

New genera of Alleculinae (Coleoptera: Tenebrionidae) from Palaearctic and Oriental Regions XII - *Borborella* gen. nov.

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Taxonomy, new genus, new species, descriptions, new combination, Coleoptera, Tenebrionidae, Alleculinae, Alleculini, *Borborella*, Palaearctic and Oriental Regions

Abstract. A new genus of Alleculini Laporte, 1840 - *Borborella* gen. nov. is described to include the following new species *Borborella hergovitsi* sp. nov. from Laos as a type species, *Borborella nabanica* sp. nov. from China (Yunnan), *Borborella nanica* sp. nov. from Thailand and *Borborella reverentia* sp. nov. from Laos. Species *Borborella kubani* (Novák, 2012) comb. nov. is transferred from the genus *Borboresthes* Fairmaire, 1897.

INTRODUCTION

The genus *Borboresthes* was introduced by Fairmaire (1897) with *Allecula cruralis* Marseul, 1876 as a type species. Species of the genus are distributed in the Eastern and South Eastern Palaearctic Region and in the Oriental Region. Borchmann (1910) knew only 2 species, Mader (1928) listed 7 and later Novák and Petterson (2008) 43 species of this genus from the Palaearctic Region. More than 30 species are known from the Oriental Region. New species of *Borboresthes* were described by Akita and Masumoto (2011, 2015), Masumoto et al. (2017, 2018, 2019a, b) and Novák (2005, 2012, 2015, 2018a, b). In present we know 110 species in the Palaearctic Region.

The closest to *Borboresthes* are genera *Bobisthes* Novák, 2019, *Microsthes* Novák, 2011, *Zizu* Novák, 2019 and presently described *Borborella* gen. nov. The main differentiating characters given in Table 1 are as follows: elongate oval body (BL/EW 2.9-3.1), strongly widened protibiae, wide and transverse protarsomeres 2-4 or 3 and 4, protarsal claws long with almost 40 teeth, distinctly longer than mesotarsal claws and half drop shaped ultimate antennomere.

New genus *Borborella* gen. nov. is described to include the following new species: *Borborella hergovitsi* sp. nov. from Laos as a type species, *Borborella nabanica* sp. nov. from China (Yunnan), *Borborella nanica* sp. nov. from Thailand and *Borborella reverentia* sp. nov. from Laos. All new species are presently described, illustrated and keyed. Species *Borborella kubani* (Novák, 2012) comb. nov. is transferred from the genus *Borboresthes* Fairmaire, 1897.

MATERIAL AND METHODS

Two important morphometric characteristics used for the descriptions of species of the subfamily Alleculinae, the 'ocular index' dorsally (Campbell & Marshall 1964) and 'pronotal index' (Campbell 1965), are used in this paper as well. The ocular index equals $(100 \times \text{minimum dorsal distance between eyes}) / (\text{maximum width of head across eyes})$. The pronotal index is calculated as $(100 \times \text{length of pronotum along midline}) / (\text{width across basal angles of pronotum})$.

In the list of type material, a slash (/) separates data in separate rows, a double slash (//) separates different labels.

The following collection codes is used:

NMEG collection of Naturkundemuseum, Erfurt, Germany;

VNPC Vladimír Novák, private collection, Praha, Czech Republic.

Measurements of body parts and corresponding abbreviations used in text are as follows: AL - total antennae length, BL - maximum body length, EL - maximum elytral length, EW - maximum elytral width, HL - maximum length of head (visible part), HW - maximum width of head, OI - ocular index dorsally, PI - pronotal index dorsally, PL - maximum pronotal length, PW - pronotal width at base, RLA - ratios of relative lengths of antennomeres 1-11 from base to apex (3=1.00), RL/WA - ratios of length / maximum width of antennomeres 1-11 from base to apex, RLT - ratios of relative lengths of tarsomeres 1-5 respectively 1-4 from base to apex (1=1.00), RL/WP2-4 - ratios of length / maximum width of protarsomeres 2-4.

Measurements were made with Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS. Snapshots were taken by using camera Canon EOS 550 D and Canon Macro Photo Lens MP-E and software Helicon Focus 5.2.

TAXONOMY

DESCRIPTION OF THE GENUS *BORBORELLA* GEN. NOV.

Genus *Borborella* gen. nov.

(Figs. 1-16)

Type species. *Borborella hergovitsi* sp. nov.

Description. Habitus as in Figs. 1, 5, 9 and 13, body narrow, elongate, parallel, dorsal surface with setation, microgranulation and punctuation, BL in range 7-10 mm. Widest in elytral half or in humeral part of elytra; BL/EW in range 2.9-3.1. Head (Figs. 2, 6, 10 and 14) approximately as long as wide, through the eyes approximately as wide as anterior part of pronotum, almost with punctuation, microgranulation and setation. Clypeus with small and shallow punctures, microgranulation or microrugosities, rounded apically. Mandibles pale, glabrous dorsally, shiny, slightly excised in middle. HW/PW in range 0.52-0.58. Eyes very large, transverse, distinctly excised, space between eyes relatively narrow, as wide

or slightly wider than diameter of one eye; distinctly wider than length of antennomere 2, approximately as wide as or slightly wider than length of antennomere 1; OI in range 31-41. Antenna long, distinctly exceeding half body length (AL/BL in range 0.62-0.68), antennomeres narrow, filiform, with setation, fine microgranulation and small punctures. Antennomere 2 shortest; RL/WA (4-11) in range 3-9. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere widely triangular. Pronotum (Figs. 2, 6, 10 and 14) wide, transverse, semicircular, approximately as wide as base of elytra. Dorsal surface with setation, microgranulation and punctuation. Border lines very narrow, lateral margins almost rounded. Base bisinuate, anterior margin slightly arcuate. Posterior angles slightly sharp or rectangular, anterior angles indistinct. PI in range 52-58. Elytra long, narrow, elongate, parallel, with setation, EL/EW in range 2.0-2.3. Elytral striae with distinct rows of small punctures. Elytral intervals slightly convex, with fine microgranulation and small punctures. Lateral margins wide. Elytral epipleura well-developed, with punctures in basal part distinctly narrowing to ventrite 1, then narrow and parallel. Legs with very small punctures, setation, almost with fine microgranulation. Tibiae narrow, widened anteriorly, protibiae almost with more or less sharp longitudinal margin. Protarsomeres 2-4 or 3-4 strongly widened, transverse, wider than long, mesotarsomeres 3, 4 and metatarsomere 3 distinctly wider and lobed. Protarsal claws long, both with more than 30 visible teeth. Protarsal claws longer than mesotarsal claws, mesotarsal claws longer than metatarsal claws. Abdomen with pale setation, sparse, small punctures and fine microgranulation. Ultimate ventrite with or without shallow triangular depression in middle. Basal piece of aedeagus long, apical piece very short, beak-shaped dorsally and laterally or triangular in apex as in Figs. 3, 4, 7, 8, 11, 12 and 15, 16.

Table 1. Differentiating characters.

Genus	BL	Protarsi Protarsal claws long/ short	Protibiae strongly widened apically	Shape of body BL/ EW	Shape of ultimate palpomere	Ultimate ventrite	Shape of pronotum	Ultimate antenna- mere
<i>Bobisthes</i>	Medium sized	3, 4 widened short	yes club shaped	Elongate oval Approx. 3.0	Widely triangular	With V shaped excision	Longer than semi- circular	Half drop shaped
<i>Borborella</i>	Medium sized	2 or 3-4 transverse long	yes	Elongate oval 2.9-3.1	Widely triangular	With or without depression	semi- circular	Half drop shaped
<i>Borboresthes</i>	Medium sized	3, 4 widened short	no	Oval egg shaped	Triangular Axe shaped	without excision or depression	semi- circular	narrow
<i>Microsthes</i>	Small sized	4 widened short	no	Oval egg shaped 2.3-3.0	Triangular Axe shaped	without excision or depression	semi- circular	narrow
<i>Zizu</i>	Medium sized	3, 4 widened short	no	Elongate oval 2.6-2.9	Widely triangular	With depression	Wider than semi- circular	Half drop shaped

Females have space between eyes slightly wider than males. Pro- and mesotarsomeres 3 and 4 are only slightly widened. Pro- and mesotarsal claws are distinctly shorter than in male, anterior tarsal claws have less teeth than in male.

Differential diagnosis. Similar genera are *Bobisthes* Novák, 2019, *Borboresthes* Fairmaire, 1897, *Microsthes* Novák, 2011 and *Zizu* Novák, 2019. Differentiating characters are shown in Table 1 below.

Etymology. The name *Borborella* is taken from Borbor - marking similarity to the genus *Borboresthes* Fairmaire and ending -ella marking character of gender. Gender: feminine.

Distribution. China (Yunnan), Laos and Thailand.

KEY TO THE SPECIES OF *BORBORELLA* GEN. NOV.

- 1(2) Upper part of protibiae with distinct longitudinal margin, ultimate ventrite with triangular shallow depression. 3
2(1) Upper part of protibiae without sharp longitudinal margin, ultimate ventrite without triangular shallow depression. 5
3(4) Margin in upper part of protibiae sharp and distinct in whole length, elytra widest approximately in middle. Habitus as in Fig. 5, head and pronotum (Fig. 6), aedeagus (Figs. 7 and 8). China (Yunnan).
..... *Borborella nabanica* sp. nov.
4(3) Margin in upper part of protibiae not sharp and distinct in whole length, elytra widest in humeral part. Habitus as in Fig. 9, head and pronotum (Fig. 10), aedeagus (Figs. 11 and 12). Thailand. *Borborella nanica* sp. nov.
5(6) Protibiae strongly widened apically. Habitus as in Fig. 13, head and pronotum (Fig. 14), aedeagus (Figs. 15 and 16). Laos. *Borborella reverentia* sp. nov.
6(5) Protibiae slightly widened apically 7
7(8) Elytra pale reddish brown, punctures in elytral striae coarser, elytral interspaces more convex. Figures see Novák (2012: 247): habitus (fig. 19), head and pronotum (fig. 20), aedeagus (figs. 21 and 22). Laos.
..... *Borborella kubani* (Novák, 2012) comb. nov.
8(7) Elytra ochre yellow, punctures in elytral striae shallower, elytral interspaces less convex. Habitus as in Fig. 1, head and pronotum (Fig. 2), aedeagus (Figs. 3 and 4). Laos. *Borborella hergovitsi* sp. nov.

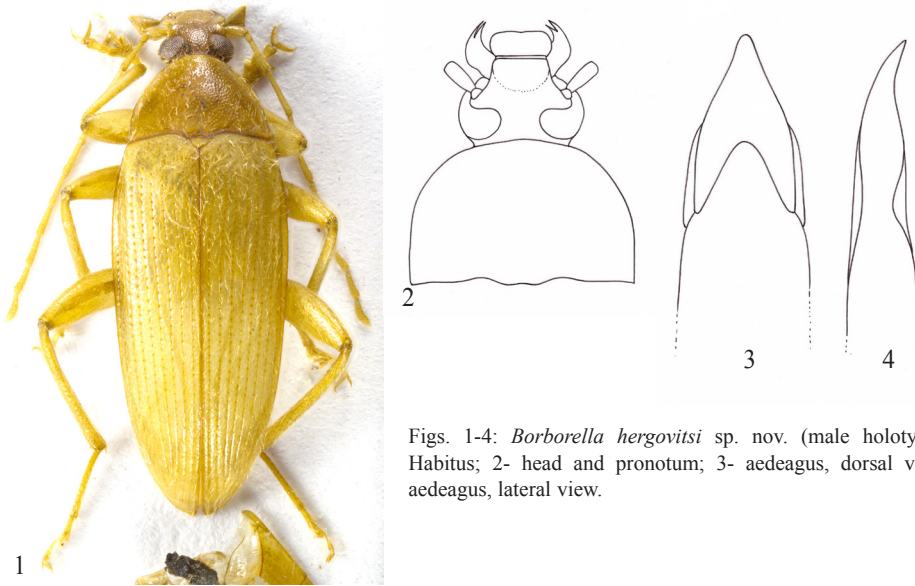
Borborella hergovitsi sp. nov.

(Figs. 1-4)

Type locality. Northern Laos, Louang Namtha province, 20 km northwest of Louang Namtha, N21°09.2, E 101°18.7, 900± 100 m.

Type material. Holotype (♂): Laos N, 5.-11.V.1997 / 20km NW Louang Namtha / N21°09.2. E 101°18.7., 900± 100m, / Roman Hergovits leg., (VNPC). Paratypes: (2 ♂♂, 1 ♀): same data as holotype, (VNPC). The types are provided with a printed red label: 'Borborella / hergovitsi sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2019'.

Description of holotype. Habitus as in Fig. 1, body narrow, elongate, parallel, from yellow to pale brown, slightly shiny, dorsal surface with pale setation, punctuation and microgranulation, BL 8.91 mm. Widest near middle elytra length; BL/EW 2.96.



Figs. 1-4: *Borborella hergovitsi* sp. nov. (male holotype): 1- Habitus; 2- head and pronotum; 3- aedeagus, dorsal view; 4- aedeagus, lateral view.

Head (Fig. 2) relatively small, approximately as long as wide, through the eyes slightly wider than anterior margin of pronotum, with sparse, pale setation, microgranulation and dense punctuation, punctures small. Clypeus wide and transverse, with sparse, small and very shallow almost indistinct punctures, with microgranulation, lateral margins rounded, apex straight. Mandibles ochre yellow, shiny, glabrous dorsally with pale setae in sides. HW 1.28 mm; HW/PW 0.52; HL (visible part) 0.96 mm. Eyes very large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of one eye; slightly wider than length of antennomere 1; OI equal to 36.73.

Antenna. Long (AL 6.09 mm, slightly exceeding two thirds body length - AL/BL 0.68). Antennomeres ochre yellow, narrow, filiform, with pale setation and fine microgranulation, rather matte. Antennomere 2 shortest, antennomere 4 longest with longer setation than those in others, antennomeres 4-7 distinctly longer than antennomere 3, antennomeres 8-11 slightly shorter than antennomere 3. Antennomeres 3-11 more than 4 times longer than wide. Antennomere 11 half drop shaped, widest in middle.

RLA(1-11): 0.67 : 0.25 : 1.00 : 1.56 : 1.29 : 1.09 : 1.03 : 0.96 : 0.97 : 0.92 : 0.93.

RL/WA(1-11): 1.89 : 1.56 : 4.59 : 9.24 : 7.65 : 6.47 : 6.12 : 5.71 : 4.40 : 4.43 : 4.48.

Maxillary palpus ochre yellow, matte, with pale setation and fine microgranulation and very small, shallow punctures. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere widely triangular and slightly darker than penultimate.

Pronotum (Fig. 2) pale reddish brown, relatively narrow, transverse, almost semicircular, approximately as wide as elytra at humeri. Dorsal surface with relatively sparse and long, semierect, pale setation, fine microgranulation and dense punctuation, punctures small and shallow. Intervals between punctures approximately as wide as diameter of punctures. PL 1.32 mm; PW 2.48 mm; PI equal to 53.23. Border lines very narrow. Margins conspicuous

from dorsal view, only in the middle of anterior part not clearly distinct. Lateral margins arcuate, base finely bisinuate, anterior margin very slightly arcuate. Posterior angles almost rectangular, anterior angles distinct.

Elytra. Yellow, narrow, elongate, parallel, with long, semierect, pale setation, suture slightly, narrowly darker. EL 6.63 mm; EW 3.01 mm; EL/EW 2.20. Elytral striae with rows of small punctures approximately as large as those in pronotum. Intervals between punctures in rows wide. Elytral intervals slightly convex, with sparse, very small and shallow punctures and very fine microgranulation.

Scutellum. Ochre yellow, slightly pentagonal, matte.

Elytral epipleura well-developed, ochre yellow, wide in base, distinctly narrowing to ventrite 1, with pale setation and punctures approximately as large as those in rows of elytra in basal half, then relatively wide and parallel in apical part.

Legs. Long, yellow, narrow, with very fine microgranulation, long, pale setation and punctuation, punctures very small. Apex of femora and base of tibiae narrowly dark brown. Ultimate tarsomeres flat. Protibiae slightly widened apically. Protarsomeres 2-4, mesotarsomeres 3, 4 and metatarsomere 3 strongly widened and lobed. RL/WP2 0.62; RL/WP3 0.75; RL/WP4 0.82. RLT: 1.00 : 0.68 : 1.17 : 1.50 : 2.54 (protarsus), 1.00 : 0.29 : 0.22 : 0.48 (metatarsus).

Pro- and mesotarsal claws long, distinctly longer than metatarsal claws. Both anterior tarsal claws with almost 40 visible teeth.

Ventral side of body pale reddish brown, meso- and metaventrite with sparse, short, pale setation and punctuation, punctures small. Abdomen ochre yellow, shiny, with sparse, pale setation, fine microgranulation distinct only on ultimate ventrite.

Aedeagus (Figs. 3, 4) ochre yellow. Basal piece almost parallel in dorsal view, slightly arcuate laterally. Apical piece very short, with triangular apex. Ratio of length of apical piece to length of basal piece from dorsal view 1: 9.74.

Female has space between eyes slightly wider than in male. Pro- and mesotarsal claws are distinctly shorter than in male, anterior tarsal claws have only 11 teeth.

Measurements of female body. BL 9.92 mm; HL 1.02 mm; HW 1.37 mm; OI 38.78; PL 1.44 mm; PW 2.59 mm; PI 55.60; EL 7.46 mm; EW 3.45 mm; AL 6.11 mm; AL/BL 0.62; HW/PW 0.53; BL/EW 2.88; EL/EW 2.16.

RLA(1-11): 0.59 : 0.27 : 1.00 : 1.35 : 1.34 : 1.13 : 1.05 : 1.02 : 0.95 : 0.94 : 0.88.

RL/WA(1-11): 2.54 : 1.56 : 5.20 : 7.00 : 7.32 : 5.32 : 4.74 : 4.61 : 4.95 : 5.16 : 5.35.

RLT: 1.00 : 0.69 : 0.74 : 0.90 : 2.18 (protarsus). RL/WP3 0.75; RL/WP4 0.92.

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n= 3). BL 9.15 mm (8.91-9.43 mm); HL 0.96 mm (0.93-0.99 mm); HW 1.28 mm (1.24-1.32 mm); OI 35.27 (33.33-36.73); PL 1.33 mm (1.26-1.40 mm); PW 2.48 mm (2.46-2.51 mm); PI 53.41 (51.22-55.78); EL 6.87 mm (6.63-7.04 mm); EW 3.03 mm (3.01-3.07 mm).

Differential diagnosis. *Borborella hergovitsi* sp. nov. clearly differs from the species *Borborella nabanica* sp. nov. and *Borborella nanica* sp. nov. mainly by upper part of protibiae

without sharp longitudinal margin and ultimate ventrite without shallow depression, while *B. nabanica* and *B. nanica* have upper part of protibiae with sharp longitudinal margin and ultimate ventrite with distinct triangular shallow depression.

B. hergovitsi is distinctly different from similar species *Borborella reverentia* sp. nov. mainly by protibiae only slightly widened apically; *B. reverentia* has protibiae strongly widened apically.

B. hergovitsi clearly differs from the species *Borborella kubani* (Novák, 2012) comb. nov. mainly by elytra ochre yellow, punctures in elytral striae shallower and elytral interspaces more flat, while *B. kubani* has elytra pale reddish brown, punctures in elytral striae coarser and elytral interspaces more convex.

Etymology. The new species is dedicated to the collector of the type series - Roman Hergovits (Bratislava, Slovakia) my friend and specialist in Cerambycidae (Coleoptera).

Distribution. Laos.

***Borborella kubani* (Novák, 2012) comb. nov.**

Borborethes kubani Novák, 2012: 246.

Type locality. Northern Laos, Phongsaly province, Ban Sano Mai, 21°21'N, 102°03'E, 1150 m.

Type material. Holotype (♂): LAO-N, Phongsaly prov., / 21°21'N 102°03'E, / BAN SANO MAI env., / 19.-26.v.2004, 1150m, / Vít Kubáň leg., (VNPC).

Remarks. This species was described as *Borborethes* Fairmaire, 1897 by Novák (2012). Figures are in Novák 2012: 247 (fig. 19 - habitus; fig. 20 - head and pronotum; figs. 21, 22 - aedeagus). Species distinctly belongs to the genus *Borborella* gen. nov.

Distribution. Laos.

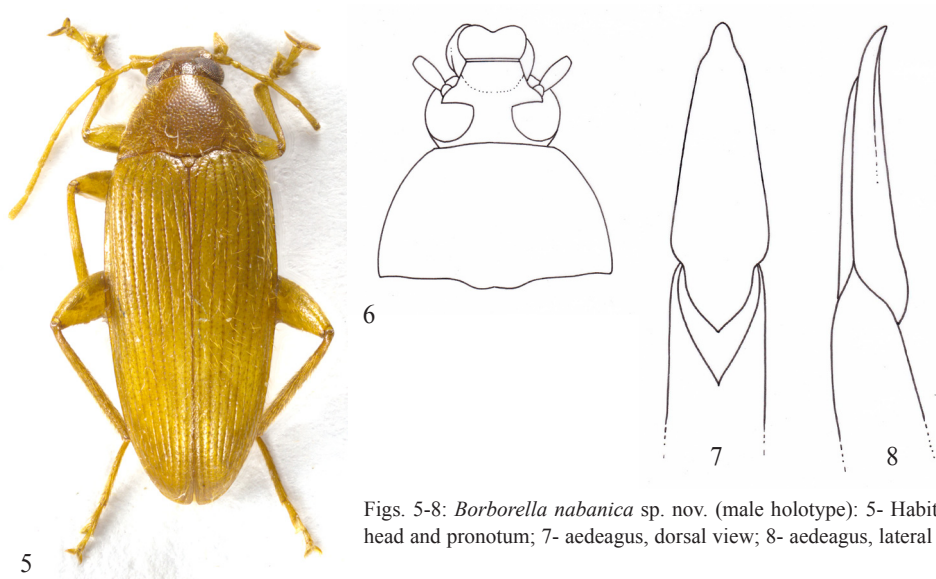
***Borborella nabanica* sp. nov.**

(Figs. 5-8)

Type locality. China, southern Yunnan province, Xishuangbanna, 23 km northwestern of Jinghong, Na Ban Village, N22°09.49, E100°39.92, 680 m.

Type material. Holotype (♂): CHINA: S-YUNNAN / (Xishuangbanna) / 23 km NW Jinghong / Na Ban Village (NNNR) // N22°09.49/E100°39.92 / 680m 05.VI.2008 LF / leg. A. Weigel station, (NMEG). The type is provided with a printed red label: 'Borborella / nabanica sp. nov. / HOLOTYPUS / V. Novák det. 2019'.

Description of holotype. Habitus as in Fig. 5, body narrow, elongate, parallel, slightly convex, from ochre yellow to reddish brown, slightly shiny, dorsal surface with pale setation, punctuation and microgranulation, BL 7.74 mm. Widest near middle elytra length; BL/EW 2.94.



Figs. 5-8: *Borborella nabanica* sp. nov. (male holotype): 5- Habitus; 6- head and pronotum; 7- aedeagus, dorsal view; 8- aedeagus, lateral view.

Head (Fig. 6) relatively small, approximately as long as wide, through the eyes approximately as wide as anterior margin of pronotum, with sparse and long, pale setation and microgranulation and shallow punctuation. Posterior part reddish brown with denser punctuation than those in pale reddish brown anterior part. Clypeus wide and transverse, impunctate, with microgranulation, lateral margins rounded. Mandibles ochre yellow, shiny, glabrous dorsally with pale setae in sides. HW 1.20 mm; HW/PW 0.58; HL (visible part) 1.13 mm. Eyes very large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of one eye; approximately as wide as length of antennomere 1; OI equal to 35.53.

Antenna. Long (AL(1-9) 4.06 mm, slightly exceeding half body length - AL(1-9)/BL 0.53). Antennomeres ochre yellow, narrow, filiform, with pale setation and fine microgranulation, rather matte. Antennomere 2 shortest, antennomeres 4 and 5 longest, distinctly longer than antennomere 3, antennomeres 6-9 slightly longer than antennomere 3. Antennomeres 3-9 more than 4 times longer than wide.

RLA(1-9): 0.63 : 0.31 : 1.00 : 1.39 : 1.39 : 1.07 : 1.01 : 1.03 : 1.02.

RL/WA(1-9): 3.11 : 1.81 : 5.47 : 7.17 : 7.59 : 5.82 : 4.70 : 5.65 : 4.75.

Maxillary palpus ochre yellow, rather matte, with pale setation and fine microgranulation. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere widely triangular.

Pronotum (Fig. 6) pale reddish brown, relatively narrow, transverse, almost semicircular, approximately as wide as elytra at humeri. Dorsal surface with fine microgranulation and dense, shallow punctuation, punctures small, semierect, pale setation is long and sparse, near lateral margins denser. Intervals between punctures distinctly wider than diameter of punctures. PL 1.20 mm; PW 2.06 mm; PI equal to 58.22. Border lines very narrow. Margins

conspicuous from dorsal view. Lateral margins arcuate, base finely bisinuate, anterior margin slightly arcuate. Posterior angles sharp, anterior angles indistinct.

Elytra. Ochre yellow, narrow, elongate, parallel, with long, pale setation. EL 5.41 mm; EW 2.63 mm; EL/EW 2.06. Elytral striae with rows of small punctures approximately as large as those in pronotum. Intervals between punctures in rows wide. Elytral intervals slightly convex, with sparse, very small and shallow punctures and very fine microgranulation. Lateral margins wide from dorsal view.

Scutellum. Ochre yellow, with sides darker, roundly triangular, with microgranulation, rather matte.

Elytral epipleura well-developed, ochre yellow, widest in base, distinctly narrowing to ventrite 1, with pale setation and punctures approximately as large as those in rows of elytra in basal half, then relatively wide and parallel in apical part.

Legs. Long, ochre yellow, narrow, with very fine microgranulation, long, pale setation and punctuation, punctures very small. Apex of femora and base of tibiae narrowly dark brown. Ultimate tarsomeres flat. Protibiae widened apically with distinct sharp, longitudinal margin in upper part. Protarsomeres 3-4 and metatarsomere 3 strongly widened and lobed. RL/WP3 0.55; RL/WP4 0.60. RLT: 1.00 : 0.63 : 0.82 : 1.00 : 2.34 (protarsus), 1.00 : 0.31 : 0.17 : 0.37 (metatarsus).

Protarsal claws long, distinctly longer than metatarsal claws. Both anterior tarsal claws with almost 40 visible teeth.

Ventral side of body reddish brown, meso- and metaventrite with sparse, short, pale setae and relatively larger punctures. Abdomen pale reddish brown, slightly shiny, with sparse, short, pale setae, very fine microgranulation and very sparse and small punctures. Ultimate ventrite with large shallow triangular depression in middle.

Aedeagus (Figs. 7, 8) ochre yellow. Basal piece almost parallel in dorsal view, slightly arcuate laterally. Apical piece short, beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 6.49.

Female unknown.

Differential diagnosis. *Borborella nabanica* sp. nov. clearly differs from the species *Borborella hergovitsi* sp. nov., *Borborella kubani* (Novák, 2012) comb. nov. and *Borborella reverentia* sp. nov. mainly by upper part of protibiae with sharp longitudinal margin and ultimate ventrite with distinct triangular shallow depression, while *B. hergovitsi*, *B. kubani* and *B. reverentia* have upper part of protibiae without sharp longitudinal margin and ultimate ventrite without depression.

B. nabanica is distinctly different from similar species *Borborella nanica* sp. nov. mainly by margin in upper part of protibiae sharp and distinct in whole length and elytra widest approximately at middle, while *B. nanica* has margin in upper part of protibiae not sharp and distinct in whole length, elytra widest at humeri.

Etymology. Named after the type locality village Na Ban in Yunnan province.

Distribution. China (Yunnan province).

***Borborella nanica* sp. nov.**

(Figs. 9-12)

Type locality. Northeastern Thailand, Nan province, Ban Sawa env.

Type material. Holotype (♂): Thailand NE / Nan prov. / Ban Sawa env. / 20.4.2004 / P. Viktora lgt., (VNPC). The type is provided with a printed red label: 'Borborella / nanica sp. nov. / HOLOTYPUS / V. Novák det. 2019'.

Description of holotype. Habitus as in Fig. 9, body narrow, elongate, parallel, slightly convex, dorsal surface from ochre yellow to reddish brown, slightly shiny, dorsal surface with pale setation, punctuation and microgranulation, BL 9.51 mm. Widest at elytral humeri; BL/EW 3.17.

Head (Fig. 10) relatively small, approximately as long as wide, through the eyes approximately as wide as anterior margin of pronotum, with long, pale setation, microgranulation and shallow punctuation. Posterior part reddish brown, anterior part and clypeus pale reddish brown. Clypeus wide and transverse, lateral margins rounded, anterior margin straight, dorsal surface with denser setation and smaller punctures than those in anterior part. Mandibles ochre yellow, shiny, glabrous dorsally with pale setae in sides and dark apex. HW 1.32 mm; HW/PW 0.53; HL (visible part) 1.29 mm. Eyes very large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of one eye; slightly wider than length of antennomere 1; OI equal to 33.91.

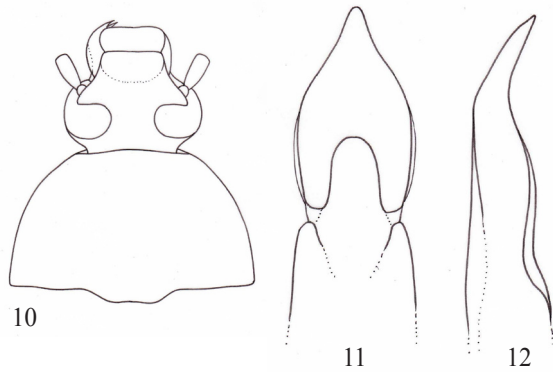
Antenna. Long (AL 6.11 mm, reaching almost two thirds body length - AL/BL 0.64). Antennomeres ochre yellow, narrow, filiform, with pale setation and fine microgranulation, rather matte. Antennomere 2 shortest, antennomeres 4 longest, antennomeres 4-7 distinctly longer than antennomere 3, antennomeres 8-11 slightly shorter or as long as antennomere 3. Antennomeres 3-10 more than 4 times longer than wide. Antennomere 11 half drop shaped, widest near middle. RLA(1-11): 0.69 : 0.39 : 1.00 : 1.52 : 1.27 : 1.09 : 1.10 : 0.97 : 1.02 : 0.94 : 0.95. RL/WA(1-11): 2.79 : 2.38 : 4.62 : 7.35 : 5.13 : 5.05 : 5.63 : 4.09 : 4.95 : 4.55 : 3.29.

Maxillary palpus ochre yellow, slightly shiny, with pale setation and fine microgranulation. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere widely triangular.

Pronotum (Fig. 10) pale reddish brown, relatively wide, transverse, almost semicircular, approximately as wide as elytra at humeri. Dorsal surface with fine microgranulation and dense, shallow punctuation, punctures small, long, semierect, pale setation denser near lateral margins than in middle. Intervals between punctures slightly wider than diameter of punctures. PL 1.36 mm; PW 2.49 mm; PI equal to 54.62. Border lines very narrow. Margins conspicuous from dorsal view. Lateral margins arcuate, base finely bisinuate, anterior margin slightly arcuate. Posterior angles rectangular, anterior angles indistinct.

Elytra. Ochre yellow, shiny, narrow, elongate, parallel, with long, pale, semierect setation. EL 6.86 mm; EW 3.00 mm; EL/EW 2.29. Elytral striae with rows of small, coarser punctures approximately as large as those in pronotum. Intervals between punctures in rows wider than diameter of punctures. Elytral intervals slightly convex, with sparse, very small and shallow punctures and very fine microgranulation. Lateral margins wide from dorsal view.

Scutellum. Ochre yellow, with sides darker, pentagonal, with microgranulation, pale setae and a few small punctures.



Figs. 9-12: *Borborella nanica* sp. nov. (male holotype): 9- Habitus; 10- head and pronotum; 11- aedeagus, dorsal view; 12- aedeagus, lateral view.

Elytral epipleura well-developed, ochre yellow, widest in base, distinctly narrowing to ventrite 1, with sparse, pale setae and row of punctures approximately as large as those in rows of elytra in basal half, then relatively wide and parallel in apical part.

Legs. Long, pale reddish brown, narrow, with very fine microgranulation, long, pale setation and punctuation, punctures very small and shallow. Apex of femora and base of tibiae narrowly darker. Ultimate tarsomeres flat and widened apically. Protibiae widened apically with two margins in outer part, not clearly distinct in whole length. Protarsomeres 2-4, mesotarsomeres 3, 4 and metatarsomere 3 strongly widened and lobed. RL/WP2 0.64; RL/WP3 0.74; RL/WP4 0.76. RLT: 1.00 : 0.79 : 1.24 : 1.53 : 2.75 (protarsus), 1.00 : 0.32 : 0.36 : 0.72 : 1.31 (mesotarsus), 1.00 : 0.26 : 0.24 : 0.41 (metatarsus).

Protarsal claws long, distinctly longer than metatarsal claws. Both anterior tarsal claws with almost 40 visible teeth.

Ventral side of body reddish brown with sparse and short pale setae, meso- and metaventrite with larger and denser punctures than those in prothorax. Abdomen pale reddish brown, shiny, with sparse, long, pale setae, very fine microgranulation and sparse and small punctures. Ultimate and penultimate ventrites slightly darker than ventrites 1-3. Ultimate ventrite with distinct shallow triangular depression in middle.

Aedeagus (Figs. 11, 12) ochre yellow. Basal piece slightly narrowing in dorsal view, arcuate laterally. Apical piece very short, triangular, beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 10.21.

Female unknown.

Differential diagnosis. *Borborella nanica* sp. nov. clearly differs from the species *Borborella hergovitsi* sp. nov., *Borborella kubani* (Novák, 2012) comb. nov. and *Borborella reverentia* sp. nov. mainly by upper part of protibiae with sharp longitudinal margin and ultimate ventrite with distinct shallow depression, while *B. hergovitsi*, *B. kubani* and *B. reverentia* have upper part of protibiae without sharp longitudinal margin and ultimate ventrite without depression.

B. nanica is distinctly different from similar species *B. nabanica* sp. nov. mainly by upper part of protibiae not sharp and distinct in whole length and elytra widest at humeri, while *B. nabanica* has margin in upper part of protibiae sharp and distinct in whole length and elytra are widest approximately at middle.

Etymology. Named after the type locality - province Nan in northern Thailand.

Distribution. Thailand (province Nan).

***Borborella reverentia* sp. nov.**

(Figs. 13-16)

Type locality. Northeastern Laos, Houaphanh province, Ban Saleui, Phou Pane Mountain, 2014; 20°12'N 103°59'E, 1200-1900 m.

Type material. Holotype (♂): NE LAOS, Huaphanne Pr. / Mt. PHU PANE, 1200-1900 / m, Ban Saleui, 1-20.v. / 2014; 20°12'N 103°59'E / St. Jakl + Lao collector leg., (VNPC). Paratype: (1 ♂): Laos, NE, P: Hua Phan / Ban Saleui env., Phou Pan / (Mt.), 1300-1900m, 03.- / 30.IV.2014, 20°12'N / 104°01'E, lg. Holzschuh, (NMEG). The types are provided with a printed red label: 'Borborella / reverentia sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2019'.

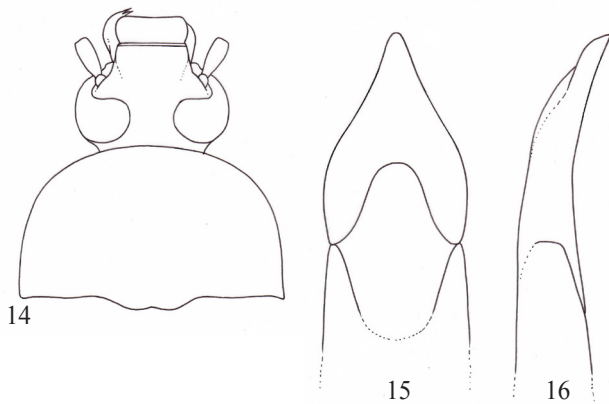
Description of holotype. Habitus as in Fig. 13, body narrow, elongate, parallel, slightly convex, dorsal surface from ochre yellow to brown, slightly shiny, dorsal surface with pale setation, punctuation and microgranulation, BL 9.45 mm. Widest near half elytra length; BL/EW 3.05.

Head (Fig. 14) relatively small, approximately as long as wide, through the eyes approximately as wide as anterior margin of pronotum, with sparse and long, pale setation, microgranulation. Posterior part brown, with coarser punctuation than those in pale reddish brown anterior part. Clypeus wide and transverse, pale reddish brown, lateral margins rounded, anterior margin straight, dorsal surface with denser setation, microgranulation and very small and very shallow punctures. Mandibles ochre yellow, shiny, glabrous dorsally with pale setae in sides and dark apex. HW 1.38 mm; HW/PW 0.58; HL (visible part) 1.39 mm. Eyes very large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of one eye; or as wide as length of antennomere 1; OI equal to 31.41.

Antenna. Long (AL 5.89 mm, reaching almost two thirds body length - AL/BL 0.62). Antennomeres ochre yellow, narrow, filiform, with pale setation and fine microgranulation, rather matte. Antennomere 2 shortest, antennomeres 4 longest, distinctly longer than antennomere 3, antennomeres 6-11 shorter than antennomere 3. Antennomeres 3-10 more than 3 times longer than wide. Antennomere 11 half drop shaped, widest near middle.



13



Figs. 13-16: *Borborella reverentia* sp. nov. (male holotype): 13- Habitus; 14- head and pronotum; 15- aedeagus, dorsal view; 16- aedeagus, lateral view.

RLA(1-11): 0.61 : 0.26 : 1.00 : 1.37 : 1.03 : 0.95 : 0.87 : 0.86 : 0.83 : 0.81 : 0.84.

RL/WA(1-11): 2.48 : 1.61 : 6.11 : 7.55 : 5.65 : 5.20 : 3.69 : 3.76 : 4.14 : 3.71 : 3.41.

Maxillary palpus ochre yellow, slightly shiny, with pale setation and fine microgranulation. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere widely triangular.

Pronotum (Fig. 14) reddish brown, relatively wide, transverse, almost semicircular, approximately as wide as elytra at humeri. Dorsal surface with fine microgranulation and dense, shallow punctuation, punctures medium sized, long, semierect, pale setation denser near lateral margins than in middle. Intervals between punctures distinctly narrower than diameter of punctures. PL 1.33 mm; PW 2.40 mm; PI equal to 55.42. Border lines very narrow, in the middle of anterior margin not clearly distinct. Margins conspicuous from dorsal view. Lateral margins arcuate, base bisinuate, anterior margin arcuate. Posterior angles rectangular, anterior angles indistinct.

Elytra. Ochre yellow, slightly shiny, narrow, elongate, parallel, with long, pale, semierect setation. EL 6.73 mm; EW 3.10 mm; EL/EW 2.17. Elytral striae with rows of small, coarser punctures than those in pronotum. Intervals between punctures in rows wider than diameter of punctures. Elytral intervals slightly convex, with sparse, very small and shallow punctures and very fine microgranulation. Lateral margins wide from dorsal view.

Scutellum. Reddish brown, pentagonally shaped, with microgranulation and pale setae.

Elytral epipleura well-developed, pale reddish brown, widest in base, distinctly narrowing to ventrite 1, with sparse and long, pale setae and row of punctures approximately as large as those in rows of elytra in basal half, then relatively wide and parallel in apical part.

Legs. Long, ochre yellow, narrow, with very fine microgranulation, long, pale setation and punctuation, punctures very small and shallow. Apex of femora and base of tibiae narrowly darker. Ultimate tarsomeres flat and widened apically. Protibiae strongly widened apically. Protarsomeres 2-4, mesotarsomeres 3, 4 and metatarsomere 3 strongly widened and lobed. RL/WP2 0.59; RL/WP3 0.74; RL/WP4 0.83. RLT: 1.00 : 0.76 : 1.28 : 1.46 : 2.68 (protarsus), 1.00 : 0.44 : 0.59 : 0.85 : 1.07 (mesotarsus), 1.00 : 0.35 : 0.15 : 0.30 (metatarsus).

Protarsal claws long, distinctly longer than metatarsal claws. Both anterior tarsal claws with almost 40 visible teeth.

Ventral side of body reddish brown with a few pale setae, meso- and metaventricle with larger and denser punctures than those in prothorax. Abdomen reddish brown, shiny, with sparse, pale setae, sparse and small punctures and very fine microgranulation.

Aedeagus (Figs. 15, 16) ochre yellow. Basal piece slightly narrowing in dorsal view, slightly arcuate laterally. Apical piece very short, triangular, beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 10.52.

Female unknown.

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n= 2). BL 9.43 mm (9.40-9.45 mm); HL 1.06 mm (1.03-1.09 mm); HW 1.34 mm (1.30-1.38 mm); OI 31.94 (31.41-32.46); PL 1.38 mm (1.33-1.43 mm); PW 2.44 mm (2.40-2.47 mm); PI 56.66 (55.42-57.90); EL 6.69 mm (6.64-6.73 mm); EW 3.10 mm (3.10-3.10 mm).

Differential diagnosis. *Borborella reverentia* sp. nov. clearly differs from the species *Borborella nabanica* sp. nov. and *Borborella nanica* sp. nov. mainly by upper part of protibiae without sharp longitudinal margin and ultimate ventrite without depression, while *B. nabanica* and *B. nanica* have upper part of protibiae with sharp longitudinal margin and ultimate ventrite with distinct shallow depression.

B. reverentia is distinctly different from similar species *Borborella hergovitsi* sp. nov. and *Borborella kubani* (Novák, 2012) comb. nov. mainly by protibiae strongly widened apically; *B. hergovitsi* and *B. kubani* have protibiae only slightly widened apically.

Etymology. The name *reverentia* is taken from Latin (respect).

Distribution. Laos (Houaphanh province).

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