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On the *Harpopaederus* fauna of China (Coleoptera: Staphylinidae: Paederinae)

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A b s t r a c t : Types and additional material of *Paederus* FABRICIUS, 1775, subgenus *Harpopaederus* SCHEERPELTZ, 1957, from China are revised. Seven species are (re-) described and/or illustrated: *Paederus (Harpopaederus) agnatus* EPPELSHEIM, 1889; *P. (H.) lineodenticulatus* LI & ZHOU, 2007; *P. (H.) cultellatus* nov.sp. (Daba Shan at the border between Chongqing, Hubei, and Shaanxi); *P. (H.) depectens* nov.sp. (Northwest Sichuan); *P. (H.) edentulus* nov.sp. (Gansu: mountains to the southeast of Longnan); *P. (H.) minicus* nov.sp. (Gansu: Min Shan); *P. (H.) chinensis* BERNHAUER, 1931. *Paederus chinensis*, the type species of the subgenus *Oedopaederus*, is assigned to *Harpopaederus*, resulting in the synonymy *Harpopaederus* SCHEERPELTZ, 1957 = *Oedopaederus* SCHEERPELTZ, 1957, nov.syn. Two additional synonymies are proposed: *Paederus gottschei* KOLBE, 1886 = *P. pseudobaudii* ALEKSANDROV, 1934, nov.syn.; *P. agnatus* EPPELSHEIM, 1889 = *P. dangchangensis* LI & ZHOU, 2007, nov.syn. The intraspecific variation of the sexual characters of *P. agnatus* is illustrated and discussed. Additional records of nine previously described species are reported. The general distribution of the subgenus in China, as well as the individual distributions of all the *Harpopaederus* species recorded from China are illustrated. A catalogue is provided. *Harpopaederus* now includes 20 species, 15 of which have been recorded from China (14 exclusive). With one exception (*P. gottschei*), all the Chinese representatives of the subgenus are distributed in the Qinling Shan, the Daba Shan, and adjacent mountain ranges, as well as in West Sichuan.

K e y w o r d s : Coleoptera, Staphylinidae, Paederinae, *Paederus*, *Harpopaederus*, China, taxonomy, new species, additional records, intraspecific variation, new subgeneric assignment, new synonymies, catalogue, distribution maps.

Introduction

According to SCHÜLKE & SMETANA (in press), the subgenus *Harpopaederus* SCHEERPELTZ, 1957 of the speciose genus *Paederus* FABRICIUS, 1775 is distributed in both the West and the East Palaearctic regions and previously included 16 species. This list, however, still includes *P. describendus* Willers, 2001, which was excluded from *Harpopaederus* by LI & ZHOU (2007). A 16th species was recently described from Sichuan (China) by PENG et al. (2015). Eleven *Harpopaederus* species have been recorded from China, nine of them from the Qinling Shan, the Daba Shan, and adjacent mountain ranges. Although all of them are micropterous, the literature records of some species (e.g., *P. gracilacutus* LI & ZHOU, 2007) suggest remarkably extensive distributions.

The present paper is based primarily on material from the collection of Michael Schülke (Berlin), as well as on material collected during a recent field trip to the Qinling Shan and adjacent mountain ranges (China) conducted by Michael Schülke, David Wrase, and the author in summer 2012. An examination of this material yielded four new species and numerous additional records of previously described species.

Material and methods

The material treated in this study is deposited in the following collections:

NHMW Naturhistorisches Museum Wien (H. Schillhammer)
 SNSD Senckenberg Naturhistorische Sammlungen Dresden (O. Jäger)
 SNUC..... Insect Collection of Shanghai Normal University, Shanghai
 cAss..... author's private collection
 cSch..... private collection Michael Schülke, Berlin

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). The images of external characters were created using a photographing device constructed by Arved Lompe (Nienburg) and CombineZ software. A digital camera (Nikon Coolpix 995) was used for the remaining photographs. The maps were created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the mandibles (in resting position) to the abdominal apex, the length of the forebody from the anterior margin of the mandibles to the posterior margin of the elytra, head length from the anterior margin of the frons to the posterior margin of the head, 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 apex of the dorsal plate or the parameres (whichever forms the apex of the aedeagus) 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.

In order to better assess the shape of the internal structures of the aedeagus, the dorsal plate of the aedeagus of some males was removed.

Catalogue of the *Harpopaederus* species of China

C o m m e n t : Including *P. chinensis* and the four new species described in this paper, the *Harpopaederus* fauna of China is now represented by 15 species. Except for the widespread *P. gottschei* and two species from western Sichuan (*P. chinensis*, *P. deplectens*), all these species are distributed in the Qinling Shan, the Daba Shan, and adjacent mountain ranges (Map 1). Based on currently available evidence, the distribution ranges of these species are restricted, but less so than in micropterous species of other paederine genera occurring in the same region, such as *Lathrobium* GRAVENHORST, 1802 and *Nazeris* FAUVEL, 1873. The known records of some *Harpopaederus* species do not convey a clear or conclusive distribution pattern (Maps 2-3). More data are needed to clarify the zoogeography of these species, including the question to what extent the distributions overlap.

Species	Distribution
<i>agnatus</i> EPPELSHEIM, 1889 = <i>dangchangensis</i> LI & ZHOU, 2007; nov.syn.	Gansu, Shaanxi: Qinling Shan
<i>antennocinctus</i> WILLERS, 2001	NW-Sichuan (Songpan env.); Gansu
<i>apfelsinicus</i> WILLERS, 2001	Hubei: Daba Shan (Da Shennongjia)
<i>brevior</i> LI et al., 2014	Shaanxi: Qinling Shan
<i>chinensis</i> BERNHAUER, 1931	W-Sichuan
<i>cultellatus</i> nov.sp.	Shaanxi/Chongqing/Hubei: Daba Shan
<i>deplectens</i> nov.sp.	NW-Sichuan
<i>edentulus</i> nov.sp.	Gansu: mountains SE Longnan
<i>gottschei</i> KOLBE, 1886 = <i>latro</i> SMETANA, 1962 = <i>pseudobaudii</i> ALEKSANDROV, 1934; nov.syn. = <i>ussuriensis</i> KIRSHENBLAT, 1932	China: Heilongjiang, Jilin; Russian Far East; North Korea; South Korea
<i>gracilacutus</i> LI & ZHOU, 2007	Gansu, Shaanxi: Qinling Shan
<i>konfuzius</i> WILLERS, 2001	Shaanxi: Qinling Shan
<i>lineodenticulatus</i> LI & ZHOU, 2007	Chongqing, Shaanxi: Daba Shan
<i>minicus</i> nov.sp.	Gansu: Min Shan
<i>multidenticulatus</i> LI et al., 2014	Hubei: Daba Shan
<i>xui</i> PENG & LI, 2015	Sichuan, Shaanxi: Micang Shan

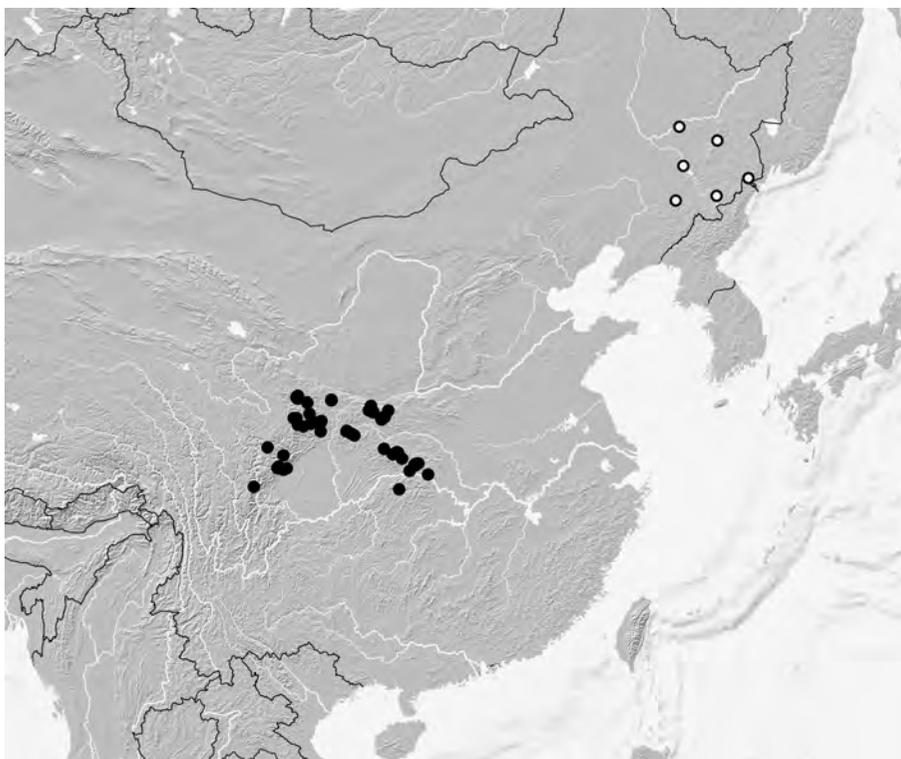
Additional records, (re-)descriptions, and synonymies

Paederus (Harpopaederus) gottschei KOLBE, 1886 (Map 1)

Paederus pseudobaudii ALEKSANDROV, 1934: 151; **nov.syn.**

C o m m e n t : According to WILLERS (2001b), the depository and identity of the type material of *P. pseudobaudii* from "Hengtaohotze" (Heilongjiang) is uncertain, but there is little doubt that it is conspecific with *P. gottschei*, also because ALEKSANDROV (1934) himself synonymized the species with *P. chinensis*. The material from Heilongjiang studied by WILLERS (2001b), some of which had previously been identified as *P. pseudobaudii*, all belonged to *P. gottschei*.

Paederus gottschei is the most widespread - and probably also the most common - representative of *Harpopaederus* in the East Palaearctic region, its distribution ranging from the Russian Far East across Northeast China to North and South Korea. For additional records see LI & ZHOU (2007). So far, all the material of *Harpopaederus* from this region has proved to belong to *P. gottschei*, making it seem most unlikely that *P. pseudobaudii* represents a distinct species. In consequence, *P. pseudobaudii* is formally placed in synonymy with *P. gottschei*. The distribution of *P. gottschei* in China is illustrated in Map 1.



Map 1: Distribution of *Paederus gottschei* (open circles) and pooled distributions of the remaining *Harpopaederus* species (filled circles) in China.

***Paederus (Harpopaederus) konfuzius* WILLERS, 2001 (Map 3)**

Paederus konfuzius WILLERS, 2001b: 3 ff.; partim.

Type material examined: Holotype ♂: "China: Shaanxi, Qin Ling Shan, 108.47E, 33.51N, Mountain W Pass at Autoroute km 70, 47 km S Xian, 2300-2500 m, sifted, 26.-30.08.1995, leg. A. Pütz / Holotypus ♂ *Paederus konfuzius* n. sp., des. Willers 9.1999 / *Paederus konfuzius* Willers, det. V. Assing 2015" (cAss). Paratypes: 1 ♀ [teneral]: same locality and date as holotype, but leg. Schülke (cSch); 1 ♀: same locality and date as holotype, but leg. Wrase (cSch); 1 ♂: "CHINA (Shaanxi) Qin Ling Shan, 107.56E, 33.45N, autoroute km 93 S Zhouzhi, 108 km SW Xian, mount. forest, 1650 m, 1.-2.IX.95 Wrase / Paratypus ♀ [sic] *Paederus konfuzius* n. sp., des. Willers 9.1999 / *Paederus agnatus* Eppelsheim, det. V. Assing 2015" (cSch); 1 ♂: "China: Shaanxi, Qin Ling Shan, 107.56E, 33.45N, Autoroute km 93 S Zhouzhi, 108 km SW Xian, Mountain Forrest [sic], sifted, 1650 m, 1.-2.09.1995, leg. M. Schülke / Paratypus ♂ *Paederus konfuzius* n. sp., des. Willers 9.1999 / *Paederus agnatus* Eppelsheim, det. V. Assing 2015" (cSch).

Additional material examined: China: Shaanxi: 2♂♂, Xunyangba, 1.-3.VII.2005, leg. Jeniš (cAss).

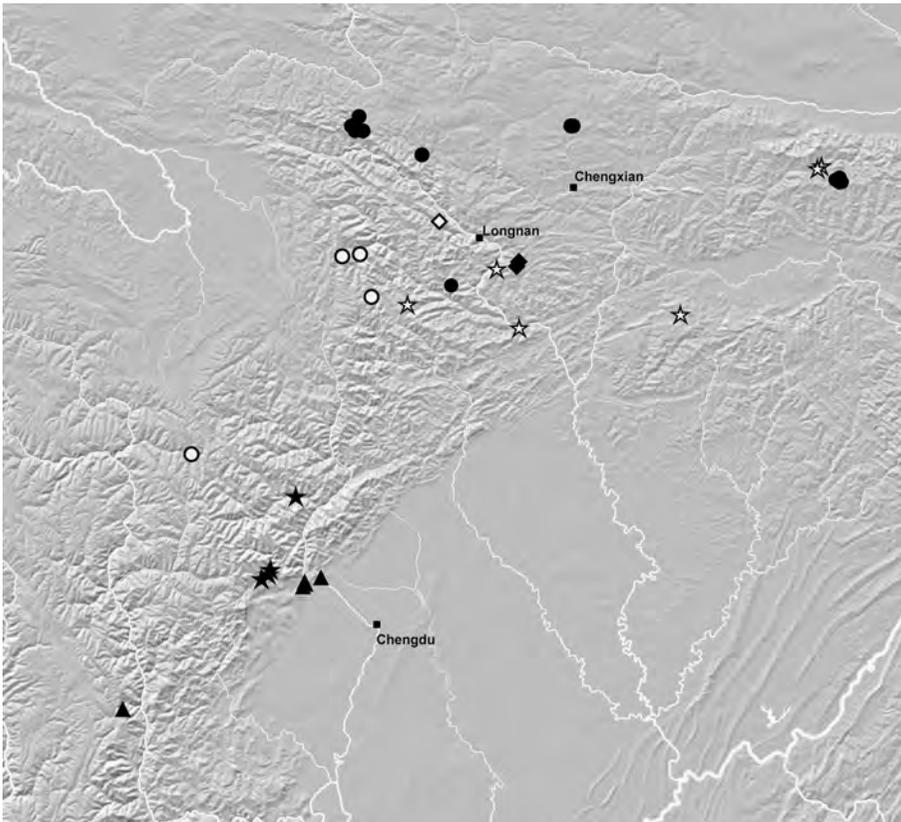
Comment: The original description of *P. konfuzius* is based on thirteen type specimens from three localities in the Qinling Shan, Shaanxi (WILLERS 2001b). The specimens from one of the localities, at least five paratypes, are not conspecific with the holotype, but belong to *P. agnatus*. The record from the Taibai Shan is based on three females and consequently somewhat uncertain. PENG et al. (2015) reported additional

localities from the Qinling Shan. LI & ZHOU (2007) erroneously reported the species also from Gansu and Sichuan (PENG et al. 2015). Confirmed records are known only from Shaanxi (Map 3).

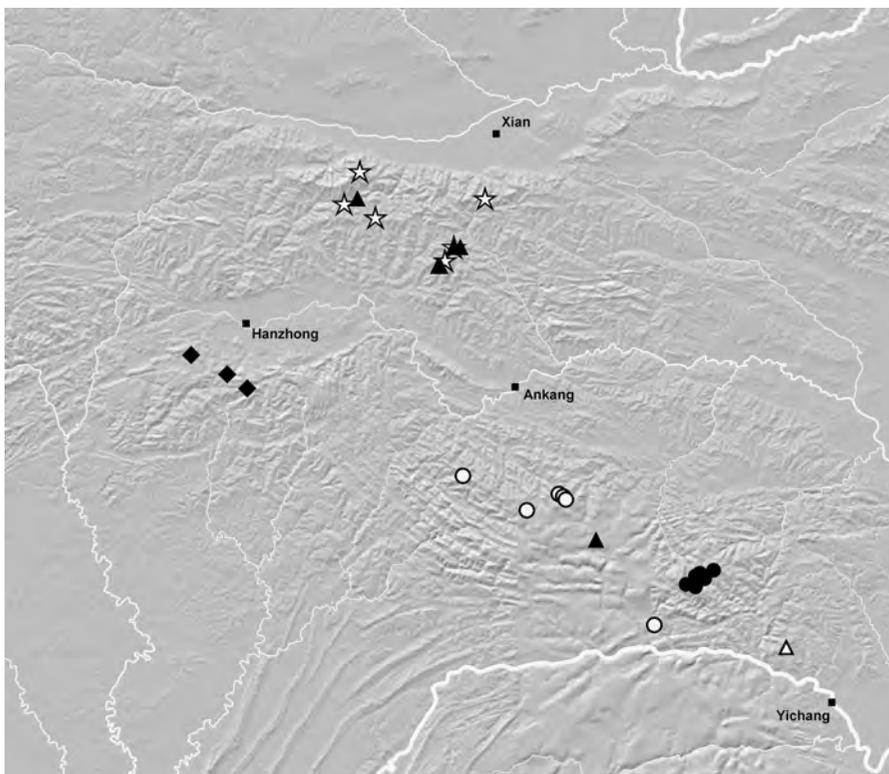
***Paederus antennocinctus* WILLERS, 2001 (Map 2)**

Material examined: China: Sichuan: 5♂♂, 1♀, 70 km N Songpan, above Gan lake, 33°15'N, 103°46'E, 2700 m, spruce forest with birch, litter, moss, and soil sifted, 12.VIII.2012, leg. Schülke & Wrase (cSch, cAss); 1♀, Min Shan, 30 km E Barkam, 4000 m, 20.VII.2004, leg. Patrikeev (cSch).

Comment: The original description is based on a male holotype and a female paratype from Jiuzhaigou in North Sichuan (WILLERS 2001b). The species was subsequently reported from "Wen County, Qiuja Dam" in Gansu [32°58'N, 104°01'E] by LI & ZHOU (2007). The currently known distribution is illustrated in Map 2.



Map 2: Distributions of *Harpopaederus* species in Sichuan, Gansu, and Shaanxi (some doubtful female-based literature records omitted): *Paederus chinensis* (filled triangles); *P. depectens* (filled stars); *P. antennocinctus* (open circles); *P. agnatus* (filled circles); *P. minicus* (open diamond); *P. edentulus* (filled diamonds); *P. gracilacutus* (open stars).



Map 3: Distributions of *Harpopaederus* species in the Qinling Shan and the Daba Shan in Shaanxi, Hubei, North Sichuan, and Chongqing (some doubtful female-based literature records omitted): *Paederus xui* (filled diamonds); *P. konfuzius* (open stars); *P. brevior* (triangles); *P. lineodenticulatus* (open circles); *P. cultellatus* (filled triangle); *P. apfelsinicus* (filled circles); *P. multidenticulatus* (open triangle).

***Paederus brevior* LI, SOLODOVNIKOV & ZHOU, 2014 (Map 3)**

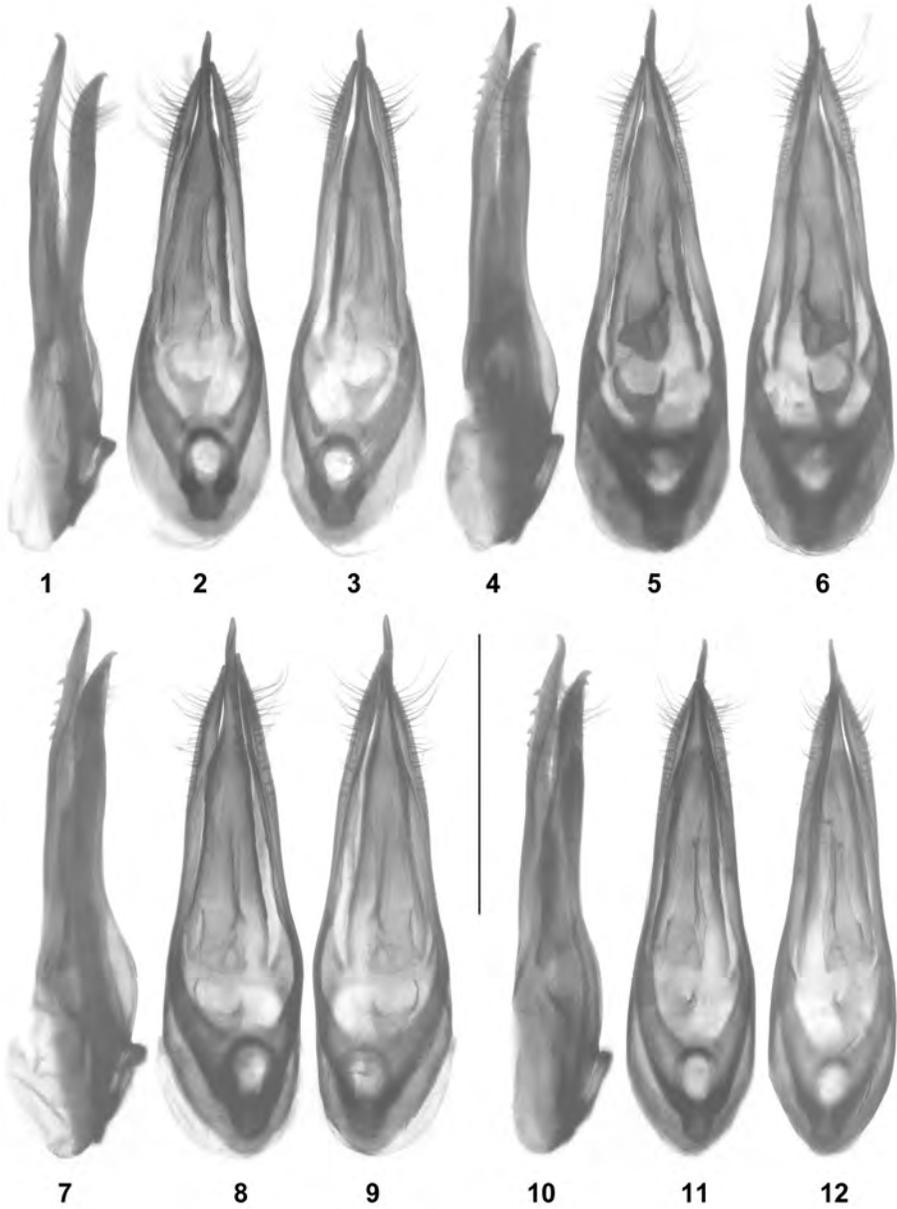
Material examined: China: Shaanxi: 2♂♂, 1♀, Xunyangba, 1.-3.VII.2005, leg. Jeniš (cAss).

Comment: *Paederus brevior* has been recorded from several localities in the Qinling Shan, Shaanxi (LI et al. 2014; PENG et al. 2015). The distribution apparently strongly overlaps with that of *P. konfuzius* (Map 3).

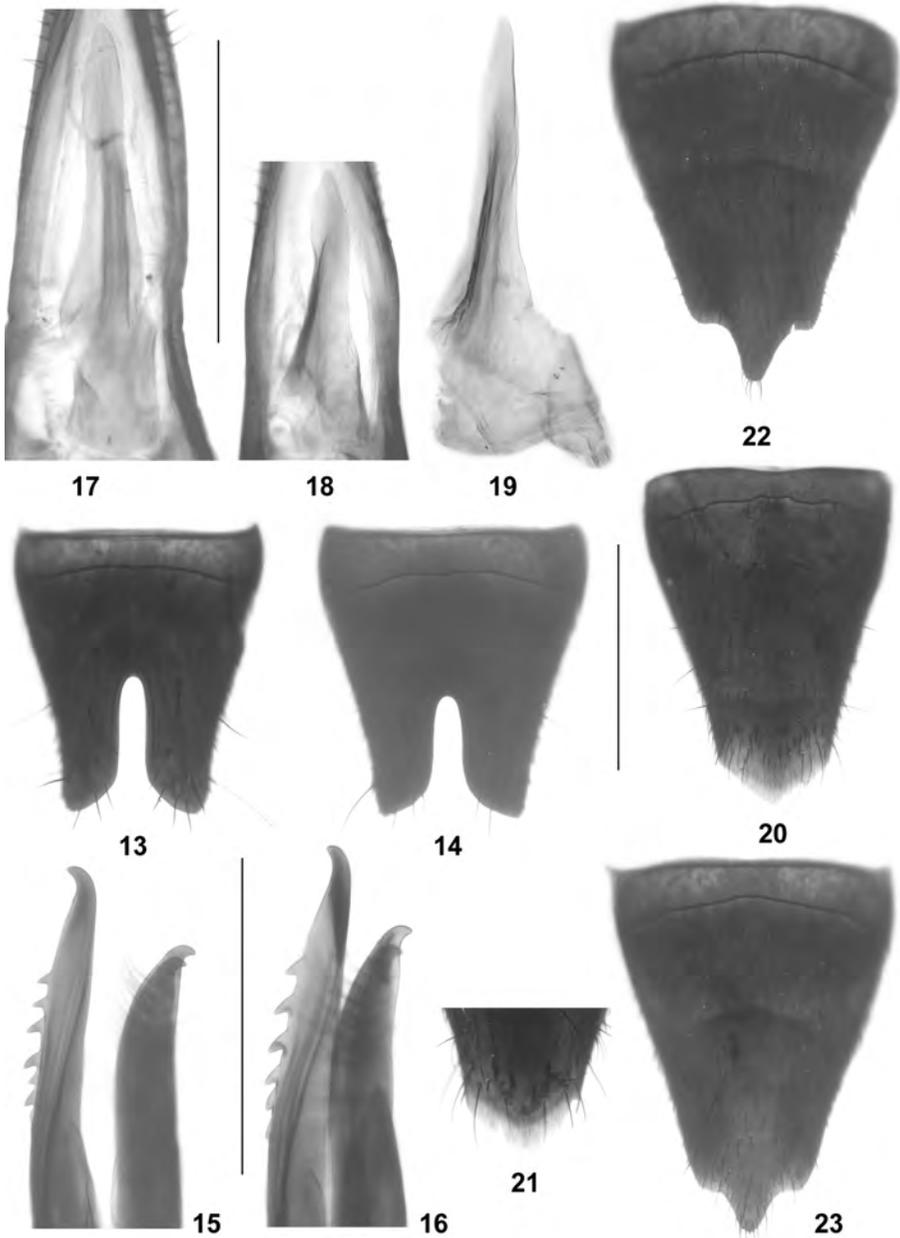
***Paederus gracilacutus* LI & ZHOU, 2007 (Map 2)**

Material examined: China: Shaanxi: 1♂, Qinling Shan, river bank above Houzhenzi, 33°50'N, 107°47'E, 1450 m, 5.VII.2001, leg. Schülke (cAss).

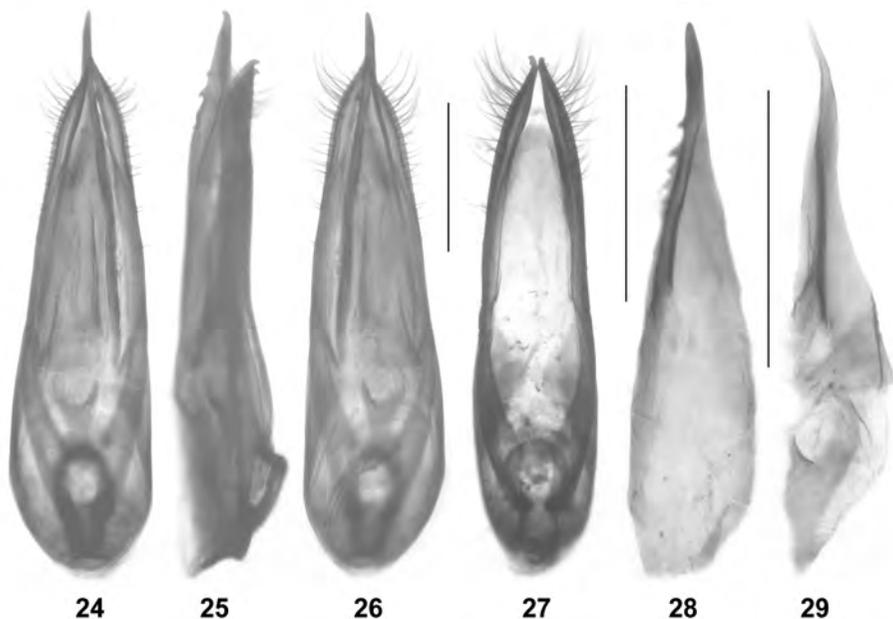
Comment: This species was described based on material from several localities in Gansu (LI & ZHOU 2007) and subsequently reported also from two localities in Shaanxi (PENG et al. 2015). If all the records reported in the literature are based on correctly identified material, this species is remarkably widespread in the Qinling Shan and the distribution overlaps with those of several other *Harpopaederus* species (Map 2).



Figs 1-12: *Paederus agnatus* EPPELSHEIM: aedeagus of males from the Chengxian region (1-3), the region to the southwest of Longnan (4-9), and from the region to the northwest of Longnan (10-12) in lateral (1, 4, 7, 10), ventral (2, 5, 8, 11), and in dorsal view (3, 6, 9, 12). Scale bar: 1.0 mm.



Figs 13-23: *Paederus agnatus* from the Chengxian (13, 15, 17, 20, 22) and Longnan regions (14, 16, 18-19, 21, 23): (13-14) male sternite VIII; (15-16) apex of aedeagus in lateral view; (17-19) internal structure of aedeagus in dorsal view (dorsal plate removed in 17-18); (20) female tergite VIII; (21) apex of female tergite VIII; (22-23) female sternite VIII. Scale bars: 13-14, 20-23: 1.0 mm; 15-19: 0.5 mm.



Figs 24-29: *Paederus agnatus* from Shaanxi: (24) aedeagus in ventral view; (25) aedeagus in lateral view; (26) aedeagus in dorsal view; (27) aedeagus without dorsal plate and internal structures in ventral view; (28) dorsal plate in dorsal view; (29) internal structures of aedeagus. Scale bars: 0.5 mm.

***Paederus xui* PENG & LI, 2015 (Map 3)**

Type material examined: Paratypes: 1♂ [teneral]: "CHINA (S.Shaanxi) Micang Shan, 33 km S Hanzhong, 32°44'44"N, 106°52'46"E 1360 m (stream valley, forest margin with tall herbaceous vegetation, pitfall traps, vinegar) 15.-16.VIII.2012 D.W. Wrase [30A]" (cSch); 2♀: "CHINA: S-Shaanxi [CH12-31], Micang Shan, 40 km SW Hanzhong, 32°52'25"N, 106°37'11"E, 1530 m, N-slope, mixed secondary forest, litter and moss sifted, 16.VIII.2012, leg. M. Schülke" (cSch, cAss).

C o m m e n t : The original description is based on six type specimens from "Micang Shan, Daba, 32°40'N, 107°02'E" and the above specimens (PENG et al. 2015). The currently known distribution is illustrated in Map 3.

***Paederus agnatus* EPPELSHEIM, 1889 (Figs 1-29, 54, Map 2)**

Paederus agnatus EPPELSHEIM, 1889: 180 f.;

Paederus dangchangensis LI & ZHOU, 2007: 227 ff.; **nov.syn.**

Paederus konfuzius WILLERS, 2001b: 3 ff.; partim.

Type material examined: *P. agnatus*: Syntype ♀: "Kan-ssa / 14.IV [overleaf] / c. Epplish. Steind. d. / agnatus Epp., Hor. Soc. ent. Ross., t. XXIII. p. 180. / Typus / Syntypus ♀ *Paederus agnatus* Eppelsheim rev. V. Assing 2015 / *Paederus* (*Harpopaederus*) *agnatus* ♀ Eppelsheim, det. V. Assing 2015" (NHMW).

A d d i t i o n a l m a t e r i a l e x a m i n e d : China: G a n s u : 1 ♀, Qinling Shan, N Chengxian, 34°10'N, 105°43'E, 1850 m, mixed secondary forest margin, litter sifted, 29.VII.2012, leg. Wrase (cAss); 1 ♂, 1 ♀, Qinling Shan, N Chengxian, 34°10'N, 105°42'E, 1830 m, stream valley with secondary deciduous forest, moist litter sifted, 29.VII.2012, leg. Schülke & Wrase (cSch, cAss); 1 ♂, 2 ♀ ♀, Qinling Shan, NW Longnan, Lazikou pass, S-side, Laolong valley, 34°08'N, 103°52'E, 2300 m, S-slope with pine and spruce forest, litter sifted, 3.VIII.2012, leg. Assing, Schülke & Wrase (cAss, cSch); 1 ♂, Qinling Shan, NW Longnan, Lazikou pass, S-side, Zhuli valley, 34°08'N, 103°56'E, 2260 m, N-slope, mixed forest with oak and pine near stream, litter and dead wood sifted, 3.VIII.2012, leg. Wrase (cAss); 3 ♂ ♂, 2 ♀ ♀, Lazikou valley, 34°10'N, 103°48-52'E, 2120-2510 m, 28.VI.2005, leg. Hájek et al. (cSch, cAss); 1 ♂, Lazikou valley, 34°10'N, 103°52'E, 2120 m, vegetation along meadow, baited pitfall trap (fish, meat, cheese), 28.VI.2005, leg. Hájek et al. (cSch); 2 ♂ ♂, Lazikou pass, 34°14'N, 103°54'E, 3180 m, grassland, 29.VI.2005, leg. Hájek et al. (cSch, cAss); 2 ♂ ♂, S Longnan, Min Shan, 33°03'N, 104°41'E, 2200 m, secondary pine forest with hazelnut, moist litter and roots sifted, 6.VIII.2012, leg. Assing & Wrase (cAss, cSch). S h a a n x i [see also type material of *P. konfuzius*]: 2 ♂ ♂, 1 ♀, Qinling Shan, 105 km SW Xi'an, pass on road Zhouzhi-Foping, 33°46'N, 107°58'E, 1880 m, 4.VII.2001, leg. Wrase (cSch); 1 ♂, 2 ♀ ♀, Qinling Shan, 105 km SW Xi'an, pass on road Zhouzhi-Foping, 33°46'N, 107°58'E, 1700 m, stream valley, mixed deciduous forest, 3.VII.2001, leg. Wrase (cSch, cAss); 2 ♀ ♀, Qinling Shan, 105 km SW Xi'an, pass on road Zhouzhi-Foping, 33°44'N, 107°59'E, 1990 m, 2.-4.VII.2001, leg. Schülke & Wrase (cSch, cAss); 1 ♀, Qinling Shan, 52 km SSW Zhouzhi, 33°44'N, 107°58'E, 1900 m, mixed forest, litter and soil sifted, 25.VII.2012, leg. Wrase (cSch).

C o m m e n t : The original description of *P. agnatus* is based on two syntypes ("2 Exemplare") from "Kan-ssu" (= Gansu) (EPPELSHEIM 1889), that of *P. dangchangensis* on a male holotype and a male paratype from "Dangchang County, Dahe Dam" (LI & ZHOU 2007). Only one syntype of *P. agnatus* was found in the Eppelsheim collection at the NHMW. Since it is a female, it is not designated as the lectotype. The second syntype may be in the Potanin collection, whose whereabouts are apparently unknown (HORN et al. 1990), if it still exists. The syntype from the Eppelsheim collection had been examined, but not assigned to a subgenus, by WILLERS (2001b). Thus, the species is listed as incertae sedis in SMETANA (2004) and SCHÜLKE & SMETANA (in press). Based on the external (coloration of the antennae and legs; shape and coloration of the mandibles; shape of labrum), as well as the female sexual characters (shapes of tergite VIII and sternite VIII), the syntype of *P. agnatus* is conspecific with *P. dangchangensis*. Hence the synonymy proposed above.

A comparison of the sexual characters of the material from the environs of Chengxian, of the specimens from the regions to the northwest and southwest of Longnan, of material from Shaanxi, and of the aedeagus of the holotype based on photos kindly sent to me by Xiaoyan Li (Beijing) revealed some differences, particularly regarding the shape of the internal structures of the aedeagus (Figs 1-12, 17-19, 14, 26, 29), the size and number of the denticles on the dorsal plate of the aedeagus, the depth of the posterior excision of the male sternite VIII (Figs 13-14, 54), the shape of the posterior margin of the female tergite VIII (Figs 20-21), and the shape of the apical projection of the female sternite VIII (Figs 22-23). The aedeagi of the holotype and the paratype of *P. dangchangensis*, as well as those of some males from Shaanxi have smaller denticles on the dorsal plate and an internal structure of slightly different shape. However, no significant differences were found in the external characters and in the general shape of the aedeagus (Figs 1-12, 15-16, 24-27). The question whether or not the observed differences are an expression of inter- or intraspecific variation cannot be answered with certainty, but the observation that slight differences may occur even within and between geographically close populations suggests that they are most plausibly interpreted as intraspecific variation.

Regarding its male and the female sexual characters, *P. agnatus* is similar to *P. konfuzius*, with which it was previously confounded (see type material of *P. konfuzius*) and from which it is distinguished by the absence of pronounced sexual dimorphisms of the head shape and the mandibles, by the paler tibiae (*P. agnatus*: usually yellowish, very indistinctly infuscate at most; *P. konfuzius*: more or less distinctly and more or less extensively infuscate basally), by the smaller aedeagus (*P. agnatus*: approximately 1.9 mm; *P. konfuzius*: 2.0-2.1 mm), and by the apical internal structure of the aedeagus (*P. konfuzius*: straight, dagger-shaped, and more strongly sclerotized). For illustrations of *P. konfuzius* see PENG et al. (2015). The previously unknown female sexual characters of *P. agnatus* are illustrated in Figs 20-23.

Paederus agnatus is remarkably widespread in the Qinling Shan, from central southern Gansu to central southern Shaanxi (Map 2).

***Paederus (Harpopaederus) edentulus nov.sp.* (Figs 30-45, Map 2)**

Type material: Holotype ♂: "CHINA [18] - S-Gansu, mountains SE Longnan, sifted, 33°11'17"N, 105°14'12"E, 2060 m, 7.VIII.2012, V. Assing / Holotypus ♂ *Paederus edentulus* sp.n. det. V. Assing 2015" (cAss). Paratypes: 1 ♀: same data as holotype, but leg. Wrase (cSch); 1 ♀: "CHINA: S-Gansu [CH12-13b], Mts. 36 km SE Longnan, 2080 m, 33°13'03"N, 105°14'55"E, E-slope with mixed pine and birch forest, litter sifted, 4.VIII.2012, M. Schülke" (cAss).

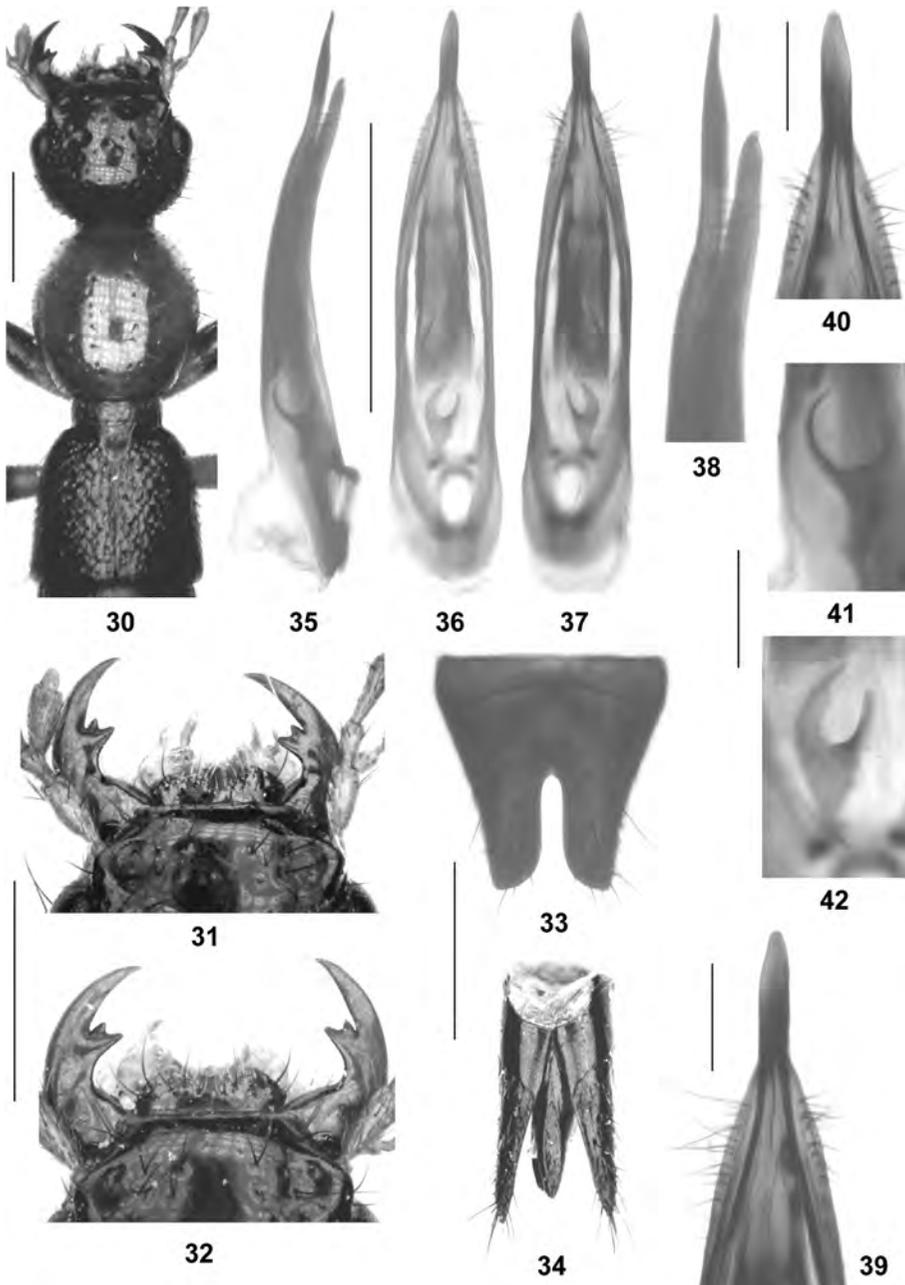
Etymology: The specific epithet (Latin, adjective: without teeth) alludes to the absence of denticles on the dorsal plate of the aedeagus.

Description: Body length 10.0-11.0 mm; length of forebody 4.7-6.0 mm. Coloration: head black; pronotum bright reddish; elytra metallic-blue; scutellum pale-reddish; abdomen bicoloured with segments III-VI pale-reddish and segments VII-X black; legs dark-yellowish, with the apical halves of the femora blackish; antennae dark-yellowish.

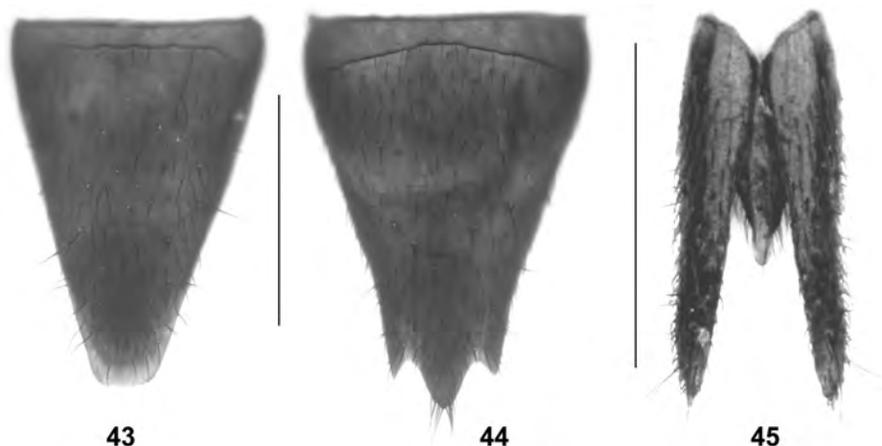
Head (Fig. 30) transverse, 1.13-1.19 times as broad as long; punctation rather fine and sparse in median and anterior dorsal portions, coarser and denser in lateral and posterior dorsal portions; interstices without microsculpture. Eyes noticeably shorter than postocular region from posterior margin of eye to posterior constriction of head. Antenna 2.9-3.0 mm long; antennomere IV approximately twice as long as broad; antennomere X approximately 1.5 times as long as broad. Labrum with rather deeply and broadly excavate anterior margin (Figs 31-32).

Pronotum (Fig. 30) 1.06-1.07 times as long as broad and 1.02-1.06 times as broad as head, strongly convex in cross-section; dorsal series each composed of approximately 10 punctures.

Elytra (Fig. 30) approximately 0.68-0.75 times as long as pronotum and of trapezoid shape; punctation moderately coarse and of somewhat variable density; interstices without microsculpture. Hind wings completely reduced. Protarsomeres I-IV with pronounced sexual dimorphism. Metatarsomere I approximately as long as the combined length of II and III.



Figs 30-42: *Paederus edentulus* nov.sp.: (30) forebody; (31-32) mouthparts; (33) male sternite VIII; (34) male tergites IX-X; (35-37) aedeagus in lateral, ventral, and dorsal view; (38-40) apical portion of aedeagus in lateral, ventral, and dorsal view; (41-42) internal structures of aedeagus in lateral and ventral view. Scale bars: 40-37: 1.0 mm; 38-42: 0.2 mm.



Figs 43-45: *Paederus edentulus* nov.sp.: (43) female tergite VIII; (44) female sternite VIII; (45) female tergites IX-X. Scale bars: 1.0 mm.

Abdomen approximately 1.1 times as broad as elytra; punctation moderately fine and rather dense; pubescence long and blackish; interstices with fine and transverse microsculpture; posterior margin of tergite VII without palisade fringe; tergite VIII sexually dimorphic.

♂: protarsomeres I-IV strongly dilated; tergite VIII strongly convex posteriorly; posterior margin of sternite VII weakly concave in the middle; sternite VIII (Fig. 33) weakly transverse, posterior excision nearly half as deep as length of sternite; tergites IX-X as in Fig. 34; aedeagus (Figs 35-42) 2.0 mm long and nearly symmetric; ventral process very weakly sclerotized; dorsal plate long, basally slender, apically acute and not curved in lateral view, extending far beyond apices of parameres, without denticles; parameres apically very weakly curved; internal sac with a clip-shaped weakly sclerotized basal structure, but without sclerotized spines.

♀: protarsomeres I-IV moderately dilated, much less so than in male; tergite VIII (Fig. 43) strongly tapering posteriorly, posterior margin blackish, weakly convex in the middle; sternite VIII (Fig. 44) posteriorly with median process of triangular shape, postero-lateral angles acute and projecting posteriorly; tergites IX and X as in Fig. 45.

Comparative notes: The new species differs from the geographically close and externally highly similar *P. agnatus*, as well as from other micropterous *Harpopaederus* species recorded from the western Qinling Shan by the morphology of the aedeagus (dorsal plate rather slender basally, without denticles, apically not curved in lateral view; apices of parameres only very weakly curved), and additionally as follows:

from *P. agnatus* by the shapes of the female tergite VIII and sternite VIII (see Figs 9-10); from *P. antennocinctus*, with which it shares the absence of denticles on the dorsal plate of the aedeagus, by uniformly yellowish antennae (*P. antennocinctus*: antennomeres III-XI apically infuscate), the yellowish tibiae and basal halves of the femora, the differently shaped female tergite VIII (*P. antennocinctus*: apically strongly convex), and the much shorter and less slender median projection of the posterior margin of the female sternite VIII (see description and figures in WILLERS 2001b);

from *P. gracilacutus*, with which it shares a similar shape of the labrum, by the acutely angled and distinctly projecting postero-lateral angles of the female sternite VIII; for illustrations of *P. gracilacutus* see PENG et al. (2015).

Distribution and natural history: The species was discovered in two localities situated to the southeast of Longnan, southern Gansu. The specimens were collected by sifting litter and moss in a mixed pine and birch forest and in a shrub habitat on a slope with scree at altitudes of 2060 and 2080 m.

***Paederus (Harpopaederus) minicus nov.sp.* (Figs 46-53, Map 2)**

Type material: Holotype ♂: "CHINA: Gansu, Min - Shan 2300-3300 m, 27.VII-14.VIII.2000, 33°30'N, 104°35'E, leg. A. Plutenko / Holotypus ♂ *Paederus minicus* sp.n. det. V. Assing 2015" (cAss).

Etymology: The specific epithet is an adjective derived from the name of the mountain range where the species was discovered.

Description: Body length 12.0 mm; length of forebody 6.0 mm. Coloration: head black; pronotum dark-reddish; elytra metallic-blue; scutellum dark-reddish; abdomen bicoloured with segments III-VI pale-reddish and segments VII-X black; legs with the tibiae and tarsi yellowish-brown, and the femora blackish with the bases narrowly and diffusely yellowish-brown; antennae and maxillary palpi dark-yellowish; labial palpi brown with the terminal joint yellowish-brown.

Head (Fig. 46) transverse, 1.2 times as broad as long; punctation rather fine and sparse in median and anterior dorsal portions, denser and with interspersed coarser punctures in lateral and posterior dorsal portions; interstices without microsculpture. Eyes much shorter than postocular region from posterior margin of eye to posterior constriction of head. Antenna 3.3 mm long; antennomere IV more than twice as long as broad; antennomere X slightly more than 1.5 times as long as broad. Anterior margin of labrum broadly excavate and with a distinct tooth on either side of middle (Fig. 47).

Pronotum (Fig. 46) 1.09 times as long as broad and 1.02 times as broad as head, strongly convex in cross-section; dorsal series each composed of approximately 10 punctures; lateral portions with sparse and fine punctation.

Elytra (Fig. 46) 0.7 times as long as pronotum and of trapezoid shape; punctation moderately coarse and dense; interstices without microsculpture. Hind wings completely reduced. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen approximately 1.1 times as broad as elytra; punctation moderately fine and rather dense, somewhat sparser on tergites VII and VIII than on anterior tergites; pubescence rather short and blackish; interstices with fine and transverse microsculpture; posterior margin of tergite VII without palisade fringe.

♂: protarsomeres I-IV distinctly dilated (Fig. 46); tergite VIII strongly convex posteriorly; posterior margin of sternite VII not distinctly concave in the middle; sternite VIII (Fig. 48) about as broad as long, posterior excision 0.55 times as deep as length of sternite; aedeagus (Figs 49-53) conspicuously long (2.7 mm) and slender; ventral process very weakly sclerotized; dorsal plate long, basally slender, apically acute and distinctly curved in lateral view, extending beyond apices of parameres, dorsally with two rows of 3-4 denticles at some distance from the slightly hooked apex; parameres apically hooked;

internal sac with a clip-shaped weakly sclerotized basal structure, apical structure not sclerotized.

♀: unknown.

Comment: The dorsal plate of the aedeagus of the holotype has a conspicuous flag-shaped dorsal process subapically. Most likely, this structure is a teratotomy and not a constant character.

Comparative notes: *Paederus minicus* differs from other geographically close *Harpopaederus* species particularly by the conspicuously long and slender aedeagus, the absence of a distinct apical internal structure of the aedeagus, and the presence of two series of denticles on the dorsal plate of the aedeagus situated at some distance from the apex. From most species recorded from the Qinling Shan and adjacent mountain ranges, it is additionally distinguished by the dark-reddish pronotum, the dark femora, and the deep posterior incision of the male sternite VIII.

Distribution and natural history: The type locality is situated in the Min Shan in southern Gansu (Map 2) at an altitude between 2300 and 3300 m. Additional data are not available.

***Paederus (Harpopaederus) cultellatus nov.sp.* (Figs 55-62, Map 3)**

Type material: Holotype ♂: "CHINA (border Shaanxi-Sichuan [today Chongqing]), Daba Shan, 20 km SSE Zhenping 1700-1800 m, 31°44'N, 109°35'E (small creek vall., young mixed forest, leaf litt., moss-, 9./12.VII.2001 Wrase [07] / *Paederus gracilacutus* Li & Zhou, det. Willers 9.08 / *Paederus brevior* Li & al., det. M. Schülke 2015 / Holotypus ♂ *Paederus cultellatus* sp.n. det. V. Assing 2015" (cAss). Paratypes: 3 ♂♂: same data as holotype (cSch, cAss).

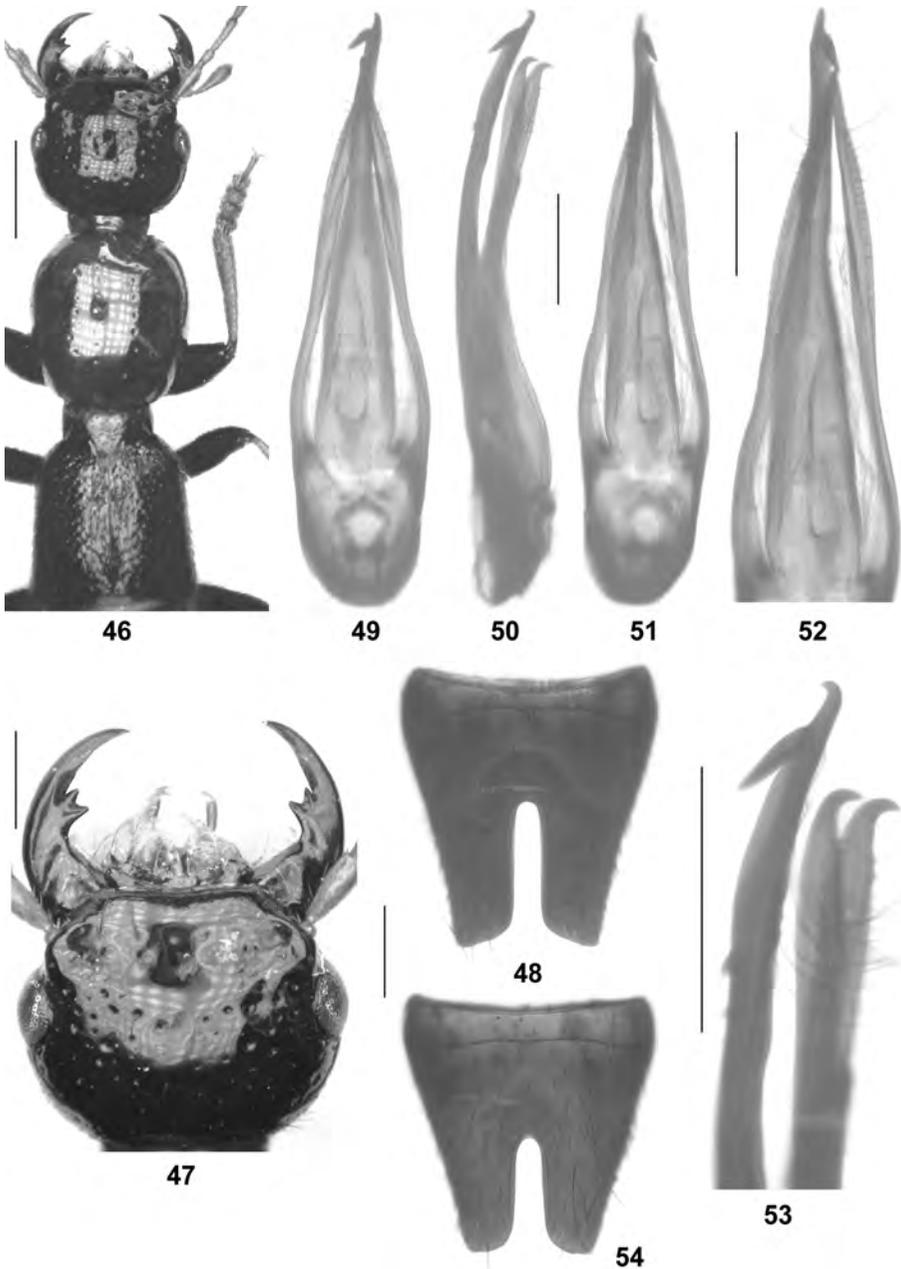
Etymology: The specific epithet is an adjective derived from the Latin noun *cultellus* (small knife) and alludes to the shape of the apical internal structure of the aedeagus.

Description: Body length 10.0-11.5 mm; length of forebody 5.0-5.2 mm. Coloration: head black; pronotum bright to dark reddish; elytra metallic-blue; scutellum reddish; abdomen bicoloured with segments III-VI pale-reddish and segments VII-X black; legs dark-yellowish, with the apical halves of the femora blackish; antennae and maxillary palpi dark-yellowish; labial palpi uniformly yellowish or with the basal palpomeres brown.

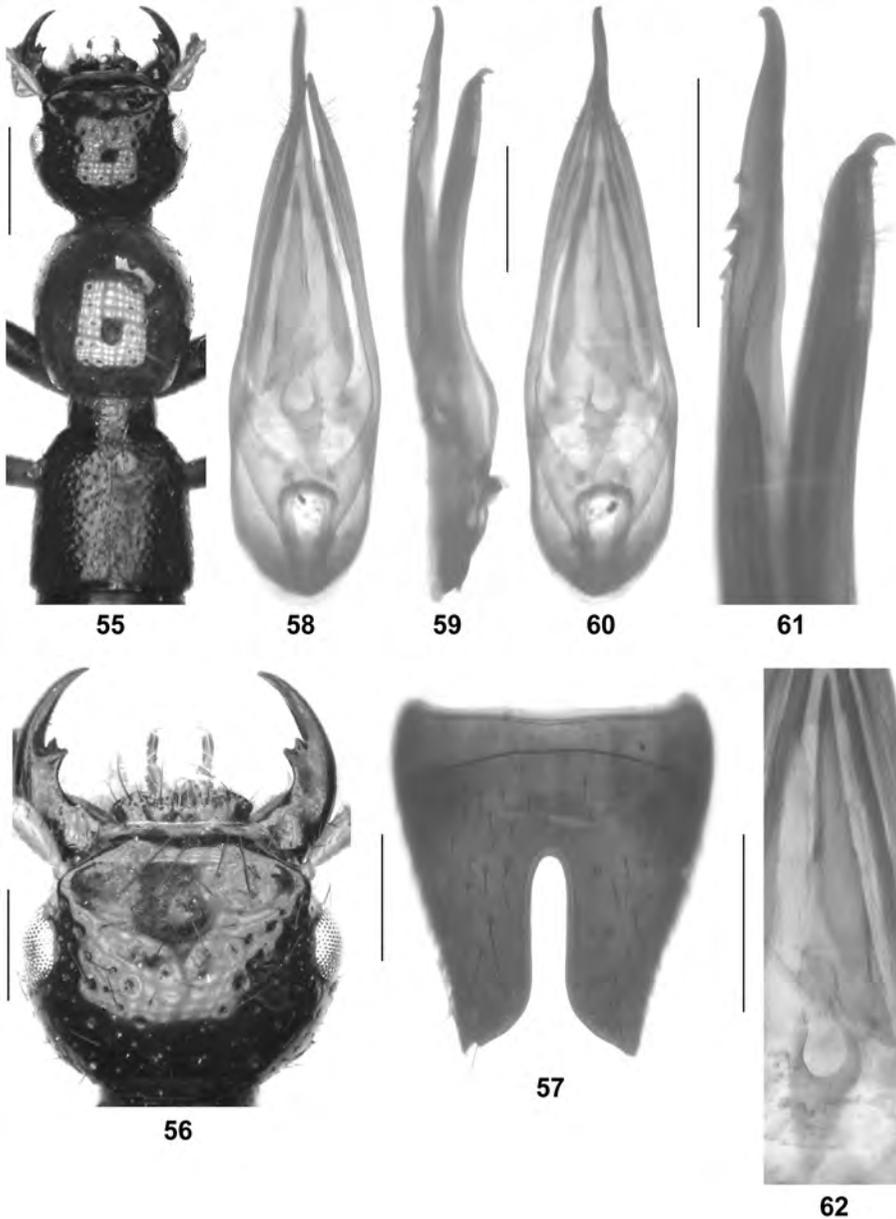
Head (Fig. 55) transverse, approximately 1.15 times as broad as long; punctation rather fine and sparse in median and anterior dorsal portions, slightly less sparse and with interspersed coarser punctures in lateral and posterior dorsal portions; interstices without microsculpture. Eyes slightly more than half as long as postocular region from posterior margin of eye to posterior constriction of head. Antenna 3.1-3.2 mm long; antennomere IV approximately twice as long as broad; antennomere X approximately 1.5 times as long as broad. Anterior margin of labrum in the middle with broadly U-shaped excision, on either side of this incision with a more or less distinct tooth (Fig. 56).

Pronotum (Fig. 55) approximately 1.1 times as long as broad and as broad as head, strongly convex in cross-section; dorsal series each composed of approximately 10 punctures; lateral portions with sparse and fine punctation.

Elytra (Fig. 55) approximately 0.7 times as long as pronotum; punctation moderately coarse and dense; interstices without microsculpture. Hind wings completely reduced. Metatarsomere I approximately as long as the combined length of II and III.



Figs 46-54: *Paederus minicus* nov.sp. (46-53) and *P. agnatus* from Shaanxi (54): (46) forebody; (47) head; (48, 54) male sternite VIII; (49-51) aedeagus in lateral, ventral, and dorsal view; (52) apical portion of aedeagus in dorsal view; (53) apical portion of aedeagus in lateral view. Scale bars: 46: 1.0 mm; 47-54: 0.5 mm.



Figs 55-62: *Paederus cultellatus* nov.sp.: (55) forebody; (56) head; (57) male sternite VIII; (58-60) aedeagus in lateral, ventral, and dorsal view; (61) apical portion of aedeagus in lateral view; (62) internal structures of aedeagus in dorsal view. Scale bars: 55: 1.0 mm; 56-62: 0.5 mm.

Abdomen approximately 1.1 times as broad as elytra; punctation moderately fine and moderately dense; pubescence rather short and brownish; interstices with fine and transverse microsculpture; posterior margin of tergite VII without palisade fringe.

♂: protarsomeres I-IV strongly dilated; tergite VIII strongly convex posteriorly; posterior margin of sternite VII not distinctly concave in the middle; sternite VIII (Fig. 57) about as broad as long, posterior excision nearly 0.6 times as deep as length of sternite, posterior margin on either side of this incision strongly oblique; aedeagus (Figs 58-62) approximately 2.4 mm long; ventral process very weakly sclerotized; dorsal plate long, basally rather broad, gradually tapering apicad, and with long and slender apical portion, apically weakly curved dorsad and reaching far beyond apices of parameres, dorsally with two rows of 2-6 denticles; internal sac with a basal clip-shaped structure and a long (ca. 0.85 mm) dagger-shaped, apically acute, and moderately sclerotized apical structure (Fig. 62).

♀: unknown.

Comparative notes: Based on the similar morphology of the aedeagus, *P. cultellatus* is closely allied to *P. agnatus* and particularly to *P. konfuzius*, suggesting that the unknown female secondary sexual characters are similar, too. It differs from both species by the longer aedeagus with a longer narrow apical portion of the dorsal plate, and additionally as follows:

from *P. konfuzius* (aedeagus 2.0-2.1 mm long) by the yellowish tibiae, on average slightly smaller eyes, the apex of the dorsal plate of the aedeagus reaching much farther beyond the apices of the parameres, and by the larger and longer apical internal structure of the aedeagus (*P. konfuzius*: internal structure 0.65-0.70 mm long and more slender);

from *P. agnatus* (aedeagus approximately 1.9 mm long) by the deeper posterior incision of the male sternite VIII, the apex of the dorsal plate extending slightly farther beyond the apices of the parameres, and particularly by the much more strongly sclerotized and differently shaped apical internal structure of the aedeagus.

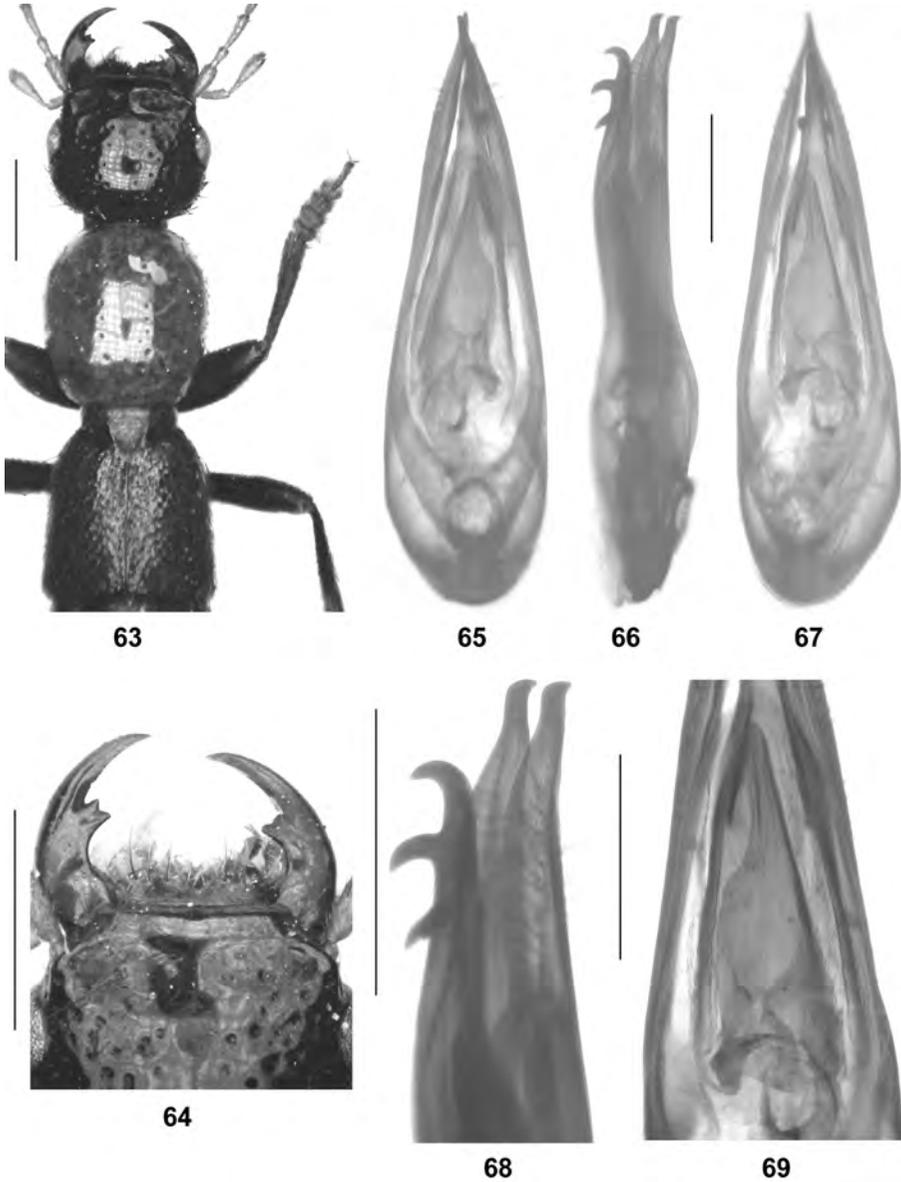
The new species is distinguished from the rather widespread *P. gracilacutus* (aedeagus of similar length) by slightly smaller eyes, by the deeper posterior incision of the male sternite VIII, by the less slender and apically less acute dorsal plate (*P. gracilacutus*: apex of dorsal plate extending even farther beyond the apices of the parameres), and by the much more strongly sclerotized and differently shaped apical internal structure of the aedeagus. For illustrations of *P. agnatus*, *P. konfuzius*, and *P. gracilacutus* see Figs 1-29, 54 and PENG et al. (2015), respectively.

Distribution and natural history: The type locality is situated in the border region between the provinces Shaanxi, Hubei, and Chongqing (Map 3). The specimens were sifted from leaf litter and moss in a young mixed forest at an altitude of 1700-1800 m.

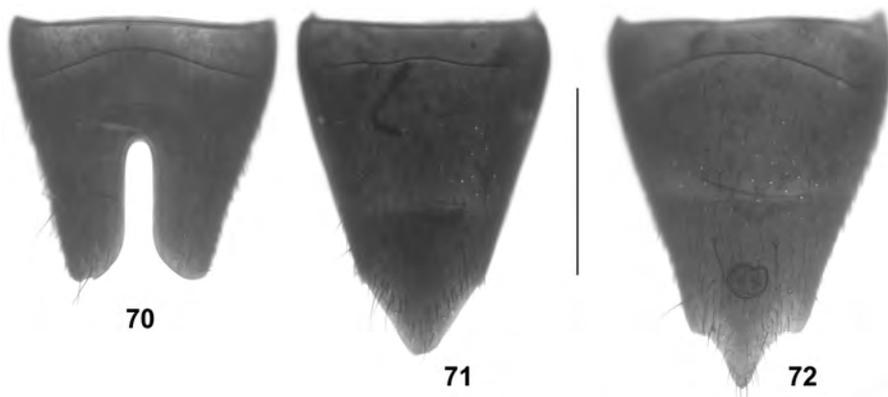
***Paederus (Harpopaederus) deplectens* nov.sp.** (Figs 63-72, Map 2)

Type material: **Holotype** ♂: "CHINA - NW Sichuan, 20 km NW Maowen [= Weizhou], 2150 m, Jiuding Shan, coniferous wood, 7-28.VI.2004, leg. R. Fabbri / Holotypus ♂ *Paederus deplectens* sp.n. det. V. Assing 2015" (cAss). **Paratypes:** 3 ♀ ♀: same data as holotype (cSch, cAss); 2 ♀ ♀: "CHINA W.Sichuan (Aba Tibet. Aut. Pref., Weizhou Co.) Quionglai Shan, Wolong valley, 40 km W Dujiangyan, 1500 m, 31°03'N, 103°12'E (brook bank) 14.VII.1999 D.W. Wrase / *Paederus chinensis* Bernh., det. Willers 11.99" (cSch, cAss); 1 ♂, 8 ♀ ♀ [communicated by Zhong Peng]: "China: Sichuan Province, Aba, Wolong, Wuyipeng, 31°01'N, 103°11'E, 2500 m, 11-12.VII.2012, Living & MC Chen leg." (SNUC); 1 ♀: same data, but "30°59'N, 103°08'E, 2100 m, 28.VII.2001, Li & Zhao leg." (SNUC).

E t y m o l o g y : The specific epithet is the present participle of the Latin verb *deplecti* (to claw) and alludes to the claw-like denticles on the dorsal plate of the aedeagus.



Figs 63-69: *Paederus depectens* nov.sp.: (63) forebody; (64) anterior portion of head; (65-67) aedeagus in lateral, ventral, and dorsal view; (68) apical portion of aedeagus in lateral view; (69) internal structures of aedeagus in dorsal view. Scale bars: 63-64: 1.0 mm; 65-69: 0.5 mm.



Figs 70-72: *Paederus deplectens* nov.sp.: (70) male sternite VIII; (71) female tergite VIII; (72) female sternite VIII. Scale bar: 1.0 mm.

Description: Body length 11.0-12.5 mm; length of forebody 5.1-5.3 mm. Coloration: head black; pronotum reddish; elytra metallic-blue; scutellum reddish; abdomen bicoloured with segments III-VI pale-reddish and segments VII-X black; legs blackish, with the apices of the mesotibiae more or less distinctly paler and the tarsi brown to dark-brown; antennae and palpi yellowish.

Head (Fig. 63) transverse, approximately 1.15 times as broad as long; punctation rather fine and sparse in median and anterior dorsal portions, less sparse and with interspersed coarser punctures in lateral and posterior dorsal portions; interstices without microsculpture. Eyes 0.6-0.7 times as long as postocular region from posterior margin of eye to posterior constriction of head. Antenna 3.3-3.4 mm long; antennomere IV more than twice as long as broad; antennomere X approximately 1.5 times as long as broad. Anterior margin of labrum in the middle with broadly U-shaped excision, on either side of this incision with a more or less distinct tooth (Fig. 64).

Pronotum (Fig. 63) approximately 1.1 times as long as broad and as broad as head, strongly convex in cross-section; dorsal series each composed of approximately 10 punctures; lateral portions with sparse and moderately fine punctation.

Elytra (Fig. 63) approximately 0.7 times as long as pronotum; punctation moderately coarse and dense; interstices without microsculpture. Hind wings completely reduced. Protarsomeres I-IV with pronounced sexual dimorphism. Metatarsomere I approximately as long as the combined length of II and III, or nearly so.

Abdomen 1.05-1.10 times as broad as elytra; punctation moderately fine and moderately dense; pubescence moderately short and brownish; interstices with fine and transverse microsculpture; posterior margin of tergite VII without palisade fringe; tergite VIII with pronounced sexual dimorphism.

♂: protarsomeres I-IV strongly dilated (Fig. 63); tergite VIII strongly tapering posteriorly and very strongly convex posteriorly; posterior margin of sternite VII weakly concave in the middle; sternite VIII (Fig. 70) weakly transverse, posterior incision 0.53 times as deep as length of sternite; aedeagus (Figs 65-69) 2.4 mm long; ventral process very weakly sclerotized; dorsal plate apically far from reaching apices of parameres, with one

large apical and two pairs of large subapical denticles; internal sac with a basal clip-shaped structure and a broad and somewhat asymmetric apical internal structure (Fig. 69).

♀: protarsomeres I-IV moderately dilated; tergite VIII (Fig. 71) triangularly projecting posteriorly, middle of posterior margin obtusely pointed; sternite VIII shaped as in Fig. 72.

Comparative notes: Based on the male and female sexual characters, particularly the large claw-shaped denticles on the dorsal plate of the aedeagus, *P. deplectens* is closely allied to *P. chinensis*, from which it differs by slightly smaller size, the slightly paler average coloration of the pronotum, the smaller aedeagus (*P. chinensis*: approximately 2.7 mm long), the presence of five (*P. chinensis*: two) claw-like denticles of the dorsal plate, and the apically slightly narrower female tergite VIII. For illustrations of *P. chinensis* see Figs 73-79.

Distribution and natural history: The known distribution is confined to two localities in northwestern Sichuan (Map 2). The examined type specimens were collected in a coniferous forest and on a stream bank. The altitudes range from 1500 to 2500 m.

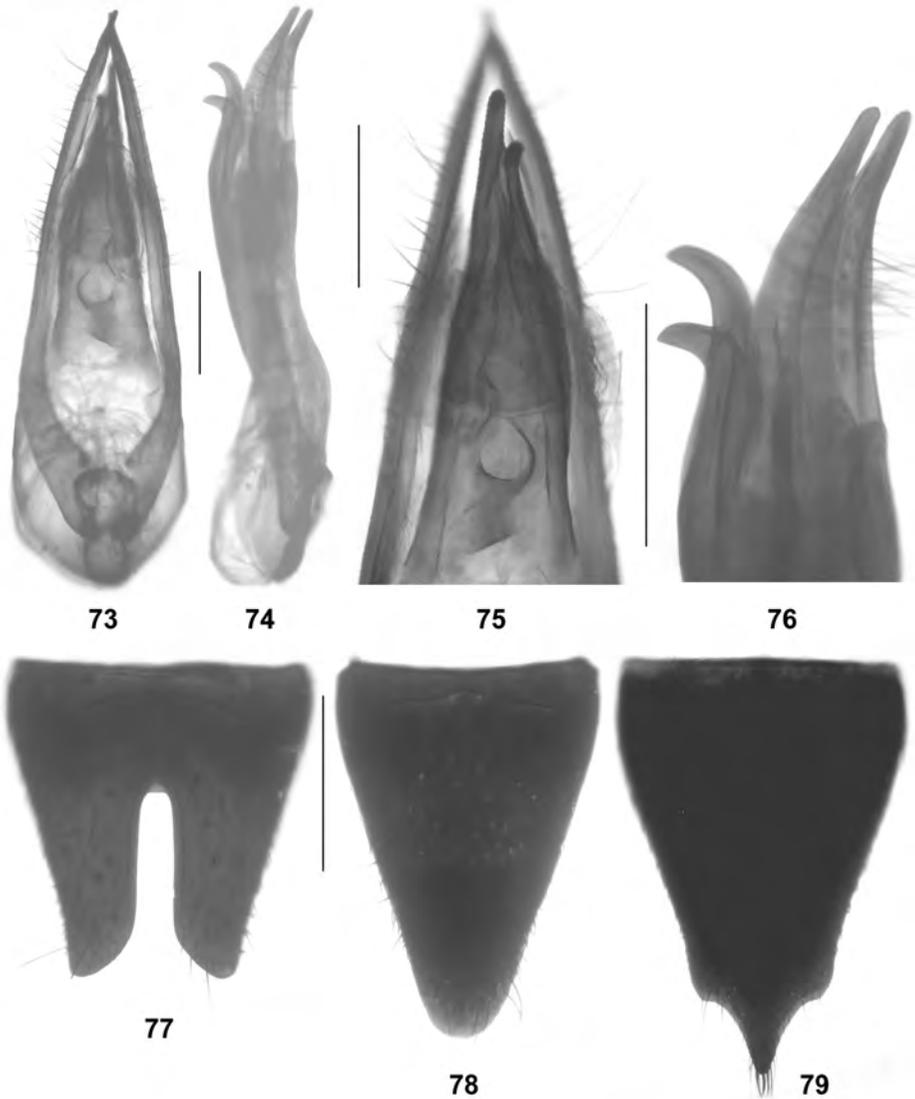
***Paederus (Harpopaederus) chinensis* BERNHAUER, 1931** (Figs 73-79, Map 2)

Type material examined: Syntype ♀: "Szetschwan, Tatsienlu, Exp. Stötzner / 1923, 4 / chinensis Brnh. Typus / Paederus chinensis Brnh. n. sp. / Museum für Tierkunde Dresden (MTD) / Syntypus Paederus chinensis Bernhauer, rev. V. Assing 2015 / Paederus chinensis Bernhauer, det. V. Assing 2015 (SNSD).

Additional material examined: China: Sichuan: 3♂♂, 6♀♀, 70 km NW Chengdu, Qingcheng Hou Shan [approx. 30°56'N, 103°28'E], 1400 m, 2.-4.V.2006, leg. Murzin & Shokhin (cSch, cAss); 3♂♂, 6♀♀ [identified by Zhong Peng], Dujiangyan, Qingcheng Shan, 30°58'N, 103°29'E, 1950 m, 30.VII.2012, leg. Peng (SNUC).

Comment: The original description of *P. chinensis* is based on an unspecified number of syntypes from "Szetschwan: Tatsienlu [= Kangding; 30°03'N, 102°01'E]" deposited in "der Sammlung des Dresdener Staatsmuseums und in meiner eigenen" (BERNHAEUER 1931). One syntype, unfortunately a female, was located in the collections of the SNSD. WILLERS (2001b) studied a male syntype from the Bernhauer collection, which he erroneously referred to as the holotype, and recorded the species from Guangkou [31°00'N, 103°37'E] and, based exclusively on females, from the environs of Wolong [30°58'N, 103°11'E]. He concluded from the structure of the aedeagus that *P. chinensis* did not belong to *Harpopaederus*. *Paederus chinensis* is the type species and sole representative of the subgenus *Oedopaederus* SCHEERPELTZ, 1957. SCHEERPELTZ (1957), however, had misinterpreted this species. The material from the Tianmu Shan in Zhejiang, which he had identified as *P. chinensis* and on which he based his description of *Oedopaederus*, was described as *P. describendus* by WILLERS (2001b), who stated that "*Oedopaederus* Scheerp. muss jedoch (obwohl inhaltsleer geworden und umzuinterpretieren) mit der Art. [sic] *P. chinensis* als Typus subgeneris verbunden bleiben" [sic].

Based on the male and female sexual characters (Figs 73-79), the above material is conspecific with the syntype studied by WILLERS (2001b). However, I have been unable to find any characters suggesting that *P. chinensis* should not belong to *Harpopaederus*.



Figs 73-79: *Paederus chinensis* BERNHAUER: (73-74) aedeagus in ventral and in lateral view; (75) apical portion of aedeagus in dorsal view; (76) apical portion of aedeagus in lateral view; (77) male sternite VIII; (78) female tergite VIII; (79) female sternite VIII. Scale bars: 77-79: 1.0 mm; 73-76: 0.5 mm.

As in *P. deplectens* nov.sp., which *P. chinensis* is evidently closely related to, the dorsal plate of the aedeagus has conspicuously large apical and subapical denticles. In other respects, the aedeagus is similar also to the aedeagi of other *Harpopaederus* species. Consequently, *P. chinensis* is assigned to *Harpopaederus* and *Oedopaederus* is synonymized with *Harpopaederus*. Based on the illustrations and description provided by WILLERS (2001b), *P. describendus* clearly does not belong to *Harpopaederus*.

The revised distribution of *P. chinensis* is confined to three localities in West Sichuan (Map 2). The female-based record from Wolong (WILLERS 2001b) most likely refers to *P. deplectens*.

***Paederus apfelsinicus* WILLERS, 2001 (Map 3)**

Material examined: China: Hubei: 11♂♂, 41♀♀, Daba Shan, pass E Da Shennongjia, 12 km NW Muyuping, 31°30'N, 110°21'E, 1950 m, dry stream valley, mixed deciduous forest, sifted, 16.-22.VII.2001, leg. Schülke & Wrase (cSch, cAss); 2♂♂, 4♀♀, Daba Shan, mountain range NE Muyuping, 31°32'N, 110°26'E, 2380 m, young deciduous forest, with shrubs, 17.-21.VII.2001, leg. Schülke & Wrase (cSch); 6♂♂, 4♀♀ [2 teneral], Daba Shan, stream valley 8 km NW Muyuping, 31°29'N, 110°22'E, 1540 m, bank of small stream, 18.VII.2001, leg. Schülke & Wrase (cSch, cAss); 2♂♂, 5♀♀, Daba Shan, stream valley 11 km NW Muyuping, 31°30'N, 110°22'E, 1960 m, mixed deciduous forest, sifted, 18.VII.2001, leg. Schülke & Wrase (cSch, cAss).

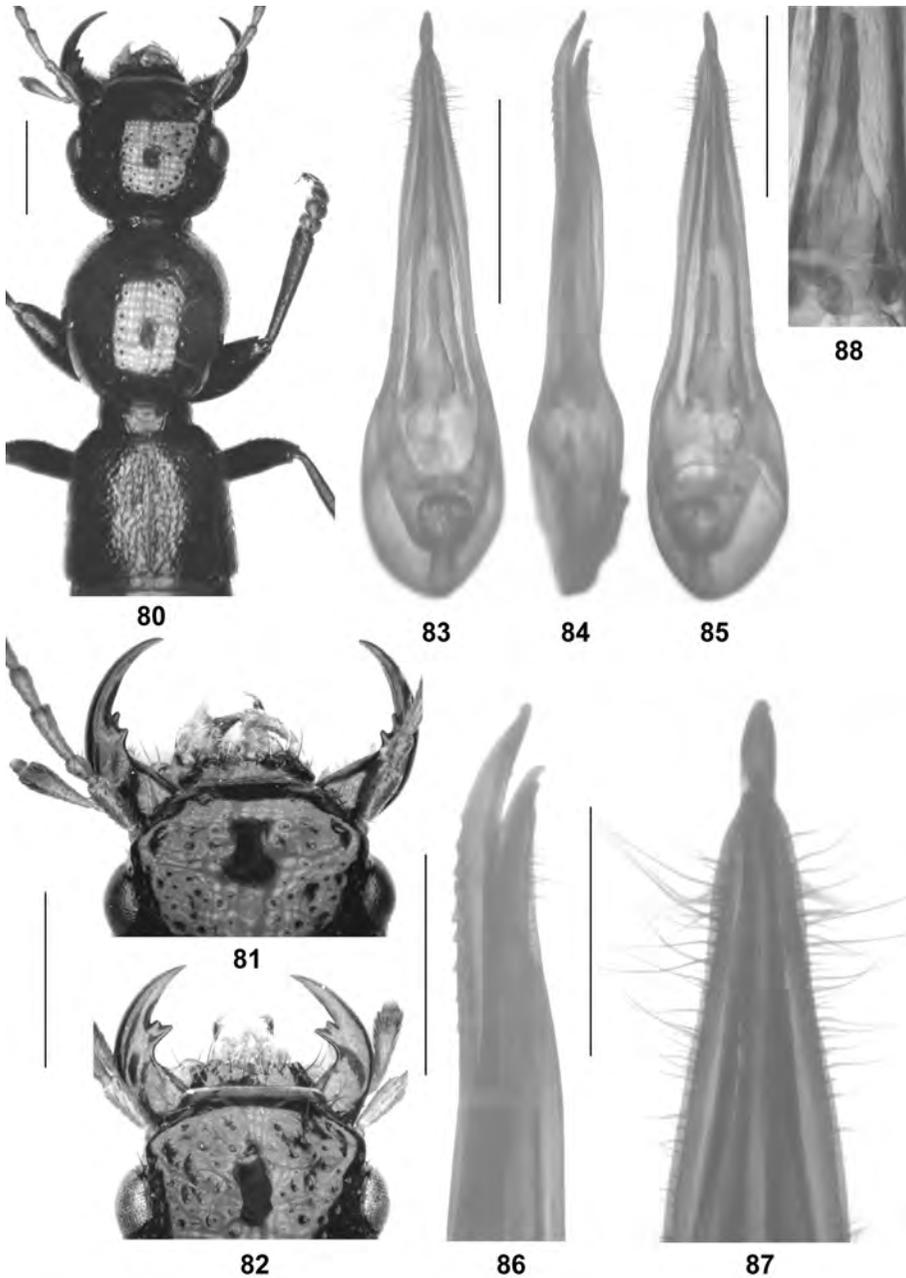
Comment: The original description is based on a male holotype and twelve paratypes from Da Shennongjia in Hubei (WILLERS 2001a). The species was subsequently reported from additional localities in Shennongjia County by LI & ZHOU (2007) and PENG et al. (2015). The record from Shaanxi in SMETANA (2004) is based on misidentified material. The currently known distribution is illustrated in Map 3.

This species is characterized particularly by the pronounced dimorphism of the head (larger, more transverse, and with more distinctly marked posterior angles in males than in females) and of the mandibles (longer, curved, and with the molar teeth distinctly separated in males), by the coloration (legs blackish; antennomeres IV-XI apically more or less distinctly infusate; preapical palpomere of the maxillary palpi apically infusate), the morphology of the aedeagus, the broadly semi-transparent and strongly convex posterior margin of the female tergite VIII, and by the shape of the female sternite VIII. For illustrations of *P. apfelsinicus* see WILLERS (2001a).

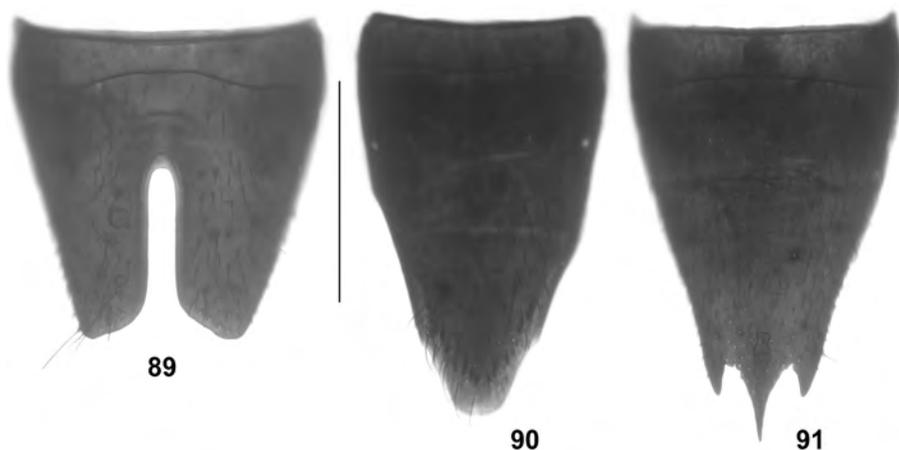
***Paederus lineodenticulatus* LI & ZHOU, 2007 (Figs 80-91, Map 3)**

Material examined: China: Shaanxi: 13♂♂, 18♀♀, Daba Shan, Ten'ma vill., 31°55'N, 109°05'E, 2200-2600 m, 18.-27.VI.2004, leg. Plutenko (cSch, cAss); 1♀, Daba Shan, 15 km S Shou-Man vill., 32°08'N, 108°37'E, 25.V.-14.VI.2004, leg. Plutenko" (cSch); 3♂♂, 5♀♀, Daba Shan, NW pass 25 km NW Zhenping, 32°01'N, 109°19'E, 2150 m, stream valley, young coniferous forest, 11.VII.2001, leg. Schülke & Wrase (cSch, cAss); 1♂, 1♀, Daba Shan, 22 km NW Zhenping, 32°00'N, 109°21'E, 1930 m, mixed deciduous forest, 11.VII.2001, leg. Schülke & Wrase" (cSch); 1♀, Daba Shan, 20 km NW Zhenping, 31°59'N, 109°22'E, 1680 m, young mixed deciduous forest, sifted, 11.VII.2001, leg. Wrase (cSch).

Comment: The original description is based on 16 type specimens from "Sichuan Province, Wu Mountain, Liziping" (LI & ZHOU 2007). As can be inferred from the map provided by LI & ZHOU (2007), the type locality is not Liziping in Sichuan [[28°59'N, 102°17'E], but Liziping wood farm [31°12'N, 110°00'E] in what has been Chongqing since 1997, near the border with Hubei. Since the illustrations of some body parts and the original description may be misleading, a redescription and new illustrations are provided.



Figs 80-88: *Paederus lineodenticulatus* LI & ZHOU: (80) male forebody; (81) anterior portion of male head; (82) anterior portion of female head; (83-85) aedeagus in lateral, ventral, and dorsal view; (86-87) apical portion of aedeagus in lateral and in ventral view; (88) internal structures of aedeagus in dorsal view. Scale bars: 80-85: 1.0 mm; 86-88: 0.5 mm.



Figs 89-91: *Paederus lineodenticulatus* LI & ZHOU: (89) male sternite VIII; (90) female tergite VIII; (91) female sternite VIII. Scale bar: 1.0 mm.

Redescription: Body length 10.0-12.5 mm; length of forebody 4.8-5.6 mm. Coloration: head black; pronotum bright reddish; elytra metallic-blue; scutellum reddish to brown; abdomen bicoloured with segments III-VI pale-reddish and segments VII-X black; legs with blackish femora and metatibiae, and with dark-brown to blackish-brown pro- and mesotibiae and tarsi; antennae yellowish, with antennomeres V-XI often more or less distinctly infuscate in apical half, pro- and mesocoxae reddish, metacoxae blackish; maxillary palpi yellowish, with preapical palpomere more or less distinctly and more or less extensively infuscate; labial palpi dark-brown to blackish, with the terminal palpomere yellowish to reddish.

Head (Figs 80-82) transverse, 1.1-1.2 times as broad as long, with moderately pronounced sexual dimorphism, on average larger and more transverse in males than in females; posterior angles weakly to moderately marked; punctation rather fine and sparse in median and anterior dorsal portions, coarser and denser in lateral and posterior dorsal portions; interstices without microsculpture. Eyes distinctly shorter than postocular region from posterior margin of eye to posterior constriction of head. Antenna 2.8-3.0 mm long; antennomere IV approximately twice as long as broad; antennomere X more than 1.5 times as long as broad. Labrum of somewhat variable shape, but anterior margin with more or less pronounced U-shaped median incision. Mandibles with distinct sexual dimorphism: longer and more slender in males than in females; molar teeth often separated in males, basally fused in females (Figs 81-82).

Pronotum (Fig. 80) 1.04-1.06 times as long as broad and 1.00-1.08 times as broad as head, strongly convex in cross-section; dorsal series each composed of at least 10 punctures.

Elytra (Fig. 80) 0.65 times as long as pronotum and of trapezoid shape; punctation rather fine and dense; interstices without microsculpture. Hind wings completely reduced. Protarsomeres I-IV with pronounced sexual dimorphism. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen approximately 1.05 times as broad as elytra; punctation moderately fine and rather dense; pubescence long and blackish; interstices with fine and transverse

microsculpture; posterior margin of tergite VII without palisade fringe; tergite VIII sexually dimorphic.

♂: protarsomeres I-IV strongly dilated (Fig. 80); tergite VIII posteriorly obtusely pointed; sternite VIII (Fig. 89) weakly transverse, posterior excision approximately 0.55 times as deep as length of sternite; aedeagus (Figs 83-88) approximately 2.9 mm long and nearly symmetric; ventral process very weakly sclerotized; dorsal plate long, basally slender, gradually tapering apicad, apically acute and curved ventrad in lateral view, extending distinctly beyond apices of parameres, with two series of rather small and numerous denticles; parameres apically very weakly curved; internal sac with a clip-shaped weakly sclerotized basal structure and with an additional, moderately sclerotized, and apically needle-shaped structure.

♀: protarsomeres I-IV moderately dilated, much less so than in male; tergite VIII (Fig. 90) strongly tapering posteriad, posterior margin not distinctly semi-transparent, weakly convex in the middle; sternite VIII (Fig. 91) posteriorly with long and apically very acute median process, postero-lateral angles acute and projecting posteriad.

Comparative notes: Based on the morphology of the aedeagus (dorsal plate long and slender, dorsally with two rows of numerous small denticles, shape of internal structure), as well as on the sexual dimorphism of the shapes of the head and of the mandibles, *P. lineodenticulatus* is closely allied to *P. apfelsinicus*, from which it differs by the less dark pro- and mesotibiae, the less distinctly infuscate antennomeres V-XI, the more strongly pointed male tergite VIII, the longer aedeagus (*P. apfelsinicus* (2.4-2.7 mm) with an apically more slender dorsal plate, the more slender female tergite VIII with a less convex and not distinctly semitransparent apical margin, and by the longer and more acute postero-median process of the female sternite VIII.

Distribution and natural history: The currently known distribution is confined to the western Daba Shan from the environs of Zhenping in southern Shaanxi to the Wu Shan in northern Chongqing (Map 3). Previous records from Sichuan are incorrect. The material listed above was sifted from leaf litter in various forest habitats at altitudes between 1680 and 2600 m.

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Zusammenfassung

Typen und weiteres Material der Gattung *Paederus* FABRICIUS, 1775, Untergattung *Harpopaederus* SCHEERPELTZ, 1957, aus China werden untersucht. Sieben Arten werden beschrieben bzw. redeskribiert und abgebildet: *Paederus (Harpopaederus) agnatus* EPPELSHEIM,

1889; *P. (H.) lineodenticulatus* LI & ZHOU, 2007; *P. (H.) cultellatus* nov.sp. (Daba Shan, Grenzgebiet zwischen Chongqing, Hubei und Shaanxi); *P. (H.) deplectens* nov.sp. (Nordwest-Sichuan); *P. (H.) edentulus* nov.sp. (Gansu: Berge südöstlich von Longnan); *P. (H.) minicus* nov.sp. (Gansu: Min Shan); *P. (H.) chinensis* BERNHAUER, 1931. *Paederus chinensis* Bernhauer, 1931, Typusart der Untergattung *Oedopaederus*, wird in das Subgenus *Harpopaederus* gestellt; dadurch ergibt sich folgende Synonymie: *Harpopaederus* SCHEERPELTZ, 1957 = *Oedopaederus* SCHEERPELTZ, 1957, nov.syn. Zwei weitere Namen werden synonymisiert: *Paederus gottschei* KOLBE, 1886 = *P. pseudobaudii* ALEKSANDROV, 1934, nov.syn.; *P. agnatus* EPPELSHEIM, 1889 = *P. dangchangensis* LI & ZHOU, 2007, nov.syn. Die intraspezifische Variabilität der Sexualmerkmale von *P. agnatus* wird abgebildet und diskutiert. Weitere Nachweise von neun bereits beschriebenen Arten werden gemeldet. Die Gesamtverbreitung der Untergattung in China sowie die Verbreitungsgebiete aller aus China nachgewiesenen *Harpopaederus*-Arten werden anhand von Karten illustriert. Ein Katalog wird erstellt. *Harpopaederus* enthält derzeit 20 Arten, von denen 15 aus China bekannt sind (14 exclusiv). Mit einer Ausnahme (*P. gottschei*), sind alle chinesischen Vertreter der Untergattung im Qinling Shan, Daba Shan und in angrenzenden Gebirgen sowie im westlichen Sichuan verbreitet.

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