

# A revision of the species of *Pinobius* MACLEAY, 1871 of the Oriental, Palearctic, and Australian Regions (Coleoptera: Staphylinidae: Paederinae: Dolicaonina)

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## Abstract

The species of the dolicaonine genus *Pinobius* MACLEAY, 1871 (Coleoptera: Staphylinidae: Paederinae: Dolicaonina) of the Oriental, Palearctic, and Australian Regions are revised. In all, 28 species are recognized, among them 14 species new to science: *P. baculatus* sp.n. (Indonesia: Java, Sumba), *P. bifidus* sp.n. (North India), *P. bihamatus* sp.n. (Myanmar), *P. brevincisus* sp.n. (South Vietnam), *P. carinatus* sp.n. (India: Maharashtra), *P. discrepans* sp.n. (Australia), *P. extensus* sp.n. (Papua New Guinea), *P. firmilobatus* sp.n. (Thailand, Singapore, Peninsular Malaysia, Sabah), *P. formidabilis* sp.n. (Malaysia), *P. imberbis* sp.n. (India: Assam), *P. inaequalis* sp.n. (Indonesia: Sulawesi), *P. linguatus* sp.n. (Bangladesh), *P. rotundatus* sp.n. (India: Assam), *P. subaequalis* sp.n. (Indonesia: Sulawesi). All the species are (re-)described and illustrated. *Pinobius vicinus* (KRAATZ, 1859), previously regarded as a synonym of *P. indicus* (KRAATZ, 1859), is revalidated. The following synonymies are proposed: *P. indicus* (KRAATZ, 1859) = *longipennis* (CAMERON, 1931), syn.n.; *P. paricolor* (FAUVEL, 1878) = *similis* LAST, 1984, syn.n.; *P. sparsiventris* (FAUVEL, 1886) = *javanus* (CAMERON, 1936), syn.n. *Pinobius pedatus* (LEA, 1923) is tentatively regarded as a synonym of *P. alatus* (LEA, 1923). Lectotypes are designated for *Dolicaon adjacens* CAMERON, 1937, *D. alatus* LEA, 1923, *D. indicus* KRAATZ, 1859, *D. javanus* CAMERON, 1936, *D. robustus* KRAATZ, 1859, *D. sparsiventris* FAUVEL, 1886, and *D. vicinus* KRAATZ, 1859. The revision revealed that the previously described species had largely been misinterpreted, suggesting that nearly all literature records other than original descriptions are based on misidentifications. Primarily based on the morphology of the aedeagus, the species are assigned to four species groups. The zoogeography of the genus in the study region is discussed. The Indian Subcontinent, eastwards to Myanmar, is the region with the greatest diversity. The distributions of all the species are mapped. The examined material was largely collected at light sources, partly also sifted from leaf litter, at low to intermediate elevations. Only one of the studied specimens is teneral. A key to species and a checklist of the *Pinobius* species of the Oriental, Palearctic, and Australian Regions are provided. The genus now comprises a total of 37 species, ten in the Afrotropical, twenty in the Oriental, and seven in the Australian Region. Only five species, none of them exclusive, have been recorded from the south of the Palearctic Region (southern Arabian Peninsula, South Himalaya, South China), one of them of Afrotropical and the other four of Oriental affiliations. In an appendix, a dolicaonine species from the Afrotropical Region is described: *Jarrigeus verberans* sp.n. (Nigeria).

**Key words:** Coleoptera, Staphylinidae, Paederinae, Dolicaonina, *Pinobius*, *Jarrigeus*, new species, new synonymies, revalidation, lectotype designations, Oriental Region, Palearctic Region, Australian Region, Afrotropical Region, zoogeography, distribution maps, key to species, checklist.

## Introduction

*Pinobius* was described by MACLEAY (1871) to accommodate *P. mastersii* MACLEAY, 1871 from Australia, the type species by monotypy. Up until the middle of the twentieth century, the name was generally treated as a synonym of *Dolicaon* LAPORTE, 1835 (e.g., BERNHAUER & SCHUBERT 1912; CAMERON 1931).

JARRIGE (1952) eventually recognized *Pinobius* and *Leptobium* CASEY, 1905, which, too, had been treated as a synonym of *Dolicaon*, as distinct genera. In an article on Afrotropical Paederinae with a transverse and apically truncate terminal joint of the maxillary palpi (“Paederini”, today: Paederina and Dolicaonina), FAGEL (1958) subdivided what he termed the

“Paederini” into two subtribes, the “Dolicai” (today: Dolicaonina) and the “Paederi” (today: Paederina), primarily based on the morphology of the tarsi. In addition, he split up what had been referred to as *Dolicaon* by previous authors into 11 genera (*Dolicaon*, *Pinobius*, *Leptobium*, *Scotonomus* FAUVEL, 1873, plus seven newly established, mostly monotypical genera), stating that all the *Dolicaon* that had been described from the Old World and neither were true *Dolicaon* (a genus confined to the south of the Afrotropical Region) nor belonged to *Leptobium* or *Scotonomus* in fact referred to *Pinobius*. He also provided a key, and redescriptions of the genera and species of Dolicaonina known from the Afrotropical Region at that time. According to the redescription of *Pinobius*, the genus is separated from other Dolicaonina only by the morphology of the aedeagus (“la conformation si différente de l’édéage”). By 1962, ten species of *Pinobius* had been recorded from the Afrotropical Region, nine of them were described by FAGEL (1958, 1959, 1961, 1962) and one by EPPELSHEIM (1885). An updated key to these species was provided by FAGEL (1962). An additional species, *P. indicus* (KRAATZ, 1859), was (erroneously) reported from East Africa by COIFFAIT (1982b).

In a comprehensive study of the Dolicaonina of the New World, HERMAN (1981), reviewed the taxonomy, phylogeny, diversity, and biogeography of all known genera of this subtribe, suggested that the subtribe is the adelphotaxon of the Paederina and recognized three genera in the New World, all of them absent from the Old World. He found two synapomorphies constituting the monophyly of Dolicaonina, but none for the Paederina. According to his cladogram of the 14 Old World and three New World genera of Dolicaonina (HERMAN 1981: figure 4), *Pinobius* is the adelphotaxon of the speciose Neotropical genus *Gnathymenus* SOLIER, 1849. The separation of Dolicaonina and Paederina was accepted by SMETANA (2004), whereas COIFFAIT (1982b) attributed the dolicaonine and paederine genera to one and the same subtribe (his “Paederi”). According to COIFFAIT (1982b), *Pinobius* is distinguished from *Leptobium* particularly by the quadridentate labrum, the close gular sutures, the different morphology of the median lobe of the aedeagus, and the chaetotaxy of the parameres.

In the Palaearctic Catalogue, SMETANA (2004) lists three species (with two synonyms) of *Pinobius*, but evidently overlooked the record of *P. insolitus* FAGEL, 1958, which had been described based on type material from Madagascar and Yemen. According to SMETANA (2004), the distribution of the genus in the Palaearctic is confined to the south of the Arabian Peninsula and the south of the East Palaearctic (Himalaya, southern China, Taiwan).

KRAATZ (1859) was the first to describe three *Dolicaon* species, one of them synonymized subsequently, from the Oriental Region. FAUVEL (1886) described an additional species from the Philippines and Java. In his synopsis of the Paederinae of India, Burma, and Sri Lanka, CAMERON (1931) indicates only four species of *Pinobius* (as *Dolicaon*). Since then, seven additional species and one subspecies have been described from Cambodia, Vietnam, Thailand, Java, Brunei, and New Guinea (CAMERON 1936, 1937, 1941; LAST 1961, 1984), partly as *Dolicaon* and partly as *Pinobius*, one of them synonymized subsequently.

Aside from *Pinobius mastersii*, six species of *Dolicaon* (i.e., *Pinobius*) were described from Australia (BLACKBURN 1896; FAUVEL 1878; LEA 1923; MACLEAY 1871), three of which (*D. nigripennis* MACLEAY, 1871; *D. quadraticollis* MACLEAY, 1871; *D. spenceri* BLACKBURN, 1896) were subsequently assigned to the Lathrobiina (FAGEL 1958; LEA 1923; SCHEERPELTZ 1933).

Thus, *Pinobius* previously included 26 species with two synonyms and was represented in the Afrotropical Region by 11, and in the Palaearctic, Oriental, and Australian Regions by a total of 17 species, with one species (*P. insolitus*) distributed in both the Palaearctic and the Afrotropical Regions and one species (*P. indicus*) recorded from the Oriental, Palaearctic, and Afrotropical Regions.

Unlike the two other genera distributed in the Palaearctic Region, *Leptobium* and *Scotonomus*, which have been subject to recent revisions (ASSING 1999, 2005, and five supplements; BORDONI et al. 2012), the *Pinobius* fauna of the Palaearctic and Oriental Regions had never been studied comprehensively. The only existing key (CAMERON 1931) is outdated, highly incomplete, and exclusively relies on external characters. The male sexual characters of the type material of most species (including the synonyms) had not been studied, suggesting that in a genus with rather uniform external characters, some taxonomic confusion was to be expected. Accordingly, preliminary attempts at identifying *Pinobius* material from the East Palaearctic and Oriental Regions had proven futile.

Originally, the present study was meant to focus on the species of the Palaearctic and Oriental Regions. However, based on experiences with previous revisions of other paederine genera with similar distributions, e.g. *Pseudolathra* CASEY, 1905 and *Rugilus* LEACH, 1819 (ASSING 2012a–b, 2013a–b), which showed that widespread species may be distributed on both sides of the Wallace and Lydekker lines, the study region also includes the Australian Region.

### Material and methods

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

BMNH	The Natural History Museum, London (R.G. Booth)
IRSNB	Institut Royal des Sciences Naturelles de Belgique (Y. Gérard)
MHNG	Muséum d'Histoire Naturelle, Genève (G. Cuccodoro)
MMUM	The Manchester Museum, The Manchester University (D. Logunov)
MNHUB	Museum für Naturkunde der Humboldt-Universität Berlin (J. Frisch, J. Willers)
NHMB	Naturhistorisches Museum Basel (M. Geiser, I. Zürcher)
NHMW	Naturhistorisches Museum Wien (H. Schillhammer)
NME	Naturkundemuseum Erfurt (M. Hartmann, assisted by W. Apfel)
NMP	National Museum of Natural History, Praha (J. Hájek)
SAM	South Australian Museum, Adelaide (P. Hudson)
SDEI	Senckenberg Deutsches Entomologisches Institut, Müncheberg (L. Behne)
SMNS	Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller)
SNUC	Shanghai Normal University, Shanghai (Z. Peng)
ZMUC	Zoological Museum, University of Copenhagen (A. Solodovnikov)

cAss	author's private collection
cRou	private collection G. de Rougemont (Oxford)

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). The images of the forebodies, the antennae and the aedeagi in dry preparation 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 ventral process to the base of the aedeagal capsule (unless stated otherwise). 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.

The limits of the zoogeographical regions are in accordance with those of SMETANA (2004).

## Results

### Taxonomy

The revision of the examined types and non-type material yielded as many as 14 species new to science and three new synonymies. One name is tentatively treated as a synonym and one previously synonymized name is revalidated. Except for two species from Australia with a distinctive coloration pattern, external and the female secondary sexual characters are rather uniform and of relatively little taxonomic significance. To some extent, the same is true of the male secondary sexual characters. In some cases, however, the depth of the posterior incision of the male sternite VIII and the chaetotaxy of the male sternite VII may show some character divergence, at least in the *P. indicus* group (see the section on species groups). The aedeagus, by contrast, is rich in characters, subject to considerable interspecific variation, and on the whole subject to relatively little intraspecific variation. In particular, the structure of the ventral process (especially the apical portion), of the dorsal plate (often more or less reduced in some species or species groups), the internal structures, as well as the relative length, shape, and chaetotaxy of the parameres is of special importance not only for the identification at the species level, but also for an assessment of phylogenetic affiliations. For a reliable appreciation of all the relevant characters, the aedeagus is illustrated both in dry preparation (to assess the structure of the ventral surface and of the apex of the ventral process) and in transparent preparation (to show the shapes and arrangement of internal structures).

*Pinobius* species have mainly been identified based on external characters, only exceptionally on the morphology of the aedeagus. As a result, nearly all of the revised previously identified specimens had been misidentified, suggesting that records in the literature other than the original descriptions are largely erroneous, which is why they are mostly ignored in the following sections.

#### Checklist of the *Pinobius* species of the Palearctic, Oriental, and Australian Regions

The checklist below is based almost exclusively on revised records, since the present revision revealed that the previously described species have largely been misinterpreted, suggesting that nearly all previous literature records other than those indicated in original descriptions are based on misidentifications. Taxonomic changes are given in bold print.

Species	Distribution
<i>adjacens</i> (CAMERON, 1937)	Papua New Guinea
<i>advena</i> (LAST, 1961)	Cambodia
<i>alatus</i> (LEA, 1923) ? = <i>pedatus</i> (LEA, 1923)	Australia
<i>baculatus</i> <b>sp.n.</b>	Indonesia (Java, Sumba)
<i>bifidus</i> <b>sp.n.</b>	India (Uttarakhand, Assam)
<i>bihamatus</i> <b>sp.n.</b>	Myanmar
<i>brevincisus</i> <b>sp.n.</b>	South Vietnam
<i>carinatus</i> <b>sp.n.</b>	India (Maharashtra)
<i>discrepans</i> <b>sp.n.</b>	Australia
<i>extensus</i> <b>sp.n.</b>	Papua New Guinea

<i>firnilobatus</i> <b>sp.n.</b>	Thailand, Singapore, Malaysia (Peninsular Malaysia, Borneo)
<i>formidabilis</i> <b>sp.n.</b>	Malaysia
<i>gogolensis</i> LAST, 1984	Papua New Guinea
<i>imberbis</i> <b>sp.n.</b>	India (Assam)
<i>inaequalis</i> <b>sp.n.</b>	Indonesia (Sulawesi)
<i>indicus</i> (KRAATZ, 1859) = <i>longipennis</i> (CAMERON, 1931) <b>syn.n.</b>	India
<i>insolitus</i> FAGEL, 1958	Madagascar, Somalia, Mozambique, Djibouti, South Sudan?, Saudi Arabia, Yemen
<i>linguatus</i> <b>sp.n.</b>	Bangladesh
<i>major</i> (CAMERON, 1941)	Borneo: Brunei, Sabah
<i>mastersii</i> MACLEAY, 1871	Australia
<i>paricolor</i> (FAUVEL, 1878) = <i>similis</i> LAST, 1984; <b>syn.n.</b>	Papua New Guinea, Australia
<i>parviceps</i> (FAUVEL, 1895)	Myanmar
<i>robustus</i> (KRAATZ, 1859)	India (Himachal Pradesh to Meghalaya and Tamil Nadu), Nepal
<i>rotundatus</i> <b>sp.n.</b>	India (Assam)
<i>sparsiventris</i> (FAUVEL, 1886) = <i>javanus</i> (CAMERON, 1936) <b>syn.n.</b>	Myanmar, Laos, Thailand, Vietnam, Indonesia (Java, South Sulawesi), Philippines (Luzon)
<i>subaequalis</i> <b>sp.n.</b>	Indonesia (Sulawesi)
<i>tonkinensis</i> (CAMERON, 1946) = <i>batullus</i> (LAST, 1961)	Myanmar, China, Hong Kong, Taiwan, Laos, Thailand, Vietnam, Malaysia, Indonesia (Sumatra)
<i>vicinus</i> (KRAATZ, 1859) <b>revalidated</b>	Myanmar

### Diversity and biogeography

The general distribution of the genus is essentially confined to the Afrotropical (ten species), the Oriental (twenty species), and the Australian Regions (seven species), with the distributions of four Oriental species extending into the south of the East Palaearctic Region sensu SMETANA (2004) (South Himalaya, South China) and that of one Afrotropical species reaching the south of the Arabian Peninsula. No species crosses the limit between the Afrotropical and the Oriental, or that between the Oriental and the Australian Regions. Even at the species group level, the Oriental and the Australian Regions are separate entities (see the following section).

The *Pinobius* fauna of the study region is now represented by 28 species; the total number of species currently assigned to the genus is raised to 37. However, several species are known only from their holotypes and/or from their respective type localities, suggesting that many more discoveries can be expected in the future. Based on the currently available evidence, most species have more or less restricted distributions, although the vast majority is evidently capable of flight. The two apparently most common Oriental species (*P. sparsiventris*, *P. tonkinensis*), however, are remarkably widespread (see Figs. 38, 54).

The primary diversity hotspot in the study region is the Indian Subcontinent eastwards to Myanmar (12 species, 10 of them exclusive). India has six species (5 exclusive), Myanmar five (3 exclusive), Indonesia six (3 exclusive), Australia four (3 exclusive), Papua New Guinea four (3 exclusive), Malaysia four (1 exclusive), Vietnam three (1 exclusive), Thailand three (none exclusive), and Laos two species (none exclusive). Nepal, Bangladesh, China, Hong Kong, Taiwan, Cambodia, Singapore, Brunei, and the Philippines only have one species each (exclusive only in Bangladesh, Cambodia, and Brunei).

### Intra- and intergeneric affiliations

Despite the low extent of diversity in external morphology and to some degree also the male secondary sexual characters, the species of the study region can be assigned to four species groups, two in the Australian and two in the Oriental and Palaearctic Regions, primarily based on the morphology of the aedeagus.

The *P. mastersii* group includes three species, all of them from Australia: *P. mastersii*, *P. alatus*, and *P. discrepans*. This group is characterized by an aedeagus with an asymmetric ventral process apically acutely pointing to the right (ventral view), a reduced dorsal plate, and slender parameres of unequal length. Based on the conspicuously derived coloration of the abdomen (unique in the genus), a sister-group relationship is hypothesized for *P. mastersii* and *P. alatus*, thus giving the following intra-group affiliations: (*P. mastersii* + *P. alatus*) + *P. discrepans*.

The *P. adjacens* group is composed of four species, three of them (*P. adjacens*, *P. gogolensis*, *P. extensus*) from Papua New Guinea and one (*P. paricolor*) distributed in both Papua New Guinea and Australia. The monophyly of this group is constituted by the derived morphology of the aedeagus, particularly the strongly sclerotized asymmetric apex of the dorsal plate, the apically truncate (reduced) ventral process, and the chaetotaxy of the parameres. Among the species of this group, closer relationships are suggested between *P. adjacens* and *P. paricolor* (dorsal plate with a conspicuous sclerotized process on the right in ventral view; parameres remarkably long) and between *P. gogolensis* and *P. extensus* (dorsal plate apically asymmetrically enlarged; internal sac apically with massive sclerotized spine; parameres not reaching apex of dorsal plate).

The *P. major* group comprises six species distributed in the Malay Peninsula and the Sunda Islands: *P. major* (Borneo), *P. formidabilis* (Peninsular Malaysia), *P. firmilobatus* (Malay Peninsula, Borneo), *P. baculatus* (Java, Sumba), *P. subaequalis*, and *P. inaequalis* (both Sulawesi). This group is characterized by moderately large to very large body size, an aedeagus with an apically reduced, truncate or excised ventral process and particularly with a distinctly sclerotized dorsal plate apically asymmetrically curved (lateral view) and projecting to the right (ventral view). Among the species of this group, based on the morphology of the aedeagus, closer affiliations are suggested between *P. major* and *P. formidabilis* (aedeagus very large, parameres each with two apical setae; body size very large), these two species together probably forming the adelphotaxon of the remaining species (parameres of aedeagus without apical setae). Aedeagal characters, particularly the shape of the parameres suggest the following intra-group relationships: *P. firmilobatus* + (*P. baculatus* + (*P. subaequalis* + *P. inaequalis*)).

The remaining fifteen species are assigned to the *P. indicus* group, which includes 14 species distributed in the south of continental Asia (with two widespread species also represented in the Sunda Islands, the Philippines, and other islands) and one in the Arabian Peninsula, and which is characterized by relatively small to moderately large body size, an aedeagus with the ventral process not reduced (exception: *P. vicinus*), but apically convex, pointed, or bifid, with a dorsal plate of variable morphology, and with largely unmodified parameres. Based on similarly derived male sexual characters, four evident species pairs are identified: *P. indicus* + *P.*

*rotundatus* (similar aedeagal morphology; similarly derived internal structures of the aedeagus), *P. tonkinensis* + *P. robustus* (ventral process similarly modified, with distinct apico-lateral angles and apex with distinct median projection), *P. bihamatus* and *P. imberbis* (dorsal plate of aedeagus of similarly derived shape; ventral process apically asymmetrically incised), and *P. sparsiventris* + *P. brevincisus* (short posterior incision of the male sternite VIII; aedeagus weakly sclerotized, slender, depressed, and without sclerotized internal structures).

There is no evidence that the sister-group relationship with the Neotropical genus *Gnathymenus* hypothesized by HERMAN (1981) is correct. This hypothesis is based on an assumed synapomorphy (ventral process of aedeagus with an appendage). As can be inferred from figures 14 and 16 in his revision, HERMAN (1981) studied *P. paricolor* and *P. gogolensis* (or a very closely related species), both from the Australian Region and evidently possessing a derived aedeagal morphology. In the case of the former, the appendage is a process of the dorsal plate, in the case of the latter, it is an apical internal structure; in neither case it is an appendage of the ventral process. Thus, the appendages in *Pinobius* and *Gnathymenus* are not homologous and consequently do not represent a synapomorphy.

### Natural history

Material of *Pinobius* is rather scarce in the museums and private collections studied. The only species of which a more substantial number of specimens from more than five localities were examined are *P. sparsiventris*, *P. tonkinensis*, *P. mastersii*, and *P. alatus*. The labels attached to the specimens suggest that at least the majority of these specimens was collected at light sources. It can be inferred from these observations that, like many species of the Palearctic dolicaonine genus *Leptobium* and some other paederine genera (e.g., *Achenium* LEACH, 1819), *Pinobius* species apparently reproduce in a cryptic, probably subterranean habitat. On some occasions, however, *Pinobius* was also collected by sifting the leaf litter of forests.

The altitudes range from near sea-level to 1500 m, with the vast majority of records from below 1000 m. This, as well as the general distribution of the genus suggests that *Pinobius* species are adapted to subtropical and tropical climates. Remarkably, the examined material included only a single teneral adult: one specimen of *P. alatus* collected in Australia in May.

### Key to species

- 1 Abdomen distinctly bicoloured, with segments III–VI orange to reddish and segments VII–X black. Species from Australia ..... 2
  - Abdomen more or less uniformly reddish to brown ..... 3
- 2 Head, pronotum, and elytra distinctly bicoloured; head anteriorly black and posteriorly reddish; pronotum anteriorly reddish and posteriorly blackish; elytra blackish, each with a large orange spot. Aedeagus as in Figs. 214–216. Distribution: Fig. 209 ..... *mastersii*
  - Forebody uniformly reddish. Aedeagus as in Figs. 222–226. Distribution: Fig. 227 ..... *alatus*
- 3 Afrotropical species reaching the south of the West Palearctic Region. Male sternite VII with two clusters of modified setae in postero-median portion. Aedeagus as in Figs. 4–6. Southern Arabian Peninsula ..... *insolitus*
  - Absent from the West Palearctic and Afrotropical Regions ..... 4
- 4 Species from the Australian Region (Australia, New Guinea) ..... 5
  - Species from the Oriental and East Palearctic Regions ..... 9
- 5 Body smaller; length of forebody 4.7–5.5 mm. Aedeagus with long parameres extending far beyond apex of median lobe; dorsal plate with two apices of completely different shapes (Figs. 193–200). Australia, Papua New Guinea (Fig. 188) ..... *paricolor*

- Body larger; length of forebody 5.4–6.5 mm ..... 6
- 6 Species from Australia (Fig. 227). Aedeagus as in Figs. 232–237 ..... **discrepans**
- Species from Papua New Guinea ..... 7
- 7 Very large species; length of forebody approximately 6.5 mm. Antennae very long and slender, 3.5 mm long; all antennomeres oblong. Aedeagus as in Figs. 206–208. Distribution: Fig. 188. .... **extensus**
- Smaller species; length of forebody 5.4–5.8 mm. Antennomeres VIII–X at least as broad as long. Aedeagus of completely different morphology ..... 8
- 8 Aedeagus with stout and conspicuously long parameres of different lengths extending far beyond apex of median lobe; right paramere (ventral view) much longer than left paramere; dorsal plate with conspicuous spine-shaped left apical process (Figs. 186–187). Distribution: Fig. 188 ..... **adjacens**
- Aedeagus with much finer and shorter parameres not reaching apex of dorsal plate; apex of dorsal plate conspicuously hook-shaped in ventral view. Distribution: Fig. 188 ..... **gogolensis**
- 9 Moderately large to very large species; length of forebody 5.3–6.4 mm. Pronotum broad, weakly oblong, only 1.02–1.06 times as long as broad. Aedeagus with ventral process apically of more or less reduced length, truncate or apically asymmetrically excised; dorsal plate distinctly sclerotized, apically asymmetrically projecting to the right (ventral view). Distribution: Malay Peninsula, Sunda Islands ..... 10
- Small to moderately large species; length of forebody less than 6.0 mm. Pronotum often more oblong. Aedeagus of different morphology; ventral process and dorsal plate apically of different shape. Species from continental Asia, except for two widespread and common species (*P. tonkinensis*, *P. sparsiventris*) ..... 15
- 10 Parameres of aedeagus each with two apical setae. Aedeagus large, 2.0–2.3 mm long (measured to apex of dorsal plate). Large species; length of forebody 6.1–6.4 mm. Peninsular Malaysia, Borneo ..... 11
- Parameres of aedeagus each without apical, but with two subapical setae. Aedeagus smaller, 1.8 mm long at most (measured to apex of dorsal plate). Smaller species, except for the similarly large and sympatric *P. firmilobatus* ..... 12
- 11 Head more transverse, 1.2 times as broad as long, with larger eyes and denser punctation (Fig. 123). Aedeagus with apically dilated parameres and shaped as in Figs. 125–127. Peninsular Malaysia (Fig. 129) ..... **formidabilis**
- Head approximately 1.15 times as broad as long, with smaller eyes and less dense punctation (Fig. 114). Aedeagus shaped as in Figs. 117–122; parameres apically not distinctly dilated. Borneo (Fig. 129) ..... **major**
- 12 Length of forebody 6.0–6.2 mm. Aedeagus with stouter and longer parameres (Figs. 140–144). South Thailand, Peninsular Malaysia, Singapore, Borneo (Fig. 129) ..... **firmilobatus**
- Length of forebody 5.3–6.1 mm. Aedeagus with shorter and less stout parameres. Distribution different ..... 13
- 13 Species from Java and Sumba (Fig. 129). Aedeagus as in Figs. 149–156 ..... **baculatus**
- Species from Sulawesi ..... 14
- 14 Male sternite VII more densely pubescent (Fig. 167). Male sternite VIII more oblong (Fig. 168). Aedeagus with parameres of subequal shape; dorsal plate and internal structures as in Figs. 169–172. East Sulawesi (Fig. 129) ..... **subaequalis**
- Male sternite VII more sparsely pubescent (Fig. 158). Male sternite VIII less oblong (Fig. 159). Aedeagus with parameres of remarkably different shape; dorsal plate and internal structures as in Figs. 160–165. Southeast Sulawesi (Fig. 129) ..... **inaequalis**
- 15 Male sternite VIII with shorter posterior incision, its depth 0.30–0.37 times the length of sternite (Figs. 12, 21). Aedeagus strongly dorso-ventrally depressed, weakly sclerotized, with

- reduced dorsal plate, and without sclerotized internal structures. Distribution northwestwards to Laos, Thailand, and the extreme southeast of Myanmar ..... 16
- Posterior incision of the male sternite VIII much deeper, at least nearly half as deep as length of sternite ..... 17
- 16 Aedeagus stouter, with shorter and stouter parameres (Figs. 22–24). Male sternite VIII shaped as in Fig. 21. Eyes smaller; head and pronotum with finer punctation (Fig. 18). South Vietnam (Fig. 44) ..... *brevincisus*
- Aedeagus conspicuously slender, with conspicuously long and slender parameres (Figs. 13–16). Male sternite VIII as in Fig. 12. Eyes larger; head and pronotum with coarser punctation (Fig. 9). Widespread, from Myanmar to Vietnam, Java, Sulawesi, and Luzon (Fig. 38)..... *sparsiventris*
- 17 Larger species; length of forebody 4.4–5.9 mm, mostly at least 5.0 mm ..... 18
- Smaller species; length of forebody 4.5 mm at most ..... 20
- 18 Aedeagus of highly distinctive morphology: apex of ventral process asymmetrically pointed, projecting to the right (ventral view); internal sac with two long sclerotized structures, one of them projecting beyond apex of ventral process and the other apically shaped like a corkscrew (Figs. 132–136). Cambodia (Fig. 129) ..... *advena*
- Aedeagus of different morphology: apex of ventral process less strongly asymmetric, with conspicuous process apically; internal sac without such sclerotized structures. More widespread species ..... 19
- 19 Chaetotaxy of male sternite VII more strongly modified (Fig. 56). Posterior incision of sternite VIII deeper (Fig. 57). Aedeagus apically more strongly asymmetric and with long median process (Figs. 58–59). Distribution more western: India, Nepal (Fig. 54) ..... *robustus*
- Chaetotaxy of male sternite VII weakly modified (Fig. 47). Posterior incision of male sternite VIII less deep (Fig. 48). Aedeagus apically less strongly asymmetric and with much shorter median process (Figs. 49–52). Distribution more eastern: widespread from Myanmar and South China to Sumatra (Fig. 54) ..... *tonkinensis*
- 20 Dorsal plate of aedeagus either not distinctly sclerotized or not projecting beyond apex of ventral process; ventral process mostly not bifid, only in one species (*P. carinatus*) weakly bifid at apex ..... 21
- Dorsal plate of aedeagus distinctly sclerotized and clearly projecting beyond apex of ventral process; ventral process bifid or tongue-shaped ..... 25
- 21 Aedeagus with three large sclerotized spines in internal sac, ventral process apically acutely pointed (Figs. 35–37). Pubescence of male sternite VII weakly modified (Fig. 33). Myanmar (Fig. 38) ..... *parviceps*
- Aedeagus without sclerotized spines in internal sac; ventral process apically not acutely pointed ..... 22
- 22 Male sternite VII with one or two clusters of modified setae in postero-median portion (Figs. 27, 40). Species from India ..... 23
- Male sternite VII with indistinctly modified pubescence at most ..... 24
- 23 Aedeagus with ventral process apically pointed and with a pair of dark membranous apical structures in internal sac. Male sternite VII with a cluster of modified setae in postero-median portion. Male sternite VIII as in Fig. 28. India (Fig. 44) ..... *indicus*
- Aedeagus with ventral process apically convex or obtusely angled at most; internal structures different (Figs. 42–43). Male sternite VII with two clusters of modified setae in postero-median portion (Fig. 40). Male sternite VIII as in Fig. 41. Northeast India: Assam (Fig. 44).... *rotundatus*
- 24 Aedeagus with ventral process apically truncate and reduced; internal sac extending beyond apex of ventral process; parameres extending beyond apex of median lobe (Figs. 108–112). Male sternites VII and VIII as in Figs. 106–107. Myanmar (Fig. 44) ..... *vicinus*

- Aedeagus with ventral process with two hooked apices; parameres not reaching apex of ventral process (Figs. 82–87). Male sternites VII and VIII as in Figs. 80–81. Western India: Maharashtra (Fig. 44) ..... *carinatus*
- 25 Aedeagus with ventral process tongue-shaped apically, not bifid; dorsal plate strongly asymmetric and pointed to the right in ventral view (Figs. 63–67). Male sternite VII and VIII as in Figs. 61–62. Bangladesh (Fig. 44) ..... *linguatus*
- Aedeagus with ventral process apically bifid; dorsal plate of different shape ..... 26
- 26 Aedeagus with dorsal plate apically shaped like a spear-head; ventral process apically deeply bifid (Figs. 73–78). North India (Fig. 44)..... *bifidus*
- Aedeagus with dorsal plate apically of different shape, more slender in ventral view..... 27
- 27 Body larger; length from anterior margin of pronotum to posterior margin of elytra 3.3 mm; length of pronotum 1.39 mm. Aedeagus larger, 1.5 mm long including dorsal plate, shaped as in Figs. 90–94. Male sternites VII–VIII as in Figs. 88–89. Myanmar (Fig. 44)..... *bihamatus*
- Body smaller; length from anterior margin of pronotum to posterior margin of elytra 2.7–2.9 mm; length of pronotum approximately 1.15 mm (Fig. 95). Aedeagus 1.35 mm including dorsal plate, shaped as in Figs. 99–104. Male sternites VII–VIII as in Figs. 97–98. Northeast India: Assam (Fig. 44) ..... *imberbis*

### The *Pinobius* species recorded from the Palaearctic, Oriental, and Australian Regions

#### *Pinobius insolitus* FAGEL, 1958 (Figs. 1–8)

*Pinobius insolitus* FAGEL 1958: 45 ff.

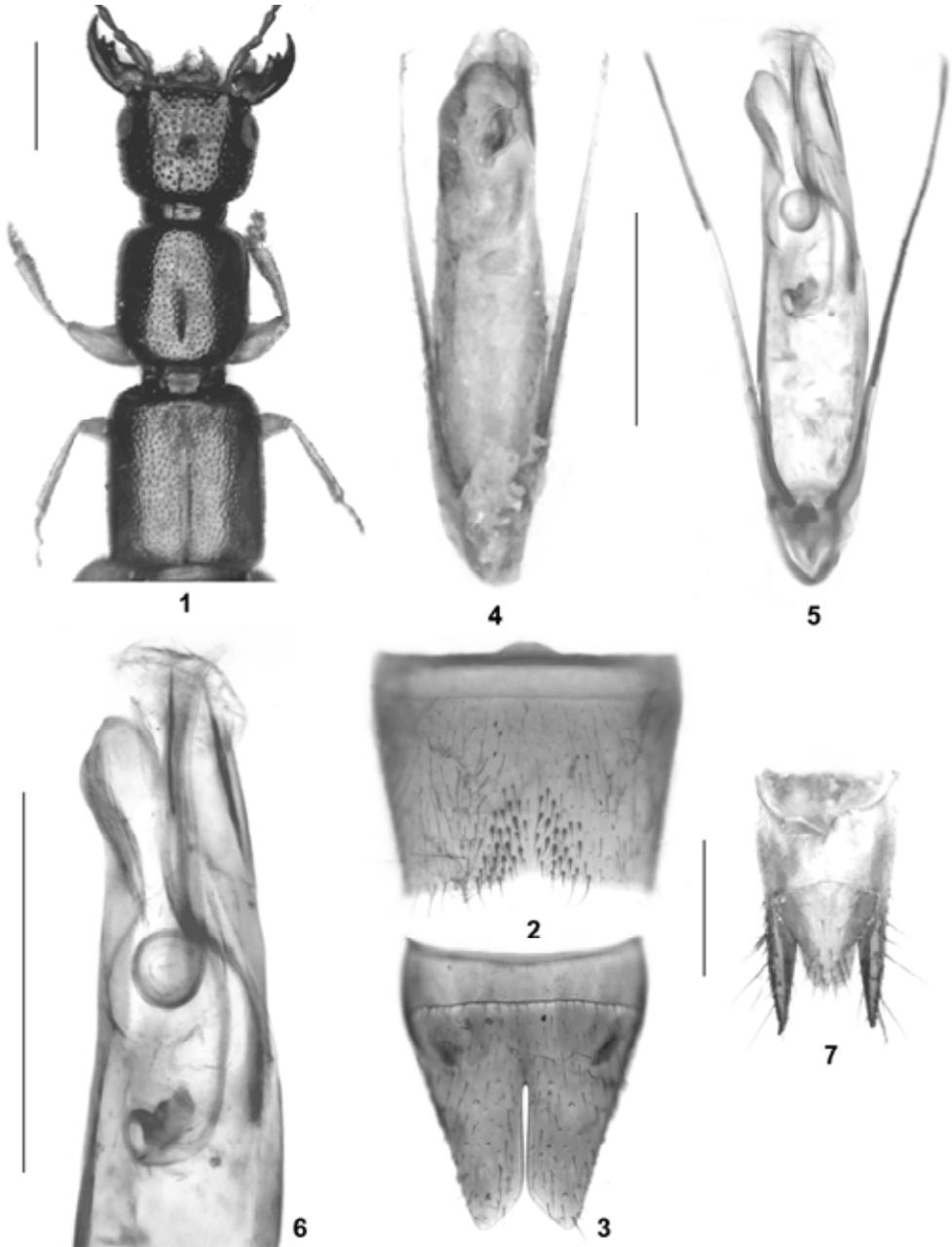
TYPE MATERIAL EXAMINED: **Holotype** ♂: “Suberbieville / Coll. et det. A. Fauvel, *Dolicoon indicus* Kraatz, R.I.Sc.N.B. 17479 / Type / G. Fagel det., 1955, *Pinobius insolitus* n. sp. / *Pinobius insolitus* Fagel, det. V. Assing 2014” (IRSNB).

COMMENT: The original description is based on a male holotype from “Madagascar: Suberbieville” deposited in IRSNB and a male paratype from “Arabie: Yemen, Millingen (?)” deposited in BMNH (FAGEL 1958).

ADDITIONAL MATERIAL EXAMINED: **SAUDI ARABIA**: 1 ♀, Al Bahah, Al Mukhwah, Dhi Ayn Arch. vill., 19°56'N 41°27'E, 740 m, 11.V.2011, leg. Sharaf (cAss); 1 ♀, Jizan, 25.–26.III.1983, leg. Holzschuh (NHMB); 1 ♂, Jizan, Fifa mountains, 1240 m, 27.–31.III.1983, leg. Holzschuh (cAss). **YEMEN**: 1 ♂, SE Ta'iz, S-slope of Jabal Sabir, Wadi Dhabab [approximately 13°25'N 44°05'E], at light, III.1985, leg. Rougemont (cRou); 1 ♂, Western Aden Protectorate, SW Dhala, Wadi Dareija, 1280 m, 7.–8.XI.1937, leg. Scott & Britton (BMNH); 1 ♂, Dhala, 1460 m, at light, 14.IX.1937, leg. Scott & Britton (cAss); 1 ex. without abdomen, Dhala, 1460 m, 25.IX.1937, leg. Scott & Britton (BMNH); 1 ♀, Western Aden Protectorate, Wadi at foot of Jebel Harir, 1500 m, 1.–2.XI.1937, leg. Scott & Britton (BMNH); 1 ♀, same data, but 5.XI.1937 (BMNH). **MOZAMBIQUE**: 1 ♂, Zambezi, Nova Chupanga, 1928, leg. Surcouf (IRSNB).

REDESCRIPTION: Body length 7.8–9.0 mm; length of forebody 3.9–4.8 mm. Coloration: head and pronotum brown; elytra dark-reddish, with the anterior margins and the sutural portion near the apex of the scutellum indistinctly darker; abdomen reddish to reddish-brown, with the posterior margins of the segments and the apex pale-reddish; legs yellowish; antennae reddish.

Head (Fig. 1) approximately 1.2 times as broad as long, broadest across eyes, lateral margins behind eyes converging in dorsal view; punctation moderately coarse and moderately dense, median dorsal portion sparsely punctate or impunctate; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view. Antenna slender, 2.0–2.5 mm long; antennomeres IV–VI strongly oblong, nearly twice as long as broad; VII moderately oblong; VIII–X weakly oblong.



Figs. 1–7: *Pinobius insolitus* (1, 3, 5–6: holotype). 1) forebody; 2) male sternite VII; 3) male sternite VIII; 4) aedeagus in dry preparation in ventral view; 5) aedeagus in transparent preparation in ventral view; 6) apical portion of aedeagus in transparent preparation in ventral view; 7) female tergites IX–X. Scale bars: 1: 1.0 mm; 2–7: 0.5 mm.

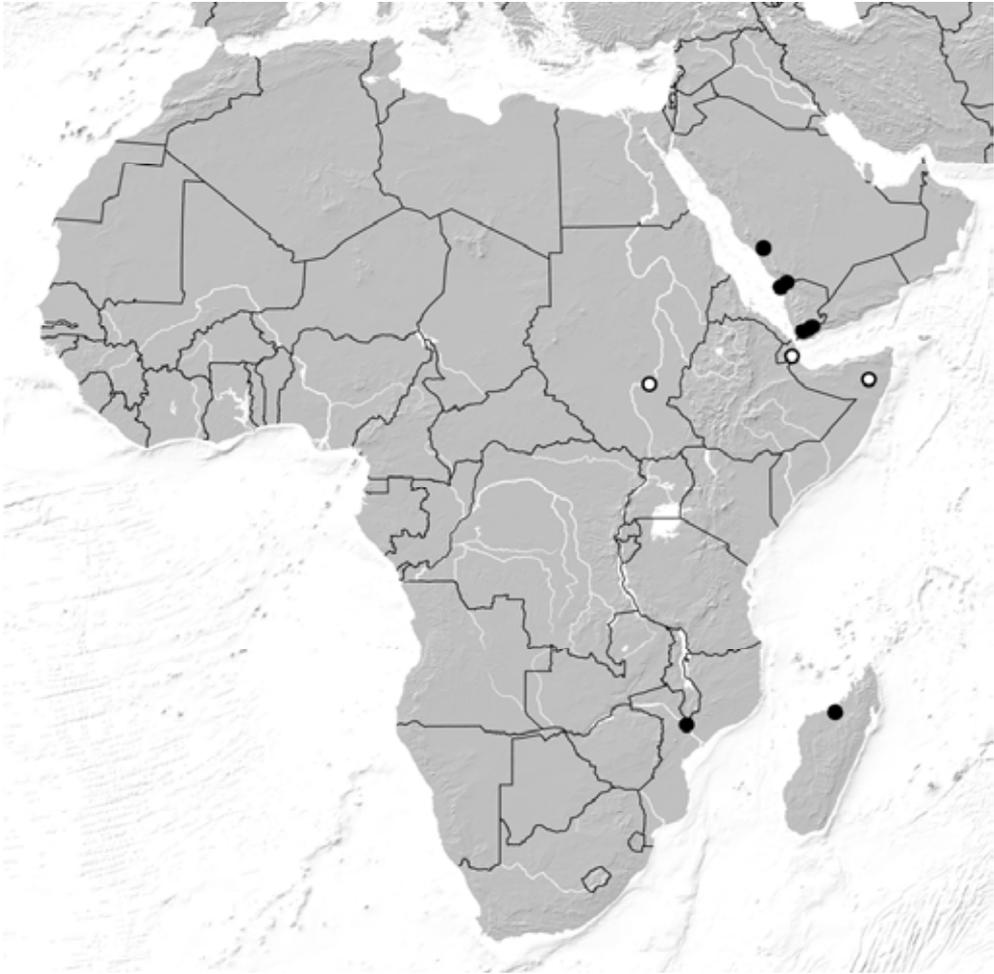


Fig. 8: Distribution of *Pinobius insolitus*, based on examined (black circles) and selected literature records (white circles).

Pronotum (Fig. 1) 1.07–1.09 times as long as broad and approximately 0.95 times as broad as head; punctuation moderately dense and somewhat finer than that of head; interstices without microsculpture; midline narrowly impunctate.

Elytra (Fig. 1) approximately as long as pronotum, or slightly longer; punctuation denser and coarser than that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen approximately 0.9 times as broad as elytra; punctuation fine and rather dense; interstices with distinct microsculpture; posterior margin of tergite VII with palisade fringe; tergite VIII strongly convex posteriorly.

♂: sternite VII (Fig. 2) with weakly concave posterior margin, in postero-median portion with a cluster of modified setae on either side of middle; sternite VIII (Fig. 3) distinctly oblong, posterior incision very narrow, its depth approximately 0.50–0.55 times the length of sternite;

aedeagus (Figs. 4–5) rather small and slender in relation to body size, approximately 1.2 mm long; ventral process apically distinctly asymmetric in ventral view; parameres very thin and reaching beyond apex of ventral process, each with two short apical and two short subapical setae; internal sac (Fig. 6) with a rather long and coiled internal tube, but without sclerotized spines.

♀: tergites IX–X as in Fig. 7, tergite IX with a median suture.

COMPARATIVE NOTES: From other *Pinobius* species of similar size, *P. insolitus* is reliably distinguished only based on the morphology of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: This remarkably widespread species has been recorded from Madagascar, Somalia, Mozambique, Djibouti, Saudi Arabia, and Yemen (FAGEL 1958, 1960; material examined) (Fig. 8). Most likely, all the previous records of *P. indicus* from the Arabian Peninsula and from East Africa, such as those by COIFFAIT (1982a) and GUSAROV (1997) from Saudi Arabia, as well as those by SCHEERPELTZ (1974) from South Sudan and Saudi Arabia, refer to *P. insolitus*, certainly not to *P. indicus*. The examined material was collected at altitudes between 740 and 1500 m, probably primarily at light sources.

Interestingly, COIFFAIT (1982b) figures the aedeagus of *P. insolitus* (as *P. indicus*) based on a specimen from “l’Inde”. However, it can be inferred from the revised distributions of Palaearctic and Oriental *Pinobius* species that the illustrated male is in fact from Saudi Arabia, from where he had recorded *Pinobius* (as *P. indicus*) (COIFFAIT 1982a).

### *Pinobius sparsiventris* (FAUVEL 1886) (Figs. 9–17, 38)

*Dolicaon sparsiventris* FAUVEL 1886: 148.

*Dolicaon indicus javanus* CAMERON 1936: 183; **syn.n.**

TYPE MATERIAL EXAMINED: *Dolicaon sparsiventris*: **Lectotype** ♀, present designation: “Java. Batavia [= Jakarta] / Weltenrede [?] (Java) / sparsiventris / Ex-Typis / Coll. I.R.Sc.N.B. / Lectotypus ♀ *Dolicaon sparsiventris* Fauvel, desig. V. Assing 2014 / *Pinobius sparsiventris* (Fauvel), det. V. Assing 2014” (IRSNB). **Paralectotype** ♀: “Manille / Ex-Typis / Coll. I.R.Sc.N.B.” (IRSNB).

*Dolicaon javanus*: **Lectotype** ♂, present designation: “C.J, Louwerens, Java 84 m, Toeloengagoeng / *Dolicaon javanum* [sic] Cam, Type / Type / M. Cameron. Bequest. B.M. 1955-147. / Lectotypus ♂ *Dolicaon javanum* Cameron, desig. V. Assing 2014 / *Pinobius sparsiventris* (Cameron), det. V. Assing 2014” (BMNH). **Paralectotypes**: 1 ♂: “Malaya, Kuala Lumpur. / Syntype / M. Cameron. Bequest. B.M. 1955-147.” (BMNH); 1 ♂, 1 ♀: “Tjamba [= Camba, 4°55'S 119°51'E], Zuid Celebes [= South Sulawesi], Doherty VIII.IX / Syntype / M. Cameron. Bequest. B.M. 1955-147.” (BMNH).

COMMENT: The original description of *Pinobius sparsiventris* is based on two female syntypes (“deux exemplaires ♀”) from “Manille. – Java (Batavia)” (FAUVEL 1886). Both syntypes were located in the Fauvel collection at the IRSNB. The female from Java is designated as the lectotype.

*Pinobius javanus* was described from an unspecified number of syntypes from “Toeloengagoeng [in Java] ... Celebes and the Malay Peninsula” as a subspecies of *P. indicus* (CAMERON 1936). Four syntypes, three males and a female, were located in the Cameron collection at the BMNH. All of them are conspecific. The male from Toeloengagoeng (= Tulungagung) is designated as the lectotype.

Although the lectotype of *P. sparsiventris* is a female, there is little doubt that it is conspecific with the lectotype of *P. javanus*, since no other species of similar external morphology has been recorded from Java and adjacent regions. For this reason, the syntype of *P. sparsiventris* from Java is designated as the lectotype. All other *Pinobius* species known from this area are

distinguished from *P. sparsiventris* by significantly larger size alone. Consequently, *P. javanus* is placed in synonymy with *P. sparsiventris*.

ADDITIONAL MATERIAL EXAMINED: **MYANMAR:** 1 ♀, Tenasserim, 90 km E Mekane, Moulmein, 200 m, 2.–8.XI.1934, leg. Malaise (NHMW). **LAOS:** 1 ♂, 1 ♀, Luang Prabang prov., Khan river, 19°53'N 102°09'E, 300 m, 21.IV.1999, leg. Kubáň (NHMB, cAss); 1 ♂, Khammouan prov., Ban Khoun Ngeun, 18°07'N 104°29'E, 200 m, 24.–29.IV.2001, leg. Pacholátko (cAss). **THAILAND:** 3 ♂♂, 3 ♀♀, 240 km NW Bangkok, 25 km NW Lan-Sak, 110 m, light trap, II.1989, leg. Thielen (NHMB, NHMW, cAss); 1 ♂, 220 km NW Bangkok, 65 km NW Thai-Tani, 25 km NW Lan-Sak, 110 m, at light, X.1990 (cAss); 1 ♂, 1 ♀, Kanchanaburi, farmland near river Kwai, 400 m, 25.–27.III.1988, leg. Brendell (BMNH, cAss); 1 ♂, Bangkok, leg. Hillman (BMNH); 1 ♂, 1 ♀, 220 km NW Bangkok, 55 km W Uthai-Thani, 2 km SW Pak-Muang, 120 m, II.1992 (MNHUB). **VIETNAM:** 2 ♀♀, South Vietnam, Nam Cat Tien National Park, 1.–15.V.1994, leg. Pacholátko & Dembický (NHMB, NHMW); 2 ♂♂, 1 ♀, 40 km NW An Khe, Buon Luoi, 14°10'N 108°30'E, 620–750 m, 28.III.–12.IV.1995, leg. Pacholátko & Dembický (NHMW, cAss); 2 ♂♂, 3 ♀♀, Hoa Binh, leg. de Cooman (MHNG, cAss). **INDONESIA:** 1 ♀, Java, Buitenzorg [= Bogor], at light, IV.1929, leg. Paine (BMNH); 1 ♀, Java (BMNH); 2 ♂♂, 1 ♀, South Sulawesi, Makassar ["Macassar"], VI.1896, leg. Doherty (IRSNB). **PHILIPPINES:** 1 ♂ [without aedeagus], Luzon, leg. Semper (BMNH). **LOCALITY NOT IDENTIFIED:** 1 ♀, "Vinh-Thaton", 1912 (NHMB).

REDESCRIPTION: Body length 7.3–9.5 mm; length of forebody 4.1–5.0 mm. Coloration: head and pronotum reddish-brown to blackish-brown; elytra dark-reddish to dark-brown; abdomen brown to dark-brown; legs yellowish-brown to brown; antennae reddish to brown.

Head (Fig. 9) moderately transverse, approximately 1.15 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctuation rather coarse and sparse, even sparser in median dorsal portion; interstices without microsculpture. Eyes usually slightly longer than, occasionally approximately as long as postocular region in dorsal view. Antenna (Fig. 10) 2.0–2.3 mm long; antennomeres IV–VI distinctly oblong; VII moderately oblong; VIII–X approximately as broad as long.

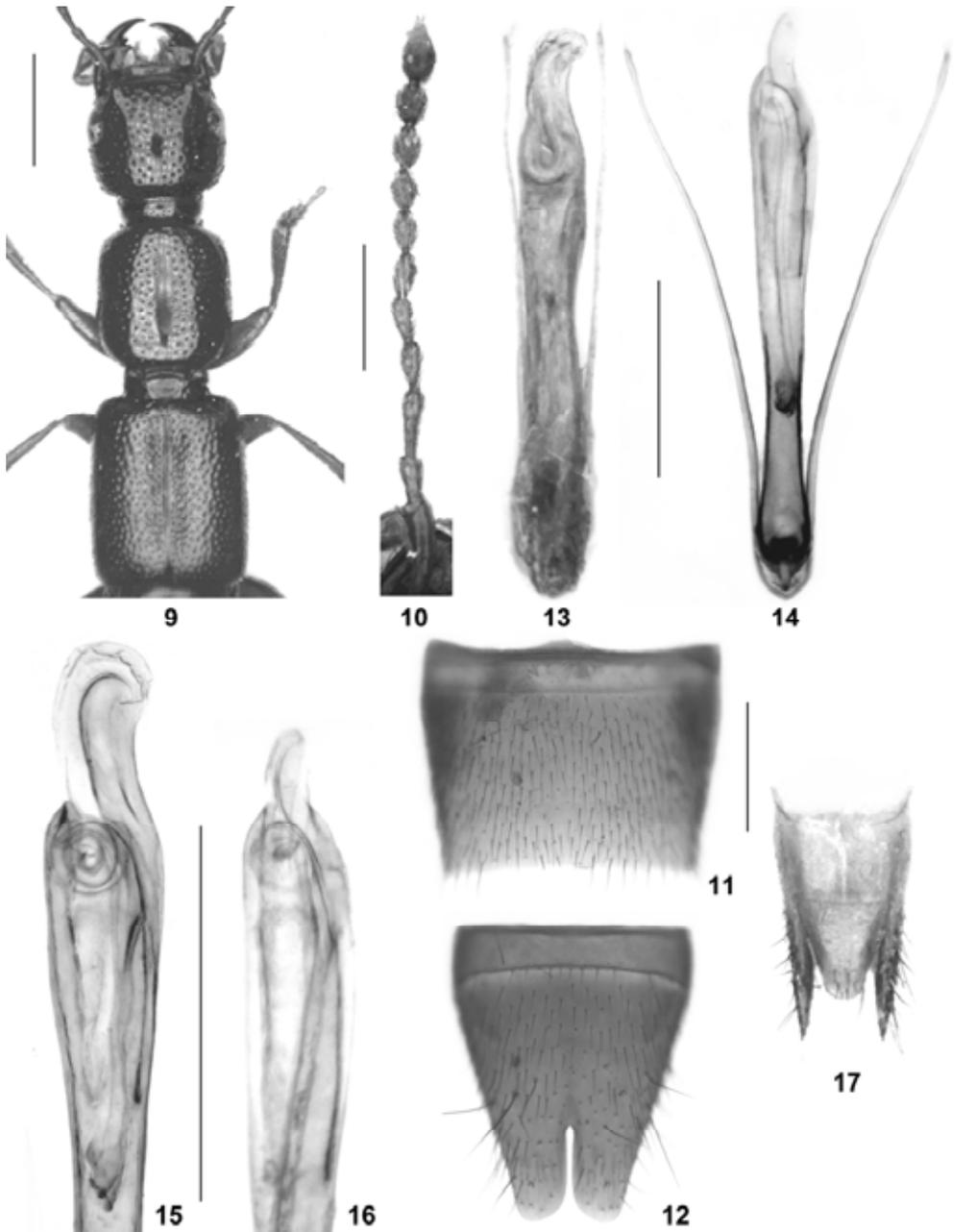
Pronotum (Fig. 9) 1.05–1.10 times as long as broad and usually approximately 0.95 times as broad as head; punctuation denser and slightly finer than, or as coarse as that of head; interstices without microsculpture; midline mostly rather broadly impunctate.

Elytra (Fig. 9) 1.06–1.13 times as long as pronotum; punctuation dense, as coarse as, or slightly finer than that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as, or longer than the combined length of II and III. Protarsomeres I–IV with indistinct sexual dimorphism, moderately dilated in males and females.

Abdomen slightly narrower than elytra; punctuation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex posteriorly.

♂: protarsomeres I–IV moderately dilated (Fig. 9); sternite VII (Fig. 11) moderately transverse, with unmodified pubescence, and with very weakly concave posterior margin; sternite VIII (Fig. 12) distinctly oblong, posterior incision narrow, but not very deep, its depth only 0.30–0.37 times the length of sternite; aedeagus (Figs. 13–16) 1.2–1.4 mm long (total length including internal structures 1.4–1.6 mm) and conspicuously slender; ventral process narrow and apically with asymmetrically U-shaped excision in ventral view; dorsal plate reduced; internal sac without distinctly sclerotized structures, apically extending more or less strongly beyond apex of ventral process; parameres very thin and very long, extending distinctly beyond apex of ventral process, each with two apical setae.

♀: tergites IX–X as in Fig. 17; tergite IX with median suture.



Figs. 9–17: *Pinobius sparsiventris* (11, 16: lectotype of *P. javanus*; 15: paralectotype of *P. javanus*). 9) forebody; 10) antenna; 11) male sternite VII; 12) male sternite VIII; 13) aedeagus in dry preparation in ventral view; 14) aedeagus in transparent preparation in ventral view; 15–16) apical portion of aedeagus in ventral view; 17) female tergites IX–X. Scale bars: 9: 1.0 mm; 10–17: 0.5 mm.

COMPARATIVE NOTES: *Pinobius sparsiventris* is distinguished from all other Oriental *Pinobius* species particularly by the conspicuously slender and weakly sclerotized aedeagus and, except *P. brevincisus*, by the relatively short posterior incision of the male sternite VIII. It additionally differs from the sympatric *P. tonkinensis* by the less transverse head, the coarse and usually sparser punctation of the head, and by smaller average body size. For characters distinguishing *P. sparsiventris* from the similar and evidently closely related *P. brevincisus* see the comparative notes in the following section. The derived morphology of the aedeagus (slender shape; weakly sclerotized ventral process, in *P. sparsiventris* with an asymmetric apical incision) suggests that *P. sparsiventris* and *P. brevincisus* may be more closely affiliated with Afrotropical (such as *P. insolitus*) than with other Oriental *Pinobius* species.

DISTRIBUTION AND NATURAL HISTORY: Like *P. tonkinensis*, *P. sparsiventris* is remarkably widespread in the Oriental Region and apparently not uncommon. The known distribution ranges from Myanmar to Vietnam, Java, South Sulawesi (Indonesia), and Luzon (Philippines) (Fig. 38). The examined material was collected at altitudes between 80 and 750 m, mostly at light, throughout most of the year (February–June; August–November).

### *Pinobius brevincisus* sp.n. (Figs. 18–24, 44)

TYPE MATERIAL: **Holotype** ♂: “Vietnam Longan Pr., Duc Hua, Hoa Khan Tay, N10°19'15" E106°21'33" / Blue light nr. large river, 2 m alt. D.J. Mann / *Pinobius* sp., Det. 2007, G. de Rougemont / Holotypus ♂ *Pinobius brevincisus* sp. n., det. V. Assing 2014” (cAss).

ETYMOLOGY: The epithet alludes to the relatively short posterior incision of the male sternite VIII.

DESCRIPTION: Body length 8.5 mm; length of forebody 3.8 mm. Coloration: head and pronotum dark-brown; elytra reddish; abdomen dark-brown with reddish apex; legs dark-yellowish; antennae dark-reddish.

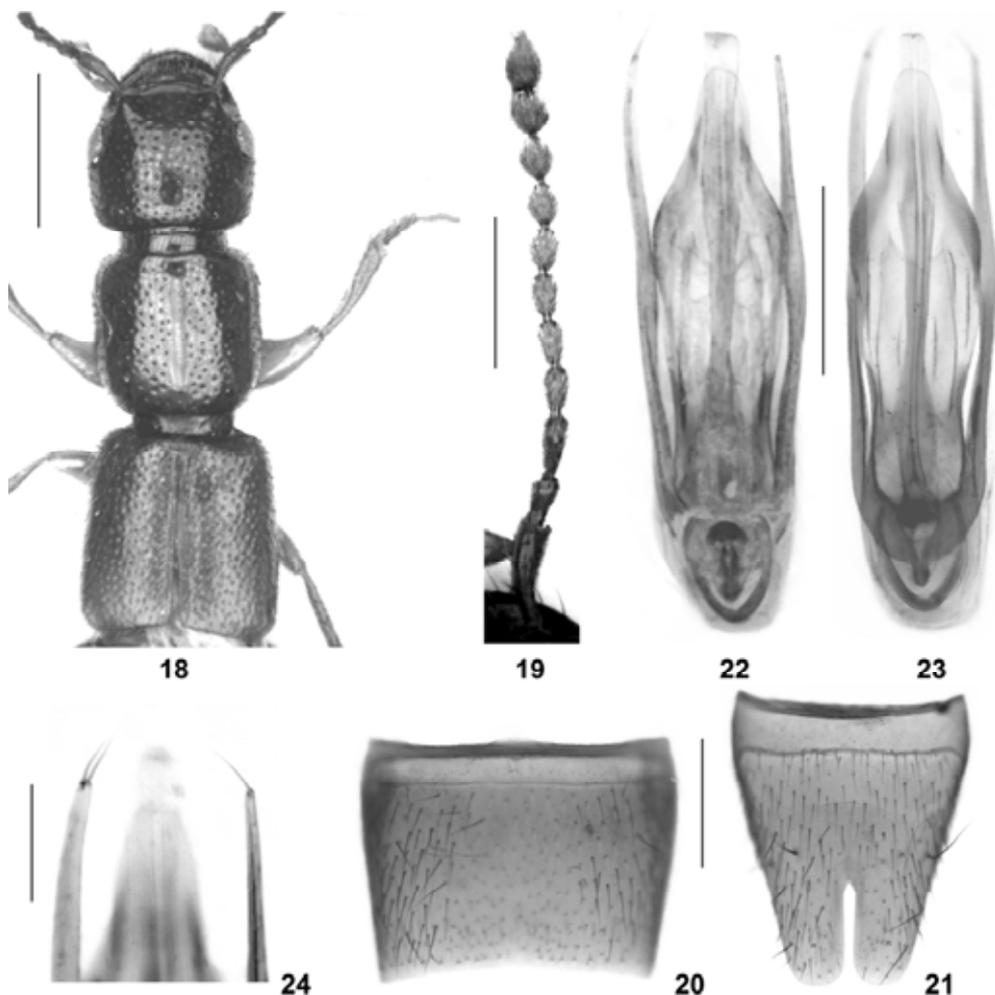
Head (Fig. 18) moderately transverse, approximately 1.15 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation rather coarse and rather sparse, even sparser in median dorsal portion, with sparse interspersed micropunctures; interstices without microsculpture. Eyes distinctly shorter than postocular region in dorsal view. Antenna (Fig. 19) 2.1 mm long; antennomeres IV–VI approximately 1.5 times as long as broad; VII weakly oblong; VIII approximately as long as broad; IX–X weakly transverse.

Pronotum (Fig. 18) approximately as long as broad and as broad as head; punctation similar to that of head; interstices without microsculpture; midline moderately broadly impunctate.

Elytra (Fig. 18) approximately as long as pronotum; punctation defined, denser than that of pronotum. Hind wings fully developed. Metatarsomere I slightly longer than the combined length of II and III.

Abdomen narrower than elytra; punctation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex posteriorly.

♂: protarsomeres I–IV moderately dilated (Fig. 18); sternite VII (Fig. 20) moderately transverse, with unmodified pubescence, posterior margin very weakly concave in the middle; sternite VIII (Fig. 21) distinctly oblong, posterior incision narrow, but not very deep, its depth only 0.36 times the length of sternite; aedeagus (Figs. 22–23) 1.5 mm long, dorso-ventrally flattened, and weakly sclerotized; ventral process apically narrow and convex; dorsal plate reduced; internal sac with long, weakly sclerotized median tube; parameres rather stout, nearly straight, extending slightly beyond apex of ventral process, each with two apical setae (Fig. 24).



Figs. 18–24: *Pinobius brevincis*. 18) forebody; 19) antenna; 20) male sternite VII; 21) male sternite VIII; 22) aedeagus in dry preparation in ventral view; 23) aedeagus in transparent preparation in ventral view; 24) apical portion of aedeagus in ventral view. Scale bars: 18: 1.0 mm; 19–23: 0.5 mm; 24: 0.2 mm.

**COMPARATIVE NOTES:** Based on the shape of the male sternite VIII (posterior incision relatively short), the moderately dilated protarsomeres I–IV, and the morphology of the aedeagus (relatively small, weakly sclerotized, dorso-ventrally strongly flattened; dorsal plate reduced; internal sac without strongly sclerotized structures; parameres with two apical setae), *P. brevincis* is closely allied to, most likely the sister species of, *P. sparsiventris*, from which it differs in the smaller eyes, the finer punctation of the head and pronotum, and by the morphology of the aedeagus (distinctly broader and differently shaped in ventral view; parameres much stouter and shorter in relation to median lobe; internal structures much more distinct).

**DISTRIBUTION AND NATURAL HISTORY:** The type locality is situated in the Mekong Delta in South Vietnam (Fig. 44). The holotype was collected at a light source in the vicinity of a large river slightly above sea level.

***Pinobius indicus* (KRAATZ, 1859)** (Figs. 25–31, 44)

*Doliceon indicus* KRAATZ 1859: 118.

*Doliceon longipennis* CAMERON 1931: 219; **syn.n.**

TYPE MATERIAL EXAMINED: *Doliceon indicus*: **Lectotype** ♂, present designation: “222 / Ind. bor. / indicum / Coll. Kraatz / Syntypus / DEI Müncheberg Col – 03811 / Lectotypus ♂ *Doliceon indicum* [sic] Kraatz, desig. V. Assing 2014 / *Pinobius indicus* (Kraatz), det. V. Assing 2014” (SDEI).

*Doliceon longipennis*: **Syntype** ♀: “Type / India / Bowring. 63.47\* / *D. longipennis* Cam, Type / *Pinobius indicus* (Kraatz), det. V. Assing 2014” (BMNH).

COMMENT: The original description of *P. indicus* is based on an unspecified number of syntypes from “Ceylan et in India boreali” (KRAATZ 1859). One of the syntypes, a male, was located in the Kraatz collection at the SDEI. The specimen is designated as the lectotype.

*Doliceon longipennis* was described from an unspecified number of syntypes, most likely a single specimen, from “India (without further indication)” (CAMERON 1931). A female labelled as type was located in the Cameron collection. An examination of this specimen yielded no distinguishing characters suggesting that it should not be conspecific with the lectotype of *P. indicus*. It is somewhat smaller, but not outside the size variation of *P. indicus*.

ADDITIONAL MATERIAL EXAMINED: **INDIA**: 1 ♂, “Bengal, Sarda” (BMNH); 1 ♂, Pondicherry, Karikal (= Karaikal, 10°55'N 79°50'E), VIII.1972, leg. Nathan (MHNG).

REDESCRIPTION: Body length 6.3–8.5 mm; length of forebody 3.6–4.2 mm. Coloration: head and pronotum dark-reddish to reddish-brown; elytra and abdomen reddish; legs yellowish; antennae reddish.

Head (Fig. 25) 1.14–1.17 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation moderately fine and moderately dense, sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as, or longer than postocular region in dorsal view. Antenna (Fig. 26) slender, 1.8–2.2 mm long; antennomeres IV–VI approximately 1.5 times as long as broad; VII–VIII weakly oblong; IX–X weakly transverse.

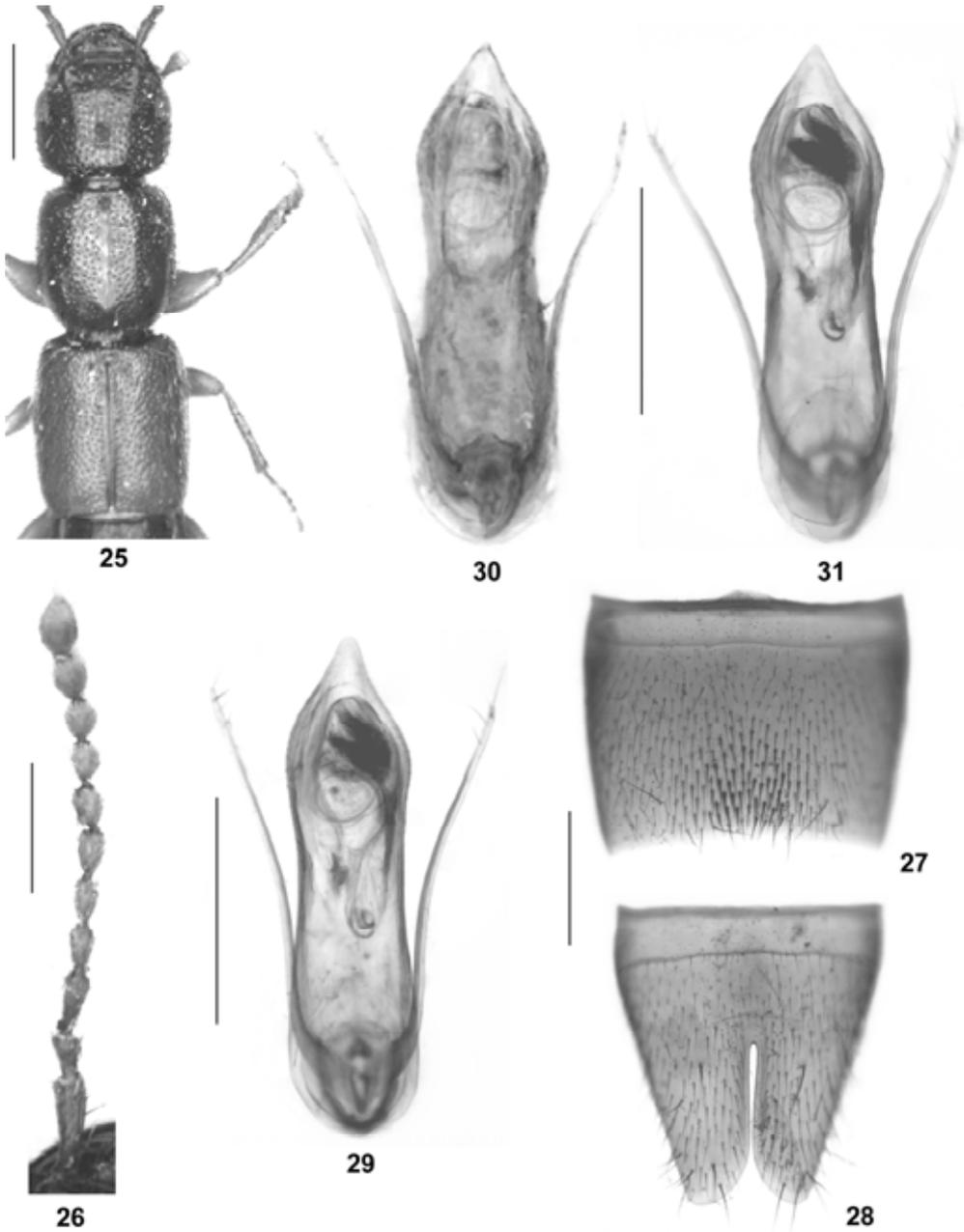
Pronotum (Fig. 25) 1.06–1.07 times as long as broad and approximately as broad as head; punctation similar to that of head, but somewhat denser; interstices without microsculpture; midline narrowly impunctate.

Elytra (Fig. 25) 0.98–1.02 times as long as pronotum; punctation similar to that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with moderately pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; tergite VIII strongly convex posteriorly.

♂: protarsomeres I–IV moderately strongly dilated (Fig. 25); sternite VII (Fig. 27) moderately convex, with extensive cluster of numerous darker and somewhat stouter setae in postero-median portion, and with weakly concave posterior margin; sternite VIII (Fig. 28) distinctly oblong, posterior incision narrow, its depth approximately half the length of sternite; aedeagus (Figs. 29–31) 1.1–1.2 mm long; ventral process nearly symmetric and apically more or less acute; parameres thin, far from reaching apex of ventral process, with a long apical and several long subapical setae; internal sac with a long and coiled internal tube, with pair of dark membranous structures, but without sclerotized spines.

♀: protarsomeres I–IV dilated, but less so than in male.



Figs. 25–31: *Pinobius indicus* (25–29: lectotype). 25) forebody; 26) antenna; 27) male sternite VII; 28) male sternite VIII; 29, 31) aedeagus in transparent preparation in ventral view; 30) aedeagus in dry preparation in ventral view. Scale bars: 25: 1.0 mm; 26–31: 0.5 mm.

COMPARATIVE NOTES: From other *Pinobius* species of similarly small size, *P. indicus* is reliably distinguished only based on the morphology of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: Only two specified localities are known, one in West Bengal (North India) and one in Pondyicherry (South India) (Fig. 44). The revision of numerous specimens previously identified and labelled as *P. indicus* revealed that all of them were misidentified; the majority of them are in fact *P. tonkinensis*. Thus, all previous literature records of *P. indicus* are erroneous or at least highly doubtful. One of the additional specimens was collected in August.

***Pinobius parviceps* (FAUVEL, 1895)** (Figs. 32–38)

*Dolicaon parviceps* FAUVEL 1895: 234.

TYPE MATERIAL EXAMINED: **Syntype** ♀: “Palon (Pegú), L. Fea. VIII.IX.87 / parviceps Fvl. / Ex-Typis / Syntypus *Dolicaon parviceps* Fauvel, rev. V. Assing 2014 / *Pinobius parviceps* (Fauvel), det. V. Assing 2014” (IRSNB).

COMMENT: The original description is based on an unspecified number of syntypes from “Pegu, Palon, VIII–IX (L. Fea)” (FAUVEL 1895).

ADDITIONAL MATERIAL EXAMINED: **MYANMAR**: 1 ♂, Irawaddy River [“Irawathi”] (IRSNB); 1 ♂, “Bhamo 7., Birmanie / Semniogion 2, Birmanie” (IRSNB); 1 ♂, Tharrawaddy (BMNH).

REDESCRIPTION: Body length 6.8–7.7 mm; length of forebody 3.3–3.5 mm. Coloration: head and pronotum brown; elytra dark-reddish, with the anterior margins and the sutural portion near the apex of the scutellum indistinctly infuscate; abdomen dark-brown with paler apex; legs yellowish; antennae reddish to brown.

Head (Fig. 32) approximately 1.15 times as broad as long, lateral margins behind eyes parallel or weakly converging in dorsal view; punctuation coarse and moderately dense, somewhat sparser and finer in median dorsal portion; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view, or slightly longer. Antenna short, approximately 1.8 mm long; antennomeres IV–V moderately oblong; VI–VII weakly oblong; VIII–X approximately as broad as long or weakly transverse.

Pronotum (Fig. 32) 1.04–1.08 times as long as broad and approximately 1.08 times as broad as head; punctuation moderately dense and approximately as coarse as that of head; interstices without microsculpture; midline narrowly impunctate.

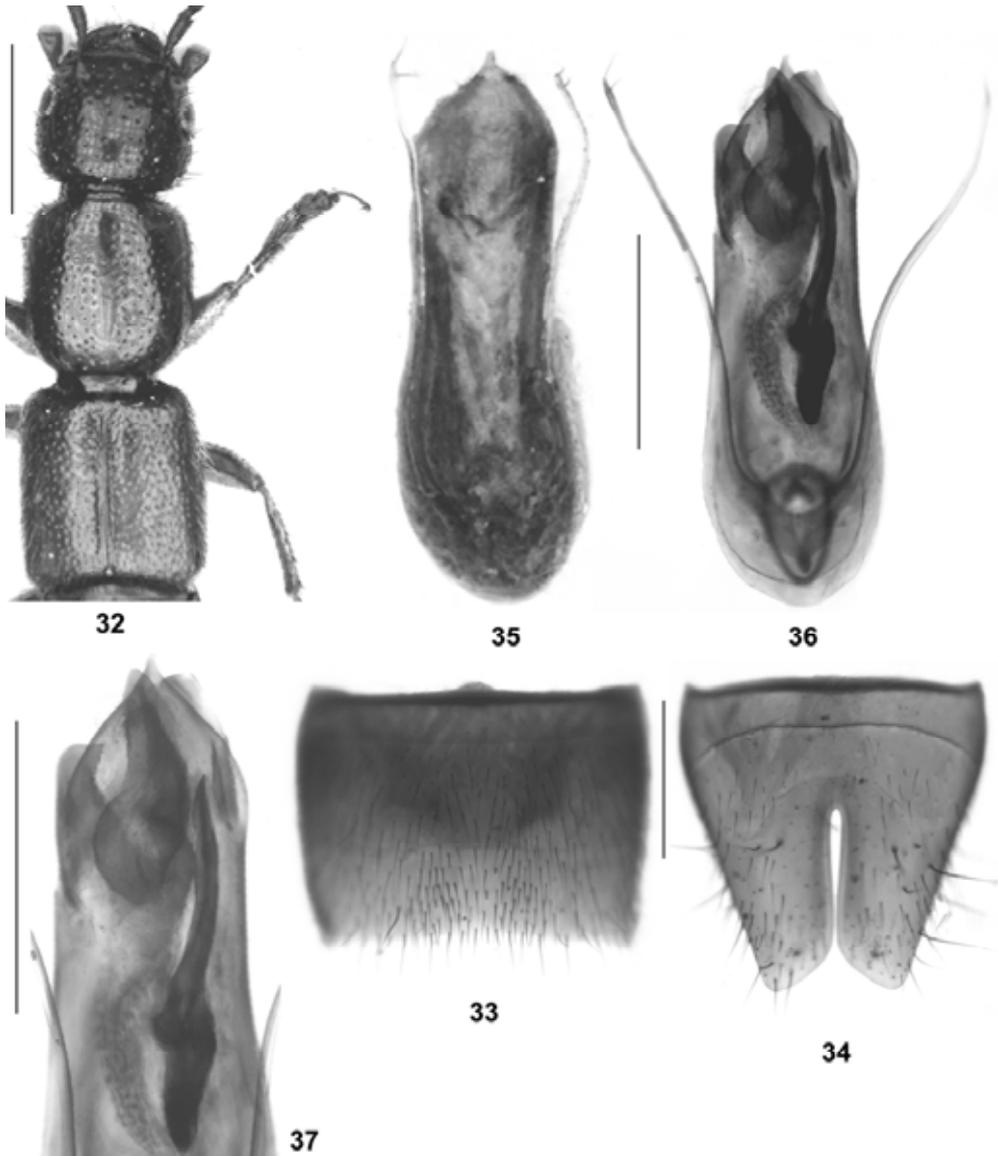
Elytra (Fig. 32) approximately 0.9 times as long as pronotum; punctuation defined, dense, and somewhat finer than that of head and pronotum. Hind wings fully developed. Protarsomeres distinctly dilated (Fig. 32). Metatarsomere I approximately as long as the combined length of II and III.

Abdomen approximately 0.9 times as broad as elytra; punctuation fine and rather dense; interstices with distinct microsculpture; posterior margin of tergite VII with palisade fringe; tergite VIII strongly convex posteriorly.

♂: sternite VII (Fig. 33) moderately transverse, pubescence somewhat denser in postero-median than in anterior and lateral portions, posterior margin weakly concave; sternite VIII (Fig. 34) approximately as long as broad, posterior incision very deep and narrow, its depth approximately 0.6 times the length of sternite; aedeagus (Figs. 35–36) rather large in relation to body size, approximately 1.3 mm long; ventral process nearly symmetric in ventral view; parameres very thin, just reaching apex of ventral process, apically with one long and subapically with one shorter seta; internal sac with characteristic arrangement of sclerotized structures (Fig. 37).

COMPARATIVE NOTES: Among the *Pinobius* species of similarly small size, *P. parviceps* is characterized by the relatively small head and particularly by the morphology of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: The known distribution is confined to few localities in Myanmar (Fig. 38). The circumstances of collection are unknown.



Figs. 32–37: *Pinobius parviceps*. 32) forebody; 33) male sternite VII; 34) male sternite VIII; 35) aedeagus in dry preparation in ventral view; 36) aedeagus in transparent preparation in ventral view; 37) apical portion of median lobe of aedeagus in ventral view. Scale bars: 32: 1.0 mm; 33–37: 0.5 mm.

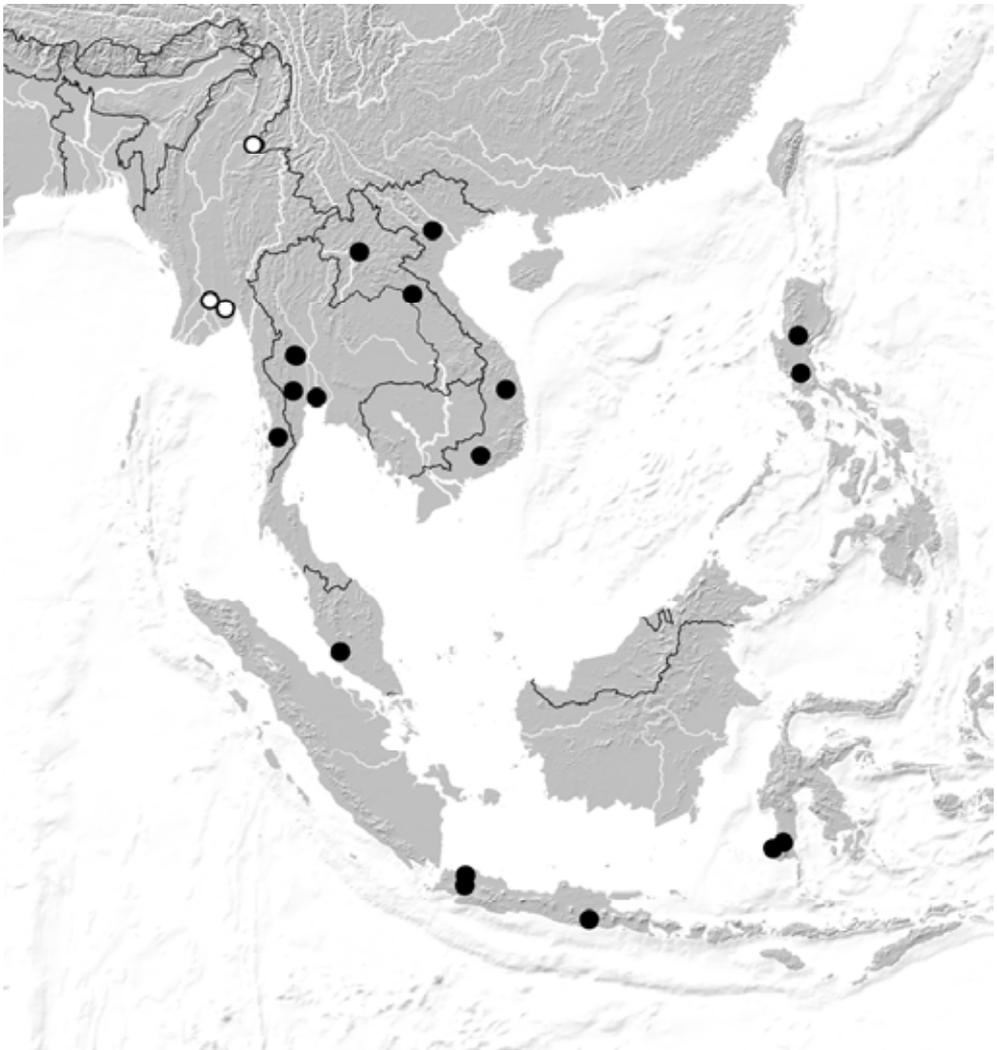


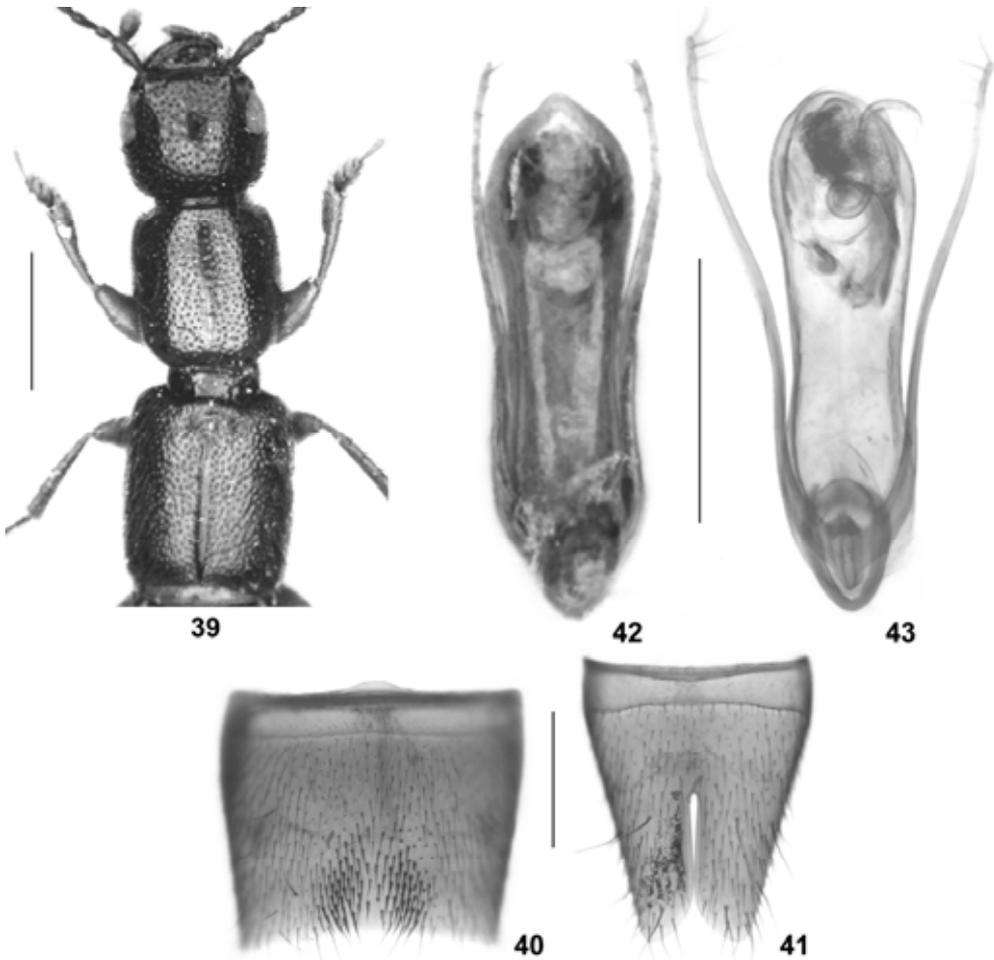
Fig. 38: Distributions of *Pinobius parviceps* (white circles) and *P. sparsiventris* (black circles) in the Oriental Region.

***Pinobius rotundatus* sp.n.** (Figs. 39–44)

**TYPE MATERIAL:** **Holotype** ♂: “Assam 1976, Wittmer, Baroni U. / Kaziranga 75 m, 7.–9.5.76 / Holotypus ♂ *Pinobius rotundatus* sp. n., det. V. Assing 2014” (NHMB). **Paratypes:** 4 ♂♂, 4 ♀♀: same data as holotype (NHMB, cAss).

**ETYMOLOGY:** The epithet (Latin, adjective: rounded) alludes to the apically convex ventral process of the aedeagus, one of the characters distinguishing this species from the similar *P. indicus*.

**DESCRIPTION:** Body length 7.5–8.5 mm; length of forebody 3.8–4.1 mm. Coloration: body reddish-brown to dark-brown; legs yellowish-brown; antennae reddish.



Figs. 39–43: *Pinobius rotundatus*. 39) forebody; 40) male sternite VII; 41) male sternite VIII; 42) aedeagus in dry preparation in ventral view; 43) aedeagus in transparent preparation in ventral view. Scale bars: 39: 1.0 mm; 40–43: 0.5 mm.

Head (Fig. 39) approximately 1.15 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation rather coarse and dense, somewhat sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view. Antenna 1.9–2.1 mm long; antennomeres IV–VI distinctly oblong; VII weakly oblong; VIII–X approximately as broad as long or weakly transverse.

Pronotum (Fig. 39) approximately 1.1 times as long as broad and about as broad as head; punctation dense, similar to that of head or slightly finer; interstices without microsculpture; midline narrowly punctate.

Elytra (Fig. 39) 1.00–1.04 times as long as pronotum; punctation dense and defined. Hind wings fully developed. Protarsomeres I–IV moderately dilated (Fig. 39). Metatarsomere I approximately as long as the combined length of II and III.

Abdomen slightly narrower than elytra; punctation fine and moderately dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex. Protarsomeres rather strongly dilated, without evident sexual dimorphism.

♂: sternite VII (Fig. 40) moderately transverse, with a defined and extensive cluster of stouter black setae on either side of the middle in postero-median portion, and with weakly concave posterior margin; sternite VIII (Fig. 41) distinctly oblong, posterior excision approximately 0.55 times as deep as length of sternite; aedeagus (Figs. 42–43) approximately 1.0 mm long, symmetric; ventral process broad, apically convex, not distinctly pointed in ventral view; internal sac with a coiled tube and with some darker membranous structures, but without sclerotized spines; parameres very thin and long, distinctly extending beyond apex of ventral process, each with two apical and two subapical setae.

COMPARATIVE NOTES: This species is reliably distinguished from the similar *P. indicus* only by the slightly less transverse male sternite VII and by the morphology of the aedeagus, particularly the apically rounded ventral process, the differently shaped internal structures, and the much longer parameres. It is separated from the sympatric and syntopic *P. imberbis* by the distinctly modified chaetotaxy of the male sternite VII and by the much smaller and differently structured median lobe of the aedeagus.

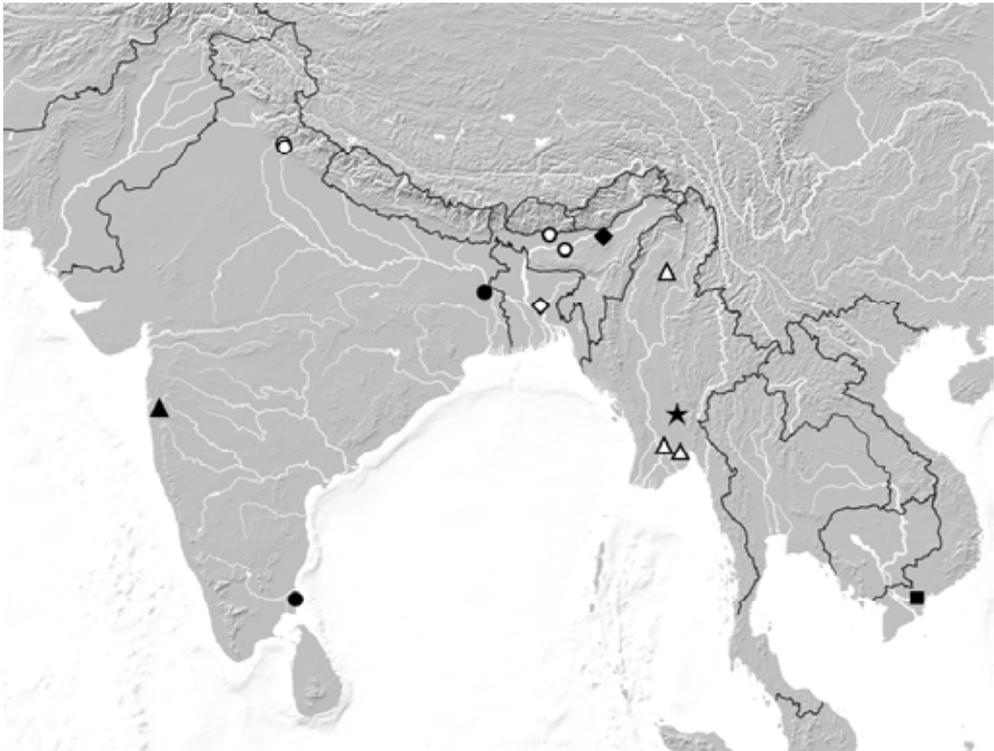


Fig. 44: Distributions of *Pinobius indicus* (black circles), *P. bifidus* (white circles), *P. carinatus* (black triangle), *P. linguatus* (white diamond), *P. rotundatus* (black diamond), *P. imberbis* (black diamond), *P. bihamatus* (black star), *P. vicinus* (white triangles), and *P. brevincisus* (black square).

**DISTRIBUTION AND NATURAL HISTORY:** This species is currently known only from the type locality in Assam, Northeast India (Fig. 44), where it was collected at an altitude of 75 m, together with *P. imberbis*.

***Pinobius tonkinensis* (CAMERON, 1946)** (Figs. 45–54)

*Doliceon tonkinensis* CAMERON 1946: 684.

*Lathrobium batullus* LAST 1961: 306 ff.; synonymy by ROUGEMONT (2001).

**TYPE MATERIAL EXAMINED:** *Pinobius tonkinensis*: **Paratype** ♂: “Hoa-Binh (Tonkin) (A. de Cooman) Coll. J. Clermont / *Doliceon tonkinensis* Cam, Cotype / Cotype / M. Cameron. Bequest. B.M. 1955-147. / *Pinobius tonkinensis* (Cameron), det. V. Assing 2014” (BMNH).

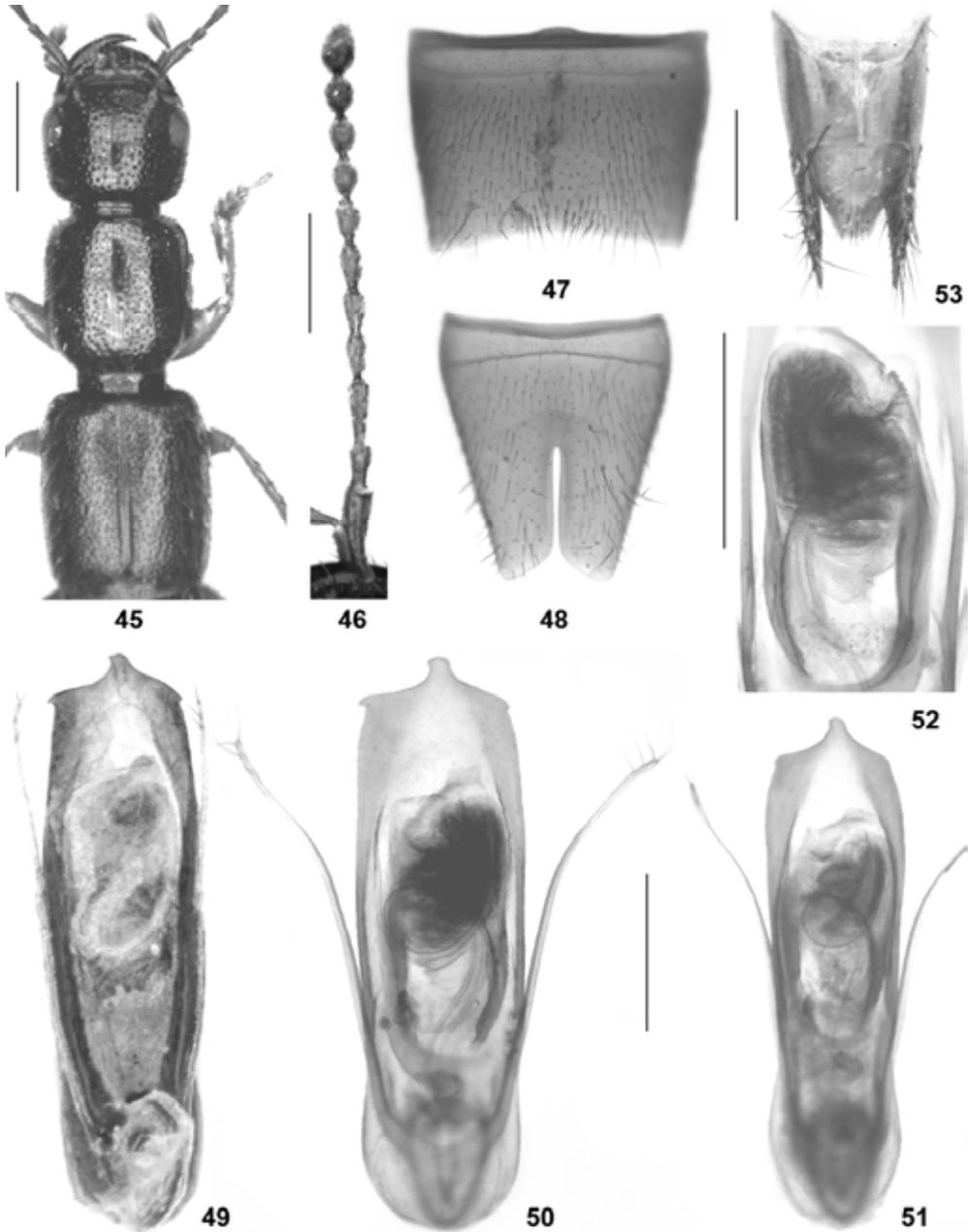
*Pinobius batullus*: **Paratype** ♂: “N 271, Chieng Mai, Thailand, 31.5.58 [written on reverse side of mounting label] / Chieng Mai, Thailand, 31.5.1958, H. Ikoma leg. / Manchester Museum Paratype / Paratype / *Lathrobium batullum* sp. n., Paratype, H. Last det. / *Pinobius batullum* [sic] Last, H.R. Last det., Paratype / P3008.5055 / *Pinobius tonkinensis* (Cameron), det. V. Assing 2014” (MMUM).

**COMMENT:** The original description of *P. tonkinensis* is based on two specimens (holotype, paratype) from “Tonkin: Hoa-Binh” (CAMERON 1946), that of *P. batullus* on two specimens (holotype, paratype) from “Thailand: Chieng Mai” (LAST 1961). A revision of the male paratypes of both names confirmed the previously established synonymy of *P. batullus* with *P. tonkinensis*.

Most of the additional material examined had been misidentified as *P. robustus*.

**ADDITIONAL MATERIAL EXAMINED:** **MYANMAR:** 1 ♂, 3 ♀♀, Tharawaddy, leg. Corbett (BMNH). **CHINA:** 1 ♀, Yunnan, Xishuangbanna, N Jinghong [22°00'N 100°48'E], Menolim [= Mandian], banks of Lancang river, forest floor, I.1993, leg. Rougemont (cRou); 1 ♂, 1 ♀, Yunnan, Xishuangbanna, 20 km NW Jinghong, Man Dian, 22°08'N 100°40'E, 720 m, light trap, 26.V.2008, leg. Weigel (NME, cAss); 2 ♂♂, 6 ♀♀ [identified based on photos of the aedeagus; data communicated to me by Zhong Peng], Guangxi, Bangliang Nature Reserve, 22°55'N 106°28'E, 600 m, sifted from grass and soil near a road, 5.VIII.2010, leg. Huang (SNUC). **HONG KONG:** 1 ♂ [aedeagus missing], Lung Kwu Chau, at light, 16.X.1997, leg. Reels (cRou). **TAIWAN:** 2 ♂♂, Anping, leg. Sauter (NHMW, cAss); 3 exs., Ari Shan [= Alishan] env., Shounouryo, 29.III.1938, leg. Yano (BMNH, cAss). **LAOS:** 5 exs., N-Vientiane Prov., Vang-Vieng, 18°55'N 102°27'E, 300 m, 10.–15.V. & 1.–6.VI.2001, leg. Kolibáč (NHMB, cAss); 2 exs., Vientiane Prov., Vientiane, 17°58'N 102°37'E, 160 m, bank of Mekong river, in decaying debris, 22.VI.2008, leg. Solodovnikov & Pedersen (ZMUC, cAss); 22 exs., Louang-Phrabang Prov., Khan river, 19°53'N 102°09'E, 300 m, 21.IV.1999, leg. Kubán (NHMB, cAss). **THAILAND:** 4 exs., Chumphon Prov., Pha To env., 9°48'N 98°47'E, 27.III.–4.IV.1997, leg. Majer (NHMB, cAss); 2 exs., 150 km NW Bangkok, 60 km N Suphan Buri, 10 km W Han-Kha, 90 m, IV.1990, leg. Thielen (NHMB); 1 ex., same locality, at light, VII.1990, leg. Thielen (NHMW); 2 exs., Uthai Thani, 65 km NW Uthai Thani, 25 km NW Lan Sak, 110 m, light trap in arable land, V.1990, leg. Thielen (cAss); 11 exs., 240 km NW Bangkok, 25 km NW Lan-Sak, 110 m, at light, II.1989, leg. Thielen (NHMW, cAss); 3 exs., 220 km NW Bangkok, 65 km NW Thai-Tani, 25 km NW Lan-Sak, 110 m, at light, X.1990 (MNHUB); 7 exs., same data, but IX.1990 (MNHUB, cAss); 1 ♀, Chiang Mai, Zoo, 18°49'N 98°57'E, at light, 14.–21.XI.1988, leg. Malicky & Chantaramongkol (NHMW); 2 exs., Changwat Chiang Mai, Chiang Mai, 250 m, 24.–15.I.1989, leg. Trautner & Geigenmüller (SMNS); 4 ♂♂, 2 ♀♀, Bangkok (BMNH); 1 ♀, NE-Thailand, Khon Kaen, at light, 25.II.1981, leg. Saowakontha (MNHUB); 1 ♀, Chiang Rai, Lanjia Lodge [approximately 20°10'N 100°24'E], at light, 21.X.2010, leg. Rougemont (cRou). **VIETNAM:** 1 ♂, Ha son binh prov., Hoa binh [20°49'N 105°20'E], 4.–7.VI.1986, leg. Horák (cAss); 5 ♂♂, 3 ♀♀, Hoa binh, leg. de Cooman (MHNG, cAss, cRou); 1 ♂, Hanoi (MNHUB); 2 exs., “Tonkin” (MNHUB). **MALAYSIA:** 1 ♀, Prov. Kedah, Langkawi Island, XII.1989, leg. Novak (NHMW); 1 ♀, 1 ex. without abdomen, Kedah, 5.VII.1957, leg. Pegden (BMNH); 5 ♀♀, “Malay Pen.” (BMNH). **INDONESIA:** 2 exs., Sumatra, Rimbo Panti, 0°21'N 100°04'E, 250 m, at light, 24.–25.II.2002, leg. Riedel (cAss); 1 ex., Sumatra, 30 km W Peureulak, 80 m, 29.VIII.1981, leg. Wiesner (cAss). **LOCALITY ILLEGIBLE OR NOT SPECIFIED:** 1 ♂, 1 ♀, “India or.” (NHMW); 1 ex. (NHMB); 2 exs. (BMNH).

**REDESCRIPTION:** Species of rather variable size; body length 8.0–11.5 mm; length of forebody 4.4–5.9 mm. Coloration: head and pronotum dark-brown; elytra dark-reddish, with the anterior margin more or less distinctly and more or less extensively darker; legs yellowish-brown; antennae reddish.



Figs. 45–53: *Pinobius tonkinensis*. 45) forebody; 46) antenna; 47) male sternite VII; 48) male sternite VIII; 49) aedeagus in dry preparation in ventral view (Laos); 50–51) aedeagus in transparent preparation in ventral view (50: paratype; 51: Sumatra); 52) internal structures of aedeagus in dorsal view (paratype); 53) female tergites IX–X. Scale bars: 45: 1.0 mm; 46–53: 0.5 mm.

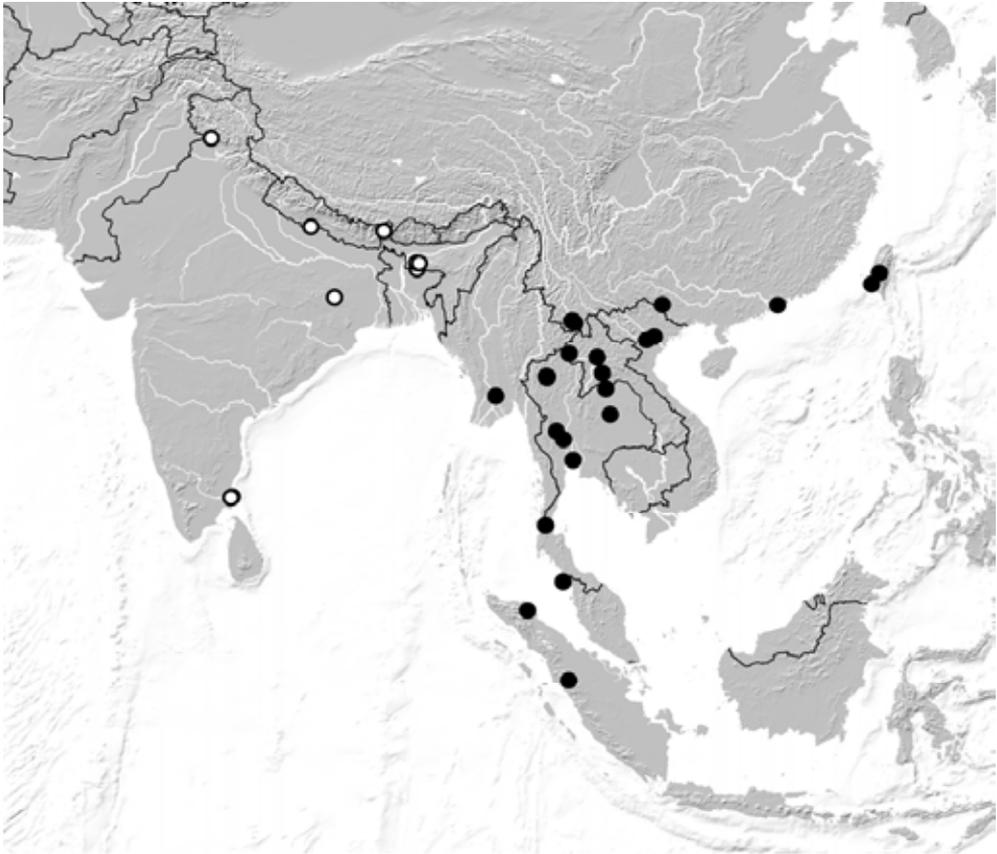


Fig. 54: Distributions of *Pinobius tonkinensis* (black circles) and *P. robustus* (white circles).

Head (Fig. 45) of rather variable shape (particularly size in relation to pronotum), usually approximately 1.20–1.25 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctuation moderately coarse and moderately dense to dense, sparser in median dorsal portion; interstices without microsculpture. Eyes usually slightly longer than postocular region in dorsal view. Antenna (Fig. 46) 2.2–2.6 mm long; antennomeres IV–VI more than 1.5 times as long as broad; VII oblong; VIII–X approximately as broad as long.

Pronotum (Fig. 45) 1.05–1.10 times as long as broad and approximately as broad as, or narrower than head; punctuation denser and slightly finer than that of head; interstices without microsculpture; midline more or less extensively impunctate.

Elytra (Fig. 45) 1.0–1.1 times as long as pronotum; punctuation similar to that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as, or longer than the combined length of II and III. Protarsomeres I–IV with moderately pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctuation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex posteriorly, in the middle nearly truncate.

♂: protarsomeres I–IV strongly dilated (Fig. 45); sternite VII (Fig. 47) moderately transverse, with weakly defined cluster of darker and stouter setae in posteromedian portion, and with

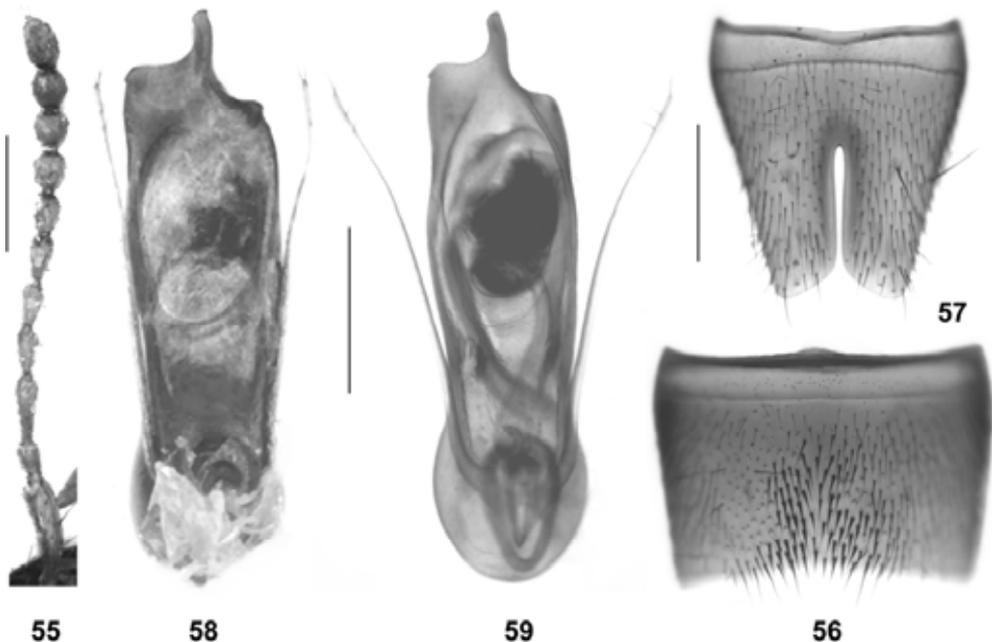
weakly concave posterior margin; sternite VIII (Fig. 48) oblong, posterior incision deep and narrow, its depth slightly more than half the length of sternite; aedeagus (Figs. 49–51) 1.5–1.8 mm long and weakly asymmetric; ventral process narrow, with apically more or less truncate median apex, and with subapically more or less sharply angular lateral margins in ventral view; dorsal plate reduced; internal sac dorsally with membranous structures, without distinct spines (Fig. 52); paramere very thin, far from reaching apex of ventral process, each with two long apical and two long subapical setae.

♂: protarsomeres I–IV distinctly dilated, but less so than in male; tergite IX with median suture (Fig. 53).

**INTRASPECIFIC VARIATION:** *Pinobius tonkinensis* is subject to remarkable intraspecific variation, particularly of body size, the shape and relative size of the head, the size of the aedeagus (Figs. 50–51), and the shape of the apical portion of the aedeagus.

**COMPARATIVE NOTES:** Based on the similar male sexual characters, particularly the similarly derived morphology of the aedeagus, *P. tonkinensis* is the adelphotaxon of *P. robustus*. For distinguishing characters see the comparative notes in the following section.

**DISTRIBUTION AND NATURAL HISTORY:** *Pinobius tonkinensis* is one of the most widespread and apparently the most common *Pinobius* species in the Oriental and southern East Palaearctic Regions, its distribution ranging from Myanmar and South China to Sumatra (Fig. 54). Most of the specimens were collected at light sources, usually in the vicinity of rivers or in arable land; some were sifted from decaying debris on a river bank, from leaf litter in forests, and from grass and soil near a road. The altitudes range from 80 to 720 m. The specimens were collected practically throughout the year, from January through November.



Figs. 55–59: *Pinobius robustus*. 55) antenna; 56) male sternite VII; 57) male sternite VIII; 58) aedeagus in dry preparation in ventral view (Nepal); 59) aedeagus in transparent preparation in ventral view (Meghalaya). Scale bars: 0.5 mm.

***Pinobius robustus* (KRAATZ, 1859)** (Figs. 54–59)

*Dolicoon robustus* KRAATZ 1859: 117.

TYPE MATERIAL EXAMINED: **Lectotype** ♂, present designation: “Tranqueb., Western. / 7147 / robustum [sic] Kraatz / Lectotypus ♂ *Dolicoon robustum* [sic] Kraatz, desig. V. Assing 2014 / *Pinobius robustus* (Kraatz), det. V. Assing 2014” (MNHUB). **Paralectotype** ♀: “Tranqueb. / Dohrn / Dol. robustus Kraatz / Coll. Kraatz / Syntypus / DEI Müncheberg Col – 03812” (SDEI).

COMMENT: The original description is based on an unspecified number of syntypes from “Tranquebar, Dom. Westermann” (KRAATZ 1859). One of the syntypes, a female, was located in the Kraatz collection at the SDEI. A male syntype found in the collections of the MNHUB is designated as the lectotype.

ADDITIONAL MATERIAL EXAMINED: **NEPAL**: 1 ♂, Taplejung, Mayandi Khola, near Kanchenjunga [27°30'N 88°20'E], 1500–2000 m, IX.1987, leg. Morvan (cRou); 1 ♂, S Pokhara, Bhairahawa [27°30'N 83°27'E], at light, X.1980, leg. Rougemont (cAss). **INDIA**: 1 ♂, 1 ♀, Meghalaya, Garo Hills, Baghmara, 25°15'N 90°38'E, light trap, 25.–28.VI.2005, leg. Osten (SMNS, cAss); 1 ♀, Meghalaya, Garo Hills, Songsak, 19.V.1976, leg. Wittmer & Baroni Urbani (NHMB); 1 ♀, Meghalaya, Garo Hills, Darugiri, 450 m, 19.V.1976, leg. Wittmer & Baroni Urbani (cAss); 1 ♀, Jharkhand, Ranchi, Namkum, at light, 1928, leg. Laidlaw (BMNH); 1 ♂, Tamil Nadu, “Tanjore Dt.”, Nedungadu, leg. Nathan (cAss); 3 ♀ ♀, Himachal Pradesh, Nurpur, Kangra, ca. 1000 m, leg. Champion (BMNH, cAss).

REDESCRIPTION: Body length 9.0–10.5 mm; length of forebody 5.0–5.5 mm. Coloration: head and pronotum dark-reddish to dark-brown; elytra dark-reddish; abdomen dark-brown with reddish apex; legs dark-yellowish to yellowish-brown; antennae reddish.

Head 1.20–1.25 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation moderately coarse and rather dense, sparser in median dorsal portion; interstices without microsculpture. Eyes slightly longer than postocular region in dorsal view. Antenna (Fig. 55) 2.5–2.7 mm long; antennomeres IV–VI more than 1.5 times as long as broad; VII oblong; VIII–X approximately as broad as long.

Pronotum 1.06–1.10 times as long as broad and approximately as broad as head, or slightly narrower; punctation slightly finer than that of head; interstices without microsculpture; midline narrowly impunctate.

Elytra 1.00–1.05 times as long as pronotum; punctation dense, similar to that of pronotum or slightly finer. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with weakly pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex, in the middle nearly truncate.

♂: protarsomeres I–IV strongly dilated; sternite VII (Fig. 56) transverse, with extensive cluster of stouter black setae in postero-median portion, posterior margin weakly concave; sternite VIII (Fig. 57) weakly oblong and with very deep and narrow posterior incision, its depth approximately 0.55 times the length of sternite; aedeagus 1.8 mm (Figs. 58–59) long and with distinctly asymmetric apex; ventral process apically with long median process; dorsal plate reduced; internal sac with long spine-like dorsal structure in asymmetric position; parameres long and very thin, far from reaching apex of ventral process, each with two apical and two subapical setae.

COMPARATIVE NOTES: As can be inferred particularly from the similar morphology of the aedeagus, *P. robustus* is most closely allied to the widespread *P. tonkinensis*, from which it differs by the more strongly modified chaetotaxy of the male sternite VII, the deeper posterior incision of the male sternite VIII, the shape (more strongly asymmetric, median process longer) of the apex of the ventral process, and by the stout dorsal spine in the internal sac.

**DISTRIBUTION AND NATURAL HISTORY:** The type locality (today: Tharangambadi; 11°02'N 79°51'E) is situated in Tamil Nadu, South India. The known distribution ranges from Northwest India to Nepal, Northeast India, and South India (Fig. 54). Since nearly all of the material previously identified as *P. robustus* refers to other species, mostly *P. tonkinensis*, literature records of *P. robustus* are highly unreliable and probably erroneous. At least three of the examined specimens were collected at light sources.

***Pinobius linguatus* sp.n.** (Figs. 44, 60–68)

**TYPE MATERIAL:** **Holotype** ♂: “Dacca / indicum Kr. / Sharp Coll. 1905-313. / Holotypus ♂ *Pinobius linguatus* sp. n., det. V. Assing 2014” (BMNH).

**ETYMOLOGY:** The epithet is an adjective derived from the Latin noun lingua (tongue) and alludes to the tongue-shaped apex of the ventral process of the aedeagus.

**DESCRIPTION:** Body length 8.5 mm; length of forebody 4.5 mm. Coloration: head and pronotum brown; elytra dark-reddish; abdomen reddish-brown; with the apex of the abdomen paler; legs yellowish-brown; antennae dark-reddish.

Head (Fig. 60) 1.16 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctuation moderately coarse and moderately dense, somewhat less dense in median dorsal portion; interstices without microsculpture. Eyes slightly longer than postocular region in dorsal view. Antenna 2.3 mm long; antennomeres IV–VI approximately 1.5 times as long as broad; VII weakly oblong; VIII–X approximately as broad as long.

Pronotum (Fig. 60) 1.08 times as long as broad and 1.06 times as broad as head; punctuation dense, slightly finer than that of head; interstices without microsculpture; midline narrowly impunctate.

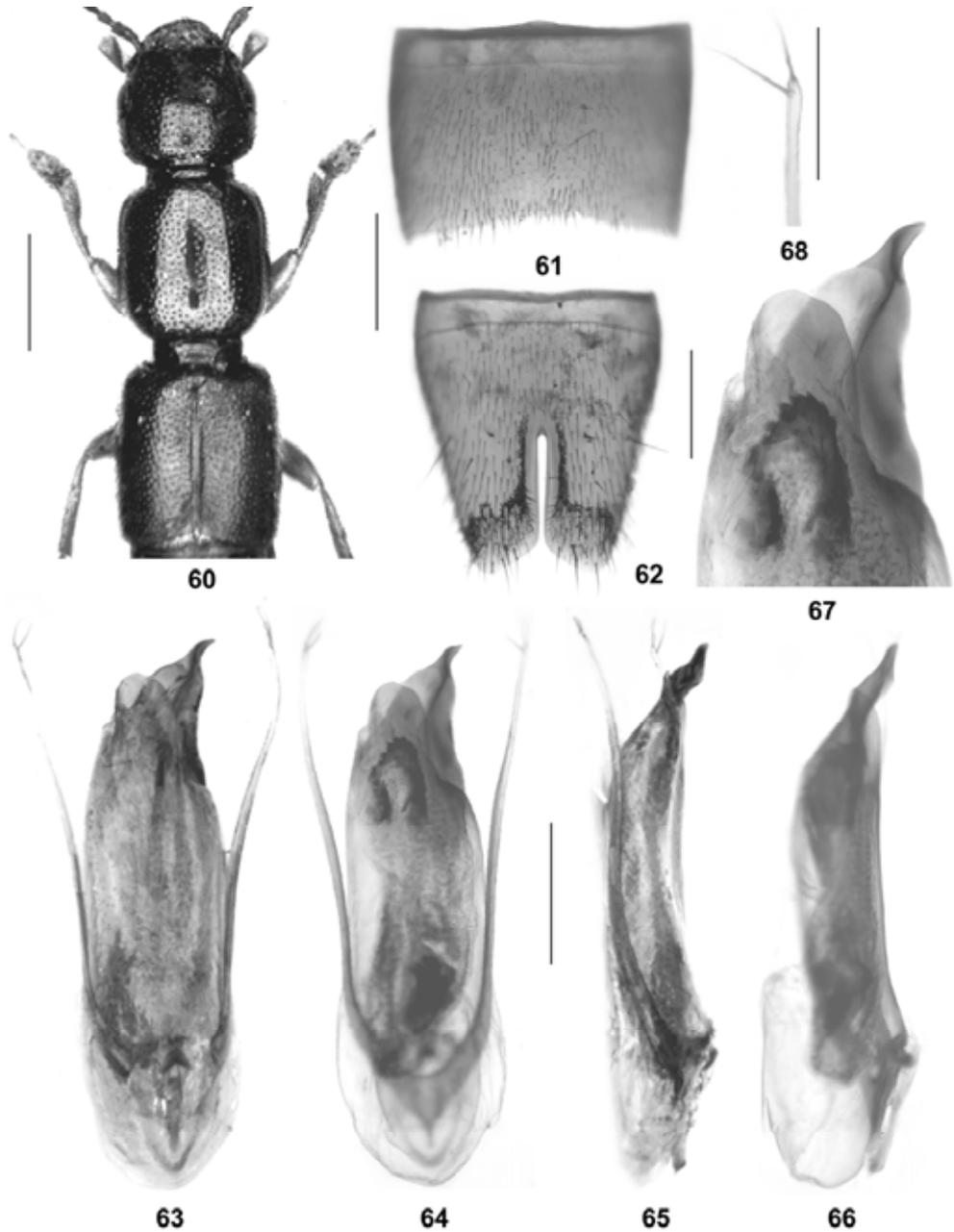
Elytra (Fig. 60) 0.92 times as long as pronotum; punctuation very dense, finer than that of pronotum. Hind wings fully developed. Metatarsomere I longer than the combined length of II and III.

Abdomen slightly narrower than elytra; punctuation fine and dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV strongly dilated (Fig. 60); sternite VII (Fig. 61) strongly transverse and with broadly concave posterior margin, pubescence dense, with a transverse and weakly defined cluster of slightly stouter black setae in postero-median portion; sternite VIII (Fig. 62) distinctly oblong, posterior excision 0.47 times as deep as length of sternite; aedeagus (Figs. 63–66) 1.85 mm long, moderately asymmetric; ventral process apically extended into a tongue-shaped process (Fig. 67); dorsal plate distinctly asymmetric, apically acute, distinctly sclerotized, directed to the right (ventral view), and distinctly projecting beyond apex of ventral process; internal sac apically with a U-shaped series of numerous short spines (Fig. 67) and with additional dark structures; parameres long and thin, extending distinctly beyond apex of ventral process and slightly beyond apex of dorsal plate, each with two apical and without subapical setae (Fig. 68).

**COMPARATIVE NOTES:** *Pinobius linguatus* is distinguished from other geographically close congeners of similar size particularly by the narrow head (in relation to the pronotum) and by the morphology of the aedeagus (shape of the ventral process and of the dorsal plate; chaetotaxy of the parameres).

**DISTRIBUTION AND NATURAL HISTORY:** The type locality (today: Dhaka) is situated in Bangladesh (Fig. 44). The circumstances of collection are unknown.



Figs. 60–68: *Pinobius linguatus*. 60) forebody; 61) male sternite VII; 62) male sternite VIII; 63) aedeagus in dry preparation in ventral view; 64) aedeagus in transparent preparation in ventral view; 65) aedeagus in dry preparation in lateral view; 66) aedeagus in transparent preparation in lateral view; 67) apex of median lobe of aedeagus in latero-ventral view; 68) apex of paramere. Scale bars: 60: 1.0 mm; 61–66: 0.5 mm; 67–68: 0.2 mm.

***Pinobius bifidus* sp.n.** (Figs. 44, 69–78)

**TYPE MATERIAL:** **Holotype** ♂: “Dehra Dun. Dr. M. Cameron, 7.VII 1921. / *Dolicaon indicum* [sic] / M. Cameron. Bequest. B.M. 1955-147. / Holotypus ♂ *Pinobius bifidus* sp. n., det. V. Assing 2014” (BMNH). **Paratypes:** 1 ♀: “Lachiwala [= Lacchiwala, 30°11'N 78°06'E]. Siwaliks. Dr. Cameron. 7-I-1920. / M. Cameron. Bequest. B.M. 1955-147.” (cAss); 1 ♀: “India Assam, Gauhati 200 m, 24.X.78, Besuchet-Löbl” (MHNG); 1 ♂: “India Assam, Manas 200 m, 23.X.78, Besuchet-Löbl” (cAss).

**ETYMOLOGY:** The epithet (Latin, adjective) alludes to the apically conspicuously bifid ventral process of the aedeagus.

**DESCRIPTION:** Body length 8.5–10.3 mm; length of forebody 4.7–5.0 mm. Coloration: body dark-reddish to reddish-brown, with the apex of the abdomen paler; legs dark-yellowish; antennae dark-reddish.

Head (Fig. 69) 1.14–1.16 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctuation dense, only slightly less dense in median dorsal portion, and not very coarse; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view, or nearly so. Antenna (Fig. 70) 2.4–2.5 mm long; antennomeres IV–VI approximately 1.5 times as long as broad; VII weakly oblong; VIII–X approximately as broad as long.

Pronotum (Fig. 69) 1.07–1.13 times as long as broad and 0.93 times as broad as head; punctuation dense, slightly finer than that of head; interstices without microsculpture; midline very narrowly impunctate.

Elytra (Fig. 69) 0.91–0.94 times as long as pronotum; punctuation very dense. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with more or less pronounced sexual dimorphism.

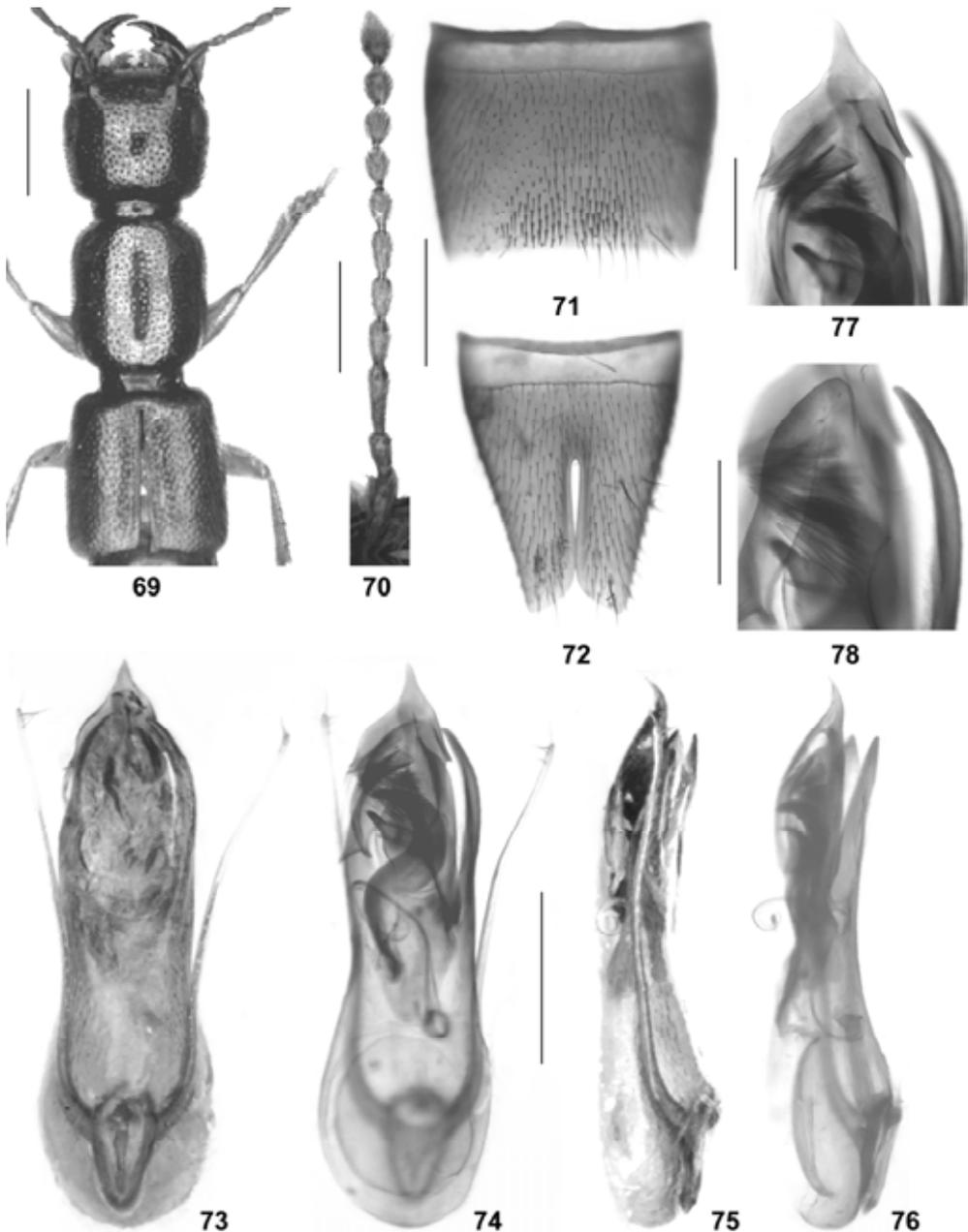
Abdomen slightly narrower than elytra; punctuation fine and moderately dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV strongly dilated (Fig. 69); sternite VII (Fig. 71) moderately transverse and with weakly concave posterior margin, with extensive cluster of stouter black setae in postero-median portion; sternite VIII (Fig. 72) distinctly oblong, posterior excision approximately 0.55 times as deep as length of sternite; aedeagus (Figs. 73–74) approximately 1.6 mm long, moderately asymmetric; ventral process broad, apically conspicuously bifid (Fig. 78), the right apex (ventral view) long, slender, and spine-shaped, the left apex somewhat broader, not spine-shaped; dorsal plate (Fig. 77) apically shaped like a broad and asymmetric spear-head, extending distinctly beyond apex of ventral process; internal sac with a long and massive S-shaped structure and with an additional sclerotized spine; parameres very thin and long, just reaching apex of ventral process, each with two apical and two subapical setae.

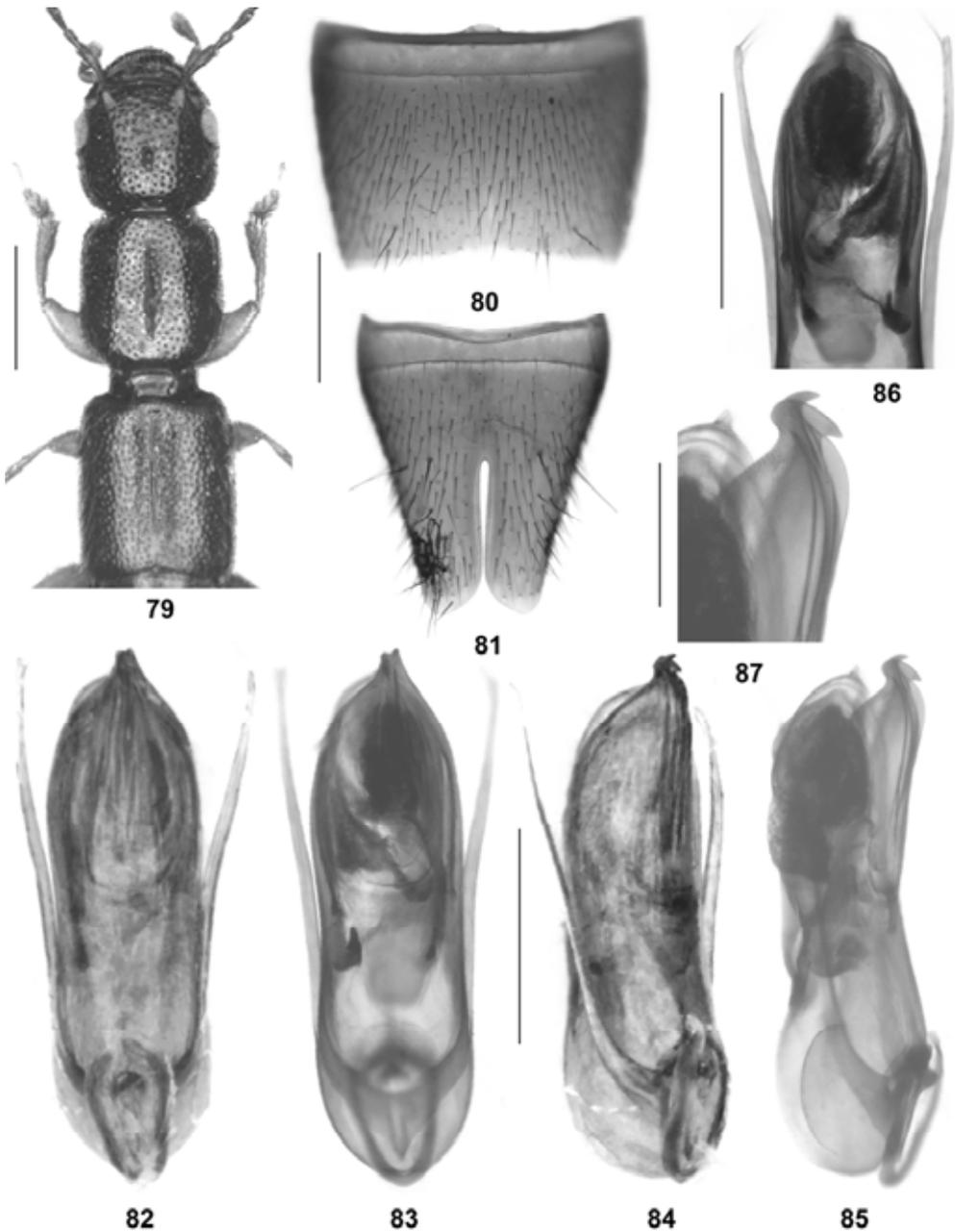
♀: protarsomeres I–IV dilated, slightly to distinctly less so than in male.

**COMPARATIVE NOTES:** Based on the similar shapes of the male sternites VII and VIII and particularly on the similarly derived morphology of the aedeagus (ventral process apically asymmetrically bifid), *P. bifidus* is allied to *P. carinatus*, *P. bihamatus*, and *P. imberbis*. It differs from *P. carinatus* by the larger and more robust body, the finer punctuation of the head and pronotum, the modified chaetotaxy of the male sternite VII, and by the morphology of the larger aedeagus (conspicuously bifid ventral process; shape of dorsal plate; presence of sclerotized structures of characteristic shapes in internal sac; very thin parameres).

**DISTRIBUTION AND NATURAL HISTORY:** The known distribution is confined to two localities in Uttarakhand and two in Assam, North India (Fig. 44). The specimens were collected in January, July, and October, two of them at an altitude of 200 m.



Figs. 69–78: *Pinobius bifidus*. 69) forebody; 70) antenna; 71) male sternite VII; 72) male sternite VIII; 73) aedeagus in dry preparation in ventral view; 74) aedeagus in transparent preparation in ventral view; 75) aedeagus in dry preparation in lateral view; 76) aedeagus in transparent preparation in lateral view; 77) apex of median lobe of aedeagus in ventral view; 78) apex of ventral process of aedeagus. Scale bars: 69: 1.0 mm; 70–76: 0.5 mm; 77–78: 0.2 mm.



Figs. 79–87: *Pinobius carinatus*. 79) forebody; 80) male sternite VII; 81) male sternite VIII; 82) aedeagus in dry preparation in ventral view; 83) aedeagus in transparent preparation in ventral view; 84) aedeagus in dry preparation in latero-ventral view; 85) aedeagus in transparent preparation in lateral view; 86) apex of aedeagus in dorsal view; 87) apex of ventral process of aedeagus in lateral view. Scale bars: 79: 1.0 mm; 80–86: 0.5 mm; 87: 0.2 mm.

***Pinobius carinatus* sp.n.** (Figs. 44, 79–87)

TYPE MATERIAL: **Holotype** ♂: “India: Maharashtra, Lonvala 13.9.91 (80 km E Bombay), leg. R. Schuh / Holotypus ♂ *Pinobius carinatus* sp. n., det. V. Assing 2014” (NHMW).

ETYMOLOGY: The epithet (Latin, adjective) alludes to the pronounced median carina of the ventral process of the aedeagus.

DESCRIPTION: Body length 8.4 mm; length of forebody 4.3 mm. Coloration: head and pronotum brown; elytra dark-reddish; abdomen reddish-brown; legs yellowish-brown; antennae dark-reddish.

Head (Fig. 79) 1.17 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation rather coarse and dense; interstices without microsculpture. Eyes slightly shorter than postocular region in dorsal view. Antenna 2.2 mm long; antennomeres IV–VI distinctly oblong; VII weakly oblong; VIII–X approximately as broad as long.

Pronotum (Fig. 79) 1.1 times as long as broad and 0.98 times as broad as head; punctation dense, slightly finer than that of head; interstices without microsculpture; midline narrowly impunctate.

Elytra (Fig. 79) 0.96 times as long as pronotum; punctation dense and defined. Hind wings not examined. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen slightly narrower than elytra; punctation fine and moderately dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV (Fig. 79) moderately strongly dilated; sternite VII (Fig. 80) moderately transverse and with weakly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 81) distinctly oblong, posterior excision approximately 0.55 times as deep as length of sternite; aedeagus (Figs. 82–85) 1.25 mm long, nearly symmetric; ventral process broad, with pronounced median carina, apically bifid, pointed (ventral view), and hooked (lateral view) (Fig. 87); dorsal plate broad, weakly sclerotized, not reaching apex of ventral process; internal sac with dark membranous structures, but without sclerotized spines (Fig. 86); parameres moderately thin and long, just reaching apex of ventral process, each with two apical and two subapical setae.

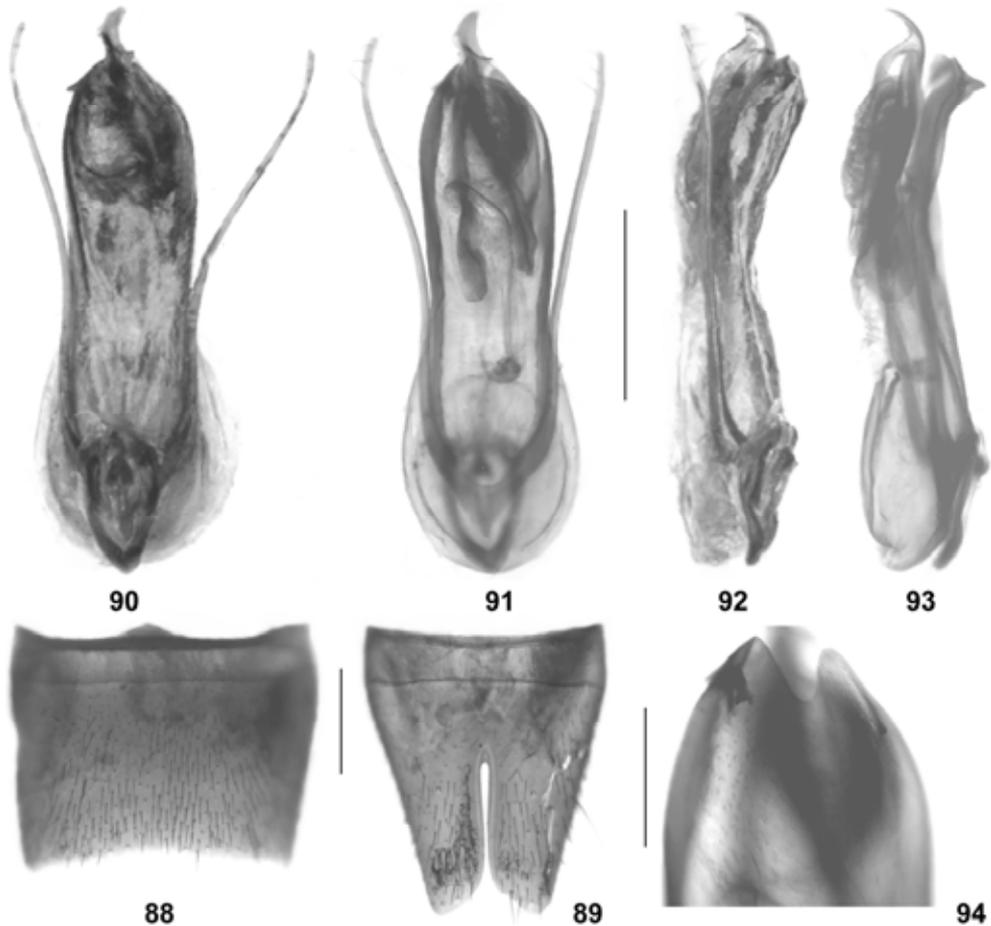
COMPARATIVE NOTES: This species is reliably distinguished from the similar *P. vicinus* only by the smaller eyes and the male sexual characters (sternite VII more transverse and with sparser unmodified pubescence; aedeagus larger and of different morphology). Based on the male sexual characters (ventral process of aedeagus apically asymmetrically bifid), it is allied to *P. bifidus*, *P. imberbis*, and *P. bihamatus*.

DISTRIBUTION AND NATURAL HISTORY: The type locality is situated between Mumbai and Pune in Maharashtra State, India (Fig. 44).

***Pinobius bihamatus* sp.n.** (Figs. 44, 88–94)

TYPE MATERIAL: **Holotype** ♂ [considerably damaged: head completely and legs partly missing]: “Toungoo, Burma. 1902.294. / Holotypus ♂ *Pinobius bihamatus* sp. n., det. V. Assing 2014” (BMNH).

ETYMOLOGY: The epithet (Latin, adjective) alludes to the hook-shaped apices of the ventral process of the aedeagus.



Figs. 88–94: *Pinobius bihamatus*. 88) male sternite VII; 89) male sternite VIII; 90) aedeagus in dry preparation in ventral view; 91) aedeagus in transparent preparation in ventral view; 92) aedeagus in dry preparation in lateral view; 93) aedeagus in transparent preparation in lateral view; 94) apex of ventral process of aedeagus. Scale bars: 88–93: 0.5 mm; 94: 0.2 mm.

DESCRIPTION: Of similar size as *P. bifidus*. Length from anterior margin of pronotum to posterior margin of elytra 3.3 mm; length of pronotum 1.39 mm; length of elytra 1.40 mm. In view of the poor condition of the holotype, the description is confined to the distinctive male sexual characters.

♂: protarsomeres I–IV moderately strongly dilated; sternite VII (Fig. 88) moderately transverse and with weakly concave posterior margin, pubescence rather dense and not distinctly modified; sternite VIII (Fig. 89) moderately oblong, posterior excision 0.53 times as deep as length of sternite; aedeagus (Figs. 90–93) 1.35 mm long (1.5 mm including dorsal plate), moderately asymmetric; ventral process apically asymmetrically bifid (Fig. 94), the left apex (ventral view) strongly and the right apex weakly hooked; dorsally with two long sclerotized structures of different shapes, the right one distinctly, the left one slightly projecting beyond apex of ventral process; parameres thin and long, extending beyond apex of ventral process, but not reaching the apex of the longer of the dorsal structures, each with two apical and two subapical setae.

COMPARATIVE NOTES: Based on the similarly derived morphology of the aedeagus, *P. bihamatus* is closely allied to *P. carinatus*, *P. bifidus*, and particularly *P. imberbis*. It is distinguished from these species by the morphology of the aedeagus (shapes of the apex of the ventral process and of the apical dorsal structures).

DISTRIBUTION AND NATURAL HISTORY: The type locality is situated in central Myanmar (Fig. 44).

***Pinobius imberbis* sp.n.** (Figs. 44, 95–104)

TYPE MATERIAL: **Holotype** ♂: “Assam 1976, Wittmer, Baroni U. / Kaziranga 75 m, 7.–9.5.76 / Holotypus ♂ *Pinobius imberbis* sp. n., det. V. Assing 2014” (NHMB). **Paratypes**: 3 ♂♂, 3 ♀♀: same data as holotype (NHMB, cAss).

ETYMOLOGY: The epithet (Latin, adjective) alludes to the unmodified chaetotaxy of the male sternite VII, one of the characters distinguishing this species from the similar sympatric and syntopic *P. rotundatus*.

DESCRIPTION: Length from anterior margin of pronotum to posterior margin of elytra 2.7–2.9 mm; individual length of pronotum and elytra approximately 1.15 mm. Size and other external characters (Figs. 95–96) as in the syntopic *P. rotundatus*, except for the on average slightly sparser and coarser punctuation of the forebody; reliably distinguished only by the male sexual characters.

♂: sternite VII (Fig. 97) relatively weakly transverse and with weakly concave posterior margin, pubescence unmodified; sternite VIII (Fig. 98) distinctly oblong, posterior excision approximately 0.55 times as deep as length of sternite; aedeagus (Figs. 99–102) 1.25 mm long (1.35 mm including dorsal plate), asymmetric; ventral process broad, apically asymmetrically incised (Fig. 104), right margin (ventral view) convex and left margin carinate, left apex with pronounced ventral tooth (best visible in lateral view); dorsal plate distinctly asymmetric, apically acute, projecting beyond apices of ventral process, and relatively weakly sclerotized; internal sac with a semi-transparent tube and with two long lateral sclerotized structures (Fig. 103); parameres thin, reaching beyond apices of ventral process, but not reaching apex of dorsal plate, with two long apical and two long subapical setae.

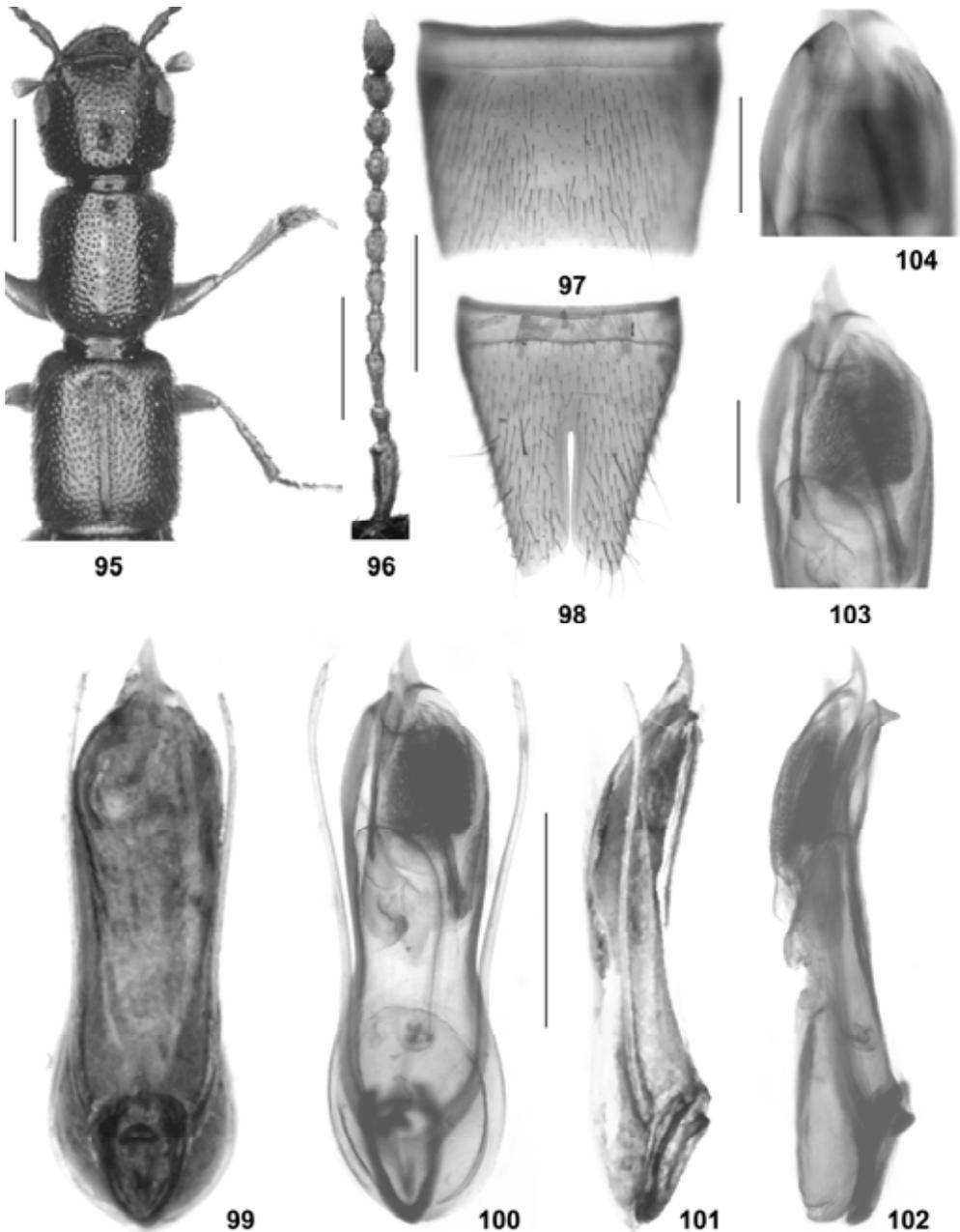
COMPARATIVE NOTES: The similarly derived morphology of the aedeagus suggests that *P. imberbis* is most closely allied to, and most likely the adelphotaxon of, *P. bihamatus*, from which it is distinguished by significantly smaller body size (see measurements), broader elytra, and a smaller aedeagus of slightly different structure (particularly the shapes of the dorsal plate and the internal structures). It differs from the externally indistinguishable sympatric and syntopic *P. rotundatus* by the unmodified male sternite VII and the completely different morphology of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: The species is currently known only from the type locality in Assam, North India, where it was collected at an altitude of 75 m, together with *P. rotundatus* (Fig. 44). The circumstances of collection are unknown.

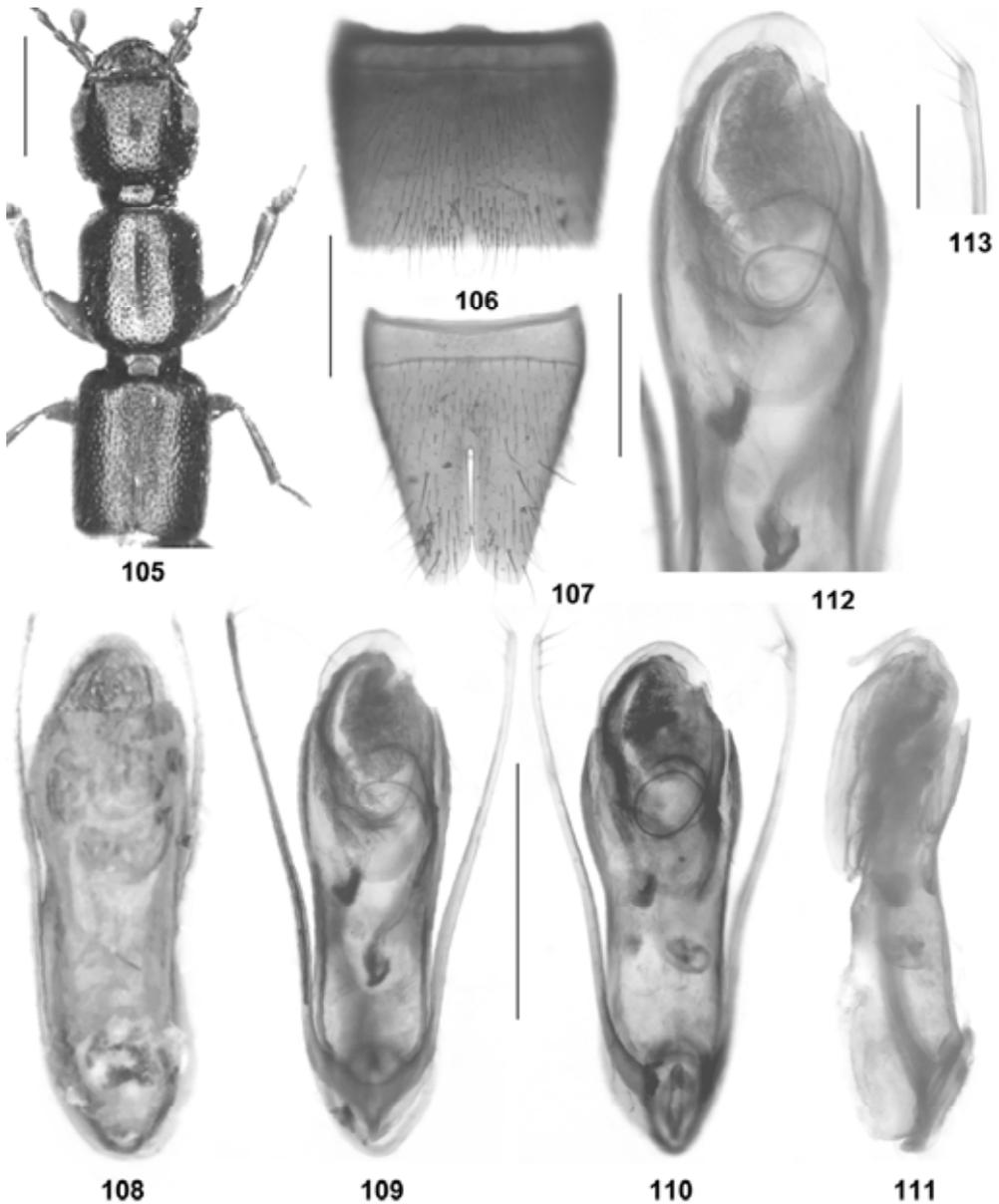
***Pinobius vicinus* (KRAATZ, 1859), revalidated** (Figs. 44, 105–113)

*Dolicaon vicinus* KRAATZ 1859: 118.

TYPE MATERIAL EXAMINED: **Lectotype** ♂, present designation: “72. / India oriental. / vicinum / Coll. Kraatz / Holotypus / DEI Müncheberg Col – 04291 / Lectotypus ♂ *Dolicaon vicinum* [sic] Kraatz, desig. V. Assing 2014 / *Pinobius vicinus* (Kraatz), det. V. Assing 2014” (SDEI).



Figs. 95–104: *Pinobius imberbis*. 95) forebody; 96) antenna; 97) male sternite VII; 98) male sternite VIII; 99) aedeagus in dry preparation in ventral view; 100) aedeagus in transparent preparation in ventral view; 101) aedeagus in dry preparation in lateral view; 102) aedeagus in transparent preparation in lateral view; 103) apex of median lobe of aedeagus in ventral view; 104) apex of ventral process of aedeagus. Scale bars: 95: 1.0 mm; 96–102: 0.5 mm; 103–104: 0.2 mm.



Figs. 105–113: *Pinobius vicinus* (107, 109, 112–113: lectotype). 105) forebody; 106) male sternite VII; 107) male sternite VIII; 108) aedeagus in dry preparation in ventral view; 109–110) aedeagus in transparent preparation in ventral view; 111) aedeagus in transparent preparation in lateral view; 112) apical portion of median lobe of aedeagus in ventral view; 113) apex of paramere. Scale bars: 105: 1.0 mm; 106–111: 0.5 mm; 112–113: 0.2 mm.

COMMENT: The original description is based on an unspecified number of syntypes, possibly a unique specimen, from “India orientali” (KRAATZ 1859). The sole syntype in the Kraatz collection, a male, is designated as the lectotype.

*Pinobius vicinus* has been regarded as a junior synonym of *P. indicus* at least since BERNHAUER & SCHUBERT (1912). However, an examination of the lectotype revealed that it clearly represents a distinct species distinguished from *P. indicus* particularly by an aedeagus of completely different morphology.

ADDITIONAL MATERIAL EXAMINED: **MYANMAR:** 1 ex., Pegu, leg. v. Waagen (NHMW); 1 ex., Kachin State, Indawgyi Lake, 7 km S Lonton, 25°02'N 96°17'E, 250 m, 21.V.1999, leg. Schillhammer & Schuh (cAss). 2 exs., Tharawaddy, leg. Corbett (BMNH, cAss).

REDESCRIPTION: Body length 7.0–8.3 mm; length of forebody 4.0–4.3 mm. Coloration: head and pronotum dark-reddish to dark-brown; elytra dark-reddish to dark-brown, of similar coloration as head and pronotum or paler; abdomen dark-reddish to dark-brown with paler apex; legs yellowish-brown to reddish; antennae reddish.

Head (Fig. 105) 1.15–1.18 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation rather coarse and rather dense, sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as, or slightly longer than postocular region in dorsal view. Antenna 1.9–2.0 mm long; antennomeres IV–VI moderately oblong; VII weakly oblong; VIII–X approximately as broad as long or weakly transverse.

Pronotum (Fig. 105) relatively slender, 1.12–1.13 times as long as broad and approximately 0.96–0.98 times as broad as head; punctation slightly finer than that of head; interstices without microsculpture; midline moderately broadly impunctate.

Elytra (Fig. 105) 0.96–0.97 times as long as pronotum; punctation dense, similar to that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with indistinct sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex, in the middle nearly truncate.

♂: protarsomeres I–IV (Fig. 105) distinctly dilated; sternite VII (Fig. 106) relatively weakly transverse and with weakly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 107) distinctly oblong and with deep and narrow posterior incision, its depth approximately half the length of sternite; aedeagus (Figs. 108–111) small, 0.80–0.85 mm long (length including internal sac 1.00–1.05 mm) and distinctly asymmetric; ventral process apically reduced, truncate, and in the middle concave; dorsal plate reduced; internal sac apically extending far beyond apex of ventral process and projecting dorsad, with internal tube and membranous structures, but without sclerotized spines (Fig. 112); parameres long and very thin, slightly extending beyond apical internal structures, each with two apical and two subapical setae (Fig. 113).

COMPARATIVE NOTES: This species is reliably identified only by the morphology of the aedeagus and additionally characterized also by the shapes of the male sternites VII and VIII.

DISTRIBUTION AND NATURAL HISTORY: The known distribution is confined to some localities in Myanmar (Fig. 44). One of the additional specimens was collected at an altitude of 250 m in May.

***Pinobius major* (CAMERON, 1941)** (Figs. 114–122, 129)

*Dolicoon major* CAMERON 1941: 230.

TYPE MATERIAL EXAMINED: **Holotype** ♂ [parts of both antennae missing]: “Brunei, N. Borneo / D. major Cam. Type / Holotype / M. Cameron. Bequest. B.M. 1955-147. / *Pinobius major* (Cameron), det. V. Assing 2014” (BMNH).

COMMENT: The original description is based on the unique holotype from Brunei (CAMERON 1941).

ADDITIONAL MATERIAL EXAMINED: **MALAYSIA**: 1 ♂, Borneo, Sabah, Kinabatangan river, near Kampung Koyah, 4.–5.VI.1998, leg. Hlaváč (cRou); 1 ♀ [identification tentative], Borneo, Sabah, Kinabatangan river, V.1998, leg. Hlaváč (cAss).

REDESCRIPTION (based on males only): Large species; body length 11.0–12.5 mm; length of forebody 6.1–6.4 mm. Coloration: head, pronotum, and abdomen reddish to dark-brown; elytra dark-reddish; legs reddish to reddish-brown; antennae dark-reddish to brown.

Head (Fig. 114) moderately transverse, approximately 1.15 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctation rather fine and sparse, even sparser in median dorsal portion; interstices without microsculpture. Eyes distinctly shorter than postocular region in dorsal view, 0.6–0.8 times as long as distance from posterior margin of eye to posterior margin of head in lateral view. Antenna 3.2 mm long.

Pronotum (Fig. 114) short, 1.02–1.06 times as long as broad and 1.02–1.03 times as broad as head; punctation similar to that of head; interstices without microsculpture; midline rather broadly impunctate.

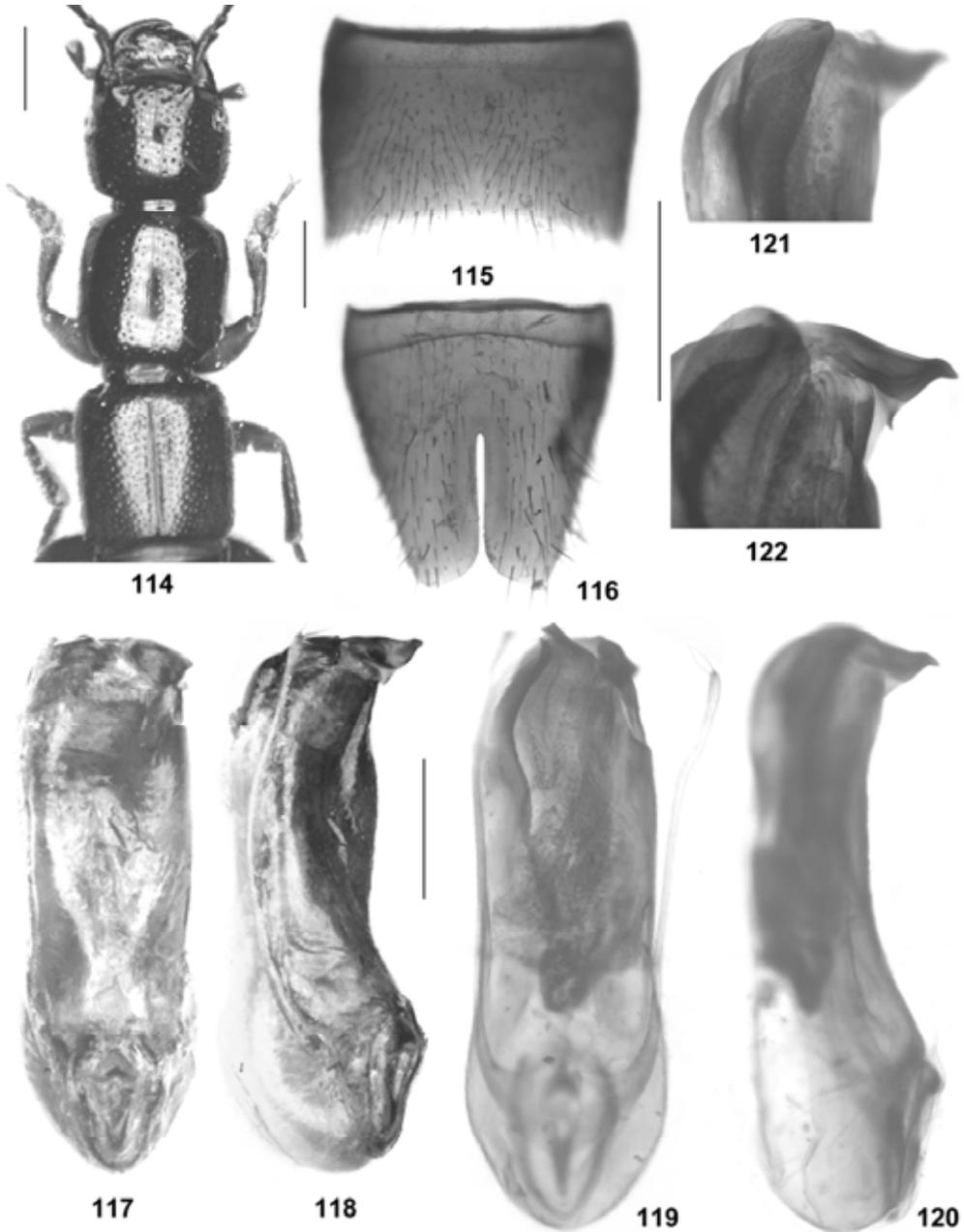
Elytra (Fig. 114) relatively short, 0.87–0.93 times as long as pronotum; punctation similar to that of pronotum, but somewhat denser. Hind wings present. Metatarsomere I slightly longer than the combined length of II and III.

Abdomen slightly narrower than elytra; punctation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex posteriorly, in the middle nearly truncate.

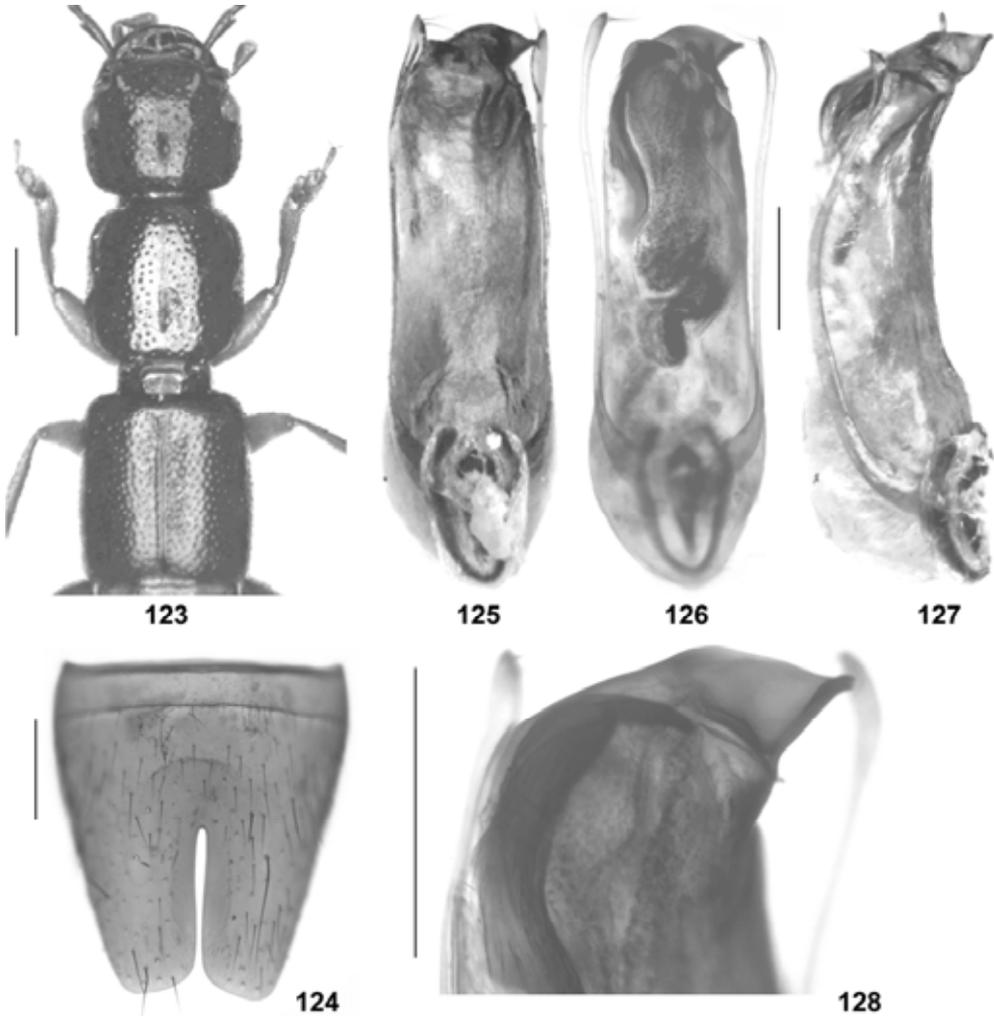
♂: protarsomeres I–IV strongly dilated (Fig. 114); sternite VII (Fig. 115) strongly transverse, approximately 1.8 times as broad as long, and with very broadly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 116) weakly oblong, approximately 1.05 times as long as broad; posterior incision narrow and deep, its depth 0.52 times the length of sternite; aedeagus (Figs. 117–120) 2.0–2.2 mm long (length measured to apex of dorsal plate) and distinctly asymmetric; ventral process (Fig. 121) apically reduced; dorsal plate (Fig. 122) strongly asymmetric, apically acutely triangular; internal sac with an apical plate-like sclerotized structure in the middle and an apical S-shaped sclerotized structure on the left (ventral view); parameres thin, apically almost reaching apex of dorsal plate, not dilated, and with two apical setae.

COMPARATIVE NOTES: This species is characterized by its large size, relatively sparse punctation of the head, a weakly oblong pronotum, a strongly transverse male sternite VII, a weakly oblong male sternite VIII, and by the derived structure of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: The known distribution is confined to two localities in Brunei and Sabah, Borneo (Fig. 129). The additional material was collected near a river in May and June.



Figs. 114–122: *Pinobius major* (114–116, 119–122: holotype). 114) forebody; 115) male sternite VII; 116) male sternite VIII; 117) aedeagus in dry preparation in ventral view; 118) aedeagus in dry preparation in latero-ventral view; 119) aedeagus in transparent preparation in ventral view; 120) aedeagus in transparent preparation in lateral view; 121) apical portion of median lobe of aedeagus in lateral view; 122) apex of median lobe in latero-ventral view. Scale bars: 114: 1.0 mm; 115–122: 0.5 mm.



Figs. 123–128: *Pinobius formidabilis*. 123) forebody; 124) male sternite VIII; 125) aedeagus in dry preparation in ventral view; 126) aedeagus in transparent preparation in ventral view; 127) aedeagus in dry preparation in latero-ventral view; 128) apex of aedeagus in latero-ventral view. Scale bars: 123: 1.0 mm; 124–128: 0.5 mm.

***Pinobius formidabilis* sp.n.** (Figs. 123–129)

TYPE MATERIAL: **Holotype** ♂: “Malaysia – Pahang/Johor, Endau Rompin NP, 100 m, Salendang [sic], 28.2.–12.3., leg. Strba & Hergovits 1995 / Holotypus ♂ *Pinobius formidabilis* sp. n., det. V. Assing 2014” (NHMW).

ETYMOLOGY: The epithet (Latin, adjective) alludes to the formidable appearance of this species.

DESCRIPTION: Large species; body length 12.1 mm; length of forebody 6.4 mm. Coloration: head, pronotum, and abdominal segments III–VI dark-brown; elytra and abdominal segments VII–X dark-reddish; legs yellowish-brown; antennae reddish.

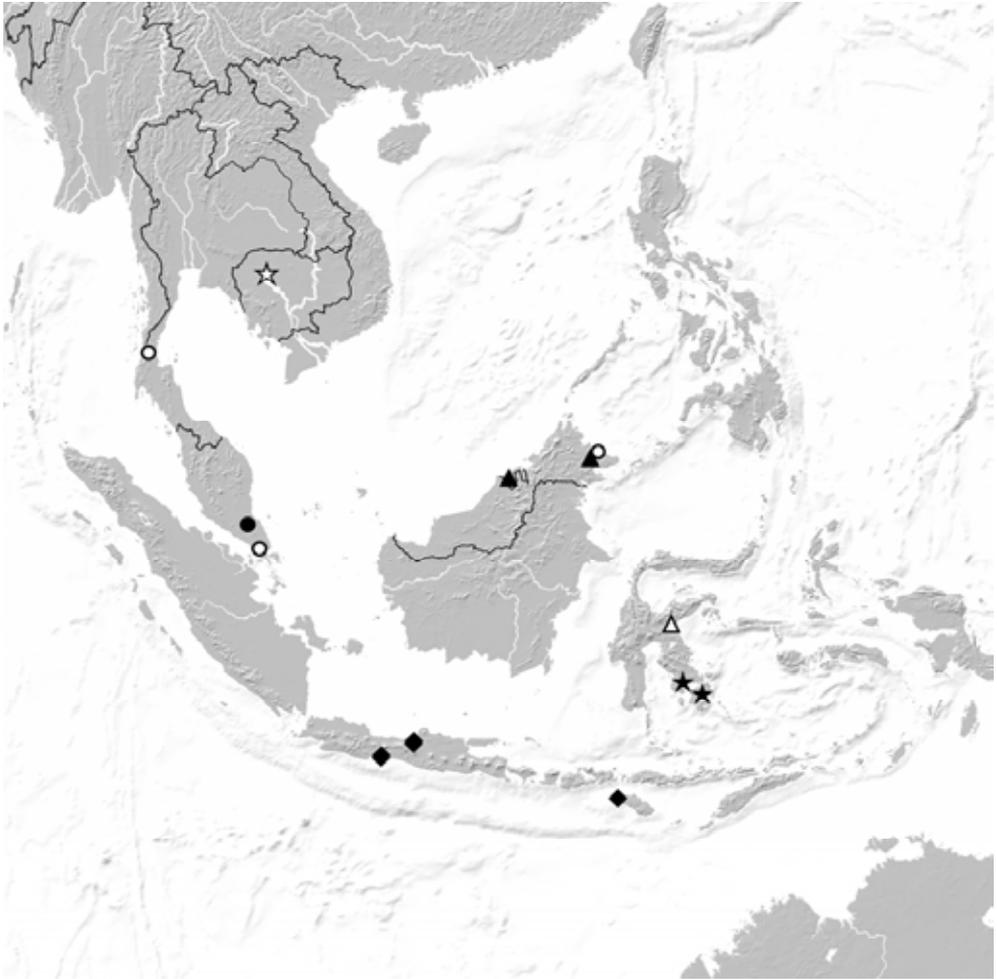


Fig. 129: Distributions of *Pinobius firmilobatus* (white and black circles), *P. formidabilis* (black circle), *P. advena* (white star), *P. major* (black triangles), *P. baculatus* (black diamonds), *P. subaequalis* (white triangle), and *P. inaequalis* (black stars) in the Oriental Region.

Head (Fig. 123) distinctly transverse, approximately 1.2 times as broad as long, broadest across eyes, lateral margins behind eyes weakly converging in dorsal view; punctuation moderately coarse and moderately dense, sparser in median dorsal portion; interstices without microsculpture. Eyes distinctly shorter than postocular region in dorsal view, 0.75 times as long as distance from posterior margin of eye to posterior margin of head in lateral view. Antenna 3.4 mm long and slender; antennomeres IV–VI strongly oblong; VII–VIII moderately oblong; IX–X approximately as broad as long.

Pronotum (Fig. 123) short, 1.04 times as long as broad and 0.98 times as broad as head; punctuation similar to that of head; interstices without microsculpture; midline narrowly impunctate.

Elytra (Fig. 123) 0.96 times as long as pronotum; punctuation dense and defined. Hind wings not examined. Metatarsomere I slightly longer than the combined length of II and III.

Abdomen slightly narrower than elytra; punctuation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII truncate in the middle.

♂: protarsomeres I–IV (Fig. 123) strongly dilated; sternite VII strongly transverse, 1.67 times as broad as long, and with broadly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 124) oblong, 1.1 times as long as broad; posterior incision narrow and deep, its depth half the length of sternite; aedeagus (Figs. 125–127) 2.3 mm long (length measured to apex of dorsal plate) and distinctly asymmetric; ventral process apically asymmetric; dorsal plate strongly asymmetric, apically acutely triangular (Fig. 128); internal sac with an apical S-shaped, apically hook-shaped sclerotized structure on the left (ventral view); parameres thin, apically extending slightly beyond apex of dorsal plate, dilated, and with two apical setae.

COMPARATIVE NOTES: As can be inferred from the similar external and male sexual characters (large size; derived shapes of ventral process and dorsal plate; arrangement of internal structures), *P. formidabilis* is most closely related to *P. major*, most likely its adelphotaxon, from which it differs by the more transverse head, the denser punctuation of the head, the larger eyes, the longer elytra, the slightly different shapes of the male sternites VII and VIII, and particularly by the morphology of the aedeagus (shapes of apices of ventral process and dorsal plate; shape of apical internal structure; longer and apically dilated parameres).

DISTRIBUTION AND NATURAL HISTORY: The holotype was collected in the border region between Pahang and Johor in the south of Peninsular Malaysia (Fig. 129) at an altitude of 100 m in February/March.

### *Pinobius advena* (LAST, 1961) (Figs. 129–136)

*Lathrobium advena* LAST 1961: 308.

TYPE MATERIAL EXAMINED: **Paratype** ♂ [abdominal segments VIII–X missing]: “N 272, Siem Riep [sic], Thailand [sic], 6.12.57. [written on reverse side of mounting label] / Siem Reap, Cambodia, 6. xii 1957, T. Umesao leg. / Manchester Museum Paratype / Paratype / *Lathrobium advena* sp. n., Paratype, H. Last det. / *Pinobius* [sic] *advena* Last, H.R. Last det., Paratype / P3008.5058 / *Pinobius advena* (Last), det. V. Assing 2014” (MMUM).

COMMENT: The original description is based on two males (holotype, paratype) from “Cambodia: Siem Reap” (LAST 1961).

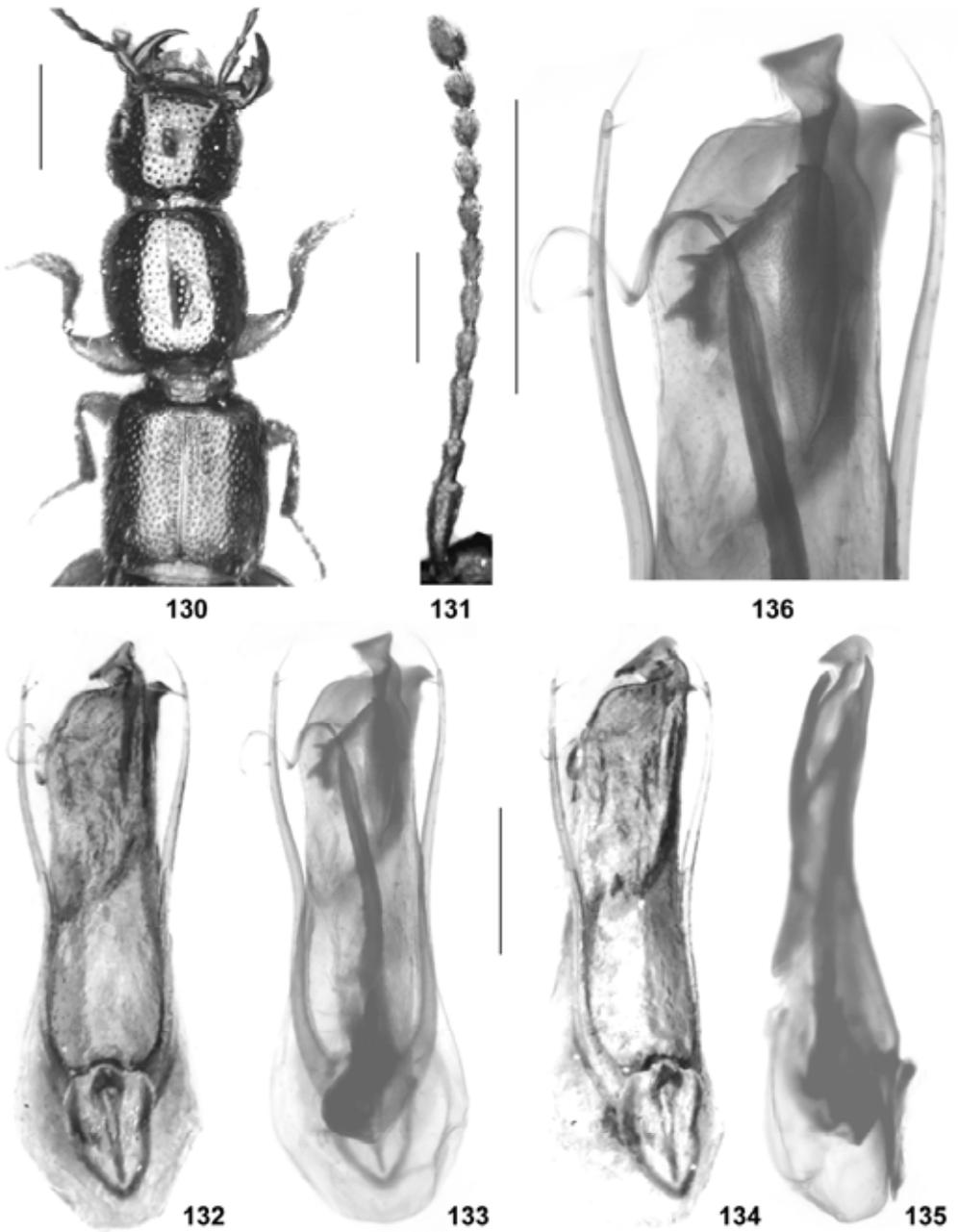
REDESCRIPTION: Length of forebody 5.1 mm. Coloration: forebody reddish-brown; abdomen dark-brown; legs yellowish-brown; antennae reddish.

Head (Fig. 130) 1.16 times as broad as long, broadest across eyes, lateral margins behind eyes subparallel in dorsal view; punctuation rather coarse and not very dense, a small area in median dorsal portion impunctate; interstices without microsculpture. Eyes slightly longer than postocular region in dorsal view. Antenna (Fig. 131) 2.4 mm long; antennomeres IV–VII distinctly oblong; VIII–X approximately as broad as long.

Pronotum (Fig. 130) 1.05 times as long as broad and 1.07 times as broad as head; punctuation slightly finer and denser than that of head; interstices without microsculpture; midline narrowly impunctate.

Elytra (Fig. 130) 0.91 times as long as pronotum; punctuation rather dense and defined. Hind wings not examined. Metatarsomere I approximately as long as the combined length of II and III.

Abdomen slightly narrower than elytra; punctuation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe.



Figs. 130–136: *Pinobius advena*. 130) forebody; 131) antenna; 132) aedeagus in dry preparation in ventral view; 133) aedeagus in transparent preparation in ventral view; 134) aedeagus in dry preparation in latero-ventral view; 135) aedeagus in transparent preparation in lateral view; 136) apical portion of aedeagus in ventral view. Scale bars: 130: 1.0 mm; 131–136: 0.5 mm.

♂: aedeagus (Figs. 132–135) 1.85 mm long (total length 2.0 mm), distinctly asymmetric; ventral process broad, with a median and a lateral hook-shaped apex (Fig. 136); internal sac with an apical sclerotized structure of distinctive shape extending beyond apex of ventral process and with a very long sclerotized spine apically with a long and thin extension shaped like a corkscrew; parameres very thin, just reaching apex of ventral process (but not apex of apical internal structure), each with an apical and a subapical seta.

COMPARATIVE NOTES: *Pinobius advena* is characterized particularly by the distinctive morphology of the aedeagus, above all the shape of the ventral process and the conspicuous internal structure.

DISTRIBUTION AND NATURAL HISTORY: The type locality is identical to today's Siĕmrĕab (13°22'N 103°51'E) in North Cambodia (Fig. 129). The specimens were collected in December.

***Pinobius firmilobatus* sp.n.** (Figs. 129, 137–145)

TYPE MATERIAL: **Holotype** ♂: “Malaysia – Pahang/Johor, Endau Rompin NP, 100 m, Salendang [sic], 28.2–12.3., leg. Strba & Hergovits 1995 / Holotypus ♂ *Pinobius firmilobatus* sp. n., det. V. Assing 2014” (NHMW). **Paratypes**: 4 ♂♂, 7 ♀♀: same data as holotype (NHMW, cAss); 1 ♂, 2 ♀♀: “Thailand, 1.–21.iii.1996, Chumphon prov., Pha To env. 9°48' 98°47', K. Majer leg.” (NHMB, cAss); 1 ♂: “Singapore, 29 Dr. Baum” (NMP); 1 ♂: “Borneo, Sabah, Kinabatangan R., V.1998, P. Hlaváč” (cRou).

ETYMOLOGY: The epithet (Latin, adjective) alludes to the stout parameres of the aedeagus.

DESCRIPTION: Species of rather large, but variable size; body length 9.0–11.5 mm; length of forebody 5.0–6.2 mm. Coloration: head and pronotum dark-reddish to dark-brown; elytra reddish to reddish-brown; abdomen reddish-brown to dark-brown; legs yellowish-brown; antennae reddish.

Head (Fig. 137) 1.19–1.23 times as broad as long, broadest across eyes, lateral margins behind eyes subparallel or weakly converging in dorsal view; punctation rather coarse and not very dense, even sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view, sometimes somewhat longer or shorter. Antenna 2.5–3.2 mm long; antennomeres IV–VI distinctly oblong; VII weakly oblong; VIII–X approximately as broad as long or weakly transverse.

Pronotum (Fig. 137) usually 1.02–1.05 times as long as broad and approximately as broad as head; punctation slightly finer and denser than that of head; interstices without microsculpture; midline moderately broadly impunctate.

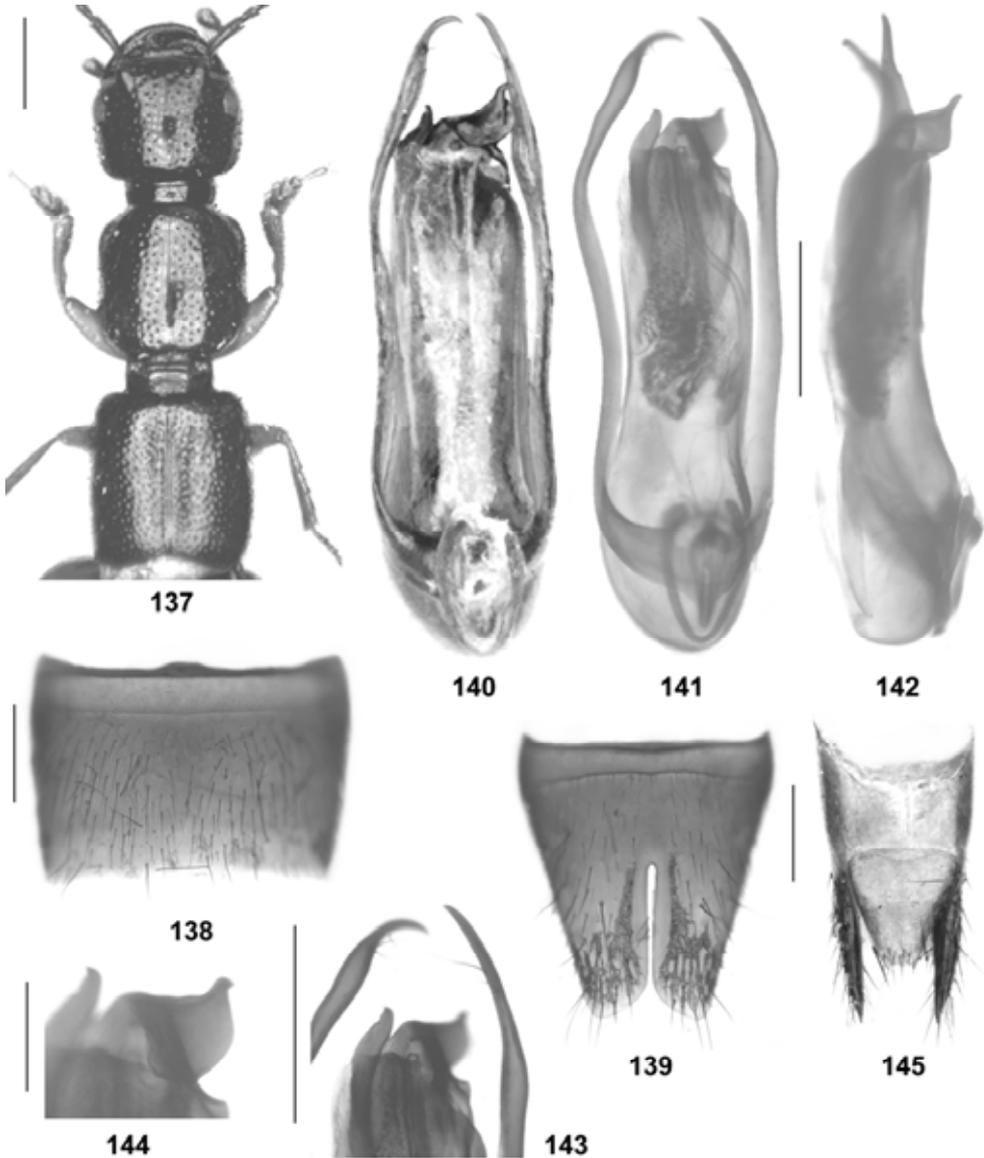
Elytra (Fig. 137) 0.95–1.00 times as long as pronotum; punctation rather dense and defined. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with weakly pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and moderately dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV (Fig. 137) strongly dilated; sternite VII (Fig. 138) strongly transverse and with weakly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 139) weakly oblong, with deep and narrow posterior incision, its depth slightly more than half the length of sternite; aedeagus (Figs. 140–142) 1.6–1.8 mm long, distinctly asymmetric; ventral process broad, apically truncate on the left and oblique on the right (ventral view) (Fig. 143); dorsal plate (Fig. 144) distinctly asymmetric, apically extending beyond apex of ventral process and of characteristic shape; internal sac with a long tube and with a long sclerotized structure on the left (ventral view); parameres stout, subapically curved or angled, apically acute, extending

far beyond apex of dorsal plate, each with two long subapical, but without apical setae (Fig. 143).

♀: protarsomeres I–IV strongly dilated, only slightly less so than in male; tergites IX–X as in Fig. 145; tergite IX with median suture.



Figs. 137–145: *Pinobius firmilobatus*. 137) forebody; 138) male sternite VII; 139) male sternite VIII; 140) aedeagus in dry preparation in ventral view; 141) aedeagus in transparent preparation in ventral view; 142) aedeagus in transparent preparation in lateral view; 143) apex of aedeagus in ventral view; 144) apex of dorsal plate in ventral view; 145) female tergites IX–X. Scale bars: 137: 1.0 mm; 138–143, 145: 0.5 mm; 144: 0.2 mm.

COMPARATIVE NOTES: This species is reliably distinguished from other congeners of similar size and robust habitus only by the morphology of the aedeagus, particularly the shape and chaetotaxy of the parameres, as well as the shapes of the ventral process, the dorsal plate, and the sclerotized internal structure.

DISTRIBUTION AND NATURAL HISTORY: The known distribution ranges from Thailand across Peninsular Malaysia to Borneo (Fig. 129). The type specimens were collected in February/March and May, at least most of them probably at light sources.

***Pinobius baculatus* sp.n.** (Figs. 129, 146–156)

TYPE MATERIAL: **Holotype** ♂: “F. C. Drescher, Djeroeklegi, Zuid-Banjoemas, 23.X.1931 / M. Cameron. Bequest. 1855-147 / standing as robustus / Holotypus ♂ *Pinobius baculatus* sp. n., det. V. Assing 2014” (BMNH). **Paratypes**: 1 ♀: same data as holotype, but 30.XI.1932 (BMNH); 1 ♂: “F. C. Drescher, Djeroeklegi, Zuid-Banjoemas, 23.X.1931 / det. Cameron 1934, Dolicaon robustus, 1931 - Kr - Cam / Dolicaon robustus Kraatz-Cameron / Coll. W. Champman in Coll. P. Griveau, MHNG - 2007” (MHNG); 1 ♂: “Java” (cAss); 1 ♀: “Tjilatjap, Java Drescher, 22.IV.1927 / M. Cameron. Bequest. 1855-147 / standing as robustus” (BMNH); 1 ♂ [without aedeagus]: same data, but 8.V.1927 (BMNH); 2 ♂♂: “P.H.v.Doesburg, Java, Samarang / Dolicaon robustus Kr., det. Boelens / ex coll. Scheerpeltz” (NHMW, cAss); 1 ♀: “Samarang, Java 1-10-23, v. Doesburg / Dolicaon robustus Kr., det. Boelens” (NHMW); 1 ♂: “G. Oengaran Java, Drescher, 2.1908” (cRou); 1 ♀: “500. W-Sumba, Waimangura, 22.-24.8.49 / Lichtfang / Expedition Bühler-Sutter / Sumba-Exped. d. Naturhist. Mus. Basel 1949 / Dolicaon robustus Kr. / Dolicaon robustus Kraatz” (NHMB).

ETYMOLOGY: The epithet is an adjective derived from the Latin noun baculum (stick, pole) and alludes to the two rod-like structures in the internal sac of the aedeagus.

DESCRIPTION: Species of rather large size; body length 10.0–11.5 mm; length of forebody 5.3–6.0 mm. Coloration: head and pronotum brown to dark-brown; elytra reddish to dark-brown; abdomen reddish-brown to dark-brown with reddish apex; legs yellowish-red to yellowish-brown; antennae reddish.

Head (Fig. 146) 1.20–1.25 times as broad as long, broadest across eyes, lateral margins behind eyes subparallel or weakly converging in dorsal view; punctation rather coarse and moderately dense, sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as, or shorter than postocular region in dorsal view. Antenna 3.0–3.2 mm long; antennomeres IV–VII distinctly oblong; VIII weakly oblong; IX–X approximately as broad as long.

Pronotum (Fig. 146) approximately 1.03–1.04 times as long as broad and approximately as broad as head; punctation similar to that of head or slightly finer; interstices without microsculpture; midline moderately broadly impunctate.

Elytra (Fig. 146) 0.97–0.99 times as long as pronotum; punctation similar to that of pronotum. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III, or slightly longer. Protarsomeres I–IV with weakly pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and moderately dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV (Fig. 146) moderately strongly dilated; sternite VII (Fig. 147) moderately transverse and with weakly concave posterior margin, pubescence rather sparse and not distinctly modified; sternite VIII (Fig. 148) distinctly oblong, with moderately deep and narrow posterior incision, its depth 0.43 times the length of sternite; aedeagus (Figs. 149–152) approximately 1.8 mm long (length measured to apex of dorsal plate: 2.0–2.2 mm), distinctly asymmetric; ventral process broad, apically truncate and in the middle with acute projection; dorsal plate distinctly asymmetric, apically extending beyond apex of ventral process, and of characteristic shape (Figs.

153–155); internal sac with a long slender spine on the right (ventral view), a shorter spine on the left, and a broad and apically hooked apical sclerotized structure (Fig. 154); parameres moderately stout, subapically weakly dilated, apically acute, extending slightly beyond apex of dorsal plate, each with two long subapical, but without apical setae (Fig. 156).

♀: protarsomeres I–IV moderately dilated, only slightly less so than in male.

**INTRASPECIFIC VARIATION:** The shape of the dorsal plate is somewhat variable in the material examined. However, in view of the otherwise identical male sexual characters, this is attributed to intraspecific variation.

**COMPARATIVE NOTES:** Based on the similarly derived morphology of the aedeagus, *P. baculatus* belongs to the same lineage as *P. firmilobatus* and allied species. It is distinguished from them particularly by the less deep posterior incision of the male sternite VIII and by the morphology of the aedeagus (shapes of ventral process, dorsal plate, internal structures, and parameres).

**DISTRIBUTION AND NATURAL HISTORY:** The species was collected in five localities in Java, one of them unspecified; one female-based record is from Sumba (Fig. 129). The type locality (today: Jeruklegi) is situated at 7°37'S 109°01'E in Central Jawa. Tjilatjap (today: Cilacap), where two paratypes were found, is located at 7°44'S 109°00'E. At least one of the specimens was collected at a light source.

***Pinobius inaequalis* sp.n. (Figs. 129, 157–165)**

**TYPE MATERIAL:** **Holotype** ♂: “Indonesia, SE-Sulawesi, Rawa Aopa Nat. Park, Aopa vill. 8.–10.2.1994, leg. M. Strba & I. Jenis / Holotypus ♂ *Pinobius inaequalis* sp. n., det. V. Assing 2014” (NHMW). **Paratypes:** 1 ♀: same data as holotype (cAss); 1 ♀: “Indonesia, SE-Sulawesi, Ins. Buton, Wakarumba [4°55'S 122°50'E], 3.–7.2.1994, leg. M. Strba & I. Jenis” (NHMW).

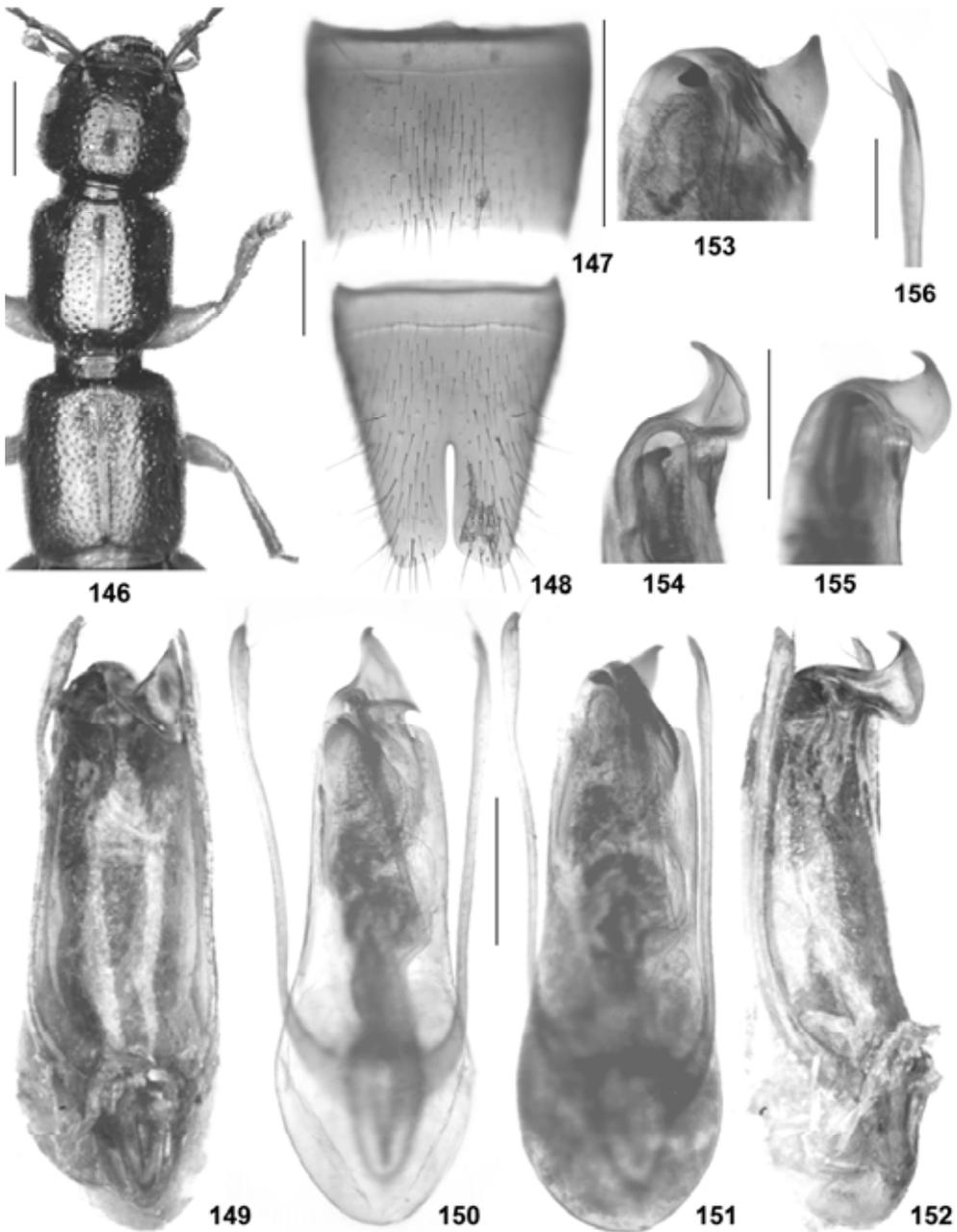
**ETYMOLOGY:** The epithet (Latin, adjective) alludes to the unequal shape of the parameres.

**DESCRIPTION:** Body length 9.7–11.5 mm; length of forebody 5.5–6.1 mm. Eyes slightly shorter than postocular region in dorsal view (Fig. 157). Protarsomeres with noticeable sexual dimorphism. Other external characters as in *P. firmilobatus*. Distinguished only by the male sexual characters.

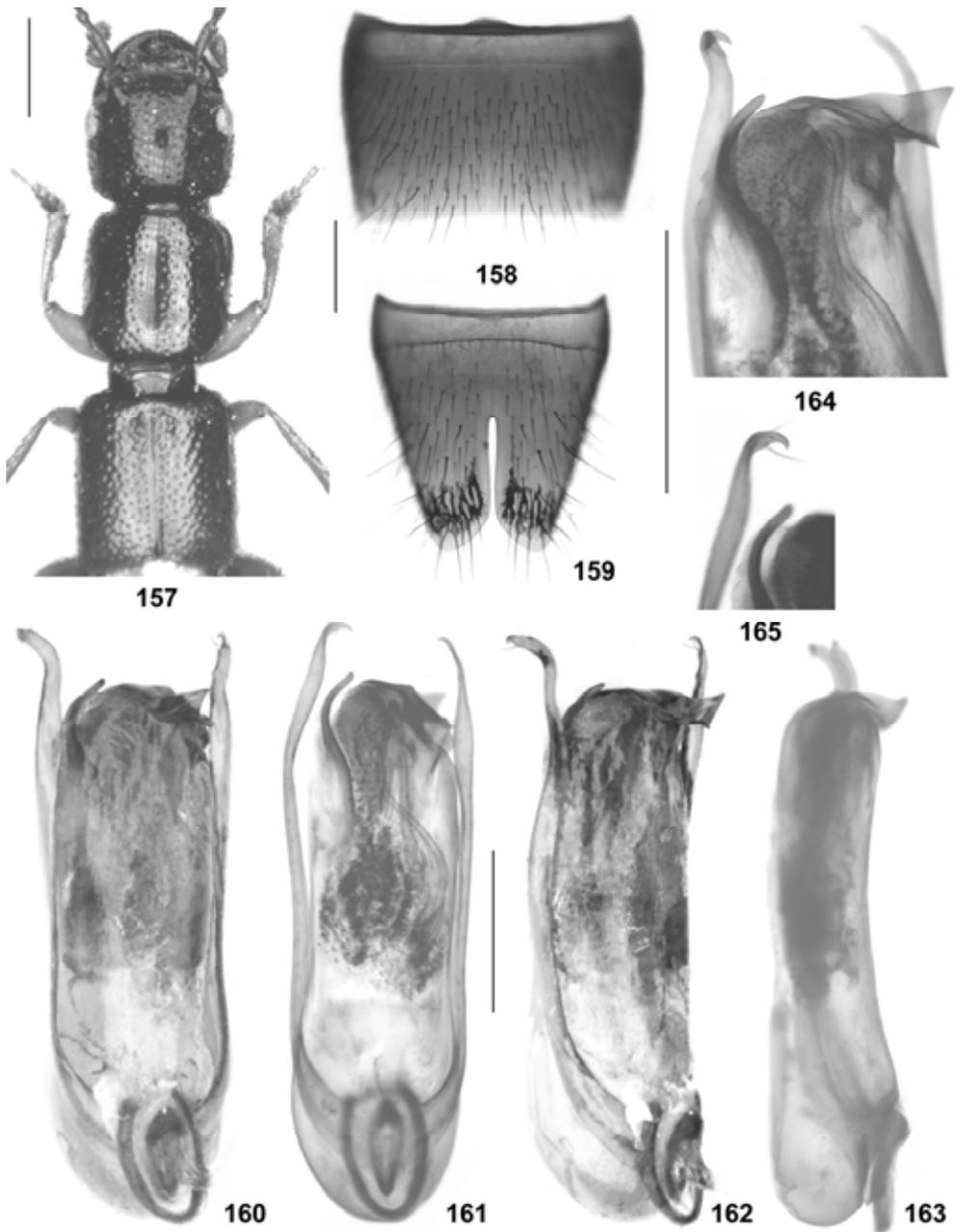
♂: protarsomeres I–IV (Fig. 157) strongly dilated; sternite VII (Fig. 158) strongly transverse and with weakly concave posterior margin, pubescence sparse and unmodified; sternite VIII (Fig. 159) weakly oblong, with deep and narrow posterior incision, its depth 0.55 times the length of sternite; aedeagus (Figs. 160–163) 1.7 mm long (measured to apex of dorsal plate), distinctly asymmetric; ventral process broad, apically convexly projecting on the left and oblique on the right (ventral view); dorsal plate distinctly asymmetric (Fig. 164), apically slightly extending beyond apex of ventral process, directed to the right (ventral view), and of characteristic shape; internal sac with a long tube and with a long, not very stout, and S-shaped sclerotized structure on the left (ventral view); parameres stout, subapically curved, of unequal shape, apically acute, distinctly extending beyond apices of ventral process and of dorsal plate, each with two subapical, but without apical setae (Fig. 165).

♀: protarsomeres I–IV distinctly dilated, but noticeably less so than in male.

**COMPARATIVE NOTES:** The similarly derived morphology of the aedeagus suggests that *P. inaequalis* is closely allied to *P. firmilobatus*, from which it is reliably distinguished by the different structure of the aedeagus, i.e., the differently shaped ventral process and dorsal plate, the relatively shorter and differently shaped parameres with shorter subapical setae, and the different shape of the apical internal structure.



Figs. 146–156: *Pinobius baculatus*. 146) forebody; 147) male sternite VII; 148) male sternite VIII; 149) aedeagus in dry preparation in ventral view; 150–151) aedeagus in transparent preparation in ventral view; 152) aedeagus in dry preparation in latero-ventral view; 153) apex of median lobe of aedeagus in ventral view; 154–155) apex of median lobe in latero-ventral view; 156) apex of paramere. Scale bars: 146: 1.0 mm; 147–155: 0.5 mm; 156: 0.2 mm.



Figs. 157–165: *Pinobius inaequalis*. 157) forebody; 158) male sternite VII; 159) male sternite VIII; 160) aedeagus in dry preparation in ventral view; 161) aedeagus in transparent preparation in ventral view; 162) aedeagus in dry preparation in latero-ventral view; 163) aedeagus in transparent preparation in latero-ventral view; 164) apex of aedeagus in latero-ventral view; 165) apex of left paramere (ventral view). Scale bars: 157: 1.0 mm; 158–165: 0.5 mm.

This species is reliably distinguished from other congeners of similar size and robust habitus only by the morphology of the aedeagus, particularly the shape and chaetotaxy of the parameres, as well as the shape of the ventral process, the dorsal plate, and the sclerotized internal structure.

**DISTRIBUTION AND NATURAL HISTORY:** The type specimens were collected in two localities in Sulawesi Tenggara in the southeast of Sulawesi (Fig. 129) in February. The type locality is situated in the Rawa Aopa Watumohai National Park.

***Pinobius subaequalis* sp.n.** (Figs. 129, 166–173)

**TYPE MATERIAL:** **Holotype** ♂: “Sulawesi Tengah: Nr. Morowali [1°52'S 121°29'E], Ranu River Area, 27.i.–20.iv.1980 / At light / M.J.D. Brendell, B.M. 1980-280 / Holotypus ♂ *Pinobius subaequalis* sp. n., det. V. Assing 2014” (BMNH).

**ETYMOLOGY:** The epithet (Latin, adjective) alludes to the nearly similar shape of the parameres.

**DESCRIPTION:** Body length 10.8 mm; length of forebody 5.4 mm. Eyes slightly shorter than postocular region in dorsal view. External characters (Fig. 166) as in *P. inaequalis*. Distinguished only by the male sexual characters.

♂: protarsomeres I–IV (Fig. 166) strongly dilated; sternite VII (Fig. 167) strongly transverse and with weakly concave posterior margin, pubescence rather dense and unmodified; sternite VIII (Fig. 168) distinctly oblong, with deep and narrow posterior incision, its depth 0.52 times the length of sternite; aedeagus (Figs. 169–172) 1.7 mm long (measured to apex of dorsal plate), distinctly asymmetric; ventral process broad, apically membranous, somewhat reduced; dorsal plate distinctly asymmetric, apically very acute, slightly extending beyond apex of ventral process, directed ventrad and to the right (ventral view); internal sac with a long tube and with a long S-shaped sclerotized structure on the left (ventral view); parameres moderately stout, nearly straight, of subequal shape, apically acute, distinctly extending beyond apices of ventral process and of dorsal plate, each with two subapical, but without apical setae (Fig. 173).

**COMPARATIVE NOTES:** Based on the similar modifications of the aedeagus, *P. subaequalis* is most closely allied to *P. inaequalis*, from which it differs by the more densely pubescent male sternite VII, the more oblong male sternite VIII, and by the morphology of the aedeagus (apex of dorsal plate of different shape; S-shaped internal structure longer and more robust; parameres more slender and of subequal shape). However, the possibility that these differences are an expression of intra- rather than interspecific variation cannot be ruled out with certainty. More material from Sulawesi is needed to confirm the hypothesis that *P. inaequalis* and *P. subaequalis* represent different species.

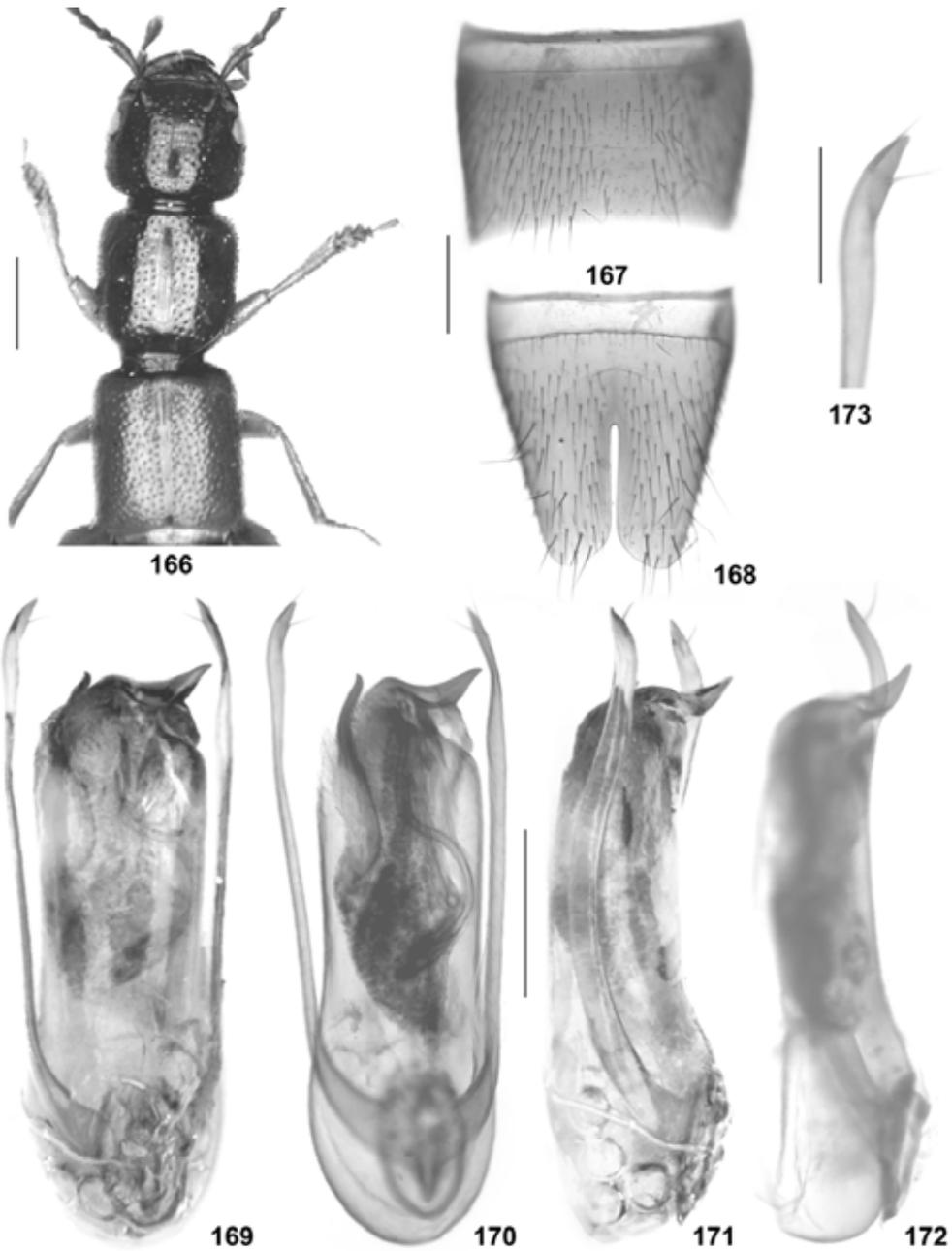
**DISTRIBUTION AND NATURAL HISTORY:** The type locality is situated in Sulawesi Tengah, East Sulawesi (Fig. 129). The holotype was collected at a light source.

***Pinobius gogolensis* LAST, 1984** (Figs. 174–181, 188)

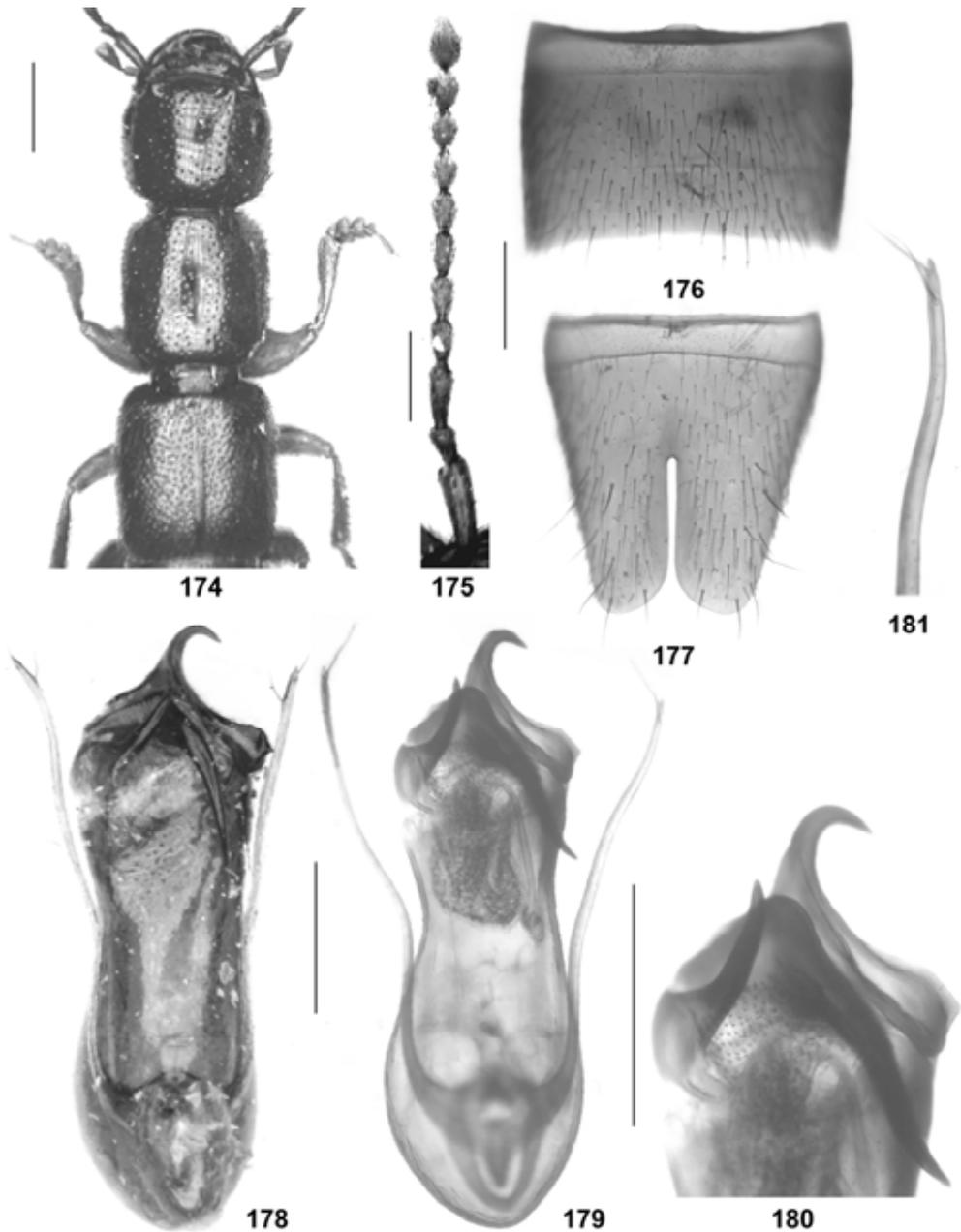
*Pinobius gogolensis* LAST 1984: 122.

**TYPE MATERIAL EXAMINED:** **Paratypes:** 2 ♂♂, 1 ♀: “S 853. Asoua [sic] Gogol River. 30.6.70, N. Guinea. R.H. [written on reverse side of mounting label] / Manchester Museum Paratype / Paratype / *Pinobius gogolensis* sp. n., Paratype, H. Last det. / P3008.5061-63 / *Pinobius gogolensis* Last, det. V. Assing 2014” (MMUM).

**COMMENT:** The original description is based on a male holotype and three female paratypes from “Blackwater river, Sepik”, five paratypes (2 males, 3 females) from “Asona, Gogol River, ... at light”, one male paratype from “Gogol River, ... at light”, and one paratype of unspecified sex from “Middle Musa, Northern Province” (LAST 1984).



Figs. 166–173: *Pinobius subaequalis*. 166) forebody; 167) male sternite VII; 168) male sternite VIII; 169) aedeagus in dry preparation in ventral view; 170) aedeagus in transparent preparation in ventral view; 171) aedeagus in dry preparation in lateral view; 172) aedeagus in transparent preparation in lateral view; 173) apex of left paramere (ventral view). Scale bars: 166: 1.0 mm; 167–173: 0.5 mm.



Figs. 174–181: *Pinobius gogolensis*. 174) forebody; 175) antenna; 176) male sternite VII; 177) male sternite VIII; 178) aedeagus in dry preparation in ventral view; 179) aedeagus in transparent preparation in ventral view; 180) apical portion of median lobe of aedeagus in ventral view; 181) apex of right paramere (ventral view). Scale bars: 174: 1.0 mm; 175–181: 0.5 mm.

ADDITIONAL MATERIAL EXAMINED: **PAPUA NEW GUINEA**: 2 exs., Sepik valley, VII.1912, leg. Bürgers (MNHUB, cAss); 1 ex., Sepik valley, 13.V.1912, leg. Bürgers (MNHUB).

REDESCRIPTION: Body length 10.0–11.0 mm; length of forebody 5.5–5.8 mm. Coloration: head and pronotum reddish-brown; elytra dark-reddish; abdomen brown; legs yellowish-brown to reddish-brown; antennae reddish.

Head (Fig. 174) 1.13–1.16 times as broad as long, broadest across eyes, lateral margins behind eyes subparallel in dorsal view; punctuation moderately coarse and not very dense, sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view. Antenna (Fig. 175) 2.8–3.1 mm long; antennomeres IV–VII distinctly oblong; VIII–X approximately as broad as long or weakly transverse.

Pronotum (Fig. 174) approximately 1.05 times as long as broad and about as broad as head or slightly narrower; punctuation more or less distinctly finer and denser than that of head; interstices without microsculpture; midline rather broadly impunctate.

Elytra (Fig. 174) 0.91–0.95 times as long as pronotum; punctuation rather dense and more or less defined. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with pronounced sexual dimorphism

Abdomen slightly narrower than elytra; punctuation fine and rather dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII nearly truncate in the middle.

♂: protarsomeres I–IV (Fig. 174) strongly dilated; sternite VII (Fig. 176) strongly transverse and with weakly concave posterior margin, pubescence not distinctly modified; sternite VIII (Fig. 177) oblong, posterior incision narrow, its depth slightly more than half the length of sternite; aedeagus (Fig. 178–179) 2.0–2.1 mm long (length measured to apex of dorsal plate), distinctly asymmetric, and highly modified; ventral process apically apparently reduced and replaced by two heavily sclerotized massive spines of different shapes (Fig. 180); dorsal plate massive and broad, apically extending into an asymmetric hook-shaped process; parameres very thin, not reaching apex of dorsal plate, each with an apical and a subapical seta (Fig. 181).

♀: protarsomeres I–IV dilated, but distinctly less so than in male.

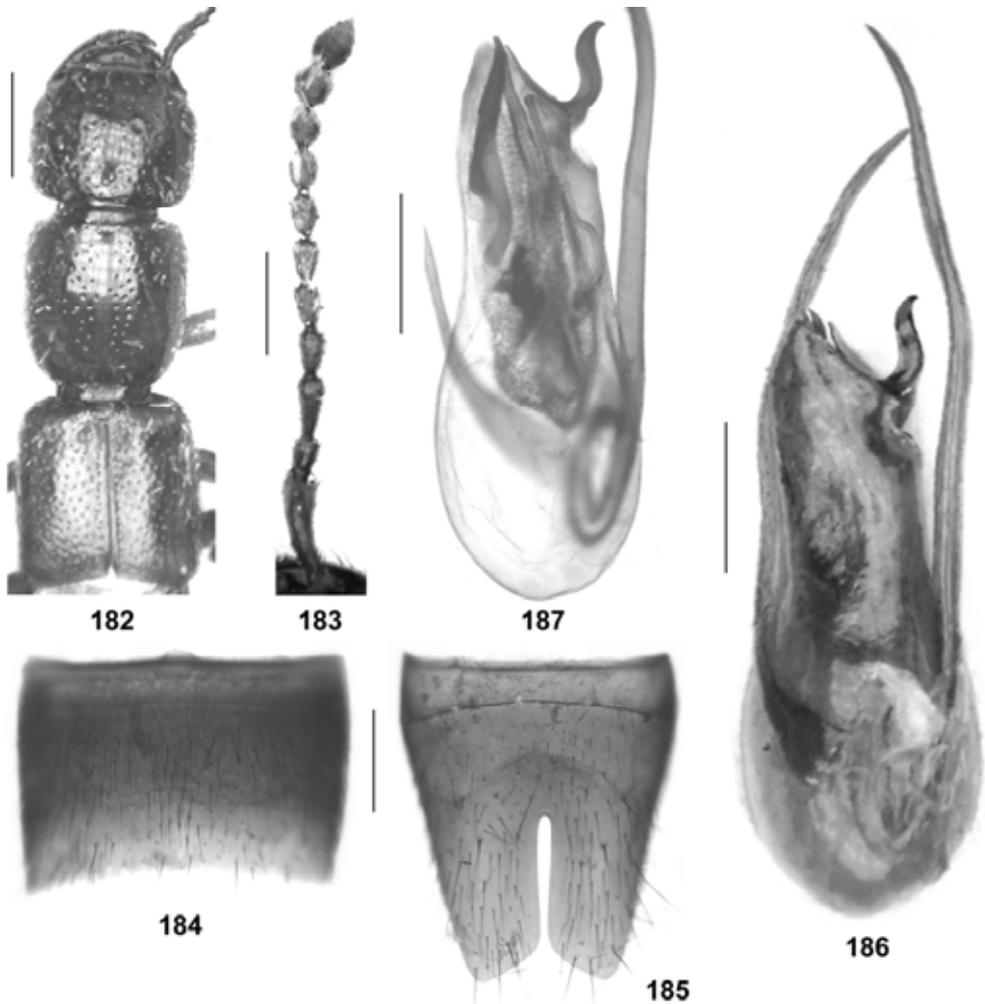
COMPARATIVE NOTES: Among the species known from New Guinea and of similarly large size, *P. gogolensis* is characterized particularly by the distinctive morphology of the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: The type specimens were found in the Sepik basin and at the Gogol river (to the south of Madang) in northern Papua New Guinea, and in the Musa basin in the south of Papua New Guinea (Fig. 188). The specimens were collected in May–July, at least some of the types at light sources (LAST 1984).

### *Pinobius adjacens* (CAMERON, 1937) (Figs. 182–188)

*Dolicao adjacens* CAMERON 1937: 100.

TYPE MATERIAL EXAMINED: **Lectotype** ♂, present designation: “Papua: Kokoda, 1,200 ft. viii.1933. L.E. Cheesman. B.M.1933-427. / Syntype / Syntype *Dolicao adjacens* Cameron, 1937: 100, det. R.G. Booth 2007 / Lectotypus ♂ *Dolicao adjacens* Cameron, desig. V. Assing 2014 / *Pinobius adjacens* (Cameron), det. V. Assing 2014” (BMNH). **Paralectotypes**: 1 ♀: “Type / Papua: Kokoda, 1,200 ft. viii.1933. L.E. Cheesman. B.M.1933-577. / *Dolicao adjacens* Cam Type / Syntype / Paralectotypus ♀ *Dolicao adjacens* Cameron, desig. V. Assing 2014 / *Pinobius adjacens* (Cameron), det. V. Assing 2014” (BMNH); 1 ♂: “Papua: Kokoda, 1,300 ft. ix.1933. L.E. Cheesman. B.M.1933-577. / D. *adjacens* Cam Cotype / Syntype / Paralectotypus ♂ *Dolicao adjacens* Cameron, desig. V. Assing 2014 / *Pinobius adjacens* (Cameron), det. V. Assing 2014” (BMNH).



Figs. 182–187: *Pinobius adjacens*. 182) forebody; 183) antenna; 184) male sternite VII; 185) male sternite VIII; 186) aedeagus in dry preparation in ventral view; 187) median lobe of aedeagus in transparent preparation in ventral view. Scale bars: 182: 1.0 mm; 183–187: 0.5 mm.

COMMENT: The original description is based on an unspecified number of specimens, among them at least one male, from “Kokoda, alt. 1200 ft., viii. 1933” (CAMERON 1937). Three syntypes, two males and one female, were found in the Cameron collection at the BMNH. One of the males was collected at an altitude of 1300 feet in September, but is nevertheless regarded as a type specimen since it was undoubtedly seen by Cameron, as is evidenced by his identification label. The male in better condition and collected in August is designated as the lectotype.

REDESCRIPTION: Body length 10.5–12.0 mm; length of forebody 5.4–5.6 mm. Coloration: body dark-reddish, with the elytra slightly paler; legs pale-reddish; antennae dark-reddish, with the apical 3–5 antennomeres paler reddish.



Fig. 188: Distributions of *Pinobius gogolensis* (black circles), *P. extensus* (white circle), *P. adjacens* (white star), and *P. paricolor* (black diamonds: examined records; white diamond: literature record) in the Australian Region.

Head (Fig. 182) approximately 1.15 times as broad as long, lateral margins behind eyes subparallel or weakly converging in dorsal view; punctuation moderately coarse and rather sparse, even sparser in median dorsal portion; interstices without microsculpture, except for sparse micropunctures. Eyes distinctly shorter than postocular region in dorsal view. Antenna (Fig. 183) 2.9–3.2 mm long; antennomeres IV–VI distinctly oblong; VII weakly oblong; VIII approximately as broad as long, and IX–X weakly transverse.

Pronotum (Fig. 182) 1.02–1.04 times as long as broad and approximately as broad as head; punctuation similar to that of head; interstices without microsculpture, except for scattered micropunctures; midline rather broadly impunctate.

Elytra (Fig. 182) 0.91–0.95 times as long as pronotum; punctation similar to that of pronotum, but much denser. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV strongly dilated in both sexes, without evident sexual dimorphism.

Abdomen slightly narrower than elytra; punctation fine and moderately dense, sparser on tergite VIII; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: sternite VII (Fig. 184) moderately transverse, pubescence not distinctly modified, posterior margin weakly concave; sternite VIII (Fig. 185) distinctly oblong, posterior incision deep, its depth slightly more than half the length of sternite; aedeagus (Fig. 186) approximately 2.0 mm long (length from apex of dorsal plate: 2.1 mm; length including parameres: 3.0 mm), distinctly asymmetric, and highly modified; ventral process with asymmetrically triangular apex; dorsal plate strongly sclerotized and strongly asymmetric, apically with a long, twisted, and acute process directed to the right in ventral view; internal sac apically with three long spine-like structures of different shapes (Fig. 187); parameres conspicuously long, much longer than median lobe (see measurements), of somewhat different shapes, apically acute, and without apical setae; right paramere (ventral view) stouter and slightly longer than left paramere, with one seta at apical third; left paramere somewhat flattened and with 2 setae at apical third.

COMPARATIVE NOTES: Among the *Pinobius* species known from New Guinea, this species is characterized particularly by the morphology of the aedeagus, above all the shape of the apex of the dorsal plate and the conspicuously long and differently shaped parameres.

DISTRIBUTION AND NATURAL HISTORY: This species is currently known only from the type locality at 8°53'S 147°44'E in the southeast of Papua New Guinea (Fig. 188). The types were collected at altitudes between 360 and 400 m, probably at a light source, as is suggested from scales of Lepidoptera found on the specimens.

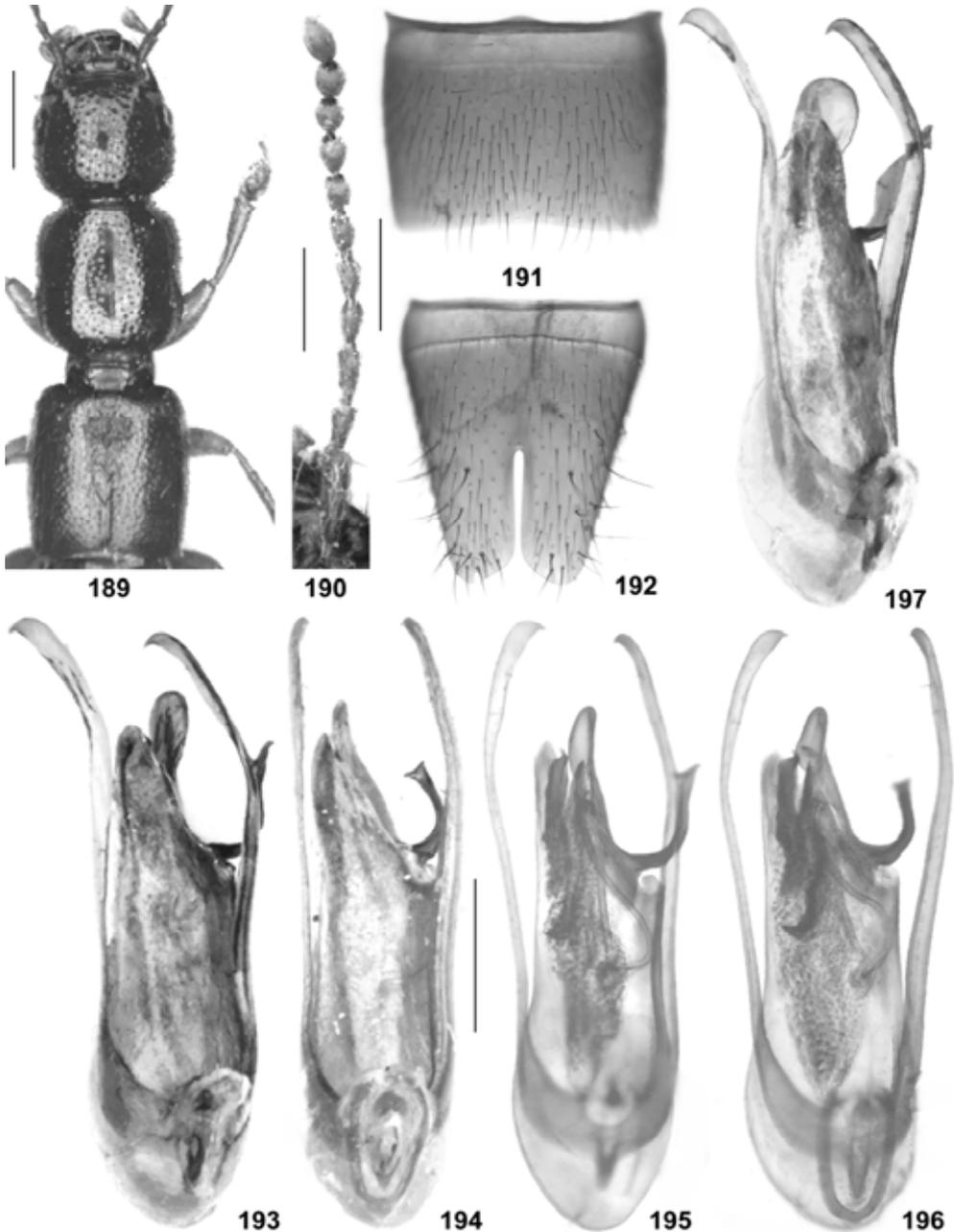
### *Pinobius paricolor* (FAUVEL, 1878) (Figs. 188–201)

*Dolicaon paricolor* FAUVEL 1878: 53 f.

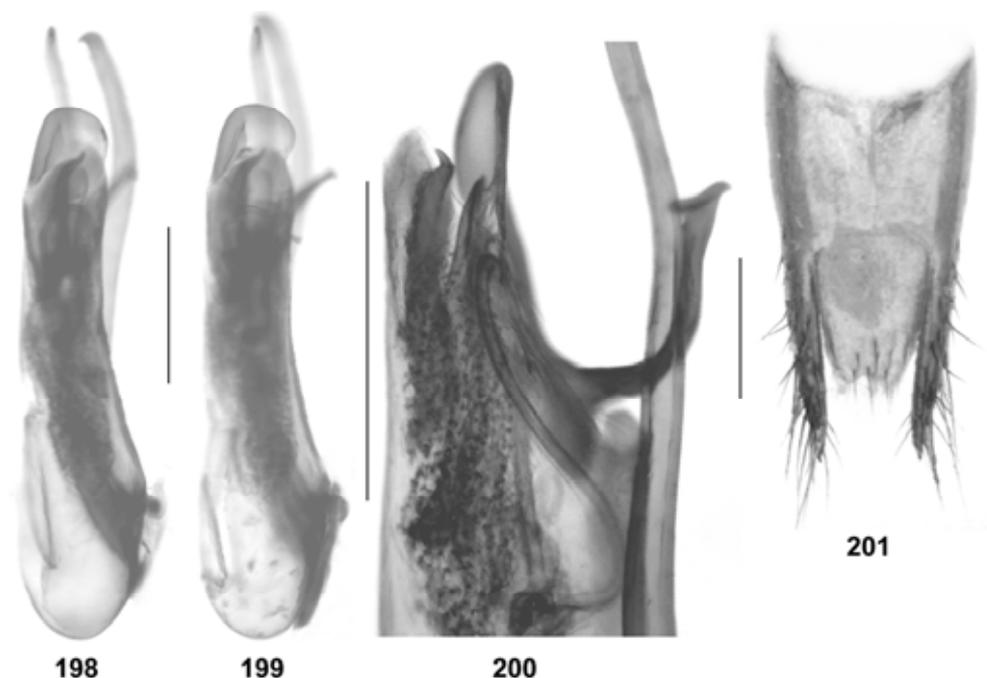
*Pinobius similis* LAST 1984: 122 f.; **syn.n.**

TYPE MATERIAL EXAMINED: *Pinobius similis*: **Paratypes**: 4 ♂♂, 3 ♀♀: “S 854, Morehead, New Guinea, 12.11.74. R.H. [written on reverse side of mounting label] / Manchester Museum Paratype / Paratype / *Pinobius similis* sp. n., Paratype, H. Last det. / P3008.5064-70 / *Pinobius paricolor* (Fauvel), det. V. Assing 2014” (MMUM).

COMMENT: The original description of *Dolicaon paricolor* is based on at least two female syntypes (“♂ latet”) from “Cap York, Rockhampton” deposited in the Fauvel collection (“Ma collection”) (FAUVEL 1878). According to the curator in charge at the IRSNB, where the Fauvel collection is housed, repeated efforts at finding the type material were unsuccessful, possibly because it was moved to a different cabinet (Y. Gérard, e-mail 10 June, 2014). Since the type specimens may still exist, it is not possible to designate a neotype. FAUVEL (1878) states that the species is 8.5 mm long and of uniformly reddish coloration. Only one of the four species seen from Australia meets these criteria. Thus, there is little doubt that the material listed below, part of which was collected in the same region (Cape York) where part of the original type series was found, is conspecific with the types of *D. paricolor*. *Pinobius similis* was described from a male holotype and 21 paratypes (8 males, 13 females) from “Morehead”, a female paratype from “Blackwater River, Sepik” and a male paratype from “Okapa, ... forest litter” (LAST 1984). As can be inferred particularly from the identical morphology of the aedeagus (including the internal structures), the type material of *P. similis* is conspecific with the Australian material of *P. paricolor*. Hence the synonymy proposed above.



Figs. 189–197: *Pinobius paricolor* (189, 192, 194, 196: paratype of *P. similis*). 189) forebody; 190) antenna; 191) male sternite VII; 192) male sternite VIII; 193–194) aedeagus in dry preparation in ventral view; 195–196) median lobe of aedeagus in transparent preparation in ventral view; 197) aedeagus in dry preparation in latero-ventral view. Scale bars: 189: 1.0 mm; 190–197: 0.5 mm.



Figs. 198–201: *Pinobius paricolor* (199: paratype of *P. similis*). 198–199) median lobe of aedeagus in transparent preparation in lateral view; 200) apical portion of median lobe of aedeagus; 201) female tergites IX–X. Scale bars: 0.5 mm.

ADDITIONAL MATERIAL EXAMINED: **AUSTRALIA: Queensland:** 1 ♂, Cape York Peninsula, Kutini-Payamu National Park [“Iron Range”, 12°40'S 143°21'E], 5.V.1974, leg. Walford-Huggins (BMNH); 1 ♀, same data, but 15.IX.1974 (cAss); 1 ♀, Cairns, 23.III.1970, leg. Walford-Huggins (BMNH); 1 ♀, Cape Tribulation, 12.X.1971, leg. Walford-Huggins (BMNH).

**REDESCRIPTION:** Body length 8.5–10.5 mm; length of forebody 4.7–5.5 mm. Coloration: body pale-reddish to dark-reddish; legs dark-yellowish; antennae reddish.

Head (Fig. 189) approximately 1.15 times as broad as long, lateral margins behind eyes subparallel or weakly converging in dorsal view; punctuation moderately coarse and not very dense, slightly sparser in median dorsal portion; interstices without microsculpture. Eyes approximately as long as postocular region in dorsal view, or nearly so. Antenna (Fig. 190) 2.3–2.6 mm long; more slender and slightly longer in male than in female; antennomeres IV–VI(VII) oblong; VII(VIII) approximately as long as broad; VIII(IX)–X weakly transverse.

Pronotum (Fig. 189) 1.02–1.05 times as long as broad and about as broad as head; punctuation similar to that of head, or slightly denser; interstices without microsculpture; midline moderately broadly impunctate.

Elytra (Fig. 189) 0.91–0.96 times as long as pronotum; punctuation rather dense and more or less shallow. Hind wings present. Metatarsomere I as long as, or slightly longer than, the combined length of II and III. Protarsomeres I–IV with moderately pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctuation fine and moderately dense, sparser on tergite VIII; interstices with distinct transverse microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII convex or nearly truncate in the middle.

♂: protarsomeres I–IV (Fig. 189) strongly dilated; sternite VII (Fig. 191) moderately transverse, pubescence unmodified and rather sparse, posterior margin weakly concave; sternite VIII (Fig. 192) oblong, posterior incision narrow and deep, its depth approximately half the length of sternite; aedeagus (Figs. 193–199) approximately 1.6 mm long (1.7 mm including apex of dorsal plate), distinctly asymmetric, and highly modified; ventral process apically of asymmetrically triangular shape; dorsal plate massive and with two long apical processes of completely different shape, the left process (ventral view) somewhat spoon-shaped and the right process strongly curved, strongly sclerotized, and slender (Fig. 200); internal sac apically with two long sclerotized structures and with semi-membranous tube; parameres of slightly different shapes, distinctly flattened (cross-section), apically curved and acute, without apical setae, but with two moderately long setae at some distance from apex and from each other, left paramere (ventral view) slightly longer than right paramere.

♀: protarsomeres I–IV distinctly dilated, somewhat less so than in male; tergites IX and X as in Fig. 201; tergite IX with median suture.

COMPARATIVE NOTES: Based on the similarly derived morphology of the aedeagus (right apex of dorsal plate long, slender, and strongly sclerotized; parameres conspicuously long and without apical setae), *P. paricolor* is closely allied to *P. adjacens*, from which it is distinguished by the less deep posterior incision of the male sternite VIII and aedeagal characters (smaller; dorsal plate and internal structures of different shapes; parameres of different chaetotaxy and shapes). Among the known Australian representatives of the genus, *P. paricolor* is reliably distinguished based on the uniformly reddish body in combination with moderate body size alone.

DISTRIBUTION AND NATURAL HISTORY: *Pinobius paricolor* is the only species of the genus recorded from both New Guinea and Australia (Fig. 188). In Papua New Guinea, male-based records are known from the type locality (8°32'S 141°39'E) in the southwest and Okapa (6°31'S 145°36'E) in central Papua New Guinea. In Australia, the known distribution is confined to four localities in Queensland. The examined specimens were collected in March, May, and September to November. According to LAST (1984), one type specimen of *P. similis* was collected from forest litter.

### *Pinobius extensus* sp.n. (Figs. 188, 202–208)

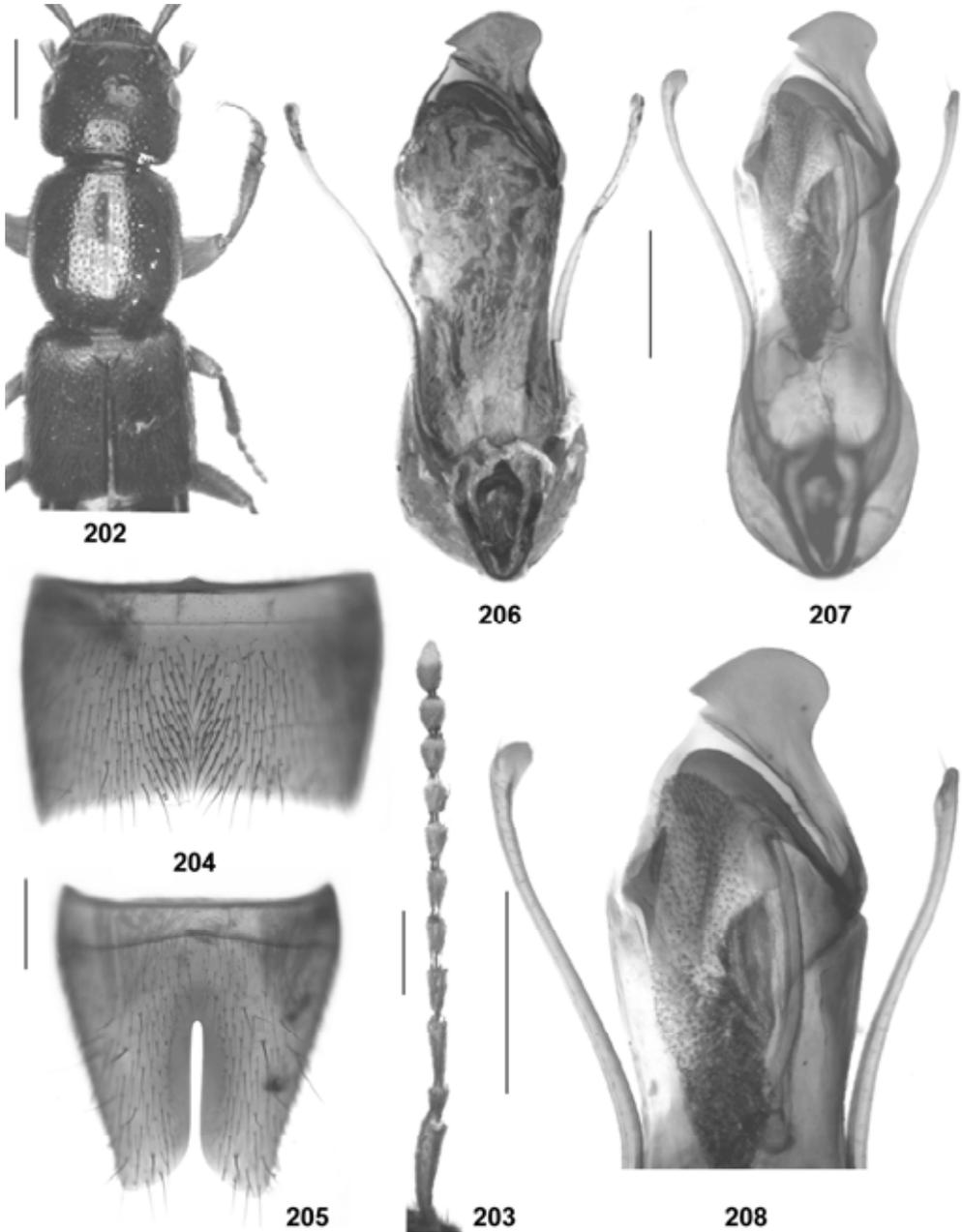
TYPE MATERIAL: **Holotype** ♂: “50. D.N.Guinea, Dampfer Ankerplatz I, Kaiserin Augusta II. Exp., 13.5.1912, Bürgers S.G. / *Pinobius indicus* (Kr.), MNHUB Berlin / Holotypus ♂ *Pinobius extensus* sp. n., det. V. Assing 2014” (MNHUB).

ETYMOLOGY: The epithet (Latin, adjective: stretched) alludes to the conspicuously slender antennae.

DESCRIPTION: Body length 12.5 mm; length of forebody 6.5 mm. Coloration: forebody reddish-brown; abdomen brown; legs and antennae reddish.

Head (Fig. 202) 1.15 times as broad as long, lateral margins behind eyes indistinctly converging in dorsal view; punctation rather fine and not very dense, slightly sparser in median dorsal portion; interstices without microsculpture, except for scattered micropunctures. Eyes somewhat shorter than postocular region in dorsal view. Antenna (Fig. 203) 3.5 mm long, conspicuously slender; antennomeres IV–VI approximately twice as long as broad; VII approximately 1.5 times as long as broad; VIII–X weakly oblong.

Pronotum (Fig. 202) 1.05 times as long as broad and 1.08 times as broad as head, strongly convex in cross-section; punctation similar to that of head, but slightly denser; interstices without microsculpture; midline narrowly impunctate.



Figs. 202–208: *Pinobius extensus*. 202) forebody; 203) antenna; 204) male sternite VII; 205) male sternite VIII; 206) aedeagus in dry preparation in ventral view; 207) aedeagus in transparent preparation in ventral view; 208) apical portion of aedeagus in ventral view. Scale bars: 202: 1.0 mm; 203–208: 0.5 mm.

Elytra (Fig. 202) 0.94 times as long as pronotum; punctation rather dense, fine, and weakly defined. Hind wings present. Metatarsomere I slightly longer than the combined length of II and III.

Abdomen slightly narrower than elytra; punctation fine and moderately dense; interstices with distinct transverse microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII broadly convex.

♂: protarsomeres I–IV (Fig. 202) strongly dilated; sternite VII (Fig. 204) strongly transverse, in median portion with long and dense black setae directed postero-mediad, posterior margin weakly concave; sternite VIII (Fig. 205) weakly oblong, posterior incision narrow and deep, its depth 0.58 times the length of sternite; aedeagus (Figs. 206–207) 2.2 mm long (measured from apex of dorsal plate), distinctly asymmetric, and highly modified; ventral process apically semi-membranous and short; dorsal plate massive, long, strongly asymmetric, extending far beyond apex of ventral process; internal sac with a large and strongly sclerotized hook-shaped apical structure (Fig. 208); parameres moderately thin and apically somewhat dilated, far from reaching apex of dorsal plate; each with one apical and one subapical seta.

COMPARATIVE NOTES: *Pinobius extensus* is distinguished from all its congeners by the distinctive male sexual characters. From other similarly large species, including the geographically close *P. gogolensis*, it additionally differs by the longer antennae with more slender antennomeres. Based on the morphology of the aedeagus (dorsal plate large, asymmetric, and strongly sclerotized; ventral process apically somewhat reduced; internal sac apically with large sclerotized spine; parameres with one apical and one subapical seta), this species is most closely related to *P. gogolensis*.

DISTRIBUTION AND NATURAL HISTORY: The type locality is situated in the Sepik river valley in the northwest of Papua New Guinea, but it cannot be located exactly. The holotype was collected in May.

### *Pinobius mastersii* MACLEAY, 1871 (Figs. 209–217)

*Pinobius mastersii* MACLEAY 1871: 148.

COMMENT: *Pinobius mastersii* is the type species of the genus. The original description is based on an unspecified number of syntypes from Gayndah (Queensland). A loan of the type material, which is housed in the Australian Museum in Sydney, was requested, but unfortunately not granted at reasonable conditions (D. Smith, e-mail 6.V.2014). However, owing to the remarkably distinctive coloration of this species, there is no doubt that the material listed below is conspecific with the type material.

MATERIAL EXAMINED: **AUSTRALIA: Northern Territory:** 1 ♂, Elliott [17°41'S 133°37'E], 7.XII.1982, leg. Walford-Huggins (BMNH); 1 ♂, 2 ♀♀, Maria Lagoon, Nathan River Station, 20.XI.1984, leg. Walford-Huggins (BMNH, cAss); 1 ♀, S Mararanka, at turnoff to Mataranka HS, at UV light, 9.IV.1966, leg. McFarland (SAM). **Queensland:** 1 ♀, Cape York Kutini-Payamu National Park ["Iron Range", 12°40'S 143°21'E], V.1961 (BMNH); 1 ♀, Pomppuraaw ["Edward River Mission", 14°53'S 141°37'E], Gum Leaf Lagoon, 21.XI.1983, leg. Walford-Huggins (BMNH); 1 ♂, 1 ♀, Rockhampton (BMNH, cAss); 8 ♂♂, 13 ♀♀, Mornington Island, Mission, at light, V.1963, leg. Aitken & Tindale (SAM, cAss); 1 ♂, 2 ♀♀, same data, but 15.V.1963 (SAM); 1 ♂, same data, but 4.V.1960 (SAM); 1 ♂, same data, but at MV light, 18.V.1963 (SAM); 2 ♀♀, Bentinck Island, "Ninyilki", at light, 29.V.1963, leg. Aitken & Tindale (SAM); 1 ♂, same data, but 1.VI.1963 (SAM); 1 ♀, locality not specified (BMNH).

REDESCRIPTION: Body length 9.0–11.0 mm; length of forebody 4.7–5.7 mm. Coloration highly distinctive: head blackish in anterior half and orange to reddish in posterior half; pronotum orange to reddish, with the posterior portion more or less extensively black; elytra blackish, each with a large and defined medio-lateral orange spot reaching lateral margin, but not

suture; abdomen bicoloured, with segments III–VI orange to reddish and segments VII–X black; legs blackish-brown to black with paler tarsi; antennae dark-brown to blackish-brown with the apical antennomeres more or less extensively paler, yellowish to reddish.

Head (Fig. 210) 1.06–1.17 times as broad as long, lateral margins behind eyes usually weakly to distinctly converging in dorsal view; punctuation moderately coarse and moderately dense, slightly sparser in median dorsal portion; interstices without microsculpture, except for scattered micropunctures. Eyes approximately as long as postocular region in dorsal view, or nearly so.

Antenna (Fig. 211) 2.3–2.6 mm long; antennomeres IV–VI distinctly oblong; VII approximately as long as broad; VIII–X weakly transverse.

Pronotum (Fig. 210) 1.02–1.04 times as long as broad and 0.98–1.04 times as broad as head; punctuation similar to that of head, or slightly finer; interstices without microsculpture, except for minute micropunctuation; midline moderately broadly impunctate.

Elytra (Fig. 210) of variable length, 0.90–1.05 times as long as pronotum; punctuation of similar density as that of pronotum, but coarser. Hind wings fully developed. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with pronounced sexual dimorphism.

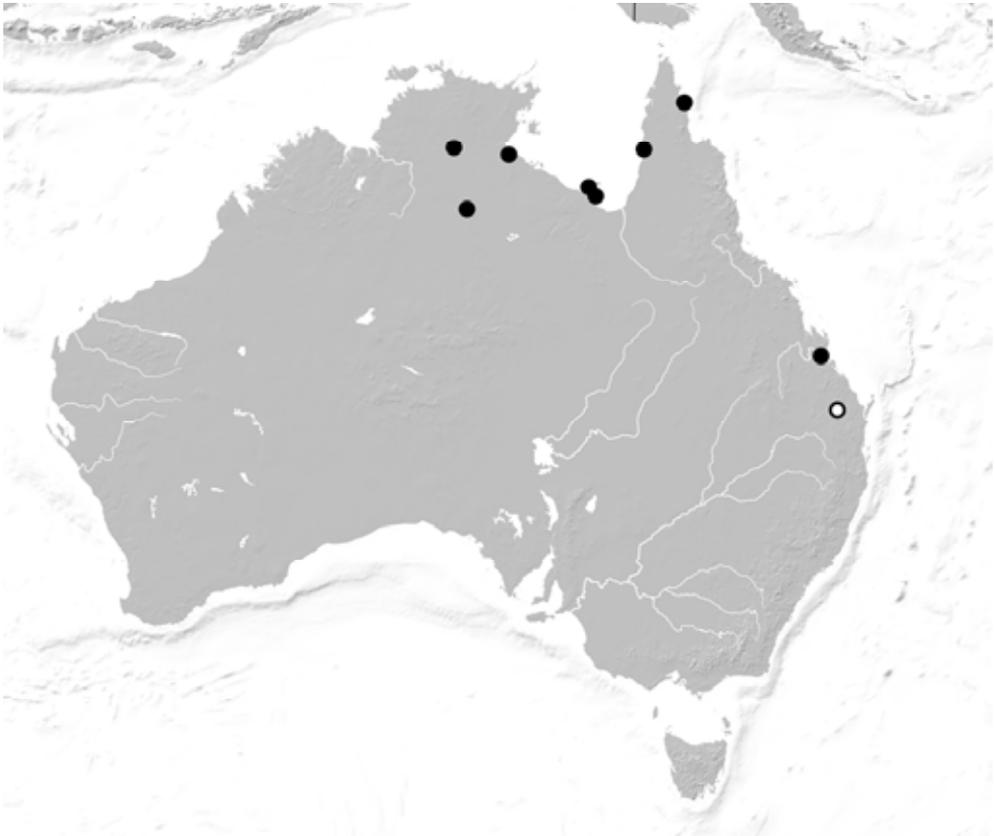
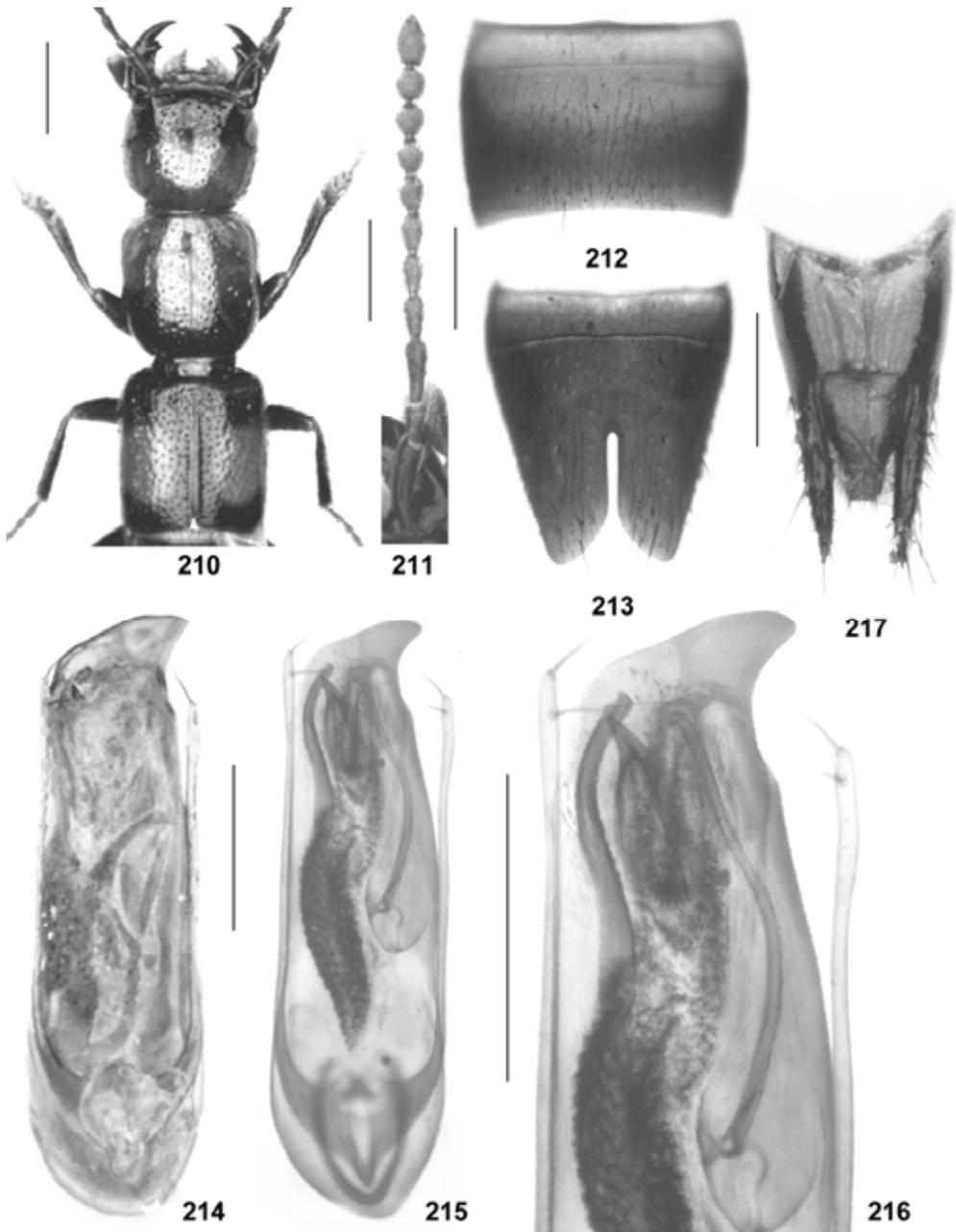


Fig. 209: Distribution of *Pinobius mastersii* (black circles: examined records; white circle: type locality) in Australia.



Figs. 210–217: *Pinobius mastersii*. 210) forebody; 211) antenna; 212) male sternite VII; 213) male sternite VIII; 214) aedeagus in dry preparation in ventral view; 215) aedeagus in transparent preparation in ventral view; 216) apical portion of aedeagus in ventral view; 217) female tergites IX–X. Scale bars: 210: 1.0 mm; 211–217: 0.5 mm.

Abdomen approximately as broad as, or slightly narrower than, elytra; punctation fine and moderately dense, somewhat sparser on tergite VIII; interstices with microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII convex to nearly truncate in the middle.

♂: protarsomeres I–IV strongly dilated (Fig. 210); sternite VII (Fig. 212) strongly transverse, pubescence not distinctly modified, posterior margin concave; sternite VIII (Fig. 213) oblong, posterior incision narrow, its depth approximately half the length of sternite; aedeagus (Figs. 214–215) approximately 1.7–1.8 mm long and distinctly asymmetric; ventral process asymmetric, apex directed to the right in ventral view; dorsal plate small and weakly sclerotized; internal sac with several long apical structures of different shapes (Fig. 216); parameres relatively short, clearly not reaching apex of ventral process, apically not distinctly dilated, each with one long apical and one long subapical seta.

♀: protarsomeres I–IV dilated, but distinctly less so than in male; tergites IX–X as in Fig. 217; tergite IX with median suture.

COMPARATIVE NOTES: *Pinobius mastersii* is readily identified based on its conspicuous coloration alone. Based on the morphology of the aedeagus, it is closely allied to the two following Australian species and to *P. extensus*.

DISTRIBUTION AND NATURAL HISTORY: This species has been recorded from several localities in the Northern Territory and Queensland, Australia (Fig. 209). The examined specimens were collected from April through May, in November and in December, most, if not all of them at light sources.

### ***Pinobius alatus* (LEA, 1923) (Figs. 218–227)**

*Dolicaon alatus* LEA 1923: 49 f.

? *Dolicaon pedatus* LEA 1923: 50.

TYPE MATERIAL EXAMINED: **Lectotype** ♂, present designation: “*alatus* Lea, TYPE, Bowen / I. 12400, *Dolicaon alatus* Lea Type, Queensland / SAMA Database No. 25-037086 / Lectotypus ♂ *Dolicaon alatus* sp. n., det. V. Assing 2014 / *Pinobius alatus* (Lea), det. V. Assing 2014” (SAM). **Paralectotypes**: 1 ♂ [on same pin as lectotype] (SAM); 1 ♀: “Mackay / *Dolicaon alatus* Lea, Co-type / 8655, *Dolicaon alatus* Lea, Cotype / SAMA Database No. 25-038207” (SAM); 1 ♂, 1 ♀ [on same pin]: “Adelaide River, 91-49. / Pt. Darwin, 91-49. / 702 / *Dolicaon alatus* Lea, Co-type / Syntype” (BMNH).

COMMENT: The original description of *P. alatus* is based on a number of syntypes (male and female) from “Queensland: Mackay ..., Bowen ..., Townsville ..., Claudie River ...; Northern Territory: Darwin, Adelaide River” (LEA 1923). One of the two males labelled by Lea as “Type” is designated as the lectotype.

*Pinobius pedatus* was described from a unique male from “Northern Territory: King River” deposited in the “National Museum” (LEA 1923), today probably the National Museum Victoria (P. Hudson, e-mail 10.VI.2014). The holotype was not examined. According to the original description, *P. pedatus* is of similar coloration as *P. alatus*, but distinguished by “slightly thinner and darker” body, “slightly denser” pubescence, a “slightly less transverse” head, globular “eighth to tenth joints of antennae”, finer and denser punctation particularly of the elytra, shorter elytra, and hind wings of reduced length (“not half the length of elytra”). These external characters are generally variable in *Pinobius* species. Moreover, the *P. alatus* material listed below also includes a brachypterous specimen; even one of the paralectotypes from the type locality appears to be brachypterous, suggesting that *P. alatus* is a wing-dimorphic species. Consequently, it appears likely that *P. pedatus* only represents a brachypterous morph of *P. alatus*. Since the holotype was not examined, the synonymy of *P. pedatus* with *P. alatus* is not

formally proposed, but for the purpose of the present paper both names are hypothesized to refer to the same species.

**ADDITIONAL MATERIAL EXAMINED:** **AUSTRALIA: Northern Territory:** 1 ♂, 40 km SE Adelaide River, UV light, 10.IV.1966, leg. McFarland (SAM); 2 ♂♂, Cooper Creek, 19 km E by S of Mt. Borradaile, 12°06'N 133°04'E, at light, 31.V.1973, leg. Matthews (SAM, cAss). **Queensland:** 1 ♀ [teneral], Mareeba, Davies Ck. St. Forest, 29.V.1973, leg. Walford-Huggins (BMNH); 1 ♀, Mareeba, Chlohesy River Road, 30.XI.1970, leg. Walford-Huggins (BMNH); 1 ♂, Normanton, "Flinders R.x'ing", 4.XII.1982, leg. Walford-Huggins (BMNH); 1 ♀, Cairns, 6.XI.1969, leg. Walford-Huggins (BMNH); 1 ♀ [brachypterous], Port Bowen (BMNH); 1 ♀, Cape York Kutini-Payamu National Park ["Iron Range", 12°40'S 143°21'E], 17–22.IV.1975, leg. Walford-Huggins (BMNH); 1 ♂, 1 ♀, same data, but 4.IV.1975 (BMNH, cAss); 1 ♀, Herberton, 13.I.1981, leg. Wood (BMNH); 1 ♂, Kuranda, Chlohesy River Road, 11.I.1974, leg. Walford-Huggins (cAss); 1 ♂, Mornington Island, Mission, at light, V.1963, leg. Aitken & Tindale (SAM); 2 ♂♂, 2 ♀♀, Bentinck Island, "Ninyilki", at light, 29.V.1963, leg. Aitken & Tindale (SAM); 2 ♂♂, same data, but 1.VI.1963 (SAM).

**REDESCRIPTION:** Body length 9.0–11.5 mm; length of forebody 5.0–5.8 mm. Coloration distinctive: body reddish, with the abdominal segments VII–X black; legs dark-brown to black with paler tarsi; antennae dark-brown to black with the apical antennomeres more or less extensively yellowish to reddish.

Head (Fig. 218) approximately 1.15 times as broad as long, lateral margins behind eyes usually weakly to distinctly converging in dorsal view; punctation moderately coarse and moderately dense, sparser in median dorsal portion; interstices without microsculpture, but with micropunctures. Eyes approximately as long as postocular region in dorsal view, or nearly so. Antenna (Fig. 219) 2.3–2.7 mm long; antennomeres IV–VI distinctly oblong; VII approximately as long as broad; VIII–X weakly transverse.

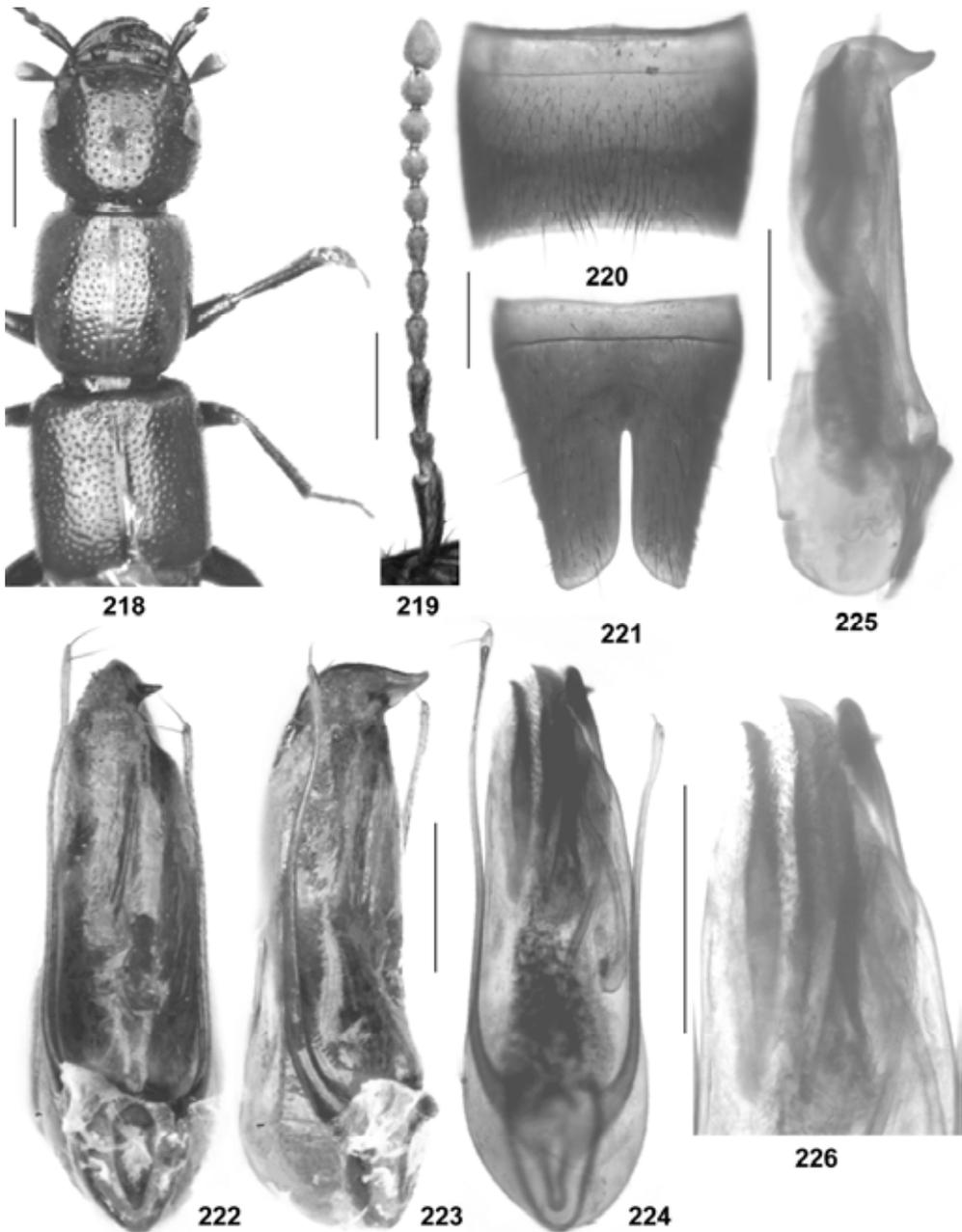
Pronotum (Fig. 218) 1.02–1.04 times as long as broad and approximately as broad as head; punctation similar to that of head, or slightly denser; interstices without microsculpture, except for minute micropunctation; midline moderately broadly impunctate.

Elytra (Fig. 218) of variable length, apparently dimorphic, 0.92–0.96 times as long as pronotum in macropterous specimens and approximately 0.85 times as long as pronotum in brachypterous specimens; punctation similar to that of pronotum. Hind wings fully developed (macropterous) or strongly reduced. Metatarsomere I approximately as long as the combined length of II and III. Protarsomeres I–IV with weakly pronounced sexual dimorphism.

Abdomen approximately as broad as, or slightly narrower than, elytra; punctation fine and moderately dense, somewhat sparser on tergite VIII; interstices with microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII convex to nearly truncate in the middle.

♂: protarsomeres I–IV moderately dilated (Fig. 218); sternite VII (Fig. 220) moderately strongly transverse, pubescence not distinctly modified, posterior margin concave; sternite VIII (Fig. 221) oblong, posterior incision narrow, its depth approximately 0.55 times the length of sternite; aedeagus (Figs. 222–225) of somewhat variable size, 1.8–2.1 mm long, and distinctly asymmetric; ventral process asymmetric, apex acute, directed obliquely ventrad and to the right in ventral view; dorsal plate small and weakly sclerotized; internal sac with several long apical structures of different shapes (Fig. 226); parameres thin, of unequal length, left paramere (ventral view) reaching, or extending slightly beyond apex of ventral process, right paramere clearly not reaching apex of ventral process, each paramere with one long apical and one long subapical seta.

♀: protarsomeres I–IV dilated, but slightly less so than in male; tergite IX with median suture.



Figs. 218–226: *Pinobius alatus*. 218) forebody; 219) antenna; 220) male sternite VII; 221) male sternite VIII; 222) aedeagus in dry preparation in ventral view; 223) aedeagus in dry preparation in latero-ventral view; 224) aedeagus in transparent preparation in ventral view; 225) aedeagus in transparent preparation in lateral view; 226) apical portion of median lobe of aedeagus in ventral view. Scale bars: 218: 1.0 mm; 219–226: 0.5 mm.

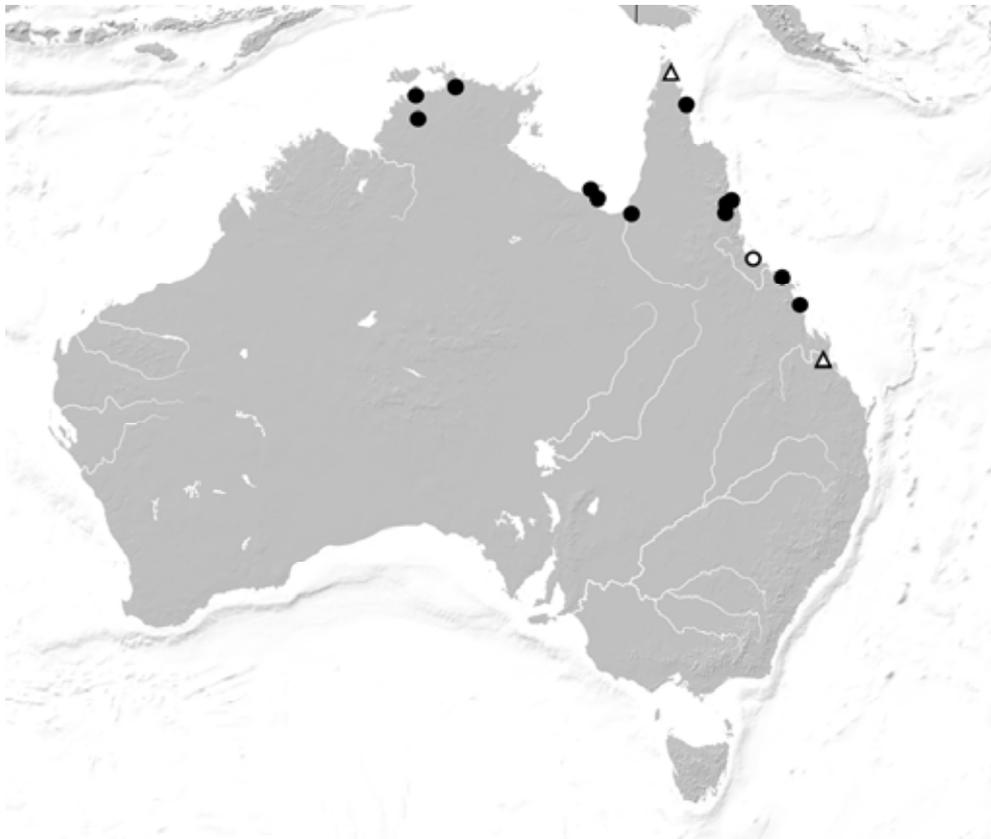


Fig. 227: Distributions of *Pinobius alatus* (black circles: examined records; white circle: literature record) and *P. discrepans* (white triangles) in Australia.

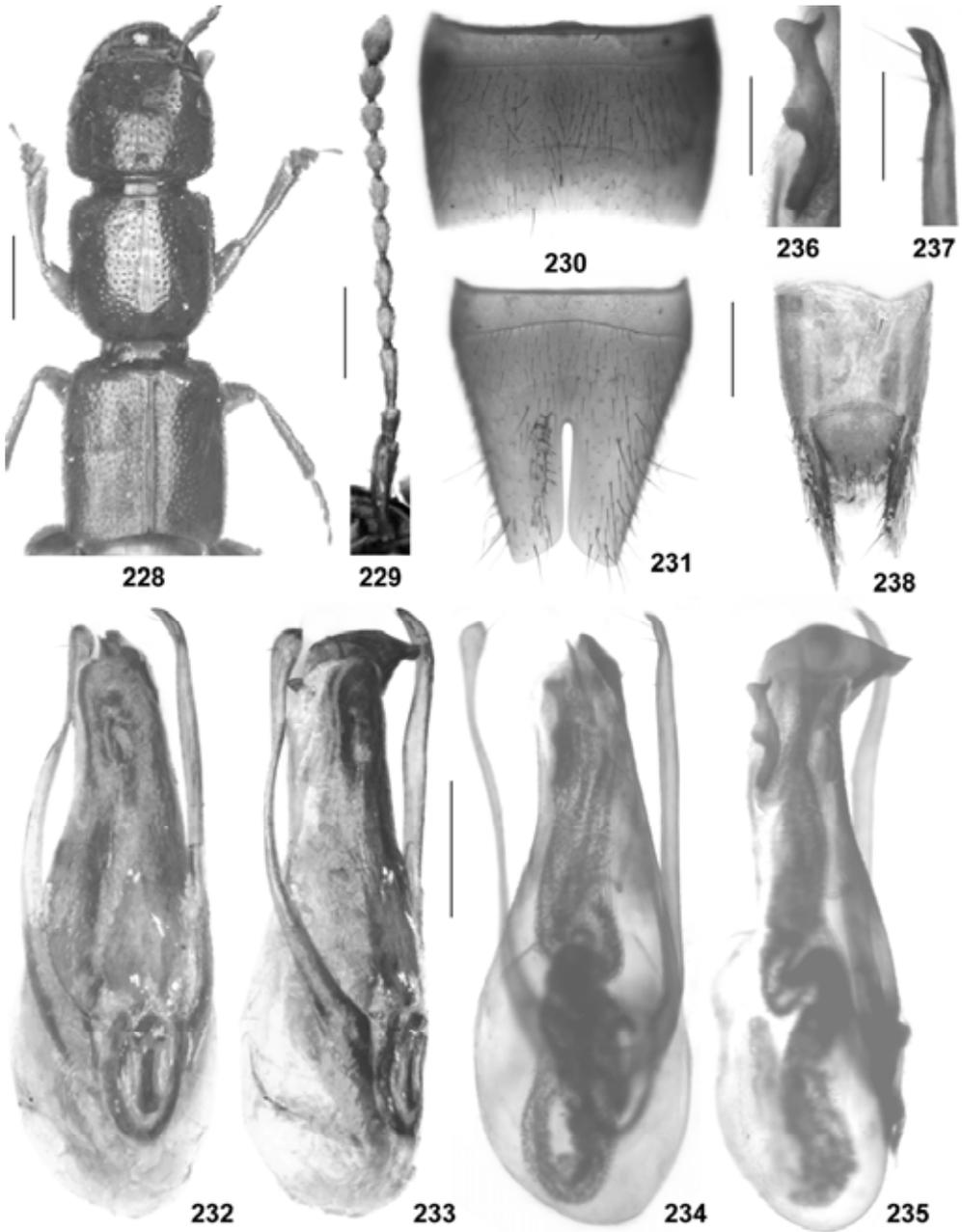
COMPARATIVE NOTES: *Pinobius alatus* is readily distinguished from all its congeners by its coloration alone. Based on the male sexual and external characters, including also the similarly conspicuous coloration of the abdomen, *P. alatus* is most closely allied to *P. mastersii*.

DISTRIBUTION AND NATURAL HISTORY: Like *P. mastersii*, *P. alatus* is known from several localities in the Northern Territory and Queensland, Australia (Fig. 227). In some localities, the species was found together with *P. mastersii*. The examined specimens were collected from April through June and from November through January, mostly at light sources. One female taken in May is teneral.

#### *Pinobius discrepans* sp.n. (Figs. 227–238)

TYPE MATERIAL: **Holotype** ♂: “Rockhampton, 2.ix.43 / W. Steel coll., B.M. 1969-552. / Holotypus ♂ *Pinobius discrepans* sp. n., det. V. Assing 2014” (BMNH). **Paratype** ♀: “upper Jardine R., Ca York Pen., N. Qld., 11°14'S 142°36'E / 26 Oct. 1979, M. S & B. J. Moulds / E. Gowing-Scopes collection, BMNH(E) 2005-4” (cAss).

ETYMOLOGY: The epithet is the present participle of the Latin verb *discrepare* (to differ) and alludes to the differently shaped parameres.



Figs. 228–238: *Pinobius discrepans*. 228) forebody; 229) antenna; 230) male sternite VII; 231) male sternite VIII; 232–233) aedeagus in dry preparation in ventral and in latero-ventral view; 234–235) aedeagus in transparent preparation in ventral and in lateral view; 236) dorso-apical internal structure of aedeagus in lateral view; 237) apex of right paramere; 238) female tergites IX–X. Scale bars: 228: 1.0 mm; 229–235, 238: 0.5 mm; 236–237: 0.2 mm.

DESCRIPTION: Body length 10.8–11.5 mm; length of forebody 5.6–6.0 mm. Coloration: body uniformly reddish; legs yellowish-red; antennae pale-reddish.

Head (Fig. 228) approximately 1.15 times as broad as long, lateral margins behind eyes subparallel or weakly convex, not distinctly converging in dorsal view; punctuation moderately coarse and moderately sparse to moderately dense, sparser in median dorsal portion; interstices without microsculpture, except for scattered micropunctures. Eyes slightly shorter than postocular region in dorsal view. Antenna (Fig. 229) approximately 3.0 mm long; antennomeres IV–VII oblong; VIII approximately as long as broad; IX–X weakly transverse.

Pronotum (Fig. 228) 1.01–1.03 times as long as broad and 1.00–1.04 times as broad as head; punctuation similar to that of head, or slightly denser; interstices without microsculpture, except for minute micropunctuation; midline broadly impunctate.

Elytra (Fig. 228) of variable length, 0.88–1.05 times as long as pronotum; punctuation similar to that of pronotum, but denser. Hind wings not examined. Metatarsomere I as long as, or longer than, the combined length of II and III. Protarsomeres I–IV with moderately pronounced sexual dimorphism.

Abdomen slightly narrower than elytra; punctuation fine and moderately dense, somewhat sparser on tergite VIII; interstices with transverse microsculpture; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII nearly truncate in the middle.

♂: protarsomeres I–IV (Fig. 228) strongly dilated; sternite VII (Fig. 230) strongly transverse, pubescence unmodified, posterior margin weakly concave; sternite VIII (Fig. 231) oblong, posterior incision narrow, its depth approximately half the length of sternite; aedeagus (Figs. 232–235) 2.2 mm long and distinctly asymmetric; ventral process asymmetric, apex acute, pointing obliquely ventrad; dorsal plate small and weakly sclerotized; internal sac with sclerotized apical structures of distinctive shapes (Fig. 236); parameres of distinctly different shapes, each with an apical and a subapical seta; left paramere (ventral view) slightly shorter than right paramere, only slightly extending beyond apex of ventral process, and apically distinctly dilated; right paramere distinctly extending beyond apex of ventral process, apically acute (Fig. 237).

♀: protarsomeres I–IV dilated, but slightly less so than in male; tergites IX–X as in Fig. 238; tergite IX with median suture.

COMPARATIVE NOTES: From the similarly coloured *P. paricolor*, *P. discrepans* is readily distinguished by its large size and reddish legs. From other Australian congeners it is easily separated by the different coloration. Based on the similarly derived morphology of the aedeagus (apically asymmetrically curved ventral process; shapes of apical internal structures; reduced dorsal plate; differently shaped parameres with an apical and a subapical seta), *P. discrepans* is closely allied to *P. mastersii* and *P. alatus*.

DISTRIBUTION AND NATURAL HISTORY: This species is currently known from only two localities in Queensland (Fig. 227). The two type specimens were collected in September and October.

### Unnamed and unidentified species

The following females remain unidentified:

- 1 ♀: “Phuntsholing, 2/400 m, 5.5. / Nat.-Hist. Museum Basel – Bhutan Expedition 1972 / Dolicaon indicus Kr. (?) ♀, H. Coiffait det. 1976” (NHMB).

- 1 ♀: India, Meghalaya, W Garo Hills, Bagmara, 25°12'N 90°39'E, 100 m, 19.–21.V.1996, leg. Jendek & Šauša (NHMW).  
 1 ♀: “S Ind” (BMNH).  
 1 ♀: Malaysia, Borneo, Sarawak, Gunung Mulu National Park, 50 m, river bank, III.1978, leg. Holloway et al. (BMNH).  
 1 ♀: Indonesia, Kai Islands [“Kei Ins. (Planten)”] (BMNH).  
 1 ♀: Philippines, Mindoro, Mamburao, 4.–7.III.1994, leg. Mey (MNHUB).  
 1 ♀: Papua New Guinea, Sepik valley, “Pionierlager”, 30.IV.–14.VI.1912, leg. Ledermann (MNHUB).

## Appendix

### A new species of *Dolicaonina* from the Afrotropical Region

#### *Jarrigeus verberans* sp.n. (Figs. 239–245)

TYPE MATERIAL: **Holotype** ♂: “Nigeria, Niger-Delta, Umg. Warri, Licht, 22.–26.11.84, leg. Assing / Holotypus ♂ *Jarrigeus verberans* sp. n., det. V. Assing 2014” (cAss). **Paratypes**: 2 ♂♂: same data as holotype (cAss).

ETYMOLOGY: The epithet is the present participle of the Latin verb *verberare* (to whip, to flog) and alludes to the conspicuously long and thin flagellum of the aedeagus.

DESCRIPTION: Body length 5.7–6.3 mm; length of forebody 3.1–3.4 mm. Coloration: head reddish-brown to dark-brown; pronotum reddish-brown to brown; elytra dark-brown, with the suture and the anterior and posterior margins reddish; abdomen reddish-brown to brown; legs yellowish; antennae reddish-yellow.

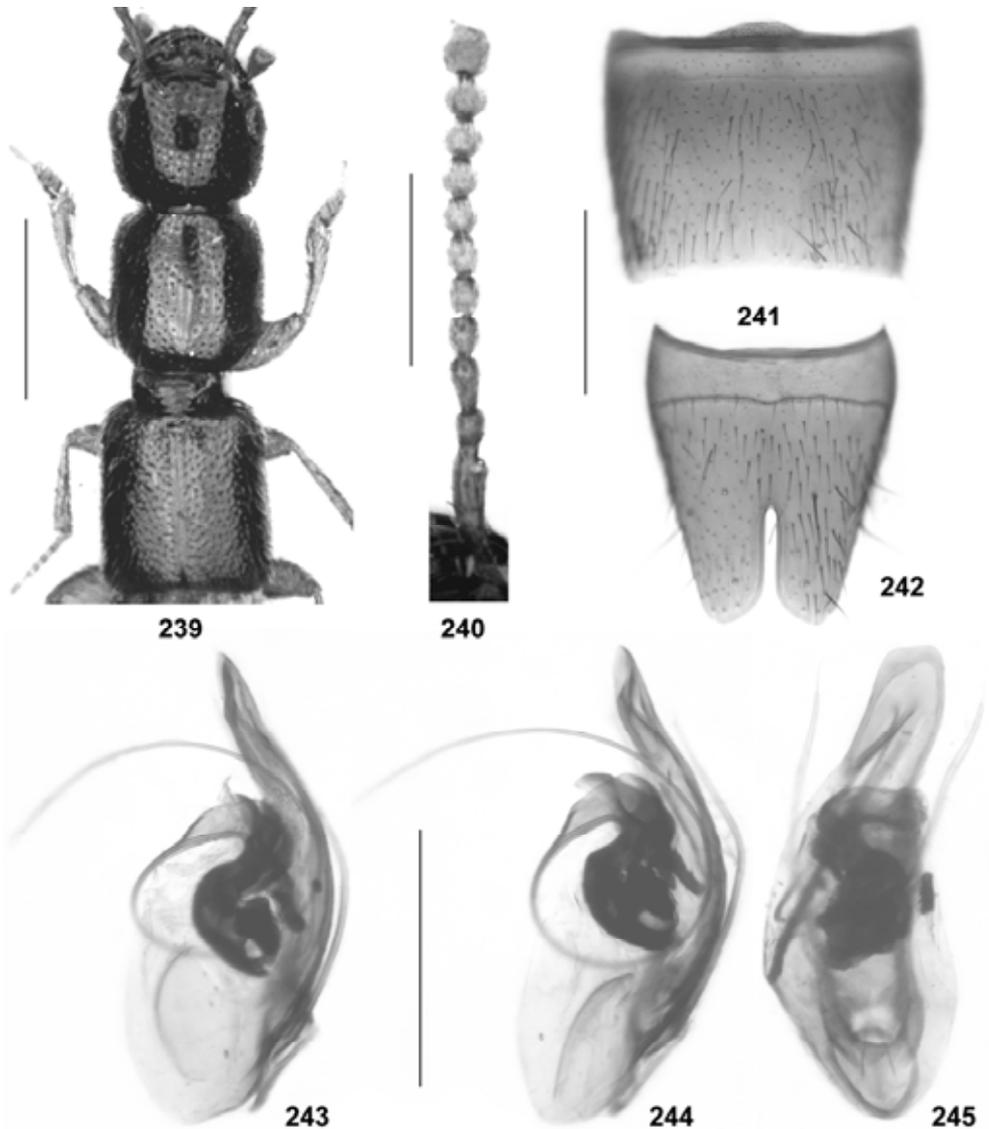
Head (Fig. 239) approximately 1.15 times as broad as long, lateral margins behind eyes weakly converging in dorsal view; punctation moderately dense and moderately coarse, slightly sparser in median dorsal portion; interstices without microsculpture, except for scattered micropunctures. Eyes as long as, or slightly longer than, postocular region in dorsal view. Antenna (Fig. 240) short, only 1.4–1.5 mm long; antennomeres IV–V weakly oblong; VI approximately as broad as long; VII–X transverse.

Pronotum (Fig. 239) approximately 1.1 times as long as broad and 0.95 times as broad as head; punctation similar to that of head, but slightly finer; interstices without microsculpture; midline moderately broadly impunctate.

Elytra (Fig. 239) approximately as long as pronotum; punctation similar to that of pronotum. Hind wings present. Metatarsomere I slightly longer than the combined length of II and III, nearly as long as the combined length of II–IV.

Abdomen slightly narrower than elytra; punctation fine and dense; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; posterior margin of tergite VIII strongly convex.

♂: protarsomeres I–IV strongly dilated; sternite VII (Fig. 241) relatively weakly transverse, with weakly concave posterior margin, otherwise unmodified; sternite VIII (Fig. 242) weakly oblong, posterior incision narrow and deep, its depth slightly less than half the length of sternite; aedeagus (Figs. 243–245) approximately 0.95 mm long and of very distinctive morphology: ventral process distinctly bent dorsad in lateral view and strongly asymmetric; parameres thin, far from reaching apex of ventral process, apically with two short setae, without subapical setae; dorsal plate completely reduced; internal sac with a strongly sclerotized large structure apically extending into a conspicuously long, thin, and moderately sclerotized flagellum.



Figs. 239–245: *Jarrigeus verberans*. 239) forebody; 240) antenna; 241) male sternite VII; 242) male sternite VIII; 243–244) aedeagus in lateral view; 245) aedeagus in ventral view. Scale bars: 239: 1.0 mm; 240–245: 0.5 mm.

COMPARATIVE NOTES: The distribution of the dolicoaenine genus *Jarrigeus* FAGEL, 1958 is confined to the Afrotropical Region. Sixteen species were previously known (FAGEL 1958, 1959, 1962, 1965, 1973). According to the descriptions and illustrations of the aedeagi, the only species with a similarly long flagellum is *J. rhodesianus* FAGEL, 1958 from Zimbabwe, which however has a ventral process of different shape (apically not truncate), the flagellum arranged differently (not in a circle), and which is of larger body size (6.3–6.6 mm). The geographically close *J. fallaciosus* FAGEL, 1958 (Benin) is of similar size as *J. rhodesianus* and, according to the

original description, has an aedeagus of similar shape as that of *J. rhodesianus*. Although the holotype of *J. fallaciosus* is a male, FÄGEL (1958) did not illustrate the aedeagus.

DISTRIBUTION AND NATURAL HISTORY: *Jarrigeus verberans* is the first representative of the genus to be recorded from Nigeria. The type locality is situated in the Niger delta in southern Nigeria. The specimens were collected with a light trap.

### Zusammenfassung

Die Arten der Gattung *Pinobius* MACLEAY, 1871 der Orientalis, der Paläarktis und der Australis werden revidiert. Insgesamt 28 Arten werden erkannt, davon 14 neu: *P. baculatus* sp.n. (Indonesien: Java, Sumba), *P. bifidus* sp.n. (Nordindien), *P. bihamatus* sp.n. (Myanmar), *P. brevincisus* sp.n. (Südvietnam), *P. carinatus* sp.n. (Indien: Maharashtra), *P. discrepans* sp.n. (Australien), *P. extensus* sp.n. (Papua-Neuguinea), *P. firmilobatus* sp.n. (Thailand, Singapur, Malaysia, Sabah), *P. formidabilis* sp.n. (Malaysia), *P. imberbis* sp.n. (Indien: Assam), *P. inaequalis* sp.n. (Indonesien: Sulawesi), *P. linguatus* sp.n. (Bangladesch), *P. rotundatus* sp.n. (Indien: Assam), *P. subaequalis* sp.n. (Indonesien: Sulawesi). Alle Arten werden beschrieben und abgebildet. *Pinobius vicinus* (KRAATZ, 1859), bisher Synonym von *P. indicus* (KRAATZ, 1859), wird revalidiert. Die folgenden Namen werden synonymisiert: *P. indicus* (KRAATZ, 1859) = *longipennis* (CAMERON, 1931), syn.n.; *P. paricolor* (FAUVEL, 1878) = *similis* LAST, 1984, syn.n.; *P. sparsiventris* (FAUVEL, 1886) = *javanus* (CAMERON, 1936), syn.n. *Pinobius pedatus* (LEA, 1923) wird vorläufig als Synonym von *P. alatus* (LEA, 1923) betrachtet. Für *Dolicaon adjacens* CAMERON, 1937, *D. alatus* LEA, 1923, *D. indicus* KRAATZ, 1859, *D. javanus* CAMERON, 1936, *D. robustus* KRAATZ, 1859, *D. sparsiventris* FAUVEL, 1886 und *D. vicinus* KRAATZ, 1859 werden Lectotypen designiert. Die Revision ergab, dass die zuvor beschriebenen Arten weitgehend fehlgedeutet wurden und dass demnach, abgesehen von Originalbeschreibungen, nahezu alle Literaturnachweise auf Fehlbestimmungen beruhen. Auf der Grundlage insbesondere der Morphologie des Aedeagus werden die Arten des Untersuchungsgebiets vier Artengruppen zugeordnet. Die Zoogeographie der Arten und Artengruppen wird diskutiert. Das Gebiet mit der höchsten Diversität ist der indische Subkontinent östlich bis Myanmar. Die Verbreitungsgebiete aller Arten werden anhand von Karten illustriert. Das untersuchte Material wurde in unteren und mittleren Höhenlagen vor allem am Licht gefangen, teilweise auch aus der Bodenstreu gesiebt. Nur eines der untersuchten Tiere ist immatur. Eine Bestimmungstabelle und ein Katalog der Arten der Orientalis, Paläarktis und Australis werden erstellt. Die Gattung enthält derzeit insgesamt 37 Arten, davon zehn in der Afrotropis, zwanzig in der Orientalis und sieben in der Australischen Region. Die Paläarktis wird im Süden (südliche Arabische Halbinsel, Süd-Himalaya, Südchina) lediglich von einer afrotropischen und vier orientalischen Arten erreicht. In einem Anhang wird eine Art der Dolicaonina aus der Afrotropis beschrieben: *Jarrigeus verberans* sp.n. (Nigeria).

### Acknowledgements

I am indebted to the colleagues indicated in the material section for the loan of material under their care. Lee H. Herman (New York) helped with some literature references and cross-checked a previous list of described species against his unpublished catalogue of Paederinae. Special thanks go to Guillaume de Rougemont (Oxford) for the generous gift of the holotype of *Pinobius brevincisus*. Benedikt Feldmann (Münster) proof-read the manuscript.

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## Buchbesprechung

(Fortsetzung von Seite 114)

Gegen Ende des Kapitels widmet sich der Autor unter dem Titel “Cultural Notes” unter anderem der Tatsache, dass Dytiscidae mancherorts als Nahrungsmittel angeboten werden. Abbildung 1.7 zeigt eine Konservendose mit 15 g *Cybister* („cooked and dehydrated and then dusted with barbeque sauce“), die man, in welchem Land auch immer, für 6 US \$ kaufen kann.

**Kapitel 2:** Unter dem etwas enigmatischen Titel verbirgt sich eine gründliche Einführung in die Chaetotaxie der Dytisciden-Larven. Bestimmungsschlüssel oder phylogenetische Ansätze fehlen allerdings.

**Kapitel 3** ist eindeutig das Kernstück des gesamten Buches. Auf über 120 Seiten publizieren die beiden Autoren eine handfeste revidierte Phylogenie der Dytiscidae, die sich auf mehr als hundert morphologische Merkmale sowie auf Sequenzen von neun Genen von 168 Dytisciden-Arten und neun Taxa der Außengruppe stützt. Das bisher gültige System der Unterfamilien wird in dieser Arbeit weitgehend bestätigt, mit einer entscheidenden Ausnahme: Die Cybistrini werden aus den Dytiscinae ausgegliedert und als eigene Unterfamilie als Schwestergruppe zu den Laccophilinae gestellt. In der Diskussion werden verschiedene mögliche Synapomorphien der äußerlich so unterschiedlichen Cybistrinae und Laccophilinae besprochen. Nicht erwähnt werden in diesem Zusammenhang die Hinterschenkel, die bei allen Cybistrinae und den allermeisten Laccophilinae auffallend kurz geraten sind.

Bedauerlicherweise haben sich auch in diesem Kapitel einige leicht vermeidbare Fehler eingeschlichen: Die Gattung *Rugosus* GARCÍA, 2001 wurde bereits von MORINIÈRE et al. (2014) [in den “References” auf p. 168 zitiert!] zu den Copelatinae transferiert. Der Plural von “legit” (gesammelt) lautet “legunt” und wird daher ebenso wie im Singular mit “leg.” (nicht “legs.”, Tabelle 3.1) abgekürzt. In Tabelle 3.2 (Datenmatrix zur phylogenetischen Analyse) sind die Merkmale der ersten drei Arten nicht korrekt ausgerichtet; außerdem fehlen bei diesen Arten jeweils zwei Merkmale – somit ist dieser Teil der Tabelle unbrauchbar. Das Merkmal 104 (an der Wasseroberfläche bzw. unter Wasser lebend) ist kein (!) morphologisches Merkmal. Dieses Merkmal ist ohnehin überflüssig, da es bereits durch die Merkmale 9 und 10 abgedeckt ist.

**Kapitel 4** enthält erfreulicherweise auch Angaben zum Verdauungssystem, den Innenstrukturen der Kopfkapsel, sowie der Nerven- und Tracheensysteme. Die Beschreibung der Puppe hätte vielleicht etwas genauer ausfallen können; die Abbildung dazu stammt aus NAUMANN (1955). Erschreckend finde ich allerdings die Verwendung des Begriffs Metasternum (Fig. 4.1b) gerade in diesem Kapitel. Bei adulten Käfern gibt es kein äußerlich sichtbares Metasternum. Dieser Begriff ist im gesamten Buch durch Metaventrit zu ersetzen. Das Wort “genea” (Fig. 4.1b) ist durch “gena” zu ersetzen.

**Kapitel 5** ist überaus detailreich und übersichtlich ausgearbeitet. Auch die erstaunliche Komplexität der Spermien wird ausführlich beschrieben. Die chemischen und akustischen Aspekte des Sexualdimorphismus werden ebenso behandelt. Eines der besten Kapitel in diesem Buch.

**Kapitel 6:** Der Autor bürgt für Qualität. Kein anderer Wissenschaftler hat sich vermutlich so lange und so intensiv mit der Biochemie der Dytiscidae und ihrer ökologischen Auswirkungen beschäftigt wie Konrad Dettner. Man kann über die Vielfalt an Pheromonen und Allomonen nur Staunen. Auch die mit den Schwimmkäfern assoziierten Mikroorganismen und deren Metabolismus werden ausführlich behandelt!

(Fortsetzung auf Seite 365)

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