

New *Borboresthes* Fairmaire, 1897 (Coleoptera: Tenebrionidae: Alleculinae: Alleculini) species from Laos

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Taxonomy, new species, description, Coleoptera, Tenebrionidae, Alleculinae, Alleculini, *Borboresthes*, Laos, Oriental Region

Abstract. New species of the Alleculine genus *Borboresthes* Fairmaire, 1897 from Laos are described as follows: *Borboresthes bolikhamsai* sp. nov. from Bolikhamsai Province, *Borboresthes hergovitsi* sp. nov. and *Borboresthes namtha* sp. nov. from Louang Namtha Province, *Borboresthes kareli* sp. nov. and *Borboresthes oldrichi* sp. nov. from Phongsaly Province and *Borboresthes xieng* sp. nov. from Xieng Khouang Province. All new species are illustrated and compared with similar *Borboresthes* species known from Laos or nearby places. A list of the presently known species from Laos is added.

INTRODUCTION

Species of the genus *Borboresthes* Fairmaire, 1897 occur mainly in the southeastern parts of the Palaearctic Region. Novák (2020a) listed 111 species (while Mader (1924) knew 7 species and Novák and Pettersson (2008) listed 43 species). Four new species were described later by Masumoto et al. (2024) from Taiwan. So far, 18 species known from Laos have been described by Novák (2005, 2012, 2015, 2020b and 2022) and Pic (1914 and 1922).

Six new species of the genus *Borboresthes* from Laos are described as follows: *Borboresthes bolikhamsai* sp. nov. from Bolikhamsai Province, *Borboresthes hergovitsi* sp. nov. and *Borboresthes namtha* sp. nov. from Louang Namtha Province, *Borboresthes kareli* sp. nov. and *Borboresthes oldrichi* sp. nov. from Phongsaly Province and *Borboresthes xieng* sp. nov. from Xieng Khouang Province.

All new species are illustrated and compared with similar *Borboresthes* species. A list of the presently known species from Laos is added.

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 $(100 \times \text{length of pronotum along midline}) / (\text{width across basal angles of pronotum})$.

‘Type material’ information is taken from recent locality labels.

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

The following collection codes are used:

NMTJ National Museum, Tokyo, Japan;

PVKC Petr Viktora, private collection, Kutná Hora, Czech Republic;

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).

Measurements were made with an Olympus SZ 40 stereoscopic microscope with continuous magnification and with the Soft Imaging System AnalySIS. Snapshots were taken by using a Canon EOS 550 D camera and Canon Macro Photo Lens MP-E and software Helicon Focus 7.7.5.

TAXONOMY

genus *Borboresthes* Fairmaire, 1897

Type species: *Alleculea cruralis* Marseul, 1876.

Borboresthes bolikhamsai sp. nov.

(Figs. 1-4)

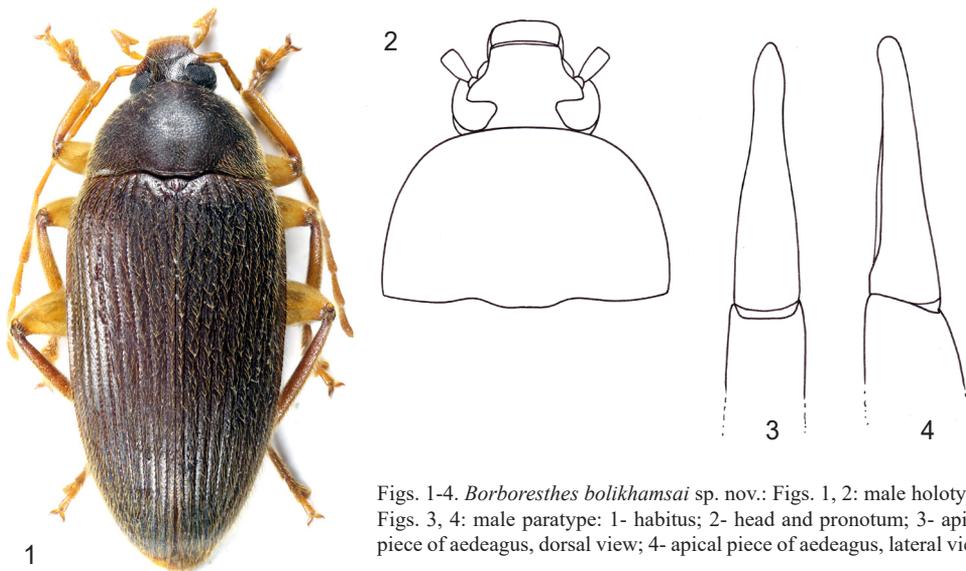
Type locality. Laos, Bolikhamsai Province, Ban Thaphe near Viengthong, 18°30'02''N, 104°27'09''E, 308 m.

Type material. Holotype (♂): LAOS, Bolikhamsai prov. / Ban Thaphe near Viengthong / 18°30'02''N 104°27'09''E / 308 m alt. light trap. / 24.4.2023, P. Viktora lgt., (VNPC). Paratypes: (17 ♂♂, 16 ♀♀): same data as holotype, (PVKC, VNPC). The types are provided with a printed red label: '*Borboresthes* / *bolikhamsai* sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.

Description of holotype. Habitus as in Fig. 1, body large-sized, convex, elongate oval, semi-matte, from ochre yellow to brown, dorsal surface with punctures, pale setae and fine microgranulation, BL 9.68 mm. Widest at middle elytra length; BL/EW 2.63.

Head (Fig. 2) brown, wider than long, through the eyes distinctly narrower than base of pronotum. Dorsal surface shiny with dense punctures, fine microgranulation and long, pale setae. Clypeus pale reddish brown, wide, transverse, surface with long, pale setae, small punctures and microgranulation. HW 1.46 mm; HW/PW 0.47; HL (visible part) 1.08 mm. Eyes transverse, excised, space between eyes slightly wider than diameter of one eye, wider than length of antennomere 1; OI equal to 38.74.

Antenna pale reddish brown, long, antennomeres narrow, semi-matte (AL 5.84 mm, distinctly exceeding half body length - AL/BL 0.59). Dorsal surface with short, pale setae, microgranulation and small punctures. Antennomere 2 shortest, antennomere 4 longest,



Figs. 1-4. *Borboresthes bolikhamsai* sp. nov.: Figs. 1, 2: male holotype; Figs. 3, 4: male paratype: 1- habitus; 2- head and pronotum; 3- apical piece of aedeagus, dorsal view; 4- apical piece of aedeagus, lateral view.

antennomeres 4-11 longer than antennomere 3. Ultimate antennomere widest at middle.

RLA(1-11): 0.71 : 0.29 : 1.00 : 1.20 : 1.14 : 1.13 : 1.15 : 1.18 : 1.15 : 1.13 : 1.14.

RL/WA(1-11): 2.42 : 1.28 : 3.94 : 5.20 : 5.10 : 6.13 : 4.29 : 4.25 : 4.03 : 4.90 : 4.77.

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

Pronotum (Fig. 2) brown, almost semicircular, semi-matte, convex, widest at base, almost as wide as elytra at humeri. Dorsal surface with pale setae, very fine microgranulation and dense, small punctures. PL 1.95 mm; PW 3.10 mm; PI equal to 62.90. Border lines narrow, margins conspicuous from dorsal view, only in the middle of anterior margin not clearly distinct. Base bisinuate, anterior and lateral margins slightly arcuate, anterior angles indistinct, posterior angles obtuse.

Elytra. Brown, elongate oval, convex, semi-matte, widest at middle. Dorsal surface with dense, pale setae. EL 6.83 mm; EW 3.72 mm; EL/EW 1.84. Elytral striae with rows of small and coarse punctures, elytral intervals slightly convex with fine microgranulation and sparse, small, shallow punctures.

Scutellum. Brown, roundly triangular, matte, with microgranulation and long, pale setae.

Elytral epipleura well-developed, brown, shiny, with long, pale setae and punctures, narrowing to ventrite 1, then narrow and parallel on apical part.

Legs. Long and narrow, ochre yellow, apex of femora and base of tibiae slightly darker. Dorsal surface with pale setae, small punctures and fine microgranulation. Pro- and mesotarsomeres 3 and 4 and penultimate metatarsomere widened and lobed. RLT: 1.00 : 0.54 : 0.85 : 1.01 : 1.91 (protarsus); 1.00 : 0.24 : 0.29 : 0.40 : 0.77 (mesotarsus); 1.00 : 0.48 : 0.30 : 0.65 (metatarsus).

Both protarsal claws with 13 visible teeth.

Ventral side of body brown with punctures and pale setae. Abdomen reddish brown, semi-matte, with dense punctures, pale setae and microrugosities.

Aedeagus (Figs. 3, 4) ochre yellow, shiny. Basal piece rounded laterally and narrowing in dorsal view. Apical piece elongate, narrowly triangular dorsally, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 2.30.

Female without distinct differences, except both protarsal claws with only 9 teeth.

Variability. The type specimens vary somewhat in size; each character is given as its mean value, with full range in parentheses. Species (n= 34). BL 9.35 mm (8.51-9.95 mm); HL 1.14 mm (1.06-1.19 mm); HW 1.49 mm (1.40-1.54 mm); OI 36.59 (33.82-38.74); PL 1.92 mm (1.78-2.09 mm); PW 3.06 mm (2.70-3.27 mm); PI 62.71 (62.17-64.03); EL 6.23 mm (5.67-6.83 mm); EW 3.69 mm (3.38-3.95 mm).

Differential diagnosis. Similar species from Laos is *Borboresthes oldrichi* sp. nov. from Phongsaly Province.

The new species *Borboresthes bolikhamsai* sp. nov. clearly differs from the similar species *B. oldrichi* mainly by brown legs and ultimate maxillary palpomere ochre yellow, by abdomen brown and by the shape of apical piece of aedeagus as in Figs. 3 and 4; while *B. oldrichi* has legs and ultimate maxillary palpomere brown, abdomen is pale reddish brown and the shape of apical piece of aedeagus is as in Figs. 19 and 20.

Etymology. Toponymic, named after the name of the Province of its origin - *Bolikhamsai* (Laos).

Distribution. Laos (Bolikhamsai Province).

Borboresthes hergovitsi sp. nov.

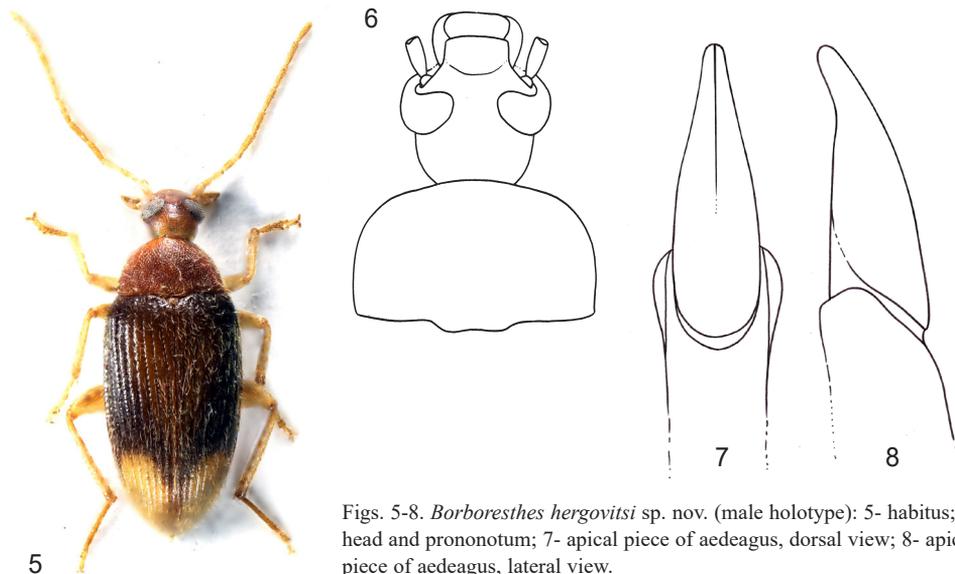
(Figs. 5-8)

Type locality. Northern Laos, 20 km northwestern of Louang Namtha, N 21°09.2. E 101°18.7., 900± 100 m.

Type material. Holotype (♂): Laos-N, 5.-11.5.1997 / 20km NW Louang Namtha, / N21°09.2. E101°18.7., 900± 100m, / Roman Hergovits leg., (VNPC). Paratypes: (1 ♂, 11 ♀♀): same data as holotype, (VNPC). The types are provided with a printed red label: 'Borboresthes / hergovitsi sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.

Description of holotype. Habitus as in Fig. 5, small-sized, oval, shiny, from ochre yellow to dark brown, dorsal surface with pale setae, punctures and microgranulation, BL 5.82 mm. Widest near elytral humeri; BL/EW 2.68.

Head (Fig. 6) pale reddish brown, approximately as wide as long, through the eyes narrower than base of pronotum. Dorsal surface shiny with punctures, pale setae and microgranulation. Clypeus pale reddish brown, transverse, surface with long, pale setae.



Figs. 5-8. *Borboresthes hergovitsi* sp. nov. (male holotype): 5- habitus; 6- head and pronotum; 7- apical piece of aedeagus, dorsal view; 8- apical piece of aedeagus, lateral view.

Mandibles ochre yellow, glabrous, shiny with sides and apex darker and pale setae in sides. HW 1.02 mm; HW/PW 0.61; HL (visible part) 0.99 mm. Eyes large, transverse, excised, space between eyes approximately as wide as diameter of one eye; OI equal to 32.91.

Antenna ochre yellow, matte, antennomeres long and narrow (AL 3.78 mm, almost reaching two thirds body length - AL/BL 0.65). Dorsal surface with long, pale setae, microgranulation and small punctures. Antennomere 2 shortest, antennomeres 4-11 longer than antennomere 3.

RLA(1-11): 1.07 : 0.50 : 1.00 : 1.59 : 1.48 : 1.55 : 1.55 : 1.69 : 1.59 : 1.60 : 1.62.

RL/WA(1-11): 2.30 : 1.32 : 2.41 : 4.38 : 3.91 : 4.09 : 4.29 : 4.67 : 4.00 : 4.43 : 4.07.

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

Pronotum (Fig. 6) orange, semi-elliptical, slightly shiny, slightly convex, widest near middle, almost as wide as elytra at humeri. Dorsal surface with dense, larger and coarse punctures and long, pale setae. Interspaces between punctures distinctly narrower than diameter of punctures. PL 1.11 mm; PW 1.68 mm; PI equal to 66.07. Border lines narrow, margins conspicuous from dorsal view, only in the middle of anterior margin not clearly distinct. Base bisinuate, anterior margin arcuate, anterior angles indistinct, posterior angles obtuse.

Elytra. Dark brown with pale reddish brown spot in middle of basal half and two ochre yellow spots in apex (as in Fig. 5). Dorsal surface with dense and long, pale setae. EL 3.72 mm; EW 2.17 mm; EL/EW 1.71. Elytral striae with rows of small, coarse punctures, elytral intervals finely convex, with microgranulation and sparse punctures.

Scutellum. Orange, roundly triangular, with sides darker, semi-matte, with fine microgranulation, few small, shallow punctures and long, pale setae.

Elytral epipleura well-developed, reddish brown, shiny, with punctures and long, pale setae narrowing to ventrite 1, then relatively wide becoming parallel on apical part.

Legs. Long and narrow, ochre yellow. Dorsal surface with pale setae, small punctures and fine microgranulation. Pro- and mesotarsomeres 3 and 4 and penultimate metatarsomere widened and lobed. RLT: 1.00 : 0.43 : 0.41 : 0.51 : 1.17 (protarsus); 1.00 : 0.34 : 0.31 : 0.41 : 0.72 (mesotarsus); 1.00 : 0.20 : 0.14 : 0.35 (metatarsus).

Protarsal claws small, pale, both with 11 teeth.

Ventral side of body reddish brown with punctures and pale setae. Abdomen brown, shiny with sparse, pale setae, punctures and fine microgranulation, ultimate ventrite ochre yellow.

Aedeagus (Figs. 7, 8) ochre yellow, matte. Basal piece narrowing in dorsal view. Apical piece elongate triangular dorsally, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.62.

Female without distinct differences, except both protarsal claws with only 5 teeth.

Variability. The type specimens vary somewhat in size; each character is given as its mean value, with full range in parentheses. Species (n= 13). BL 6.24 mm (5.79-6.55 mm); HL 0.99 mm (0.95-1.04 mm); HW 1.03 mm (0.99-1.09 mm); OI 33.41 (30.39-35.62); PL 1.17 mm (1.02-1.20 mm); PW 1.78 mm (1.60-1.88 mm); PI 65.28 (63.75-66.28); EL 4.14 mm (3.72-4.51 mm); EW 2.39 mm (2.17-2.56 mm).

Differential diagnosis. The most similar species is *Borboresthes napolovi* Novák, 2015 from North Vietnam.

The new species *Borboresthes hergovitsi* sp. nov. clearly differs from the similar species *B. napolovi* mainly by the shape of spots on dorsal surface of elytra (Fig. 5) and by the shape of apical piece of aedeagus (Figs. 7, 8); while *B. napolovi* has the shape of spots as in Novák (2015: 83: fig. 13) and the shape of aedeagus is as in Novák (2015: 83: figs. 15 and 16).

Etymology. Patronymic, dedicated to the collector of the type series - Roman Hergovits (Bratislava, Slovakia).

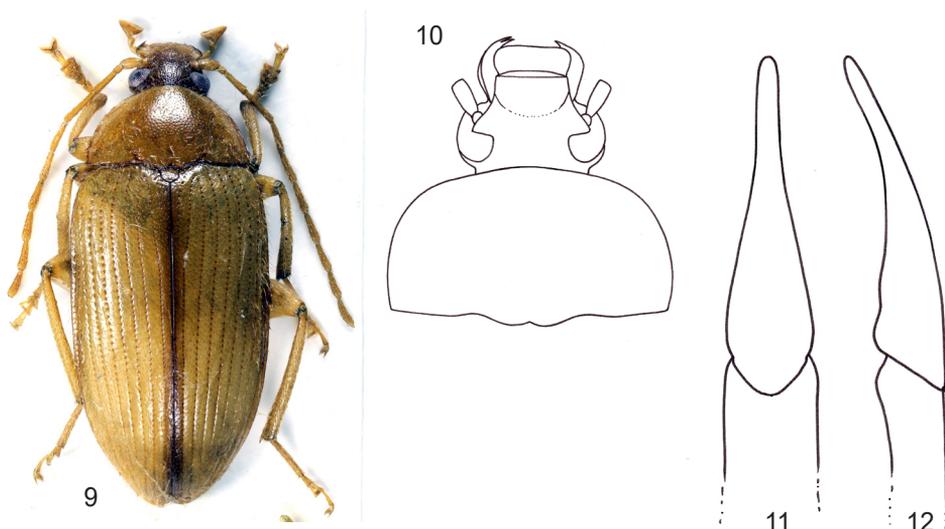
Distribution. Laos (Louang Namtha Province).

***Borboresthes kareli* sp. nov.**

(Figs. 9-12)

Type locality. Laos, Phongsaly Province, environ of Phongsaly, 21°41-2'N, 102°06-8'E, 1500 m.

Type material. Holotype (♂): Laos, Phongsaly prov. / 21°41-2'N, 102°06-8'E, PHONGSALY env., / 28.v.-20.vi.2003, ~1500m, / M.Brancucci leg., (VNPC). Paratypes: (1 ♀): Laos, Phongsaly prov. / 21°41-2'N, 102°06-8'E, PHONGSALY env., / 28.v.-20.vi.2003, / ~1500m, Brancucci leg., (VNPC). The types are provided with a printed red label: 'Borboresthes / kareli sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.



Figs. 9-12. *Borboresthes kareli* sp. nov. (male holotype): 9- habitus; 10- head and pronotum; 11- apical piece of aedeagus, dorsal view; 12- apical piece of aedeagus, lateral view.

Description of holotype. Habitus as in Fig. 9, body medium-sized, convex, oval, shiny, from ochre yellow to pale reddish brown, dorsal surface with punctures, pale setae and very fine microgranulation, BL 7.88 mm. Widest at middle elytra length; BL/EW 2.44.

Head (Fig. 10) pale reddish brown, wider than long, through the eyes distinctly narrower than base of pronotum. Dorsal surface shiny with dense and coarse punctures, fine microgranulation and long, pale setae. Clypeus pale reddish brown, transverse, surface with long, pale setae, fine microgranulation and small punctures. HW 1.31 mm; HW/PW 0.50; HL (visible part) 1.05 mm. Eyes transverse, excised, space between eyes distinctly wider than diameter of one eye, wider than length of antennomere 3; OI equal to 48.15.

Antenna ochre yellow, long, antennomeres narrow, matte (AL 5.27 mm, exceeding two thirds body length - AL/BL 0.67). Dorsal surface with pale setae, microgranulation and punctures. Antennomere 2 shortest, antennomere 4 longest, antennomeres 4-11 distinctly longer than antennomere 3. Ultimate antennomere widest at middle.

RLA(1-11): 0.73 : 0.25 : 1.00 : 1.44 : 1.17 : 1.19 : 1.17 : 1.12 : 1.10 : 1.01 : 1.18.

RL/WA(1-11): 2.14 : 1.41 : 4.20 : 7.00 : 5.44 : 4.84 : 4.46 : 3.81 : 3.94 : 3.85 : 4.81.

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

Pronotum (Fig. 10) pale orange, shiny, convex, widest at middle, almost as wide as elytra at humeri. Dorsal surface with pale setae, very fine microgranulation and dense, small punctures. PL 1.50 mm; PW 2.62 mm; PI equal to 57.15. Border lines narrow, margins conspicuous from dorsal view. Base bisinuate, anterior and lateral margins slightly arcuate, anterior angles indistinct, posterior angles obtuse.

Elytra. Ochre yellow with suture narrowly darker, elongate oval, convex, shiny, widest at middle. Dorsal surface with pale setae. EL 5.33 mm; EW 3.23 mm; EL/EW 1.65. Elytral striae with rows of small and coarse punctures, elytral intervals with very fine microgranulation and very small, sparse punctures.

Scutellum. Ochre yellow with sides darker, semi-elliptical, shiny, with shallow punctures and fine microgranulation.

Elytral epipleura well-developed, ochre yellow, shiny, with pale setae and row of punctures, narrowing to ventrite 1, then narrow and parallel on apical part.

Legs. Long and narrow, ochre yellow. Dorsal surface with pale setae, punctures and fine microgranulation. Pro- and mesotarsomeres 3 and 4 and penultimate metatarsomere widened and lobed. RLT: 1.00 : 0.52 : 0.68 : 0.65 : 0.89 (protarsus); 1.00 : 0.36 : 0.46 : 0.58 : 1.24 (mesotarsus); 1.00 : 0.29 : 0.29 : 0.58 (metatarsus).

Both protarsal claws with 14 teeth.

Ventral side of body pale reddish brown with coarse punctures. Abdomen pale reddish brown, shiny with small, shallow punctures and fine microgranulation.

Aedeagus (Figs. 11, 12) ochre yellow, shiny. Basal piece slightly narrowing in dorsal view. Apical piece elongate, narrowly triangular dorsally, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 5.07.

Female without distinct differences, except protarsal claws with only 8 teeth.

Variability. The type specimens vary somewhat in size; each character is given as its mean value, with full range in parentheses. Species (n= 2). BL 8.13 mm (7.88-8.38 mm); HL 1.07 mm (1.05-1.08 mm); HW 1.31 mm (1.30-1.31 mm); OI 47.73 (47.31-48.15); PL 1.50 mm (1.49-1.50 mm); PW 2.62 mm; PI 57.01 (56.87-57.15); EL 5.57 mm (5.33-5.81 mm); EW 3.27 mm (3.23-3.31 mm).

Differential diagnosis. Similar species are *Borboresthes rana* Novák, 2022 from Houa Phan Province (Laos) and *Borboresthes vaclavhaveli* Novák, 2015 from China (Yunnan), Laos (Phongsaly Province) and Thailand.

The new species *Borboresthes kareli* sp. nov. clearly differs from the similar species *B. rana* and *B. vaclavhaveli* mainly by smaller and wider body (BL 8 mm, BL/EW 2.44) and by the shape of aedeagus as in Figs. 11 and 12; while *B. rana* and *B. vaclavhaveli* have body larger and narrower (BL approximately 10.6 mm, BL/EW 2.85 in *B. rana* and BL approximately 9.2 mm, BL/EW 2.68 in *B. vaclavhaveli*) and the shape of aedeagus is as in Novák (2015: 90: figs. 27, 28 in *B. vaclavhaveli*) respectively as in Novák (2022: 120: figs. 31, 32 in *B. rana*).

Etymology. Patronymic, dedicated to my grandfather Karel Dunovský.

Distribution. Laos (Phongsaly Province).

***Borboresthes namtha* sp. nov.**

(Figs. 13-16)

Type locality. Laos, Louang Namtha Province, 10 km east of Muang Sing, 21°09-10'N 101°13-15'E, 750-1400 m.

Type material. Holotype (♂): LAOS, Louang Namtha prov why is the province name not in capital letters here while the other provinces are ., / 10 km E Muang Sing, 750- / 1400m, Ban Oudomsinh- B. / Nam Det- B. Nam Mai, 14.- / 20.5.2011; 21°09-10'N 101°13- / 15'E, 750 - 1400m. // NHMB Basel / Laos 2011 Expedition / D. Hauck and M. Geiser, (VNPC). Paratypes: (1 ♀): same data as holotype, (VNPC). The types are provided with a printed red label: 'Borboresthes / namtha sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.

Description of holotype. Habitus as in Fig. 13, body medium-sized, convex, elongate oval, semi-matte, from ochre yellow to pale reddish brown, dorsal surface with punctures, pale setae and microgranulation, BL 9.43 mm. Widest at basal half of elytra length; BL/EW 2.72.

Head (Fig. 14) slightly wider than long, through the eyes distinctly narrower than base of pronotum. Dorsal surface matte with small and shallow punctures, fine microgranulation and sparse, short, pale setae. Clypeus pale reddish brown, transverse, surface with long, pale setae and microgranulation. Mandibles pale reddish brown, glabrous, shiny with apex darker and pale setae in sides. HW 1.37 mm; HW/PW 0.51; HL (visible part) 1.23 mm. Eyes transverse, excised, space between eyes distinctly wider than diameter of one eye, wider than length of antennomere 1; OI equal to 41.16.

Antenna ochre yellow, long, antennomeres narrow (AL 5.22 mm, distinctly exceeding half body length - AL/BL 0.60). Dorsal surface with pale setae, microgranulation and small punctures. Antennomeres 1-3 shiny, antennomeres 4-11 matte, longer than antennomere 3. Antennomere 2 shortest, antennomere 4 longest. Ultimate antennomere widest near middle. RLA(1-11): 0.75 : 0.28 : 1.00 : 1.43 : 1.16 : 1.15 : 1.12 : 1.13 : 1.11 : 1.10 : 1.04.
RL/WA(1-11): 3.04 : 0.97 : 3.77 : 5.79 : 4.85 : 4.82 : 4.82 : 5.82 : 5.95 : 5.66 : 4.88.

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

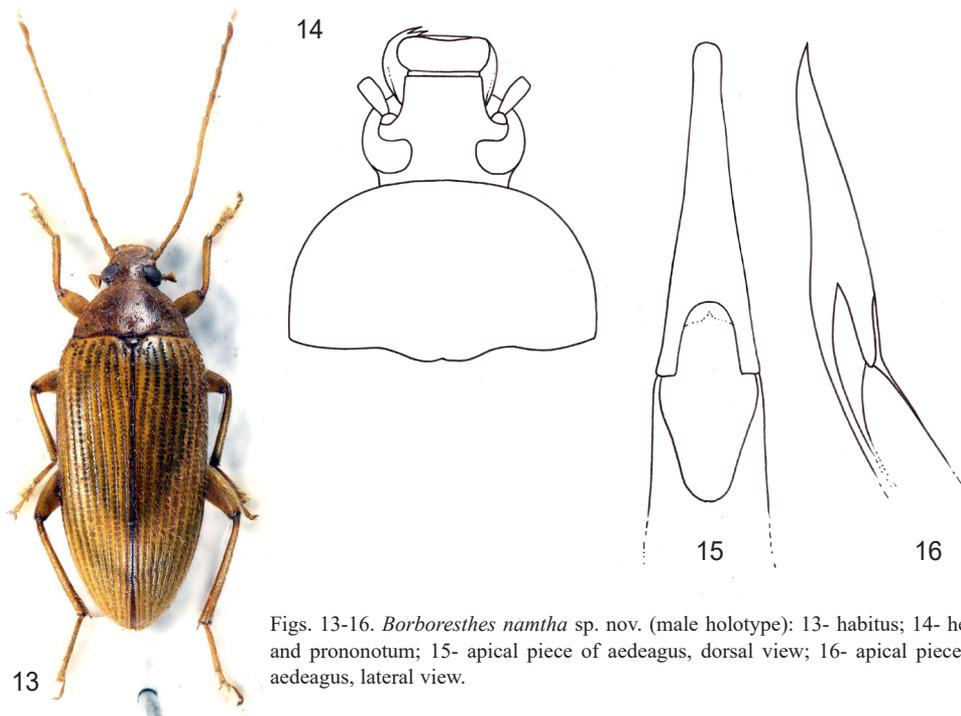
Pronotum (Fig. 14) pale reddish brown, almost semicircular, matte, convex, widest in basal part, almost as wide as elytra at humeri. Dorsal surface with pale setae, very fine microgranulation and small, shallow punctures. PL 1.62 mm; PW 2.71 mm; PI equal to 59.78. Border lines narrow, margins conspicuous from dorsal view. Base bisinuate, anterior and apical part of lateral margins arcuate, anterior angles indistinct, posterior angles obtuse.

Elytra. Ochre yellow, distinctly paler than pronotum, elongate oval, convex, slightly shiny, widest in basal half. Dorsal surface with pale setae. EL 6.55 mm; EW 3.47 mm; EL/EW 1.96. Elytral striae with rows of small punctures darkly marked in basal half, elytral intervals with fine microgranulation.

Scutellum. Pale reddish brown, semi-elliptical, matte, with fine microgranulation.

Elytral epipleura well-developed, ochre yellow, shiny, with pale setae, narrowing to ventrite 1, then becoming parallel on apical part.

Legs. Long and narrow, ochre yellow. Dorsal surface with pale setae, small punctures and fine microgranulation. Protarsomeres 2-4, mesotarsomeres 3 and 4 and penultimate



Figs. 13-16. *Borboresthes namtha* sp. nov. (male holotype): 13- habitus; 14- head and pronotum; 15- apical piece of aedeagus, dorsal view; 16- apical piece of aedeagus, lateral view.

metatarsomere widened and lobed. RLT: 1.00 : 0.52 : 0.47 : 0.62 : 1.43 (protarsus); 1.00 : 0.31 : 0.28 : 0.34 : 0.76 (mesotarsus); 1.00 : 0.41 : 0.42 : 0.79 (metatarsus).

Protarsal claws small, pale, both with 13 teeth.

Ventral side of body pale reddish brown with punctures. Abdomen pale reddish brown, shiny with dense, small punctures, sparse, pale setae and fine microgranulation.

Aedeagus (Figs. 15, 16) ochre yellow, semi-matte. Basal piece rounded laterally and slightly narrowing in dorsal view. Apical piece elongate, narrowly triangular dorsally, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.56.

Female without distinct differences, except both protarsal claws with 9 teeth.

Variability. The type specimens vary somewhat in size; each character is given as its mean value, with full range in parentheses. Species (n= 2). BL 9.94 mm (9.43-10.45 mm); HL 1.26 mm (1.23-1.28 mm); HW 1.40 mm (1.37-1.43 mm); OI 43.66 (41.16-46.15); PL 1.66 mm (1.62-1.70 mm); PW 2.81 mm (2.71-2.90 mm); PI 59.20 (58.62-59.78); EL 7.01 mm (6.55-7.47 mm); EW 3.66 mm (3.47-3.85 mm).

Differential diagnosis. Similar species are *Borboresthes rana* Novák, 2022 from Houa Phan Province and *Borboresthes vaclavhaveli* Novák, 2015 from China (Yunnan), Laos (Phongsaly Province) and Thailand.

The new species *Borboresthes namtha* sp. nov. clearly differs from the similar species *B. rana* and *B. vaclavhaveli* mainly by dark spots bordering punctures in elytral striae and by the shape of aedeagus (as in Figs. 15 and 16); while *B. rana* and *B. vaclavhaveli* have no spots around punctures in elytral striae and the shape of aedeagus is as in Novák (2022: and Novák (2015: 90: figs. 27, 28 in *B. vaclavhaveli*) respectively as in Novák (2022: 120: figs. 31, 32 in *B. rana*).

Etymology. Toponymic, named after the second word of the name of the Province of its origin - *Louang Namtha* (Laos).

Distribution. Laos (Louang Namtha Province).

***Borboresthes oldrichi* sp. nov.**

(Figs. 17-20)

Type locality. Laos, Phongsaly Province, environ of Phongsaly, 21°41-2'N, 102°06-8'E, 1500 m.

Type material. Holotype (♂): Laos, Phongsaly prov. / 21°41-2'N, 102°06-8'E, PHONGSALY env., / 28.v.-20.vi.2003, / ~ 1500m, Brancucci leg., (VNPC). Paratypes: (3 ♂♂): Laos, Phongsaly prov. / 21°41-2'N, 102°06-8'E, PHONGSALY env., / 28.v.-20.vi.2003, ~ 1500m, / M.Brancucci leg., (VNPC). The types are provided with a printed red label: '*Borboresthes / oldrichi* sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.

Description of holotype. Habitus as in Fig. 17, body medium-sized, convex, elongate oval, semi-matte, from pale brown to brown, dorsal surface with punctures, pale setae and microgranulation, BL 8.31 mm. Widest at middle elytra length; BL/EW 2.64.

Head (Fig. 18) reddish brown, wider than long, through the eyes distinctly narrower than base of pronotum. Dorsal surface semi-matte with dense, small and shallow punctures, fine microgranulation and pale setae. Clypeus pale brown, transverse, surface with long, pale setae and microgranulation. HW 1.30 mm; HW/PW 0.51; HL (visible part) 1.09 mm. Eyes transverse, excised, space between eyes slightly wider than diameter of one eye, wider than length of antennomere 1; OI equal to 36.87.

Antenna pale brown, long, antennomeres narrow, matte (AL 4.56 mm, distinctly exceeding half body length - AL/BL 0.55). Dorsal surface with long, pale setae, microgranulation and punctures. Antennomere 2 shortest, antennomere 4 longest. Ultimate antennomere widest near middle.

RLA(1-11): 0.71 : 0.40 : 1.00 : 1.35 : 1.06 : 1.16 : 1.15 : 1.16 : 1.10 : 0.98 : 1.23.

RL/WA(1-11): 1.90 : 1.75 : 3.50 : 4.90 : 4.44 : 4.36 : 4.48 : 3.49 : 4.79 : 3.95 : 4.78.

Maxillary palpus pale brown, matte, with long, pale setae and fine microgranulation. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex, ultimate palpomere brown, distinctly darker than penultimate, widely triangular.

Pronotum (Fig. 18) brown, almost semicircular, shiny, convex, widest in base, almost as wide as elytra at humeri. Dorsal surface with pale setae, very fine microgranulation and small punctures. PL 1.64 mm; PW 2.56 mm; PI equal to 64.06. Border lines narrow, margins conspicuous from dorsal view. Base bisinuate, anterior and lateral margins slightly arcuate, anterior angles indistinct, posterior angles obtuse.

Elytra. Brown, elongate oval, convex, semi-matte, widest at middle. Dorsal surface with dense, pale setae. EL 5.58 mm; EW 3.15 mm; EL/EW 1.77. Elytral striae with rows of small and coarse punctures, elytral intervals with fine microgranulation and sparse, small punctures.

Scutellum. Brown, pentagonal, semi-matte, with setae and microgranulation.

Elytral epipleura well-developed, brown, with pale setae and punctures, narrowing to ventrite 1, then wide and parallel on apical part.

Legs. Long and narrow, brown. Dorsal surface with pale setae, punctures and fine microgranulation. Pro- and mesotarsomeres 3 and 4 and penultimate metatarsomere widened and lobed. RLT: 1.00 : 0.36 : 0.51 : 0.66 : 1.13 (protarsus); 1.00 : 0.36 : 0.29 : 0.22 : 0.58 (mesotarsus); 1.00 : 0.23 : 0.18 : 0.45 (metatarsus).

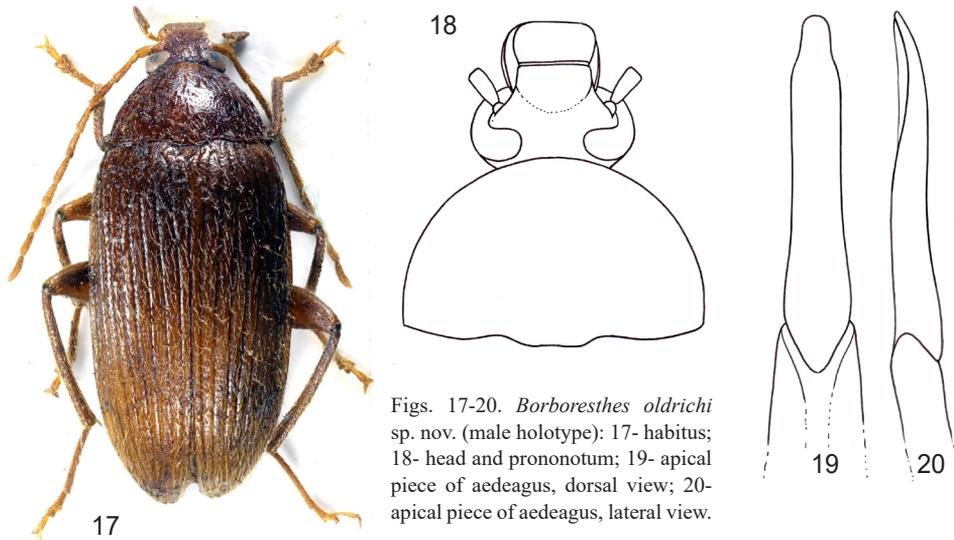
Both protarsal claws with 13 teeth.

Ventral side of body brown with punctures. Abdomen pale reddish brown, semi-matte with small, shallow punctures, sparse, pale setae and fine microgranulation.

Aedeagus (Figs. 19, 20) ochre yellow, semi-matte. Basal piece narrowing in dorsal view. Apical piece narrow, elongate, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.63.

Female unknown.

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Species (n= 4). BL 8.51 mm (8.25-9.14 mm); HL 1.10 mm (1.08-1.11 mm); HW 1.28 mm (1.21-1.30 mm); OI 38.67 (36.40-41.29); PL 1.60 mm (1.49-1.75 mm); PW 2.50 mm (2.34-2.74 mm); PI 63.94 (62.87-64.96); EL 5.59 mm (5.40-5.72 mm); EW 3.11 mm (2.91-3.25 mm).



Figs. 17-20. *Borboresthes oldrichi* sp. nov. (male holotype): 17- habitus; 18- head and pronotum; 19- apical piece of aedeagus, dorsal view; 20- apical piece of aedeagus, lateral view.

Differential diagnosis. Similar species from Laos is *Borboresthes bolikhamsai* sp. nov. from Bolikhamsai Province.

The new species *Borboresthes oldrichi* sp. nov. clearly differs from the similar species *B. bolikhamsai* mainly by brown legs and ultimate maxillary palpomere, by pale reddish brown abdomen and by the shape of apical piece of aedeagus (as in Figs. 19 and 20); while *B. bolikhamsai* has legs and ultimate maxillary palpomere ochre yellow, abdomen is brown and the shape of apical piece of aedeagus is as in Figs. 3 and 4.

Etymology. Patronymic, dedicated to my grandfather Oldřich Novák.

Distribution. Laos (Phongsaly Province).

***Borboresthes xieng* sp. nov.**

(Figs. 21-24)

Type locality. Laos, Xieng Khouang Province, Phou Sam Soum, 19.142559° 103.748050°, 2103 m.

Type material. Holotype (♂): LAOS, Xieng Khouang prov. / Mt. Samsoum, 2.291m / 19°08'28"N 103°48'12"E / 20. V. 2024, P. Viktora lgt., (VNPC). Paratypes: (1 ♂, 2 ♀♀): same data as holotype, (VNPC); (2 ♂♂, 1 ♀): same data as holotype, but 21.V.2024, (VNPC); (1 ♂): same data as holotype, but 2.VI.2024, (VNPC); LAOS XIENG KHOUANG / Phou Sam Soum / alt. 2103 m / 19.142559° 103.748050° / 11-13 V 2019 Beating / leg. T.HIGURASHI / Permit: 08/05/2019, (NMTJ). The types are provided with a printed red label: 'Borboresthes / xieng sp. nov. / HOLOTYPUS or PARATYPUS / V. Novák det. 2024'.

Description of holotype. Habitus as in Fig. 21, body medium-sized, convex, elongate oval, shiny, from yellow to blackish brown, dorsal surface with punctures, pale setae and microgranulation, BL 10.29 mm. Widest in basal half of elytra length; BL/EW 2.89.

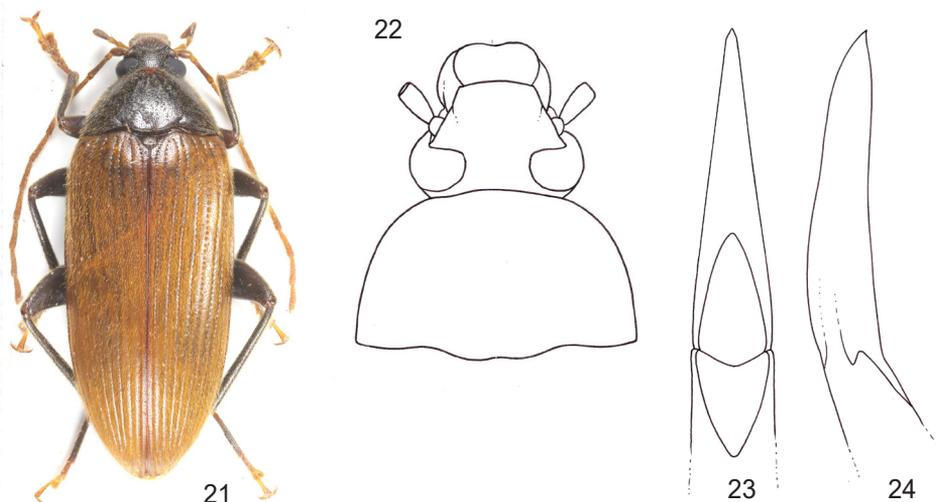
Head (Fig. 22) blackish brown, slightly wider than long, through the eyes distinctly narrower than base of pronotum. Dorsal surface slightly shiny with dense, small and shallow punctures, fine microgranulation and pale setae. Clypeus pale reddish brown, transverse, half heart shaped, surface with long, pale setae, small punctures and microgranulation. HW 1.44 mm; HW/PW 0.51; HL (visible part) 1.23 mm. Eyes transverse, excised, space between eyes slightly wider than diameter of one eye, wider than length of antennomere 1; OI equal to 36.77.

Antenna ochre yellow, long, antennomeres narrow (AL 6.16 mm, distinctly exceeding half body length - AL/BL 0.60). Dorsal surface with pale setae, microgranulation and small punctures. Antennomeres 1 and 2 slightly shiny, antennomeres 3, 4 slightly darker in middle, antennomeres 3-11 matte, antennomeres 4-11 longer than antennomere 3. Antennomere 2 shortest, antennomere 4 longest. Ultimate antennomere widest near middle.

RLA(1-11): 0.67 : 0.27 : 1.00 : 1.36 : 1.20 : 1.20 : 1.07 : 1.13 : 1.07 : 1.02 : 1.05.

RL/WA(1-11): 2.22 : 1.33 : 5.46 : 6.27 : 5.14 : 5.14 : 4.57 : 5.23 : 5.33 : 5.08 : 4.85.

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



Figs. 21-24. *Borboresthes xieng* sp. nov. (male holotype): 21- habitus; 22- head and pronotum; (male paratype) 23- apical piece of aedeagus, dorsal view; 24- apical piece of aedeagus, lateral view.

Pronotum (Fig. 22) blackish brown, almost semicircular, shiny, convex, widest in base, almost as wide as elytra at humeri. Dorsal surface with pale setae, very fine microgranulation and dense, small punctures. PL 1.68 mm; PW 2.80 mm; PI equal to 60.00. Border lines narrow, margins conspicuous from dorsal view, only in the middle of anterior margin not clearly conspicuous. Base bisinuate, anterior and lateral margins slightly arcuate, anterior angles indistinct, posterior angles almost rectangular.

Elytra. Yellow with suture narrowly darker, elongate oval, convex, shiny, widest in basal half. Dorsal surface with pale setae. EL 7.38 mm; EW 3.56 mm; EL/EW 2.07. Elytral striae with rows of small and coarse punctures, elytral intervals with fine microgranulation and small punctures.

Scutellum. Brown, semi-elliptical, semi-matte, with punctures and microgranulation.

Elytral epipleura well-developed, pale reddish brown, shiny, with pale setae and punctures, narrowing to ventrite 1, then leads narrow and parallel on apical part.

Legs. Long and narrow, blackish brown. Dorsal surface with pale setae, small punctures and fine microgranulation. Protarsomeres 2-4, mesotarsomeres 3 and 4 and penultimate metatarsomere widened and lobed. RLT: 1.00 : 0.40 : 0.68 : 0.78 : 1.87 (protarsus); 1.00 : 0.39 : 0.38 : 0.37 : 0.79 (mesotarsus); 1.00 : 0.32 : 0.22 : 0.50 (metatarsus).

Protarsal claws small, pale, both with 17 teeth.

Ventral side of body blackish brown with punctures and pale setae. Abdomen brown, shiny with dense, small punctures, sparse, pale setae and fine microgranulation.

Aedeagus (Figs. 23, 24) ochre yellow, matte. Basal piece rounded laterally and slightly narrowing in dorsal view. Apical piece elongate, narrowly triangular dorsally, beak-shaped from dorsal and lateral views. Ratio of length of apical piece to length of basal piece in dorsal view 1: 3.69.

Female without distinct differences, space between eyes slightly wider (OI approximately 41), protarsal claws with 9 teeth.

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=6). BL 10.62 mm (10.36-11.32 mm); HL 1.25 mm (1.21-1.30 mm); HW 1.46 mm (1.42-1.50); OI 35.40 (33.60-37.82); PL 1.74 mm (1.62-1.86 mm); PW 2.90 mm (2.79-3.01 mm); PI 60.04 (58.07-62.00); EL 7.63 mm (7.45-8.18 mm); EW 3.63 mm (3.36-3.83 mm). Females (n=3). BL 10.94 mm (10.81-11.17 mm); HL 1.32 (1.29-1.37 mm); HW 1.56 mm (1.52-1.61 mm); OI 40.81 (37.69-42.82); PL 1.77 mm (1.73-1.80 mm); PW 3.26 mm (3.24-3.31 mm); PI 54.14 (53.40-54.63); EL 7.85 mm (7.73-8.00 mm); EW 4.00 mm (3.96-4.04 mm).

Differential diagnosis. This new species *Borboresthes xieng* sp. nov. from Xieng Khouang Province is a unique species with blackish brown head and pronotum, dark legs and yellow elytra. No similar species is living in Laos.

Etymology. Toponymic, named after the first word of the name of the Province of its origin - *Xieng Khouang* (Laos).

Distribution. Laos (Xieng Khouang Province).

LIST OF *BORBORESTHES* FAIRMAIRE SPECIES FROM LAOS

Genus *Borboresthes* Fairmaire, 1897: 253 - type species *Allecula cruralis* Marseul, 1876

| | |
|--|---------------------------------|
| <i>bolikhamsai</i> sp. nov. | Bolikhamsai Province |
| <i>bufo</i> Novák, 2022: 100 | Houa Phanh Province |
| <i>haucki</i> Novák, 2005: 123 | Houa Phanh Province |
| <i>hergovitsi</i> sp. nov. | Louang Namtha Province |
| <i>hyla</i> Novák, 2022: 104 | Houa Phanh Province |
| <i>jendeki</i> Novák, 2012: 238 | Bolikhamsai Province |
| <i>kareli</i> sp. nov. | Phongsaly Province |
| <i>lacerta</i> Novák, 2022: 106 | Houa Phanh Province |
| <i>lissotriton</i> Novák, 2022: 108 | Houa Phanh Province |
| <i>maguanensis</i> Novák, 2012: 249 | Houa Phanh Province |
| <i>namtha</i> sp. nov. | Louang Namtha Province |
| <i>natrix</i> Novák, 2022: 112 | Houa Phanh Province |
| <i>oldrichi</i> sp. nov. | Phongsaly Province |
| <i>phongsalyensis</i> Novák, 2012: 254 | Phongsaly, Houa Phanh Provinces |
| <i>phuphanensis</i> Novák, 2012: 256 | Houa Phanh Province |
| <i>podacris</i> Novák, 2022: 117 | Houa Phanh Province |
| <i>pulchra</i> Novák, 2020: 70 | Xieng Khouang Province |
| <i>rana</i> Novák, 2022: 119 | Houa Phanh Province |

| | |
|-------------------------------------|---------------------------------|
| <i>salamandra</i> Novák, 2022: 121 | Houa Phanh Province |
| <i>signatipennis</i> Pic, 1914: 45 | Attapu, Louang Namtha Provinces |
| <i>sinuaticollis</i> Pic, 1922: 18 | Laos |
| <i>vaclavhaveli</i> Novák, 2015: 89 | Phongsaly Province |
| <i>vitakubani</i> Novák, 2015: 94 | Houa Phanh Province |
| <i>xieng</i> sp. nov. | Xieng Khouang Province |

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