

## New *Borboresthes* species (Coleoptera: Tenebrionidae: Alleculinae) from Palaearctic and Oriental Regions

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### Taxonomy, new species, Alleculinae, Alleculini, *Borboresthes*, Palaearctic and Oriental Regions

**Abstract.** Ten new species of the genus *Borboresthes* Fairmaire, 1897 are described, illustrated and compared as follows: *Borboresthes bartolozzii* sp. nov., *B. napolovi* sp. nov. and *B. romai* sp. nov. from Vietnam, *B. filipi* sp. nov. *B. masumotoi* sp. nov., *B. takahashii* sp. nov. and *B. vaclavhaveli* sp. nov. from Thailand, *B. vitakubani* sp. nov. from Laos, *B. viktorai* sp. nov. from Malaysia and *B. weigeli* sp. nov. from China (Yunnan).

### INTRODUCTION

Fairmaire (1897) described the genus *Borboresthes* Fairmaire, 1897 to include *Borboresthes cruralis* Marseul, 1876 as a type species from the territories of Japan, Taiwan and Far East, and *Borboresthes fuliginosus* Fairmaire, 1897 from Japan, Taiwan, Sichuan and Western Plateau of China. Species of the genus have oval or elongate-oval, egg-shaped body, filiform antennae with antennomere 3 approximately as long as or slightly shorter than antennomere 4 and semicircular pronotum near base as wide as or very slightly narrower than the base of elytra. Protarsomeres and mesotarsomeres 3 and 4 and metatarsomeres 3 are widened and lobed.

Species of the genus are distributed in the Eastern and South Eastern Palaearctic Regions and in the Oriental Region. Borchmann (1910) knew only 2 species, Mader (1928) listed 7 species and Novák & Pettersson (2008) reported later 43 species of the genus from Palaearctic Region; from the Oriental Region, nearly further 40 species are currently known. Akita & Masumoto (2008) described later 4 new species from Japan.

Most species are dark, black or brown; some of them are pale with elytra unicolor or with dark markings. Nine new pale species were described by Novák (2012) from China, Laos, Thailand and Vietnam, and 5 species were transferred into the genus from the genus *Allecula*.

Novák (2012) also divided pale species into three groups - the first one - *Borboresthes impressithorax* species group with the body broadly oval, egg-shaped and elytra broadest near half. The second group - *Borboresthes obliquefasciata* species group with body elongate, narrowly oval and elytra more than 2.2 times longer than wide. The third group - *Borboresthes cinctipennis* species group - the species have the pronotum at base slightly narrower than elytra.

Ten new species are described as *Borboresthes filipi* sp. nov. and *Borboresthes masumotoi* sp. nov. from Thailand, *Borboresthes napolovi* sp. nov. from Vietnam, *Borboresthes vitakubani* sp. nov. from Laos and *Borboresthes viktorai* sp. nov. from Malaysia (species with dark bicolor elytra) and 'pale' *Borboresthes* species as *Borboresthes bartolozzii* sp. nov. and *Borboresthes romai* sp. nov. from Vietnam, *Borboresthes takahashii* sp. nov. and *Borboresthes vaclavhaveli* sp. nov. from Thailand and *Borboresthes weigeli* sp. nov. from China (Yunnan). *B. bartolozzii*, *B. romai* and *B. vaclavhaveli* belong to the *Borboresthes impressithorax* species group, *B. weigeli* belongs to the *Borboresthes obliquefasciata* species group and *B. takahashii* belongs to the *Borboresthes cinctipennis* species group.

The new species are illustrated and compared with similar species.

## MATERIAL AND METHODS

Two important morphometric characteristics used for descriptions of species of the subfamily Alleculinae, the 'ocular index' dorsally (Campbell & Marshall 1964) and 'pronotal index' (Campbell 1965), are used in the present paper. 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 or examined material, a double slash (//) separates data on different labels and a slash (/) data in different rows.

The following codens are used:

- DTSL private collection of Dmitry Telnov, Stopiņu novads Dzidriņas, Latvia;  
KMTJ private collection of Kimio Masumoto, Tokio, Japan;  
MNFI Museo di Storia Naturale, Firenze, Italy;  
NHMB Naturhistorisches Museum, Basel, Switzerland;  
NMEG Naturkundemuseum, Erfurt, Germany;  
NMPC National Museum, Praha, Czech Republic;  
NMTJ National Museum, Tokio, Japan;  
PVKC private collection of Petr Viktora, Kutná Hora, Czech Republic;  
VNPC private collection of Vladimír Novák, Praha, Czech Republic.

Measurements of body parts and corresponding abbreviations used in text are as follows:

- AL total antenna 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 ( $1=1.00$ )  
RLP ratios of relative lengths of palpomeres 2-4 from base to apex ( $3=1.00$ )  
RL/WP ratios of length / maximum width of palpomeres 2-4 from base to apex.

Other abbreviations used in text: hb= handwritten black; pb= printed black.

Measurements were made with Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System Analysis.

## TAXONOMY

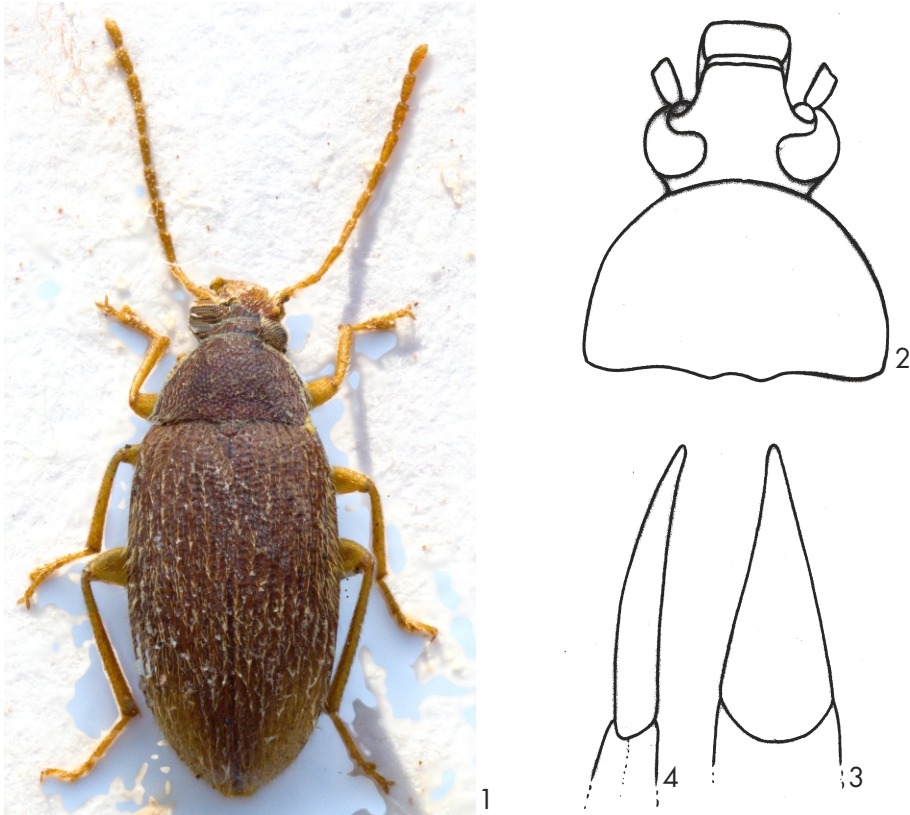
### ***Borboresthes bartolozzii* sp. nov.**

(Figs. 1-4)

**Type locality.** Vietnam, Tua Thien Hue prov., Bach Ma Natl Park, surr. Hotel Morin, 16,2°N 107,85°E, (1350-1400 m).

**Type material.** Holotype (♂): C-VIETNAM – Tua Thien Hue Prov. / Bach Ma Natl Park, surr. Hotel Morin / (1350-1400 m), 16,2°N 107,85°E / 23-28.V.2014 // legit L. Bartolozzi, G. Chellazi, / A. Bandinelli, S. Bambi / F. Fabiano (n° Magazz.

2978), (MNFI); Paratypes: (1 ♂ 5 ♀♀): same data as with holotype, (MNFI, VNPC). The types are provided with printed red label: 'Borboresthes bartolozzii sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.



Figs. 1-4: *Borboresthes bartolozzii* sp. nov.: 1- Habitus of male holotype; 2- head and pronotum of male holotype; 3- aedeagus, dorsal view; 4- aedeagus, lateral view.

**Description of holotype.** Habitus as in Fig. 1, distinctly belonging to *Borboresthes impressithorax* species group, body very small, oval, dorsal surface from ochre yellow to reddish brown, with punctuation, microgranulation and ochre yellow setation, more matte, BL 4.73 mm. Widest near elytral half; BL/EW 2.45.

Head (Fig. 2) relatively small with ochre yellow setation, microgranulation and punctuation, posterior part reddish brown. Anterior part and clypeus ochre yellow. HW 0.87 mm; HW/PW 0.61. HL (visible part) 0.46 mm. Eyes relatively large, transverse, distinctly excised, space between eyes narrow, slightly wider than diameter of one eye, approximately as wide as antennomere 4 long; OI equal to 38.22.

Antennae. Long, filiform, ochre yellow, with microgranulation and relatively long, dense ochre yellow setation, AL 2.92 mm, AL/BL 0.62. Antennomere 2 shortest, antennomere 3 distinctly shorter than each of antennomeres 4-11. RLA (1-11): 0.86 : 0.56 : 1.00 : 1.67 : 1.37 : 1.56 : 1.38 : 1.40 : 1.32 : 1.33 : 1.44. RL/WA (1-11): 1.69 : 1.52 : 2.86 : 3.89 : 2.87 : 3.50 : 3.22 : 3.04 : 2.59 : 2.90 : 3.25.

Maxillary palpus. Ochre yellow with microgranulation and ochre yellow setation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 2). Reddish brown, semicircular, with long, yellow setation, microgranulation and dense, shallow punctuation, punctures relatively large, medium-sized, interspaces between punctures very narrow. Border lines distinct and complete, only in the middle of base and in the middle of anterior margin not clearly conspicuous. Anterior margin arcuate, posterior margin bisinuate, anterior angles indistinct, posterior angles roundly obtuse angled. PL 0.82 mm; PW 1.42 mm. PI equal to 57.75.

Ventral side of body dark brown with pale setation and punctuation. Abdomen reddish brown, with pale setation, small punctures and microgranulation.

Elytron pale reddish brown, with long and dense golden yellow setation and microgranulation, apex with indistinct ochre yellow, oval spot. Elytral striae with distinct rows of small-sized punctures, elytral interspaces with microgranulation and small, sparse, shallow punctures. EL 3.45 mm. Broadest near half elytral length, EW 1.93 mm. EL/EW 1.79.

Scutellum. Pale reddish brown as elytron itself, roundly triangular with microgranulation and a few yellow setae.

Elytral epipleura well-developed with pale setae. Reddish brown as elytron itself, regularly narrowing to ventrite 1 in basal half, then ochre yellow, leading parallel.

Legs. Ochre yellow, with dense and long, yellow setation and fine microgranulation. Tibiae slightly dilated anteriorly. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLT: protarsus: 1.00 : 0.44 : 0.51 : 0.71 : 1.41; mesotarsus: 1.00 : 0.26 : 0.31 : 0.36 : 0.66; metatarsus: 1.00 : 0.32 : 0.31 : 0.46.

Both anterior tarsal claws with 7 visible teeth.

Aedeagus (Figs. 3, 4). Yellow, slightly shiny. Basal piece only finely rounded laterally. Apical piece narrow and slightly beak-shaped laterally and longitudinally triangular dorsally. Ratio of length of apical piece to length of basal piece 1 : 3.27.

**Female** without distinct differences, only both anterior tarsal claws with 5 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=2). BL 4.83 mm (4.73-4.93 mm); HL 0.45 mm (0.43-0.46 mm); HW 0.90 mm (0.87-0.92 mm); OI 38.91 (38.22-39.60), PL 0.87 mm (0.82-0.92 mm); PW 1.52 mm (1.42-1.62 mm); PI 57.27 (56.79-57.75); EL 3.58 mm (3.45-3.70 mm); EW 1.98 mm (1.93-2.02 mm). Females (n=5). BL 4.86 mm (4.67-5.11 mm); HL 0.40 mm (0.38-0.42 mm); HW 0.90 mm (0.88-0.95 mm); OI 40.83 (39.36-42.55), PL 0.81 mm (0.78-0.86 mm); PW 1.56 mm (1.51-1.64 mm); PI 51.79 (51.24-52.57); EL 3.66 mm (3.47-3.87 mm); EW 2.14 mm (2.05-2.25 mm).

**Differential diagnosis.** *Borboresthes bartolozzii* sp. nov. distinctly belongs to the *Borboresthes impressithorax* species group. *B. bartolozzii* is a very small species; only *Borboresthes signatipennis* (Pic, 1914) is as small as *B. bartolozzii* in this species group. *B. bartolozzii* has the dorsal surface of elytra pale reddish brown with indistinct ochre yellow spot in apex; *B. signatipennis* has ochre yellow elytra with blackish brown irregular drawing.

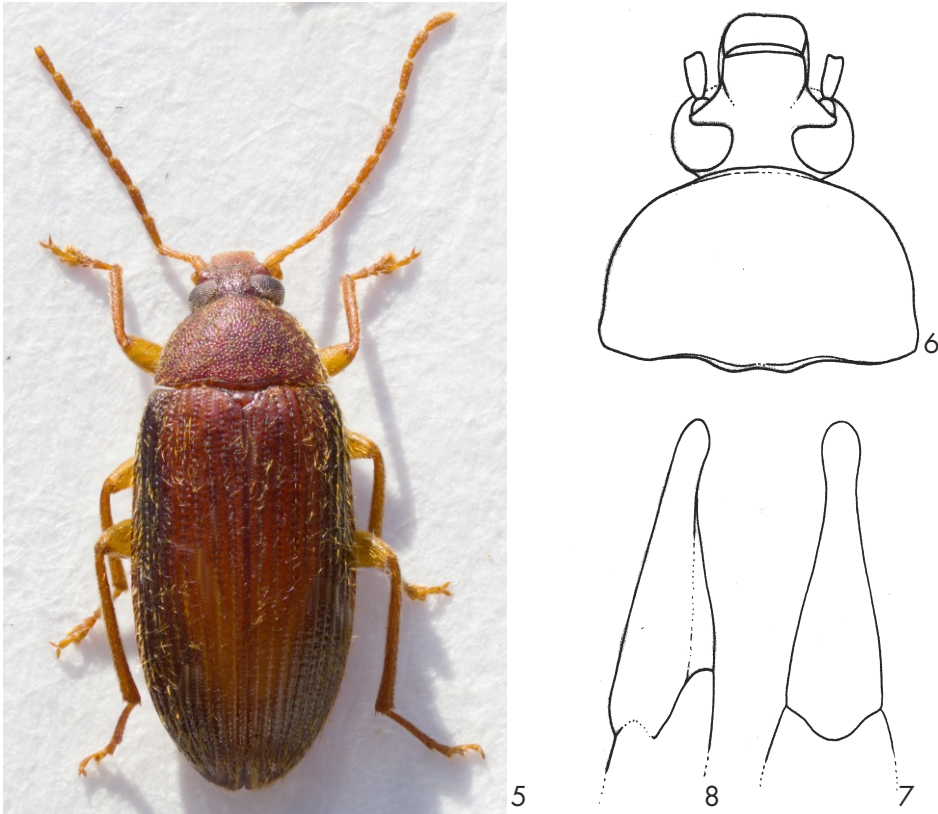
**Etymology.** The new species is dedicated to one of the collectors - Luca Bartolozzi (Firenze, Italy), a world-known specialist in the beetle family Lucanidae.

**Distribution.** Vietnam.

***Borboresthes filipi* sp. nov.**  
(Figs. 5-8)

**Type locality.** Thailand, Khao Yai N. P.

**Type material.** Holotype (♂): THAILAND 100km / NE of Bangkok / Khao Yai N.P. 2002 / F. Pavel leg. 13-15.12., (VNPC). The types are provided with a printed red label: '*Borboresthes filipi* sp. nov. HOLOTYPUS V. Novák det. 2014'.



Figs. 5-8: *Borboresthes filipi* sp. nov.: 5- Habitus of male holotype; 6- head and pronotum of male holotype; 7- aedeagus, dorsal view; 8- aedeagus, lateral view.

**Description of holotype.** Habitus as in Fig. 5, body oval, dorsal surface from ochre yellow to blackish brown, with punctuation, microgranulation and yellow setation, slightly shiny, BL 6.18 mm. Widest near elytral half; BL/EW 2.41.

Head (Fig. 6) relatively small with sparser yellow setation, with shallow punctuation and dense microgranulation. Posterior part dark reddish brown, anterior part and clypeus ochre yellow. HW 1.09 mm; HW/PW 0.77. HL (visible part) 0.53 mm. Eyes relatively large, transverse, deeply excised, space between eyes narrow, approximately as wide as diameter of one eye and as wide as length of antennomere 3; OI equal to 34.72.

Antennae. Long, filiform, ochre yellow, with punctuation, microgranulation and relatively long,

dense yellow setation, matte, AL 3.34 mm, AL/BL 0.54. Antennomere 2 shortest, antennomere 3 distinctly shorter than each of antennomeres 4-11. RLA (1-11): 0.72 : 0.34 : 1.00 : 1.49 : 1.34 : 1.38 : 1.48 : 1.44 : 1.39 : 1.39 : 1.46. RL/WA (1-11): 1.79 : 0.97 : 2.73 : 3.49 : 3.24 : 3.32 : 3.56 : 3.69 : 3.46 : 3.56 : 3.75.

Maxillary palpus. Ochre yellow with microgranulation and sparse, pale setation. Ultimate palpomere distinctly darker and broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 6). Semicircular, reddish brown with long, golden yellow setation, microgranulation and dense punctuation, punctures medium-sized, space between punctures very narrow. Border lines distinct and complete, anterior margin arcuate, posterior margin bisinuate, anterior angles indistinct, posterior angles roundly obtuse-angled. PL 1.04 mm; PW 1.92 mm. Pl equal to 54.17.

Ventral side of body dark reddish brown, with sparse pale setation and punctuation. Abdomen reddish-brown, with pale setation, small punctures and microgranulation.

Elytron bicolor with long, golden yellow setation. Sides and apex blackish brown, large central spot reaching from suture up to elytral interval 5 or 6 from base up to nine tenths of elytral length (here reaching only elytral interval 1 or 2 as in Fig. 5). Elytral striae with distinct rows of small punctures, elytral interspaces slightly convex, with microgranulation and sparse, very small punctures. EL 4.61 mm. Widest near half elytral length, EW 2.56 mm. EL/EW 1.80.

Scutellum dark red, pentagonal with fine microgranulation.

Elytral epipleura well-developed, reddish brown, with long, golden yellow setation and punctuation, regularly narrowing to ventrite 1, then leading parallel.

Legs. Ochre yellow, with dense ochre yellow setation. Tibiae slightly dilated anteriorly. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLt: protarsus: 1.00 : 0.49 : 0.55 : 0.52 : 1.07; mesotarsus: 1.00 : 0.31 : 0.37 : 0.36 : 0.74; metatarsus: 1.00 : 0.30 : 0.31 : 0.73.

Both anterior tarsal claws with 9 visible teeth.

Aedeagus (Figs. 7, 8). Yellow, with microgranulation, matte. Basal piece rounded laterally and slightly narrowing dorsally. Apical piece beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece 1 : 2.66.

**Female.** Unknown.

**Differential diagnosis.** *Borboresthes filipi* sp. nov. is a unique species; throughout the genus, there are only two species - *Borboresthes vitakubani* sp. nov. and *Borboresthes viktorai* sp. nov. - with similar bicolor elytra (dark blackish brown with reddish brown middle spot). *B. filipi* distinctly differs from the species *B. vitakubani* mainly by its shape of body, which is wider and oval and pronotum, which is as wide as elytra at base, while *B. vitakubani* has its body more elongate and pronotum slightly, but distinctly narrower than elytra at base. *B. filipi* clearly differs from the species *B. viktorai* mainly by the space between eyes approximately as wide as diameter of one eye and paler spot at the middle of elytra, while *B. viktorai* has the spot in middle of elytra dark reddish brown and space between eyes distinctly wider than the diameter of one eye. Some species of genera *Borbochara* Novák, 2009 or *Microsthes* Novák, 2011, have similar colours of the elytra.

**Etymology.** The new species is dedicated to the collector - my friend Filip Pavel (Hradec Králové, Czech Republic), after his first name.

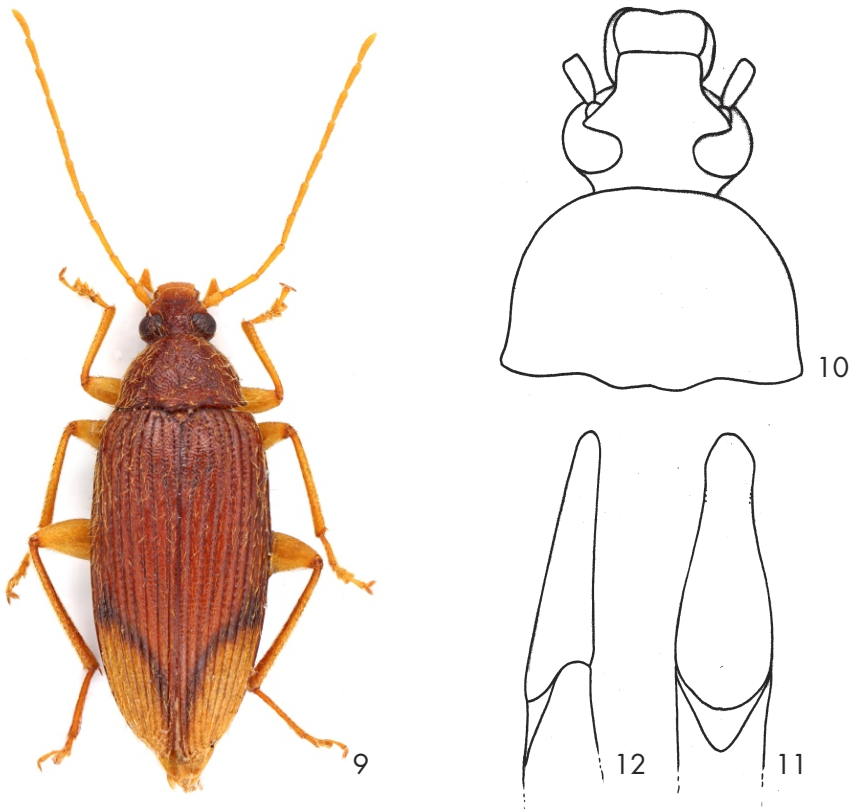
**Distribution.** Thailand.

***Borboresthes masumotoi* sp. nov.**

(Figs. 9-12)

**Type locality.** North Thailand, Chiang Mai prov., Doi Pui, 1500 m.

**Type material.** Holotype (♂): N. THAILAND; / Chiang Mai Prov. / Doi Pui, 1500m / 17. V. 2009 / K. MASUMOTO leg., [NMTJ]; Paratypes: (1 ♂ 1 ♀): same data as with holotype, [KMTJ, VNPC]; (1 ♂ 2 ♀♀): Doi Suthep / Thailand, 25. V. 2011 / K.MASUMOTO & / K.TAKAHASHI leg., [KMTJ, VNPC]; (1 ♂ 2 ♀♀): same data but 16.V.2011, [KMTJ, VNPC]; (1 ♀): same data but 17.V.2011, [VNPC]; (1 ♂ 1 ♀): Ang Khang, Thailand / 22-24. V. 2011 / K.MASUMOTO & / K.TAKAHASHI leg., [KMTJ, VNPC]; (1 ♂): Dou Pui CMX [hb] / Date: [pb] 17-18. V 2009 [hb] / K. MASUMOTO leg. [pb], [KMTJ]; (1 ♂): NW-THAILAND, 2.-6.5. / Chiang Mai distr. 1996 / Doi - Pui vill; 18°49', 98°54' / J. Horák lgt.; 1600m, [VNPC]. The types are provided with a printed red label: '*Borboresthes masumotoi* sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.



Figs. 9-12: *Borboresthes masumotoi* sp. nov.: 9- Habitus of male holotype; 10- head and pronotum of male holotype; 11- aedeagus, dorsal view; 12- aedeagus, lateral view.

**Description of holotype.** Habitus as in Fig. 9, body elongate - oval, from ochre yellow to black, with punctuation, microgranulation and golden yellow setation, slightly shining, BL 7.28 mm. Widest near elytra half; BL/EW 2.68.

Head (Fig. 10) relatively small and narrow with sparse golden yellow setation, with shallow punctuation, dense microgranulation, posterior part reddish brown, with distinct rugosities.

Anterior part and clypeus pale brown. HW 1.18 mm; HW/PW 0.62. HL (visible part) 0.77 mm. Eyes relatively large, transverse, excised, space between eyes narrow, approximately as wide as diameter of eye; OI equal to 38.67.

Antennae. Long, filiform, ochre yellow, with punctuation, microgranulation and relatively long, dense golden yellow setation, AL 5.09 mm, AL/BL 0.70. Antennomere 2 shortest, antennomere 3 distinctly shorter than each of antennomeres 4-11. RLA (1-11): 0.91 : 0.39 : 1.00 : 1.45 : 1.12 : 1.20 : 1.16 : 1.17 : 1.18 : 1.08 : 1.21. RL/WA (1-11): 2.81 : 1.68 : 4.17 : 6.32 : 5.10 : 5.23 : 5.29 : 5.60 : 5.38 : 5.42 : 5.52.

Maxillary palpus. Ochre yellow with microgranulation and golden yellow setation. Ultimate palpomere broadly triangular. Palpomerer 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 10). Reddish brown with long, golden yellow setation, microgranulation and shallow punctuation. Border lines distinct and complete, only anterior margin not clearly conspicuous at middle. Anterior margin rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles roundly rectangular. PL 1.12 mm; PW 1.92 mm. PI equal to 58.48.

Ventral side of body. Prosternum reddish brown with sparse punctuation. Mesosternum and metasternum dark brown, with denser punctuation. Abdomen pale reddish brown, with pale setation, shallow punctuation and microgranulation.

Elytron tricolor with long, golden yellow setation. Posterior two thirds reddish brown with large ochre yellow spot in apical third. The spot with narrow black border between ochre yellow spot and reddish brown surface. Elytral interspaces with microgranulation and punctuation, elytral striae with shallow punctuation, punctures distinctly smaller than those as in rows in elytral striae, interspaces between punctures narrow, distinctly narrower than diameter of punctures. EL 5.39 mm. Broadest near one third of elytral length, EW 2.72 mm. EL/EW 1.98.

Scutellum. Reddish brown, sides distinctly darker, roundly pentagonal, with microgranulation and a few golden yellow setae.

Elytral epipleura well-developed. Reddish brown, with golden yellow setae and row of dark punctures, regularly narrowing to ventrite 1, then leading parallel.

Legs. Ochre yellow, with dense golden yellow setation. Tibiae slightly dilated anteriorly. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RL: protarsus: 1.00 : 0.32 : 0.37 : 0.46 : 1.24; mesotarsus: 1.00 : 0.24 : 0.30 : 0.26 : 0.56; metatarsus: 1.00 : 0.24 : 0.24 : 0.34.

Both anterior tarsal claws with more than 13 visible teeth.

Aedeagus (Figs. 11, 12). Yellow, slightly shiny, with microgranulation. Basal piece rounded laterally and narrowing dorsally. Apical piece narrowly triangular laterally and beak-shaped dorsally. Ratio of length of apical piece to length of basal piece 1 : 5.40.

**Female.** Without distinct differences. Only the space between eyes is slightly wider than in the male, mean OI equal to 41. Both anterior tarsal claws with 8 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=7). BL 7.32 mm (7.23-7.47 mm); HL 0.66 mm (0.62-0.77 mm); HW 1.16 mm (1.14-1.18 mm); OI 38.59 (36.00-40.16), PL 1.11 mm (1.06-1.21 mm); PW 1.95 mm (1.91-2.00 mm); PI 57.12 (54.33-60.28); EL 5.55 mm (5.39-5.64 mm); EW 2.64 mm (2.58-2.72 mm). Females (n=7). BL 7.19 mm (6.97-7.67 mm); HL 0.69 mm (0.55-0.68 mm); HW 1.11 mm (1.11-1.12 mm); OI 41.05 (37.82-44.07), PL 1.08 mm (1.00-1.11 mm); PW



1.96 mm (1.90-2.06 mm); PI 54.70 (52.20-58.13); EL 5.48 mm (5.23-5.91 mm); EW 2.68 mm (2.52-2.78 mm).

**Differential diagnosis.** *Borboresthes masumotoi* sp. nov. is a unique species with tricolor elytra. Similar species are *Borboresthes phongsalyensis* Novák, 2012 from Laos and Thailand and *Borboresthes napolovi* sp. nov. from Vietnam. *B. masumotoi* clearly differs from the similar species *B. phongsalyensis* mainly by its smaller, medium-sized body, narrower space between eyes, more or less straight anterior margin of the pronotum; while *B. phongsalyensis* has larger, large-sized body, wider space between eyes, the anterior margin of the pronotum arcuate. *B. masumotoi* is different from the similar species *B. napolovi* mainly by its larger, elongate oval, medium-sized body, wider space between eyes, basal half of elytron unicolor and anterior margin of pronotum more or less straight; while *B. napolovi* has small-sized, oval body, narrower space between eyes, basal half of elytron bicolour and anterior margin of pronotum distinctly arcuate.

**Etymology.** The new species is dedicated to one of the collectors - my friend Kimio Masumoto (Tokyo, Japan), a world-known specialist in Scarabaeidae and Tenebrionidae.

**Distribution.** Thailand.

### ***Borboresthes napolovi* sp. nov.**

(Figs. 13-16)

**Type locality.** Vietnam North, Tuyen Quang prov., NE of Na Hang.

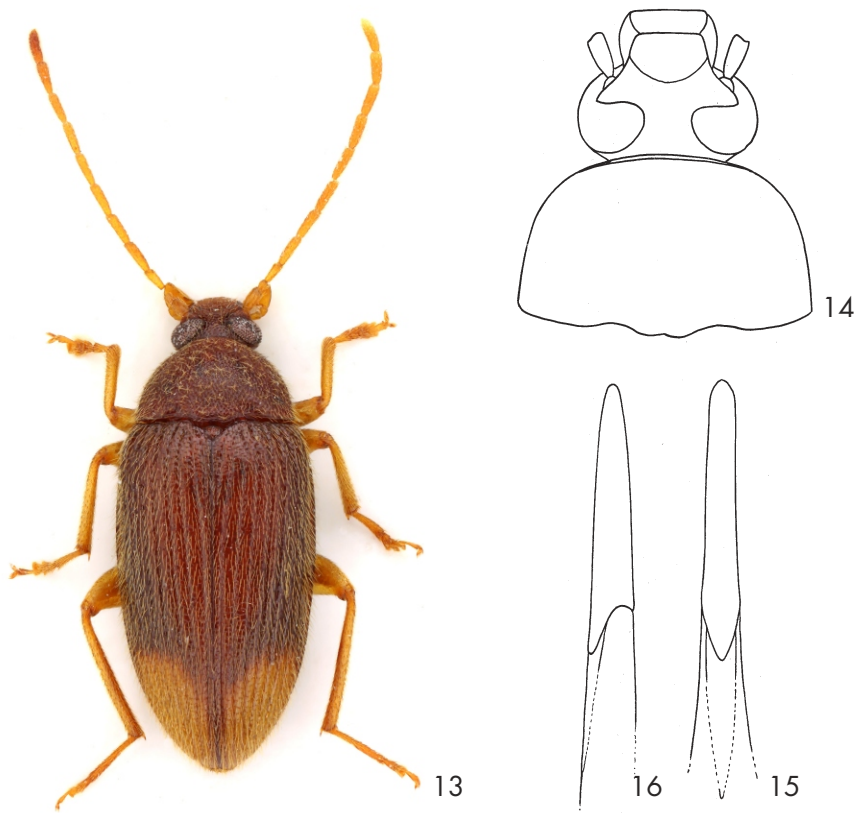
**Type material.** Holotype (♂): VIETNAM, N (Na Hang) / 160 km NNW Hanoi / NE of Na Hang / 05.-10.VI. 1996 / 150-200m NN leg. A. / Napolov & I. Roma, (NMEG); Paratypes: (9 ♂♂ 2 ♀♀): same data as with holotype, (NMEG, VNPC); (2 ♂♂ 2 ♀♀): same data as with holotype, but 02.-09.VI. / 1996, leg. A. Napolov, (NMEG, VNPC); (1 ♂): Vietnam-N, 160 km NNW Hanoi, / Tuyen Quang prov., 3 km NE / from Na Hang, Pac Ban vill. env., / 900 m., primary rain forest, / 5.-10.VI.1996, leg. A. Napolov, (DTSJ). The types are provided with printed red labels: 'Borboresthes napolovi sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

**Description of holotype.** Habitus as in Fig. 13, body oval, egg-shaped, from pale brown to dark blackish brown, with punctuation, microgranulation and golden yellow setation, slightly shining, BL 5.19 mm. Widest near elytra base; BL/EW 2.37.

Head (Fig. 14) relatively small and narrow, dark reddish brown, with punctuation, dense microgranulation and small rugosities and sparse golden yellow setation. Punctures large and shallow. Anterior part and clypeus pale brown. HW 0.99 mm; HW/PW 0.58. HL (visible part) 0.43 mm. Eyes large, transverse, deeply excised, space between eyes narrow, distinctly narrower than diameter of eye; OI equal to 29.25.

Antennae. Long, filiform, ochre yellow, with microgranulation and relatively long, dense golden yellow setation, AL 3.63 mm, AL/BL 0.70. Antennomeres 1 and 2 slightly shiny, 3-10 matter. Antennomere 2 shortest, antennomere 3 distinctly shorter than each of antennomeres 4-11. RLA (1-11): 1.11 : 0.52 : 1.00 : 1.60 : 1.59 : 1.66 : 1.66 : 1.61 : 1.58 : 1.57 : 1.63. RL/WA (1-11): 2.29 : 1.33 : 2.15 : 3.28 : 3.10 : 3.32 : 3.43 : 3.30 : 3.37 : 3.27 : 3.17.

Maxillary palpus. Ochre yellow with sparse setation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.



Figs. 13-16: *Borboresthes napolovi* sp. nov.: 13- Habitus of male holotype; 14- nea ana pronotum of male holotype; 15- aedeagus, dorsal view; 16- aedeagus, lateral view.

Pronotum (Fig. 14). Semicircular, brown with long, golden yellow setation, microgranulation and dense punctuation, punctures large and relatively coarse, interspaces between punctures narrow. Border lines distinct and complete, only anterior margin in the middle not clearly conspicuous. Anterior margin finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles obtuse. PLO.86 mm; PW 1.70 mm. PI equal to 50.88.

Ventral side of body. Reddish brown with sparse golden yellow setation and sparse punctuation. Abdomen pale reddish brown, with sparse, pale brown setation, sparse shallow punctuation microgranulation and transverse rugosities. Ultimate and penultimate ventrites distinctly paler.

Elytron. Dark brown with large ochre yellow spot in apical third and large reddish brown spot from suture up to sixth elytral interspace in basal half. Dorsal surface with dense and long golden yellow setation, elytral interspaces with distinct microgranulation, elytral striae with punctuation, punctures approximately as large as on pronotum, interspaces between punctures narrow, distinctly narrower than diameter of punctures. EL 3.90 mm. Broadest near one third of elytral length, EW 2.19 mm. EL/EW 1.78.

Scutellum. Reddish brown, with microgranulation and a few golden yellow setae.

Elytral epipleura. Reddish brown, relatively broad, regularly narrowing to ventrite 1, then relatively broad, leading parallel.

Legs. Ochre yellow, with dense golden yellow setation, tarsal claws distinctly paler. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLt: protarsus: 1.00 : 0.55 : 0.62 : 0.69 : 0.99; mesotarsus: 1.00 : 0.35 : 0.30 : 0.35 : 0.65; metatarsus: 1.00: 0.40: 0.22: 0.40.

Both anterior tarsal claws with more than 12 visible teeth.

Aedeagus (Figs. 15, 16). Yellow, slightly shiny. Basal piece only finely rounded laterally, then straight laterally and narrowing in apical third dorsally. Apical piece narrow with finely rounded top, very finely narrowing laterally and almost parallel dorsally. Ratio of length of apical piece to length of basal piece 1: 4.07.

**Female.** Without distinct differences, only space between eyes finely broader than in male, mean OI equal to 34.74. Both anterior tarsal claws with 5 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=13). BL 5.11 mm (4.90-5.25 mm); HL 0.41 mm (0.30-0.47 mm); HW 0.97 mm (0.91-1.00 mm); OI 27.56 (25.75-28.94), PL 0.86 mm (0.81-0.94 mm); PW 1.66 mm (1.52-1.72 mm); PI 52.19 (47.00-56.55); EL 3.84 mm (3.62-3.99 mm); EW 2.13 mm (2.02-2.20 mm). Females (n=4). BL 5.19 mm (5.03-5.28 mm); HL 0.37 mm (0.33-0.39 mm); HW 0.94 mm (0.91-0.99 mm); OI 34.74 (32.35-37.59), PL 0.88 mm (0.86-0.91 mm); PW 1.67 mm (1.61-1.72 mm); PI 52.60 (51.55-53.24); EL 3.95 mm (3.84-4.02 mm); EW 2.22 mm (2.22-2.23 mm).

**Differential diagnosis.** *Borboresthes napolovi* sp. nov. is a unique species with tricolor elytra. Similar species are *Borboresthes masumotoi* sp. nov. from Thailand and *Borboresthes phongsalyensis* Novák, 2012 from Laos and Thailand. *B. napolovi* distinctly differs from *B. masumotoi* and *B. phongsalyensis* mainly by its small-sized, oval body, bicolour basal half of elytra and narrow space between eyes distinctly narrower than diameter of one eye; while *B. masumotoi* and *B. phongsalyensis* have large, elongate oval body, basal half of elytra unicolor and space between eyes wide, distinctly wider than diameter of one eye.

**Etymology.** The new species is dedicated to one of the collectors - A. Napolov.

**Distribution.** Vietnam.

### ***Borboresthes romai* sp. nov.**

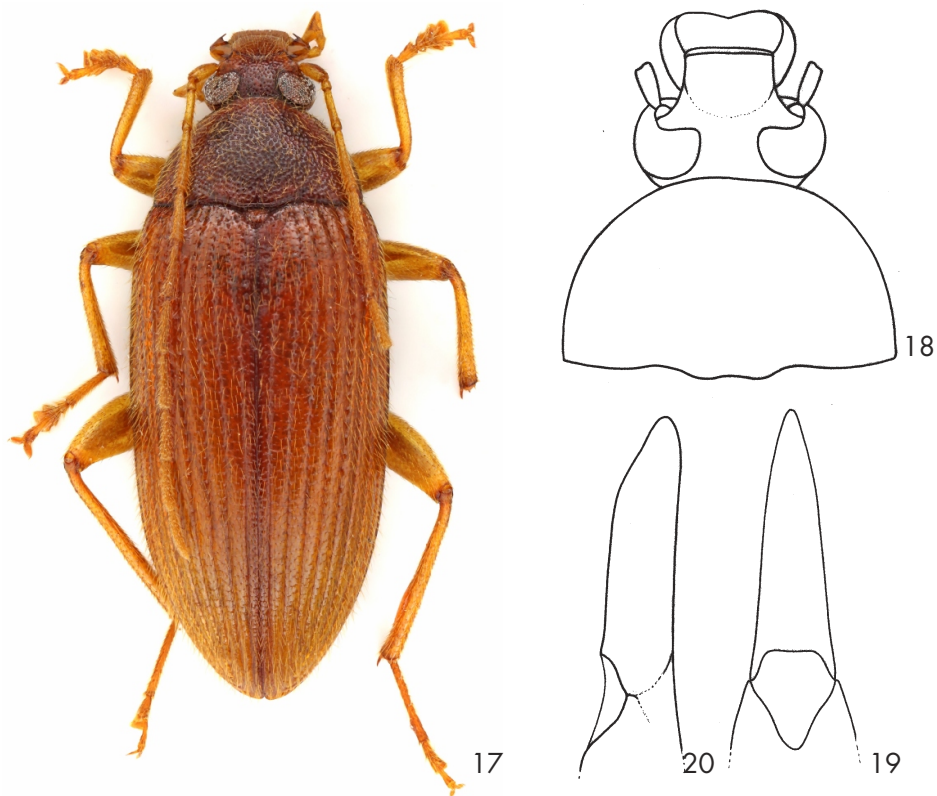
(Figs. 17-20)

**Type locality.** North Vietnam, Na Hang, 160 km NNW Hanoi, 150-200 m.

**Type material.** Holotype (♂): VIETNAM, N, Na Hang / 160 km NNW Hanoi / env. NE of Na Hang / 150-200m, 02.-09. VI. / 1996, leg. A. Napolov, (NMEG); Paratypes: (3 ♂♂ 5 ♀♀): same data as with holotype, (NMEG, VNPC); (1 ♂ 3 ♀♀): same data as with holotype, but 09.-14.VI. 1996, (NMEG, VNPC); (2 ♂♂ 1 ♀): same data as with holotype, but 05.-10.VI.1996, leg. A. Napolov & I. Roma, (NMEG, VNPC). The types are provided with a printed red label: 'Borboresthes romai sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

**Description of holotype.** Habitus as in Fig. 17, distinctly belonging to *Borboresthes impressithorax* species group, body oblong oval, from ochre yellow to reddish brown, with

punctuation, microgranulation and golden yellow setation, slightly shining, BL 7.45 mm. Widest near middle of elytra length; BL/EW 2.57.



Figs. 17-20: *Borboresthes romai* sp. nov.: 17- Habitus of male holotype; 18- head and pronotum of male holotype; 19- aedeagus, dorsal view; 20- aedeagus, lateral view.

Head (Fig. 18) relatively small and wide, with fine and dense microgranulation and dense punctuation, punctures relatively small and shallow. Posterior part reddish brown, with sparse golden yellow setation. Anterior part and clypeus pale brown with golden yellow setation distinctly denser than in posterior part. HW 1.23 mm; HW/PW 0.56. HL (visible part) 0.70 mm. Eyes large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of eye; OI equal to 32.84.

Antennae. Long, filiform, ochre yellow, with fine microgranulation, punctuation and relatively long and dense golden yellow setation, AL 5.68 mm, AL/BL 0.76. Antennomeres 1-3 slightly shiny, 4-11 matter. Antennomere 2 shortest, antennomere 4 longest, distinctly longer than each antennomere 5-11. RLA (1-11) equal to: 0.65 : 0.31 : 1.00 : 1.31 : 1.15 : 1.27 : 1.43 : 1.35 : 1.20 : 1.19 : 1.12. RL/WA (1-11) equal to: 2.44 : 1.66 : 5.36 : 6.46 : 5.67 : 5.26 : 7.02 : 6.63 : 5.42 : 5.85 : 5.50.

Maxillary palpus. Ochre yellow with fine microgranulation and sparse yellow setation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 18). Semicircular, reddish brown with long, golden yellow setation, fine microgranulation and dense punctation, punctures large and relatively coarse, interspaces between punctures very narrow. Border lines distinct and complete. Anterior margin finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 1.13 mm; PW 2.21 mm; PI equal to 51.13.

Ventral side of body. Reddish brown with sparse white setation and sparse punctation. Abdomen reddish brown, with sparse, pale brown setation and fine microgranulation.

Elytron. Pale brown, suture distinctly darker. Dorsal surface with dense and long golden yellow setation, elytral interspaces with fine microgranulation, sparse and shallow punctation, punctures very small, elytral striae with rows of punctures. Punctures medium-sized, distinctly smaller as punctures in pronotum, interspaces between punctures narrow. EL 5.62 mm. Widest near half of elytral length, EW 2.90 mm; EL/EW 1.94.

Scutellum. Pale brown, roundly triangular, with microrugosities, sides distinctly darker.

Elytral epipleura. Pale brown, as colour as elytron itself, with sparse yellow setation, relatively broad, regularly narrowing to ventrite 1, then leading parallel.

Legs. Ochre yellow, with dense and long, golden yellow setation. Protarsomeres and mesotarsomeres 2-4 and metatarsomere 3 widened and lobed. RLT (1-5 or 1-4) equal to: 1.00 : 0.79 : 0.71 : 0.90 : 1.68 (protarsus), 1.00 : 0.27 : 0.27 : 0.35 : 0.80 (mesotarsus), and 1.00 : 0.22 : 0.24 : 0.34 (metatarsus).

Both anterior tarsal claws with more than 13 visible teeth.

Aedeagus (Figs. 19, 20). Ochre yellow, slightly shiny, with fine microgranulation. Basal piece regularly rounded laterally. Apical piece beak-shaped laterally and elongate triangular dorsally. Ratio of length of apical piece to length of basal piece 1 : 2.63.

**Female.** Without distinct differences. Both anterior tarsal claws with 9 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=7). BL 7.56 mm (7.15-7.83 mm); HL 0.64 mm (0.57-0.70 mm); HW 1.19 mm (1.11-1.24 mm); OI 37.21 (32.84-40.34), PL 1.13 mm (1.07-1.24 mm); PW 2.30 mm (2.20-2.44 mm); PI 49.01 (45.77-53.66); EL 5.78 mm (5.45-6.08 mm); EW 2.90 mm (2.84-3.04 mm). Females (n=9). BL 7.95 mm (7.46-8.44 mm); HL 0.65 mm (0.59-0.67 mm); HW 1.26 mm (1.15-1.34 mm); OI 41.42 (39.86-44.29), PL 1.27 mm (1.12-1.33 mm); PW 2.47 mm (2.29-2.66 mm); PI 51.67 (48.94-54.62); EL 6.04 mm (5.75-6.47 mm); EW 3.13 mm (2.93-3.47 mm).

**Differential diagnosis.** *Borboresthes romai* sp. nov. distinctly belongs to the *Borboresthes impressithorax* species group. From the similar species *Borboresthes jendeki* Novák, 2012 and *Borboresthes tamdaoensis* Novák, 2012, it distinctly differs mainly by its larger body (7-8.5 mm) and wider space between eyes (OI in males 33-40; OI in females 40-44); while *B. jendeki* and *B. tamdaoensis* have smaller body (6.5-7.3 mm in *B. jendeki* and 5.2-6.5 mm in *B. tamdaoensis*) and narrower space between eyes (OI in males of *B. jendeki* 30-35; OI in males of *B. tamdaoensis* 20-25). The shape of the aedeagus is also different.

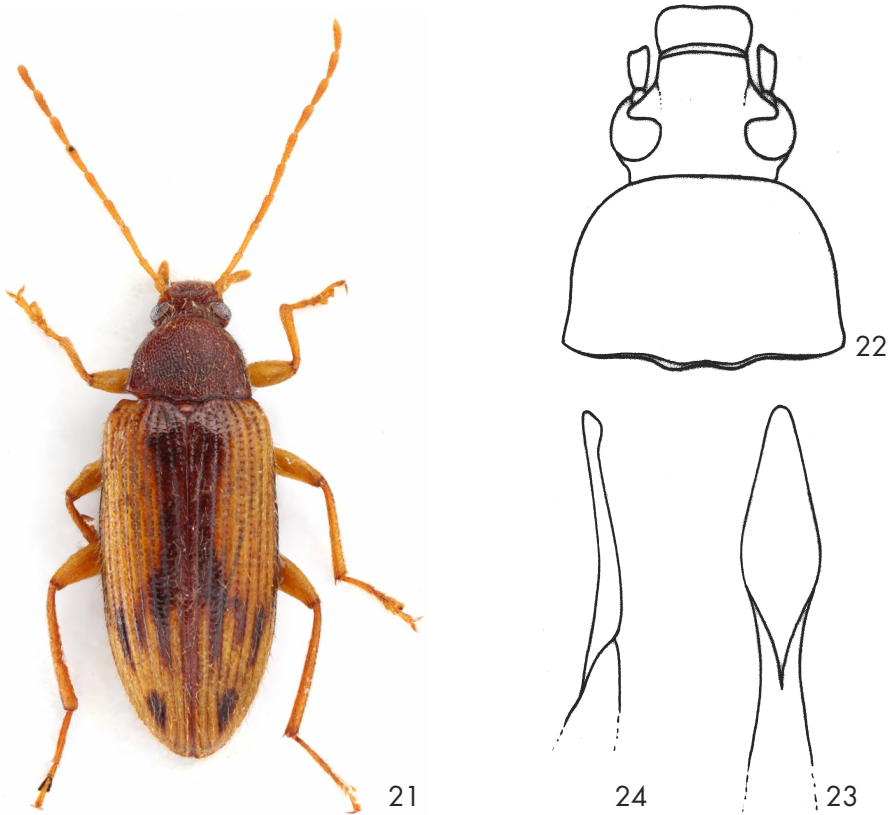
**Name derivation.** The new species is dedicated to one of the collectors - I. Roma.

**Distribution.** Vietnam.

***Borboresthes takahashii* sp. nov.**  
(Figs. 21-24)

**Type locality.** Thailand, Chiang Mai, Doi Suthep.

**Type material.** Holotype (♂): Thailand, Chiang / Mai, Doi Suthep, / 15. XI. 2012 / K. Takahashi leg., (NMTJ); Paratypes: (1 ♂ 1 ♀): same data as with holotype, (KMTJ, VNPC); (1 ♂ 1 ♀): same data as with holotype, but 16. XI. 2012, (KMTJ, VNPC). The types are provided with printed red labels: '*Borboresthes takahashii* sp. nov. HOLOTYPE [or PARATYPE] V. Novák det. 2014'.



Figs. 21-24: *Borboresthes takahashii* sp. nov.: 21- Habitus of male holotype; 22- head and pronotum of male holotype; 23- aedeagus, dorsal view; 24- aedeagus, lateral view.

**Description of holotype.** Habitus as in Fig. 21, distinctly belonging to the *Borboresthes cinctipennis* species group, body elongate oval, from ochre yellow to reddish brown, with punctuation, microgranulation and golden-yellow setation, slightly shining, BL 6.36 mm. Widest near half the elytral length; BL/EW 2.70.

Head (Fig. 22) relatively small and narrow, with shallow punctuation, microgranulation and golden yellow setation. Posterior part reddish brown, anterior part pale brown and clypeus ochre yellow. HW 1.05 mm; HW/PW 0.64. HL (visible part) 0.55 mm. Eyes large, transverse, distinctly excised, space between eyes narrow, but distinctly wider than diameter of one eye; OI equal to 50.40.

Antennae. Long, filiform, ochre yellow, with microgranulation and ochre yellow setation, AL 4.18 mm, AL/BL 0.66. Antennomeres 1-4 very slightly shiny, 5-11 more matte. Antennomere 2 shortest, antennomere 4 longest, distinctly longer than each of antennomeres 5-11. RLA (1-11): 0.72 : 0.37 : 1.00 : 1.70 : 1.36 : 1.42 : 1.50 : 1.39 : 1.35 : 1.27 : 1.41. RL/WA (1-11): 1.94 : 1.13 : 3.68 : 5.78 : 3.68 : 3.74 : 4.18 : 4.00 : 4.13 : 4.04 : 5.20.

Maxillary palpus. Ochre yellow with golden yellow setation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 22). Reddish brown, distinctly narrower than base of elytra, with long, golden yellow setation, microgranulation and dense punctuation, punctures large and relatively coarse, interspaces between punctures narrow. Border lines distinct and complete, only anterior margin at the middle not clearly conspicuous. Anterior margin very finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 1.06 mm; PW 1.65 mm. PI equal to 64.29.

Ventral side of body. Reddish brown with sparse pale setation and sparse punctuation. Abdomen reddish brown, with sparse, white setation, sparse, small punctures, fine microgranulation and fine, transverse microrugosities.

Elytron. Bicolor, ochre yellow with reddish brown spot (as in Fig. 21). Dorsal surface with dense and long golden yellow setation, elytral interspaces with distinct microgranulation, elytral striae with distinct rows of medium-sized punctures distinctly smaller than punctures of pronotum, interspaces between punctures narrow. EL 4.75 mm. Broadest near half the elytral length, EW 2.36 mm. EL/EW 2.01.

Scutellum. Pale brown with sides darker, with microgranulation, approximately pentagonal.

Elytral epipleura. Reddish brown, with punctures and golden yellow setae, wide near base, regularly narrowing to ventrite 1, then relatively wide, leading parallel.

Legs. Ochre yellow, with dense golden yellow setation, with fine microgranulation. Protasomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLT: protarsus: 1.00 : 0.53 : 0.65 : 0.76 : 1.26; mesotarsus: 1.00 : 0.35 : 0.33 : 0.33 : 0.74; metatarsus: 1.00 : 0.26 : 0.26 : 0.39.

Both anterior tarsal claws with more than 13 visible teeth.

Aedeagus (Figs. 23, 24). Ochre yellow, slightly shiny. Basal piece only finely rounded laterally and narrowing in apical third dorsally. Apical piece wider than basal piece in apex, beak-shaped laterally and more or less triangular dorsally. Ratio of length of apical piece to length of basal piece 1 : 4.82.

**Female.** Without distinct differences, only body slightly broader than in the male. Both anterior tarsal claws with 7 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=3). BL 6.28 mm (6.22-6.36 mm); HL 0.54 mm (0.53-0.55 mm); HW 1.02 mm (0.99-1.05 mm); OI 49.54 (46.36-51.85), PL 0.96 mm (0.88-1.06 mm); PW 1.60 mm (1.56-1.65 mm); PI 60.12 (55.49-64.29); EL 4.78 mm (4.73-4.85 mm); EW 2.33 mm (2.26-2.38 mm). Females (n=2). BL 6.32 mm (6.28-6.35 mm); HL 0.70 mm (0.65-0.74 mm); HW 0.99 mm (0.98-0.99 mm); OI 53.99 (52.34-55.56), PL 0.91 mm (0.89-0.93 mm); PW 1.59 mm (1.53-1.65 mm); PI 57.52 (54.19-60.84); EL 4.71 mm (4.70-4.72 mm); EW 2.38 mm (2.32-2.44 mm).

**Differential diagnosis.** *Borboresthes takahashii* sp. nov. distinctly belongs to the *Borboresthes cincitipennis* species group. It differs from similar species of the *Borboresthes cincitipennis* species group mainly by the shape of spots in originally coloured elytra.

**Name derivation.** The new species is dedicated to the collector - Keiichi Takahashi (Ushiku City, Japan).

**Distribution.** Thailand.

***Borboresthes vaclavhaveli* sp. nov.**  
(Figs. 25-28)

**Type locality.** Thailand, Ang Khang.

**Type material.** Holotype (♂): Ang Khang, Thailand / 22-24. V. 2011 / K.MASUMOTO & / K.TAKAHASHI leg., (NMTJ); Paratypes: (3 ♂♂ 2 ♀♀): same data as with holotype, (KMTJ, VNPC); (2 ♀♀): Doi Suthep / Thailand, 25. V. 2011 / K.MASUMOTO & / K.TAKAHASHI leg., (KMTJ, VNPC); (1 ♀): THAILAND, CHIANG MAI Prov. / Ang Khang region, 1600+-100m / 19°53'45''N 99°02'45''E, / L. Dembický leg., 2.-7.v.2009, (VNPC); (1 ♂): CHINA: Yunnan province, / MAZHAN env., 6.VI.2007 / VOLCANO GEOLOGICAL PARK, / 25°13.5' N 098°30.0'E, 1930m, / J. Hájek & J. Růžička leg. // Individually collected on soil / surface, on plants and flowering / shrubs ruderalized grasslands / on volcanic rocks / grove margins, (NMPC); (1 ♂): CHINA, YUNNAN pr. / LUJIANG, 1800m. / 23.6.-21.7. / 26,53N; 100,18E / lgt. S. BECVAR, 1992, (VNPC); (1 ♂): CHINA: Yunnan province, 4.VI.2007 / Tengchong, 1700-1900 m, / Laifeng Shan Nat. Forest Park / 25°01.1'N 098°29.1'E, / J. Hájek & J. Růžička leg. // Individually collected under / stones and logs, on soil surface, / on dead wood and plants and / shrubs, wet mixed forest, (NMPC); (1 ♂): CHINA: S-YUNNAN / (Xishuangbanna) / 27 km NW Jinghong / vic. Beng Hang Ga Ni // N22 08.74; E 100 35.50 / 1800-2000m 29.V.2008 / leg. A. Weigel KL/HF, (NMEG); (1 ♀): LAO, Phongsaly prov. / 21°41'N 102°6'E, / PHONGSALY env., / 6.-17.v.2004, ~1500m, / M. Brancucci leg., (NHMB). The types are provided with a printed red label: '*Borboresthes vaclavhaveli* sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

**Description of holotype.** Habitus as in Fig. 25, body oval, egg-shaped, dorsal surface ochre yellow with suture darker, with punctuation, microgranulation and yellow setation, shiny, BL 9.26 mm. Widest near half of elytra; BL/EW 2.68.

Head (Fig. 26) relatively small, ochre yellow, slightly darker than elytra, with dense punctuation, punctures small, dense and fine microgranulation and yellow setation, shiny. Setation of anterior part and clypeus denser. HW 1.90 mm; HW/PW 0.51. HL (visible part) 0.96 mm. Eyes large, transverse, deeply excised, space between eyes distinctly wider than diameter of one eye, distinctly wider than length of antennomere 3, narrower than length of antennomere 4; OI equal to 45.16.

Antennae. Long, filiform, ochre yellow, with microgranulation, relatively long and dense ochre yellow setation and sparse, small punctures, matter, AL 5.86 mm, AL/BL 0.63. Antennomere 2 shortest, antennomere 4 longest, antennomere 3 distinctly shorter than each antennomere 4-11. RLA (1-11): 0.61 : 0.35 : 1.00 : 1.61 : 1.30 : 1.37 : 1.30 : 1.31 : 1.27 : 1.27 : 1.29. RL/WA (1-11): 2.07 : 1.90 : 3.40 : 5.86 : 4.93 : 5.00 : 4.93 : 4.32 : 5.16 : 5.38 : 5.28.

Maxillary palpus. Ochre yellow with dense, yellow setation. Ultimate palpomere broadly triangular and slightly darker. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

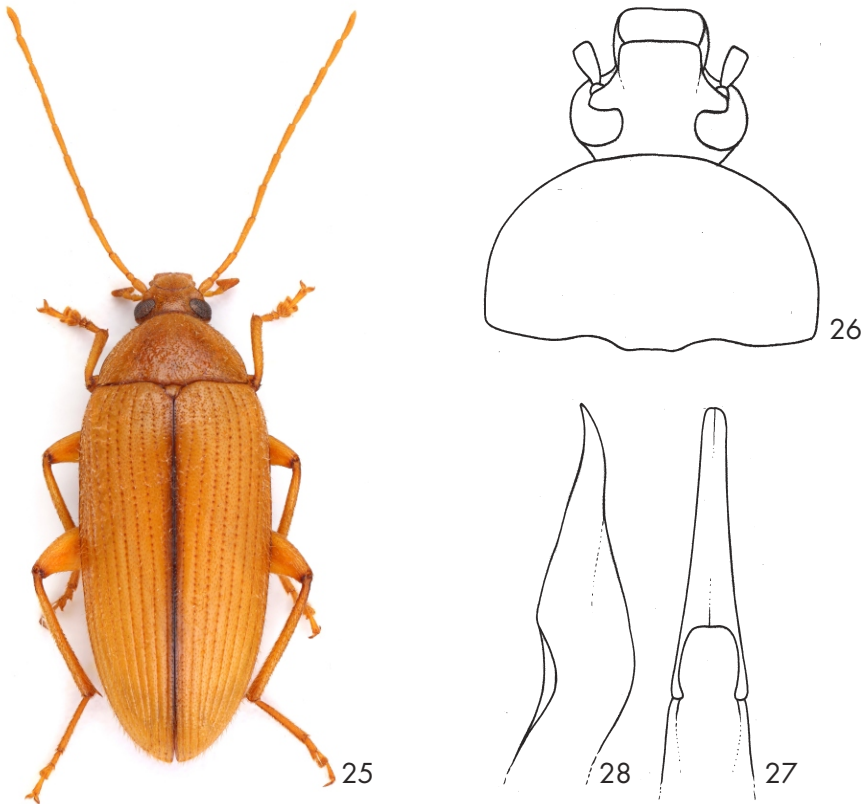
Pronotum (Fig. 26). Semicircular, ochre yellow, slightly darker than elytra, as colour as head, with yellow setation, fine microgranulation and dense punctuation, punctures small and shallow, shiny. Border lines distinct and complete. Anterior margin finely arcuate, posterior margin



bisinate, anterior angles rounded, indistinct, posterior angles roundly obtuse-angled. PL 1.21 mm; PW 2.76 mm. PI equal to 43.85.

Ventral side of body ochre yellow with sparse pale setation. Punctuation of meso- and metathorax distinct, punctures medium-sized, punctuation of prothorax indistinct. Abdomen with pale setation, relatively dense punctuation with very small punctures and fine microgranulation, pale brown, shiny, middle of ventrites 1-3 ochre yellow.

Elytron. Ochre yellow with suture darker. Dorsal surface with dense and yellow setation, elytral striae with distinct rows of punctures, punctures small-sized, interspaces between punctures in rows distinctly wider than diameter of punctures. Elytral intervals with fine microgranulation and very small punctures, shiny. EL 7.09 mm. Broadest near half elytral length, EW 3.46 mm. EL/EW 2.05.



Figs. 25-28: *Borboresthes vaclavhaveli* sp. nov.: 25- Habitus of male holotype; 26- head and pronotum of male holotype; 27- aedeagus, dorsal view; 28- aedeagus, lateral view.

Scutellum. Ochre yellow pentagon, with sides narrowly darker and fine microgranulation.

Elytral epipleura well-developed, ochre yellow, with punctures, regularly narrowing to ventrite 1, then with pale setation leading parallel in apical half.

Legs. Ochre yellow, with dense, ochre yellow setation, fine microgranulation, matte, apex of femora narrowly darker. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened

and lobed. RLT: protarsus: 1.00 : 0.44 : 0.62 : 0.80 : 1.65; mesotarsus: 1.00 : 0.28 : 0.36 : 0.36 : 0.56; metatarsus: 1.00 : 0.20 : 0.25 : 0.50.

Both anterior tarsal claws with more than 12 visible teeth.

Aedeagus (Figs. 27, 28). Yellow, slightly shiny. Basal piece rounded laterally and narrowing in apical half dorsally. Apical piece narrow, longitudinally triangular dorsally and beak-shaped laterally. Ratio of length of apical piece to length of basal piece 1 : 6.18.

**Female.** Without distinct differences. Both anterior tarsal claws with 8 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=8). BL 9.15 mm (8.85-9.30 mm); HL 0.97 mm (0.93-1.01 mm); HW 1.31 mm (1.22-1.40 mm); OI 48.08 (44.37-54.23), PL 1.15 mm (1.12-1.21 mm); PW 2.69 mm (2.58-2.76 mm); PI 43.38 (41.39-47.16); EL 7.03 mm (6.78-7.15 mm); EW 3.43 mm (3.34-3.57 mm). Females (n=6). BL 9.52 mm (9.15-9.75 mm); HL 1.04 mm (1.02-1.05 mm); HW 1.38 mm (1.35-1.43 mm); OI 48.09 (45.27-50.00), PL 1.26 mm (1.15-1.42 mm); PW 2.78 mm (2.63-2.83 mm); PI 45.30 (42.86-50.16); EL 7.23 mm (7.08-7.39 mm); EW 3.57 mm (3.45-3.68 mm).

**Differential diagnosis.** *Borboresthes vaclavhaveli* sp. nov. is a large, pale species, distinctly belonging to the *Borboresthes impressithorax* species group. It differs from the similar species *Borboresthes rufosuturalis* Pic, 1934 mainly by its large body (8.8-9.8 mm) while *B. rufosuturalis* has a small body (6.8 mm). *B. vaclavhaveli* is clearly different from similarly large species *Borboresthes fokiensis* Pic, 1922 and *Borboresthes impressithorax* Pic, 1922 mainly by distinctly darker elytral suture; while *B. fokiensis* and *B. impressithorax* have elytral suture with as colour as elytron itself.

**Etymology.** The new species is dedicated to one of the Czech Presidents - Václav Havel.

**Distribution.** China (Yunnan), Laos, Thailand.

### ***Borboresthes viktorai* sp. nov.**

(Figs. 29-32)

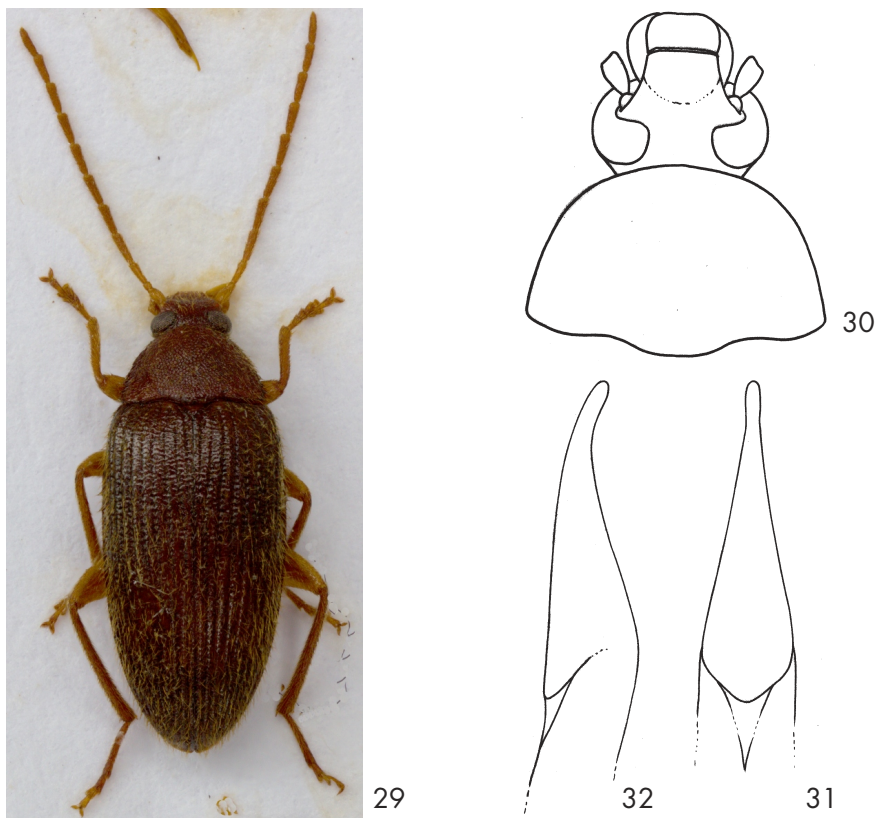
**Type locality.** Malaysia, Cameron Highlands, Tanah Rata.

**Type material.** Holotype (♂): Malaysia NW / Cameron Highlands / Tanah Rata / 16.-29.1.2006 / P. Viktora lgt., (VNPC). Paratypes: (1 ♂ 3 ♀♀): same data as with holotype, (PVKC, VNPC); (1 ♂): W Malaysia / Cameron Highlands / Tanah Rata - Mt. Gunung Jasar / 30.1. - 24.2.2008 / P. Viktora lgt., (VNPC); (1 ♀): MALAYSIA-W, Pahang, / 30 km E of IPOH, 1500 m, / Cameron Highlands, / TANAH RATA, 22.-26.i. / 1999, P. Čechovský leg., (VNPC); (2 ♀♀): MALAYSIA W., KELANTAN / 90 km N of Gua Musang / Mt.Basor, 1700 m. / Kampong Kubur Datu / 1.iii.-21.iii.2015 / Petr Cechovsky lgt., (VNPC). The types are provided with printed red labels: 'Borboresthes viktorai sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

**Description of holotype.** Habitus as in Fig. 29, body elongate oval, from pale brown to dark brown, with punctuation, fine microgranulation and ochre yellow setation, rather matte, BL 6.14 mm. Widest near half elytral length; BL/EW 2.58.

Head (Fig. 30) relatively small, with dense punctuation, ochre yellow setation and fine

microgranulation. Dark reddish brown, posterior part distinctly darker than reddish brown anterior part and pale brown clypeus. HL (visible part) 0.52 mm; HW 1.02 mm; HW/PW 0.53. Eyes large, transverse, distinctly excised, space between eyes narrow, slightly wider than diameter of one eye; OI equal to 43.75.



Figs. 29-32: *Borboresthes viktorai* sp. nov.: 29- Habitus of male holotype; 30- head and pronotum of male holotype; 31- aedeagus, dorsal view; 32- aedeagus, lateral view.

Antennae. Relatively long, filiform, pale brown, with microgranulation, sparse punctuation and relatively long, pale setation, AL 4.12 mm; AL/BL 0.67. Antennomeres 1, 2 slightly shiny, 3-11 matter. Antennomere 2 shortest, antennomere 4 longest, distinctly longer than each of antennomere 5-11. RLA (1-11) equal to: 0.85 : 0.37 : 1.00 : 1.54 : 1.47 : 1.50 : 1.49 : 1.46 : 1.44 : 1.34 : 1.37. RL/WA (1-11) equal to: 1.73 : 1.20 : 2.81 : 3.69 : 3.52 : 3.30 : 3.46 : 3.40 : 3.36 : 2.96 : 3.72.

Maxillary palpus. Pale brown with pale setation and microgranulation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 30). Semicircular, dark reddish brown, with long, ochre yellow setation and dense punctuation, punctures medium-sized and coarse, interspaces between punctures very narrow. Border lines indistinct in lateral margins. Anterior margin finely rounded, posterior

margin slightly bisinuate, anterior angles indistinct, arcuate, posterior angles slightly obtuse. PL 1.01 mm; PW 1.91 mm; PI equal to 52.63.

Ventral side of body dark reddish brown with sparse punctuation and a few pale setae. Abdomen with pale setation, fine microgranulation and shallow punctuation, punctures small. Ventrites 1 and 2 dark brown, distinctly darker than brown ventrites 3-5.

Elytron. Bicolor, dark brown with large, indistinct, reddish brown spot in middle (as in Fig. 29). Dorsal surface with dense and long ochre yellow setation. Elytral striae with rows of medium-sized punctures, approximately as large as on pronotum, interspaces between punctures narrow. Elytral intervals slightly convex, with sparse small punctures and very fine microgranulation, slightly shiny, EL 4.61 mm; broadest near half elytral length, EW 1.94 mm; EL/EW 2.11.

Scutellum small, reddish brown, glabrous, without distinct punctuation and setation.

Elytral epipleura. Dark brown with pale setation, regularly narrowing to ventrite 1, then leading parallel.

Legs pale brown, with ochre yellow setation. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLT (1-5 or 1-4) equal to: 1.00 : 0.67 : 0.56 : 0.63 : 1.33 (protarsus), 1.00 : 0.38 : 0.32 : 0.31 : 0.63 (mesotarsus), and 1.00 : 0.31 : 0.23 : 0.37 (metatarsus).

Both anterior tarsal claws with 12 visible teeth.

Aedeagus (Figs. 31, 32). Ochre yellow, slightly shiny, with fine microgranulation. Basal half of basal piece parallel dorsally, then narrowing in apical half dorsally, laterally rounded. Apical piece small, longitudinally beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece 1 : 5.44.

**Female.** Slightly broader, space between eyes distinctly wider than in the male. Both anterior tarsal claws with 7 visible teeth.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=3). BL 6.30 mm (6.14-6.39 mm); HL 0.49 mm (0.44-0.52 mm); HW 1.03 mm (1.02-1.04 mm); OI 45.71 (43.75-47.37), PL 1.01 mm (1.01-1.06 mm); PW 1.98 mm (1.91-2.06 mm); PI 51.66 (48.89-53.46); EL 4.78 mm (4.61-4.89 mm); EW 2.50 mm (2.38-2.63 mm). Females (n=6). BL 6.78 mm (6.60-7.00 mm); HL 0.55 mm (0.53-0.57 mm); HW 1.16 mm (1.14-1.21 mm); OI 45.25 (43.20-46.97), PL 1.17 mm (1.12-1.23 mm); PW 2.17 mm (2.10-2.25 mm); PI 52.55 (50.00-54.47); EL 5.06 mm (4.89-5.20 mm); EW 2.75 mm (2.64-2.87 mm).

**Differential diagnosis.** *Borboresthes viktorai* sp. nov. is a unique species; throughout the genus, there is only one species - *Borboresthes filipi* sp. nov. - with similar bicolor elytra (dark blackish brown sides with large red middle spot) and shape of body. *B. viktorai* distinctly differs from the similar species *B. filipi* mainly by its space between eyes distinctly wider than the diameter of one eye and by a small dark reddish brown spot in the middle of elytra; while *B. filipi* has spot in middle of elytra large and distinctly paler and space between eyes approximately as wide as the diameter of one eye. *B. viktorai* clearly differs from the species *Borboresthes vitakubani* sp. nov. mainly by its wider shape of the body and the base of the pronotum as wide as the base of the elytra; while *B. vitakubani* has its body narrower and base of the pronotum distinctly narrower than base of the elytra. Similarly colored surface of the elytra have some species of the genera *Borbochara* Novák, 2009 or *Microsthes* Novák, 2011.

**Etymology.** The new species is dedicated to one of the collectors - Petr Viktora, my friend and specialist in the beetle family Cerambycidae.

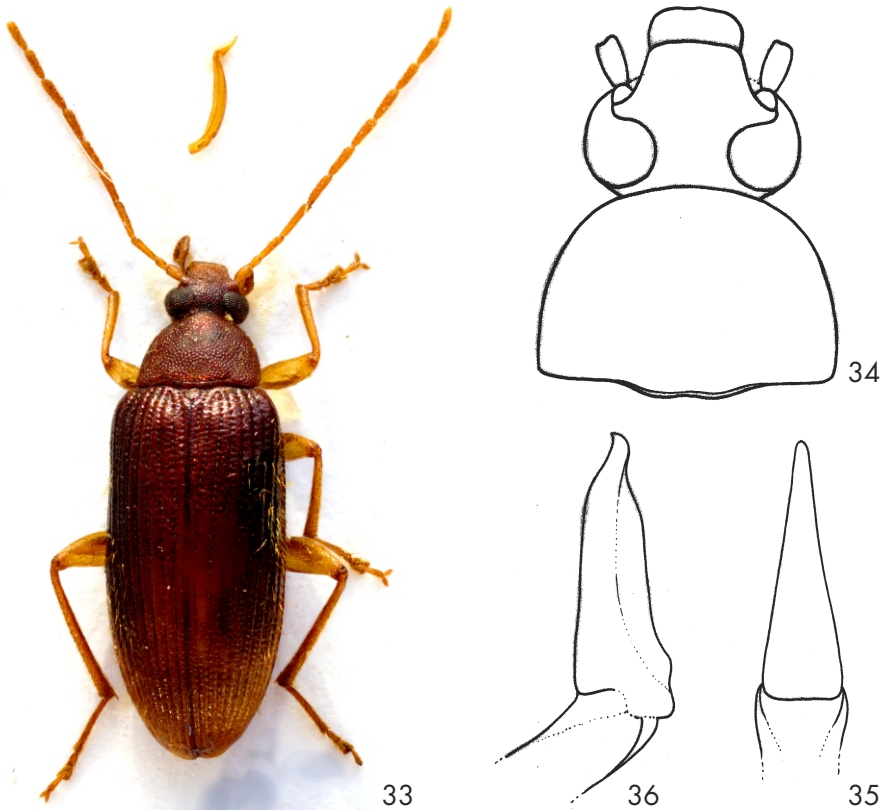
**Distribution.** Malaysia.

***Borboresthes vitakubani* sp. nov.**

(Figs. 33-36)

**Type locality.** Laos NE, Houa Phan province, 20°12-13.5'N 103°59.5'-104°01'E, Ban Saluei to Phou Pane Mt., 1340-1870 m.

**Type material.** Holotype (♂): LAOS-NE, Houa Phan prov., / 20°12-13.5'N 103°59.5'-104°01'E, / Ban Saluei→Phou Pane Mt., / 1340-1870m, 15.iv.-13.v. / 2008, Lao collectors leg., (NMPC). The types are provided with printed red labels: '*Borboresthes vitakubani* sp. nov. HOLOTYPE V. Novák det. 2014'.



Figs. 33-36: *Borboresthes vitakubani* sp. nov.: 33- Habitus of male holotype; 34- head and pronotum of male holotype; 35- aedeagus, dorsal view; 36- aedeagus, lateral view.

**Description of holotype.** Habitus as in Fig. 33, body relatively narrow, elongate oval, from ochre yellow to blackish brown, with punctuation, microgranulation and golden yellow setation,

shiny, BL 5.84 mm. Widest near half elytral length; BL/EW 2.79.

Head (Fig. 34) relatively small, reddish brown, with dense punctation and dense microgranulation. Posterior part with a few pale setae, distinctly darker than anterior part with golden yellow setation. HL (visible part) 0.58 mm; HW 1.00 mm; HW/PW 0.70. Eyes large, transverse, distinctly excised, space between eyes narrow, slightly wider than diameter of one eye; OI equal to 38.33.

Antennae. Long, filiform, ochre yellow, with microgranulation, sparse punctation and relatively long, dense ochre yellow setation, AL 3.77 mm; AL/BL 0.64. Antennomeres 1-3 slightly shiny, 4-11 matter. Antennomere 2 shortest, antennomere 4 longest, distinctly longer than each of antennomeres 5-11. RLA (1-11) equal to: 0.67 : 0.41 : 1.00 : 1.37 : 1.16 : 1.16 : 1.13 : 1.15 : 1.02 : 1.08 : 1.11. RL/WA (1-11) equal to: 1.97 : 1.59 : 4.00 : 5.46 : 4.64 : 4.33 : 4.23 : 4.45 : 3.17 : 3.78 : 4.59.

Maxillary palpus. Ochre yellow with sparse yellow setation, microgranulation and punctation. Ultimate palpomere broadly triangular and slightly darker than penultimate. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 34). Reddish brown, slightly narrower than elytra at base, with sparse, golden yellow setation, near lateral margins setation denser, microgranulation and dense punctation, punctures medium-sized and coarse, interspaces between punctures narrow. Border lines distinct and complete, only in the middle of anterior margin not clearly conspicuous. Anterior margin finely rounded, posterior margin slightly bisinuate, anterior angles indistinct, posterior angles roundly obtuse. PL 0.88 mm; PW 1.43 mm; PI equal to 61.54.

Ventral side of body reddish brown with sparse pale setation and punctation. Abdomen pale reddish brown, with pale setation, fine microgranulation and punctation. Punctures small and shallow.

Elytron. Bicolor, reddish brown with sides in basal two thirds blackish brown (as in Fig. 33). Dorsal surface near lateral margins and apex with dense and long golden yellow setation. Elytral striae with rows of medium-sized punctures, approximately as large as in pronotum, interspaces between punctures narrow. Elytral intervals with sparse small punctures and very fine microgranulation, shiny, EL 4.41 mm; broadest near half elytral length, EW 2.09 mm; EL/EW 2.11.

Scutellum. Reddish brown pentagonal, with fine microgranulation, sides slightly darker.

Elytral epipleura. Reddish brown with pale setae and punctation, regularly narrowing to ventrite 1, then pale brown leads parallel.

Legs. Ochre yellow, with dense golden yellow setation. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLT (1-5 or 1-4) equal to: 1.00 : 0.47 : 0.57 : 0.69 : 1.19 (protarsus), 1.00 : 0.30 : 0.30 : 0.39 : 0.81 (mesotarsus), and 1.00 : 0.26 : 0.26 : 0.51 (metatarsus).

Both anterior tarsal claws with 10 visible teeth.

Aedeagus (Figs. 35, 36). Ochre yellow, slightly shiny. Basal piece rounded laterally and narrowing in apical half dorsally. Apical piece small, longitudinally triangular dorsally and beak-shaped laterally. Ratio of length of apical piece to length of basal piece 1 : 3.03.

**Female.** Unknown.

**Differential diagnosis.** *Borboresthes vitakubani* sp. nov. is an unique species; throughout the genus, there are only two species - *Borboresthes filipi* sp. nov. and *Borboresthes viktorai* sp. nov. -

with similar bicolour elytra (dark blackish brown sides with large red middle spot). *B. vitakubani* distinctly differs from the species *B. filipi* and *B. viktorai* mainly by its shape of the body, which is more elongate and narrow and pronotum at base is slightly narrower than elytron in base, while *B. filipi* and *B. viktorai* has body more oval and pronotum in base as wide as elytra at base. Similarly colored surface of elytra have some species of genera *Borbochara* Novák, 2009 or *Microsthes* Novák, 2011.

**Etymology.** The new species is dedicated to the collector - Vítá Kubáň, my friend and world known specialist in the family Buprestidae.

**Distribution.** Laos.

***Borboesthes weigeli* sp. nov.**

(Figs. 37-40)

**Type locality.** China, south Yunnan, Xishuangbanna, 30 km NW of Jinghong, Bameng, Hua Zhuliangzi Mts., N22°08.01, E100°31.54, 1700-2000 m.

**Type material.** Holotype (♂): CCHINA: S-YUNNAN / (Xishuangbanna) / ca. 30km NW Jinghong / vic. Bameng, 17-2000m // Hua Zhuliangzi Mts. / N22°08.01, E100°31.54 / 1700-2000m 30.V.2008 leg. A.Weigel sec. forest, (NMEG). Paratype: (1 ♂): same data as with holotype, (VNPC). The types are provided with a printed red label: 'Borboesthes weigeli sp. nov. HOLOTYPUS [or PARATYPUS] V. Novák det. 2014'.

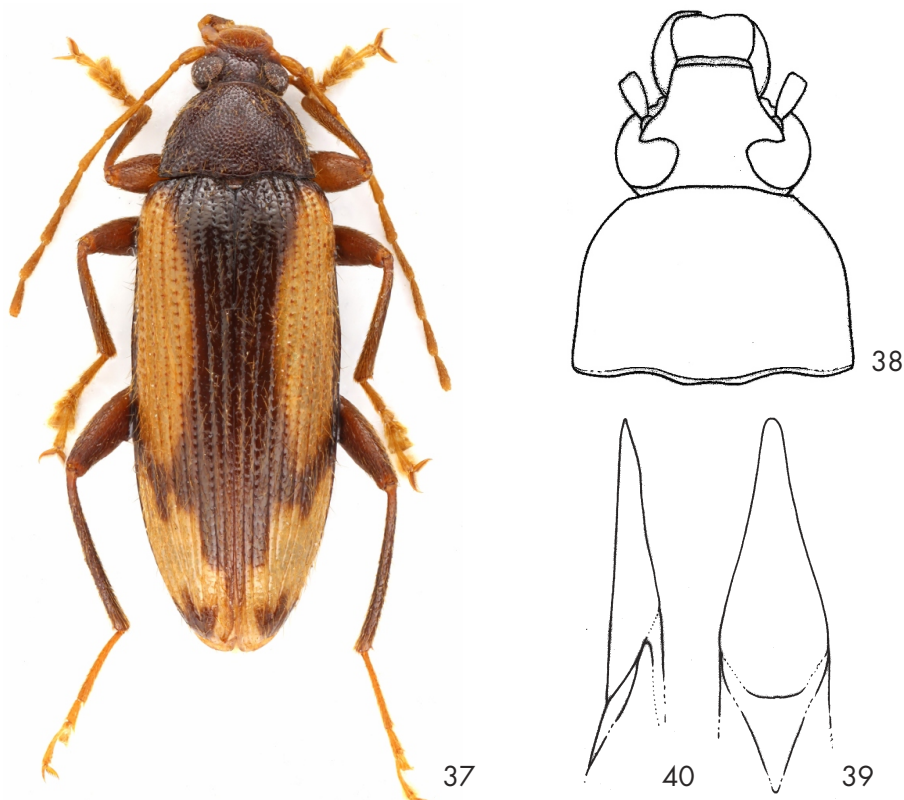
**Description of holotype.** Habitus as in Fig. 37, distinctly belonging to *Borboesthes obliquefasciata* species group, body relatively narrow, elongate oval, from ochre yellow to dark brown, with punctuation, microgranulation and golden yellow setation, shiny, BL 7.40 mm. Widest near half elytral length; BL/EW 3.05.

Head (Fig. 38) relatively small and narrow, with punctuation, dense microgranulation and sparse golden yellow setation. Posterior part dark brown, space between eyes without microgranulation, glabrous and shiny. Anterior part and clypeus pale brown. HL (visible part) 0.59 mm; HW 1.11 mm; HW/PW 0.62. Eyes large, transverse, distinctly excised, space between eyes narrow, approximately as wide as diameter of one eye; OI equal to 41.84.

Antennae. Long, filiform, ochre yellow, with microgranulation and relatively long, dense golden yellow setation, AL(1-10) 4.46 mm; AL(1-10)/BL 0.60. Antennomeres 1-3 slightly shiny, 4-11 matter. Antennomere 2 shortest, antennomere 4 longest, distinctly longer than each of antennomere 5-11. RLA (1-10) equal to: 0.66 : 0.35 : 1.00 : 1.44 : 1.14 : 1.06 : 1.14 : 1.07 : 1.02 : 0.99. RL/WA (1-10) equal to: 2.28 : 1.67 : 4.76 : 6.86 : 5.18 : 4.82 : 4.22 : 4.12 : 3.92 : 4.30.

Maxillary palpus. Ochre yellow with sparse yellow setation, microgranulation and punctuation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base, slightly dilated anteriorly.

Pronotum (Fig. 38). Brown with long, golden yellow setation, microgranulation and dense punctuation, punctures relatively large and coarse, interspaces between punctures narrow. Border lines distinct and complete. Anterior margin finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 1.00 mm; PW 1.79 mm; PI equal to 55.87.



Figs. 37-40: *Borboresthes weigeli* sp. nov.: 37- Habitus of male holotype; 38- head and pronotum of male holotype; 39- aedeagus, dorsal view; 40- aedeagus, lateral view.

Ventral side of body. Brown with sparse punctuation, almost glabrous. Abdomen pale brown, with sparse, pale brown setation, fine microgranulation and punctuation. Punctures small.

Elytron. Bicolour, dark brown with large ochre yellow spots (as in Fig. 37). Dorsal surface with dense and long golden yellow setation, elytral interspaces with sparse small punctures and very fine microgranulation, elytral striae with rows of relatively large punctures approximately as large as in pronotum, interspaces between punctures narrow. EL 5.81 mm; broadest near half elytral length, EW 2.43 mm; EL/EW 2.39.

Scutellum. Brown, roundly triangular, slightly paler than elytron, glabrous, shiny.

Elytral epipleura. Brown, regularly narrowing to ventrite 1, then narrow and pale brown, leading parallel.

Legs. Pale brown, with dense golden yellow setation, tarsi ochre yellow, metatibia brown, distinctly darker than pro and mesotibia. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. RLT (1-5 or 1-4) equal to: 1.00 : 0.57 : 0.65 : 0.93 : 2.09 (protarsus), 1.00 : 0.39 : 0.46 : 0.64 : 1.27 (mesotarsus), and 1.00 : 0.34 : 0.24 : 0.51 (metatarsus).

Both anterior tarsal claws with more than 26 visible teeth.

Aedeagus (Figs. 39, 40). Ochre yellow, with microgranulation. Basal piece slightly rounded



laterally and narrowing dorsally. Apical piece small, triangular laterally and dorsally. Ratio of length of apical piece to length of basal piece 1 : 3.93.

**Female.** Unknown.

**Variation.** The type specimens somewhat vary in size; each character is given as its mean value, with a full range in parentheses. Males (n=2). BL 7.13 mm (6.86-7.40 mm); HL 0.61 mm (0.59-0.62 mm); HW 1.08 mm (1.04-1.11 mm); OI 41.54 (41.23-41.84), PL 1.05 mm (1.00-1.09 mm); PW 1.75 mm (1.71-1.79 mm); PI 59.76 (55.87-63.64); EL 5.48 mm (5.15-5.81 mm); EW 2.39 mm (2.35-2.43 mm).

**Differential diagnosis.** *Borboresthes weigeli* sp. nov. distinctly belongs to the *Borboresthes obliquefasciata* species group. The new species has an unique drawing of elytra (as in Fig. 33), which is not present in any similar species.

**Etymology.** The new species is dedicated to the collector - Andreas Weigel (Erfurt, Germany).

**Distribution.** China (Yunnan).

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## REFERENCES

- AKITA K. & MASUMOTO K. 2008: New or little-known Tenebrionid Species (Coleoptera) from Japan (7) Revisional Study of *Borboresthes* (Tenebrionidae: Alleculinae) Species from the Ryūkyū Islands. *Entomological Review of Japan* 63 (2): 109-120.
- BORCHMANN F. 1910: Pars 3: Alleculidae. In: JUNK W. & SCHENKLING S. (eds.): *Coleopterorum Catalogus*. W. Junk: Berlin, 80 pp.
- CAMPBELL J. M. 1965: A revision of the genus *Charisius* (Coleoptera: Alleculidae). *The Coleopterist's Bulletin* 19: 41-56.
- CAMPBELL J. M. & MARSHALL J. D. 1964: The ocular index and its applications to the taxonomy of the Alleculidae (Coleoptera). *The Coleopterist's Bulletin* 18: 42.
- FAIRMAIRE L. 1897: Coléoptères du Szé-tchouen et de Kouï-tchéou (Chine). *Notes of the Leyden Museum* 19: 241-255.
- MADER L. 1928: *Alleculidae*. Columns 901-913. - In: WINKLER A. (ed.) 1924-1932: *Catalogus coleopterorum regionis palaearcticae*. Winkler & Wagner: Wien. 1698 pp.
- MARSEUL S. A. DE 1876: Coléoptères du Japon recueillis par M. Georges Lewis. 2e Mémoire (1). Énumération des Hétéromères avec la description des espèces nouvelles. *Annales de la Société Entomologique de France* (5) 16: 315-340.
- NOVÁK V. 2009: New genera of Alleculinae (Coleoptera: Tenebrionidae) from Oriental region. Part I - *Borbochara* gen. n. *Studies and reports of District Museum Prague-East, Taxonomical Series* 5 (1-2): 257-274.
- NOVÁK V. 2011: New genera of Alleculinae (Coleoptera: Tenebrionidae) from Oriental region. Part III - *Microsthes* gen. nov. *Studies and reports, Taxonomical Series* 7 (1-2): 319-334.
- NOVÁK V. 2012: New „yellow“ *Borboresthes* (Coleoptera: Tenebrionidae: Alleculinae) from China and Oriental region. *Studies and reports, Taxonomical Series* 8 (1-2): 227-267.
- NOVÁK V. & PETERSSON R. 2008: *Alleculinae*. Pp. 319-339. In: LÖBL I. & A. SMETANA (eds.): *Catalogue of Palaearctic Coleoptera, Vol. 5. Tenebrionoidea*. Stenstrup: Apollo Books, 670 pp.