

New genera of Alleculinae (Coleoptera: Tenebrionidae: Alleculinae: Alleculini) from the Palaearctic and the Oriental Regions XIV - *Angusthes* gen. nov.

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Abstract. A new genus of Alleculini Laporte, 1840 - *Angusthes* gen. nov. is described and illustrated with a type species *Angusthes laosensis* sp. nov. from Laos (Xieng Khouang Province) to include the following transferred species: *Angusthes phongsalyensis* (Novák, 2012) comb. nov. from Laos, *Angusthes yunnanensis* (Novák, 2012) comb. nov. and *Angusthes weigeli* (Novák, 2015) comb. nov., both from China (Yunnan Province), all are transferred from the genus *Borboresthes* Fairmaire, 1897. The new genus *Angusthes* gen. nov. is compared with habitually similar genera *Borborella* Novák, 2020, *Borboresthes* Fairmaire, 1897 and *Zizu* Novák, 2019. Main characters follow to establish new genus are narrow, elongate body with lateral margins of elytra almost parallel (BL/EW near 3), lateral margins of the pronotum almost straight and narrowing in basal half, posterior angles of the pronotum almost rectangular and protarsomeres 3 and 4 widened, but not transverse. All species of newly described genus are compared together.

INTRODUCTION

The new Alleculine genus *Angusthes* gen. nov. is described with a type species *Angusthes laosensis* sp. nov. from Laos (Xieng Khouang Province). The species of the new genus distinctly differs from the species of habitually similar genera *Borborella* Novák, 2020, described by Novák (2020), *Borboresthes* Fairmaire, 1897 established by Fairmaire (1897) and *Zizu* Novák, 2019 described by Novák (2019) mainly by these characters (narrow, elongate body with lateral margins of elytra almost parallel (BL/EW near 3), the lateral margins of the pronotum almost straight and narrowing in basal half, posterior angles of the pronotum almost rectangular and protarsomeres 3 and 4 widened, but not transverse).

Species *Angusthes phongsalyensis* (Novák, 2012) comb. nov. from Laos, *Angusthes yunnanensis* (Novák, 2012) comb. nov. and *Angusthes weigeli* (Novák, 2015) comb. nov., both from China (Yunnan Province) all are transferred from the genus *Borboresthes* Fairmaire, 1897.

Angusthes laosensis gen. and sp. nov. is described, illustrated (including male genitalia) and compared with species of habitually similar genera and other earlier described species of the genus *Angusthes*.

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 × minimum dorsal distance between eyes) / (maximum width of head across eyes). The pronotal index is calculated as (100 × length of pronotum along midline) / (width across basal angles of pronotum).

'Type material' information is taken from recent locality labels.

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

The following collection codes are used:

KMTJ private collection of Kimio Masumoto, Tokio, Japan;

NMTJ collection of National Museum, Tokio, Japan;

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

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

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

TAXONOMY

genus *Angusthes* gen. nov.

(Figs. 4-9)

Type species: *Angusthes laosensis* sp. nov.

Description (male). Habitus as in Fig. 4, body outline as in Fig. 5, body narrow, elongate, dorsal surface with pale setae, fine microgranulation and punctures. Widest near middle elytra length; BL/EW is close to or greater than 3. Head (Fig. 6) through the eyes distinctly narrower than base of pronotum. Dorsal surface with pale setae, microgranulation and punctures. Clypeus wide, transverse, mandibles glabrous, shiny with darker sides and apex. Eyes larger, transverse, excised, space between eyes distinctly wider than diameter of one eye. Antenna (Fig. 7) long, narrow, exceeding half body length. Antennomere 2 shortest, antennomeres 4-11 longer than antennomere 3. Ultimate antennomere widest before apex. Ultimate maxillary palpomere widely triangular. Pronotum (Fig. 6) transverse, slightly convex, widest in base, approximately as wide as elytra at humeri. Lateral margins narrowing, arcuate near apex. Base bisinuate, posterior angles almost rectangular. Elytron narrow, elongate, slightly convex, widest near middle. Dorsal surface with pale setation. Elytral striae with rows of coarse punctures. Elytral epipleura well-developed, distinctly narrowing to ventrite 1, then parallel in apical part. Legs long and narrow with pale setae. Pro- and mesotarsomeres 3, 4 and metatarsomere 3 widened and lobed. Both protarsal claws with visible teeth.

Female. Distinctly wider than male, both anterior tarsal claws with less teeth than in male.

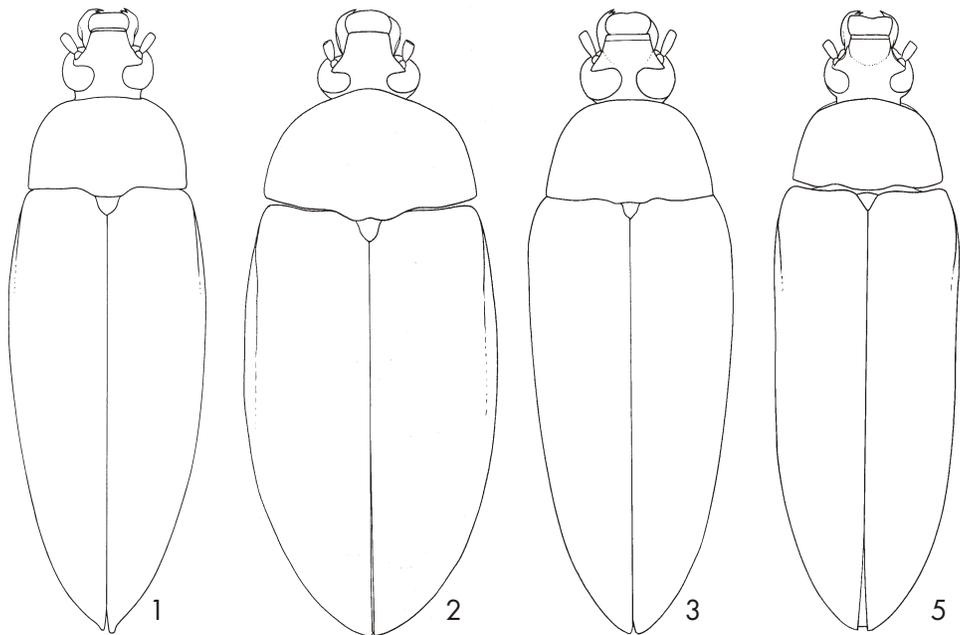
Differential diagnosis (based on males). The closest and habitually similar genera from this area are *Borborella* Novák, 2020, *Borboresthes* Fairmaire, 1897 and *Zizu* Novák, 2019.

Male species of the new genus *Angusthes* gen. nov. clearly differs from the similar males of *Borboresthes* and *Zizu* mainly by narrow, elongate body (Fig. 5) with lateral margins of elytra almost parallel (BL/EW near 3) and by the lateral margins of the pronotum almost straight and narrowing in basal half with posterior angles of the pronotum almost rectangular; while male species of *Borboresthes* (Fig. 2) and *Zizu* (Fig. 3) have the body shorter and wide (BL/EW almost less than 3), oval, egg-shaped or elongate oval, the pronotum is almost semicircular and lateral

margins of the pronotum are arcuate in basal part and the posterior angles are almost obtuse. Male species of the new genus *Angusthes* gen. nov. are clearly different from the similar males of *Borborella* mainly by narrow, elongate body with lateral margins of elytra almost parallel, by the lateral margins of the pronotum almost straight and narrowing in basal half, by protarsomeres 3 and 4 widened but not transverse; while males of *Borborella* (Fig. 1) have body elongate oval, pronotum is semicircular with lateral margins arcuate and protarsomeres 3 and 4 are strongly widened, transverse.

Etymology. The compound name formed by *Angus-* from Latin (narrow) and ending *-thes* (marking similarity to the genus *Borboresthes* Fairmaire, 1897. Gender: masculine.

Distribution. China (Yunnan Province), Laos.



Figs. 1-3, 5 (body outline). 1- *Borborella* Novák, 2020; 2- *Borboresthes* Fairmaire, 1897; 3- *Zizu* Novák, 2019; 5- *Angusthes* gen. nov.

***Angusthes laosensis* sp. nov.**

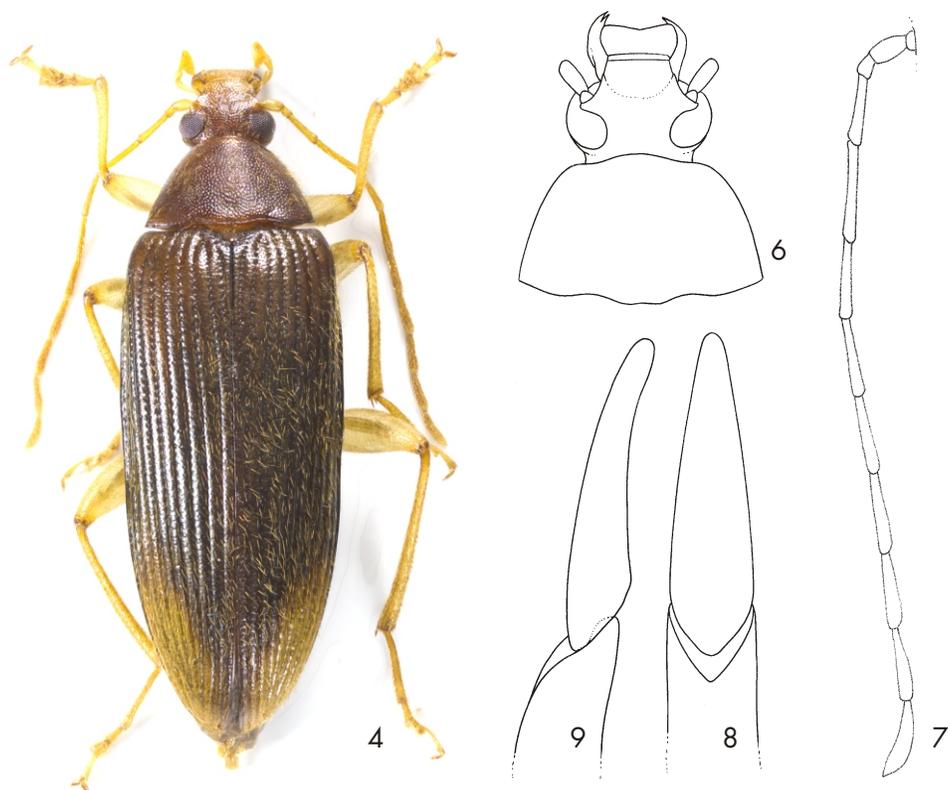
(Figs. 4-9)

Type locality. Laos, Xieng Khouang Province, Phou Sam Soum, N 19.14274°, E 103.780480°, 2026 m.

Type material. Holotype (♂): LAOS XIENG KHOUANG, / Phou Sam Soum, alt. 2026 m / 19.14274° 103.780480° / April 27-May 11, 2018 / leg. T. HIGURASHI, N. KANEKO / and Y. NAKASE / FIT / Permit No. 09-05-2018, (NMTJ). Paratypes: (1 ♂, 2 ♀♀): same data as holotype, (KMTJ, VNPC); (1 ♀): same data as holotype, but May 11-14, 2018 / leg. T. HIGURASHI, (VNPC); (1 ♂): LAOS XIENG KHOUANG, / Phou Sam Soum / alt. 2103 m / 19.142559° 103.784050° / 12 V 2019 / leg. M. KOBAYASHI / Permit No. 08-05-201, (VNPC); (1 ♀): LAOS XIENG KHOUANG, / Phou Sam Soum / alt. 2103 m / 19.142559° 103.784050° / 11-13 V 2019 / leg. T. HIGURASHI, Permit No. 08-05-201, (VNPC). The types are provided with a printed red label: '*Angusthes / laosensis* sp. nov. / HOLOTYPUS [or PARATYPUS] / V. Novák det. 2023'.

Description of holotype. Habitus as in Fig. 4, body outline as in Fig. 5, body larger, narrow, elongate, shiny, from yellow to dark brown, dorsal surface with pale setae, fine microgranulation and punctures, BL 9.71 mm. Widest near middle elytra length; BL/EW 3.09.

Head (Fig. 6) a little wider than long, through the eyes approximately as wide as anterior margin or distinctly narrower than base of pronotum. Anterior part pale reddish brown, distinctly paler than reddish brown posterior half. Dorsal surface shiny with long, pale setae, very fine microgranulation and dense punctures. Clypeus wide, transverse, pale reddish brown with rounded lateral margins and apex excised in middle. Dorsal surface with small punctures, long and dense, pale setae, microgranulation and shallow punctures. Mandibles ochre yellow, glabrous, shiny with darker sides and apex. HW 1.37 mm; HW/PW 0.57; HL (visible part) 1.29 mm. Eyes larger, transverse, excised, space between eyes distinctly wider than diameter of one eye; OI equal to 42.98.



Figs. 4, 6-9. *Angusthes laosensis* sp. nov. (male holotype): 4- habitus; 6- head and pronotum; 7- antenna; 8- apical piece of aedeagus, dorsal view; 9- apical piece of aedeagus, lateral view.

Antenna (Fig. 7). Long, narrow (AL 5.83 mm, distinctly exceeding half body length - AL/BL 0.60). Antennomeres 1-5 yellow, slightly shiny, antennomeres 6-11 ochre yellow, rather matte. Surface with fine microgranulation, pale setae and very small punctures. Antennomere 2 shortest, antennomere 4 longest, antennomeres 4-11 longer than antennomere 3. Ultimate antennomere widest before apex.

RLA(1-11): 0.65 : 0.27 : 1.00 : 1.47 : 1.14 : 1.15 : 1.09 : 1.17 : 1.11 : 1.01 : 1.20.

RL/WA(1-11): 2.00 : 1.27 : 4.73 : 7.65 : 6.21 : 5.07 : 5.38 : 4.88 : 4.60 : 4.20 : 4.81.

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

Pronotum (Fig. 6) reddish brown, wide, transverse, shiny, slightly convex, widest in base, approximately as wide as elytra in humera. Dorsal surface with fine microgranulation, dense punctures (larger than those in head) and long, pale setae. PL 1.36 mm; PW 2.42 mm; PI equal to 56.20. Border lines very narrow, margins conspicuous from dorsal view. Lateral margins narrowing, arcuate near apex. Base bisinuate, anterior margin arcuate in middle, anterior angles rounded, obtuse, posterior angles almost rectangular.

Elytron. Brown, near suture in basal half reddish brown, apex with ochre yellow spot near lateral margins in apical third (as in Fig. 4), narrow, elongate, slightly convex, slightly shiny, widest near middle. Dorsal surface with pale setation. EL 7.06 mm; EW 3.14 mm; EL/EW 2.25. Elytral striae with rows of coarse punctures, intervals between punctures in rows as large or narrower than diameter of punctures. Elytral intervals very finely convex, with microgranulation and very small punctures.

Scutellum. Brown with sides darker, triangular, surface with fine microgranulation, small punctures and a few long, pale setae, shiny.

Elytral epipleura well-developed with pale setae, brown in apical part, distinctly narrowing to ventrite 1, then ochre yellow and parallel in apical part.

Legs. Long and narrow, yellow, with pale setae. Dorsal surface with very fine microgranulation and very small punctures. Protibiae normally shaped, very slightly bent in apical part. Protarsomeres 2-4, mesotarsomeres 3 and 4 and metatarsomere 3 widened and lobed. RLT: 1.00 : 0.44 : 0.54 : 0.65 : 1.46 (protarsus), 1.00 : 0.36 : 0.38 : 0.52 : 1.20 (mesotarsus), 1.00 : 0.34 : 0.34 : 0.61 (metatarsus).

Both protarsal claws with 16 visible teeth.

Ventral side of body reddish brown with small punctures and sparse, short, pale setae. Abdomen reddish brown, slightly shiny, with sparse, pale setae.

Aedeagus (Figs. 8, 9) smaller, ochre yellow, shiny. Basal piece rounded laterally and narrowing in dorsal view. Apical piece elongate triangular from dorsal view, beak-shaped dorsally and laterally. Ratio of length of apical piece to length of basal piece from dorsal view 1 : 3.44.

Female has body slightly wider (BL/EW approximately 2.75), protarsal claws with only 9 visible teeth.

Measurements of female body. BL 10.11 mm; HL 1.27 mm; HW 1.47 mm; OI 47.10; PL 1.41 mm; PW 2.63 mm; PI 53.61; EL 7.43 mm; EW 3.78 mm; AL(1-11) 6.00 mm; AL/BL(1-11) 0.59; HW/PW 0.56; BL/EW 2.68; EL/EW 1.97.

RLA(1-11): 0.56 : 0.32 : 1.00 : 1.56 : 1.16 : 1.03 : 1.04 : 1.07 : 1.03 : 0.97 : 1.01.

RL/WA(1-11): 1.75 : 1.80 : 5.33 : 7.29 : 6.19 : 5.00 : 4.46 : 4.44 : 4.42 : 4.74 : 4.52.

RLT: 1.00 : 0.41 : 0.46 : 0.58 : 1.41 (protarsus), 1.00 : 0.30 : 0.20 : 0.51 (metatarsus).

Variability. The type specimens somewhat vary in size; each character is given as its mean value, with full range in parentheses. Males (n= 3). BL 9.42 mm (9.25-9.71 mm); HL 1.27 mm (1.23-1.29 mm); HW 1.35 mm (1.31-1.37 mm); OI 42.90 (42.80-42.98); PL 1.37 mm (1.36-1.45 mm); PW 2.45 mm (2.39-2.55 mm); PI 55.93 (54.79-56.92); EL 6.79 mm (6.59-7.06 mm); EW 3.11 mm (3.10-3.14 mm). Females (n= 4). BL 9.91 mm (9.63-10.11 mm); HL 1.28 mm; (1.27-1.29 mm); HW 1.48 mm (1.47-1.50 mm); OI 46.74 (46.33-47.10); PL 1.46 mm (1.39-

1.58 mm); PW 2.65 mm (2.63-2.68 mm); PI 55.06 (52.62-58.92); EL 7.18 mm (6.97-7.43 mm);
EW 3.61 mm (3.49-3.78 mm).

Differential diagnosis. Habitually similar species are *Angusthes phongsalyensis* (Novák, 2012) comb. nov. from Laos, *Angusthes weigeli* (Novák, 2015) comb. nov. and *Angusthes yunnanensis* (Novák, 2012) comb. nov. from China (Yunnan Province).

The new species *Angusthes laosensis* sp. nov. from Laos clearly differs from the similar species *A. weigeli* and *A. yunnanensis* from China (Yunnan) mainly by ochre yellow spot near lateral margins in apical third and by reddish brown pronotum (as in Fig. 4); while *A. weigeli* and *A. yunnanensis* have clear and distinct dark drawings in the surface of elytra and darker pronotum (dark reddish brown or brown).

The new species *A. laosensis* is distinctly different from the similar species *A. phongsalyensis* mainly by legs, maxillary palpus and antennomeres 1-5 yellow, by ochre yellow spot near lateral margins in apical third and by reddish brown pronotum (as in Fig. 4) and by the shape of apical piece of aedeagus (as in Figs. 8 and 9); while *A. phongsalyensis* has legs, maxillary palpus and antenna ochre yellow, reddish or pale reddish brown elytra has "V" shaped dark spot near middle and the shape of apical piece of aedeagus is as in Novák 2012: 255: figs. 32, 33.

Etymology. Toponymic, named after the country of its origin (Laos).

Distribution. Laos (Xieng Khouang Province).

***Angusthes phongsalyensis* (Novák, 2012) comb. nov.**

Borboresches phongsalyensis Novák, 2012: 254; (255: figs. 30-33).

Type locality. Laos, Phongsaly, 21°41'-21°N 102°06'-8' E.

Type material. Paratypes: (2 ♂♂): LAO-N, Phongsaly prov., / 21°41'-21°N 102°06'-8' E, / PHONGSALY env., / 6.-17.v.2004, -1500 m, / Vít Kubáň leg., (VNPC).

Remarks. After checking of a male paratypes and figures in Novák 2012: 255 (habitus as in fig. 30, head and pronotum - fig. 31 and apical piece of aedeagus as in figs. 32, 33), it is clear that the species clearly belongs to *Angusthes* gen. nov.

Distribution. Laos.

***Angusthes weigeli* (Novák, 2015) comb. nov.**

Borboresches weigeli Novák, 2015: 96; (97: figs. 37-40).

Type locality. China, south Yunnan, Xishuangbanna, 30 km NW of Jinghong, Bameng, Hua Zhuliangzi Mts., N 22°08.01, E 100°31.54, 1700-2000 m.

Type material. Paratype: (1 ♂): CCHINA: S-YUNNAN / (Xishuangbanna) / ca. 30km NW Jinghong / vic. Bameng, 1700-2000m // Hua Zuliangzi Mts. / N22°08.01, E100°31.54 / 30.V.2008 1700-2000m leg. A.Weigel sec. forest, (VNPC).

Remarks. After checking of a male paratype and figures in Novák 2015: 97 (habitus as in fig. 37, head and pronotum - fig. 38 and apical piece of aedeagus as in figs. 39, 40), it is clear that the species clearly belongs to *Angusthes* gen. nov.

Distribution. China (Yunnan Province).

***Angusthes yunnanensis* (Novák, 2012) comb. nov.**

Borboresthes yunnanensis Novák, 2012: 264; (265: figs. 44-47).

Type locality. China, Yunnan, Baoshan pref., Tengchong, Gaoligong Shan, 24°48-51'N, 98°32-45'E.

Type material. Paratypes: (1 ♂, 1 ♀): China mer. Yunnan prov. / (pass SW from Baoshan) / Gaoligong Shan; 4.-8.vi. / 2005; Ivo Jeniš leg., (VNPC).

Remarks. After checking of a male paratype and figures in Novák 2012: 265 (habitus as in fig. 44, head and pronotum - fig. 45 and apical piece of aedeagus as in figs. 46, 47), it is clear that the species clearly belongs to *Angusthes* gen. nov.

Distribution. China (Yunnan Province).

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