

A review of *Paratolmerus* CAMERON, 1932 and a key to the species Coleoptera: Staphylinidae: Staphylininae)

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Abstract

The Oriental rove beetle genus *Paratolmerus* CAMERON, 1932 (Coleoptera: Staphylininae: Acylophorina) is comprehensively reviewed for the first time, resulting in *Paratolmerus assingi* BRUNKE & SCHILLHAMMER, sp.n. (Thailand), *P. vietnamensis* BRUNKE & SCHILLHAMMER sp.n. (Vietnam), and a new country record for *P. siamensis* ROUGEMONT, 1991 (Malaysia). A key to the six known species is provided. With the exception of the type species, which appears to be montane, all other known taxa are found along lowland streams, habitats that have been heavily degraded by human activity.

Key words: Coleoptera, Staphylinidae, Staphylininae, Acylophorina, rove beetles, taxonomy, new species, Malaysia, Thailand, Vietnam.

Introduction

The genus *Paratolmerus* CAMERON, 1932 was erected for the unusual and rare Himalayan species *P. pilosiventris* CAMERON, 1932 and originally associated with the Anisolinina (CAMERON 1932). The genus was correctly recognized as a close relative of *Acylophorus* NORDMANN, 1837 by SMETANA (1988), who also redescribed the genus and species, and reported the species from wet debris along a small montane creek around 2000 m. SCHILLHAMMER & BRUNKE (2018) conducted a morphological phylogenetic analysis of *Acylophorus* and its allies (now subtribe Acylophorina), and proposed several putative synapomorphies (see below). They also recognized that, while *Paratolmerus* was probably monophyletic, it may be nested inside of the morphologically diverse *Acylophorus*. Three additional species have since been described, extending the distribution of the genus to Southeast Asia and expanding the morphological diversity in this group considerably. However, all species display the synapomorphies listed by SCHILLHAMMER & BRUNKE (2018). Several African and Asian *Acylophorus* with a densely punctate head may also belong to *Paratolmerus* but they remain to be studied in detail.

Specimens of the genus are generally rare in collections, possibly because of narrow associations with wet litter along streams, including leaf-packs created by periods of heavier rain. Another consequence of their rarity is the collection of single females that remain the sole representatives of two species (SMETANA 2017, JANÁK 2018). Luckily, the shape of female tergite X appears to be species-specific. Despite their rarity, we have gathered some recently collected specimens that represent two new species from Southeast Asia. An illustrated key to all known species is also provided.

Abbreviations

The material treated in this paper is deposited in the following institutional collections:

CNC	Canadian National Collection of Insects, Ottawa, Canada
KUM	Kyushu University Museum, Fukuoka, Japan (M. Maruyama)
NMW	Naturhistorisches Museum Wien, Vienna, Austria

Paratolmerus CAMERON, 1932

Paratolmerus CAMERON 1932: 169; SMETANA 1988 (redescription, *Acylophorus*-lineage); ROUGEMONT 1991 (new species); BRUNKE et al. 2016 (phylogeny, assignment to *Acylophorina*); SMETANA 2017 (generic redescription, new species); JANÁK 2018 (new species); SCHILLHAMMER & BRUNKE 2018 (generic redescription, diagnosis and position in key).

TYPE SPECIES: *Paratolmerus pilosiventris* CAMERON, 1932.

DIAGNOSIS: Species of *Paratolmerus* can be recognized within the *Acylophorina* by the combination of: geniculate antennae; pronotal hypomeron with small to large, sclerotized extension (not post-coxal process), partly visible in lateral view; head evenly punctate except for glabrous center; and pair of long setae on fourth metatarsomere, 2/3 the length of apical segment (*P. siamensis*) or longer than this segment (all other species) (SCHILLHAMMER & BRUNKE 2018).

BIONOMICS: Most species have been collected from wet litter along streams, though they are also collected by flight intercept traps placed in forests. With the exception of montane Himalayan *P. pilosiventris* (2100–2550 m), this otherwise appears to be a lowland genus.

COMMENTS: While *Paratolmerus* is reasonably well-diagnosed and probably monophyletic, it may be derived from within the morphologically diverse genus *Acylophorus* as some species of the latter genus (e.g., *Acylophorus siyo* SMETANA, 1988) have long setae on the fourth metatarsomere. A densely sampled phylogenetic analysis should clarify this in the future. A number of species currently assigned to *Acylophorus* (African *A. kambuiensis* BORDONI, 1994 and *A. lua-labaensis* LEVASSEUR, 1968; Asian *A. puncticeps* FAUVEL, 1895 and *A. hayashii* SMETANA, 1995) also have a densely punctate head and may belong instead to *Paratolmerus*. These species remain to be examined in detail using the most recent generic concepts.

No specimen of *P. kleebergi* JANÁK, 2018 was available for this review. The species has been entered in the key according to the description.

Paratolmerus assingi BRUNKE & SCHILLHAMMER, sp.n.

TYPE MATERIAL: **Holotype** ♂ (NMW): “THAILAND – Kaho Yai N.P., nr. Haew Narok Falls [14.28, 101.38], 19.XI.2004, leg. W. Rossi [white typed label] \ not touching [handwritten label by A. Smetana referring to the parameral arms, which had since become broken in preparation] \ *Paratolmerus assingi* Brunke and Schillhammer, sp. nov., des. 2025 [red typed label] \ NHMW-ZOO-COL-0058036”. **Paratype** ♀ (CNC): same data as holotype.

DIAGNOSIS: *Paratolmerus assingi* may be recognized by the combination of: head elongate; eyes slightly longer than temples (1.16 times); basal antennomeres dark; scutellum paler than elytra (provisional, both known specimens may be teneral); rear part of temples glossy, without distinct microsculpture. The species is somewhat similar to *P. vietnamensis*, but the former has a paler pronotum, the eyes are slightly larger than the temples, the temples are glossy and the projection of female tergite X is setose (Fig. 11).

DESCRIPTION: Habitus as in Fig. 3. Body dark brown, with paler pronotum, scutellum and legs, which are brownish red, apical three antennomeres paler, yellowish, palpi yellowish, abdominal segments narrowly paler at apex. Head slightly elongate ($L/W = 1.06$); eyes large, slightly longer than temples ($\text{Eye/Temple} = 1.16$); disc moderately densely punctate, except for median glabrous area extending nearly entire head length, rear part of temples glossy and lacking microsculpture. Pronotum slightly transverse ($L/W = 0.92$), distinctly wider at base compared to apex (head, pronotum: Fig. 7). Elytra densely punctate, with most punctures narrowly separated on the horizontal axis, elytra much longer than pronotum. Abdominal tergites markedly more dense and fine at base than at apex, with extremely fine microsculpture of transverse waves. Hind tarsi with fourth segment bearing a pair of long marginal setae that extend far beyond apex of fifth segment.

Male: Aedeagus (Fig. 10) with subparallel median lobe; paramere (Fig. 10c) bilobed (left lobe obviously broken during preparation), lobe markedly dilated apically with about 60 peg setae moderately densely arranged in dilated part.

Female: Tergite X (Fig. 11) with thin projection, about half the length of disc, with setae along its entire length, disc of tergite glabrous.

DISTRIBUTION: *Paratolmerus assingi* is currently known only from the type locality in Central Thailand.

BIONOMICS: Presumably, the type specimens were collected somewhere along the stream that flows over Haew Narok Falls.

ETYMOLOGY: The species is named in honor of the late Volker Assing (Hannover, Germany), an extremely prolific staphylinidologist and great friend to A. Brunke and H. Schillhammer. The specimens were acquired by Volker for his personal collection and had been on loan for some time by Aleš Smetana (Ottawa, Canada), another friend and colleague that we lost in the past few years. The description of this species highlights a special collegiality within the staphylinid community and is a nice reminder of two old friends.

***Paratolmerus vietnamensis* BRUNKE & SCHILLHAMMER, sp.n.**

TYPE MATERIAL: **Holotype** ♂ (CNC): “Vietnam, Vihn Phuc, SE Tam Dao, Me Lihn Stat. Biodiversity, 21.39°N, 105.72°E, treading, dist. sec. forest, 60 m, 5–6.V.2019, A. Brunke & H. Schillhammer, CNC1599706 [printed white label] \ *Paratolmerus vietnamensis* Brunke and Schillhammer, sp. nov., des. 2025” [red typed label]. **Paratypes** (10 exs.): same data as holotype, NMW specimen with additional label “NHMW-ZOO-COL-0058035” (8, CNC; 1, NMW); Tuyen Quang Prov., Na Hang, Res., 360 m, 20–24.V.1997, rain forest FIT, S. Peck (1, CNC).

DIAGNOSIS: *Paratolmerus vietnamensis* may be recognized by a combination of: head elongate; eyes slightly shorter than temples but extending beyond half length of head; rear part of temples appearing granulate; basal antennomeres dark. Females are easily recognized by tergite X, which is projected medially into a long, thin and glabrous spine. Non-teneral specimens are readily separated from *P. assingi* by the dark pronotum and scutellum.

DESCRIPTION: Habitus as in Fig. 2. Extremely similar externally to *P. assingi* and differing only in the following: head subquadrate to slightly elongate ($L/W = 1.02\text{--}1.11$ (males); $1.06\text{--}1.11$ (females)); eyes slightly shorter than temples ($\text{Eye/Temple} = 0.93\text{--}0.96$ (males); $0.85\text{--}0.90$ (females)); rear part of temples granulate, with punctures distinctly denser and with microsculpture; pronotum slightly transverse ($L/W = 0.90\text{--}0.94$ (males); $0.87\text{--}0.94$ (females)); elytra with punctures denser, most punctures touching in horizontal plane.

Male: Aedeagus (Fig. 9) with subparallel median lobe, but tip more broadly rounded than in *P. assingi*; paramere (Fig. 9c) bilobed, lobes almost parallel, hardly dilated apically, with an apical cluster of about 40–50 densely packed peg setae. Median lobe in lateral view slender, with acute apex (Fig. 9b).

Female: Tergite X (Figs. 12a–b) with disc more elongate, sides explanate, projection thinner and without setae, disc with two very long macrosetae extending slightly beyond apex of projection.

DISTRIBUTION: *Paratolmerus vietnamensis* is currently known only from two localities in northern Vietnam.

BIONOMICS: One specimen was collected in a FIT placed in a lowland rainforest. The long series was directly collected from leaf packs, accumulated in a small, clear, shallow stream.

ETYMOLOGY: The species epithet refers to the country of origin. The name is used as an adjective.



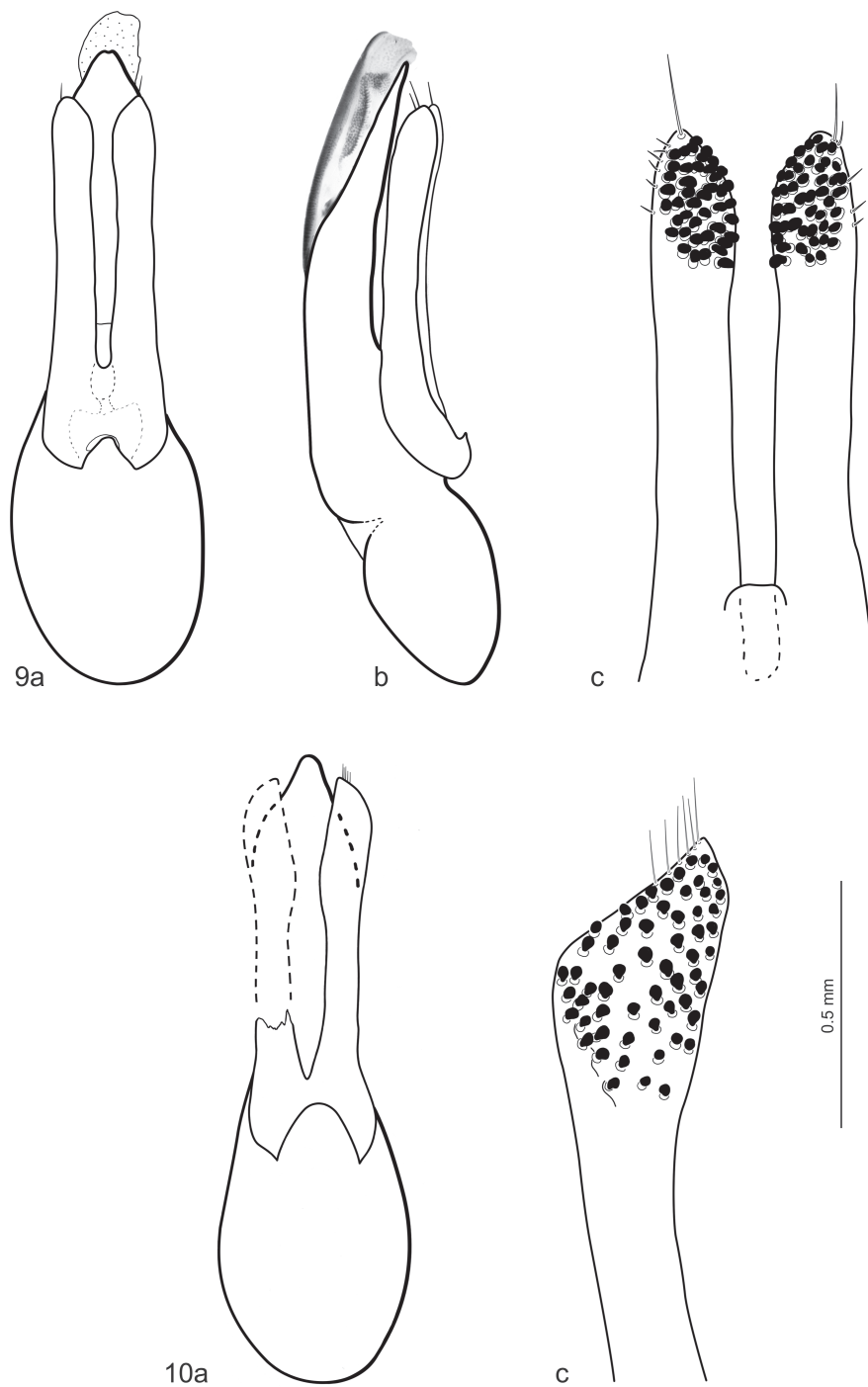
Figs. 1–2: Habitus of 1) *Paratolmerus primigenius* and 2) *P. vietnamensis*.



Figs. 3–4: Habitus of 3) *Paratolmerus assingi* and 4) *P. siamensis*.



Figs. 5–8: Head and pronotum of 5) *Paratolmerus primigenius*, 6) *P. vietnamensis*, 7) *P. assingi*, 8) *P. siamensis*.



Figs. 9–10: Aedeagus of 9) *Paratolmerus vietnamensis*, 10) *P. assingi*; ventral view (a), lateral view (b), paramere (c).



Figs. 11–12: Female tergite X of 11) *Paratolmerus assingi* in dorsal view, 12) *P. vietnamensis* in dorsal (a) and lateral (b) view.

Paratolmerus siamensis ROUGEMONT, 1991

Paratolmerus siamensis ROUGEMONT 1991: 221.

MATERIAL EXAMINED: 1 ♀ (KUM): W-MALASIA: Selangor, Ulu Gombak, FIT, 2.–18.III.2004, leg. M. Maruyama.

New country record for (Peninsular) Malaysia.

Key to the species of *Paratolmerus*

- 1 Head, except for centre of disc, more densely, evenly punctate, most punctures separated by one puncture diameter or less; eyes small, temples much less than twice as long as eyes; Himalaya *pilosiventris* CAMERON, 1932
- Head, except for centre of disc, with sparser punctation, most punctures separated by more than one puncture diameter; eyes larger, temples at most slightly longer than eyes; Southeast Asia and China (Hainan) 2
- 2 Femora pale, yellow, strongly contrasting with dark tibiae (Fig. 4); first antennomere markedly paler than following segments (habitus: Fig. 8); Thailand, Malaysia *siamensis* ROUGEMONT, 1991
- Femora at most pale brown and only slightly paler than tibia (Figs. 1–3); first antennomere dark, similar to following segments (Figs. 5–7) 3
- 3 Eyes relatively small, reaching at most, half the length of head (Fig. 5); China (Hainan) *P. primigenius* SMETANA, 2017 (females only)
- Eyes larger, extending clearly beyond half the length of head (Figs. 6–7); N-Vietnam, Thailand 4
- 4 Head subquadrate; southern Thailand; female tergite X with apex rounded, without thin projection *kleebergi* JANÁK, 2018 (females only)
- Head elongate; female tergite X with thin apical projection; Thailand and N-Vietnam 5

- 5 Non-teneral specimens with pronotum and scutellum orange-red, contrasting with darker head and elytra (Fig. 3); rear temples glossy, without distinct microsculpture; eyes slightly longer than temples (Fig. 7); female tergite X with setose median projection (Fig. 11); Thailand *assingi* sp.n.
- Non-teneral specimens with pronotum and scutellum dark, not contrasting with head and elytra (Fig. 2); rear temples appearing granulate due to microsculpture and dense punctures; eyes slightly shorter than temples (Fig. 6); female tergite X with very thin, asetose median projection (Fig. 12); N-Vietnam *P. vietnamensis* sp.n.

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