

## On the Scopaeina Mulsant & Rey of Australasia (Staphylinidae, Paederinae): type revisions and new biogeographic data

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### Abstract

The Scopaeina of the Australasian Region are revised. *Micranops medicollis* (Lea, 1923), *Scopaeus apterus* Cameron, 1950, *S. blackburni* Bernhauer & Schubert, 1912, *S. ctenocryptus* Lea, 1923, *S. digitalis* Fauvel, 1878, *S. dubius* Blackburn, 1891, *S. flavocastaneus* Lea, 1923, *S. interocularis* Lea, 1912, *S. latebricola* Blackburn, 1888, *S. moerens* Lea, 1923, *S. myrmecocephalus* Lea, 1927, *S. obscuripennis* Blackburn, 1891, *S. ooderes* Lea, 1923, *S. oviceps* Bernhauer, 1920, *S. ruficollis* Fauvel, 1877, *S. tahitiensis* Coiffait, 1977 and *S. testaceipes* Lea, 1923 are redescribed, their male and female primary and secondary sexual characters are illustrated if both sexes are available, and their distribution is given. Lectotypes are designated for *S. femoralis* Blackburn, 1892 (replacement name: *S. blackburni* Bernhauer & Schubert, 1912), *S. ctenocryptus*, *S. dubius*, *S. interocularis*, *S. moerens*, *S. obscuripennis*, *S. oviceps*, and *S. gracilis* Oke, 1933. The following new synonymies are proposed: *S. sutteri* Scheerpeltz, 1957 = *S. filiformis* Wollaston, 1867, *S. ivani* Frisch, 2003 = *S. sumbaensis* Scheerpeltz, 1957, *S. okei* Herman, 2003 (replacement name for *S. gracilis* Oke, 1933) = *S. testaceipes* Lea, 1923. *Scopaeus ruficollis* stat. nov. is revalidated from synonymy with *S. ovicollis* (MacLeay, 1873), which is excluded from *Scopaeus*, and for which the new combination *Rugilus ovicollis* (MacLeay 1873), a nomen dubium, is introduced. New distributional data are presented for *Scopaeus latebricola*, *S. moerens*, *S. obscuripennis*, *S. ooderes*, *S. oviceps*, *S. ruficollis*, *S. sundaensis* Frisch, 2005, and *S. tahitiensis*.

**Keywords** Australia | *Micranops* | *Scopaeus* | taxonomy | distribution

### 1. Introduction

The Scopaeina Mulsant & Rey, 1878 constitute a speciose rove beetle clade of the Paederinae. The subtribe is considered as a monophyletic group mainly according to the presence of a supraorbital trichobothrium (Frisch & Oromí 2006: 24). Though the supraspecific classification of the Scopaeina still is not satisfactorily resolved (Herman, pers. comm.), *Scopaeus* Erichson, 1839 is the major clade of the Scopaeina. The genus presently comprises about 460 named species worldwide, but this is just the tip of the iceberg. Particularly in the warm-temperate regions and the tropics a multitude of unnamed species await their discovery. *Micranops* Cameron, 1913

is another worldwide distributed genus of the Scopaeina. The group is distinguished by a temporal furrow posterior of the eyes, where the typical trichobothrium of the Scopaeina is situated. With 32 named species (Frisch & Herman 2014: 67), *Micranops* is considerably poorer in species than *Scopaeus*. The majority of scopaeine species are hygro-thermophilous dwellers of sandy or gravelly banks, preferably near running waters (Frisch et al. 2002: 28). With more than 100 species alone, the scopaeine fauna of the western Palaearctic can be looked upon as well known in contrast to other regions of the world, for instance the Australasian Region.

Both diversity and biogeography of the Scopaeina of Australia, New Zealand, and the islands east of

the Wallace Line including Melanesia are still largely unknown. William MacLeay (1871: 45) was the first to name an Australian species in *Scopaeus*, but *S. rotundicollis* turned out, however, to be a member of *Astenus* Dejean, 1833 and was transferred accordingly by Lea (1923: 17). The first Australasian *Scopaeus* were described in the 19th century by the French rove beetle specialist Albert Fauvel, who named *S. ruficollis* from Queensland (Fauvel 1877: 218), *S. digitalis* from Victoria (Fauvel 1878: 515), and *S. unifasciatus* from New Caledonia (Fauvel 1889: 256). He was followed by two curators of the South Australian Museum, Thomas Blackburn (1888, 1891, 1892), who described four Australian *Scopaeus*, and Arthur M. Lea (1912, 1923), who named seven scopaeine species in the early 20th century. A detailed taxonomic history of the *Scopaeus* of Australia I already published in the course of the description of the new species *S. spinosophallatus* from Arnhemland (Frisch 2012: 297). The old record of the European *S. sulcicollis* (Stephens, 1832) by Bernhauer (1920: 13) based on a damaged specimen is implausible. Hitherto, only one species of *Micranops* and not more than 18 species of *Scopaeus* are named from Australia.

Very few Scopaeina became known from the many islands of the Australasian Region as well. The first Melanesian species, *S. myrmecocephalus*, was described by Lea (1927: 274). Many years later, the well known British entomologist Malcolm Cameron (1950: 23) described *S. apterus* from Great King Island off the northern cape of the North Island of New Zealand. Scheerpeltz (1957: 293, 297) named *S. sumbaensis* and *S. sutteri* from the Indonesian island Sumba. Latter species turned out to be a synonym of the widespread Palaeotropical *S. filiformis* and is synonymized in this contribution. Two decades later, the French rove beetle specialist Henry Coiffait described two species from Tahiti, *S. tahitiensis* (Coiffait 1977: 174, 175) and *S. parvipterus* (Coiffait 1980: 478). More than ten years ago, I added *S. ivani* from Sumba (Frisch 2003: 678-680), which is herein synonymized with *S. sumbaensis*, and named *S. hermani* from Papua New Guinea and the Solomon Islands (Frisch 2003: 690, 691). In the same contribution, I recorded *S. unifasciatus* for Papua and the Solomon Islands. Later, I described *S. sundaensis* (Frisch 2005: 82-84), widespread in the Sunda Islands and Melanesia, and *S. solomonensis* (Frisch 2005: 81, 82), endemic to the Solomon Islands. Thus, not more than nine *Scopaeus* were hitherto published for the Australasian islands.

I already redescribed *S. unifasciatus* Fauvel and synonymized *S. basicollis* Lea with this species (Frisch 2003: 683). I also saw the type specimens of *S. rotundicollis* MacLeay and herewith confirm, that

the species, which Lea (1912: 427) had transferred to *Astenus* Dejean, 1833, does not belong to the Scopaeina.

In this contribution, I publish the results of further type revisions of the 'old' species described from Australasia in order to provide a basis for future taxonomic and phylogeographic research on the many unnamed species of the Scopaeina from this part of the world. I moreover present new biogeographic data for some *Scopaeus* of the Australasian region including the species revised here. A redescription of *S. parvipterus*, the type of which I have not examined yet, will follow.

## 2. Material and methods

### 2.1. Material

The specimens this contribution is based on are stored in the following institutions and were lend to me by the mentionend curators and collection managers: **AMNZ** – Auckland War Memorial Museum (J. Early, D. Ranatunga); **AMS** – Australian Museum, Sydney (D. Britton, C. Reid, D. Smith); **ANIC** – Australian National Insect Collection, Canberra (T. Weir); **FMNH** – Field Museum of Natural History, Chicago (A. Newton, P. P. Parillo, M. Thayer); **HECO** – Hope Entomological Collections, Oxford (D. Mann); **HNHM** – Hungarian Natural History Museum, Budapest (G. Makranczy, O. Merkl, G. Szél); **ISNB** – Institut Royal des Sciences Naturelles de Belgique, Brussels (A. Drugmand, P. Limbourg); **MFNB** – Museum für Naturkunde, Berlin; **MNHN** – Muséum National d'Histoire Naturelle, Paris (A. Taghavian); **MVMA** – Museum of Victoria, Abbotsford (C. McPhee); **MZUF** – Museo Zoologico de 'La Specola', Florence (L. Bartolozzi); **NHMB** – Naturhistorisches Museum, Basel (E. Sprecher); **NHML** – Natural History Museum, London (R. Booth); **NZAC** – New Zealand Arthropod Collection, Auckland (R. Leschen); **QMBA** – Queensland Museum, Brisbane (K. Koch, S. Wright); **SAMA** – South Australian Museum, Adelaide (P. Hudson, E. G. Matthews); **SDEI** – Senckenberg Deutsches Entomologisches Institut, Müncheberg (L. Zerche); **ZMUC** – University of Copenhagen, Zoological Museum (A. Solodovnikov).

### 2.2. Methods

The habitus photographs were created with the montage software Helicon Focus based on digital images which were taken with a camera attached to a stereoscopic microscope. Transmitted-light microscopic images were

made using the Zeiss Axioscope imaging system and the montage software Picolay. Drawings were made using the drawing attachment U-DA of the transmitted-light microscope Olympus BX50. The illustrations were made with the following magnifications: Aedeagi: 100 x (Figs 20–28, 35–37, 41–43, 50–52) or 200 x (Figs 17–19, 29–34, 38–40, 44–49, 53–55); abdominal sclerites VII and VIII: 200 x (Figs 56–70) except for Figs 59, 65 (100 x); laterotergites IX, lateral gonocoxal plates: 200 x (Figs 71–96); sperm pumps (Figs 97–110): 400 x (photographs), 600 x (drawings).

Specimens were measured magnified 140 x using a stereoscopic microscope with an eye-piece linear micrometer. Measurements and ratios, means are given in brackets (Ø), include both sexes and the maximum range of variation in body size and form. Total length of specimens = interval from apical spines of labrum to posterior end of abdomen, depending on intensity of contraction of abdomen; forebody length = interval from apical spines of labrum to posterior margin of elytra at suture; head length = interval from anterior margin of clypeus to posterior margin of head; elytral length = interval from posterior tip of scutellum to posterior end of elytra along suture; eye length = interval from anterior to posterior end of ocular suture; both eye length and temporal length are measured in lateral view; length of antennomeres is measured without the thin basal stalk.

The morphological structures of the aedeagus are termed following Frisch et al. (2002: 31–34). The terminology of the primary and secondary sexual characters of the females follows Frisch (2010: 160, 161) except for the spermatheca the structures of which are termed after Frisch (2014: 200, 201).

The female genitals, particularly the sperm pump, often provide species or species group diagnostic characters and should be examined with a transmitted-light microscope.

Lea and Oke often mounted more than one type specimen on the same paper card. Primary types I mounted on separate cards and attached scans of the original labels.

### 3. Taxonomy

#### *Micranops mediicollis* (Lea, 1923) (Figure 1)

*Scopaeus mediicollis* Lea, 1923: 27; transferred to *Micranops* by Frisch & Herman, 2014: 70.

**Diagnosis.** Total length 2.1–2.5 mm, forebody length 1.2–1.3 mm. Forebody light brown except for black

eyes; abdomen somewhat darker brown with light brown end; antennae, maxillary palpi, and legs pale yellowish brown. Body punctation comparatively coarse, but shallow and hardly noticeable on pronotum; head, pronotum, and abdomen punctured not much densely with variable interstices as wide as puncture diameters at least; punctation of elytra clearly coarser and somewhat rugose. Head, except for dull, densely microreticulate clypeus, shiny with somewhat superficial, not much dense microreticulation; pronotum more finely and densely microreticulate, dull; elytra shiny without microreticulation; abdomen strongly microreticulate, weakly shiny. Head subquadrate, 1.08–1.11 times as long as wide, across insignificantly widened tempora 1.04–1.09 times as wide as across eyes, and with strongly rounded posterior angles; posterior margin of head notably concave and with shallow median, longitudinal furrow hardly noticeable in holotype, but clear in paratype. Tempora with lateral, longitudinal furrow posterior of eyes where trichobothrium is situated (genus diagnostic character). Eyes very small; eye length 0.25–0.36 of temporal length. Wing-dimorphous with short elytra at suture 0.85–0.9 times as long as pronotum only; humeral angles of holotype somewhat reduced, but humera of paratype reduced more strongly, narrower; membranous fringe of posterior margin of abdominal segment VII present. Lateral denticles of labrum about half as long as median denticles. Antennae short with transverse penultimate segments; segments 8 and 9 0.9 times as long as wide; segment 10 0.8 times as long as wide. Protarsomeres 1–4 transverse, twice as wide as long. Mesotibia slender, 6.2–6.4 times as long as wide.

Male genital characters unknown. Female genitals not species diagnostic.

**Type specimens examined.** Holotype ♀, Australia, Western Australia: Vasse River, leg. Lea (SAMA). Paratype ♀, same data as holotype (SAMA).

The description reveals that *Scopaeus mediicollis* was described after two female specimens. Lea (1923: 27) explicitly calls one of them ‘type’ and distinguishes it from the other one by the infuscate base of the elytra and the darker metasternum. Thus, this specimen is the holotype by original designation [ICZN 1999: Article 73.1.1.]. Though I cannot distinguish the type specimens, which were originally mounted on the same card, by their coloration, the holotype is indicated by ‘♀ TY’ handwritten on the original card close to the tip of the abdomen. I mounted the two type specimens on separate cards and added holotype and paratype labels.

**Distribution.** *Micranops mediicollis* is hitherto known only from the type locality Vasse River near Busselton at about 33°40’S, 115°21’E in Western Australia.



**Figures 1–8.** Habitus of (1) *Micranops medicollis* (holotype), (2) *Scopaeus apterus* (Great King Island), (3) *S. blackburni* (lectotype), (4) *S. ctenocryptus* (lectotype), (5) *S. digitalis* (holotype), (6) *S. flavocastaneus* (holotype), (7) *S. interocularis* (lectotype), (8) *S. latebricola* (holotype). Scale bar = 1 mm.



Figures 9–16. Habitus of (9) *Scopaeus moerens* (paralectotype), (10) *S. myrmecocephalus* (holotype), (11) *S. obscuripennis* (lectotype), (12) *S. ooderes* (holotype), (13) *S. oviceps* (lectotype), (14) *S. ruficollis* (holotype), (15) *S. tahitiensis* (holotype), (16) *S. testaceipes* (paralectotype of *S. gracilis* Oke). Scale bar = 1 mm.

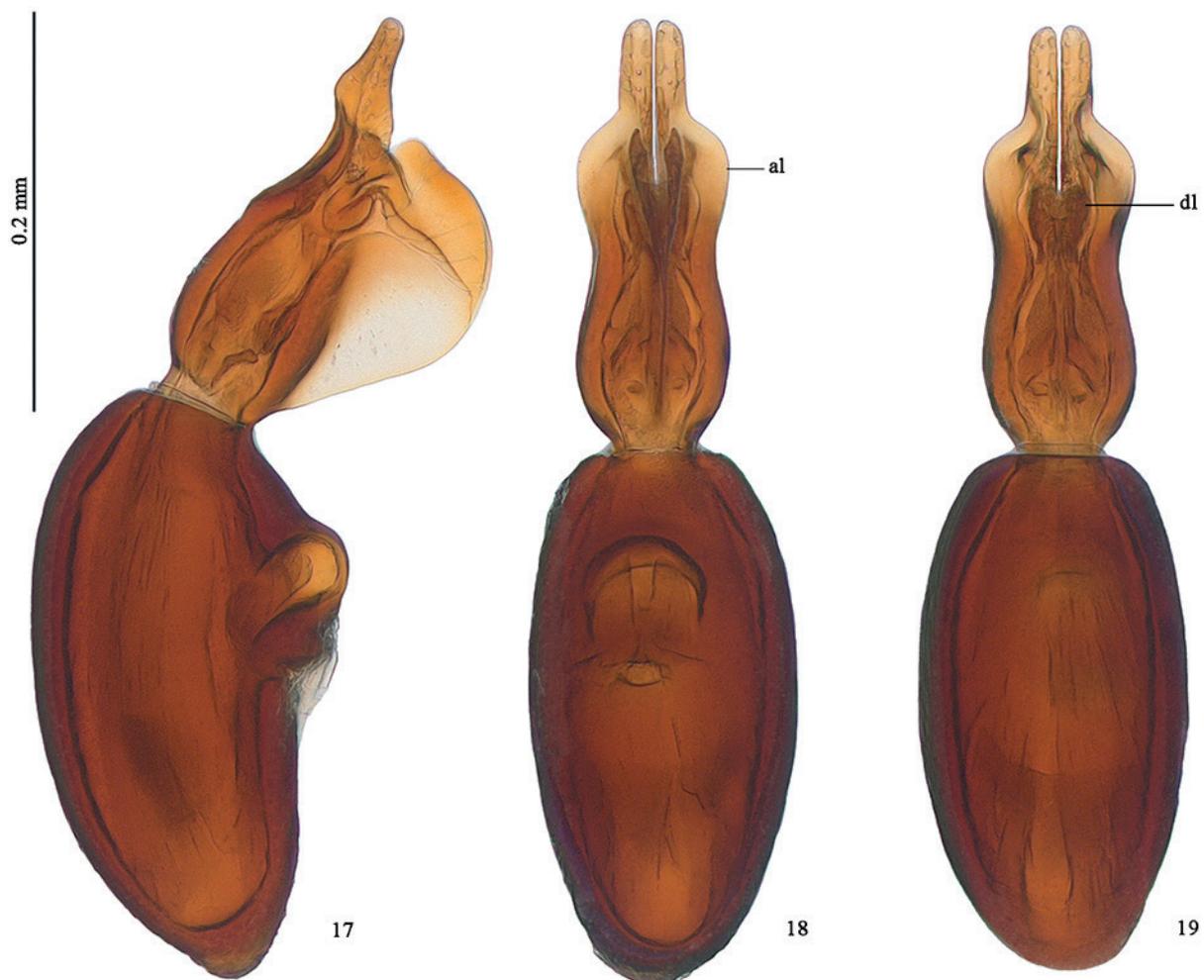
*Scopaeus* (s. str.) *apterus* Cameron, 1950  
(Figures 2, 17–19, 56, 71, 84, 97)

*Scopaeus* (*Polyodontus*) *apterus* Cameron, 1950: 23.

**Diagnosis.** Total length 2.4–2.5 (Ø 2.5) mm, forebody length 1.3–1.4 (Ø 1.4) mm. Microphthalmous, flightless species with unicolorous light reddish brown body and yellowish brown appendages. Body surface shiny; forebody punctation conspicuously coarse, but shallow and not dense, denser towards lateral thirds of head only; punctation of abdomen not dense as well, but very fine; microreticulation of body surface also shallow except for more densely microreticulate, less shiny clypeus. Head subtrapezoidal, 1.09–1.13 (Ø 1.11) times as long as wide, across notably widened tempora 1.08–1.11 (Ø 1.1) times as wide as across minute eyes, which are 0.2–0.23 (Ø 0.23) times as long as tempora only, and with strongly convex posterior angles and strongly concave posterior margin. Elytra very short,

at suture 0.58–0.63 (Ø 0.6) times as long as pronotum only. Flightless judging from shallow humeral angles and absent membranous fringe of posterior margin of abdominal tergite VII; membranous wings not examined. Median denticles of labrum pointed; lateral denticles strongly reduced to obtuse angle. Antennae short with transverse terminal segments; segments 8–10 only 0.6 times as long as wide. Protarsomeres 1–4 dilated, about twice as wide as long, in females feebly narrower. Mesotibiae 5.3–6.2 times as long as wide.

**Male:** Abdominal sternite VIII with very short, triangular emargination in median third of posterior margin, occupying about distal tenth of sternite length only (Fig. 56). Aedeagus (Figs 17–19) reddish brown owing to thick, strongly sclerotized walls particularly of phallobase, strongly waist-like constricted between phallobase and distal portion; apical lobes in proximal half convexly widened laterally and strongly tapered towards parallel, narrow apical half with round tips, in lateral view (Fig. 17) in proximal half with shallow,



**Figures 17–19.** *Scopaeus apterus*: Aedeagus in (17) lateral, (18) ventral, (19) dorsal view (Great King Island). Abbreviations: **al** – apical lobe, **dl** – dorsal lobe.

concave dorsal emargination and remarkable, almost semicircular ventral extension lengthened towards distal end of phallobase; dorsal lobe very short and parallel with broad, slightly emarginate apex; lateral lobes absent.

**Female:** Dorsal apical emargination of laterotergite IX shallow, without tooth-like or angled proximal delimitation (Fig. 71). Lateral gonocoxal plate with relatively slender, somewhat laterally curved apex; central field with wide proximal end and complete proximal margin, about six times as long as wide (Fig. 84). Sperm pump with long distal portion with evenly curved, somewhat dilated end; chamber very short, hyaline towards distal portion and with short process; proximal portion of spermathecal duct very thin, hyaline (Fig. 97).

**Type specimens examined.** Holotype ♂, New Zealand, Three Kings Island: Great King Island, 06.10.1948; labelled 'Gr. Kings Is., Three Kings Is., off N. Coast, N.Z.' (handwritten), 'Coll. E.G. Turbott. 6-10-48.' (same handwriting), 'leaf-mould' (same handwriting), 'Three Kings Is. N. of North I. New Zealand Auckland Museum' (printed), 'Scopaeus apterus Cam. TYPE' (handwritten by Cameron, 'TYPE' in red letters), 'AMNZ 21846 AUCKLAND MUSEUM NEW ZEALAND' (AMNZ). Paratype ♂, same kind of locality and collector labels with same data and handwriting as holotype, but with additional labels 'Scopaeus apterus Cam. COTYPE' (handwritten by Cameron, 'COTYPE' in red letters), 'Co-Type' (round, printed label with yellow margin), 'M. Cameron. Bequest. B. M. 1955-147.' (printed) (NHML).

Additional material examined (7 specimens). 2 ♂, 2 ♀ (NZAC), similar kind of locality and collector labels with same data and handwriting as type specimens, but with additional label 'A. E. Brookes Collection' (printed); three specimens (two of them mounted on same card) with additional label 'Paratype[s]' (handwritten with red underlining); one specimen with additional label 'taken from leaf-mould by A. E. Brookes' (handwritten). 2 ♂, 1 ♀ (NHML, mounted on same card), similar kind of locality and collector labels with same data and handwriting as type specimens, but with additional labels 'taken from leaf-mould by A. E. Brookes' (handwritten, same label like in specimens from NZAC), 'Paratypes' (handwritten with red underlining, same label like in specimens from NZAC), 'Paratype' (round, printed label with yellow margin).

The description of *Scopaeus apterus* lacks information on the number of specimens examined. In the introduction to his publication on new staphylinids from New Zealand, Cameron (1950: 23) states, however, that 'The types of the species ... are in the

Auckland Museum, New Zealand. Co-types are in my collection. They were collected by Mr. Turbott of the Auckland Museum.' Thus, Cameron designated a holotype by original designation [ICZN 1999: Article 73.1.1.]. Photographs of this specimen and its labels are presented in the online collection database of AMNZ, where it is preserved. Judging from the label data, which agree with the original description, and the typical handwritten type label of Cameron, which concurs with the example of his handwriting in Horn et al. (1990: 477), the specimen at AMNZ doubtlessly is the holotype of *S. apterus*. I also examined a male paratype preserved at NHML with the same handwritten locality and collector labels as the holotype and the label 'Scopaeus apterus Cam. COTYPE' handwritten by Cameron. This specimen went to NHML in 1954 with the Staphylinidae collection of Cameron (see Horn et al. 1990: 65). Both holotype and paratype were collected by Turbott in the type locality Great King Island on 6<sup>th</sup> October 1948. I attached a paratype label to the respective specimen.

Holotype and paratype are part of a larger series of *S. apterus*, which was collected in the type locality on the same day by Turbott and Brookes and is today distributed among NZAC (2 ♂, 2 ♀), NHML (2 ♂, 1 ♀), and AMNZ (1 specimen; I have seen only a photograph of its labels). Even though these specimens bear identical or similar locality and collector labels in the same handwriting as the two type specimens, there is strong evidence that they were not examined by Cameron and therefore are not paratypes. None of them bears Cameron's characteristic type label like the holotype and the paratype. The paratype labels which most of these specimens bear certainly were attached subsequently by either Turbott or Brookes, because Cameron never used the term 'paratype', and the handwriting of these labels is not Cameron's, but concurs with the handwriting of the locality and collector labels. Moreover, Cameron (1950: 23) did not state that 'Co-types' are preserved in any other collection except for his own, which without exception was given to NHML (Horn et al. 1990: 65). The specimens preserved at NZAC and AMNZ thus cannot be paratypes just like the three specimens at NHML, which probably did not go to NHML with Cameron's collection, because they do not bear the label 'M. Cameron. Bequest. B. M. ...', which collection personnel of NHML attached to the paratype. They certainly were given to NHML at a later time.

**Distribution.** *Scopaeus apterus* is hitherto known only from the type locality Great King Island at the northern cape of the north island of New Zealand at about 34°09'S, 172°08'E.

*Scopaeus* (s. str.) *blackburni* Bernhauer & Schubert, 1912

(Figures 3, 72, 85, 98)

*Scopaeus femoralis* Blackburn, 1892: 22; primary homonym of *S. femoralis* Sharp, 1887: 795.

*Scopaeus blackburni* Bernhauer & Schubert, 1912: 246; replacement name.

**Diagnosis.** Total length 3.6 mm, forebody length 2.1 mm. Body including appendages unicolorous light reddish brown except for black eyes and feebly darker median antennal segments. Body surface shiny with superficial microreticulation; punctation distinct, densely arranged on head, less dense on pronotum, coarser but shallow on elytra, very fine on abdomen. Head oval, 1.17 times as long as wide, widest across relatively large eyes 0.56 times as long as tempora, across tempora 0.99 times as wide as across eyes only; tempora, starting from posterior margin of eyes, feebly tapering towards strongly convex posterior angles; posterior margin slightly convex; eyes. Elytra relatively short, 0.9 times as long as pronotum. Presumably capable of flight with well developed humeral angles, well developed metathoracic wings, and membranous fringe of abdominal tergite VII. Denticles of labrum short, but pointed; median denticles feebly longer than lateral denticles. Antennal segments 8 and 9 as long as wide, segment 10 somewhat transverse, 0.9 times as long as wide. Protarsomeres 1–4 dilated, about twice as wide as long. Mesotibia narrow, 7.4 times as long as wide.

**Male** unknown.

**Female:** Apex of laterotergite IX with deep dorsal and strong ventral emargination; tip strongly caved dorsad (Fig. 72). Central field of lateral gonocoxal plate about 9 times as long as wide, with acute proximal end (Fig. 85). Distal and proximal portion of sperm pump of same length and not widened towards ends; chamber strongly sclerotized; proximal, sclerotized portion of spermathecal duct gradually less sclerotized and hyaline for most of length, about 2.5 times as long as sperm pump only (Fig. 98).

**Type specimens examined.** Lectotype ♀, Australia, New South Wales: Blue Mountains; labelled 'Australia. Blackburn Coll. B. M. 1910-236.' (printed), 'Type' (round label with red margin), and 'Scopaeus femoralis, Blackb.' (handwritten); **here designated** (NHML).

In the description of *Scopaeus femoralis*, Blackburn (1892: 22) neither designated a holotype nor communicated the number of specimens according to which he described the species. Thus, a specimen at NHML, to where the type specimens of Thomas Blackburn were given (Horn et al. 1990: 42), must be looked upon as a syntype. It doubtlessly is a type specimen, because 'T' is written

on the card the specimen is mounted on and its label 'Scopaeus femoralis, Blackb.' perfectly matches the example of Blackburn's handwriting in Horn et al. (1990: 540). As the existence of additional, non-conspecific syntypes cannot be excluded, I herewith designate and label this specimen as the lectotype to stabilize the name *Scopaeus femoralis* Blackburn, 1892.

**Distribution.** *Scopaeus blackburni* is only known from the Blue Mountains west of Sydney, New South Wales, but Blackburn (1892: 22) did not publish the exact type locality.

**Comparative note.** *Scopaeus blackburni* resembles the West Australian *S. ooderes* Lea as regards body size, shape, and coloration, most of all the oval head shape (see diagnosis below). *Scopaeus ooderes* differs, however, at first sight by the conspicuously coarse, close punctation of the forebody surface. Females can easily be distinguished by the wider apex and the angled delimited apico-dorsal emargination of laterotergite IX (Fig. 81), wider lateral gonocoxal plates with round proximal end of the central field, and the larger sperm pump with largely hyaline chamber and missing process of the proximal portion (Fig. 107).

*Scopaeus* (s. str.) *ctenocryptus* Lea, 1923

(Figures 4, 20–22, 60, 73, 86, 99)

*Scopaeus ctenocryptus* Lea, 1923: 26.

**Diagnosis.** Total length 3.6–4.3 (Ø 3.9) mm, forebody length 2.2–2.4 (Ø 2.3) mm. Remarkably slender species with long appendages. Body blackish brown, except for dark reddish brown transverse anterior furrow of abdominal segments; appendages lighter brown; antennae increasingly lighter from medium brown segment 1 towards light brown segment 11, but segments 3–6 with ring-like, blackish, median marking; maxillary palpi light brown with penultimate segment slightly darker; legs with femora medium brown and tibiae and tarsi yellowish brown. Body surface shiny due to extraordinarily fine, not very dense punctation and lack of microreticulation. Head elongate, 1.14–1.2 (Ø 1.18) times as long as wide, widest across large, prominent eyes 0.69–0.86 (Ø 0.77) times as long as tempora, across tempora 0.91–0.95 (Ø 0.92) times as wide as across eyes only; tempora right posterior of eyes strongly, evenly, and convexly tapering towards conspicuously narrow posterior margin of head not wider than neck. Pronotum notably narrower than head and elytra. Elytra at suture 1.01–1.07 (Ø 1.03) times as long as pronotum. Capable of flight with distinct humeral angles and membranous fringe of posterior margin of abdominal tergite VII; membranous wings of type specimens not

examined. Median denticles of labrum longer than lateral denticles. Antennal segments considerably longer than in most *Scopaeus*; segment 1: 2.9, segment 2: 1.8, segment 3: 2.8, segment 4: 2.1, segment 5: 2.2, segment 6: 2.0, segment 7: 1.9, segment 8: 1.7, segment 9: 1.4, segment 10: 1.3, and segment 11: 1.9 times as long as wide. Protarsomeres 1–4 not dilated, about quadrate. Mesotibia slender, 6.2–7.5 ( $\bar{\text{O}}$  6.9) times as long as wide.

**Male:** Abdominal sternite VIII (Fig. 60) with extremely short and narrow triangular emargination of posterior margin occupying twelfth of sternite length only. Aedeagus (Figs 20–22) with distinct waist-like constriction of sclerotized ring of phallobasis and short distal lobes, distal of constriction broad rectangular in lateral view, but in dorsal and ventral view convex laterally and strongly tapered towards parallel apical lobes forming obtuse, triangular apex; apical lobes and dorsal lobe weakly sclerotized, gradually hyaline towards ends; dorsal lobe triangular in dorsal view; flagellum stout, as long as apical lobes, situated at dorsal margin of apical lobes and evenly curved ventrad; ventral process of aedeagus connected with dorsal endophallic structure by strongly sclerotized bridge and with dorsad curved apical end, in ventral view broad and widened towards in middle

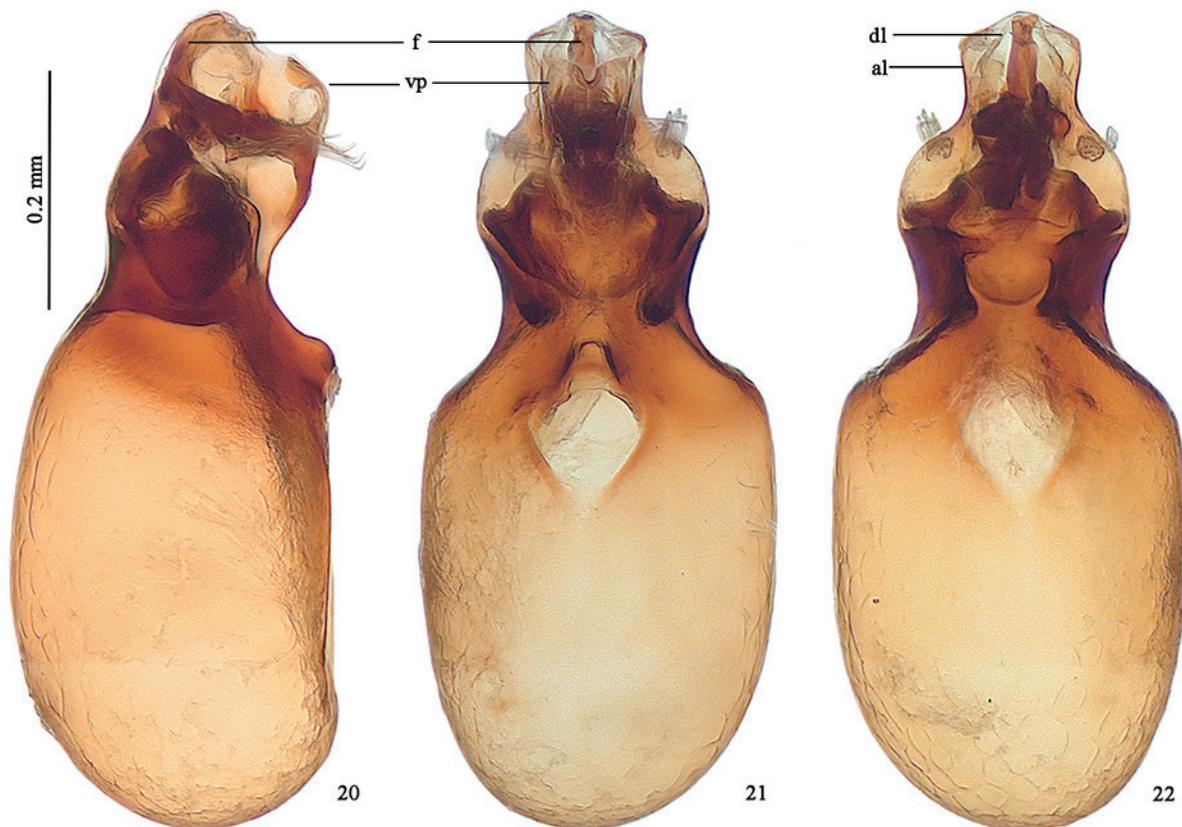
deeply, narrowly emarginate apical margin; lateral lobes absent, each marked by group of setae.

**Female:** Laterotergite IX with deep dorso-apical emargination delimited by distinct, sharp tooth (Fig. 73). Lateral gonocoxal plate broad; central field about six times as long as wide with acute posterior end (Fig. 86). Sperm pump with narrow portions; chamber completely sclerotized with very long process; proximal, sclerotized portion of spermathecal duct weakly sclerotized; distal, hyaline portion of spermathecal duct thick, wider than proximal portion (Fig. 99).

**Bionomics.** According to the label data of examined specimens, *Scopaeus ctenocryptus* was repeatedly collected at light.

**Type specimens examined.** Lectotype ♂, Australia, Queensland: Mulgrave River, leg. Hacker; here designated (SAMA). Paralectotype ♀, same data as lectotype (SAMA).

In the description of *Scopaeus ctenocryptus*, Lea (1923: 26) neither published the number of type specimens nor did he fix a holotype. As the existence of additional, non-conspecific syntypes cannot be excluded, I designate the male syntype as the lectotype to stabilize the name *ctenocryptus* Lea, 1923. Lea had already emphasized the



**Figures 20–22.** *Scopaeus ctenocryptus*: Aedeagus in (20) lateral, (21) ventral, (22) dorsal view (lectotype). Abbreviations: **al** – apical lobe, **dl** – dorsal lobe, **f** – flagellum, **vp** – ventral process.

same specimen by a handwritten '♀ TY', but he mistook it as a female and consequently believed to describe *S. ctenocryptus* according to females only (Lea 1923: 26). I attached lectotype and paralectotype labels to the respective specimens.

**Additional material examined** (11 specimens, Australia). **Northern Territory:** Darwin: Fogg Dam, 30.08.1996, leg. Kiener (MFNB); 8 km E Mt Cahill: Nourlangie Creek (12°52'S 132°47'E), 27.10.1972, leg. Britton (ANIC); Daly River, 28.06.1972, leg. Head (SAMA). **Queensland:** Cairns, leg. Hacker (SDEI); Cardstone, 30.12.1965–16.01.1966, leg. Hyde (ANIC); Kuranda: Barron Falls, 12.12.1964, leg. Brooks (ANIC).

**Distribution.** *Scopaeus ctenocryptus* is widespread in tropical northern Australia. The species has been collected from the Daly and Mulgrave rivers near Darwin in Northern Territory in the west as far east as the coast of Queensland, where it was found as far south as Cardstone at about 17°50'S, 145°42'E.

*Scopaeus* (s. str.) *digitalis* Fauvel, 1878  
(Figures 5, 74, 87, 100)

*Scopaeus digitalis* Fauvel, 1878: 515.

**Diagnosis.** Total length 3.5 mm, forebody length 1.9 mm. Body unicolorous black; tip of abdomen, mouth parts, femora, penultimate segment of maxillary palpi, and scapus dark brown; tibiae, tarsi, base of maxillary palpi, and antennae medium brown; antennal segments gradually lighter towards light brown segment 11. Forebody surface densely punctured; head and elytra without microreticulation, thus shiny; pronotum and abdomen superficially microreticulate, less shiny. Head subquadrate, 1.16 times as long as wide, across eyes as wide as across tempora, with strongly convex posterior angles and straight posterior margin; eyes large, 0.63 times as long as tempora. Elytra relatively long, 1.09 times as long as pronotum. Presumably capable of flight with well developed humeral angles and membranous fringe of posterior margin of tergite VIII; membranous wings not examined. Median denticles of labrum pointed; lateral denticles broad triangular with obtuse apex, slightly shorter than median denticles. Antennal segments 9 and 10 about as long as wide; segment 10 transverse, 0.8 times as long as wide. Protarsomeres 1–4 not much dilated, less than twice as wide as long. Mesotibiae slender, 6.4 times as long as wide.

**Male** unknown.

**Female:** Laterotergite IX with shallow dorso-apical emargination without tooth-like or angled proximal delimitation (Fig. 74). Lateral gonocoxal plate of holotype

damaged, thus characters not discernible (Fig. 87). Sperm pump with relatively short portions; distal portion narrow; chamber completely sclerotized with strongly dilated process (Fig. 100).

**Type specimens examined.** Holotype ♀, Australia, Victoria; labelled 'Type' (round label with red margin), 'Victoria' (handwritten), 'Sharp Coll. 1905-313.', 'digitalis Fvl.' (handwritten), 'log. Scopaeus digitalis Fauv. Type' (handwritten) (NHML).

Fauvel (1878: 515) described *Scopaeus digitalis* after a single specimen from the collection of David Sharp, large parts of which were given to NHML (Horn et al. 1990: 363), where this holotype by monotypy [ICZN 1999: Article 73.1.1.] is stored. The specimen is doubtlessly identified by its labels, most of all by the label 'digitalis Fvl.' which corresponds to the handwriting example of Fauvel in Horn et al. (1990: 481). I attached a holotype label to the specimen.

**Distribution.** Fauvel (1878: 515) described *Scopaeus digitalis* from Victoria, but did not specify the type locality. Lea (1923: 25) recorded the species also for South and Western Australia and Tasmania, but I have not examined the reference specimens.

*Scopaeus* (s. str.) *dubius* Blackburn, 1891  
(Figures 75, 88, 101)

*Scopaeus dubius* Blackburn, 1891: 73.

**Diagnosis.** Length of abdomen (segments II–VIII): 1.6 mm. Abdomen medium brown with light brown paratergites, gradually lighter towards end. Further exoskeletal characters not available, because forebody and appendages of lectotype missing. Characters according to original description (selection, no verbatim translation): Length 3.4 mm [1 3/5 l.]. Body black with dark reddish antennae, pronotum, elytra, and end of abdomen and brownish yellow legs. Body surface alutaceous with very weak punctation. Head quadrate, wider than oblong pronotum with bi-impressed base and obsolete midline. Elytra wider and a third longer than pronotum. Antennal segments not transverse.

**Male** unknown.

**Female:** Laterotergite IX with shallow apico-dorsal emargination without angled or tooth-shaped delimitation and with broad apex (Fig. 75). Central field of lateral gonocoxal plates about five times as long as wide with subacute proximal end and interrupted proximal margin (Fig. 88). Sperm pump with portions of same length; both portions with round, not much dilated ends; chamber completely sclerotized with broad, stout process (Fig. 101).

**Type specimens examined.** Lectotype ♀, Australia, Victoria: ‘Alpine district’; labelled ‘Australia. Blackburn Coll. B. M. 1910-236.’ (printed), ‘Type’ (round label with red margin), and ‘Scopaeus dubius, Blackb.’ (handwritten); **here designated** (NHML). The lectotype is strongly damaged. All body parts are missing except for the abdomen.

Blackburn (1892: 22) neither designated a holotype nor communicated the number of specimens according to which he described *Scopaeus dubius*. One syntype only is available at the NHML, to where the type specimens of Thomas Blackburn were given (Horn et al. 1990: 42). It represents a type specimen, because ‘T’ is written on the card the specimen is mounted on and its label ‘Scopaeus dubius, Blackb.’ was written by Blackburn himself judging from the handwriting example in Horn et al. (1990: 540). As the existence of additional, non-conspecific syntypes can’t be excluded, I herewith designate and label this specimen as the lectotype to stabilize the name *Scopaeus dubius* Blackburn, 1891.

**Distribution.** Blackburn (1891: 73) described *Scopaeus dubius* from the ‘Alpine District’ of Victoria, the western part of the Great Dividing Range. According to unconfirmed records by Lea (1923: 25), the species is also distributed in New South Wales and Queensland.

**Remarks.** Owing to the poor description of *Scopaeus ruficollis* Fauvel, Blackburn (1891: 72, 73) was not sure, if the specimen the description of *S. dubius* is based on represents that previously named species. He finally decided, however, to name that specimen from Victoria, because *S. ruficollis* was described from Queensland, which is situated considerably further to the north.

It will be difficult in the future to clear the identity of *S. dubius* with the help of the heavily damaged name-bearing specimen. I hesitate, however, to declare *S. dubius* a nomen dubium, because the female genital characters, particularly the sperm pump, might make it possible to assign specimens to this species. The sperm pump often provides species group diagnostic characters only (Frisch et al. 2002: 30), but in view of the allopatric distribution pattern within many monophyletic groups of *Scopaeus*, e.g. the speciose West Palaearctic *S. elegans* group (distribution maps in Frisch 2010: 176, 188), the female genital characters can make it possible to assign specimens from the Great Dividing Range to *S. dubius*.

### *Scopaeus* (s. str.) *filiformis* Wollaston, 1867

*Scopaeus filiformis* Wollaston, 1867: 243; lectotype designated by Frisch (1999: 70).

*Scopaeus tenuis* Eppelsheim, 1885: 128; synonymized by Frisch (1999: 370).

*Scopaeus sutteri* Scheerpeltz, 1957: 297; syn. n.

*Scopaeus schaeuffelei* Scheerpeltz, 1961: 5; synonymized by Frisch (1999: 370).

*Scopaeus* (*Hyposcopaeus*) *schaeuffeli*; Coiffait, 1984: 190 (misspelling).

*Scopaeus richteri* Scheerpeltz, 1961: 5; synonymized by Frisch (1999: 370).

*Scopaeus schremmeri* Scheerpeltz, 1963: 437; synonymized by Frisch (1999: 370).

**Type specimens examined.** *Scopaeus filiformis*: Lectotype ♂, Cape Verde Islands (NHML); paralectotypes, same locality as lectotype: 1 ♂ (NHML), 1 ♂ (ISNB), 1 ♂ (HECO), 7 ♀ (NHML). *Scopaeus sutteri* (NHMB): Indonesia, Nusa Tenggara Timur: Sumba (Sumba-expedition of Bühler & Sutter, NHMB, 1949): Holotype (by original designation, labelled ‘Typus’) ♂, Baing, 30.06.1949. Paratypes (labelled ‘Cotypus’, 5 specimens): 1 ♀, same data as holotype; 1 ♂, Baing, 23.06.1949; 1 ♀, Melolo, 20.06.1949; 1 ♀, Laluku, 04.07.1949; 1 ♀, Waimangura, 22.–24.08.1949.

**Discussion.** The distribution of *Scopaeus filiformis*, the most widespread Palaetropical species of the genus, extends from the Cape Verde Islands across all of the Afrotropical and the Oriental Regions, reaching the southern Palaearctic and the northwestern Australasian Regions (Frisch 1999: 372). As both the exoskeletal and genital characters of the type specimens of *S. sutteri* concur with the characters of *S. filiformis* and the type locality Sumba is situated within the area of distribution of this species, *S. sutteri* is here synonymized with *Scopaeus filiformis*.

Both the illustrations and the description of the aedeagus of *S. sutteri* (Scheerpeltz 1957: 297, 298) are not accurate. Most of all, the author mistook the two lateral groups of setae of the phallobase as needle-shaped parameres. The primary and secondary sexual characters of *S. filiformis* are illustrated in Frisch (1999: 365, 367).

### *Scopaeus* (*Hyperscopaeus*) *flavocastaneus*

Lea, 1923

(Figures 6, 23–25, 59, 76, 89, 104)

*Scopaeus flavocastaneus* Lea, 1923: 28.

**Diagnosis.** Total length 3.80–4.1 mm (Ø 4.0), forebody length 2.2–2.3 (Ø 2.3) mm. Body including appendages yellowish brown except for black eyes; pronotum insignificantly darker than elytra, but head noticeably darker than remaining body, lighter or darker medium brown. Body surface without microreticulation, but extremely fine and densely punctured, thus dull. Head subquadrate, widest across eyes with temples feebly



**Figures 23–28.** *Scopaeus flavocastaneus*: Aedeagus in (23) lateral, (24) ventral, (25) dorsal view (holotype); *S. latebricola*: Aedeagus in (26) lateral, (27) ventral, (28) dorsal view (holotype). Abbreviations: **al** – apical lobe, **dl** – dorsal lobe, **f** – flagellum, **ll** – lateral lobe, **vp** – ventral process, **vpl** – lateral lobe of ventral process.

tapering towards strongly convex posterior angles, across tempora 0.97–0.99 ( $\bar{\phi}$  0.98) times as wide as across eyes only; posterior margin of head dorsally slightly produced posteriad and with minute, black, median denticle; venter of head anterior of neck with broad, shallow emargination in median third of head width being studded with four small, short, black denticles, two outer of which delimiting emargination postero-laterally, two inner of which being situated at either side of neck. Width of head subject to sexual dimorphism: head of male somewhat narrower, 1.18 times as long as wide, head of females wider, 1.06–1.15 times as long as wide. Eyes relatively large, 0.62–0.65 ( $\bar{\phi}$  0.64) times as long as tempora. Presumably capable of flight with well developed metathoracic wings; elytra with well developed humeral angles, at suture 1.0–1.02 ( $\bar{\phi}$  1.01) times as long as pronotum; membranous fringe of posterior margin of abdominal tergite VII present. Median denticles of labrum about twice as long as lateral denticles. Antennae comparatively long; segments 8–10 somewhat prolonged, 1.1–1.2 times as long as wide. Protarsomeres strongly dilated, segments 2–4 in males three times as wide as long, in females feebly narrower. Mesotibiae very slender, 8.5 times as long as wide.

**Male:** Abdominal sternite VIII in about posterior half deeply triangularly emarginate; lateral margins of emargination somewhat convex (Fig. 59). Aedeagus (Figs 23–25) with huge, laterally compressed (lentil-shaped) phallobase; distal lobes short, as long as fourth of phallobase only; asymmetry of phallobase in dorsal and ventral view and atypical dorsad bending of distal lobes obviously individual deformation; set of distal lobes shaped like tip of arrow in dorsal and ventral view; apical lobes hyaline, in dorsal view slender, parallel and evenly tapered towards weakly pointed, ventrad curved apex; flagellum as long as apical lobes, broad and parallel in dorsal view with not much tapered end, in lateral view weakly curved ventrad, thick in proximal half, but evenly narrowed towards tip; aedeagus with conspicuous lobiform ventral process almost reaching apex of hyaline apical lobes; process in lateral view with small, basad pointing ventral tooth, in ventral view triangular with prominent, angled, proximal lateral dilatation at either side and extended in two long, narrow, apico-lateral lobes with wide, almost semicircular apical emargination between them.

**Female:** Laterotergite IX with very shallow dorso-apical emargination without proximal delimitation (Fig. 76). Central field of lateral gonocoxal plates about six times as long as wide, gradually narrowing without proximal margin (Fig. 89). Sperm pump pick-shaped with long, weakly curved, pointed distal portion, in top view strongly dilated towards end; chamber without process, gradually turning into very long, coiled proximal, sclerotized portion of spermathecal duct (Fig. 104).

**Type specimens examined.** Holotype ♂, Australia, New South Wales, Tweed River, leg. Lea (SAMA). Paratypes (3 specimens): 2 ♀, same data as holotype (SAMA); 1 ♂, Australia, Northern Territory: Oenpelli, leg. Cahill, labelled ‘cotype’ (MVMA), not conspecific to the preceding specimens.

Lea (1923: 28) described *Scopaeus flavocastaneus* from an unknown number of specimens from Northern Territory (Oenpelli), Queensland (Cairns District), and New South Wales (Tweed River). However, the author published a specimen with the number ‘I. 12639’ as the ‘Type’ and indicated it by writing this information on the label. This specimen is the holotype by original designation [ICZN 1999: Article 73.1.1.]. I marked the respective specimens by holotype and paratype labels. The male paratype from Oenpelli in the Northern Territory far from the type locality in New South Wales, the ‘cotype’ mentioned in the original description, represents an undescribed species. The specimens from Cairns District were missing in the type loan from SAMA and MVMA.

**Distribution.** *Scopaeus flavocastaneus* is confirmed only for the type locality Tweed River at about 28°41’S, 153°15’E in the very northeast of New South Wales. The existence near Cairns in northern Queensland (Lea 1923: 29) needs confirmation by examination of the reference specimens.

***Scopaeus* (s. str.) *interocularis* Lea, 1912**  
(Figures 7, 77, 90, 102)

*Scopaeus interocularis* Lea, 1912b: 41.

**Diagnosis.** Total length 3.1 mm, forebody length 1.7 mm. Forebody and appendages unicolorous orange brown except for black eyes and short, black median line right posterior of anterior margin of pronotum as long as width of distal end of profemur; abdomen medium brown except for orange brown paratergites, but gradually lighter towards orange brown segments VIII – XI. Body surface relatively finely and densely punctate; forebody shiny without microreticulation; abdomen superficially microreticulate. Head subquadrate, 1.09 times as long as wide, across somewhat widened tempora 1.05 times as wide as across eyes, with strongly convex posterior angles and straight posterior margin. Eye length 0.54 of temporal length. Elytra short, at suture 0.8 times as long pronotum only. Presumably capable of flight, because humeral angles, metathoracic wings, and membranous fringe of posterior margin of abdominal tergite VII present. Median denticles of labrum longer than lateral denticles. Antennae relatively short with penultimate

segments 9 and 10 notably transverse, 0.9 times as long as wide. Protarsomeres strongly dilated, segments 2–4 in females about three times as wide as long. Mesotibia very slim, 8.5 times as long as wide.

**Male** unknown.

**Female:** Laterotergite IX with deep dorso-apical emargination delimited by obtuse angle; apex slender (Fig. 77). Central field of lateral gonocoxal plates very slender, about seven times as long as wide, with indistinct or interrupted proximal margin (Fig. 90). Sperm pump with slender portions; chamber with long, narrow process, in top view strongly dilated towards end (Fig. 102).

**Type specimens examined.** Lectotype ♀, Australia, New South Wales: Sydney, collected from nest of *Iridomyrmex* spec. (Hymenoptera, Formicidae), leg. Lea; here designated (SAMA).

A lectotype designation to stabilize the name *interocularis* Lea, 1912 is needed, because the description does not reveal whether it is based on the single available syntype only or on more than one specimen. Therefore I designate the available syntype as the lectotype. I labelled it accordingly.

**Distribution.** *Scopaeus interocularis* was described from Sydney and never recorded again.

***Scopaeus* (s. str.) *latebricola* Blackburn, 1888**  
(Figures 8, 26–28, 61, 78, 93, 103)

*Scopaeus latebricola* Blackburn, 1888: 71.

**Diagnosis.** Total length 2.6–3.4 mm (Ø 2.9 mm), forebody length 1.5–1.8 mm (Ø 1.7 mm). Body medium brown to dark brown, usually with somewhat darker head and abdominal segments III–VII; elytra of dark coloured specimens, except for scutellar region, lighter brown than remaining body; appendages light brown; median segments of antennae and penultimate segment of maxillary palpi usually somewhat darker brown, sometimes blackish brown. Body surface very finely microreticulate, thus not much shiny. Head subquadrate, 1.13–1.18 (Ø 1.15) times as long as wide, with parallel tempora and straight posterior margin; across tempora 1.0–1.02 (Ø 1.0) times as long as across large eyes, which are 0.63–0.79 (Ø 0.7) times as long as tempora. Elytra relatively long, 1.0–1.08 (Ø 1.06) times as long as pronotum. Capable of flight with well developed humeral angles, functional metathoracic wings, and membranous fringe of abdominal tergite VII. Median denticles of labrum pointed; lateral denticles shorter, triangular. Penultimate antennal segments somewhat transverse; segments 8 and 9 0.7, segment 10 0.9 times as long as

wide. Protarsomeres 1–4 narrow, as long as wide or feebly wider, never twice as wide as long. Mesotibia 5.7–6.4 times as long as wide.

**Male:** Abdominal sternite VIII with very wide, shallow emargination in about posterior twelfth of sternite length (Fig. 61). Aedeagus (Figs 26–28) with dorso-ventrally compressed, lentil-shaped phallobase and short distal lobes; apical lobes embracing dorsal lobe laterally, in lateral view subrectangular, in dorsal and ventral view triangular; dorsal lobe with short, serrate, strongly dorsad bent apex, in dorsal view deeply divided in two long, rectangular lobes; lateral lobes somewhat prominent, in lateral view broad with one row of setae; flagellum conspicuously short, in ventral view slightly projecting from base of apical lobes.

**Female:** Laterotergite IX with shallow dorso-apical emargination without proximal delimitation and broad apical tip (Fig. 78). Lateral gonocoxal plates with very long distal portion of lateral margin considerably projecting proximal seta of central field proximally; central field gradually narrowing towards acute proximal end without clear proximal margin, about six times as long as wide (Fig. 93). Spermatheca in top view with strongly dilated ends; chamber portion completely sclerotized, with strongly arcuate process and spermathecal duct bent in opposite direction (Fig. 103).

**Type specimens examined.** Holotype ♂, Australia, Queensland: Grange; labelled ‘Australia. Blackburn Coll. B. M. 1910-236.’ (printed), ‘Type’ (round label with red margin), and ‘*Scopaeus latebricola*, Blackb.’ (handwritten) (NHML).

Blackburn (1888: 71) clearly communicated, that the original description of *Scopaeus latebricola* is based on a single specimen only. This holotype by monotypy [ICZN 1999: Article 73.1.2.] is stored at the NHML, to where the type specimens of Thomas Blackburn were given (Horn et al. 1990: 42). It is identified as a type specimen by a ‘T’ written on the card the specimen is mounted on and its label ‘*Scopaeus latebricola*, Blackb.’ which, judging from the handwriting example in Horn et al. (1990: 540), was written by Blackburn himself. I attached a holotype label to this specimen.

**Additional material examined** (120 specimens, Australia): **Australian Capital Territory:** Black Mountains, 29.03.1968, leg. Upton (ANIC). **New South Wales:** Narrabri, 28.12.1959, 25.01.1960, 26.01.1960, leg. Nikitin (MFNB, NHML); N Sydney: Narrabeen, 04.–05.01.1981, leg. Hangay & Vojnits (HNHM); N Sydney: Narrabeen, 27.01.1985, leg. Hangay (MZUF); 102 km N Broken Hill: Fowlers Gap, 15.01.1981, leg. Hangay & Vojnits (HNHM, MFNB); The Morass, 03.10.1988, leg. Hansen (MFNB, ZMUC); Mount Kaputar: Bullawa Creek, 28.–29.11.1984, leg. Hangay (MZUF, MFNB);

Bourke, 12.11.1999, leg. Apel (SDEI); Bourke: Bogan River, leg. Armstrong (NHML); Lake Cargelligo, 11.–12.01.1981, leg. Hangay & Vojnits (HNHM, MFNB); Menindee, Lakes Trust Caravan Park, 23.–26.12.1973, leg. Gross (SAMA). **Northern Territory:** Simpson Desert, 15.12.1974, leg. Marshall (ANIC). **Queensland:** Carnarvon National Park, S Lake Nuga Nuga, 01.1997, leg. Wachtel (Schülke Collection at MFNB); Birdsville, 24.10.1966, leg. Wood (ANIC); S Charleville, 09.05.1973, leg. Upton (ANIC); 21 mi S Miriam Vale (24°38'S 151°34'E), 14.12.1968, leg. Britton & Misko (ANIC); Chinchilla (26°40'S 150°38'E), leg. Lithgow (QMBA). **South Australia:** New Kalamurina: Warburton River, 10.03.1972, leg. Matthews (SAMA); 35 km NNE Billa Kalina: Mudla Bore, 04.12.1974, leg. Harridge (SAMA). **Victoria:** Lake Hattah, 9.–15.03.1969, leg. Anderson (ANIC, MFNB).

**Distribution.** *Scopaeus latebricola* is widely distributed in southeastern Australia and reaches the central deserts. Lea (1923: 25) had already recorded the species for New South Wales, South Australia, and Victoria. Examined specimens were collected as far north as 24°20'S in Queensland (Miriam Vale) and as far west as 138°E in the Simpson Desert and 136°E (Billa Kalina) in South Australia.

**Bionomics.** Judging from the large number of available specimens, *Scopaeus latebricola* is a common species in eastern Australia. According to the label data, most of the examined specimens were collected at light.

*Scopaeus* (s. str.) *moerens* Lea, 1923  
(Figures 9, 10, 29–34, 57, 58, 79, 91, 105)

*Scopaeus moerens* Lea, 1923: 26.

**Diagnosis.** Total length 2.7–2.9 mm ( $\bar{\phi}$  2.7 mm), forebody length 1.5–1.6 ( $\bar{\phi}$  1.5) mm. Unicolorous black or blackish brown species with dark brown antennae, maxillary palpi, and legs except for medium brown tarsi. Body surface mat, finely and densely punctate with clear, somewhat variable microreticulation. Head elongate, 1.18–1.23 ( $\bar{\phi}$  1.2) times as long as wide, across insignificantly widened tempora 1.02–1.04 ( $\bar{\phi}$  1.02) times as wide as across eyes only, and with strongly convex posterior angles and straight posterior margin. Eyes 0.55–0.63 ( $\bar{\phi}$  0.59) times as long as tempora. Presumably capable of flight with fully developed metathoracic wings and membranous fringe of posterior margin of abdominal tergite VII; elytra long and with distinct humeral angles, at suture 1.05–1.14 ( $\bar{\phi}$  1.09) times longer than pronotum. Antennomeres 8–10 slightly transverse, 0.9 times as long as wide. Protarsomeres 2–4 dilated, about twice as wide

as long. Mesotibia slender, 5.4–6.3 ( $\bar{\phi}$  5.8) times as long as wide.

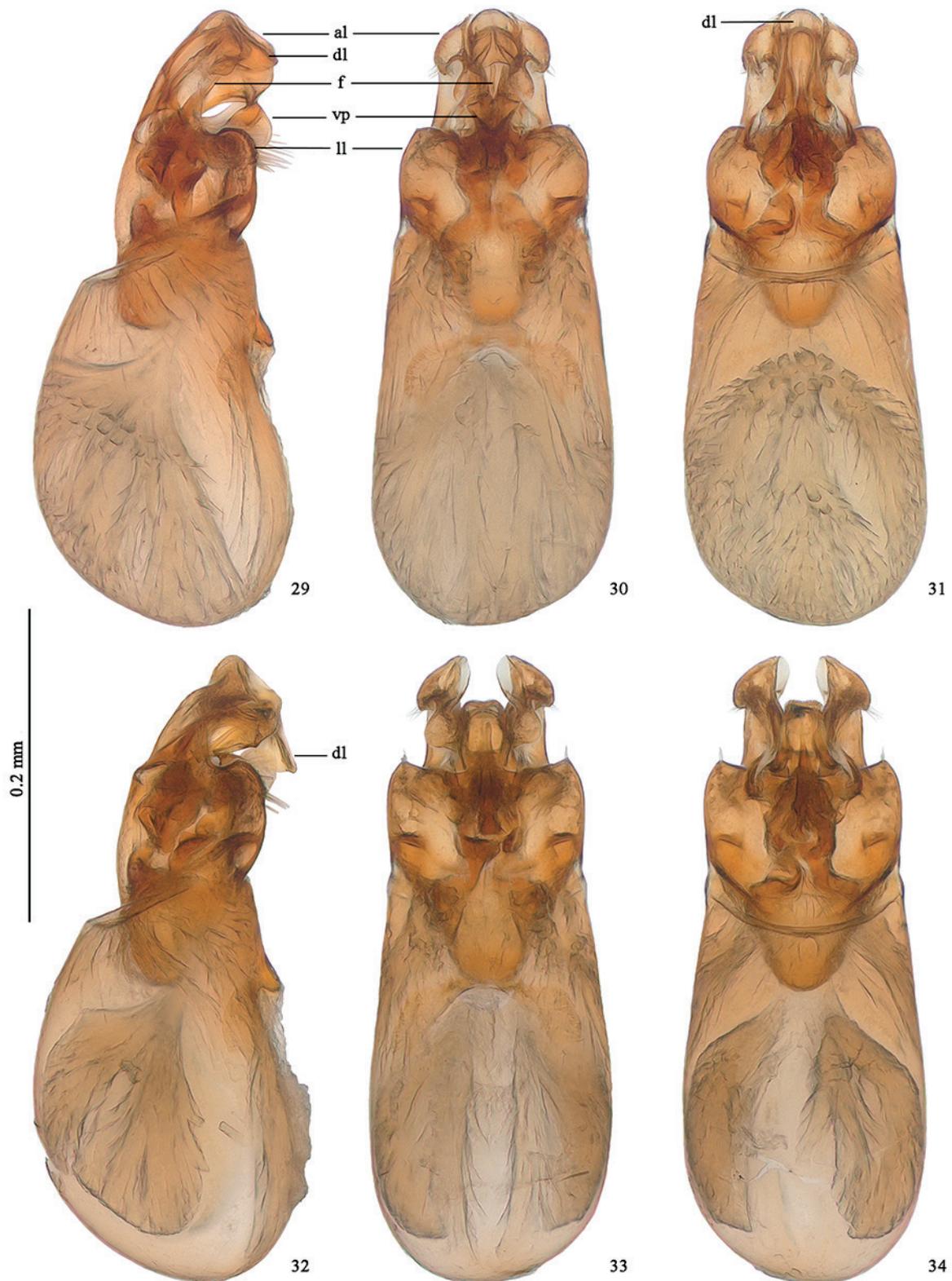
**Male:** Median denticles of labrum remarkably long, stiletto-shaped; lateral denticles absent. Sternite VIII with deep, wide, almost semicircular emargination in good posterior third of sternite length (Figs 57, 58). Aedeagus (Figs 29–31) with about right-angled ventrad curved apical lobes, each in apical half with convex, lateral projection bearing group of short setae at ventro-proximal end; in ventral view, apical lobes proximal of lateral projections with parallel dorsolateral margins, but S-shaped ventral margins; dorsal lobe as long as apical lobes, at apex angled curved ventrad with straight apical margin, reaching ventral margin of apical lobes, in dorsal view with wide, round apex; lateral lobes prominent, each bearing group of setae; flagellum slender, about half as long as apical lobes; ventral process broad with convex ventral margin and apex curved distad between ventro-proximal ends of apical lobes; if dorsal lobe folded ventrad, straight apical margin of dorsal lobe visible (Fig. 32) and apical lobes somewhat gaped open (Figs 33, 34).

**Female:** Labrum four-dentate with median denticles somewhat longer than lateral denticles. Laterotergite IX with dorso-apical emargination delimited by obtuse-angled projection of dorsal margin (Fig. 79). Central field of lateral gonocoxal plates about five times as long as wide, not much narrowed towards broad proximal end with indistinct margin (Fig. 91). Spermatheca with long distal portion with strongly dilated end and conspicuously lengthened, straight chamber with short, dilated process; distal, hyaline portion of spermathecal duct leaving sperm pump at chamber side (Fig. 105).

**Remark.** *Scopaeus moerens* shows a remarkable sexual dimorphism, which is previously unknown in this paederine genus. The shape of the labrum of the male and female syntypes differs considerably. While the females have the typical four-dentate labrum of *Scopaeus*, the labrum of the males has long, stiletto-shaped median denticles and completely reduced lateral denticles.

**Type specimens examined.** Lectotype ♂, Australia, Western Australia: Darling Range, leg. Lea; **here designated** (SAMA). Paralectotypes: 1 ♂, 4 ♀, same data as lectotype (SAMA).

*Scopaeus moerens* was described from an unknown number of specimens from Newcastle, Darling Ranges, and Pinjarrah in Western Australia. Lea (1923: 26) did not explicitly distinguish one of them as the 'type'. A lectotype designation to stabilize the name *moerens* Lea, 1923 is required, because the existence of non-conspecific syntypes can't be excluded (the type loan of SAMA did not include syntypes from Newcastle and Pinjarrah). Consequently, I designate a male specimen as the lectotype and labelled it accordingly as well as the



**Figures 29–34.** *Scopaeus moerens*: Aedeagus in (29, 32) lateral, (30, 33) ventral, (31, 34) dorsal view (lectotype); (29–31): lectotype, (32–34): Western Australia: Rockingham, aedeagus with ventrad bent dorsal lobe. Abbreviations: al – apical lobes, dl – dorsal lobe, f – flagellum, ll – lateral lobes, vp – ventral process.

five paralectotypes. The lectotype lacks the tarsi of the left metathoracic leg.

**Additional material examined** (1 specimen). Australia, **Western Australia**: Rockingham, 07.1954, leg. Demarz (MFNB).

**Distribution.** *Scopaeus moerens* is hitherto known only from the Darling Range at the southwestern coast of Western Australia.

*Scopaeus* (s. str.) *myrmecocephalus* Lea, 1927  
(Figures 10, 80, 92, 106)

*Scopaeus myrmecocephalus* Lea, 1927: 274.

**Diagnosis.** Total length 2.7 mm, forebody length 1.5 mm. Forebody orange brown except for black eyes and short, black median line right posterior of anterior margin of pronotum as long as width of distal end of profemur; abdominal segments III–VII medium brown except for orange brown paratergites, but segment VII gradually lighter towards orange brown segments VIII–XI; antennae, maxillary palpi, and legs unicolorous yellowish brown. Forebody surface without microreticulation, but relatively dull due to distinct and dense punctation; average puncture interstices on pronotum as wide as puncture diameters, on head and elytra notably narrower than puncture diameters; punctation of elytra somewhat irregular. Head strongly trapezoidal, as long as wide, across notably widened tempora 1.07 times as wide as across eyes, and with strongly concave posterior margin. Eyes 0.54 times as long as tempora. Lateral margins of pronotum in latero-anteriad facing anterior third notably concave, forming pronounced angel between concave anterior third and convex posterior two-thirds of lateral margins. Elytra at suture 0.94 times as long as pronotum. Probably capable of flight judging from well developed humeral angles and presence of membranous posterior fringe of abdominal tergite VII; metathoracic wings not examined. Denticles of labrum reduced; median denticles vestigial; lateral denticles absent. Antennae short with penultimate segments 8–10 transversal, 0.9 times as long as wide. Protarsomeres strongly dilated, segments 2–4 three times as wide as long. Mesotibiae very slender (measurements not available due to ventrally crossed legs of holotype).

**Male** unknown.

**Female:** Laterotergite IX with dorso-apical emargination delimited by right-angled, tooth-like projection (Fig. 80). Lateral gonocoxal plates with extraordinarily short distal lateral margin; main setae situated close together (Fig. 92). Chamber of sperm pump completely hyaline, without process, and strongly curved downward, where narrow, in top view dilated distal portion inserts; distal, hyaline

portion of spermathecal duct inserted on top of chamber (Fig. 106).

**Type specimens examined.** Holotype ♀, Fiji, ‘Yanuca Lili’ [Yanuca Island?] (SAMA).

The type specimen of *Scopaeus myrmecocephalus* is a holotype by original designation [ICZN 1999: Article 73.1.1.], because in the introduction to his contribution on Staphylinidae from Fiji, Lea (1927: 273) wrote that all species descriptions in this work were made by a single specimen only. In the following description of *S. myrmecocephalus*, the author moreover called the specimen as ‘Type’ with the type-number ‘I. 16460’. Both ‘TYPE’ (in red letters) and the number are written on the handwritten identification label of the available type specimen. Consequently, I added a holotype label.

**Distribution.** Lea (1927: 274) described *Scopaeus myrmecocephalus* from Yanuca Lili, probably Yanuca Island off the northern coast of Viti Levu at 17°23’S, 177°44’E. Further records were not published.

*Scopaeus* (s. str.) *obscuripennis* Blackburn, 1891  
(Figures 11, 35–37, 62, 63)

*Scopaeus obscuripennis* Blackburn, 1891: 73.

**Diagnosis.** Total length 3.4–3.6 mm (Ø 3.5 mm), forebody length 1.8–2.1 mm (Ø 1.9 mm). Primary body colour reddish medium brown or dark brown; elytra gradually lighter towards yellowish brown posterior margin; abdominal segments III–VII darker brown than forebody with blackish shade, but segment VII gradually lighter towards yellowish brown segments VIII–XI; antennae, maxillary palpi, and legs unicolorous yellowish brown. Head and pronotum with clear punctation not blurred by microreticulation, thus shiny; punctation of elytra coarser and subrugose, elytra thus matter than remaining forebody. Head oblong-ovate, 1.14–1.21 (Ø 1.19) times as long as wide, with widely rounded posterior angles and slightly convex posterior margin, across insignificantly widened tempora 1.01–1.04 (Ø 1.02) times as wide as across eyes 0.49 to 0.56 (Ø 0.52) times as long as tempora. Elytra relatively short, at suture 0.79–0.85 (Ø 0.82) times as long as pronotum. Presumably capable of flight judging from distinct humeral angles of elytra and presence of membranous fringe of posterior margin of abdominal tergite VII; metathoracic wings not examined. Denticles of labrum short; median denticles longer than minute lateral denticles. Antennae relatively long, antennomeres 8–10 approximately 1.1 times as long as wide. Protarsomeres dilated, segments 1–4 twice as wide as long. Mesotibiae slender, 6.1–6.7 times as long as wide.

**Male:** Abdominal sternite VII in median third of posterior margin with shallow emargination with somewhat convex middle, occupying about twelfth of sternite length (Fig. 62). Abdominal sternite VIII in almost posterior half of sternite length with wide, triangular emargination extended in narrow incision (Fig. 63). Aedeagus (Figs 35–37) with long, slender, asymmetrical apical lobes strongly curved ventrad; right apical lobe (in dorsal view) longer and broader than left apical lobe, pointed in dorsal view, in lateral view parallel with dorsal margin at apex almost right-angled curved ventrad; flagellum slender, at end of apical lobes strongly narrowed and filiformly lengthened; dorsal lobe and lateral lobes vestigial.

Genital characters of female paralectotype not illustrated, because conspecificity doubtful.

**Type specimens examined.** Lectotype ♂, Australia, Victoria: Wandiligong, leg. Blackburn; originally labelled ‘Victorian Alps Blackburn’ (printed) and ‘Scopaeus obscuripennis Blackb. Co-type’ (handwritten); **here designated** (SAMA). Paralectotypes (2 specimens): 1 ♂, same locality data and original labels as lectotype (SAMA); 1 ♀ without locality label, but labelled ‘3585

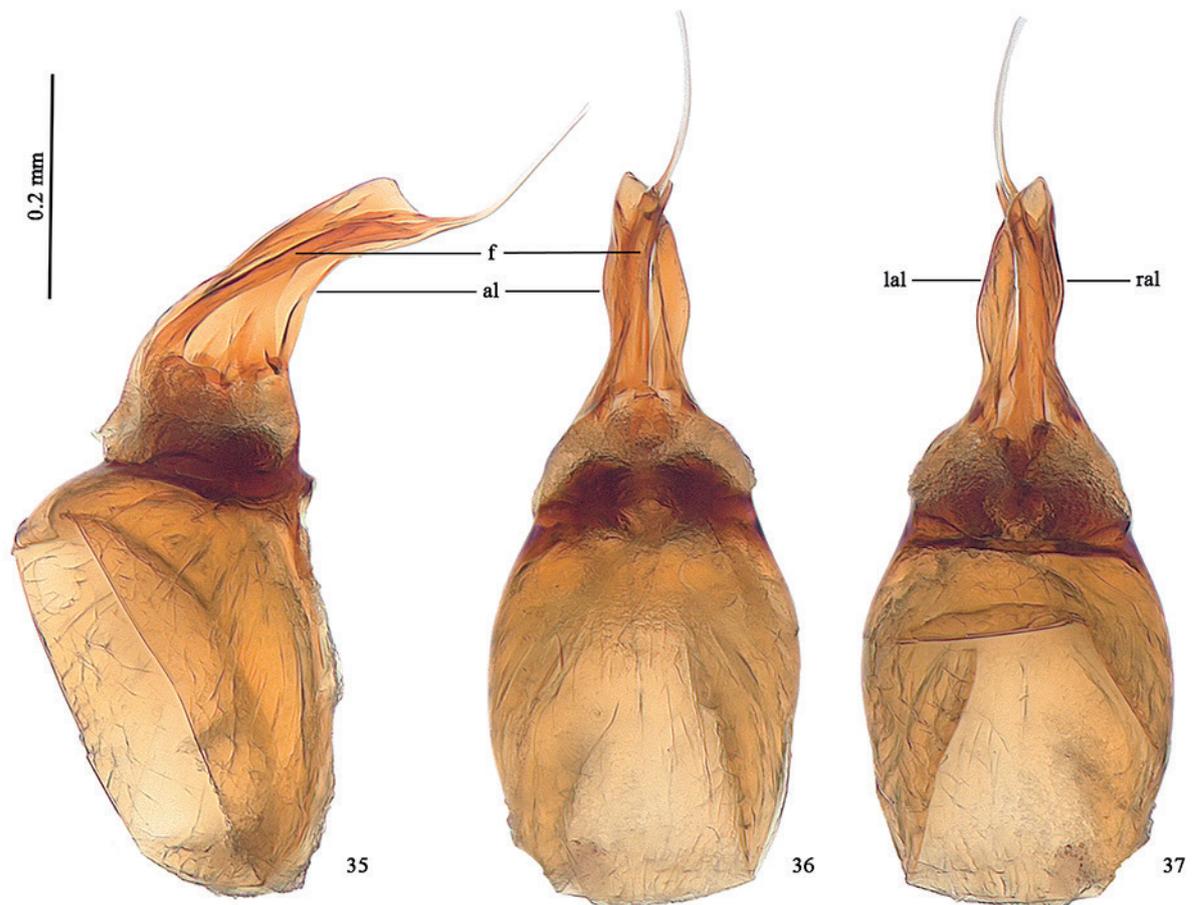
Scopaeus obscuripennis Blackb.’ (handwritten) and ‘Ex-Typis’ (printed in red) (ISNB).

Blackburn (1891: 73) described *Scopaeus obscuripennis* from an unknown number of specimens collected near Wandiligong, but he did not fix a holotype. As the existence of additional, non-conspecific syntypes can’t be excluded, a lectotype designation is needed to fix the name *obscuripennis* Blackburn, 1891. I indicated both the lectotype and the two paralectotypes by corresponding labels.

The female at ISNB without a locality label originates from the Fauvel collection. It certainly is a member of the syntype series, because it is glued on the same sort of hand-cut paper card with the red handwritten number ‘3583 A1’ as are the two type specimens at SAMA.

**Additional material examined** (3 specimens, Australia): **New South Wales:** Illawarra, 04.10.1908, leg. Bryant (NHML). **Queensland:** Paluma: Paluma Dam, 06.08.1982, leg. Peck (ANIC, MFNB).

**Distribution.** *Scopaeus obscuripennis* is widespread in the arboreal regions of eastern Australia. Records have been collected from northern Queensland at 19°00’S,



**Figures 35–37.** *Scopaeus obscuripennis*: Aedeagus in (35) lateral, (36) ventral, (37) dorsal view (lectotype). Abbreviations: **al** – apical lobe, **f** – flagellum, **lal** – left apical lobe, **ral** – right apical lobe.

146°13'E (Paluma) as far southwest as Wandiligong in Victoria at 36°46'S, 146°58'E. The old records from South, Western, and Central Australia by Lea (1923: 25) are in need of confirmation.

***Scopaeus* (s. str.) *ooderes* Lea, 1923**  
(Figures 12, 38–40, 64, 81, 94, 107)

*Scopaeus ooderes* Lea, 1923: 28.

**Diagnosis.** Total length 3.2–4.1 mm (Ø 3.5 mm), forebody length 1.9–2.1 mm (Ø 2.0 mm). Primary body colour reddish brown; forebody except for eyes and antennae unicolorous reddish brown; abdominal segments III–VII medium brown with blackish shade, but segment VII gradually lighter towards yellowish brown abdominal segments VIII–XI; maxillary palpi and legs yellowish brown. Punctuation of body surface conspicuously coarse; punctuation of head uneven, almost rugose or salebrose, made up of deep, densely arranged, but isolated, punctures of variable size; pronotum more evenly and less densely punctate with interstices of punctures about as wide as puncture diameters; punctuation of elytra coarser than punctuation of head and pronotum, as dense as punctuation of pronotum, but shallower and more superficial than punctuation of remaining forebody; punctuation of abdomen very coarse, confluent, and coriaceous. Body surface shiny without microreticulation, but head duller owing to densely arranged punctuation. Head oblong, 1.16–1.24 (Ø 1.2) times longer than wide, across parallel tempora 0.97–1.03 (Ø 1.0) times as wide as across eyes; posterior angles of head widely rounded towards insignificantly convex posterior margin. Eye length 0.44–0.53 (Ø 0.5) of temporal length. Elytra at suture 0.96–1.09 (Ø 1.04) times longer than pronotum. Presumably capable of flight with distinct humeral angles and membranous fringe of posterior margin of abdominal tergite VII; metathoracic wings not examined. Denticles of labrum short; median denticles acute, longer than lateral denticles reduced to right angle. Antennae very short, segments 8–10 notably transverse, 0.8–0.9 times as long as wide. Protarsomeres dilated, segments 2–4 almost three times wider than long. Mesotibiae 5.1–6.4 (Ø 5.8) times longer than wide.

**Male:** Abdominal sternite VIII in almost posterior fourth with short, triangular emargination continued by very narrow, deep incision (Fig. 64). Aedeagus (Figs 38–40) strongly sclerotized with extremely reduced distal lobes; apical lobes testaceous, in lateral view subrectangular with straight apical and ventral margins; dorsal lobe with round end and two long apico-lateral teeth pointing in ventro-proximal direction; flagellum short, about half as long as apical lobes.

**Female:** Laterotergite IX with deep dorso-apical emargination delimited by strong, right-angled tooth; apical tip broad and strongly bent dorsad (Fig. 81). Lateral gonocoxal plates broad with wide, almost parallel central field with round posterior end; central field almost six times as long as wide (Fig. 94). Sperm pump with long, laterally depressed distal portion and distinctly hyaline chamber without process (Fig. 107).

**Type specimens examined.** Holotype ♀, Australia, Western Australia: Donnybrook, leg. Lea (SAMA).

Lea (1923: 28) explicitly stated that he described *Scopaeus ooderes* by a 'unique' specimen only, but he did not call it a type. Consequently, the available type specimen is a holotype by monotypy [ICZN 1999: Article 73.1.2.]. I labelled it accordingly.

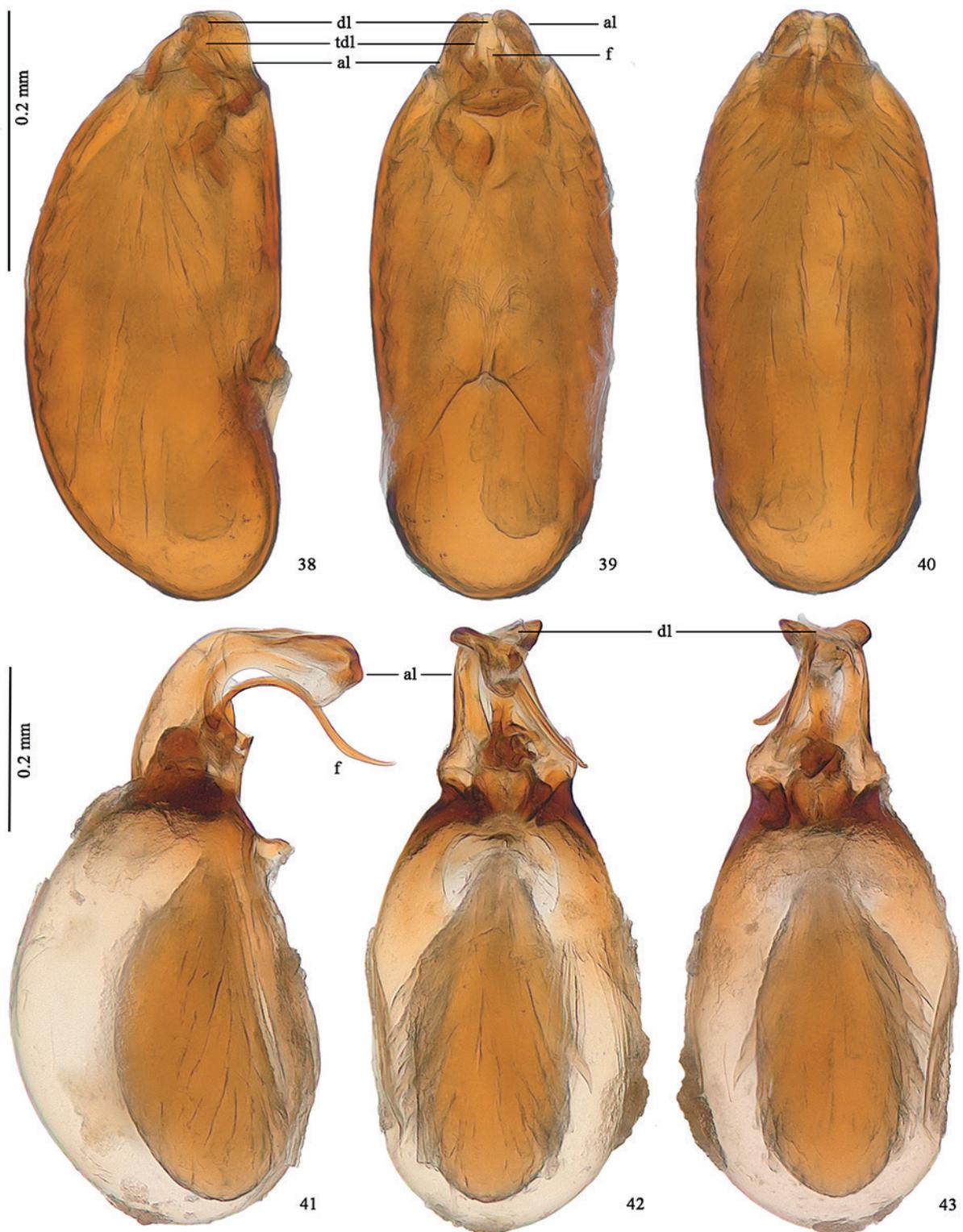
**Additional material examined** (21 specimens, Australia). **Western Australia:** Perth, 12.1953, 10.1954, leg. Demarz (MFNB, NHMB); Pemperton, 12.1954, leg. Demarz (MFNB, NHMB); Walpole: Marri Forest, 250 m, 24.10.1969, leg. Taylor (NHMB); Porongorups Forest, 22.05.1970, leg. Springett (NHMB).

**Distribution.** *Scopaeus ooderes* is most probably endemic to the arboreal southwest of Western Australia. The species is recorded from Perth (32°00'S, 116°00'E) as far southeast as Porongorup (34°39'S, 117°53'E).

***Scopaeus* (s. str.) *oviceps* Bernhauer, 1920**  
(Figures 13, 41–42, 65, 66)

*Scopaeus oviceps* Bernhauer, 1920: 13.

**Diagnosis.** Total length 4.5–4.9 mm (Ø 4.6 mm), forebody length 2.6–2.7 mm (Ø 2.6 mm). Large, slender species with long appendages. Body uniformly medium brown to dark brown except for contrasted pale yellowish brown posterior fifth of elytra and legs; labrum, maxillary palpi, and antennae light brown to medium brown, darker than legs. Body surface, particularly pronotum, very finely punctate and without microreticulation, shiny. Head oblong-oval, 1.19–1.22 times as long as wide, widest across large eyes 0.49–0.63 as long as tempora; behind eyes almost semicircular, evenly rounded towards strongly convex posterior margin. Elytra relatively short, only 0.89–0.98 (Ø 9.3) times as long as pronotum, with well developed humeral angles. Capable of flight with functional metathoracic wings and membranous fringe of abdominal sternite VII. Labrum with short denticles; median denticles triangular; lateral denticles reduced to short, obtuse angle. Antennae very long with elongate segments; segment 8 1.4 times, segment 9 1.3 times, and segment 10 1.2 times as long as wide. Protarsomeres of male strongly



**Figures 38–43.** *Scopaeus ooderes*: Aedeagus in (38) lateral, (39) ventral, (40) dorsal view (Western Australia, Perth); *S. oviceps*: Aedeagus in (41) lateral, (42) ventral, (42) dorsal view (lectotype). Abbreviations: al – apical lobe, dl – dorsal lobe, f – flagellum, tdl – ventral tooth of dorsal lobe.

dilated, segments 2–4 about three times as wide as long. Mesotibiae very slender, 6.7–7.4 ( $\bar{\text{O}}$  7.0) times as long as wide.

**Male:** Abdominal sternite VII in posterior two-thirds with flat, median impression; median third of posterior margin with two semicircular projections studded with long, dark setae; field of setae extended anteriorly (Fig. 65). Abdominal sternite VIII in posterior half with deep impression in median two-thirds at either side delimited by medio-ventrally projecting lamella studded with mediad pointing setae; posterior margin with narrow incision occupying about posterior third of sternite length (Fig. 66). Aedeagus (Figs 41–43) with asymmetrical apical lobes almost semicircularly curved ventrad with lateral, apical extension at either side; dorsal lobe as long as apical lobes, membranous; flagellum considerably longer than apical lobes, thin, semicircularly curved proximo-ventrad with somewhat apicad bent end; lateral lobes vestigial.

**Female** unknown.

**Type specimens examined.** Lectotype ♂, Australia, Queensland: Cape York [10°42'S 142°31'E], leg. Mjöberg; bearing handwritten label 'Scopaeus oviceps Bernh. Typus'; **here designated** (FMNH). Paralectotype ♂, Australia, Queensland, SWW Townsville: Alice River [19°19'S 146°36'E], leg. Mjöberg; bearing handwritten label 'oviceps Bernh Cotypus' (FMNH).

Bernhauer (1920: 13) neither designated a holotype for *Scopaeus oviceps* nor did he communicate the number of specimens he based the description on. Consequently, the two type specimens at FMNH, where the Bernhauer collection is stored (Horn et al. 1990: 37), must be looked upon as syntypes. In order to stabilize the name *Scopaeus oviceps* Bernhauer, 1920, I herewith designate the male syntype from Cape York as the lectotype, and I labelled it accordingly. Bernhauer himself selected the same specimen as the 'Typus', because the respective label matches the example of Bernhauer's handwriting in Horn et al. (1990: 476). This selection remained, however, unpublished in the original description of *S. oviceps*.

**Additional material examined** (3 specimens).

**Northern Territory:** Cooper Creek: 19 km SE of Mt Borradaile (12°06'S, 133°04'E), 03.11.1972, leg. Britton (ANIC); Kakadu: Cahills Crossing: East Alligator River (12°23'S, 132°56'E), 04.11.1972, leg. Britton (ANIC). Queensland: Davies Creek, 1949 (ANIC).

**Distribution.** The distribution of *Scopaeus oviceps* follows the wet tropical north and east of Australia. It was found from Northern Territory at 12°04'S, 132°43'E as far southeast as Townsville (19°19'S 146°36'E) in northern Queensland.

**Bionomics.** *Scopaeus oviceps* was collected at light.

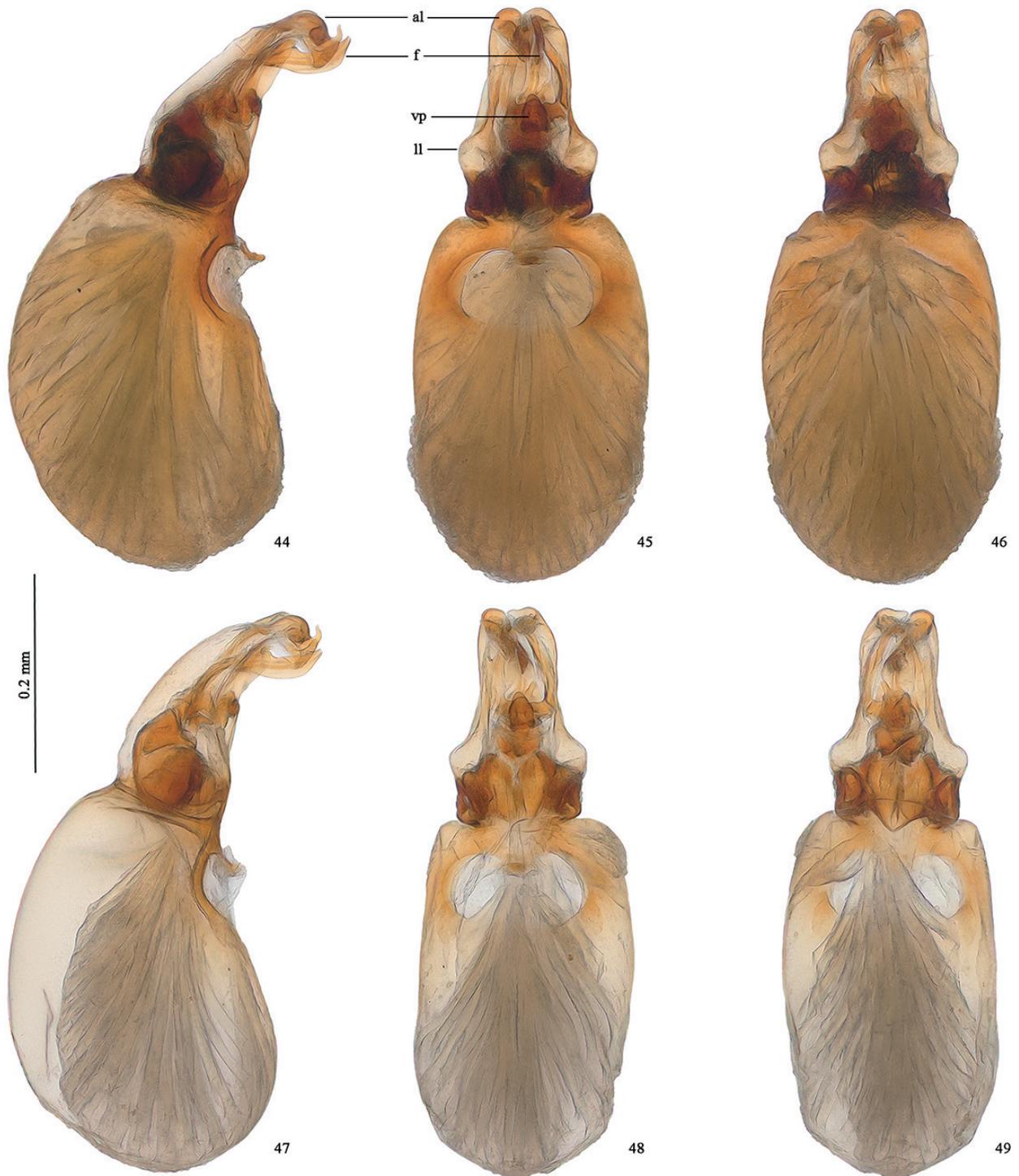
***Scopaeus ruficollis* Fauvel, 1877, stat. nov.**  
(Figures 14, 44–49, 67, 68, 82, 95, 108)

*Scopaeus ruficollis* Fauvel, 1877: 218; synonymized with *Scopaeus ovicollis* (MacLeay, 1873) by Bernhauer & Schubert (1912: 250); here revalidated.

**Diagnosis.** Total length 3.4 mm, forebody length 1.9–2.0 mm ( $\bar{\text{O}}$  1.9 mm). Body medium brown to reddish brown with slightly to distinctly darker brown head, elytra except for yellowish brown posterior fourth, and abdomen; appendages yellowish brown or light brown except for median antennal segments. Body surface shiny with fine and dense punctation, without microreticulation. Head subquadrate, 1.14–1.2 ( $\bar{\text{O}}$  1.15) times as long as wide, across tempora 0.99–1.0 ( $\bar{\text{O}}$  1.0) times as wide as across eyes, with strongly convex posterior angles and straight or insignificantly convex posterior margin; eyes large, 0.65–0.73 ( $\bar{\text{O}}$  0.69) times as long as tempora. Elytra with well developed humeral angles, 1.03–1.04 ( $\bar{\text{O}}$  1.04) times as long as pronotum. Presumably capable of flight with well developed metathoracic wings and membranous fringe of abdominal tergite VII. Denticles of labrum pointed; lateral denticles as long as median denticles. Penultimate antennal segments slightly longer than wide; segment 8 1.2 times, segments 9 and 10 1.1 times as long as wide. Protarsomeres 2–4 dilated, twice as wide as long. Mesotibiae relatively slender, 5.9–6.3 ( $\bar{\text{O}}$  6.2) times as long as wide.

**Male:** Abdominal sternite VII in median third of posterior margin with shallow emargination delimited laterally by short, triangular projections each studded with group of dark setae (Fig. 67). Abdominal sternite VIII in posterior third with wide, triangular emargination with strongly narrowed anterior end and group of long, laterally orientated setae at either side of anterior end of emargination (Fig. 68). Aedeagus (Figs 44–49) with asymmetrical apical lobes with strongly ventro-proximad curved distal portion; in dorsal view right apical lobe extended in thin, somewhat dorsad curved apical tooth with notably ventrad curved tip; left apical lobe with very short, apical denticle only; in dorsal and ventral view, apical lobes subparallel with wide, round apices; dorsal lobe membranous; flagellum broad, about as long as apical lobes, strongly curved ventrad proximal of ventrad curved portion of apical lobes with apicad bent, shortly tapered tip; lateral lobes reduced, but marked by lateral, semicircular projections; ventral process very short, not projecting from apical lobes ventrally, in ventral view triangular.

**Female:** Dorso-apical emargination of laterotergite VII deep, proximally delimited by projecting, obtuse angle (Fig. 82). Central field of lateral gonocoxal plate almost seven times as long as wide, with acute posterior end and



**Figures 44–49.** *Scopaeus ruficollis*: Aedeagus in (44) lateral, (45) ventral, (46) dorsal view (holotype); aedeagus in (47) lateral, (48) ventral, (49) dorsal view (Queensland, Cairns, Redlynch). Abbreviations: **al** – apical lobe, **f** – flagellum, **ll** – lateral lobe, **vp** – ventral process.

indistinct outer margination (Fig. 95). Sperm pump with short, stout portions; chamber completely sclerotized with prominent distal end and short process; proximal, sclerotized portion of spermathecal duct evenly curved upward (Fig. 108).

**Type specimens examined.** *Scopaeus ruficollis*: Holotype ♂, Australia, Queensland: Gayndah; labelled 'Australie Gayndah' and 'ruficollis Fvl.' (both handwritten) (ISNB).

Fauvel (1877: 218) explicitly stated that he described *Scopaeus ruficollis* by 'un seul exemplaire' from Gayndah in Queensland, but he did not call it a type, which is why the available type specimen in the Fauvel collection at ISNB is a holotype by monotypy [ICZN 1999: Article 73.1.2.]. It is undoubtedly indicated as the type specimen by its labels, which are handwritten by Fauvel himself judging from the label example in Horn et al. (1990: 481). I added a holotype label.

**Additional material examined** (2 specimens, Australia): **Queensland**: Cairns, Redlynch, 24.07.1986, leg. Kiener (MFNB).

**Revalidation.** Bernhauer & Schubert (1912: 250) synonymized *Scopaeus ruficollis* with *S. ovicollis* (MacLeay, 1873), originally described in *Stilicus* Berthold, 1827, in the *Catalogus Coleopterorum* without substantiating their decision. They most probably referred to a note of Blackburn (1894: 203), who suspected that both nominal species, which had been described from the same locality Gayndah, represent the same taxon. Blackburn had obtained a specimen of *Scopaeus* from Lea, which he had compared with the type of *Stilicus ovicollis*, which is nowadays lost (see discussion under *Rugilus ovicollis* below). Blackburn had compared this specimen with Fauvel's short description of *S. ruficollis* and found no differences. Two years later, however, Blackburn (1896: 263) changed his mind based on a *Scopaeus* from 'Palm Creek', which he believed to represent *S. ruficollis* and which was different from his example of *S. ovicollis*. Blackburn had, however, not seen both the type of *Scopaeus ruficollis* and *Stilicus ovicollis* and just tried to interpret these names.

In the original description of *Stilicus ovicollis* there is, however, serious evidence that the assignment of this species to *Scopaeus* is incorrect, which is why I exclude the name from *Scopaeus* below. Consequently, *Scopaeus ruficollis* is here revalidated from synonymy with *S. ovicollis*.

**Distribution.** Examined specimens of *Scopaeus ruficollis* originate from the arboreal regions of Queensland from 16°55'S, 145°46'E (Cairns) southward to 25°37'S, 151°36'E (Gayndah). Bernhauer (1920: 13) recorded the species from Laura in northern Queensland (15°34'S, 144°27'E), but I did not see reference specimens.

### *Scopaeus* (s. str.) *sumbaensis* Scheerpeltz, 1957

*Scopaeus sumbaensis* Scheerpeltz, 1957: 293.

*Scopaeus ivani* Frisch, 2003: 678; **syn. n.**

**Type specimens examined.** *Scopaeus sumbaensis* and *S. ivani* (NHMB): Indonesia, Nusa Tenggara Timur (Sumba-expedition of Bühler & Sutter, NHMB, 1949): Holotype of *S. sumbaensis* [by original designation, labelled 'Typus' (= holotype of *S. ivani*): ♂, Baing (Sumba), 23.06.1949. Paratypes of *S. sumbaensis* [labelled 'Cotypus', 12 specimens (= paratypes of *S. ivani*): 3 ♀, same data as holotype; 1 ♀, Baing (Sumba), 26.06.1949; 2 ♂, Baing (Sumba), 27.06.1949; 1 ♂, Baing (Sumba), 29.06.1949; 2 ♀, Baing (Sumba), 30.06.1949; 1 ♀, Waikarudi (Sumba), 03.–07.09.1949; 1 ♀, Pogobina (Sumba), 12.–15.09.1949; 1 ♂, Ende: Wolowaru (Flores), 11.11.1949 (= *S. sundaensis* Frisch, 2005).

**New records.** **Australia**: Northern Territory, NE Kakadu (12°40'S 132°30'E), 07.–09.07.1979, leg. Monteith & Cook (QMBA). **Indonesia**: Bali: Lake Buyan, 1200 m, 31.01.1994, leg. Pedersen (ZMUC).

**Discussion.** The original description of *Scopaeus ivani* (Frisch 2003: 678) is based on the type specimens of *S. sumbaensis*, which I erroneously mistook as one of the many *species in litteris* which Scheerpeltz left in various collections, because I overlooked the description of this species. Ironically, I chose the holotype of *S. sumbaensis* as the holotype of the 'new' species. Consequently, *S. ivani* is an objective junior synonym of *S. sumbaensis*. Let him who is without sin cast the first stone!

*Scopaeus sumbaensis* is distributed in the northern Australasian Region (Frisch 2003: 679). It has been recorded from the Lesser Sunda Islands Bali, Sumba, and Sumbawa and northern Australia from the very west (Millstream) to the very east (Townsville). The record from Flores (Frisch 2003: 679) is based on a misidentified specimen of *S. sundaensis* Frisch, 2005.

The primary and secondary sexual characters of *S. sumbaensis* are illustrated in Frisch (2003).

### *Scopaeus* (s. str.) *sundaensis* Frisch, 2005

**New record.** **Indonesia**: Nusa Tenggara Timur, Ende: Wolowaru (Flores), 11.11.1949, Sumba-expedition of NHMB, 1949 (NHMB).

**Discussion.** The distribution of *Scopaeus sundaensis* was described by Frisch (2005: 83, 84). Accordingly, the species is widely distributed in the Sunda Islands and recorded from the Malay Peninsula, Sumatra, and Borneo (Sarawak) southwards to Java and Lombok and

eastwards to Papua New Guinea. A record for Tahiti suggests a wide distribution across Polynesia. *Scopaeus sundaensis* is also distributed in the Mascarene Islands (importation?). The species is here recorded for Flores for the first time.

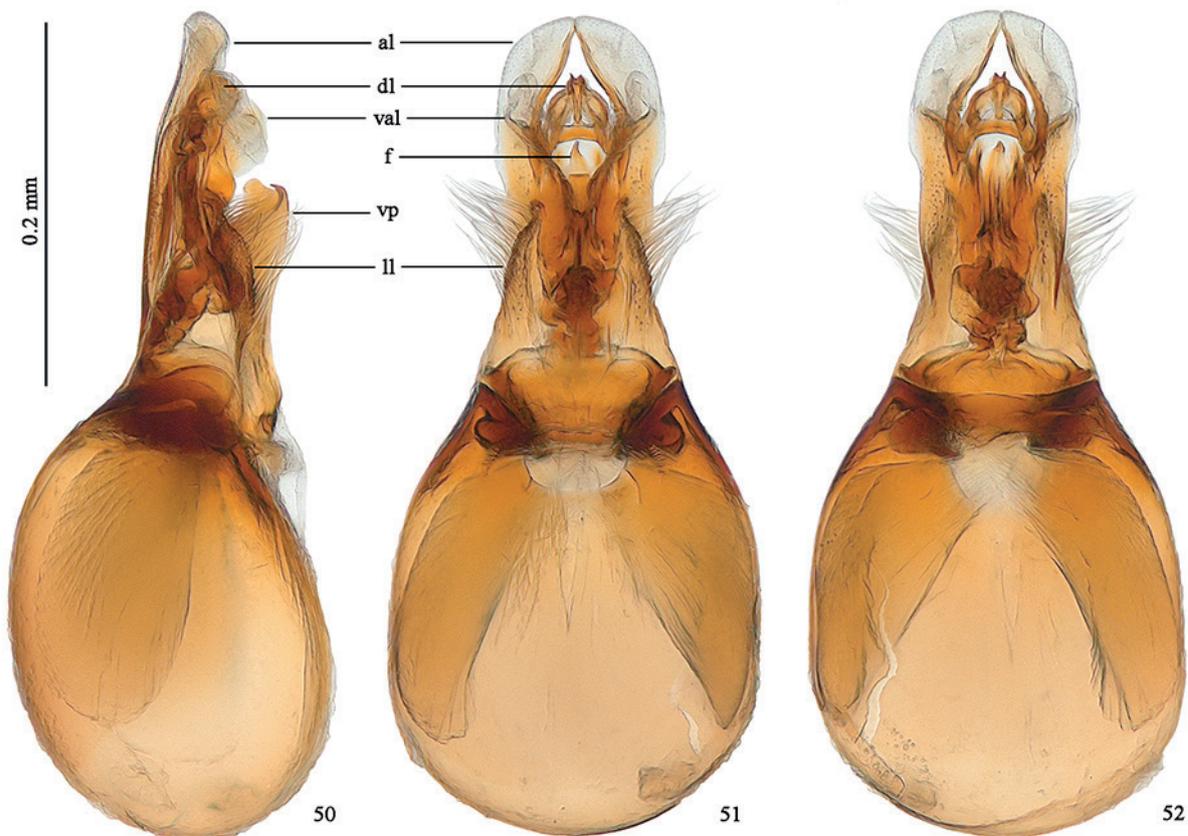
*Scopaeus* (s. str.) *tahitiensis* Coiffait, 1977  
(Figures 15, 50–52, 69)

*Scopaeus tahitiensis* Coiffait, 1977: 174, 175.

**Diagnosis.** Total length 4.1–4.4 mm ( $\bar{\text{O}}$  4.3 mm), forebody length 2.4–2.6 mm ( $\bar{\text{O}}$  2.5 mm). Body reddish brown; head posterior of eyes with two very weak, blackish, shade-like bands meeting anterior of neck; elytra except for hind margin, suture, scutellar triangle, and humera with blackish shade of variable extent; abdomen somewhat darker brown than head and pronotum; antennae reddish brown, segments 3–10 with black ring getting paler towards end of antenna; legs and maxillary palpi unicolorous light brown. Body surface mat with relatively coarse, very dense, somewhat

irregular punctation; interstices on head and elytra narrower than puncture diameters. Head subquadrate, 1.08–1.09 ( $\bar{\text{O}}$  1.09) times as long as wide, across tempora 1.0 times as wide as across eyes, with strongly convex posterior angles and straight posterior margin; eyes large, 0.53–0.65 ( $\bar{\text{O}}$  0.59) times as long as tempora. Elytra short and narrow, 0.8 times as long as pronotum only. Probably capable of flight with well developed humeral angles, well developed metathoracic wings, and membranous fringe of abdominal tergite VII. Median denticles of labrum short triangular, pointed; lateral denticles absent. Antennae slender; segment 8 1.4 times, segments 9 and 10 1.2 times as long as wide. Protarsomeres 1–4 strongly dilated, twice as wide as long. Mesotibiae slender, 6.1–6.2 ( $\bar{\text{O}}$  6.2) times as long as wide.

**Male:** Abdominal sternite VIII with triangular emargination occupying almost posterior fourth with median third semicircularly extended anteriorly (Fig. 69). Aedeagus (Figs 50–52) with distal lobes about as long as phallobase; apical lobes, in lateral view, slender with broad, round apex and distinct, hyaline, ventral extension, in dorsal and ventral view elongate with subparallel lateral margins and evenly rounded towards



Figures 50–52. *Scopaeus tahitiensis*: Aedeagus in (50) lateral, (51) ventral, (52) dorsal view (Tahiti: Lake Vaihiria). Abbreviations: **al** – apical lobe, **dl** – dorsal lobe, **f** – flagellum, **ll** – lateral lobe, **val** – ventral extension of apical lobe, **vp** – ventral process.

apices; strongly sclerotized inner margins of apical lobes divergent in proximal direction, forming opening where short, wide dorsal lobe is attached; ventral extensions of apical lobes, in ventral view, each with sclerotized base and proximal hyaline lobe; dorsal lobe broad with concave proximal margin, almost semicircular with two small, medio-apical teeth and two ventral teeth in lateral view visible as short, wide, about right-angled ventral tooth; flagellum shorter than base of dorsal lobe; ventral process of phallobase with weakly concave ventral margin, distally projecting and extended in small, dorsad curved apical tooth and semicircular dilatation; lateral lobes elongate, running in longitudinal direction, little projecting with long row of long setae.

**Female** characters unknown.

**Type specimens examined.** Holotype ♂, French Polynesia, Tahiti: Lake Vaihiria, 05.07.1976, leg. Gourvès (MNHN).

In the original description of *Scopaeus tahitiensis*, Coiffait (1977: 174, 175) designated a holotype by original designation [ICZN 1999: Article 73.1.1]. The label data of the examined specimen are in accord with the published type locality. The specimen moreover bears a red holotype label. The two paratypes mentioned in the original description, a male and a female, I did not see.

**Additional specimen examined.** French Polynesia, Tahiti: Lake Vaihiria, 15.10.1977, leg. Gourvès (NHML).

**Distribution.** *Scopaeus tahitiensis* is probably endemic to Tahiti, French Polynesia.

**Phylogeny.** *Scopaeus tahitiensis* is a member of the *Scopaeus laevigatus* group (Frisch 2003), which presently comprises 21 species in the Palaearctic and Palaeotropical regions. It can be attributed to this monophyletic clade according to the characters of the aedeagus (Frisch et al. 2002: 38, 39), most of all the short, far distally attached dorsal lobe with two medio-apical teeth and ventral teeth.

### *Scopaeus* (s. str.) *testaceipes* Lea, 1923

(Figures 16, 53–55, 70, 83, 96, 109, 110)

*Scopaeus testaceipes* Lea, 1923: 27.

*Scopaeus gracilis* Oke, 1933: 116; syn. n. [junior secondary homonym of *S. gracilis* (Sperk, 1835)].

*Scopaeus okei* Herman, 2003: 8 (replacement name).

**Diagnosis.** Total length 2.7–3.1 mm (Ø 2.9 mm), forebody length 1.4–1.5 mm (1.5 mm). Body unicolorous dark brown to black except for medium brown extreme posterior margin of elytra and somewhat lighter end of abdomen; appendages light brown in dark brown specimens to medium brown in black specimens, but penultimate segment of maxillary palpi blackish

brown and antennal segments 1–9 with blackish shade. Punctuation of head very fine and regular with interstices predominantly wider than puncture diameters, clearly finer and less dense than punctuation of pronotum and elytra; punctuation of pronotum relatively coarse with irregular, shallow, often densely arranged punctures; elytra with dense, regular, and slightly granular punctuation, somewhat finer punctate than pronotum. Forebody shiny without microreticulation. Head subquadrate, 1.11–1.16 (Ø 1.13) times longer than wide, across somewhat widened tempora 1.02–1.06 (Ø 1.04) times wider than across eyes, with strongly rounded posterior angles and straight posterior margin; eye length 0.53–0.62 (Ø 0.58) of temporal length. Elytra 0.93–1.0 (Ø 0.97) times as long as pronotum. Presumably capable of flight judging from distinct humeral angles of elytra and membranous fringe of posterior margin of abdominal tergite VII; metathoracic wings of type specimens not examined. Median denticles of labrum distinct, lateral denticles reduced to obtuse-angled notch. Penultimate segments 8–10 of antennae quadrate or slightly transverse, 0.9–1.0 times as long as wide. Protarsomeres strongly dilated, but subject to distinct sexual dimorphism; segments 2–4 in males about three times as wide as long, in females twice as wide as long. Mesotibiae 5.1–6.0 times as long as wide.

**Male:** Abdominal sternite VIII in about posterior tenth with short, wide, triangular emargination (Fig. 70). Aedeagus (Figs 53–55) at sclerotized ring strongly constricted dorsally; distal lobes at base strongly curved ventrad and in distal half curved apicad; apical lobes in lateral view evenly tapered towards slender, pointed apices, in dorsal view with proximo-lateral, triangular dilatation and very narrow apical halves somewhat widened towards round tips; dorsal lobe somewhat shorter than apical lobes, except for basal portion remarkably slender, parallel; flagellum thin, evenly tapered towards pointed end; ventral process hook-shaped; lateral lobes reduced, angulate projecting ventrad, with few, short setae.

**Female:** Dorso-apical emargination of laterotergite IX proximally delimited by distinct, about right-angled tooth (Fig. 83). Lateral gonocoxal plates slender with somewhat concave lateral margins; central field almost eight times as long as wide, proximally very pointed and with interrupted margination (Fig. 96). Sperm pump with dilated portions; process of chamber about as long as distal portion; proximal, sclerotized portion of spermathecal duct distinctly sinuate; distal, hyaline portion of spermathecal duct thicker than proximal portion (Figs 109, 110).

**Type specimens examined.** *Scopaeus testaceipes*: Holotype ♂, Australia, Victoria: Warburton, leg.

Wilson (SAMA); paratype ♀, Australia, Victoria: Bright (MVMA). *Scopaeus gracilis* Oke: Lectotype ♂, Australia, Victoria: Pakenham, leg. Oke; here designated (MVMA); paralectotypes (2 ♂, 1 ♀), same data as lectotype (MVMA).

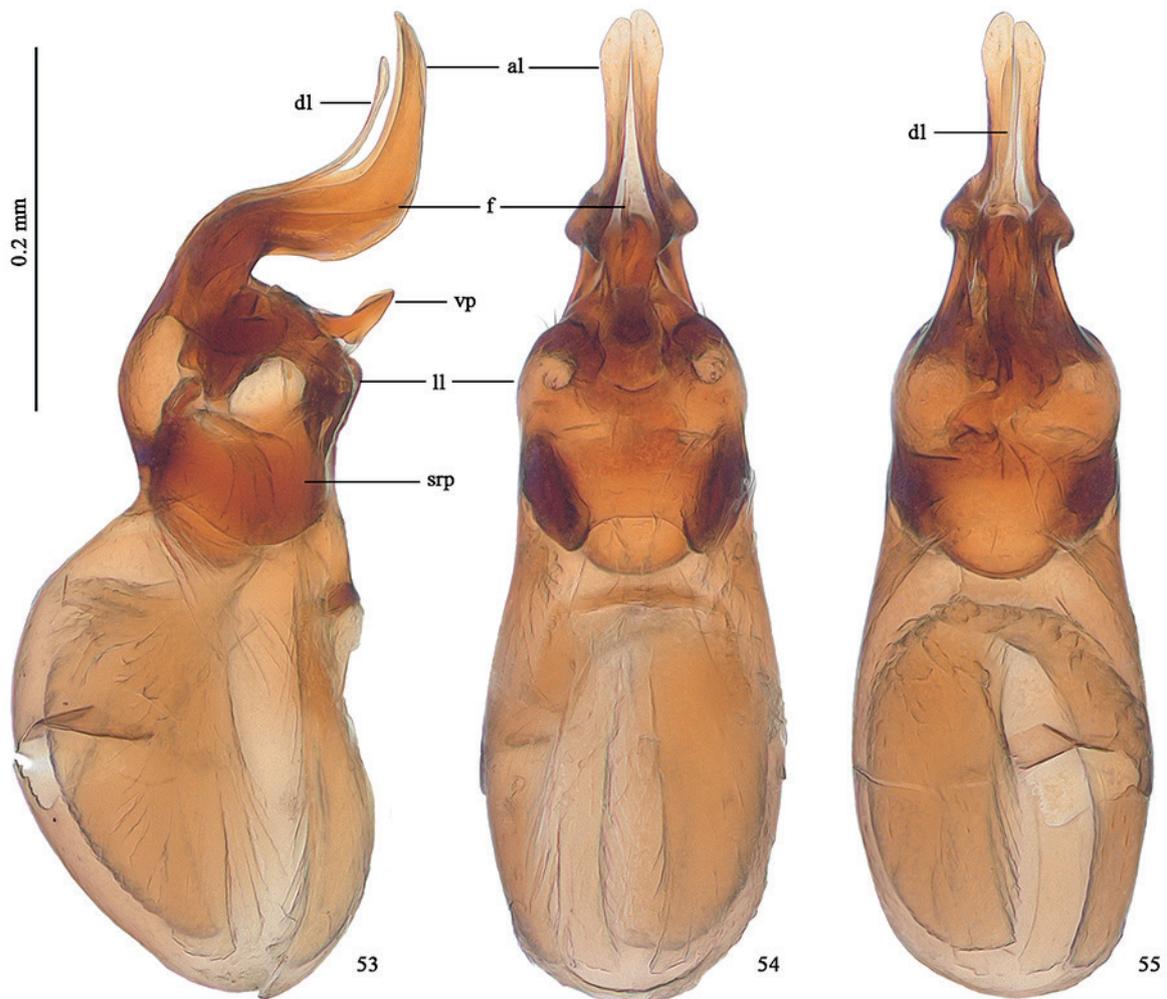
Judging from the description, Lea (1923: 27) described *Scopaeus testaceipes* based on three specimens collected in Warburton and Bright in Victoria. He explicitly published a specimen with the number 'I. 12861' as the 'type', but did not specify its locality. Nevertheless, the same number and the word 'TYPE', in red letters, are written on the handwritten identification label of the type specimen from Warburton, which consequently is the holotype by original designation [ICZN 1999: Article 73.1.1.]. Lea, however, mistook the sex of this specimen. Contrary to the description and the handwritten symbol '♀' on the card the holotype is mounted on, it is a male. The left antenna and the right maxillary palp of the

holotype are missing. I attached holotype and paratype labels to the respective specimens.

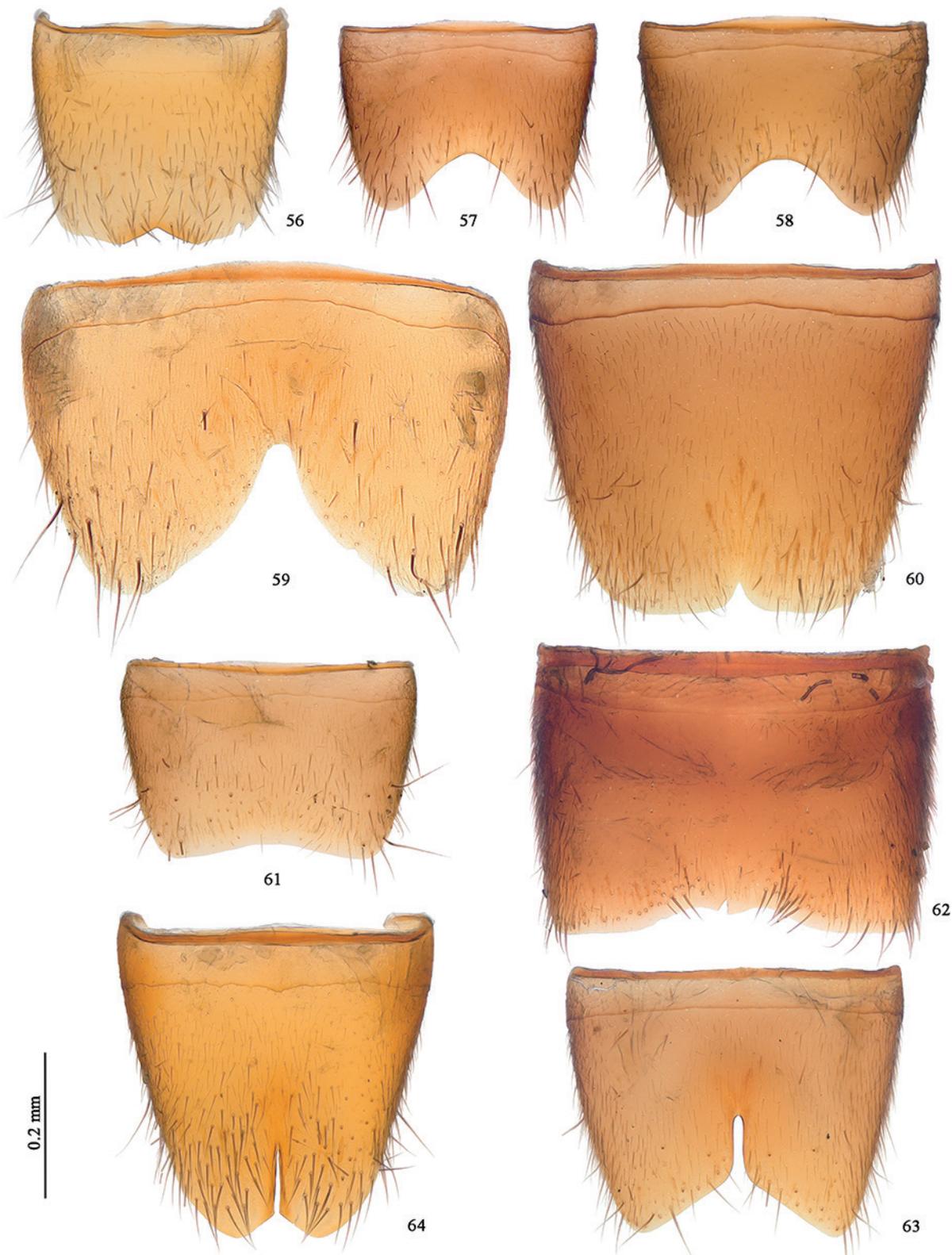
Oke (1933: 116) did not state the number of specimens from which he described *S. gracilis*. The syntype series at MVMA is, however, made up of three males and a female. Because Oke did not fix a holotype by original designation and the existence of further syntypes with unknown species identity cannot be excluded, I herewith designate a lectotype to stabilize the name *gracilis* Oke, 1933. I indicated the respective specimens by lectotype and paralectotype labels.

**Distribution.** *Scopaeus testaceipes* is known from the Great Dividing Range of Victoria from Pakenham (38°04'S, 145°29'E) as far northeast as Bright (36°44'S, 146°57'E).

**Remark.** *Scopaeus testaceipes* is the first species of the genus I have examined in which the females show a sinuate spermathecal duct.



**Figures 53–55.** *Scopaeus testaceipes*: Aedeagus in (53) lateral, (54) ventral, (55) dorsal view (holotype). Abbreviations: **al** – apical lobe, **dl** – dorsal lobe, **f** – flagellum, **ll** – lateral lobe, **srp** – sclerotized ring of phallobase, **vp** – ventral process.



**Figures 56–64.** Abdominal sternite VIII of male of (56) *Scopaeus apterus* (Great King Island), (57) *S. moerens* (lectotype), (58) *S. moerens* (Western Australia: Rockingham), (59) *S. flavocastaneus* (holotype), (60) *S. ctenocryptus* (lectotype), (61) *S. latebricola* (holotype), (63) *S. obscuripennis* (lectotype), (64) *S. ooderes* (Western Australia, Perth), (62) Sternite VII of *S. obscuripennis* (lectotype).

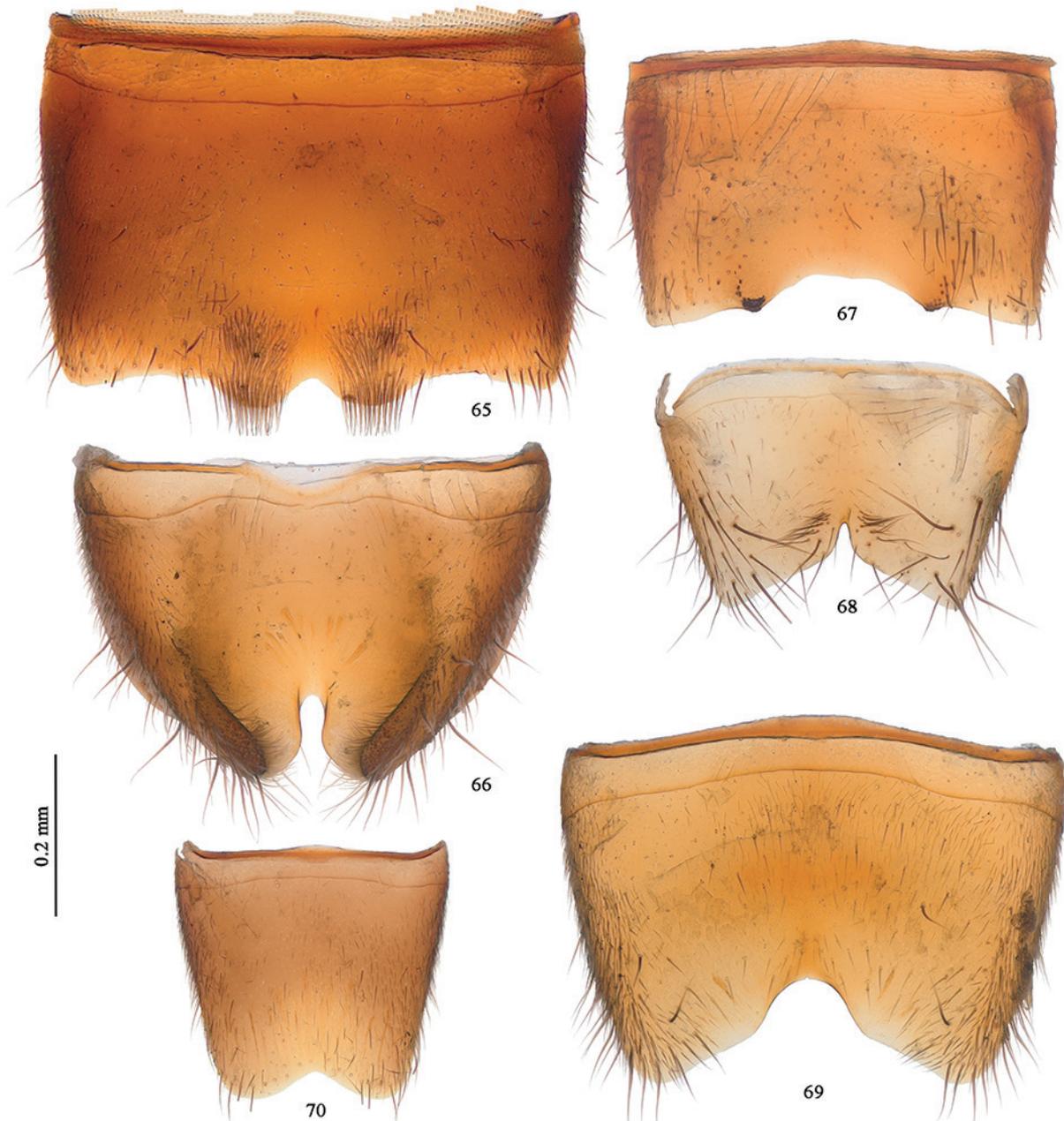
*Rugilus ovicollis* (MacLeay, 1873) comb. n.;  
nomen dubium

*Stilicus ovicollis* MacLeay, 1873: 145; transferred to  
*Scopaeus* by Blackburn, 1896: 263.

**Type material.** MacLeay (1873: 145) described *Stilicus ovicollis* from Gayndah on the Burnett River, Queensland (leg. Masters), but neither designated a holotype nor communicated the number of specimens after which he

described the new species. According to Lea (1923: 2), the type specimens of MacLeay's species 'are fortunately available for examination in the Australian Museum', but nowadays the type material of *Stilicus ovicollis* is lost. In his revision of the Australian Stilicina, Rougemont (1996: 89) already communicated that colleagues at the MacLeay Museum and 'other Australian museums' could not locate type specimens of *S. ovicollis*. Likewise, my requests for types of the species were not successful.

The Gayndah material from which MacLeay described

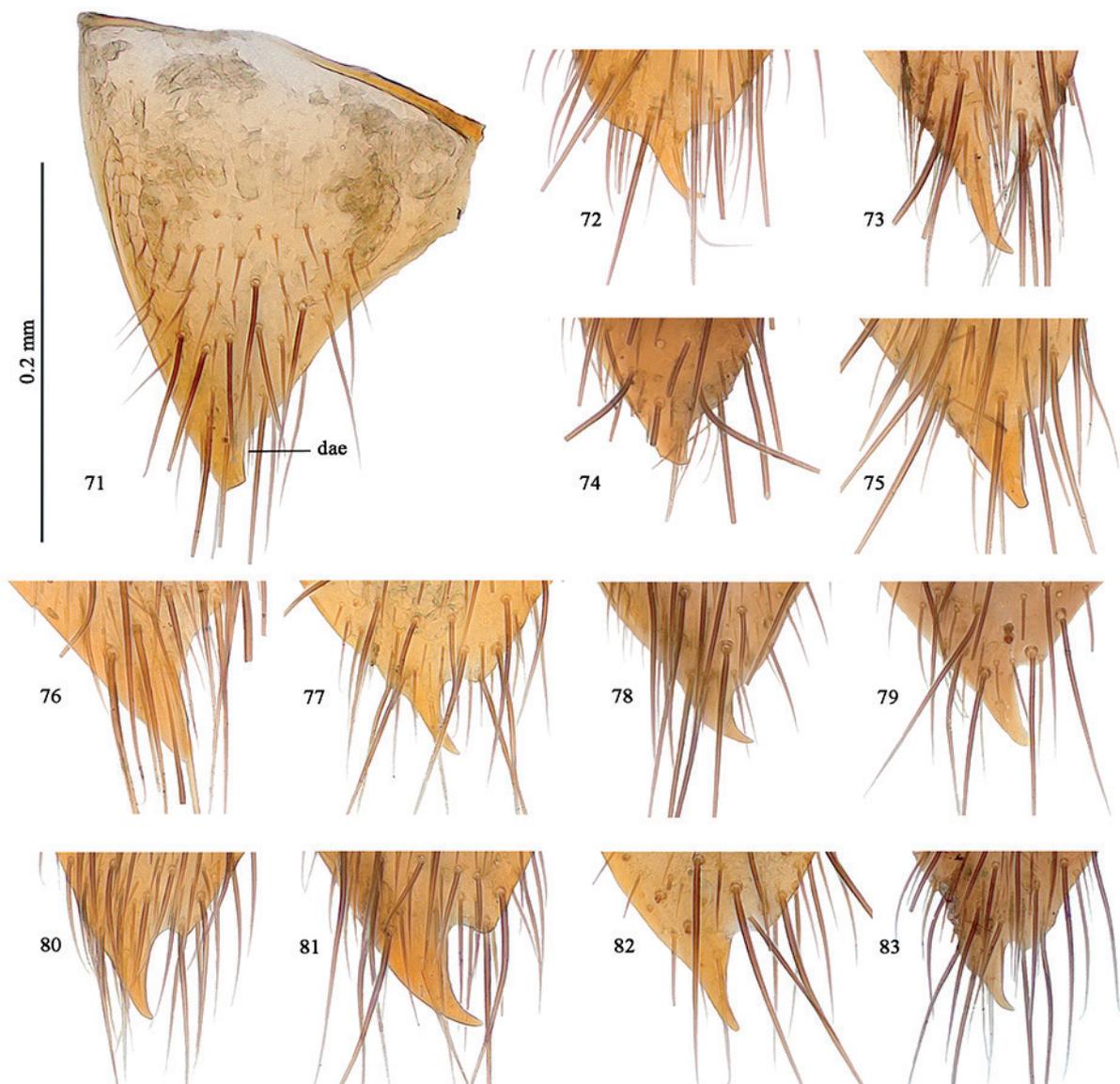


**Figures 65–70.** Abdominal sternite VIII of male of (66) *Scopaeus oviceps* (lectotype), (68) *S. ruficollis* (Queensland, Cairns, Redlynch), (69) *S. tahitiensis* (Tahiti: Lake Vaihiria), (70) *S. testaceipes* (holotype). Sternite VII of (65) *S. oviceps* (lectotype), (67) *S. ruficollis* (Queensland, Cairns, Redlynch; setae of posterior projections lost).

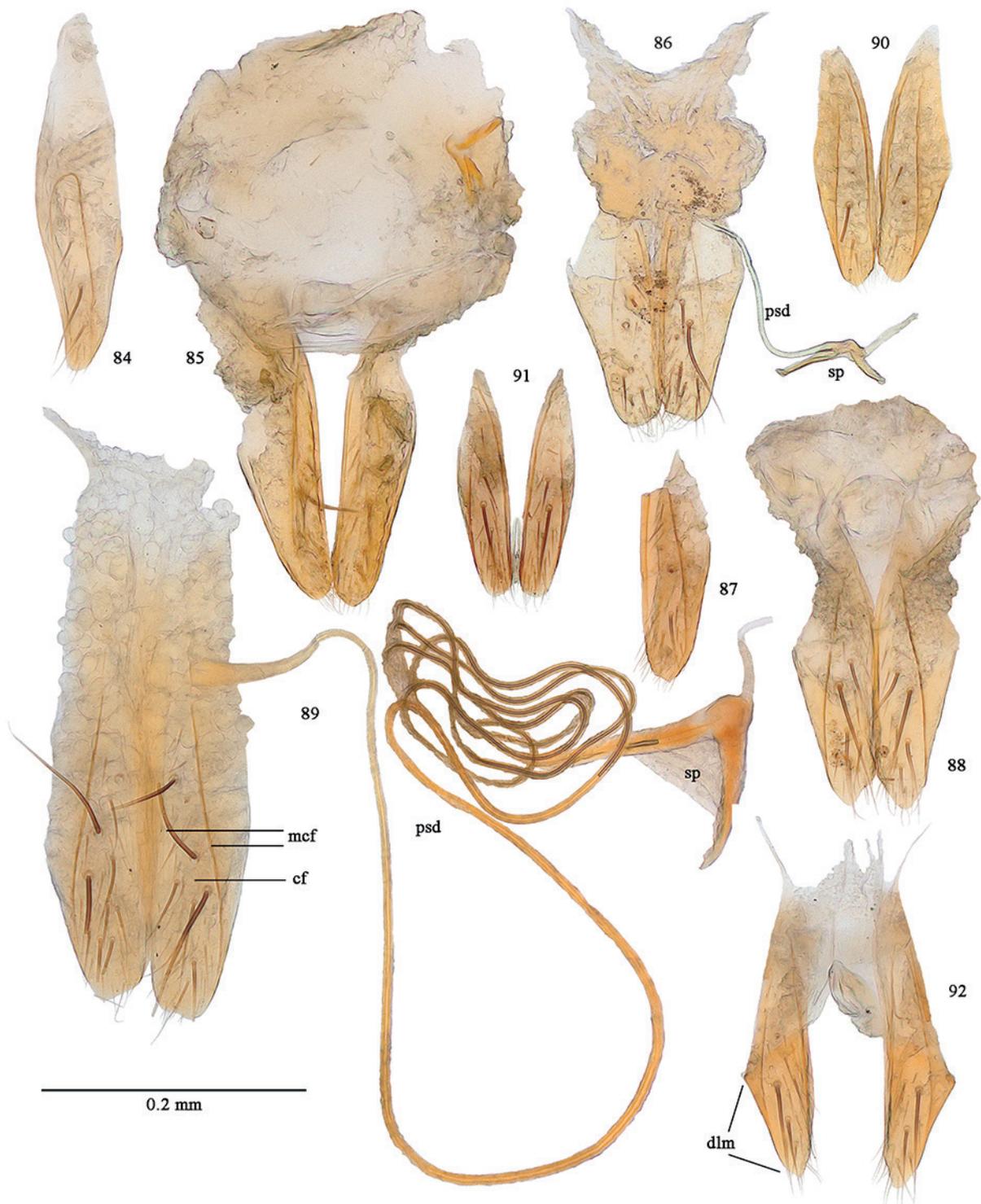
*Stilicus ovicollis* was split between the MacLeay Museum and the Australian Museum, both Sydney, but a few specimens of this material are also stored in the Australian National Insect Collection in Canberra (Tom Weir, ANIC, pers. comm., 2012). According to the website of the MacLeay Museum, the type specimens of this museum were transferred to the Australian Museum as a permanent loan in 1969. In a catalog of these types (Britton & Stanbury 1982), however, no type material of *S. ovicollis* is listed. A current request to the MacLeay Museum in order to exclude, that type specimens of that species were not recognized when the type transfer was

prepared, produced no result (Robert Blackburn, pers. comm., 2015). Likewise, no types of *S. ovicollis* were found at ANIC (Tom Weir, pers. comm., 2015) and AMS (Derek Smith, pers. comm., 2015).

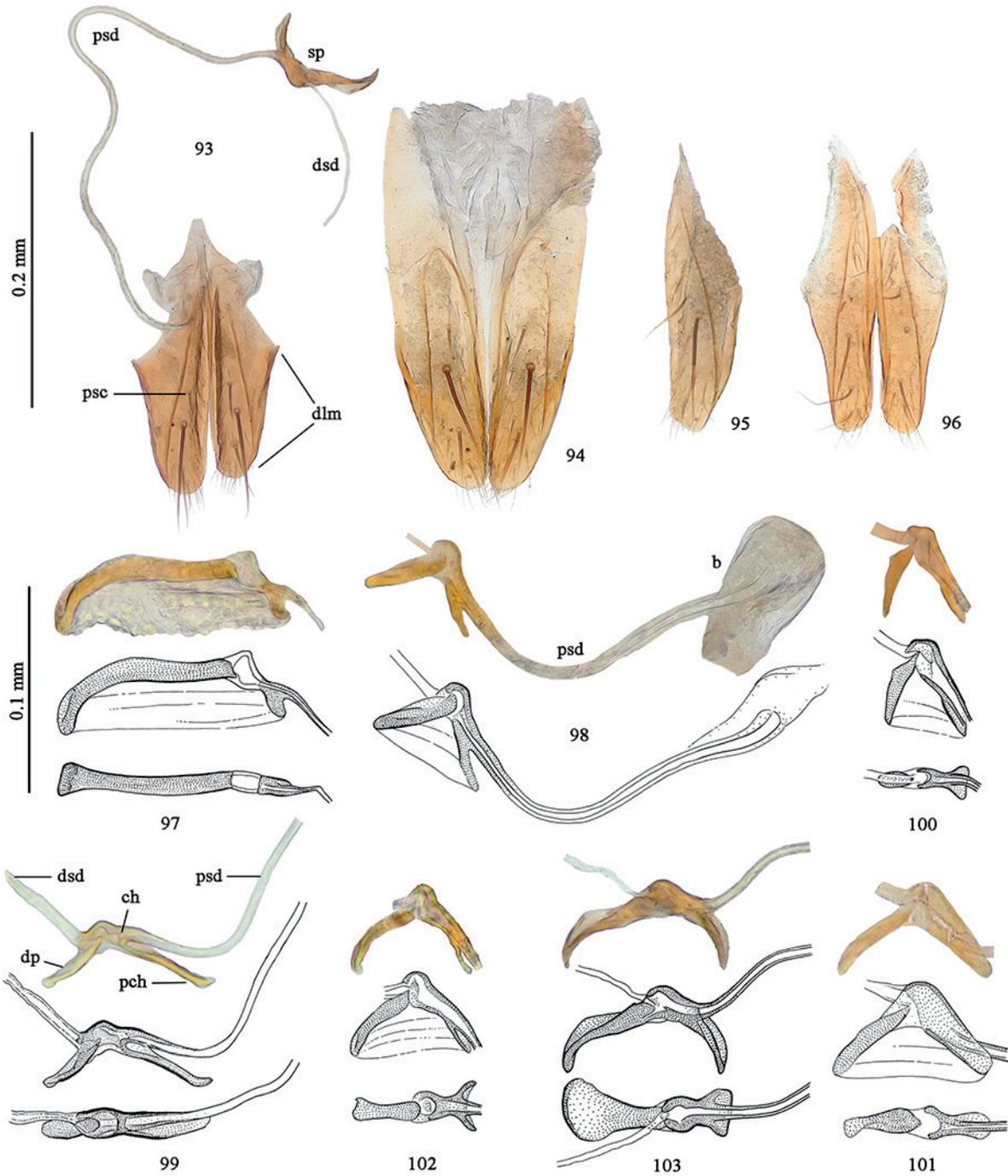
**Discussion.** MacLeay (1871: 145) described *Stilicus ovicollis* as follows: 'Length 1 ¼ lines [2.65 mm]. Pale red, nitid, smooth. Head square, truncate behind, and joined to the thorax by a very slight neck. Thorax of an elongate oval form, with a peduncular attachment to the body. Elytra very little broader than the thorax, with the basal portions brown. Abdomen with the first four segments brown.'



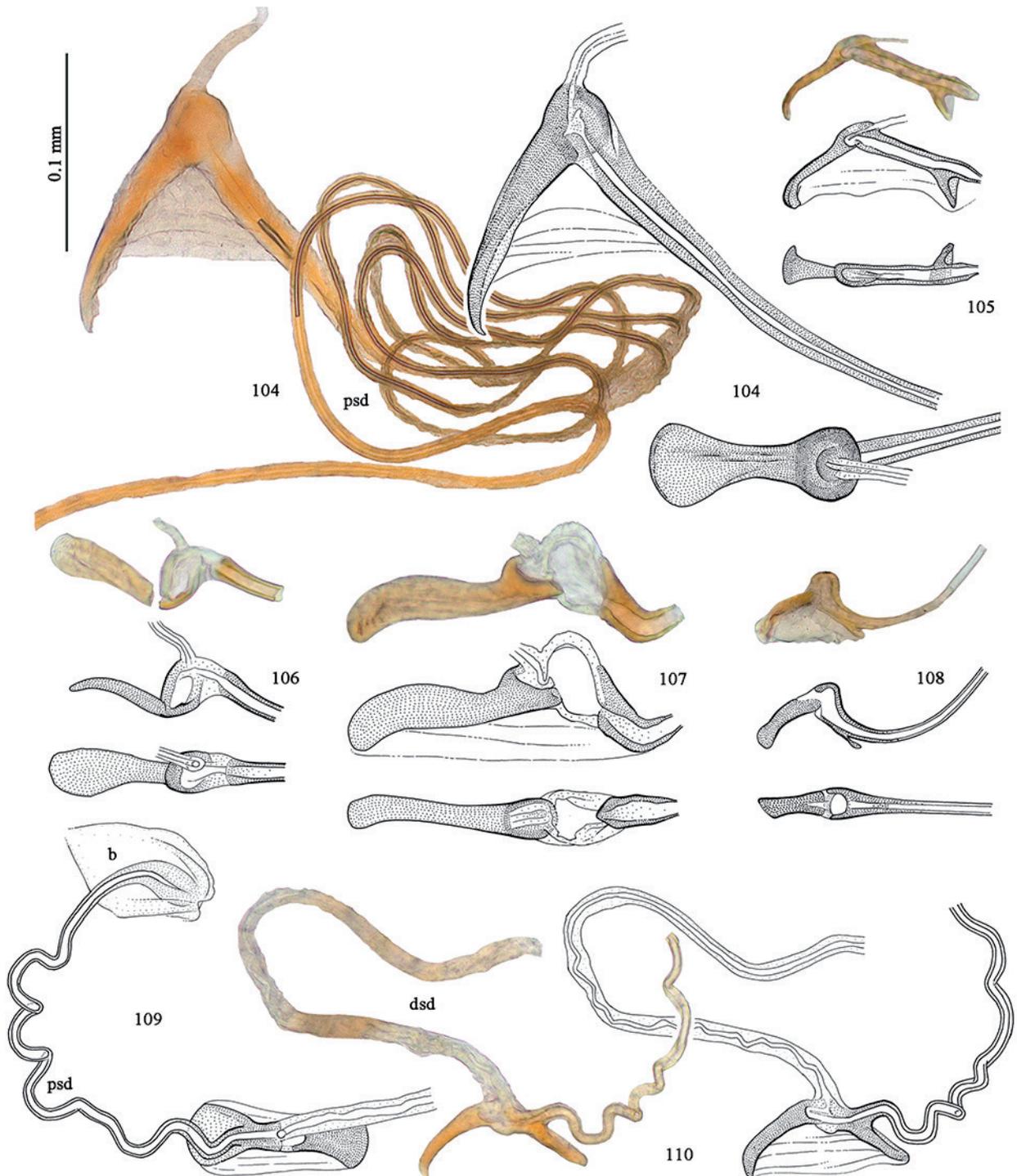
**Figures 71–83.** Distal end of laterotergite IX of female of (71) *Scopaes apterus* (Great King Island), (72) *S. blackburni* (lectotype of *S. femoralis* Blackburn), (73) *S. ctenocryptus* (paralectotype), (74) *S. digitalis* (holotype), (75) *S. dubius* (lectotype), (76) *S. flavocastaneus* (paratype), (77) *S. interocularis* (lectotype), (78) *S. latebricola* (Queensland, Carnavon Nationalpark), (79) *S. moerens* (paralectotype), (80) *S. myrmecocephalus* (paralectotype), (81) *S. ooderes* (holotype), (82) *S. ruficollis* (Queensland, Cairns, Redlynch), (83) *S. testaceipes* (paratype). Apical tooth of (71) and (74) broken. Abbreviation: **dae** – dorsal apical emargination.



**Figures 84–92.** Lateral gonocoxal plate(s) of (84) *Scopaeus apterus* (Great King Island), (85) *S. blackburni* (lectotype of *S. femoralis* Blackburn), with spermathecal complex, (86) *S. ctenocryptus* (paralectotype) with proximal, sclerotized portion of spermathecal duct and sperm pump, (87) *S. digitalis* (holotype), (88) *S. dubius* (lectotype), (89) *S. flavocastaneus* (paratype), with proximal, sclerotized portion of spermathecal duct and sperm pump, (90) *S. interocularis* (lectotype), (91) *S. moerens* (paralectotype), (92) *S. myrmecocephalus* (holotype), folded laterally. Abbreviations: **cf** – central field, **dlim** – distal lateral margin of lateral gonocoxal plate, **mcf** – margins of central field, **psd** – proximal, sclerotized portion of spermathecal duct, **sp** – sperm pump.



**Figures 93–103.** Gonocoxal plate(s) of (93) *Scopaeus latebricola* (Queensland, Carnavon NP), with proximal, sclerotized portion of spermathecal duct, distal, hyaline portion of spermathecal duct, and sperm pump, (94) *S. ooderes* (holotype), (95) *S. ruficollis* (Queensland, Cairns, Redlynch), (96) *S. testaceipes* (paratype). Sperm pump (illustrations in two different views and photograph) of (97) *S. apterus* (Great King Island), (98) *S. blackburni* (lectotype of *S. femoralis* Blackburn), with proximal, sclerotized portion of spermathecal duct and bursa, (99) *S. ctenocryptus* (paralectotype), (100) *S. digitalis* (holotype), (101) *S. dubius* (lectotype), (102) *S. interocularis* (lectotype), (103) *S. latebricola* (Queensland, Carnavon Nationalpark). Abbreviations: **b** – bursa, **ch** – chamber, **pch** – process of chamber, **dlm** – distal portion of lateral margin, **dp** – distal portion of sperm pump, **dsd** – distal, hyaline portion of spermathecal duct, **psc** – proximal seta of central field, **psd** – proximal, sclerotized portion of spermathecal duct, **sp** – sperm pump.



**Figures 104–110.** Sperm pump (illustrations in two different views and photograph) of (104) *Scopaeus flavocastaneus* (paratype), with glomerate proximal, sclerotized portion of spermathecal duct, (105) *S. moerens* (paralectotype), (106) *S. myrmecocephalus* (holotype), (107) *S. ooderes* (holotype), (108) *S. ruficollis* (Queensland, Cairns, Redlynch), (109) *S. testaceipes* (paralectotype of *S. gracilis* Oke), with proximal, sclerotized portion of spermathecal duct and bursa, (110), *S. testaceipes* (paratype), with almost complete distal, hyaline portion of spermathecal duct. Abbreviations: **b** – bursa, **dsd** – distal, hyaline portion of spermathecal duct, **psd** – proximal, sclerotized portion of spermathecal duct.

Judging from this poor description, Fauvel (1877: 218) assumed *Stilicus oviceollis* to represent a species of *Scopaeus* – an opinion which was followed by Blackburn (1896: 263), who introduced the combination *Scopaeus oviceollis*. According to the original description, however, some characters of *S. oviceollis* contradict Fauvel's interpretation. First of all, the body surface of *Scopaeus* is never 'smooth', but densely covered with small, setae-bearing punctures. MacLeay's (1871: 145) 'smooth' certainly stands for unpunctured and asetose, because he did not describe characters of punctation and setation for *S. oviceollis* as he, however, explicitly did in other species descriptions of the same publication. Another character of *S. oviceollis* which contradicts the species' membership in *Scopaeus* is the 'peduncular' attachment of the pronotum to the posterior part of the body, which can be understood as a constricted base of the pronotum.

On the other hand, Blackburn (1894: 203) reported that a specimen which Lea had compared with the 'type' of *Stilicus oviceollis*, '... is certainly a *Scopaeus*'. This is a strong argument, because Lea had described a few Australian *Scopaeus* and should not have mistaken this genus.

In view of the impossibility to attribute *S. oviceollis* to a particular rove beetle genus, I herewith exclude, however, the species from *Scopaeus* and return to the original genus assignment. As *Stilicus* Berthold, 1827 is a junior synonym of *Rugilus* Leach, 1819, I introduce the new combination *Rugilus oviceollis* (MacLeay, 1873), which in absence of type material is a nomen dubium.

#### 4. Acknowledgements

I am indebted to the curators and collection managers mentioned in the material chapter who made this contribution possible by lending specimens from the collections under their care. John Early, Auckland War Memorial Museum, kindly sent me the link to the collection database with images of the holotype of *Scopaeus apterus*. Hwa Ja Goetz, Museum für Naturkunde Berlin, kindly prepared the habitus photographs of the old type specimens. I am very grateful to Lee Herman, American Museum of Natural History, and an anonymous reviewer for valuable comments on the manuscript.

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