

On the taxonomy and zoogeography of *Paederus*. VI. Two new species from Nepal and new records from the Palearctic and Oriental regions (Coleoptera: Staphylinidae: Paederinae)

With 14 figures

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Abstract

Two micropterous species of *Paederus* FABRICIUS, 1775 from East Nepal are described and illustrated: *Paederus* (incertae sedis) *digitalis* spec. nov. and *P.* (incertae sedis) *acifer* spec. nov. They are distinguished from other micropterous and geographically close congeners. Including the new species, the *Paederus* fauna of Nepal currently includes 37 species, 24 of them exclusive. Additional records of two widespread species are reported from the Chinese province Yunnan and from Vietnam.

Taxonomic acts

Paederus digitalis spec. nov. – urn:lsid:zoobank.org:act:AF76E64C-9B3E-4C91-B2FC-E9411BDA55DB

Paederus acifer spec. nov. – urn:lsid:zoobank.org:act:97FC241A-C477-4BD1-B3D3-0186D371A1C2

Key words

Coleoptera, Staphylinidae, Paederinae, *Paederus*, Palearctic region, Oriental region, Nepal, taxonomy, new species, new records

Zusammenfassung

Zwei ungeflügelte Arten der Gattung *Paederus* FABRICIUS, 1775 aus Ostnepal werden beschrieben, abgebildet und von anderen brachypteren Arten Ostnepals unterschieden: *Paederus* (incertae sedis) *digitalis* spec. nov. und *P.* (incertae sedis) *acifer* spec. nov. Einschließlich der beiden neu beschriebenen Arten sind derzeit 37 *Paederus*-Arten aus Nepal bekannt, 24 davon endemisch. Weitere Nachweise zweier weitverbreiteter Arten werden aus der chinesischen Provinz Yunnan und aus Vietnam gemeldet.

Schlüsselwörter

Coleoptera, Staphylinidae, Paederinae, *Paederus*, Paläarktis, Orientalis, Nepal, Taxonomie, neue Arten, neue Nachweise

Introduction

Paederus FABRICIUS, 1775 currently includes more than 530 species worldwide (NEWTON 2019). It is represented in the Palaearctic region by 129 species in eight subgenera, with 45 of the species listed as incertae sedis (SCHÜLKE & SMETANA 2015, ASSING 2017, 2020, WILLERS 2018).

According to the Palaearctic Catalogue (SCHÜLKE & SMETANA 2015 and updates until the end of 2020), the *Paederus* fauna of Nepal previously included 35 species, 13 of them more or less widespread in the southern East Palaearctic and Oriental regions and 22 exclusive to Nepal. The majority (24 species, nearly all of them endemic) of the species recorded from Nepal is currently listed as incertae sedis; five are assigned to the subgenus *Eopaederus* SCHEERPELTZ, 1957, one to *Heteropaederus* SCHEERPELTZ, 1957, one to *Nepalopaederus* SCHEERPELTZ, 1976, one to *Oreinopaederus* SCHEERPELTZ, 1976, one to the nominal subgenus, and one to *Poederomorphus* GAUTIER DES COTTES, 1862. Nearly half of the species known from Nepal (17 species, all of them endemic) were described by WILLERS (1999, 2001a, b, 2016, 2018). WILLERS (2018) provided a key to species.

Only recently, Joachim Willers (Berlin) informed me that he had examined material representing an undescribed species from East Nepal forwarded to him by Michael Schülke (Berlin). Since, owing to other obligations, he did not have the time for an adequate description, he invited me to study the specimens. A closer examination eventually revealed that the material in fact included two undescribed species. Their descriptions are provided in this paper, together with a few additional records studied since the latest contribution to the taxonomy and zoogeography of *Paederus* (ASSING 2020).

Material and methods

The material treated in this study is deposited in the following public institutions and private collection:

MNB Museum für Naturkunde Berlin (coll. M. Schülke; via J. Willers)

NMP National Museum of Natural History, Prague (J. Hájek)

cAss author's private collection

The morphological studies were conducted using Stemi SV 11 (Zeiss) and Discovery V12 (Zeiss) microscopes, and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using digital cameras (Axiocam ERc 5s, Nikon Coolpix 995), as well as Labscope and Picolay software.

Body length was measured from the anterior margin of the labrum to the posterior margin of tergite VIII, the length of the forebody from the anterior margin of the labrum to the posterior margin of the elytra, head length from the anterior margin of the frons to the

posterior constriction of the head, head width across and including the eyes, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the aedeagus from the apices of the parameres to the base of the aedeagal capsule. The “parameral” side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Results

Paederus (Paederus) sondaicus FAUVEL, 1895

Material examined. **China: Yunnan:** 4 ♂♂, Gaoligong Shan, Lushui Co., Luisahe vill., 25°58'N, 98°45'E, 2135–2450 m, river valley with mixed forest, 10.VII.2019, leg. Hájek et al. (NMP, cAss). **Vietnam:** 1 ♂, Bac Giang, Ta Yen Tu Nature Reserve, 6 km SW Thanh Son, 21°10.83'N, 106°43.43'E, 200 m, 18–21.V.2015, leg. Weigel [LFF KS] (cAss).

The vast distribution of *P. sondaicus* ranges from Nepal, India, and Sri Lanka across Southeast Continental Asia eastwards and southeastwards to the Philippines, Sumatra, Java, and the Moluccas (NEWTON 2019). The above records are all within the known range.

Paederus (incertae sedis) nigripennis CAMERON, 1924

Material examined. **Vietnam:** 1 ♂, Bac Giang, Tai Yen Tu Nature Reserve, 6 km SW Thanh Son, 21°10.83'N, 106°43.43'E, 200 m, 18–21.V.2015, leg. Weigel [LFF KS] (cAss).

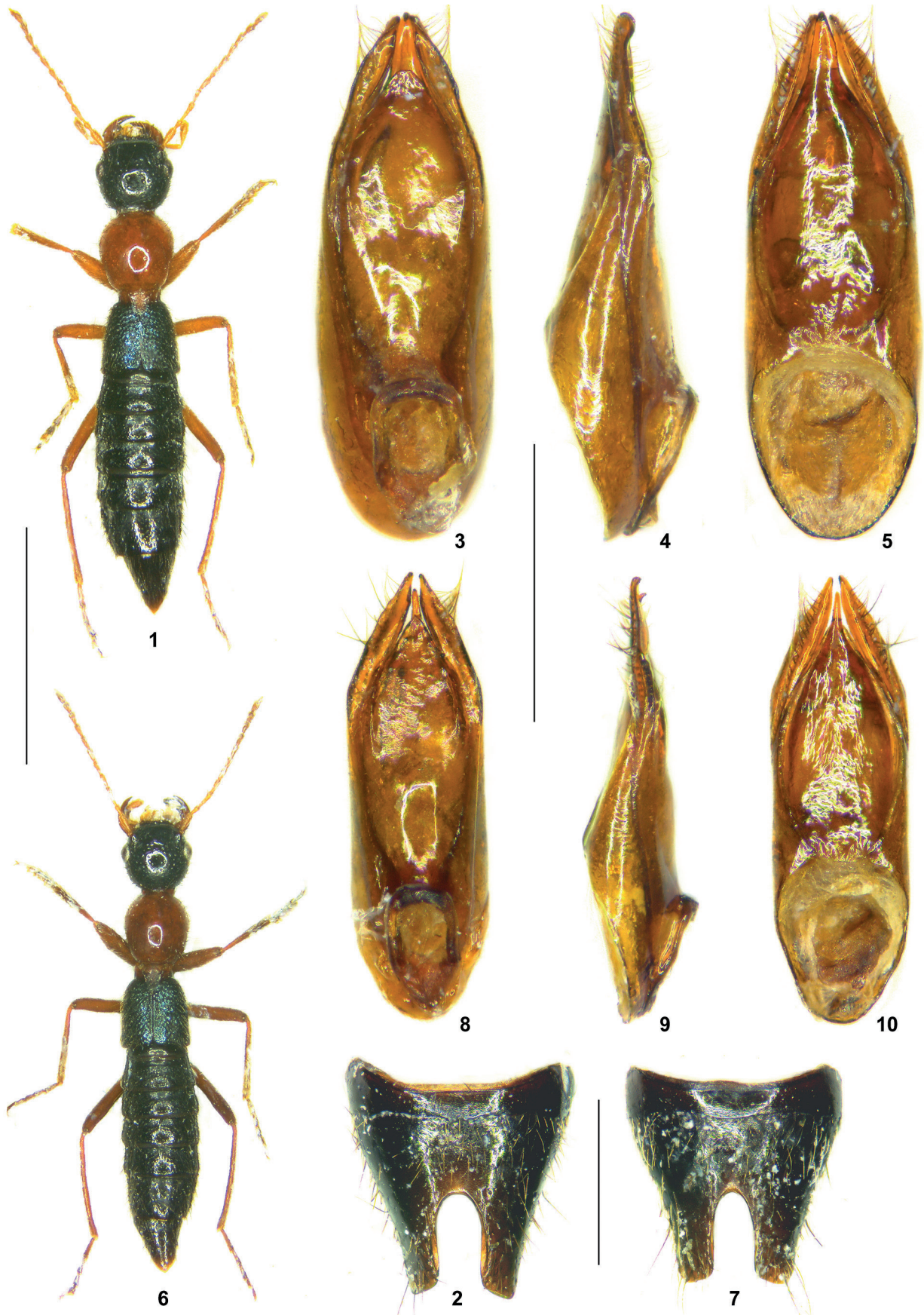
According to SCHÜLKE & SMETANA (2015) and NEWTON (2019), *P. nigripennis* has been recorded from North India, Nepal, the Chinese island Hainan, and the “Oriental” region (without further specification). The above male represents the first confirmed record from Vietnam.

Paederus (incertae sedis) digitalis spec. nov.

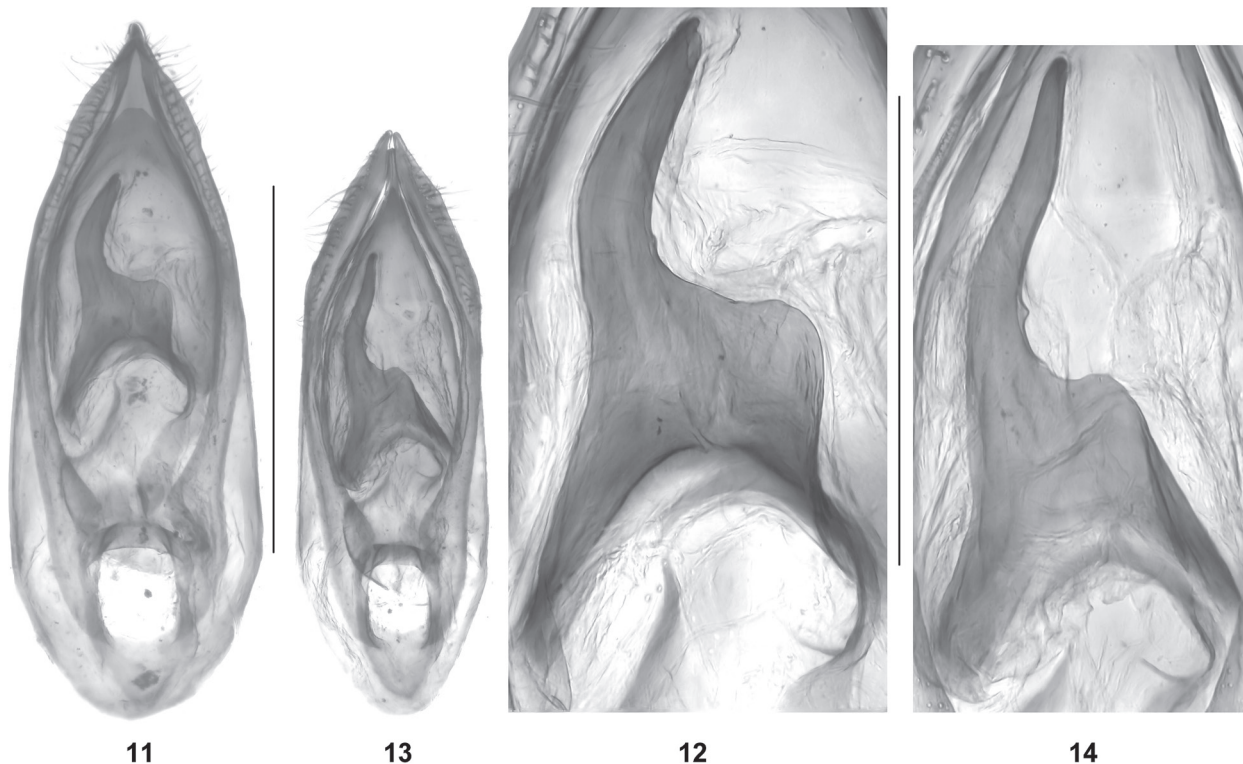
urn:lsid:zoobank.org:act:AF76E64C-9B3E-4C91-B2FC-E9411BDA55DB
(Figs 1–5, 11–12)

Type material: Holotype ♂: “NEPAL east, Mangalbare dist. Terhatum, 2.6.–9.6.2013, lgt. E. Kučera / Holotypus ♂ *Paederus digitalis* sp. n., det. V. Assing 2021” (MNB). Paratype ♀: “NEPAL east, Basantapur dist. Terhalum, 12.6.–14.6.2013, lgt. E. Kučera” (cAss).

Etymology: The specific epithet (Latin, adjective: of the finger) alludes to the finger-shaped apical process of the internal sclerite of the aedeagus.



Figs 1–10: *Paederus digitalis* (1–5) and *P. acifer* (6–10): 1, 6 – habitus; 2, 7 – male sternite VIII; 3–5, 8–10 – aedeagus in ventral, lateral, and in dorsal view. Scale bars: 1, 6: 5.0 mm; 2–5, 7–10: 1.0 mm.



Figs 11–14: *Paederus digitalis* (11–12) and *M. acifer* (13–14): 11, 13 – aedeagus in ventral view in transparent light; 12, 14 – internal structure of aedeagus in ventral view. Scale bars: 11, 13: 1.0 mm; 12, 14: 0.5 mm.

Description: Body length 10.3–12.0 mm; length of fore-body 5.0–5.5 mm. Habitus as in Fig. 1. Colouration: head and abdomen black; pronotum red; elytra black with bluish hue; legs pale-reddish; antennae and maxillary palpi yellow.

Head transverse, approximately 1.15 times as broad as long, broadest across eyes, tapering behind eyes; postocular region weakly convex; punctation moderately sparse and moderately coarse. Eyes slightly more than half as long as distance from posterior margin of eye to posterior constriction of head in dorsal view. Antenna 3.6–3.7 mm long; all antennomeres distinctly oblong. Labrum with broadly concave anterior margin, in the middle with weakly produced, obtuse projection. Mandibular teeth very stout and apically bifid.

Pronotum approximately 1.1 times as long as broad and 0.95 times as broad as head, laterally not margined; punctation sparse; midline broadly impunctate.

Elytra short, approximately 0.65 times as long as pronotum, distinctly widened posteriad; humeral angles practically obsolete; punctation coarse and dense. Hind wings completely reduced. Protarsomeres I–IV dilated, without appreciable sexual dimorphism. Metatarsomere I shorter than the combined length of metatarsomeres II and III.

Abdomen broader than elytra; punctation moderately coarse, rather dense on anterior tergites, gradually becoming sparser towards posterior tergites; interstices with microsculpture composed of transverse striae and long transverse meshes; posterior margin of tergite VIII without palisade fringe; tergite VIII posteriorly acute.

♂: sternite VII with extensive, but rather shallow median impression with dense granulate punctation; sternite VIII (Fig. 2) with posterior excision approximately extending to middle of sternite; aedeagus (Figs 3–5, 11) 1.9 mm long; dorsal plate apically acute, slightly extending beyond apices of parameres; ventral process apically obtuse, far from reaching apex of dorsal plate; internal sclerite with a curved and rather stout apical process (Fig. 12).

♀: posterior margin of sternite VIII triangularly, acutely produced in the middle.

Comparative notes: Among the micropterous and similarly coloured *Paederus* species known from East Nepal, the aedeagus of *P. digitalis* most resembles that of *P. tibetanus* CAMERON, 1928, which differs from the new species by a broader aedeagus with a shorter (not reaching apices of parameres) and apically more acute dorsal plate, an apically broadly truncate ventral process, and stouter parameres. For characters separating *P. digitalis* from the similar and sympatric *P. acifer* see the comparative notes in the following section.

Distribution: The type locality is situated at approximately 26°57'N, 87°50'E in Terhathum district, East Nepal. The hypothesis that the female paratype is conspecific with the holotype requires confirmation based on males from Basantapur (approximately 27°08'N, 87°24'E). Additional data are not available.

Paederus (incertae sedis) *acifer* spec. nov.

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(Figs 6–10, 13–14)

Type material: Holotype ♂: “NEPAL east, Mangalbare dist. Terhatum, 2.6.–9.6.2013, lgt. E. Kučera / Holotypus ♂ *Paederus acifer* sp. n., det. V. Assing 2021” (MNB).

Etymology: The specific epithet (Latin, adjective: carrying a needle) alludes to the needle-shaped apical process of the internal sclerite of the aedeagus.

Description: Body length 9.5 mm; length of forebody 4.8 mm. Habitus as in Fig. 6. Colouration: head and abdomen black; pronotum red; elytra black with bluish hue; legs reddish; antennae and maxillary palpi yellow. Antennae 3.5 mm long. Other external characters as in *P. digitalis*.

♂: sternite VII with extensive, but rather shallow median impression with dense granulose punctation; sternite VIII (Fig. 7) with posterior excision approximately extending to middle of sternite; aedeagus (Figs 8–10, 13) 1.6 mm long; dorsal plate apically very acute and slender (needle-shaped), not reaching apices of parameres; ventral process apically acute, far from reaching apex of dorsal plate; internal structure with a long, very slender, and apically acute apical process (Fig. 14).

♀: unknown.

Comparative notes: *Paederus acifer* is distinguished from the similar and syntopic *P. digitalis* by smaller body size and a significantly smaller aedeagus with an apically more acute dorsal plate, an apically more acute ventral process, and a more slender internal sclerite with a longer, more slender, and apically more acute apical process.

Distribution: The type locality is identical to that of *P. digitalis*.

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