New Borbonalia species (Coleoptera: Tenebrionidae: Alleculinae) from China

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Abstract. Four new species, Borbonalia becvari sp. nov., Borbonalia diaolinica sp. nov. and Borbonalia yunfengica sp. nov., all from China (Yunnan) and Borbonalia gongashanica sp. nov. from China (Sichuan) are described and illustrated.

Key words. Taxonomy, new species, description, Coleoptera, Tenebrionidae, Alleculinae, Alleculini, Borbonalia, China, Palaearctic region.

INTRODUCTION

Novák (2014) described the genus Borbonalia in 2014 with seven species from the Palaearctic Region with Borbonalia brancuccii Novák, 2014 as a type species. This genus belongs to the subtribe Alleculina. Similar genera are Borboresthes Fairmaire, 1897 and Hymenalia Mulsant, 1856. Species of Borbonalia distinctly differ from the species of Borboresthes by apically wide-ened elytra (widest at two thirds elytra length) and transverse, square-shaped pronotum (species of Borboresthes have egg-shaped body and pronotum more or less semicircular). From the species of Hymenalia is clearly different by narrow and filiform antenna, wide space between eyes in males and antennomere 3 long in both sexes (species of Hymenalia in most similar H. bocaki species group have slightly serrate antenna, narrow space between eyes in males and antennomere 3 short in both sexes).

Masumoto et al. (2017) described three new species of Borbonalia from Taiwan. Four new species from China (Yunnan) are described as Borbonalia becvari sp. nov., Borbonalia diaolinica sp. nov., Borbonalia yunfengica sp. nov. from China (Yunnan) and Borbonalia gongashanica sp. nov. from China (Sichuan), all are illustrated and keyed with other Borbonalia species known from China (Sichuan and Yunnan).

List of Borbonalia species from China (Sichuan and Yunnan) 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 \(100 \times \frac{\text{minimum dorsal distance between eyes}}{\text{maximum width of head across eyes}}\). The pronotal index is calculated as \(100 \times \frac{\text{length of pronotum along midline}}{\text{width across basal angles of pronotum}}\).

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

The following collection codens are used:
NHMB – Naturhistorisches Museum Basel, Switzerland;
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 Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS. Snapshots were taken by using camera Canon EOS 550 D, and Canon Macro Photo Lens MP-E and software Helicon Focus 5.2.

TAXONOMY

**Borbonalia becvari sp. nov.**

(Figs. 1–4)

**Type locality.** China, Yunnan province, Lijiang, 1800 m.


**Description of holotype.** Habitus as in Fig. 1, body elongate oval, from yellow to blackish brown, with punctuation, fine microgranulation and pale setation, shiny, BL 6.84 mm. Widest near two thirds of elytra length; BL/EW 2.85.

Head (Fig. 2) slightly longer than wide, slightly narrower than anterior margin of pronotum, with sparse and long, pale setation, shiny. Posterior part blackish brown, with punctuation and distinct microgranulation inside larger, medium sized punctures. Anterior part reddish brown, interspaces between punctures with microgranulation, clypeus pale brown with microgranulation, dense, pale setation, punctures indistinct. Antennae. Long, filiform, bicolorous, with sparse punctures, microgranulation and dense, pale setation, shiny, AL 4.05 mm, AL/BL 0.59. Antennomeres 1 and 2 ochre yellow and slightly shiny, antennomere 3, base of antennomere 4 and narrow strip in apex of antennomeres 4–11 pale brown, rest of antennomeres 4–11 distinctly darker – blackish brown. Antennomere 2 shortest, antennomere 4 longest, antennomere 3 distinctly longer than each of antennomeres 5–11.

Maxillary palpus pale brown, with pale setation. Ultimate palpomere broadly triangular. Palpomeres 2 and 3 distinctly narrowest at base and widest in apex. Apex with long pale setae.

Pronotum (Fig. 2). Transverse, blackish brown with long, pale setation, dense punctuation, punctures larger medium sized and coarse, with microgranulation inside punctures and relatively coarse, interspaces between punctures narrow. Margins distinct and complete, only in the middle of anterior margin not clearly conspicuous. Lateral margins straight in basal half, slightly arcuate in apical half. Anterior margin finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 1.01 mm; PW 1.70 mm; PI 59.41.

Ventral side. Prothorax blackish brown, meso- and metathorax reddish brown with blackish brown parts and a few small punctures and pale setae. Abdomen blackish brown, with denser and longer pale setation than in thorax. Ultimate ventrite with pale brown spot in middle.

Elytron. Dark blackish brown with long, pale setation, distinctly denser near lateral margins, widest near two thirds of elytral length. Dorsal surface with rows of medium sized punctures in

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elytral striae, interspaces between punctures very narrow. Elytral intervals with very small, sparse punctures and microgranulation. EL 4.66 mm; EW 2.40 mm; EL/EW 1.94.

Scutellum pentagonally shaped, reddish brown, sides darker, with microgranulation and few pale setae.

Elytral epipleura well developed, blackish brown, relatively broad in basal half with punctures and few pale setae, regularly narrowing to ventrite 1, then in apical half with denser pale setation relatively wide leading parallel.

Legs narrow, with dense and longer pale setation and fine microgranulation. Femora ochre yellow with narrowly darker apex, tarsi ochre yellow, protibia pale brown, meso- and metatibia dark brown. Pro- and mesotarsomeres 3, 4 and metatarsomere 3 broadened and lobed. RLT (1–5 or 1–4) equal to: 1.00 : 0.37 : 0.56 : 0.69 : 1.48 (protarsus), 1.00 : 0.32 : 0.25 : 0.32 : 0.89 (mesotarsus); 1.00 : 0.39 : 0.24 : 0.66 (metatarsus).

Both anterior tarsal claws with 11 visible teeth.

Aedeagus (Figs. 3 and 4). Ochre yellow, slightly shiny. Basal piece strongly arcuate laterally and slightly narrowing dorsally. Apical piece long and narrow with rounded top laterally, narro-
wly elongate and beak shaped dorsally. Ratio of length of apical piece to length of basal piece 1: 4.19.

Female unknown.
Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=2). BL 6.81 mm (6.77–6.84 mm); HL 1.14 mm (1.11–1.17 mm); HW 1.06 mm (1.05–1.07 mm); OI 46.97 (44.59–49.34), PL 0.98 mm (0.95–1.01 mm); PW 1.67 mm (1.64–1.70 mm); PI 58.67 (57.93–59.41); EL 4.69 mm (4.66–4.71 mm); EW 2.41 mm (2.40–2.41 mm).

Differential diagnosis. Borbonalia becvari sp. nov. distinctly differs from similar species B. brancuccii Novák, 2014 and B. murzini Novák, 2014 mainly by unicolored dorsal surface of elytra; while B. brancuccii and B. murzini have dorsal surface of elytra bicolour. Borbonalia becvari sp. nov. is clearly different from similar species B. jizuica Novák, 2014 and B. schneideri Novák, 2014 mainly by dorsal surface of elytra without green metallic lustre; while B. jizuica and B. schneideri have dorsal surface of elytra with green metallic lustre. Borbonalia becvari sp. nov. clearly differs from the similar species B. yunfengica sp. nov. mainly by broad space between eyes (OI almost 45 in male); while space between eyes of B. yunfengica is narrow (OI 26 in male). Borbonalia becvari sp. nov. distinctly differs from the similar species B. diaolinica sp. nov. mainly by dorsal surface of elytra dark brown and antenna bicolour; while B. diaolinica has dorsal surface pale reddish brown and antenna is unicolored. Borbonalia becvari sp. nov. is clearly different from the similar species B. gongashanica sp. nov. mainly by dorsal surface of elytra with dense setation and meso- and metatibiae are dark brown; while B. gongashanica has dorsal surface of elytra with dense setation and meso- and metatibiae are ochre yellow.

B. becvari distinctly differs from similar species B. wrasei Novák, 2014 mainly by narrow and long body (BL/EW 2.85) and each of antennomeres 5–11 is slightly shorter than length antennomere 3; while B. wrasei has body broad and short (BL/EW 2.56) and each of antennomeres 5–11 is slightly longer than length antennomere 3.

Name derivation. New species is dedicated to the collector – Stanislav Bečvář (České Budějovice, Czech Republic).

Distribution. China (Yunnan).

Borbonalia diaolinica sp. nov.

(Figs. 5–8)

Type locality. China, Yunnan province, Diaolin Shan Mts. near Guangtonzhen, northeastern of Chuxiong, 25°07.415′N, 101°47.073′E, 1880 m a. s. l.


Description of holotype. Habitus as in Fig. 5, body elongate oval, from ochre yellow to reddish brown, with punctuation, very fine microgranulation and pale setation, slightly shiny, BL 6.98 mm. Widest near two thirds elytra length; BL/EW 2.87.

Head (Fig. 6) broad, approximately as long as wide, as wide as anterior margin of pronotum, with long, pale setation, shiny. Posterior part reddish brown, with punctuation, very fine microgranulation and dense medium sized punctuation. Anterior part pale reddish brown, punctures distinctly smaller than those in posterior part, interspaces between punctures with distinct microgranulation, clypeus pale brown with microgranulation, dense, pale setation, punctures almost indistinct. HW 1.10 mm; HW/PW 0.65. HL (visible part) 1.07 mm. Eyes relatively large, transverse, slightly excised, space between eyes wide, slightly wider than diameter of one eye, slightly narrower than length of antennomere 4; OI equal to 40.76.
Antennae. Long, filiform, unicolored pale brown, with punctures, microgranulation and partly errected, long, pale setation, AL 4.56 mm, AL/BL 0.65. Antennomeres 1–3 slightly shiny, antennomeres 4–11 rather matte. Antennomere 2 shortest, antennomere 4 longest, antennomere 3 distinctly shorter than each of antennomeres 4–11.

RLA (1–11) equal to: 0.86 : 0.42 : 1.00 : 1.40 : 1.23 : 1.33 : 1.26 : 1.27 : 1.31 : 1.22 : 1.31.


Maxillary palpus pale brown, with yellow setation, microgranulation and small punctures. Ultimate palpomere widely triangular. Palpomeres 2 and 3 distinctly narrowest at base and widest in apex. Apex with long pale setae.

Pronotum (Fig. 6). Transverse, quadratish, reddish brown, with long, yellow, partly errected setation, dense punctuation, punctures medium sized and coarse, with microgranulation inside punctures, interspaces between punctures narrow. Margins distinct and complete, only in the middle of anterior margin not clearly conspicuous. Lateral margins straight in basal half, slightly arcuate in apical half. Anterior margin slightly rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles roundly obtuse. PL 0.99 mm; PW 1.69 mm; PI 58.58.

Ventral side of body with punctuation and short yellow setation. Prothorax, mesothorax and abdomen reddish brown, metathorax distinctly darker, dark brown.

Elytron. Pale reddish brown with long and dense, yellow, partly errected setation, widest near two thirds elytra length. Dorsal surface with rows of small sized punctures in elytral striae, interspaces between punctures very narrow. Elytral intervals slightly convex, with fine microgranulation and very small, very sparse punctures. EL 4.92 mm; EW 2.43 mm; EL/EW 2.03.

Scutellum roundly triangular, reddish brown, with fine microgranulation and few, long pale setae.

Figs. 5–8. Borbonalia diaolinica sp. nov.: 5 – habitus of male holotype; 6 – head and pronotum of male holotype; 7 – aedeagus, dorsal view; 8 – aedeagus, lateral view.
Elytral epipleura well developed, pale reddish brown, relatively wide in basal half with punctures and few pale setae, regularly narrowing to ventrite 1, then in apical half with denser pale setation relatively wide leading parallel.

Legs narrow, ochre yellow, with dense pale setation, shallow punctures and very fine microgranulation. Pro- and mesotarsomeres 3, 4 and metatarsomere 3 broadened and lobed. RLT (1–5 or 1–4) equal to: 1.00 : 0.48 : 0.53 : 0.61 : 1.45 (protarsus), 1.00 : 0.38 : 0.33 : 0.39 : 0.72 (mesotarsus); 1.00 : 0.27 : 0.24 : 0.41 (metatarsus).

Both anterior tarsal claws with 15 visible teeth.

Aedeagus (Figs. 7 and 8). Pale brown, long, narrow. Basal piece almost straight laterally, very narrow finely narrowing dorsally. Apical piece narrow, elongate with rounded top, beak shaped laterally and dorsally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 5.60.

Female. Without distinct differences, anterior tarsal claws with 6 visible teeth.

Measurements of female body: BL 6.65 mm; HL 1.05 mm; HW 1.08 mm; OI 42.25; PL 0.98 mm; PW 1.61 mm; PI 60.87; EL 4.62 mm; EW 2.29 mm; AL 4.18 mm; AL/BL 0.66.

RLA (1–11) equal to: 0.95 : 0.47 : 1.00 : 1.45 : 1.23 : 1.28 : 1.31 : 1.32 : 1.24 : 1.38.


Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n=5). BL 6.97 mm (6.52–7.20 mm); HL 1.01 mm (0.93–1.07 mm); HW 1.11 mm (1.10–1.15 mm); OI 39.79 (38.74–40.76), PL 1.02 mm (0.89–1.12 mm); PW 1.64 mm (1.56–1.74 mm); PI 61.49 (57.05–64.37); EL 4.95 mm (4.65–5.09 mm); EW 2.40 mm (2.19–2.50 mm).

Differential diagnosis. Borbonalia diaolinica sp. nov. distinctly differs from similar species B. branccucci Novák, 2014 and B. murzini Novák, 2014 mainly by unicolored dorsal surface of elytra; while B. branccucci and B. murzini have dorsal surface of elytra bicolour. Borbonalia diaolinica sp. nov. is clearly different from similar species B. jizuica Novák, 2014 and B. schneideri Novák, 2014 mainly by dorsal surface of elytra without green metallic lustre; while B. jizuica and B. schneideri have dorsal surface of elytra with green metallic lustre. Borbonalia diaolinica sp. nov. distinctly differs from similar species B. yunfengica sp. nov. mainly by wide space between eyes (OI 41 in male); while B. yunfengica has space between eyes narrow (OI 26 in male). Borbonalia diaolinica sp. nov. is distinctly different from the similar species B. becvardi sp. nov., B. gongashanica sp. nov. and B. wrasei Novák, 2014 mainly by unicolored antenna and pale reddish brown dorsal surface of elytra; while B. becvardi, B. gongashanica and B. wrasei have antenna bicolour and dorsal surface of elytra dark brown or blackish brown.

Name derivation. Toponymic, named after the type locality – Diaolin Shan Mts. in Yunnan (China).

Distribution. China (Yunnan).

Borbonalia gongashanica sp. nov.

(Figs. 9–12)

Type locality. China, Sichuan province, Gonga Shan Mts. near Moxi, 1650 m a. s. l.


Description of holotype. Habitus as in Fig. 9, body elongate oval, slightly convex, from ochre yellow to brown, with punctuation, fine microgranulation and pale setation, shiny, BL 8.34 mm. Widest near two thirds elytra length; BL/EW 2.87.
Head (Fig. 10) approximately as long as wide, slightly narrower than anterior margin of pronotum, with pale setation, slightly shiny. Posterior part reddish brown, with dense punctuation, very fine microgranulation, somewhere indistinct, punctures medium sized. Anterior part pale reddish brown, dorsal surface with dense punctuation, interspaces between punctures with distinct microgranulation, clypeus pale brown with long, yellow setation, microgranulation, punctures very small and shallow, not clearly distinct. Mandibles pale brown, shiny with dark margins. HW 1.30 mm; HW/PW 0.64. HL (visible part) 1.29 mm. Eyes relatively large, transverse, excised, space between eyes wide, distinctly wider than diameter of one eye, slightly wider than length of antennomere 4; OI equal to 52.70.

Antennae. Long, filiform, with sparse punctures, microgranulation and yellow setation, AL 4.85 mm, AL/BL 0.58. Antennomeres 1–4 ochre yellow and slightly shiny, antennomere 5 and apex of antennomere 4 pale brown, antennomeres 6–11 brown, rather matte. Antennomere 2 shortest, antennomere 4 longest, antennomere 3 distinctly shorter than each of antennomeres 4–11.

RLA (1–11) equal to: 0.55 : 0.45 : 1.00 : 1.36 : 1.12 : 1.08 : 1.01 : 1.03 : 1.08 : 1.09.
RL/WA (1–11) equal to: 1.75 : 2.00 : 4.22 : 6.06 : 4.05 : 3.65 : 3.72 : 3.35 : 3.55 : 3.91 : 4.44.

Maxillary palpus pale brown, with pale setation, fine microgranulation and shallow, small-sized punctuation. Ultimate palpomere widely triangular. Palpomeres 2 and 3 distinctly narrowest at base and widest in apex. Apex with long pale setae.

Pronotum (Fig. 10). Transverse, quadratish, brown with sparse, long, pale setation, slightly denser near lateral margins, dense punctuation, punctures coarse and medium sized, interspaces between punctures very narrow. Margins distinct and complete, only in the middle of anterior margin not clearly conspicuous. Lateral margins straight in basal half, slightly arcuate in apical margins.

Figs. 9–12. Borbonalia gongashanica sp. nov.: 9 – habitus of male holotype; 10 – head and pronotum of male holotype; 11 – aedeagus, lateral view; 12 – aedeagus, dorsal view.
half. Anterior margin finely rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 1.29 mm; PW 2.02 mm; PI equal to 63.86.

Ventral side of body reddish brown, with relatively coarse punctuation and sparse pale setation. Abdomen dark brown, with long pale setation, dense shallow punctuation, punctures small, shiny. Apex of ultimate ventrite and ventrite 1 at middle pale brown.

Ventral side of body reddish brown, with relatively coarse punctuation and sparse pale setation. Abdomen dark brown, with long pale setation, dense shallow punctuation, punctures small, shiny. Apex of ultimate ventrite and ventrite 1 at middle pale brown.

Elytron. Brown, shiny with sparse, long, pale setation, distinctly denser near lateral margins, widest near two thirds of elytral length, slightly convex. Dorsal surface with rows of medium sized punctures in elytral striae, interspaces between punctures very narrow. Elytral intervals slightly convex, with small punctures and very fine microgranulation. EL 5.76 mm; EW 2.91 mm; EL/EW 1.98.

Scutellum widely triangular, pale brown with sides darker, with microgranulation and microrugosities, distinctly paler than elytron itself.

Elytral epipleura well developed, reddish brown, relatively broad, in basal half with punctures and pale setation, regularly narrowing to ventrite 1, then in apical half relatively wide leads parallel.

Legs narrow, ochre yellow, with dense and longer pale setation, fine microgranulation and very small punctuation. Protarsomeres and mesotarsomeres 3, 4 and metatarsomere 3 broadened and lobed. RLT (1–5 or 1–4) equal to: 1.00 : 0.70 : 0.60 : 0.81 : 2.03 (protarsus), 1.00 : 0.31 : 0.23 : 0.62 (metatarsus).

Both anterior tarsal claws with 15 visible teeth.

Aedeagus (Figs. 11 and 12). Ochre yellow, rather matte. Basal piece rounded laterally and slightly narrowing dorsally. Apical piece narrowly elongate dorsally, beak shaped laterally and dorsally. Ratio of length of apical piece to length of basal piece from dorsal view 1: 3.57.

Female. Without distinct differences, anterior tarsal claws with 7 visible teeth. AL 3.99 mm; AL/BL 0.57.

RLA (1–11) equal to: 0.86 : 0.37 : 1.00 : 1.63 : 1.32 : 1.16 : 1.21 : 1.13 : 1.12 : 1.18 : 1.16.


VARIABILITY. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Females (n=2). BL 7.19 mm (7.19–7.19 mm); HL 1.03 mm (1.02–1.03 mm); HW 1.23 mm (1.18–1.28 mm); OI 52.68 (52.21–53.14), PL 1.12 mm (1.08–1.16 mm); PW 1.92 mm (1.87–1.97 mm); PL 58.42 (57.75–58.88); EL 5.55 mm (5.00–5.09 mm); EW 2.74 mm (2.70–2.77 mm).

DIFFERENTIAL DIAGNOSIS. Borbonalia gongashanica sp. nov. distinctly differs from similar species B. brancuccii Novák, 2014 and B. murzini Novák, 2014 mainly by unicolored dorsal surface of elytra; while B. brancuccii and B. murzini have dorsal surface of elytra bicolour. Borbonalia gongashanica sp. nov. is clearly different from similar species B. jizuica Novák, 2014 and B. schneideri Novák, 2014 mainly by dorsal surface of elytra without green metallic lustre; while B. jizuica and B. schneideri have dorsal surface of elytra with green metallic lustre. Borbonalia gongashanica sp. nov. clearly differs from the similar species B. yunfengica sp. nov. mainly by broad space between eyes (OI almost 53 in male); while space between eyes of B. yunfengica is narrow (OI 26 in male). Borbonalia gongashanica sp. nov. distinctly differs from the similar species B. diaolinica sp. nov. mainly by dorsal surface of elytra dark brown and antenna bicolour; while B. diaolinica has dorsal surface pale reddish brown and antenna is unicolored. Borbonalia gongashanica sp. nov.is clearly different from the similar species B. becvvari sp. nov. and B. wrasei Novák, 2014 mainly by dorsal surface of elytra with sparse setation and legs are completely ochre yellow; while B. becvvari and B. wrasei have dorsal surface of elytra covered by dense setation and tibiae are dark brown or blackish brown.

NAME DERIVATION. Toponymic, named after the type locality – Gonga Shan Mts. in Sichuan (China).

DISTRIBUTION. China (Sichuan).
**Borbonalia yunfengica** sp. nov.
(Figs. 13–16)

**Type locality.** Southwestern China, Yunnan province, Yunfeng Shan Mts., west of Gudong, environ of Tenchong, – 25°22.623’N, – 98°24.351’E, 1400–2400 m a. s. l.


**Description of holotype.** Habitus as in Fig. 13, body elongate oval, from pale brown to dark brown, dorsal surface with punctuation, fine microgranulation and yellow setation, slightly shiny, BL 6.57 mm. Widest near three fourth elytra length; BL/EW 3.04.

Head (Fig. 14) slightly longer than wide, approximately as wide as anterior margin of pronotum, slightly shiny. Posterior part blackish brown, with medium sized punctuation, distinct microgranulation and sparse, long, yellow setae, behind eyes with a few dark setae. Anterior part distinctively paler than posterior part, with distinct microgranulation and microrugosities and sparse shallow punctures. Clypeus pale brown with long and dense, yellow setation, punctures and microgranulation not clearly distinct. HW 1.03 mm; HW/PW 0.67. HL (visible part) 1.06 mm. Eyes large, transverse, excised, space between eyes narrow, distinctly narrower than diameter of one eye, approximately as wide as length of antennomere 1; OI equal to 26.01.

Antennae. Long, filiform, unicolored ochre yellow, with fine microgranulation and long, yellow setation, AL 3.75 mm, AL/BL 0.57. Antennomere 2 shortest, antennomere 4 longest, antennomere 3 slightly longer than each of antennomeres 9–11.

RLA (1–11) equal to: 0.56 : 0.32 : 1.00 : 1.23 : 1.03 : 0.98 : 1.02 : 1.00 : 0.98 : 0.93 : 0.96.  

Figs. 13–16. Borbonalia yunfengica sp. nov.: 13 – habitus of male holotype; 14 – head and pronotum of male holotype; 15 – aedeagus, lateral view; 16 – aedeagus, dorsal view.
Maxillary palpus pale brown, with short, pale setae an fine microgranulation. Ultimate palpomere widely triangular. Palpomeres 2 and 3 distinctly narrowest at base and widest at apex.

Pronotum (Fig. 14). Slightly transverse, almost glabrous, with only few pale setae, blackish brown with dense punctuation, punctures large, inside with microgranulation, interspaces between punctures very narrow. Margins distinct and complete, only in middle of anterior margin not clearly conspicuous. Lateral margins straight in basal half, slightly arcuate near in apical half. Anterior margin slightly rounded, posterior margin bisinuate, anterior angles indistinct, posterior angles slightly obtuse. PL 0.98 mm; PW 1.53 mm; PI equal to 64.05.

Ventral side of body dark reddish brown with sparse punctures and very sparse pale setae. Abdomen pale brown, with few long, pale setae, fine microgranulation and small, shallow punctures. Ultimate ventrite slightly paler than penultimate.

Elytron. Brown with dense and long, yellow setation, distinctly denser near lateral margins and at apex than near suture, widest near three fourth elytral length. Dorsal surface with rows of medium sized punctures in elytral striae, interspaces between punctures very narrow. Elytral intervals slightly convex, with very small, sparse punctures and microgranulation. EL 4.53 mm; EW 2.16 mm; EL/EW 2.10.

Scutellum brown, roundly triangular, with microgranulation and shallow punctures.

Elytral epipleura with a few long, pale setae well developed, basal half dark brown with punctures regularly narrowing to ventrite 1, then in apical half pale brown relatively wide leads parallel.

Legs narrow, with dense and long pale setation, fine microgranulation and very small punctures. Pro- and mesotarsomeres 3, 4 and metatarsomere 3 broadened and lobed. RLT (1–5 or 1–4) equal to: 1.00 : 0.44 : 0.41 : 0.39 : 1.05 (protarsus), 1.00 : 0.29 : 0.19 : 0.37 (metatarsus).

Both anterior tarsal claws with 18 visible teeth.


Female. Body more robust than in male, anterior tarsal claws with 9 visible teeth.

Measurements of female body: BL 7.20 mm; HL 1.03 mm; HW 1.13 mm; OI 36.57; PL 1.12 mm; PW 1.73 mm; PI 64.74; EL 5.05 mm; EW 2.27 mm; AL(1–9) 3.71 mm; AL(1–9)/BL 0.54.

RLA (1–11) equal to: 0.95 : 0.47 : 1.00 : 1.45 : 1.23 : 1.28 : 1.31 : 1.32 : 1.32 : 1.24 : 1.38.


Differential diagnosis. Borbonalia yunfengica sp. nov. distinctly differs from similar species B. brancuccii Novák, 2014 and B. murzini Novák, 2014 mainly by unicolored dorsal surface of elytra; while B. brancuccii and B. murzini have dorsal surface of elytra bicolour. Borbonalia yunfengica sp. nov. is clearly different from similar species B. jizuica Novák, 2014 and B. schneideri Novák, 2014 mainly by dorsal surface of elytra without green metallic lustre; while B. jizuica and B. schneideri have dorsal surface of elytra with green metallic lustre. Borbonalia yunfengica sp. nov. clearly differs from all other similar species B. becvari sp. nov., B. diaolinica sp. nov., B. gongashanica sp. nov. and B. wrasei Novák, 2014 mainly by narrow space between eyes, distinctly narrower in male then diameter of one eye (OI male equal to 26); while B. becvari, B. diaolinica, B. gongashanica and B. wrasei have space between eyes of males wider than diameter of one eye (OI 41–53).

Name derivation. Toponymic, named after the type locality – Yunfeng Shan Mts. in Yunnan (China).

Distribution. China (Yunnan).
Key to the *Borbonalia* species from Sichuan and Yunnan province in China

1 (2) Elytron bicolorous. ................................................................. 3
2 (1) Elytron unicolorous. ............................................................. 5
3 (4) Disc of pronotum without microgranulation, dorsal surface with only few setae. ........................................ Borbonalia brancuccii Novák, 2014
4 (3) Disc of pronotum with distinct microgranulation, dorsal surface near lateral margins with relatively dense setation. Borbonalia murzini Novák, 2014
5 (6) Elytron with green metallic lustre. ........................................ 7
6 (5) Elytron without green metallic lustre. ................................... 9
7 (8) Antennomeres 5–11 only 0.88–1.26 times longer than antennomere 3; metatarsomere 1 distinctly shorter than lengths of metatarsomeres 2–4 together; anterior tarsal claws with 12 and 13 teeth. ........................................ Borbonalia jizuica Novák, 2014
8 (7) Antennomeres 5–11 1.30–1.55 times longer than antennomere 3; metatarsomere 1 almost as long as metatarsomeres 2–4 together; anterior tarsal claws with 14 and 16 teeth. Borbonalia schneideri Novák, 2014
9 (10) Space between eyes distinctly narrower than diameter of one eye (OI male equal 26). Habitus as in Fig. 13; head and pronotum (Fig. 14); aedeagus (Figs 15 and 16). China (Yunnan). ................. Borbonalia yunfengica sp. nov.
10 (9) Space between eyes in both sexes wider than diameter of one eye. .......... 11
11 (12) Antenna unicolorous. Dorsal surface of elytra pale reddish brown. Habitus as in Fig. 5; head and pronotum (Fig. 6); aedeagus (Figs 7 and 8). China (Yunnan). ................. Borbonalia diaolinica sp. nov.
12 (11) Antenna bicolorous. Dorsal surface brown or blackish brown. ........... 13
13 (14) Elytra with sparse setation, legs ochre yellow. Habitus as in Fig. 9; head and pronotum (Fig. 10); aedeagus (Figs. 11 and 12). China (Sichuan). .......... Borbonalia gongashanica sp. nov.
14 (13) Elytra with dense setation. Meso- and metatibia dark brown or blackish brown. ......... 15
15 (16) Body narrow and long (BL/EW 2.85), each of antennomeres 5–11 slightly shorter than antennomere 3 long. Habitus as in Fig. 1; head and pronotum (Fig. 2); aedeagus (Figs 3 and 4). China (Yunnan). ................. Borbonalia becvari sp. nov.
16 (15) Body wide and short (BL/EW 2.56), each of antennomeres 5–11 slightly longer than antennomere 3 long. ....... Borbonalia wrasei Novák, 2014

List of *Borbonalia* species from Sichuan and Yunnan province in China


*Borbonalia becvari* sp. nov. Lijiang (Yunnan)

*Borbonalia diaolinica* sp. nov. Diaolin Shan (Yunnan)

*Borbonalia gongashanica* sp. nov. Gongga Shan (Sichuan)

*Borbonalia jizuica* Novák, 2014: 141. Jizu Mts. (Yunnan)

*Borbonalia murzini* Novák, 2014: 144. Haba Xueshan Mts.; Diqin; Meili Xue Shan; Zhongdian (Yunnan); Daxue Shan (Sichuan)

*Borbonalia schneideri* Novák, 2014: 150. Gongga Shan (Sichuan)

*Borbonalia wrasei* Novák, 2014: 155. Diancang Shan (Yunnan)

*Borbonalia yunfengica* sp. nov. Yunfeng Shan (Yunnan)

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