), Russian Far East: Kuril Islands: Kunashiri Isl. (Dubrovin 1992).

Notes. This species has been recorded not only from Japan but also from Taiwan, China, and some other places for long time. Except for records from Japan, those are rather dubious caused by misidentification, because appearances of this species and allied ones resemble with one another.

Borboresthes cienus Masumoto, Novák, Akita & Lee, 2019: 103. Type locality: Taiwan, Hualien / Ci'en. Distr.: E. Taiwan.

Borboresthes cinctipennis (Pic, 1909): 19 (*Allecula*). Type locality: Chine: Yunnan (Ren & Bai 2002). Distr.: Taiwan (Hua 2002), Southwest of China (Novák & Pettersson 2008).

Borboresthes cruralis (Marseul, 1876): 324 (*Allecula*). Type locality: Hiogo. Distr.: Taiwan: Kankau, Kōsempe (Miwa 1931); China (Ren & Bai 2002), Japan: Honshu, Shikoku, Kyushu, Tsushima (Akita & Masumoto 2016), Ryukyus: Amami-Oshima? (Imasaka & Ebihara 1997), Russian Far East: Kuril Islands: Kunashiri Isl. (Dubrovin 1992=*B. aciculatus*?), South Korea (Jung 2012).

Notes. This species has been recorded not only from the original locality, Japan (Hiogo), but also recorded from Taiwan, China, Korea and some other places. Except for those from main islands of Japan, records from other localities are presumably caused by misidentification, because appearances of this species and allied ones extremely well resemble with one another.

Borboresthes dahanshanus Masumoto, Novák, Akita & Lee, 2018: 81. Type locality: Taiwan, Pingtung Co., / Chunri T., Mt. Dahanshan. Distr.: C. Taiwan.

Borboresthes fainanensis fainanensis Pic, 1922a: 102. Type locality: Formose: Fainan [sic: Tainan]. Distr.: Taiwan; China (Fujian: Pic 1937; Fujian, Zhejiang: Hua 2002).

Borboresthes formosensis Pic, 1934: 21. Type locality: Formose. Distr.: Taiwan (not recorded in Miwa 1931).

Borboresthes fuliginosus Fairmaire, 1897: 253. Type locality: Szé-tchouen. Distr.: Taiwan: Taihorinsho, Kosempo (Borchmann 1912), Taihanroku, Kankau (Miwa 1931); China: Sichuan; Western Plateau (Novák & Pettersson 2008).

Borboresthes fushanus Masumoto, Novák, Lee & Akita, 2017: 16. Type locality: Taiwan: Ilan, Fushan Botanical Garden. Distr.: Taiwan.

Borboresthes huangfuchengi Masumoto, Novák, Akita & Lee, 2019: 110. Type locality: Walami Trail / Zhouxi, Hualien / Taiwan. Distr.: EC. Taiwan.

Borboresthes howangus Masumoto, Novák, Akita & Lee, 2018: 76. Type locality: Taiwan Nantou / Howang. Distr.: C. Taiwan.

Borboresthes hsiehi Masumoto, Novák, Lee & Akita, 2017: 19. Type locality: Taiwan; Hsinchu, Litungshan. Distr.: Taiwan.

Borboresthes keiichii Masumoto, Novák, Akita & Lee, 2019: 106. Type locality: Taiwan, Taichung / Baxienshan. Distr.: E. Taiwan.

Borboresthes klapperichi Pic, 1955: 30. Type locality: Kuatun (Fujian). Distr.: Taiwan, Lanyu; China: Shaanxi, Zhejiang (Novák 2018).

Borboresthes kuanwuensis Masumoto, Novák, Akita & Lee, 2018: 91. Type locality: Taiwan, Hsinchu, / Kuanwu. Distr.: C. Taiwan.

Borboresthes lanyenchuiuae Masumoto, Novák, Akita & Lee, 2019: 108. Type locality: Taiwan, Taichung, / Baxienshan. Distr.: E. Taiwan.

Borboresthes lijiaus Masumoto, Novák, Akita & Lee, 2018: 86. Type locality: Lijia Lindao / Beinan Township / Taitung County, Taiwan. Distr.: SE. Taiwan.

Borboresthes litungshanus Masumoto, Novák, Lee & Akita, 2017: 19. Type locality: Taiwan: Hsinchu, Litungshan. Distr.: Taiwan.

Borboresthes lushanensis Masumoto, Novák, Akita & Lee sp. nov. (Figs. 7, 23-25). Distr.: Taiwan.

Borboresthes nanxiensis Masumoto, Novák, Akita & Lee, 2019: 96. Type locality: Taiwan, Chiayi Hsien / Nanxi Trail. Distr.: E. Taiwan.

Borboresthes niisatoi Masumoto, Novák, Akita & Lee, 2018: 96. Type locality: Lijia Lindao, Beinan Township, Taichung County, Taiwan. Distr.: E. Taiwan (Mountainous Area).

Borboresthes obscurithorax Pic, 1922b: 24. Type locality: Formose. Distr.: Taiwan.

Borboresthes ongi Masumoto, Novák, Akita & Lee sp. nov. (Figs. 8, 26-27). Distr.: Taiwan.

Borboresthes pahsienshanus Masumoto, Novák, Akita & Lee, 2019: 101. Type locality: Taiwan, Taichung / Pahsienshan. Distr.: C. Taiwan.

- Borboresthes piceus*** Borchmann, 1941: 27. Type locality: Kuantun 2300 m. Distr.: Taiwan, Lanyu, Chinmen (=Kinmen Is.); China: Fujian.
- Borboresthes ruficollis*** Borchmann, 1940: 155. Type locality: Formosa: Taihorinsho; Kankau (Koushun); Kosempo und Hoozan. Distr.: Taiwan.
- Borboresthes rufinus rufinus*** Borchmann, 1940: 156. Type locality: Formosa: Taihorinsho, Kosempo und Hoozan.
- Borboresthes rufinus piceicollis*** Borchmann, 1940: 156. Type locality: Not mentioned. Distr.: Taiwan.
- Borboresthes shedingshanus*** Masumoto, Novák, Akita & Lee, 2018: 83. Type locality: Taiwan, Pingtung, / Shedingshan. Distr.: S. Taiwan.
- Borboresthes suni*** Masumoto, Novák, Lee & Akita, 2017: 22. Type locality: Taiwan: Hsinchu, Kuanwu. Distr.: Taiwan.
- Borboresthes suzukii*** Masumoto, Novák, Akita & Lee, 2018: 88. Type locality: Taiwan, Nantou, Meifeng. Distr.: C. Taiwan.
- Borboresthes tengchihensis*** Masumoto, Novák, Akita & Lee, 2018: 98. Type locality: Taiwan, Kaoshiang [sic] / Tengchih. Distr.: S. Taiwan.
- Borboresthes tomokunii*** Masumoto, Novák, Akita & Lee sp. nov. (Figs. 9, 28-29). Distr.: Taiwan.
- Borboresthes tsaijingfui*** Masumoto, Novák, Akita & Lee, 2019: 99. Type locality: Taiwan, Taichung / Pahsienshan. Distr.: C. Taiwan.
- Borboresthes tulanshanus*** Masumoto, Novák, Akita & Lee, 2019: 113. Type locality: Taiwan Taitung Tungo / Tulanshan No. 1 / Sampling plots. Distr.: C. Taiwan.
- Borboresthes umbilicatus*** (Seidlitz, 1896): 38. Type locality: China: Novák, Masumoto & Akita, 2017 [nec Seidlitz, 1896]. Distr.: Taiwan (Hua 2002); China, Japan (Wu 1937, Hua 2002).
- Borboresthes walamiensis*** Masumoto, Novák, Akita & Lee, 2018: 93. Type locality: Taiwan, Hualien, Walami Trail. Distr.: E. Taiwan.
- Borboresthes wangi*** Masumoto, Novák, Akita & Lee sp. nov. (Fig. 10, 30-31). Distr.: Taiwan.
- Genus *Cistelopsis*** Fairmaire, 1896a: 39. Type species: *Cistelopsis rufina* Fairmaire, 1896.
- Cistelopsis*** sp. indet. Distr.: Taiwan.
- Genus *Gerdacula*** Novák, 2015b: 145. Type species: *Gerdacula fujianica* Novák, 2015.
- Gerdacula taiwana*** Masumoto, Novák, Lee & Akita, 2017: 23. Type locality: Taiwan: Ilan, Fushan Botanical Garden. Distr.: Taiwan.
- Genus *Hymenalia*** Mulsant, 1856a: 48. Type species: *Cistela fusca* Illiger, 1794 (= *Cistela rufipes* Fabricius, 1792).
- Hymenalia klapperichi*** Pic, 1955: 30. Type locality: Kuantun (Fukien). *H. k. tschungseni* Pic, 1955: 30. Type locality: Kuantun (Fukien). [syn. by Novák 2015c]. Distr.: Taiwan, Lanyu; China (Fujian; Sichuan: Novák 2010).
- Hymenalia merkli*** Novák, 2010: 210. Type locality: Taiwan, Ilan county, Mingchih Forest Recreation Area, 1200 m. Distr.: Taiwan.
- Hymenalia rufipennis*** (Marseul, 1876): 328 (*Cistela* (*Gonodera*)). Type locality: Nagasaki, Hiogo. Distr.: Taiwan: Kōshun (Kōno 1930, Miwa 1931, Dubrovin 1992, Hua 2002; Ren & Bai 2002); China (Dubrovin 1992), Japan: Ryukyus: Amami-Oshima (Saitō 2001), South Korea (Chûjō & Lee 1994), Russia: East Siberia, Far East of Russia: Khabarovsk, Amur, Primorskij (Dubrovin 1992).
- Genus *Microsthes*** Novák, 2011: 320. Type species: *Microsthes barborae* Novák, 2011.
- Microsthes taiwanus*** Masumoto, Novák, Lee & Akita, 2017: 25. Type locality: Taiwan: Pingtung, Kenting National Park, Lanrenxi. Distr.: Taiwan, Lanyu, Lutao.
- Genus *Netopha*** Fairmaire, 1893a: 299. Type species: *Netopha pallidipes* Fairmaire, 1893.
- Netopha pallidipes*** Fairmaire, 1893a: 300. Type locality: Lang-Song. Distr.: Taiwan (Hua 2002), China: Yunnan (Hua 2002), Central & North China (Ren & Bai 2002), Vietnam.

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

Genus *Upinella* Mulsant, 1856b: 17 [=1856c: 17]. Type species: *Allecula aterrima* Rosenhauer, 1847.
Upinella (raised the rank of the genus): Novák 2016: 91.

Subgenus ***Tibinella*** Novák, 2019: 90 type species *Upinella pahangica* Novák, 2019.

Upinella (Tibinella) lanrenxiensis (Masumoto, Akita & Lee, 2015): 307 *Allecula (Upinella)*. Type locality: TAIWAN, Pingtung, Kenting National Park, Lanrenxi. Distr.: Taiwan; Laos, Myanmar and Vietnam (Novák 2019).

Upinella (Tibinella) meifengensis Masumoto, Novak, Akita & Lee, 2018: 101. Type locality: Taiwan Nantou / Meifeng. Distr.: C. Taiwan.

Upinella (Tibinella) taiwana (Masumoto, Akita & Lee, 2015): 306 (*Allecula (Upinella)*). Type locality: Taiwan, Pingtung, Kenting National Park, Lanrenxi. Distr.: Taiwan.

Subgenus ***Upinella*** Mulsant, 1856b: 17 [=1856c: 17]. Type species: *Allecula aterrima* Rosenhauer, 1847.

Upinella frankenbergeri (Mařan, 1940): 168 (*Allecula*). Type locality: Fukien, Yen Ping Fu. Distr.: Taiwan (Novák 2016); China (Fujian: Mařan 1940; Central China: Ren & Bai 2002).

Upinella hirokii (Akita & Masumoto, 2012b): 286 (*Allecula (Upinella)*). Type locality: Japan, Ryukyus, Iriomote-jima Is., Ootomi-rindô. *Allecula (Upinella) melanaria*: Novák, 2016, [nec Mäklin, 1875] from Taiwan. Distr.: Taiwan; Ryukyus: Ishigaki-jima Is., Iriomote-jima Is., Yonaguni-jima Is.

Notes. Up until now, the present Taiwanese species has been recorded as *Allecula (Upinella) melanaria* Mäklin, 1875, whose distributions are South Korea (Chûjô & Lee, 1994), and China: Fukien=Fujian (Borchmann 1941), Henan (Novák 2016).

Upinella jingfui Masumoto, Novák, Akita & Lee, 2019: 115. Type locality: Taiwan, Taichung / Pahsienshan. Distr.: C. Taiwan.

Notes. Past records of *Upinella fuliginosa* (Mäklin 1875) from Taiwan, such as Kosempo (Borchmann 1912) and Kôsempo, Suisharyô (Miwa 1931) were caused by the misidentification. The Taiwanese species possesses several different morphological characteristics from *U. fuliginosa* from the Japan, so we gave the new present name for the Taiwanese species in 2019.

Upinella mendeli Masumoto, Novák, Akita & Lee sp. nov. (Figs. 1, 13-14). Distr.: Taiwan.

Subtribe **Gonoderina** Seidlitz, 1896

Genus *Isomira* Mulsant, 1856a: 52. Type species: *Chrysomela murina* Linnaeus, 1758.

Isomira formosana Pic, 1917a: 20. Type locality: Formose. Distr.: Taiwan.

Isomira konoï Miwa, 1931: 171 [RN]. Type locality: Musha-Horisha. *Isomia* [sic] *formosana* Kôno, 1930: 96 [HN: nec Pic, 1917a]. Type locality: Formosa (Musha-Horisha, Baibara). Distr.: Taiwan.

Isomira matsumurai Kôno, 1930: 95 (*Isomia* [sic]). Type locality: Formosa (Arisan). Distr.: Taiwan.

Isomira subelongata Pic, 1917b: 20. Type locality: Formose. Distr.: Taiwan.

Isomira tonkinae Pic, 1917b: 19. Type locality: Tonkin. Distr.: Taiwan (Record source unclear), Vietnam.

Isomira sp. indet. Distr.: Taiwan.

Genus *Pseudocistela* Crotch, 1873: 108. Type species: *Cistela brevis* Say, 1824.

Pseudocistela semirubra Pic, 1910a: 75. Type locality: Ile Formose. Distr.: Taiwan.

Genus *Pseudohymenalia* Novák, 2008: 213. Type species: *Pseudohymenalia yunnanica* Novák, 2008.

Pseudohymenalia saliica Masumoto, Novák, Akita & Lee sp. nov. (Figs. 12, 36-39). Distr.: Taiwan.

Pseudohymenalia taiwana Masumoto, Novák, Akita & Lee sp. nov. (Figs. 11, 32-35). Distr.: Taiwan.

Subtribe Mycetocharina Gistel, 1848

Genus *Mycetochara* Guérin-Méneville, 1827: 346 [RN for *Mycetophila* Gyllenhal, 1810]. Type species: *Cistela scapularis* Illiger, 1805 (= *Cistela humeralis* Fabricius, 1787).

Subgenus ***Ernocharis*** C. G. Thomson, 1859: 118. Type species: *Cistela brevis* Illiger, 1794 (= *Cistela maura* Fabricius, 1792). = *Stigmatoma* LeConte, 1862: 244. Type species: *Cistela fraterna* Say, 1824.

Mycetochara (Ernocharis) sp. indet. Distr.: Taiwan.

Tribe Cteniopodini Solier, 1835

Genus *Cistelina* Seidlitz, 1896: 195. Type species: *Cistela davidis* Fairmaire, 1878.

Cistelina crassicornis Borchmann, 1917: 103. Type locality: Banshoryo-Distr., Sokutsu, und Kanshirei. Distr.: Taiwan, China (Fukien, Shaowu: Borchmann 1941).

Cistelina tricolor Borchmann, 1917: 101. Type locality: Kosempo; Taihorin; Fuhosho; Banshoryo-Distr., Sokutsu). Distr.: Taiwan (Miwa 1931), Oriental region.

Genus *Cistelomorpha* L. Redtenbacher, 1868: 134. Type species: *Cistelomorpha straminea* L. Redtenbacher, 1868.

Cistelomorpha bina Fairmaire, 1899: 631. Type locality: Formose, cap Sud. Distr.: Taiwan, China: Fujian.

Cistelomorpha mausonensis Borchmann, 1938: 296. Type locality: Tonkin: Montes Mauson 2000-3000 m; Kanshirei (China) [=Guanziling (Taiwan)]. *C. m.* var. *flavipilis* Borchmann, 1938: 297. Type locality: Montes Mauson. Distr.: Taiwan, Vietnam.

Cistelomorpha melanopyga Fairmaire, 1893b: 322. Type locality: Tonkin. Distr.: Taiwan: Hoppo, Baibara (Miwa 1931), Central China (Ren & Bai 2002), Vietnam.

Cistelomorpha nigripilis Borchmann, 1940: 154. Type locality: Formosa: Taihorin; Taihorinsho und Banshoryo-Distr.: Sokutsu. Distr.: Taiwan.

Cistelomorpha nigrotibialis Fairmaire, 1893b: 301. Type locality: Lang-Song. Distr.: Taiwan: Sokutsu (Miwa 1931; Ren & Bai 2002); China, Vietnam.

Cistelomorpha rufina Fairmaire, 1893b: 322. Type locality: Tonkin. Distr.: Taiwan: Taihorinsho, Kosempo (Borchmann 1912); Vietnam.

Cistelomorpha sp. indet. Distr.: Taiwan.

Genus *Cteniopinus* Seidlitz, 1896: 200. Type species: *Cistela altaica* Gebler, 1830.

Cteniopinus ater Borchmann, 1930: 160. Type locality: Formosa. Distr.: Taiwan.

Cteniopinus elegans Nomura, 1961: 39. Type locality: Musha, Middle Formosa. Distr.: Taiwan; China: Guanxi (Bai & Ren 2004), Japan (National digital-museum of animal specimens).

Cteniopinus foveicollis Borchmann, 1930: 154. Type locality: Formosa: Hoozan. Distr.: Taiwan.

Cteniopinus impressithorax Pic, 1910c: 272. Type locality: Ile Formose. Distr.: Taiwan.

Cteniopinus subobscurus Pic, 1910c: 271. Type locality: Ile Formose. Distr.: Taiwan.

Cteniopinus taiwanus Kôno, 1930: 98. Type locality: Formosa (Musha). Distr.: Taiwan.

Cteniopinus unicolor Kôno, 1930: 98. Type locality: Formosa (Arisan). Distr.: Taiwan.

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- *We partly used those catalogues or lists as distributional information for the present list.