

Revision of *Scopaeus* Erichson, 1839 (Coleoptera, Staphylinidae, Paederinae) of Indonesia, with description of 19 new species

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Abstract

This contribution deals with the genus *Scopaeus* Erichson, 1839 (Coleoptera, Staphylinidae, Paederinae) in Indonesia with a focus on the fauna of the Mount Halimun-Salak National Park, Jawa Barat. Nineteen new species are described: *Scopaeus anuliflagellatus* Frisch, spec. nov., *S. batukaruensis* Frisch, spec. nov., *S. bipectenatus* Frisch, spec. nov., *S. bipennicillatus* Frisch, spec. nov., *S. crassipunctatus* Frisch, spec. nov., *S. cuspidatus* Frisch, spec. nov., *S. cuspilobatus* Frisch, spec. nov., *S. diversilobatus* Frisch, spec. nov., *S. grandis* Frisch, spec. nov., *S. halimunsalakensis* Frisch, spec. nov., *S. heronifer* Frisch, spec. nov., *S. posoanus* Frisch, spec. nov., *S. pulcher* Frisch, spec. nov., *S. riedeli* Frisch, spec. nov., *S. spiraliflagellatus* Frisch, spec. nov., *S. sulawesianus* Frisch, spec. nov., *S. tortuosiflagellatus* Frisch, spec. nov., *S. uncinatus* Frisch, spec. nov. and *S. velifer* Frisch, spec. nov.. Based on type revisions, *S. borneensis* Cameron, 1941, *S. elegantulus* Cameron, 1930, *S. jacobsoni* Cameron, 1930, *S. javanus* Cameron, 1936, *S. mixtus* Cameron, 1941 and *S. niger* Cameron, 1918 are redescribed. Lectotypes are designated for *S. javanus* and *S. niger*. New distribution data from Indonesia are presented for *S. filiformis* Wollaston, 1867, *S. limbatus* Kraatz, 1859, *S. nitidulus* Motschulsky, 1858, *S. sundaensis* Frisch, 2005, *S. testaceus* Motschulsky, 1858, *S. unifasciatus* Fauvel, 1889 and *S. wunderlei* Frisch, 2003. *Scopaeus dilutus* Motschulsky, 1858, *S. fuscus* Motschulsky, 1858, *S. micros* Kraatz, 1859, *S. procerus* Kraatz, 1859, *S. subfasciatus* Kraatz, 1859 and *S. velutinus* Motschulsky, 1858 are excluded from the fauna of Indonesia owing to unproven records or misidentification. A catalogue of the *Scopaeus* species of Indonesia including their known distribution at the province level is given.

Keywords Taxonomy | distribution | Java | Sulawesi | Halimun-Salak National Park

1. Introduction

Scopaeus Erichson, 1839, the most speciose genus of the Scopaeinae Mulsant & Rey, 1878, is a mainly riparian rove beetle clade distributed throughout the tropics, subtropics and temperate climatic zones. *Scopaeus* sensu Frisch et al. (2002) currently comprises 462 named species. Particularly the tropics still hold a huge, unknown number of undescribed *Scopaeus*. The same is true for the Indonesian islands, a biodiversity hotspot with a high level of endemism.

Prior to the present contribution, few *Scopaeus* species have been recorded from Indonesia. Motschulsky (1858) and Kraatz (1859) described a handful of species from ‘East India’, a term at that time used for most of Southeast Asia, which is why it is unknown if any of them were collected in Indonesia. Some of these species were subsequently published for this country (e.g. Bernhauer 1922; Cameron 1930, 1931; Fauvel 1903), but among them only *Scopaeus limbatus* Kraatz, 1859, *S. nitidulus* Motschulsky, 1859 and *S. testaceus* Motschulsky, 1859 are hitherto proven to be part of the Indonesian fauna

(Frisch 2003: 672, 684; 2005: 76). Five Indonesian species of *Scopaeus* were described by the British staphylinist Malcolm Cameron between 1930 and 1941. Years later, Scheerpeltz (1957: 293, 297), Frisch (2003: 676–680, 2005: 81–85) and Frisch & Mainda (2022: 142–146) named eight additional species from Indonesia, two of which, *S. sutteri* Scheerpeltz, 1957 and *S. ivani* Frisch, 2003, were synonymized (Frisch 2016: 65, 77). Further additions to the fauna of Indonesia were the widespread, Palaeotropical *S. filiformis* Wollaston, 1867 (Frisch 1999: 371) and the Australasian *S. unifasciatus* Fauvel, 1889 (Frisch 2003: 683).

Most of the new species and distribution data published herein were collected by the first author in and close to the Mount Halimun-Salak National Park, Jawa Barat, during joint expeditions of the Museum für Naturkunde Berlin and the Museum Zoologicum Bogoriense, Cibinong, to western Java in the course of a joint biodiversity discovery project named *Indobiosys* (**I**ndonesian **B**iodiversity **D**iscovery and **I**nformation **S**ystem, BMBF project number 16GW0111K), a German-Indonesian research project from 2015 to 2018. The project was coordinated at the Museum für Naturkunde Berlin in collaboration with the Zoologische Staatssammlung München and the Museum Zoologicum Bogoriense of the Research Center for Biosystematics and Evolution, National Research and Innovation Agency (BRIN, formerly known as LIPI), in Cibinong, Indonesia. The aim of *Indobiosys* was to develop a standardized biodiversity discovery pipeline to speed up the process from sampling, identification and storing promising target taxa from underexplored high biodiversity areas. *Indobiosys* expeditions led to the Mount Halimun-Salak National Park in 2015 and 2016 and to the surroundings of Lake Poso, Sulawesi, in 2017.

Mount Halimun-Salak National Park is one of the largest montane tropical rainforests of Indonesia. It covers an area of 113.357 ha and comprises two distinct mountains, Halimun and Salak. According to Kahono & Amir (2003), the Mount Halimun-Salak National Park is the wettest area in Java with a precipitation of 4.000–6.000 m³ per year and rainfall almost every month. Therefore it plays a very important role as water source for the surroundings including the metropolitan area of Jakarta.

The protection of Mount Halimun has a long history. In the colonial period of Indonesia under Dutch rule (1924–1934) it was already a nature reserve. In 1992, Mount Halimun was designated as a national park with Minister of Forestry Decree No. 282/Kpts-II/1992. Eventually, Mount Halimun was merged with Mount Salak in 2003 to form the integrated Mount Halimun-Salak National Park with Minister of Forestry Decree No.175/Kpts-II/2003 (GHSNPMP-JICA 2009, Rosleine et al. 2014).

Mount Halimun-Salak National Park constitutes an important refuge for the biodiversity in the very densely populated island of Java. Over 500 plant species (Priyadi et al. 2010), large mammals such as Javan gibbon (*Hylobates moloch*), Javan leaf monkey (*Presbytis comata*) and leopard (*Panthera pardus*) and 204 bird species are known from the reserve (Prawiradilaga 2017). The insect fauna of Mount Halimun-Salak National Park is, however, poorly known. Only 161 species of butterflies (Lepidoptera: Rhopalocera) (Peggie & Harmonis 2014), 25 species of Orthoptera (Erawati & Kahono 2010) and 846 species of macro-moths (Sutrisno 2008) were reported to inhabit the national park. The huge diversity of Coleoptera in Mount Halimun-Salak National Park remains largely undiscovered, which is in particular true for minute species such as the rove beetle genus *Scopaeus* (Coleoptera: Staphylinidae).

In this contribution, the sequence of type revisions of Indonesian *Scopaeus* in Frisch (2003, 2005, 2016) and Frisch & Mainda (2022) is completed and supplemented by descriptions of 19 species new to science, which increase the number of named Indonesian *Scopaeus* to 33 species excluding *S. borneensis* and *S. laticollis*, which will be removed from *Scopaeus* (Frisch & Herman, in prep; Herman, in press). While *S. borneensis* is redescribed herein, *S. laticollis* will be redescribed in an upcoming contribution on a new scopaeine genus (Frisch & Herman, in prep.). The species are diagnosed using mainly primary and secondary sexual characters and classified in informal species groups, if possible at present. Moreover, new distributional data from Indonesia are given for eleven *Scopaeus* species, six species are excluded from the fauna of Indonesia, and a distributional catalogue of the *Scopaeus* of Indonesia is presented. Nevertheless, many unnamed species of *Scopaeus* from Indonesia stored in museum collections or waiting for collectors in the field still await their scientific description.

2. Material and methods

2.1 Material

Non-type-specimens and paratypes of *Scopaeus* species collected at the occasion of the *Indobiosys* expeditions are proportionally stored in the collections of the partner institutions Museum für Naturkunde Berlin (**MFNB**) and Museum Zoologicum Bogoriense (**MZB**). Additional specimens this contribution is based on are stored in the following collections and were kindly lent by the mentioned curators, collection managers and private collectors:

FMNH – Field Museum of Natural History, Chicago (Alfred Newton, Margaret Thayer); **HECO** – Hope Entomological Collections, Oxford (Darron Mann); **ISNB** – Institut Royal des Sciences Naturelles de Belgique, Brussels (Alain Drugmand, Poul Limbourg); **MHNG** – Muséum d'histoire naturelle, Geneva (Giulio Cuccodoro, Ivan Löbl); **MFNB** – Museum für Naturkunde Berlin; **MZMB** – Moravian Museum, Brno (Petr Banar); **NBCL** – Naturalis Biodiversity Center, Leiden (Hans Huijbregts); **NHML** – Natural History Museum, London (Max Barclay, Roger Booth, Martin Brendell, Dmitry Telnov); **NHMW** – Naturhistorisches Museum, Wien (Harald Schillhammer); **NMEC** – Naturkundemuseum, Erfurt (Matthias Hartmann); **PKCC** – Pavel Krásenský Private Collection, Chomutov; **PWCM** – Paul Wunderle Private Collection, Mönchengladbach; **SAMA** – South Australian Museum, Adelaide (Peter Hudson, Erik Matthews); **SDEI** – Senckenberg Deutsches Entomologisches Institut, Müncheberg (Mandy Schröter, Lothar Zerche); **SMNK** – Staatliches Museum für Naturkunde, Karlsruhe (Alexander Riedel); **SMNS** – Staatliches Museum für Naturkunde, Stuttgart (Wolfgang Schawaller); **ZMUC** – Zoological Museum, Copenhagen (Alexey Solodovnikov).

2.2 Methods

Equipment: The habitus photographs (Figs 1–26) were created with the montage software Helicon Focus based on digital images, which were taken with the camera Leica DMC6200 attached to the stereoscopic microscope Leica M205 C. Transmitted-light microscopic images of primary and secondary sexual characters were made using the Leica imaging system (transmitted light microscope DM6 B, camera K3, software LasX) and the montage software Helicon Focus. The photographs were made with the following magnifications: Aedeagi: 100 x (Figs 27–49) or 200 x (Figs 50–118); abdominal sclerites VII and VIII: 100 x (Figs 119–145); sperm pumps with laterotergites IX and/or bursa: 200x (Figs 148, 149, 153, 155, 157, 159, 161, 165, 167, 170, 173, 180); sperm pumps (Figs 146, 147, 150–152, 154, 156, 158, 160, 162–164, 166, 168, 169, 171, 172, 174–179, 181): 400 x.

Measurements: Specimens were measured magnified 70 × using a stereoscopic microscope with an eye-piece linear micrometer. Total length of specimens = interval from apical denticles of labrum to posterior end of abdomen, depending on degree of contraction of abdomen; forebody length = interval from apical denticles of labrum to posterior margin of elytra at suture.

Terminology: The morphology of the primary and secondary sexual characters is termed following Frisch et al. (2002: 31–34) and Frisch (2010: 160, 161; 2014: 200,

201). Contrary to this, the misleading term ‘sclerotized spermathecal duct’ for the duct connecting bursa and sperm pump is replaced by ‘bursal duct’, because it does not connect the spermatheca and is membranous sometimes. Likewise, to avoid confusion, the terminology of the sperm pump is revised by replacing ‘process of chamber segment’ by ‘apophysis...’ and ‘process’ by ‘distal process of sperm pump’. The modified terminology of the female sexual characters used herein is illustrated in Figs 159, 160. Paired structures of the aedeagus such as the apical lobes or lateral lobes are termed the dextral and sinistral lobe in dorsal view of the aedeagus.

The head shape in the Scopaeina (transitional forms exist) is described by the following terms. Subcircular: head length (from anterior margin of clypeus to posterior margin at neck constriction) and head width similar; head posterior of eyes, posterior angles and posterior margin rounded together (e.g. Figs 10, 12, 13). Subquadrate = head length (from anterior margin of clypeus to posterior margin at neck constriction) and head width similar; head posterior of eyes parallel, with more or less rounded posterior angles and straight or slightly concave posterior margin (e.g. Figs 1–7). Trapezoidal = head posterior of eyes more or less widened towards pronounced posterior angles; posterior margin often notably concave (e.g. Figs 21–23).

Material compilations: In the compilations of type material and additional specimens examined, the label data usually are not cited verbatim, but standardized to make it easier for the reader to identify the localities. Old, nowadays uncommon locality names are replaced by the current names, but added in rectangular brackets. Labels of old type specimens are cited verbatim in quotation marks. To shorten the paragraphs for both types and distribution, names of superior administrative units such as provinces are given only once and the locality data compiled following them. For this reason, in type specimen compilations the names of superior administrative units may be preceding or following the type specimen categories such as holotype, lectotype or paratype.

Descriptions: Extensive descriptions, often a mixture of important and irrelevant characters and seldom read, are replaced by short, concise descriptions of habitus, coloration and the primary and secondary sexual characters, most of which are illustrated. In the past, descriptions of scopaeine species usually employed characters of poor species diagnostic value such as headshape, punctuation and microsculpture and for a long time neglected the important sexual characters. Even though from the beginning of his work on the Scopaeina the first author described the genital characters, he also put a lot of effort in describing ectoskeletal characters of subordinate value for diagnosing the species, for instance time-consuming

measurement of body proportions, which are often variable, overlap between species, and are useless for species identification, while the male genital characters allow for a quick and accurate identification. From now on standard measurements will be omitted except for body and forebody length.

Detailed descriptions of punctuation and microsculpture separately according to tagmata are waived. In *Scopaeus*, the punctuation of the pronotum is usually finer and more spacious than the punctuation of the head, while the elytra are notably more strongly punctate than the head. The punctuation of the abdomen is usually much finer than the punctuation of the forebody. The microsculpture, if present, is usually stronger on the abdomen compared to the forebody. As these repetitive characters of punctuation and microsculpture of the tagmata have little value for diagnosing species, it is sufficient usually to give their rough expression without distinguishing tagmata. The descriptions of the coloration, which in *Scopaeus* sometimes varies considerably, focus on the typical color pattern of the species and most frequent color variations.

The primary sexual characters of the females are mostly diagnostic for monophyletic groups, but in some species groups for species identification also, for example in the West Palaearctic *S. elegans* group, the species included exhibit species specific sclerotization pattern of the bursa (Frisch 2010: 165–189). The character combination of the sperm pump, the bursal duct and the often species specific sclerotization pattern of the bursa often enables the identification of females, at least the assigning of females to the males within mixed samples of similar species, which are frequent in *Scopaeus*. However, the shape of the outer ends of the sperm pump often varies intraspecifically, and the range of variation of the sperm pumps of the species diagnosed herein is unknown. The diagnostic value of the female primary sexual characters published herein for species identification will not be revealed until these characters have been described in closely related species as well.

The first author prepared the species diagnoses and is the author of the species described herein.

Collecting habitats and methods: According to the habitat preference of *Scopaeus* species (Frisch 2002: 28), the first author collected the specimens, this contribution is based on, by hand in the upper sand or gravel layers or under stones of humid, sparsely vegetated banks of rivers and streams both in cultivated land, mostly rice fields, and rain forest using an aspirator. Label data of other collectors also point to riparian habitats. Even though most *Scopaeus* are macropterous and able to fly, only few species are known to be attracted by light. During the Indobiosys expeditions, only *S. filiformis* and *S. wunderlei* visited the light traps.

Phylogeny: The present contribution is a report on the results of the Indobiosys expeditions and compiles *Scopaeus* species of various phylogenetic lineages, which moreover comprise additional species outside Indonesia. Thus, it is not a suitable platform for defining monophyletic species groups based on phylogenetic hypotheses. Nevertheless, reference is made to relationships between the species treated herein. Some species are classified in previously established species groups.

3. Taxonomy

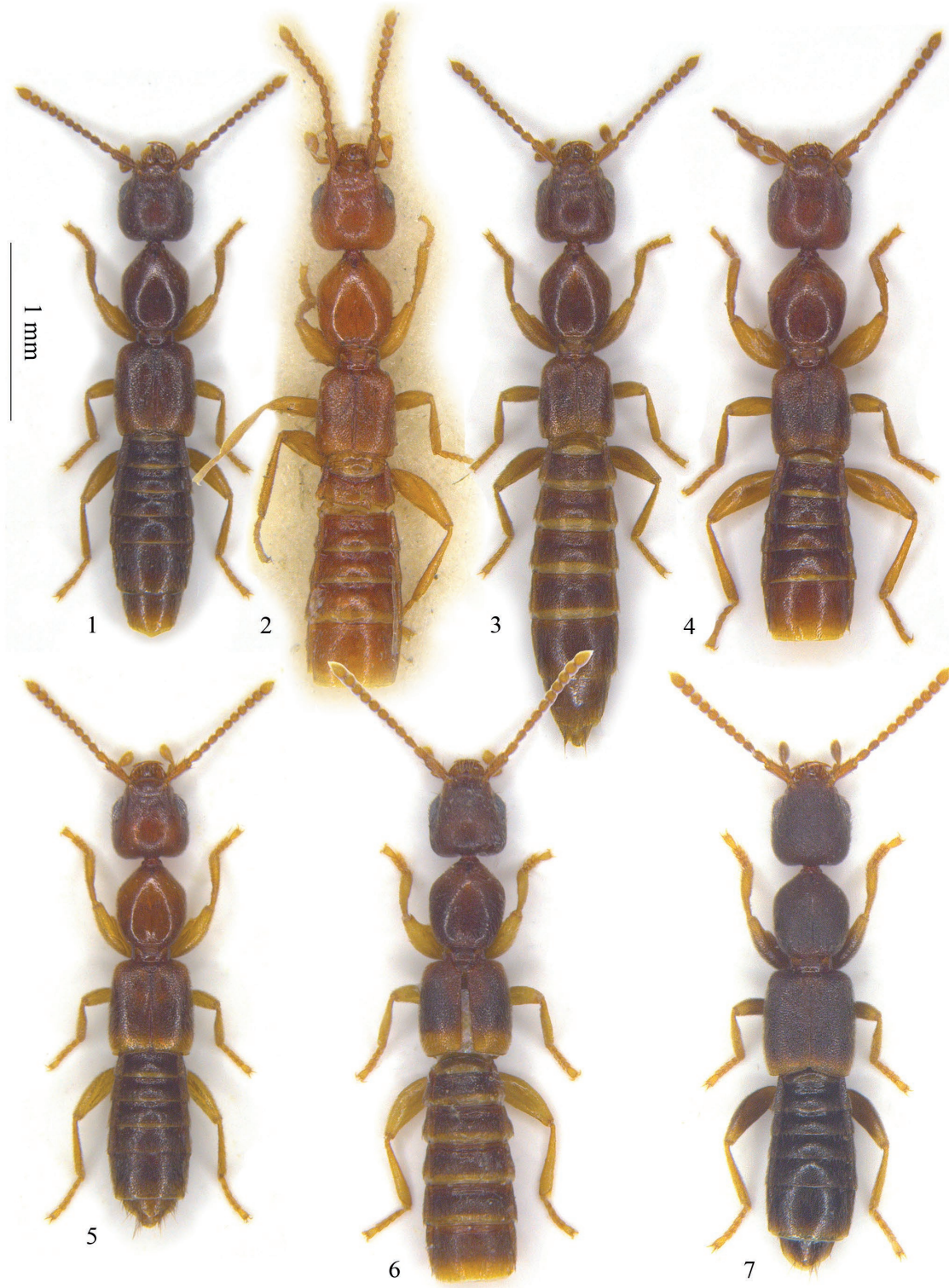
Scopaeus javanus Cameron, 1936

(Figs 1, 2, 27, 50–52, 119, 146)

Scopaeus javanus Cameron, 1936: 52.

Type specimens examined: Lectotype ♂, Indonesia, Jawa Barat, N Bandung: Mt Tangkuban Perahu, 12.11.1929, leg. Drescher, by present designation; labeled 'Type' (red edged, round, printed label), 'JAVA: / F.C. Drescher. / B.M. 1934.-264.' (printed), 'F.C. DRESCHER / G. Tangkoeban Prahoe / 4000-5000 Voet / Pranger, Java / 12.XI.1929' (printed except date), 'S. javanus Cam. TYPE' (handwritten), 'Lectotype / *Scopaeus javanus* / Cameron 1936 / label by J. Frisch, 2022' (red, printed) (NHML). Paralectotype: 1 ♂, labeled 'Paratype' (yellow edged, round, printed label), 'cultus ex. / [illegible name] / Triatar-Kina' (handwritten except for 'cultus ex. '), 'F.C. Drescher / G. Tangkoeban Prahoe / 4000 – 5000 Voet / Preanger, Java / 12.XI.1929' (printed except date), 'S. javanus Cam. COTYPE' (handwritten), 'M. Cameron / Bequest / B.M.1955-147.' (printed), 'Paralectotype / *Scopaeus javanus* / Cameron 1936 / label by J. Frisch, 2022' (subsequent paralectotype label, red, printed) (NHML).

A lectotype is designated according to ICZN 1999, Article 74.1., because Cameron (1936: 52) neither distinguished a 'type' nor specified the total number of type specimens. The round type labels constitute subsequent labels attached by collection staff of NHML. The specimen selected as lectotype had already been labeled 'S. javanus Cam. TYPE', handwritten by Cameron, but this was not published. Another male of *S. javanus* at NHML doubtlessly belongs to the same sample as the lectotype and is therefore a paralectotype. It was collected by Drescher at Mount Tangkuban Perahu on 12.11.1929 and bears the same labels as the lectotype. It lacks, however, Cameron's handwritten type and identification label. A female at MZB, which Drescher subsequently collected at the type locality on 23.12.1929, is not a type specimen,



Figures 1–7. Habitus of *Scopaeus javanus*, Jawa Barat, Sukabumi: Kiara Dua (1); *S. javanus*, paralectotype, Jawa Barat, N Bandung: Mt Tangkuban Perahu (2); *S. batukaruensis*, paratype, Bali, Tabanan: Batukaru (3); *S. riedeli*, holotype, Sumatra, South Lampung: Rajabasa Mts (4); *S. jacobsoni*, Jawa Barat: Mt Salak (5); *S. mixtus*, Malaysia, Sabah: Lokan (6); *S. halimunsalakensis*, paratype, Jawa Barat, Sukabumi: Simaresmi (7).

because Cameron (1936: 52) based the description of *S. javanus* on specimens collected on 12.11.1929 only.

New Indonesian records: Jawa Barat: Bandung, 23.3.1988, leg. Wrensch & Johnston (FMNH); Sukabumi, Kiara Dua: Ciletuh River (07°08'27"S, 106°37'46"E), 710 m, 24.9.2015, 27.9.2015, leg. Frisch (MFNB, MZB); 50 km NEE Bogor: Cibodas, 1400 m, 3.–6.11.1989, leg. Agosti, Löbl & Burckhardt (MNHG); Mt Gede, 1400–1500 m, 24.–28.5.1997, leg. Kurbatov (MHNG).

Redescription: Habitus and coloring as in Figs 1, 2. Pterodimorphous; brachypterous specimens (Fig. 2) with reduced humeral angles and abdominal tergite VII without palisade fringe. Head subquadrate. Penultimate antennal segment quadrate. Mesotibia slender. Body surface with distinct, dense, setose punctation, without microreticulation. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body orange-brown with light, yellow-brown appendages (Fig. 2) to reddish medium brown with orange-brown posterior

fifth of elytra, often somewhat lighter brown shoulders or basis of elytra, light brown tip of abdomen, light brown maxillary palpi and legs (Fig. 1); antennae gradually lighter from medium brown scapus to light brown segment 11. Total body length 2.4–2.9 mm; forebody length 1.4–1.6 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with posterior margin evenly concave in posterior fifth (Fig. 119). Aedeagus (Figs 27, 50–52) about 0.7 mm long; apical lobes with convex ventral margins (Fig. 50) and, in ventral and dorsal view, round apicolateral margins (Fig. 51: arrow II, Fig. 52); dorsal lobe strongly curved ventrad, strongly projecting from apical lobes ventrally, with round, lobiform end (Fig. 50: arrow I); flagellum short, inconspicuous; lateral lobes evenly convex, not much projecting (Figs 51, 52), with group of numerous, apicad and ventromedial pointing setae [setae broken off in Figs 27, 50–52, but insertion points visible (for setation compare with aedeagus of



Figures 8–10. Habitus of *Scopaeus tortuosiflagellatus*, paratype, Jawa Barat, Sukabumi: Cisalimas (8); *S. posoanus*, paratype, Sulawesi Tengah: Lake Poso (9); *S. spiraliflagellatus*, paratype, Sulawesi Tengah: Lake Poso (10).

S. batukaruensis, Figs 53–55)]; transverse ridge of small, semicircular median foramen narrow, curved proximad (Fig. 51).

Female: Sperm pump as in Fig. 146; bursa membranous.

Distribution: *Scopaeus javanus* is known from Jawa Barat only.

***Scopaeus batukaruensis* Frisch, spec. nov.**
(Figs 3, 28, 53–55, 120, 147)

Type specimens: Indonesia: Holotype ♂, Bali, Tabanan: Bedugul, 1200 m, 13.6.1994, leg. Wunderle (PWCM). Paratypes (79 specimens): 21 ♂, 27 ♀, same data as holotype (MFNB, PWCM, MZB). Bali: 1 ♀, Tabanan: Batukaru, 700 m, 9.6.1994, leg. Wunderle (MFNB); 1 ♀, Tabanan: Batukaru, 17.6.1984, leg. Rougemont (HECO); 3 ♂, 4 ♀, Tabanan: Pura Batukau, 22.11.1978, leg. Huber (MHNG); 2 ♂, 6 ♀, Buleleng, Lake Tamblingan, 1300 m, 30.10.1991, leg. Löbl (MHNG); 1 ♂, 1 ♀, Buleleng, Lake Buyan, 1200 m, 8.–9.11.1991, leg. Löbl (MHNG); 3 ♂, 1 ♀, Buleleng, Lake Buyan, 25.8.1985, leg. Robert (MHNG); 2 ♂, 1 ♀, Buleleng, Lake Buyan, 1300 m, 19.–21.2.1984, leg. Bolm (SMNS); Mt Batukai (Mt Batukaru?), 500–700 m, 28.–29.10.1991, leg. Löbl (MHNG). Lombok: 1 ♀, Pusuk Pass, 200 m, 4.11.1991, leg. Löbl (MHNG); 1 ♂, North Lombok: Senaru (Mt Rinjani), 400 m, 5.11.1991, leg. Löbl (MHNG); 1 ♂, 1 ♀, West Lombok: Sesaot, 13.6.1984, leg. Rougemont (HECO).

Description: Habitus and coloring (Fig. 3) similar to *Scopaeus javanus* (Figs 1, 2) and *S. riedeli* (Fig. 4), different as follows: Brachypterous form, possibly dominant according to type specimens, with or without palisade fringe at posterior margin of abdominal tergite VII; only one specimen from Lombok macropterous with fully developed metathoracic wings. Unicolorous orange-brown specimens unknown. Total body length 3.0–3.3 mm; forebody length 1.6–1.7 mm.

Male: Abdominal sternites VII and VIII (Fig. 120) as in *S. javanus* (Fig. 119) and *S. riedeli* (Fig. 121). Aedeagus (Figs 28, 53–55) about 0.8 mm long, similar to that of *S. javanus* (Figs 27, 50–52) and *S. riedeli* (29, 56–58), but different as follows: Apical lobes with strong, ventroapical emargination (Fig. 28, Fig. 53: arrow III); in ventral and dorsal view, apical lobes more slender, more parallel towards each other, less curved apicomediad and with subtruncate ends (Fig. 54: arrow V, Fig. 55); dorsal lobe, in lateral view, with narrow apex (Fig. 28, Fig. 53: arrow IV).

Female: Sperm pump as in Fig. 147; bursa membranous.

Distribution: *Scopaeus batukaruensis* is distributed in the Lesser Sunda Islands Bali and Lombok.

Etymology: With the epithet *batukaruensis* (adjective, Latin, composed of the geographic name Batukaru and

the suffix *-ensis*, which indicates the geographical origin) reference is made to Mount Batukaru in Bali, where most of the type specimens were collected.

***Scopaeus riedeli* Frisch, spec. nov.**
(Figs 4, 29, 56–58, 121)

Type specimen: Holotype ♂, Indonesia, Sumatra, Lampung, South Lampung, SO Kalianda: Rajabasa Mts (05°46.656'S, 105°37.478'E), 1170 m, 15.8.2006, leg. Riedel (MZB).

Description: Habitus and coloring (Fig. 4) like in brachypterous, dark colored *Scopaeus javanus* (Fig. 1) and *S. batukaruensis* (Fig. 3). Holotype (Fig. 4) brachypterous, without palisade fringe. Total body length 2.9 mm; forebody length 1.6 mm.

Male: Abdominal sternites VII and VIII (Fig. 121) as in *S. javanus* (Fig. 119) and *S. batukaruensis* (Fig. 120). Aedeagus (Figs 29, 56–58) 0.7 mm long, distinguished from that of *S. javanus* and *S. batukaruensis* by ventrally inemarginate (Fig. 56: arrow I), apicolaterally widened apical lobes (Fig. 57: arrow III, Fig. 58); different from aedeagus of *S. javanus* moreover by narrow, not lobiform apex of dorsal lobe (Fig. 56: arrow II).

Female unknown.

Distribution: *Scopaeus riedeli* is known from the south of Sumatra only.

Etymology: The epithet *riedeli* (Latinized noun, derived from the surname 'Riedel', genitive, singular) is chosen in honor of Alexander Riedel, specialist of Indonesian Curculionidae at Staatliches Museum für Naturkunde Karlsruhe, Germany, who collected this new species in Sumatra.

Comment: *Scopaeus javanus*, *S. batukaruensis* and *S. riedeli* form a species group with allopatric distribution in the Sunda Islands. The species are linked by the similar habitus, wing-dimorphism (Figs 1–4) and the characteristic shape of the aedeagus with a strongly ventrad curved, from the apical lobes strongly projecting, distally extended dorsal lobe (Figs 27–29, 50–58).

***Scopaeus jacobsoni* Cameron, 1930**
(Figs 5, 30, 59–61, 122, 148, 150)

Scopaeus jacobsoni Cameron, 1930: 346.

Type specimen examined: Holotype ♂, Indonesia, Sumatra: Sumatera Barat, Bukittinggi; labeled 'Holotype' (red edged, round, white label), 'Fort de Kock (Sumatra) 920 M. 1925 leg. E. Jacobson.' (printed),

'*Scopaeus jacobsoni* Cam. TYPE' (handwritten), 'M. Cameron. Bequest. B.M. 1955-147.' (printed), 'Holotype / *Scopaeus jacobsoni* / Cameron 1930 / label by J. Frisch, 2022' (subsequent holotype label, red, printed) (NHML).

Cameron (1930: 346) described *Scopaeus jacobsoni* after a 'unique' specimen, which is a holotype by monotypy (ICZN, Article 73.1.2). The specimen labeled as holotype had already been labeled 'TYPE' by Cameron. Thus, a second specimen at NHML with the same locality label (Fort de Kock, 1925, leg. E. Jacobson) subsequently labeled 'Paratype' is not a type specimen.

New Indonesian records: Bali: Tabanan: Pupuan Waterfall, 700 m, 14.6.1994, leg. Wunderle (PWCM); Tabanan: Batukaru, 17.6.1984, leg. Rougemont (HECO). Banten: Lebak, E Bengkulu: Cibeber (Cibareno River), (06°48'49''S, 106°26'10''E), 470 m, 22.9.2015, leg. Frisch; Lebak: Citorek Kidul (06°44'51''S, 106°19'13''E), 870 m, 23.5.2016, leg. Frisch; Lebak: Majasari (06°38'58''S, 106°22'02''E), 560 m, 25.5.2016, leg. Frisch; Lebak: NE Majasari (06°37'32''S, 106°23'53''E), 460 m, 26.5.2016, leg. Frisch; Lebak, Ciparasi: Ciparasi River (06°39'27''S, 106°20'21''E), 450 m, 28.5.2016, leg. Frisch. Jawa Barat: Bogor, NE-slope Mt Salak (06°39'55''S, 106°45'36''E),



Figures 11–13. Habitus of *Scopaeus anuliflagellatus*, paratype, Jawa Barat, Sukabumi: Cikaniki (11); *S. grandis*, paratype, Jawa Barat, Sukabumi: Cidahu (12); *S. pulcher*, paratype, Jawa Barat, Sukabumi: Cikaniki (13).

640 m, 13.9.2015, leg. Frisch; Bogor, Legok Dulang: Ciangsana River (06°43'08"S, 106°31'15"E), 1020 m, 18.9.2015, leg. Frisch; Bogor, S Tenjolaja, Tapos: Ciampea River (06°41'36"S, 106°42'24"E), 1040 m, 2.10.2015, leg. Frisch; Bogor, SW Pamijahan (Cimuaru Herang River), (06°42'41"S, 106°41'03"E), 990 m, 3.10.2015, leg. Frisch; Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46"S, 106°32'25"E), 1020 m, 17.9.2015, 5.10.2015, leg. Frisch; Sukabumi, Cisalimas: Cisalimas River (E-slope Mt Halimun), (06°45'21"S, 106°33'38"E), 870 m, 19.9.2015, 14.5.2016, leg. Frisch; Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun), (06°51'32"S, 106°31'06"E), 670 m, 21.9.2015, 15.5.2016, leg. Frisch; Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39"S, 106°30'48"E), 680 m, 20.9.2015, leg. Frisch; Sukabumi, Simaresmi: Cisareno River (06°49'02"S, 106°30'09"E), 1000 m, 22.9.2015, leg. Frisch; Sukabumi, Kiara Dua: Ciletuh River (07°08'40"S, 106°36'55"E), 670 m, 23.9.2015, leg. Frisch; Sukabumi, Kiara Dua: Ciletuh River (07°08'27"S, 106°37'46"E), 710 m, 24.9.2015, 27.9.2015, leg. Frisch; Sukabumi, N Djampang Kulon: Cikarang River (07°14'03"S, 106°36'49"E), 250 m, 25.9.2015, leg. Frisch; Sukabumi, Simpenan: Cilulumpang River (07°08'43"S, 106°38'24"E), 740 m, 26.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Cirasamala River (S-slope Mt Salak), (06°44'18"S, 106°42'52"E), 1210 m, 29.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Javana Spa (S-slope Mt Salak), (06°44'43"S, 106°42'51"E), 1150 m, 20.9.2015, leg. Frisch; Sukabumi, NE Pelabuhan Ratu (06°58'12"S, 106°34'00"E), 150 m, 19.5.2016, leg. Frisch. Jawa Timur: Pasuruan: Kakek Bodo Waterfall, 800 m, 20.9.1995, leg. Schillhammer (NHMW). Sumatera Barat: Lake Toba, Samosir Island: Ambarita, 4.1977, leg. Jaccoud (MHNG); W Bukittinggi: Manindjau, 4.1977, leg. Jaccoud (MHNG). Sumatera Utara: Simalungun: 'Prapat' (Parapat?), 5.5.1984, leg. Rougemont (HECO). Nusa Tenggara Barat: Lombok: Tetebatu, 6.–10.8.1979, leg. Chambrier (MHNG).

Redescription: Habitus and coloring as in Fig. 5. Head subquadrate. Antennae with penultimate segment quadrate. Mesotibia moderately thickened. Body surface with distinct, dense, setose punctation, without microreticulation. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Forebody reddish medium brown; abdomen darker brown with lighter brown tip; coloring of elytra variable, ranging from medium brown with indistinct, lateral darkening posterior of middle of length to contrasted color pattern with medium brown basis and gradually darker brown to blackish brown towards yellow-brown, posterior fifth to sixth of elytral length; maxillary palpi, antennae and legs yellow-brown. Total body length 2.6–2.9 mm; forebody length 1.5–1.6 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with posterior fourth of posterior margin widely concave with slightly convex median fifth (Fig. 122). Aedeagus (Figs 30, 59–61) about 0.6 mm long; apical lobes in lateral view slender with acute apices, in ventral and dorsal view (Figs 60, 61) with right-angled, laterally projecting tooth at about middle of length, apically extended in slender lobes of unequal length somewhat curved mediad and widely separated by conspicuously transverse, apically truncate dorsal lobe extended in two long, ventrobasad pointing, diverging spines (Figs 59: arrow IV) with enlarged, overlapping ends; dextral spine of dorsal lobe evenly widened towards remarkably enlarged, transverse end with convex apical margin extended in huge, sinistrodistad curved tooth (Fig. 60: arrow V); sinistral spine of dorsal lobe less enlarged (Fig. 60: arrow VI); lateral lobes subrectangular, each with group of long, ventroapical pointing and smaller group of shorter, ventrad pointing setae (Figs 59, 60); additional, unpaired, slender, apical curved lobe projecting left of sinistral apical (lobe Fig. 60: arrow VII); ventral lobe moderately projecting, subtriangular with round apex (Fig. 59); median foramen wide, semicircular, with longitudinally broad, ventrally somewhat convexly projecting, transverse ridge (Fig. 30, 59, 60).

Female: Sperm pump with long, slender process segment; chamber short, circular, with short apophysis (Fig. 150); bursa mostly membranous with characteristic sclerotization at posterior end (Fig. 148).

Distribution: *Scopaeus jacobsoni* is widespread across Indonesia and recorded from Sumatra, Java and the Lesser Sunda Islands as far east as Lombok. I experienced the species to be very common in western Java.

Scopaeus mixtus Cameron, 1941 (Figs 6, 31, 62–64, 123, 149, 151)

Scopaeus mixtus Cameron, 1941: 229, 230.

Type specimens examined: Holotype ♂, Malaysia, Sabah: Sandakan, leg. Cameron; labeled 'Type' (red edged, round, printed label), 'Sandakan, / N. Borneo. / Dr. Cameron.' (printed), 'S. / mixtus / TYPE Cam.' (handwritten), 'M. Cameron / Bequest / B.M.1955-147.' (printed), 'Holotype / *Scopaeus mixtus* / Cameron 1930 / label by J. Frisch, 2022' (red, printed) (NHML). Paratypes: 2 ♂, 2 ♀, same labels as holotype except type label, subsequent paratype label 'Paratype / *Scopaeus mixtus* / Cameron 1930 / label by J. Frisch, 2022' (red, printed) (NHML).

The type specimen represents a holotype by original designation (ICZN 1999: Article 73.1.1.), because

Cameron (1941: 230) stated 'Type in my collection.' and labeled the specimen accordingly. Four additional specimens from the Cameron collection at NHML are rated as paratypes and labeled accordingly.

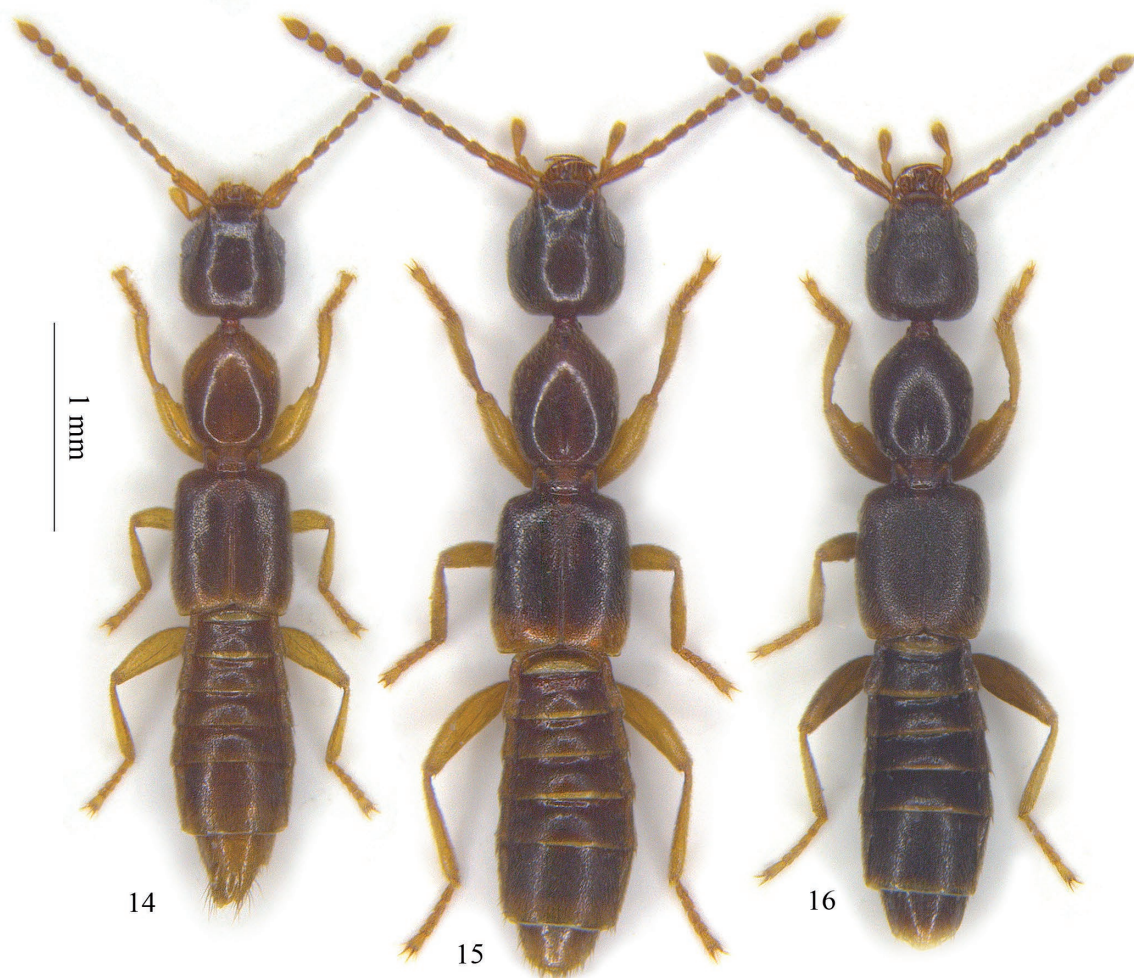
New records: Malaysia, Sabah: Sandakan, S Lokan, 9.1996, 3.1997, leg. Chung (NHML, MFNB); (04°63'50" - 04°77'16"N, 117°43'83" - 117°70'31"E), 300 m, 5.-6.2012, leg. SAFE Project (HECO, MFNB).

Redescription: Habitus and coloring as in Fig. 6. Head subquadrate. Antennae with penultimate segment quadrate. Mesotibia slender. Surface of head and elytra matt due to dense setose punctation; pronotum shiny with very fine, sparse punctation; forebody without microreticulation. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body reddish medium brown to dark brown except for elytra gradually blackened from about longitudinal middle towards contrasted, yellow-brown posterior fifth and yellow-brown tip of abdomen; maxillary palpi, antennae

and legs yellow brown. Total body length 2.5–2.9 mm; forebody length 1.4–1.5 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with concave emargination in almost posterior third (Fig. 123). Aedeagus (Figs 31, 62–64) about 0.7 mm long; apical lobes narrow, hooked ventrally with slender, emarginate apices (Figs 31, 62), in ventral and dorsal view (Figs 63, 64) subparallel with acute ends, together only third as wide as phallobase; dorsal lobe as long as apical lobes, strongly projecting from apical lobes ventrally, semicircularly curved dorsad, with conspicuous ventral dilatation evenly tapered towards acute end; lateral lobes subrectangular, somewhat projecting laterad, each with spacious row of few setae (Figs 31, 62, 63); median foramen transverse, short longitudinally, limited distally by strongly sclerotized, transverse ridge.

Female: Sperm pump with long, slender segments (Fig. 151); bursa hyaline with small, apical sclerotization (Fig. 149).



Figures 14–16. Habitus of *Scopaeus heronifer*, paratype, Jawa Barat: Mt Salak (14); *S. diversilobatus*, paratype, Jawa Barat, Sukabumi: Djampang Kulon (15); *S. cuspilobatus*, paratype, Jawa Barat, Sukabumi: Sirnarasa (16).

Distribution: Examined specimens of *Scopaeus mixtus* originate from Sabah in the Malaysian part of Borneo. I expect this species to occur in Kalimantan as well, which is why it is included in this contribution.

***Scopaeus halimunsalakensis* Frisch, spec. nov.**
(Figs 7, 32, 65–67, 124, 152)

Type specimens: Indonesia, Jawa Barat: Holotype ♂, Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun) (06°51'32''S, 106°31'06''E), 670 m, 21.9.2015, leg. Frisch (MZB). Paratypes (7 specimens): 1 ♂, 4 ♀, same data as holotype (MFNB, MZB); 1 ♀, Bogor, NO-slope Mt Salak (06°39'55''S, 106°45'36''E), 640 m, 13.9.2015, leg. Frisch (MFNB); 1 ♀, Sukabumi, Sirnaresmi: Cisareno River (06°49'02''S, 106°30'09''E), 1000 m, 22.9.2015, leg. Frisch (MZB).

Description: Habitus and coloring as in Fig. 7. Head subquadrate. Antennae with penultimate segment quadrate. Mesotibia slender. Forebody surface matt due to dense, rugulose, setose punctation; abdomen somewhat shiny. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body dark brown except for yellow-brown posterior sixth of elytra and tip of abdomen; maxillary palpi and antennae medium brown, latter gradually lighter towards light brown, distal segments; legs yellow-brown with femora dark brown except for distal ends. Total body length 2.4–2.9 mm; forebody length 1.5–1.6 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with posterior margin bisinuate with strongly convex median third; emargination covering about distal fifth of sternite length (Fig. 124). Aedeagus (Figs 32, 65–67) about 0.8 mm long; apical lobes slender, in ventral and dorsal view subparallel with mediad curved ends (Figs 66, 67); dorsal lobe distally with truncate, finely serrate ventral margin; flagellum long, strongly projecting from apical lobes apically; apical lobes, dorsal lobe and flagellum strongly curved ventrally in about longitudinal middle (Fig. 65: arrow I); lateral lobes short, subacute, little projecting from phallobase, each bearing apical group of apicad pointing setae and widely separate, proximal group of ventromediad pointing setae (Figs 66, 67); ventral lobe in lateral view elongate with straight ventral margin and round apex (Fig. 65), in ventral view bilobate with deep, narrow, median emargination (Fig. 66: arrow II); median foramen large, round distally; transverse ridge weakly sclerotized, inconspicuous (Fig. 66).

Female: Sperm pump with strongly widened ends and short, circular chamber (Fig. 152); bursa membranous.

Phylogeny: *Scopaeus halimunsalakensis* is to be classified in the *S. limbatus* species group (Frisch 2005: 75).

Distribution: *Scopaeus halimunsalakensis* is hitherto known only from the surroundings of Mount Halimun-Salak National Park, Jawa Barat.

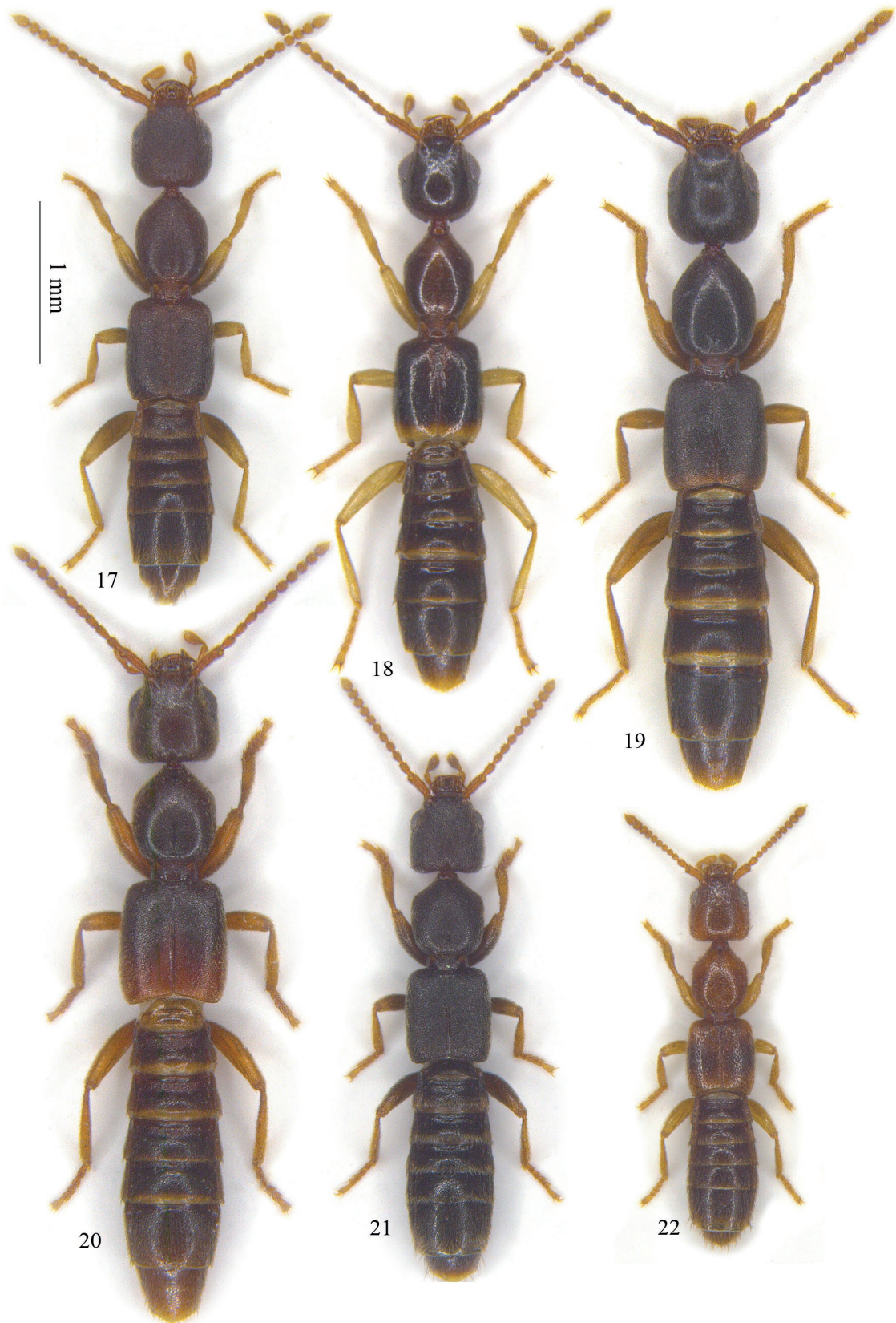
Etymology: The epithet *halimunsalakensis* (adjective, Latin, with suffix *-ensis*, derived from the noun Halimun-Salak) refers to the Mount Halimun-Salak National Park, in the vicinity of which the type specimens have been collected.

***Scopaeus tortuosiflagellatus* Frisch, spec. nov.**
(Figs 8, 33, 68–70, 125, 153, 154)

Type specimens: Indonesia, Jawa Barat: Holotype ♂, Sukabumi, Cisalimas (Cisalimas River), (06°45'21''S, 106°33'38''E), 870 m, 19.9.2015, leg. Frisch (MZB). Paratypes (6 specimens): 1 ♀, same data as holotype (MFNB); 1 ♂, Bogor, SW Pamijahan (06°42'41''S, 106°41'03''E), 990 m, 3.10.2015, leg. Frisch (MZB); 1 ♂, 1 ♀, Sukabumi, NNW Cidahu: Javana Spa (06°44'43''S, 106°42'51''E), 1150 m, 30.9.2015, leg. Frisch (MFNB, MZB); 2 ♀, Sukabumi: Cikaniki (Cikaniki River), (06°44'46''S, 106°32'25''E), 1020 m, 5.10.2015 (MFNB, MZB).

Description: Habitus and coloring as in Fig. 8. Head subquadrate. Antennae with elongate penultimate segment. Mesotibia slender. Forebody surface with fine, setose punctation, shiny; abdomen matter than forebody. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body black-brown except for narrow, yellow-brown, posterior margin of elytra, light brown tip of abdomen, medium brown maxillary palpi with darker penultimate segment, and yellow-brown legs; antennae with scapus medium brown, from blackish pedicellus gradually lighter towards terminal segments. Total body length 2.4–2.9 mm; forebody length 1.5–1.6 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with bisinuate emargination with strongly convex median third in about posterior fifth of sternite length (Fig. 125). Aedeagus (Figs 33, 68–70) about 1.1 mm long, with asymmetrical distal lobes; dextral apical lobe longer than acute sinistral apical lobe, enlarged apicad and with conspicuous, very slender, proximodorsad curved spine of ventral margin (Figs 68, 69: arrows I, II); dorsal lobe curved ventrad with short, acute end (Fig. 68), in dorsal view evenly tapered towards acute apex (Fig. 70); flagellum monstrous, strongly projecting ventrally, with strong, convex enlargement (Figs 68, 69: arrows III) at large, thick proximal winding, thinner and meandering towards end; lateral lobes small, narrow, projecting, each bearing apical group of long setae and proximal group of shorter



Figures 17–22. Habitus of *Scopaeus velifer*, paratype, Banten, Lebak: Citorek Kidul (17); *S. elegantulus*, Jawa Barat, Sukabumi: Djampang Kulon (18); *S. uncinatus*, paratype, Jawa Barat, Sukabumi: Cidahu (19); *S. bipenicillatus*, paratype, Sulawesi Tengah, Sigi: Pagana (20); *S. bipectenatus*, paratype, Sulawesi Tengah: Lake Poso (21); *S. crassipunctatus*, paratype, Jawa Barat, Sukabumi: Sinarasa (22).

setae (Figs 68, 69); ventral lobe asymmetrical, divided in distodextral portion not much projecting ventrally and proximoinstral, transverse portion strongly triangularly projecting ventrally and laterally projecting from base of sinistral apical lobe (Figs 33, 68–70); transverse ridge of median foramen strongly, triangularly projecting ventrad (Fig. 33).

Female: Chamber of sperm pump subrectangular, truncate towards process segment, with long, distad widened apophysis (Fig. 154); bursal duct short, about twice as long as sperm pump, weakly sclerotized; bursa membranous (Fig. 153).

Phylogeny: *Scopaeus tortuosiflagellatus* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus tortuosiflagellatus* is distributed in Jawa Barat and was collected within and at the edge of the Mount Halimun – Salak National Park.

Etymology: The epithet *tortuosiflagellatus* [adjective, Latin, composed of the adjectives *tortuosus* (tortuous, winding) and *flagellatus* (indicating a characteristic/feature of the flagellum)] refers to the huge, remarkably tortuous flagellum of the aedeagus of this new species (Figs 33, 68–70).

***Scopaeus posoanus* Frisch, spec. nov.**

(Figs 9, 34, 71–73, 126, 127, 155, 156)

Type specimens: Indonesia, Sulawesi Tengah: Holotype ♂, Poso: Tentena – Taipa (Lake Poso), (01°47'58''S, 120°31'48''E), 530 m, 11.5.2017, leg. Frisch (MZB). Paratypes (14 specimens): 9 ♂, 4 ♀, same data as holotype (MFNB, MZB); 1 ♀, Poso: Tentena – Peura (Lake Poso), (01°47'59''S, 120°38'08''E), 550 m, 9.5.2017, leg. Frisch (MFNB).

Description: Habitus and coloring as in Fig. 9. Head subquadrate. Antennae with penultimate segment somewhat elongate. Mesotibia slender. Forebody surface with fine, setose punctation, shiny; abdomen matter than forebody. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body black-brown except for yellow-brown posterior fourth of elytra, light brown tip of abdomen, medium brown maxillary palps with darker penultimate segment, and yellow-brown legs with darker brown femora gradually lighter towards distal ends; antennae with scapus medium brown, from blackish pedicellus gradually lighter towards segment 6, segments 7–11 yellow-brown. Total body length 3.4–3.7 mm; forebody length 2.0–2.1 mm.

Male: Abdominal sternite VII with emargination in median third of posterior twelfth with wide, triangularly concave median lobe, appearing like three small, close, triangular incisions (Fig. 126). Emargination in posterior

fifth of abdominal sternite VIII wide, triangular, somewhat convex in middle; disc of sternite VIII in posterior two-thirds with wide, light, shallow, spaciouly setose depression divided in two lateral portions by darker, somewhat raised, longitudinal midline (Fig. 127). Aedeagus (Figs 34, 71–73) about 0.9 mm long with asymmetrical distal lobes; apical lobes, in lateral view, broad with triangular, dorsad curved ends (Figs 34, 71), in ventral view rhomboid in distal portion with small, ventroproximal pointing ends and gradually widened ventrolaterad in proximal portion (Figs 72, 73); ventral margin of dextral apical lobe with proximal pointing tooth with lobate apex (Fig. 71: arrow IV); dorsal lobe weakly sclerotized, triangular distally (Figs 72, 73: arrows V, VI); flagellum long, notably projecting from apical lobes dorsally in basal portion, then semicircularly curved ventroproximal (Figs 34, 71) and continued in dextrodistad curved apical portion (Fig. 72); ventral lobe strongly projecting, subrectangularly widened ventrally, with acute, ventroproximal end (Fig. 71); setose lateral lobes absent; median foramen wide, elongate, limited by triangularly distad bent, transverse ridge (Fig. 72).

Female: Bursal duct about three times as long as sperm pump, membranous in proximal half; bursa membranous (Fig. 155, 156).

Phylogeny: *Scopaeus posoanus* is to be classified in the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus posoanus* is known only from the vicinity of Lake Poso, Sulawesi Tengah.

Etymology: The epithet *posoanus* (adjective, Latin, derived from the noun Poso, with suffix *-anus*, which indicates the geographical affiliation) refers to the type localities of the new species at Lake Poso, Sulawesi.

***Scopaeus spiraliflagellatus* Frisch, spec. nov.**

(Figs 10, 35, 74–76, 128, 157, 158)

Type specimens: Indonesia: Holotype ♂, Sulawesi Tengah, Poso: Tentena – Peura (Lake Poso), (01°47'59''S, 120°38'08''E), 550 m, 9.5.2017, leg. Frisch (MZB). Paratypes (16 specimens): 1 ♀, same data as holotype (MFNB). Sulawesi Tengah: 1 ♀, Poso: S Peura (Lake Poso), (01°51'48''S, 120°38'59''E), 520 m, 9.5.2017, leg. Frisch (MFNB); 1 ♀, Morowali: Betelene – Tinompo (02°06'06''S, 121°08'26''E), 430 m, 12.5.2017, leg. Frisch (MFNB); 1 ♂, 5 ♀, Poso: Tentena – Taripa (01°48'40''S, 120°46'30''E), 880 m, 10.5.2017, leg. Frisch (MFNB, MZB); 1 ♀, Poso: Tentena – Peura (Lake Poso), (01°47'59''S, 120°38'08''E), 550 m, 9.5.2017, leg. Frisch (MFNB); 1 ♂, 3 ♀, Poso: Palolo – Sedoa: NW Sedoa (01°18'02''S, 120°16'22''E), 1250 m, 6.5.2017, leg. Frisch (MFNB). Sulawesi Selatan: 1 ♂, Makale, 17.07.1982, leg. Rougemont (HECO). 1 ♂, labeled 'Célebès, Kandari

7' (handwritten; Kendari in Sulawesi Tenggara?), 'apicipennis Fvl' (handwritten; in litteris name) (ISNB).

Description: Habitus and coloring as in Fig. 10. Total body length 3.1–4.0 mm; forebody length 1.9–2.2 mm. Head subcircular. Antennae with penultimate segment elongate. Mesotibia strongly thickened. Forebody surface with extremely spacious, fine, shallow, setose punctation, strongly shiny; abdomen also very finely, but more densely punctate than forebody, thus somewhat matter; body surface without microreticulation. Forebody setation comparatively long and strongly raised, including numerous, long macrosetae. Body black-brown except for yellow-brown posterior fifth of elytra, tip of abdomen, and legs with dark brown basal half of profemora becoming evenly lighter towards yellow-brown distal half; maxillary palpi darkened; antennae with scapus medium brown, pedicellus slightly darkened, segment 3 darkest, then evenly lighter towards light yellow-brown terminal segments.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII widely emarginate in posterior fifth with median third of emargination almost semicircularly projecting posteriad (Fig. 128); macrosetae of sternite VIII long, conspicuous. Aedeagus (Figs 35, 74–76) about 1.2 mm long with distal lobes strongly asymmetrical; apical lobes remarkably enlarged apically with short, right-angled dorsad curved apices; dextral apical lobe ventroproximad extended, ending in dorsad pointing hook (Figs 35, 74); ends of apical lobes, in ventral and dorsal view, curved towards each other, together forming triangular end (Figs 75, 76); dorsal lobe subrectangular in lateral view (Fig. 74), with transverse, slightly oblique, truncate end in dorsal view (Fig. 76); flagellum extremely lengthened, whip-like, thin proximally, spiral with two windings at dextral side of aedeagus (Figs 35, 74–76); ventral lobe elongate, about four times as long as wide, pointing ventrodorsad (Figs 35, 74); setose lateral lobes short, little projecting, strongly shifted distad to different extents (Figs 35, 74–76); median foramen large, asymmetrically extended distad with concave, distolateral enlargement at either side, without transverse ridge (Figs 74, 75).

Female: Sperm pump with apophysis adjacent to bursal duct; bursal duct strongly sclerotized in distal half, proximal half membranous (Figs 157, 158); bursa membranous.

Phylogeny: *Scopaeus spiraliiflagellatus* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus spiraliiflagellatus*, probably widespread in Sulawesi, is recorded in the surroundings of Lake Poso, Sulawesi Tengah, and in Kendari, Sulawesi Tenggara.

Etymology: The epithet *spiraliiflagellatus* [adjective, Latin, composed of the noun *spiralis* (spiral) and the

adjective *flagellatus* (indicating a characteristic/feature of the flagellum)] refers to the spiral flagellum of the aedeagus of this new species (Figs 35, 74–76).

***Scopaeus anuliflagellatus* Frisch, spec. nov.**
(Figs 11, 36, 77–79, 129, 159, 160)

Type specimens: Indonesia, Jawa Barat: Holotype ♂, Sukabumi, NNW Cidahu: Cirasamala River (S-slope Mt Salak), (06°44'18"S, 106°42'52"E), 1210 m, 29.9.2015, leg. Frisch (MZB). Paratype: 1 ♀, Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46"S, 106°32'25"E), 1020 m, 5.10.2015, leg. Frisch (MFNB).

Description: Habitus and coloring as in Fig. 11. Head subquadrate. Antennae with penultimate segment slightly elongate or quadrate. Mesotibia moderately thickened. Forebody surface with dense, rugulose, setose punctation, matt; abdomen somewhat shiny. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body black except for light tip of abdomen, medium brown maxillary palpi and yellow-brown legs with femora dark brown except for distal end; antennae with scapus medium brown, from blackish pedicellus evenly lighter towards terminal segments. Total body length 3.6–4.0 mm; forebody length 2.1–2.2 mm.

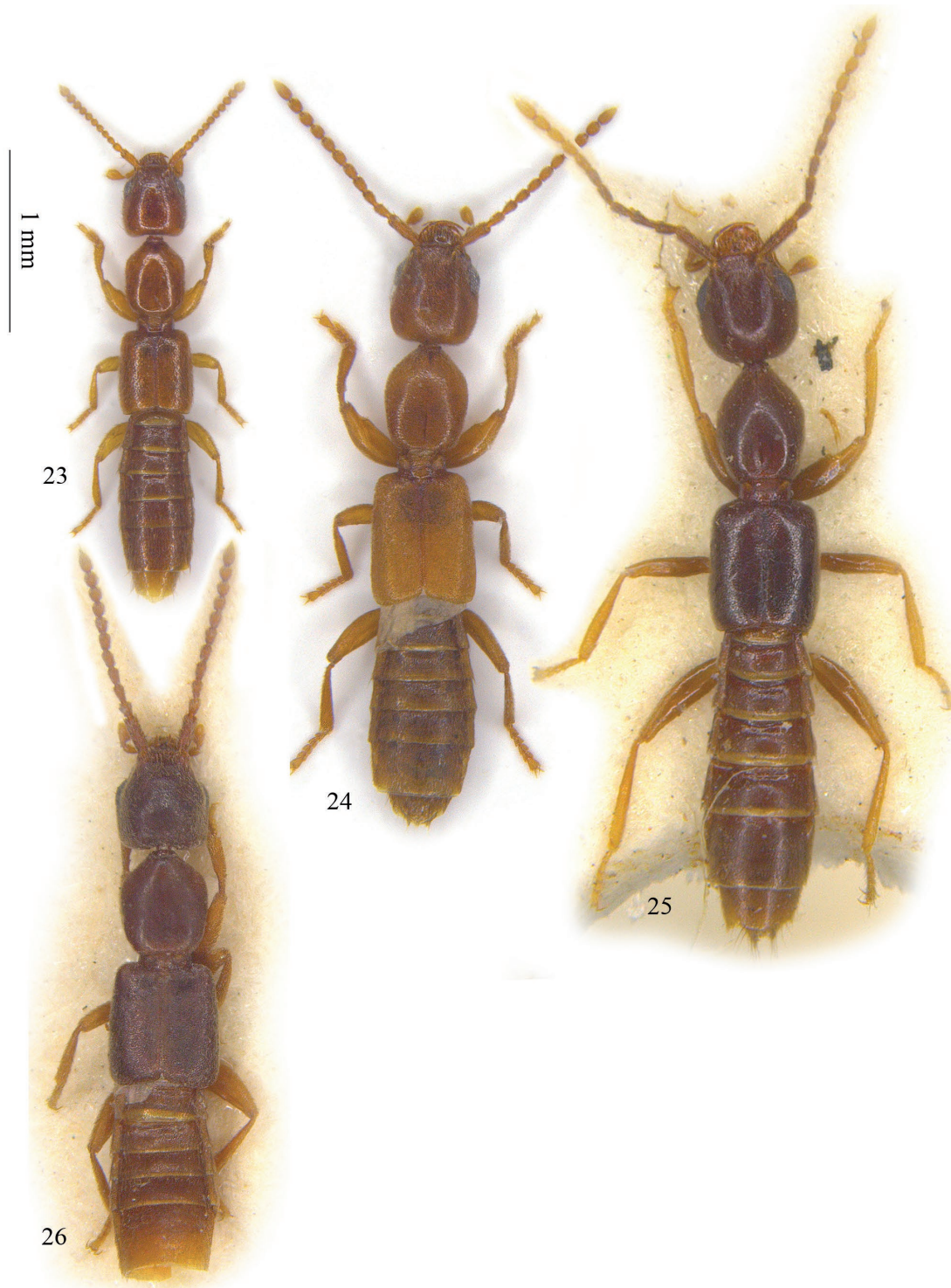
Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII widely emarginate in almost posterior sixth with median third of emargination somewhat convex (Fig. 129). Aedeagus (Figs 36, 77–79) about 1.2 mm long with distal lobes strongly asymmetrical; dextral apical lobe remarkably enlarged apically with broad, convex apex and acute, proximoventral end (Figs 36, 77), in ventral and dorsal view slender, parallel (Figs 78, 79); sinistral apical lobe, compared to dextral apical lobe, considerably narrower with convex, proximoventral end in lateral view, but much wider in ventral and dorsal view (Figs 78, 79); apex of dorsal lobe curved ventrad, extended in dextral, hooked end and sinistral, lobiform end (Fig. 77); flagellum comparatively short, not projecting ventrally from wide, distal portion of apical lobes, with annular winding to left of aedeagus (Figs 36, 77, 78); ventral lobe divided in scythe-shaped, distally curved, dextral lobe (Figs 36, 77) and short, sinistral tooth (Fig. 77, 78); lateral lobes reduced, marked by longer dextral and shorter sinistral group of setae (Figs 78, 79); median foramen small, subtriangular, with evenly, convexly distad curved, transversal ridge (Figs 36, 77, 78).

Female: Bursal duct membranous, about three times as long as sperm pump; bursa with specific sclerotization (Figs 159, 160).

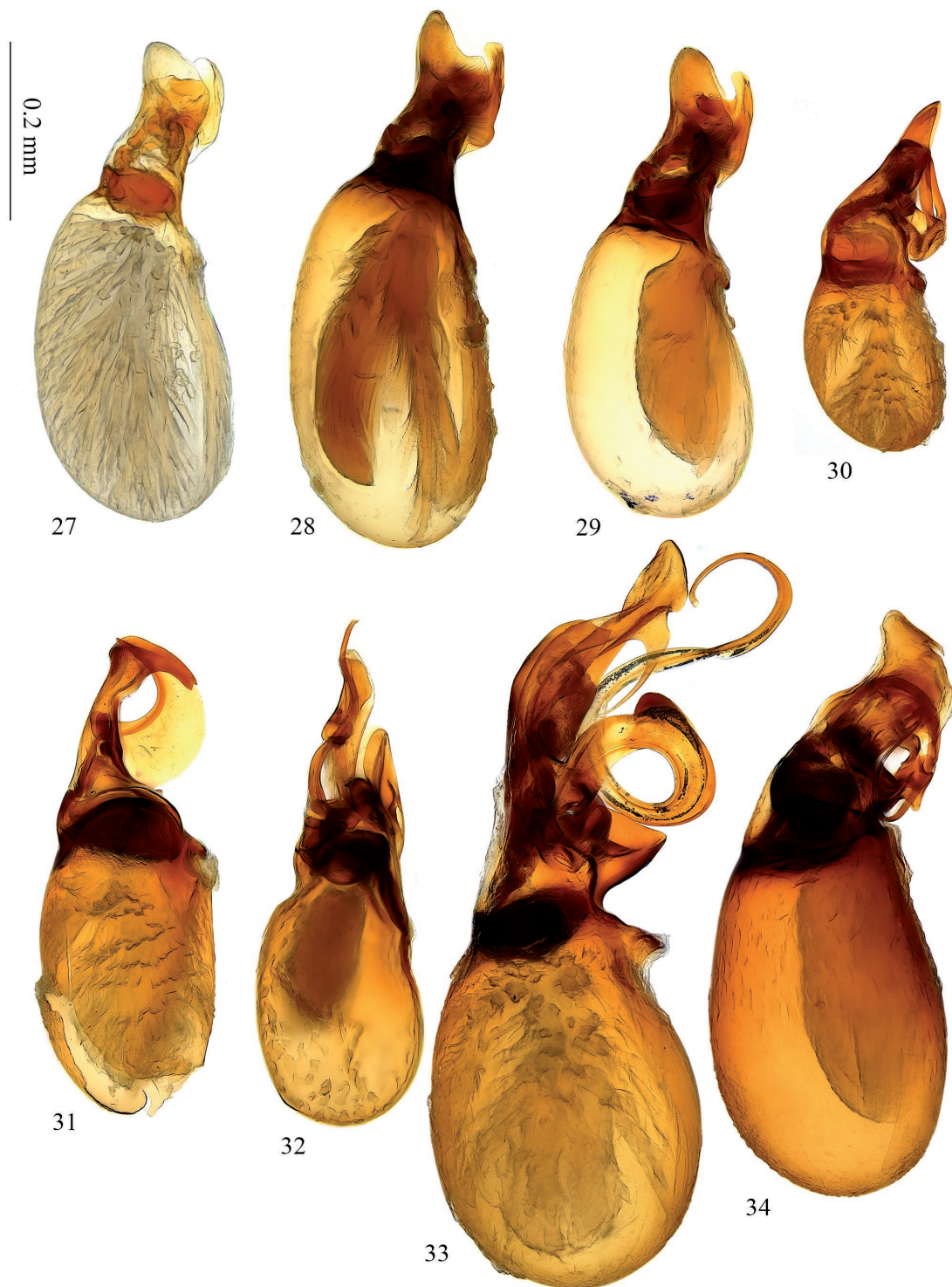
Phylogeny: *Scopaeus anuliflagellatus* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus anuliflagellatus* was found in two localities at Mount Salak and Mount Halimun, Jawa Barat.

Etymology: The epithet *anuliflagellatus* [adjective, Latin, composed of the noun *anulus* (ring) and the adjective *flagellatus* (indicating a characteristic/feature of the flagellum)] refers to the annular flagellum of the aedeagus (Figs 36, 77–79) of this new species.



Figures 23–26. Habitus of *Scopaeus cuspidatus*, paratype, Jawa Barat: Mt Salak (23); *S. sulawesianus*, paratype, Sulawesi Tengah: Tambarana (24); *S. niger*, paralectotype, Singapore (25); *S. borneensis*, holotype, Kalimantan Barat: Pontianak (26).



Figures 27–34. Aedeagus in lateral view of *Scopaeus javanus*, lectotype, Jawa Barat, N Bandung: Mt Tangkuban Perahu (27); *S. batukaruensis*, holotype, Bali, Tabanan: Bedugul (28); *S. riedeli*, holotype, Sumatra, South Lampung: Rajabasa Mts (29); *S. jacobsoni*, holotype, Sumatra: Padang (30); *S. mixtus*, holotype, Malaysia, Sabah: Sandakan (31); *S. halimunsalakensis*, holotype, Jawa Barat, Sukabumi: Sirnarasa (32); *S. tortuosiflagellatus*, holotype, Jawa Barat, Sukabumi: Cisalimas (33); *S. posoanus*, holotype, Sulawesi Tengah: Lake Poso (34).



Figures 35–41. Aedeagus in lateral view of *Scopaeus spiraliflagellatus*, holotype, Sulawesi Tengah: Lake Poso (35); *S. anuliflagellatus*, holotype, Jawa Barat, Sukabumi: Cidahu (36); *S. grandis*, holotype, Jawa Barat, Sukabumi: Cidahu (37); *S. cuspilobatus*, holotype, Jawa Barat, Sukabumi: Sirnarasa (38); *S. diversilobatus*, holotype, Jawa Barat, Sukabumi: Djampang Kulon (39); *S. pulcher*, holotype, Jawa Barat, Sukabumi: Cikaniki (40); *S. heronifer*, holotype, Banten, Lebak: Majasari (41).

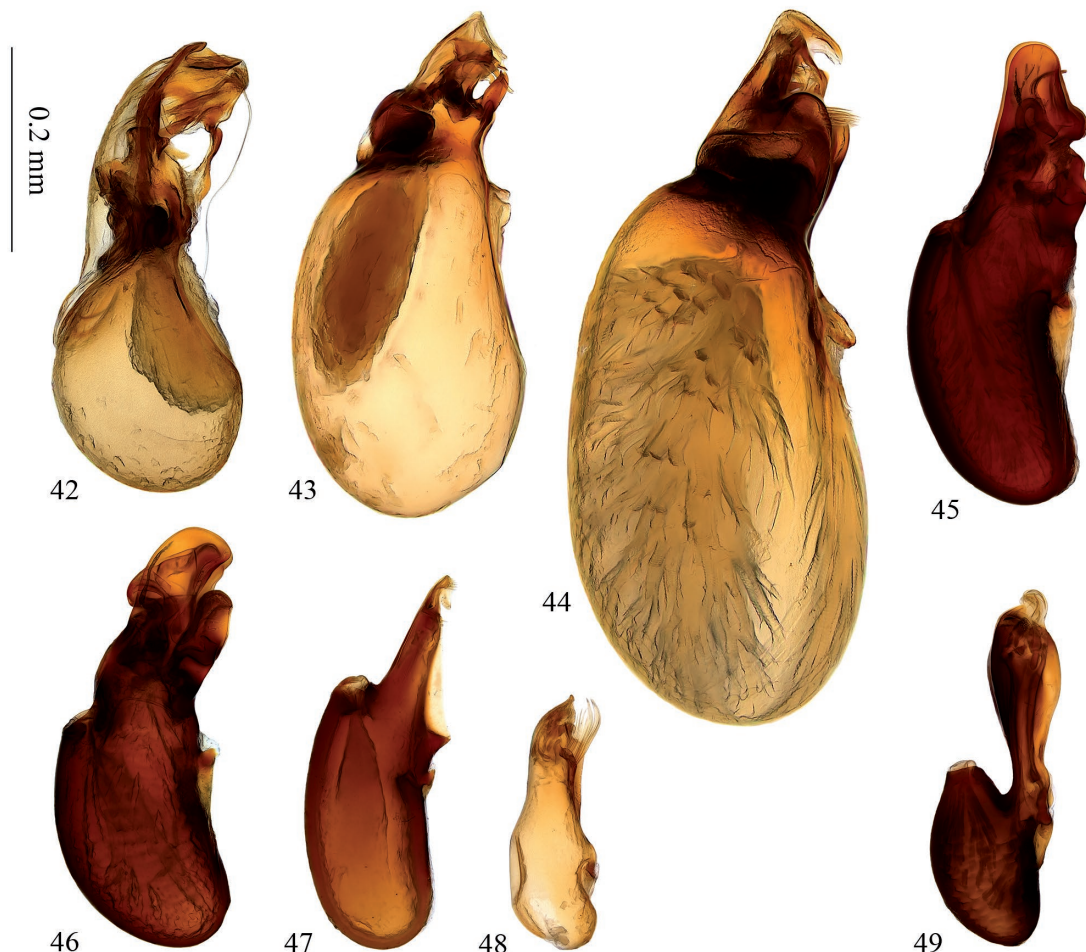
***Scopaeus grandis* Frisch, spec. nov.**
(Figs 12, 37, 80–82, 131, 163)

Type specimens: Indonesia: Holotype ♂, Jawa Barat, Sukabumi, NNW Cidahu: Cirasamala River (S-slope Mt Salak), (06°44'18''S, 106°42'52''E), 1210 m, 29.9.2015, leg. Frisch (MZB). Paratypes (12 specimens): 2 ♀, same data as holotype (MFNB, MZB). Jawa Barat: 2 ♀, Bogor, SW Pamijahan (Cimuara Herang River), (06°42'41''S, 106°41'03''E), 990 m, 3.10.2015, leg. Frisch (MFNB, MZB); 1 ♂, 1 ♀, Bogor, S Tenjolaja, Tapos: Ciampea River (06°41'36''S, 106°42'24''E), 1040 m, 2.10.2015, leg. Frisch (MFNB, MZB). Bali: 4 ♂, Tabanan: Batukaru, 17.6.1984, leg. Rougemont (HECO); 2 ♂, Mt Batukaru, 500–700 m, 28.–29.10.1991, leg. Löbl (MHNG).

Description: Habitus and coloring as in Fig. 12. Head subcircular. Antennae with penultimate segment about 1.6 times as long as wide. Mesotibia moderately

thickened. Forebody surface with fine, dense, setose punctation, without microreticulation, subnitid; abdomen densely punctate and microreticulate, matt. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body dark brown to black-brown; maxillary palpi medium brown with blackish penultimate segment; antennae with scapus medium brown, segments 2–6 blackish, then gradually lighter towards light brown terminal segments; legs medium brown. Total body length 4.5–4.7 mm; forebody length 2.5–2.7 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII short, concave in posterior third (Fig. 131). Aedeagus (Figs 37, 80–82) large, about 1.5 mm long; phallobase exceptionally large with small, apicoventrally attached, asymmetrical distal lobes; dextral apical lobe at ventral margin with apical denticle followed by two lobes proximally (Figs 37, 80),



Figures 42–49. Aedeagus in lateral view of *Scopaeus velifer*, holotype, Banten, Lebak: Citorek Kidul (42); *S. elegantulus*, Jawa Barat, Sukabumi, Simarasa: Cisarua (43); *S. uncinatus*, holotype, Banten, Lebak: Citorek Kidul (44); *S. bipenicillatus*, holotype, Sulawesi Tengah, Sigi: Pagana (45); *S. bipectenatus*, holotype, Sulawesi Tengah, Poso: Lake Poso (46); *S. cuspidatus*, holotype, Bali, Jembrana: Cekik (47); *S. crassipunctatus*, holotype, Jawa Barat, Sukabumi, Simarasa: Cisarua (48); *S. sulawesianus*, holotype, Sulawesi Selatan: Engrekang (49).

in ventral and dorsal view convex laterally with acute apex (Figs 81, 82); sinistral apical lobe, compared to dextral apical lobe, longer with more strongly sclerotized, round end curved to right (Figs 81, 82); flagellum stout, projecting from apical lobes far distad, with narrow winding lying on surface of apical portion of sinistral apical lobe (Figs 81, 82); lateral lobes reduced, indicated by groups of setae (Figs 80–82); ventral lobe with strongly emarginate apex, extended asymmetrically in proximisinistral and distodextral tooth (Fig. 81); median foramen narrow, with asymmetrical, transverse ridge acute-angled projecting distad (Fig. 81).

Female: Sperm pump with ends of process segment and apophysis of chamber strongly widened; apophysis adjacent to bursal duct (Fig. 163); bursa membranous.

Phylogeny: *Scopaeus grandis* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus grandis* is hitherto known from Jawa and Bali.

Etymology: The epithet *grandis* (adjective, Latin: 'big', 'great') refers to the remarkable body size of this new species (Fig. 12) in comparison to the majority of *Scopaeus*.

***Scopaeus pulcher* Frisch, spec. nov.**

(Figs 13, 40, 83–85, 130, 161, 162)

Type specimens: Indonesia, Jawa Barat: Holotype ♂, Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46''S, 106°32'25''E), 1020 m, 17.9.2015, leg. Frisch (MZB). Paratypes (145 specimens): 26 ♂, 14 ♀, same data as holotype (MFNB, MZB); 31 ♂, 27 ♀, Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46''S, 106°32'25''E), 1020 m, 5.10.2015, leg. Frisch (MFNB, MZB); 2 ♂, 1 ♀, Sukabumi, Citalahab Central: Cikaniki River (06°44'22''S, 106°31'55''E), 1070 m, 12.5.2016, leg. Frisch (MFNB, MZB); 15 ♂, 9 ♀, Bogor, SW Pamijahan (Cimuara Herang River), (06°42'41''S, 106°41'03''E), 990 m, 3.10.2015, leg. Frisch (MFNB, MZB); 5 ♂, 12 ♀, Bogor, S Tenjolaja, Tapos: Ciampea River (06°41'36''S, 106°42'24''E), 1040 m, 2.10.2015, leg. Frisch (MFNB, MZB); 1 ♀, Bogor, Mt Salak: Sungai Ciapus, 800 m, 17.6.1994, leg. Schuh (NHMW); 1 ♂, 1 ♀, Sukabumi, NNW Cidahu: Javana Spa (06°44'43''S, 106°42'51''E), 1150 m, 30.9.2015, leg. Frisch (MFNB, MZB).

Description: Habitus and coloring as in Fig. 13. Head subcircular. Penultimate antennal segment elongate. Mesotibia moderately thickened. Setose punctation of forebody surface spacious, fine on head, absent on pronotum, very coarse in median fourth of elytral width, in proximal fourth of elytra with coarse, close

punctures in narrow strip along suture; elytral punctures becoming considerably smaller laterad and extinguished in polished lateral third of elytra down to ventral margin; abdomen finely, densely punctate, matter than shiny forebody; microreticulation absent. Forebody setation long and raised with numerous macrosetae not much longer than fine pubescence. Coloration variable; body orange-brown; head somewhat darker than pronotum; elytra in proximal third darker orange-brown than head, followed by transverse, blackish-brown band extended towards shoulders laterally and light orange-brown posterior fifth; abdomen dark orange-brown with disc of segments blackish in variable extent; maxillary palpi with penultimate segment blackish; antennae with orange-brown scapus, blackish pedicellus and median segments, gradually lighter towards terminal segments; dark color components frequently reduced up to almost unicolorous, orange-brown specimens with somewhat lighter pronotum, darker elytra and light yellow-brown appendages. Total body length 3.3–4.0 mm; forebody length 2.0–2.2 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Emargination of abdominal sternite VIII bisinuate with convex middle, occupying about posterior seventh of sternite length (Fig. 130). Aedeagus (Figs 40, 83–85) about 0.8 mm long with asymmetrical distal lobes; dextral apical lobe elongate with ventrally extended, convex apex (Figs 40, 83), slender in ventral and dorsal view (Figs 84, 85); sinistral apical lobe much wider, strongly extended dextrad distally and overlapping end of dextral apical lobe (Figs 84, 85); dorsal lobe with remarkable, sinistral enlargement stepwise narrowed proximad and projecting from apical lobes ventrally (Figs 40, 83); flagellum short, not projecting from apical lobes, bent sinistrad towards end (Figs 40, 83, 84); ventral lobe short, emarginate at apex with distad curved ends of unequal length (Figs 40, 83, 84); lateral lobes reduced, marked by group of setae (Figs 84, 85); median foramen small, asymmetrical, with transverse ridge with lateroproximally curved ends and proximad curved middle projecting ventrally (Figs 40, 83).

Female: Sperm pump as in Fig. 162; bursal duct about twice as long as sperm pump; bursa with sclerotized end of specific shape (Fig. 161).

Phylogeny: *Scopaeus pulcher* is a representative of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: The type specimens of *Scopaeus pulcher* originate from Mount Halimun and Mount Salak, Jawa Barat. A specimen from northern Sumatra (Lake Toba, leg. Schillhammer, NHMW) might point to a much wider distribution, but more specimens are necessary to judge if the slight genital differences are within the range of intraspecific variation.

Etymology: The epithet *pulcher* (adjective, Latin: 'beautiful') denotes the multicolored coloration of this nice, new species (Fig. 13) in contrast to the usually more uniformly colored majority of *Scopaeus*.

***Scopaeus heronifer* Frisch, spec. nov.**
(Figs 14, 41, 86–88, 132, 164)

Type specimens: Indonesia: Holotype ♂, Banten, Lebak: NE Majasari (06°37'32"S, 106°23'53"E), 460 m, 26.5.2016, leg. Frisch (MZB). Paratypes (5 specimens): Jawa Barat: 1 ♀, Bogor, NO-slope Mt Salak (06°39'55"S, 106°45'36"E), 640 m, 13.9.2015, leg. Frisch (MZB); 1 ♀, Sukabumi, Cisalimas: Cisalimas River (E-slope Mt Halimun), (06°45'21"S, 106°33'38"E), 870 m, 19.9.2015, leg. Frisch (MZB); 1 ♂, Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39"S, 106°30'48"E), 680 m, 20.9.2015, leg. Frisch (MFNB); 2 ♀, Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun), (06°51'32"S, 106°31'06"E), 670 m, 21.9.2015, leg. Frisch (MFNB, MZB).

Description: Habitus and coloring as in Fig. 14. Head subquadrate. Penultimate antennal segment elongate. Mesotibia slender. Body surface with fine, dense, setose punctation, without microreticulation, shiny. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body medium brown with head and elytra somewhat darker than pronotum; antennae light brown with darker median segments; maxillary palpi and legs yellow-brown. Total body length 2.9–3.6 mm; forebody length 1.6–1.9 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with short, convex emargination in posterior seventh (Fig. 132). Aedeagus (Figs 41, 86–88) about 0.7 mm long with distal lobes asymmetrical and notably bent dextrad; dextral apical lobe slender in lateral view with distoventral incision (Fig. 86: arrow I) and tapered towards dorsad curved end (Figs 41, 86), in ventral and dorsal view convex laterally with retracted, narrow end (Figs 87, 88); sinistral apical lobe weakly sclerotized, evenly curved towards subacute apex (Figs 87, 88); deep distomedian emargination (Fig. 88: arrow III) dividing dorsal lobe in short, convex, dextral lobe and long, slender, dextrad curved, sinistral lobe angled bent towards truncate apex (Figs 87, 88); flagellum strongly projecting from apical lobes ventrally, evenly curved dorsad and projecting from apex of dextral apical lobe (Figs 41, 86), with strongly sclerotized (darker), in dorsal view acute-angled dextrad bent end, at point of bend with tooth pointing sinistrad (Fig. 87: arrow II); ventral lobe very short, triangularly projecting distad

in lateral view (Figs 41, 86), with apical emargination in ventral view (Fig. 87); lateral lobes reduced, marked by lateroventral group of short setae (Figs 86, 87); median foramen elongate with acute proximal end, slightly shifted dextrad, with transverse ridge narrow and bent posteriad in middle (Fig. 87).

Female: Sperm pump stout with circular chamber (Fig. 164); bursa membranous.

Phylogeny: *Scopaeus heronifer* belongs to the *S. longicornis* complex (Frisch 2007: 204, 205) of the *S. gracilis* species group (Frisch et al. 2002: 39). This subgroup comprises two phylogeographical clades, the South African and Madagascan *S. longicornis* lineage and the Middle Eastern *S. asirensis* lineage (Frisch 2007: 213–215, 2015). *Scopaeus heronifer*, the first known Oriental species of the *S. longicornis* subgroup, represents another phylogenetic lineage. It lacks the characteristic, horn-shaped, sinistral extension of the base of the flagellum of the Afrotropical and Palearctic species (Frisch 2007: e.g. Fig. 26). The sinistral tooth at the sharp apical bend of the flagellum (arrow in Fig. 87) is probably homologous to the sinistral enlargement of the flagellum of the *S. asirensis* lineage (Frisch 2015: e.g. Figs 9, 10).

Distribution: *Scopaeus heronifer* was collected at the edge of Mount Halimun-Salak National Park in the provinces of Banten and Jawa Barat.

Etymology: The epithet *heronifer* [adjective, Latin, composed of the noun *heron* (heron) and the verb *ferre* (to carry, to bring)] refers to the apex of the flagellum of the aedeagus (Fig. 94), which is reminiscent of the head of a heron.

***Scopaeus diversilobatus* Frisch, spec. nov.**
(Figs 15, 39, 89–91, 133, 165, 166)

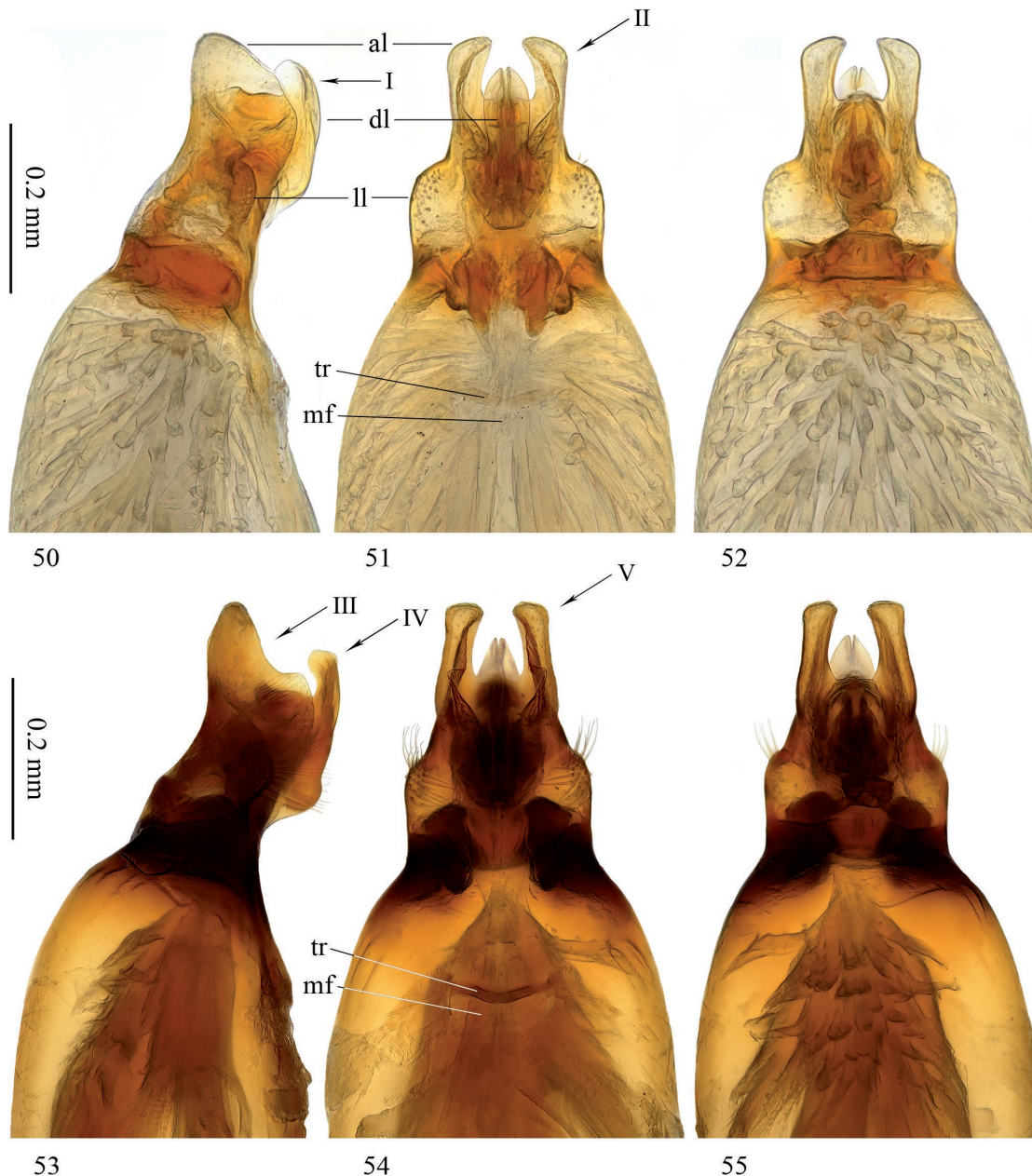
Type specimens: Holotype ♂, Indonesia, Jawa Barat, Sukabumi, N Djampang Kulon: Cikarang River (07°14'03"S, 106°36'49"E), 250 m, 25.9.2015, leg. Frisch (MZB). Paratypes (10 specimens): 3 ♂, 4 ♀, same data as holotype (MFNB, MZB). Indonesia, Bali: 1 ♂, Jembrana: Cekik, 20.6.1994, 300 m, leg. Wunderle (PWCM). Malaysia, Sarawak: 1 ♂, Undong (San Uncap Undong?), 17.4.1981, leg. Rougemont (HECO); 1 ♂, Mt Mulu NP, near base camp, 50–10 m 5.8.1978, leg. Hammond & Marshall (NHML).

Description: Habitus and coloring as in Fig. 15. Head subquadrate. Penultimate antennal segment elongate. Mesotibia moderately thickened. Body surface with fine, dense, setose punctation, without microreticulation, shiny. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body dark brown

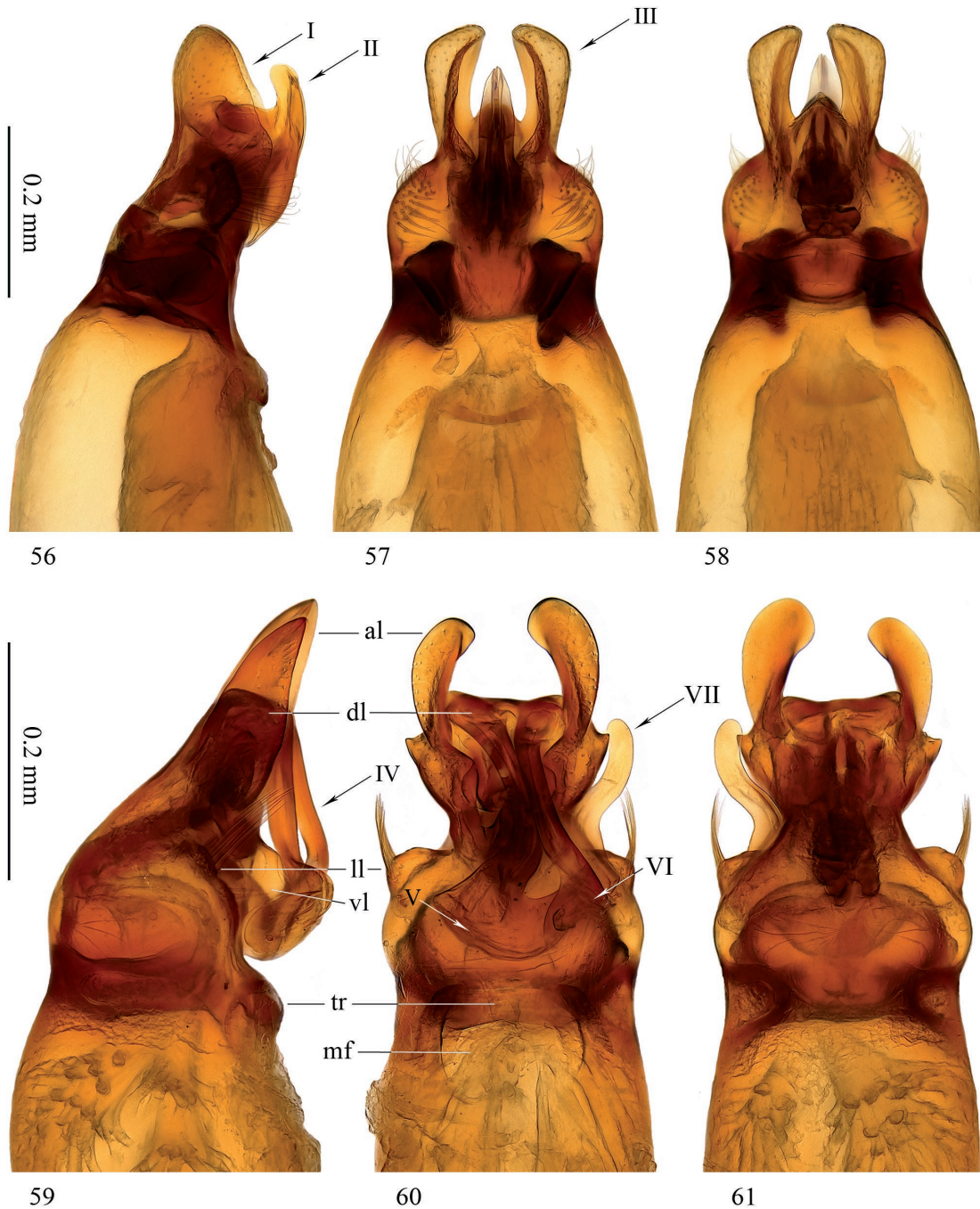
except for slightly lighter pronotum, yellow-brown posterior fourth of elytra, medium brown abdomen with darkened disk of tergites and light brown tip, yellow brown maxillary palpi with darker penultimate segment, medium brown antennae with darker median segments, and yellow-brown legs. Total body length 3.6–3.9 mm; forebody length 2.1–2.3 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Emargination in posterior fifth of

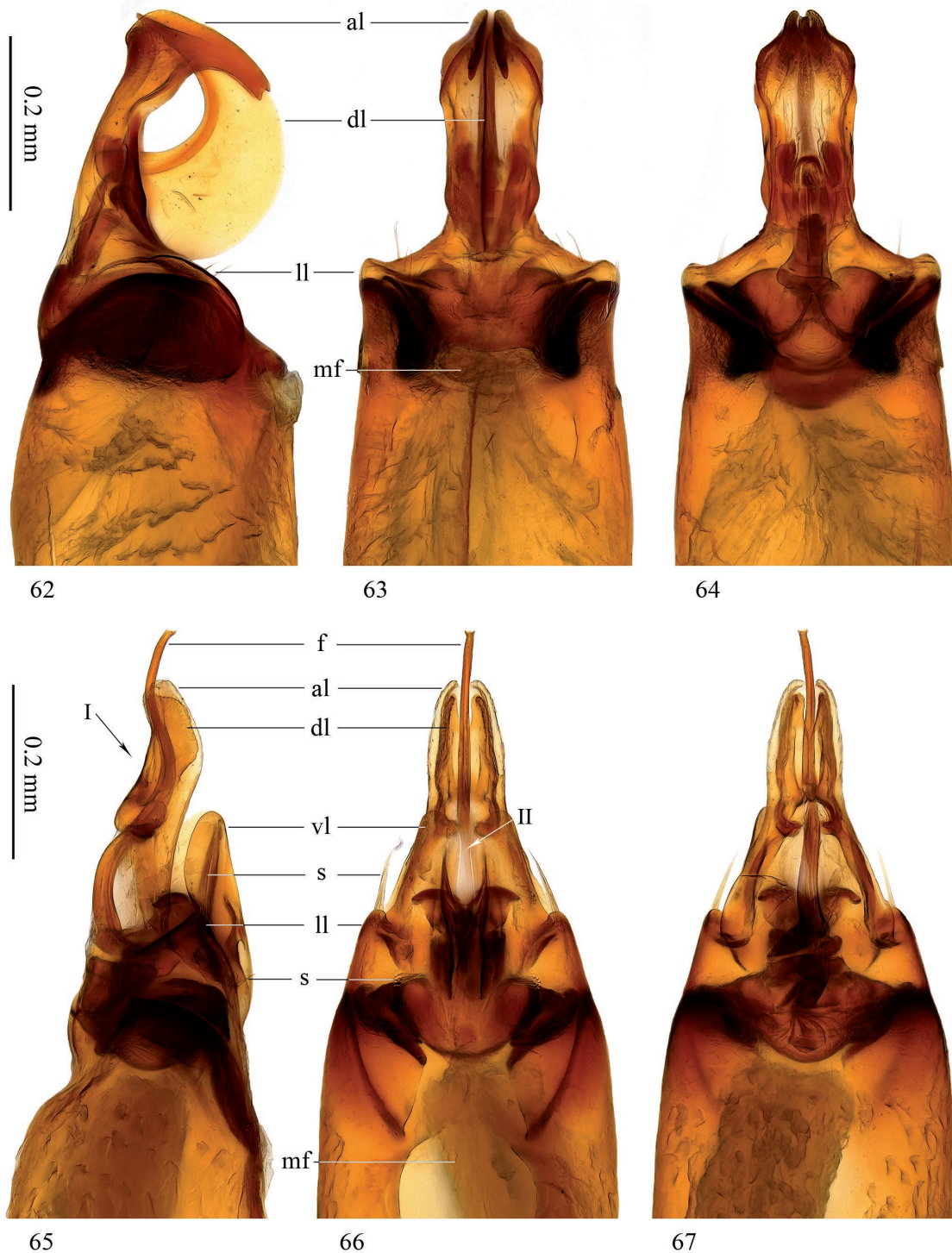
abdominal sternite VIII strongly convex in median third (Fig. 133). Aedeagus (Figs 39, 89–91) about 1.0 mm long with distal lobes asymmetrical; dextral apical lobe strongly reduced, as long as dorsal lobe, in lateral view with undulate, convex apical and ventral margins (Fig. 39, 89), in ventral and dorsal view almost vestigial with truncate apex (Figs 90, 91); sinistral apical lobe well developed, testaceous, twice as long as dextral apical lobe, in lateral view triangular (Fig. 39, 89), in ventral and



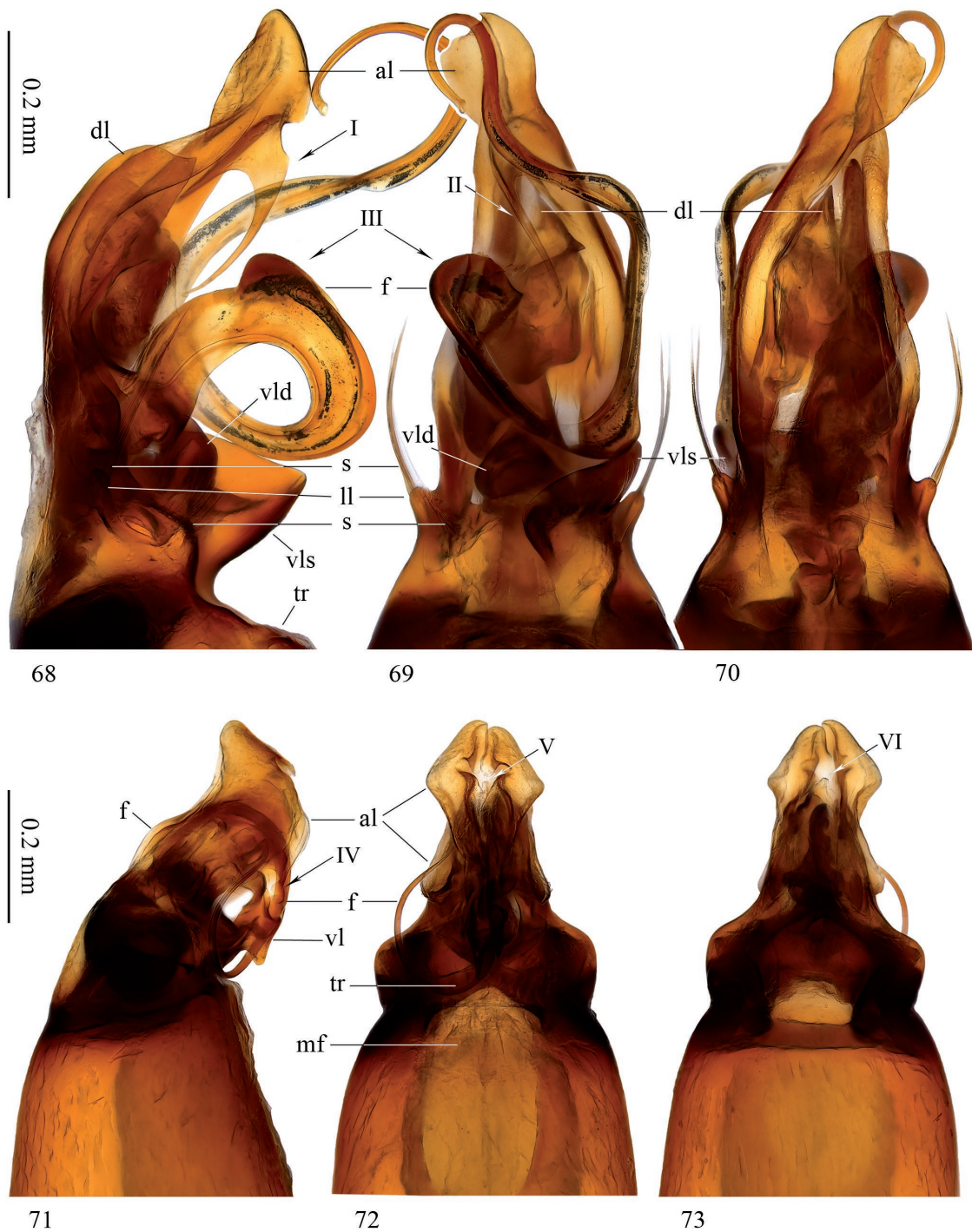
Figures 50–55. Apex of aedeagus in lateral (50, 53), ventral (51, 54), dorsal view (52, 55) of *Scopaeus javanus*, lectotype, Jawa Barat, N Bandung: Mt Tangkuban Perahu (50–52); *S. batukaruensis*, holotype, Bali, Tabanan: Bedugul (53–55). **Abbreviations:** al – apical lobes, dl – dorsal lobe, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median foramen. **Arrows:** apex of dorsal lobe (I, IV), apicoventral emargination of apical lobes (III), apicolateral margin of apical lobes (II, V).



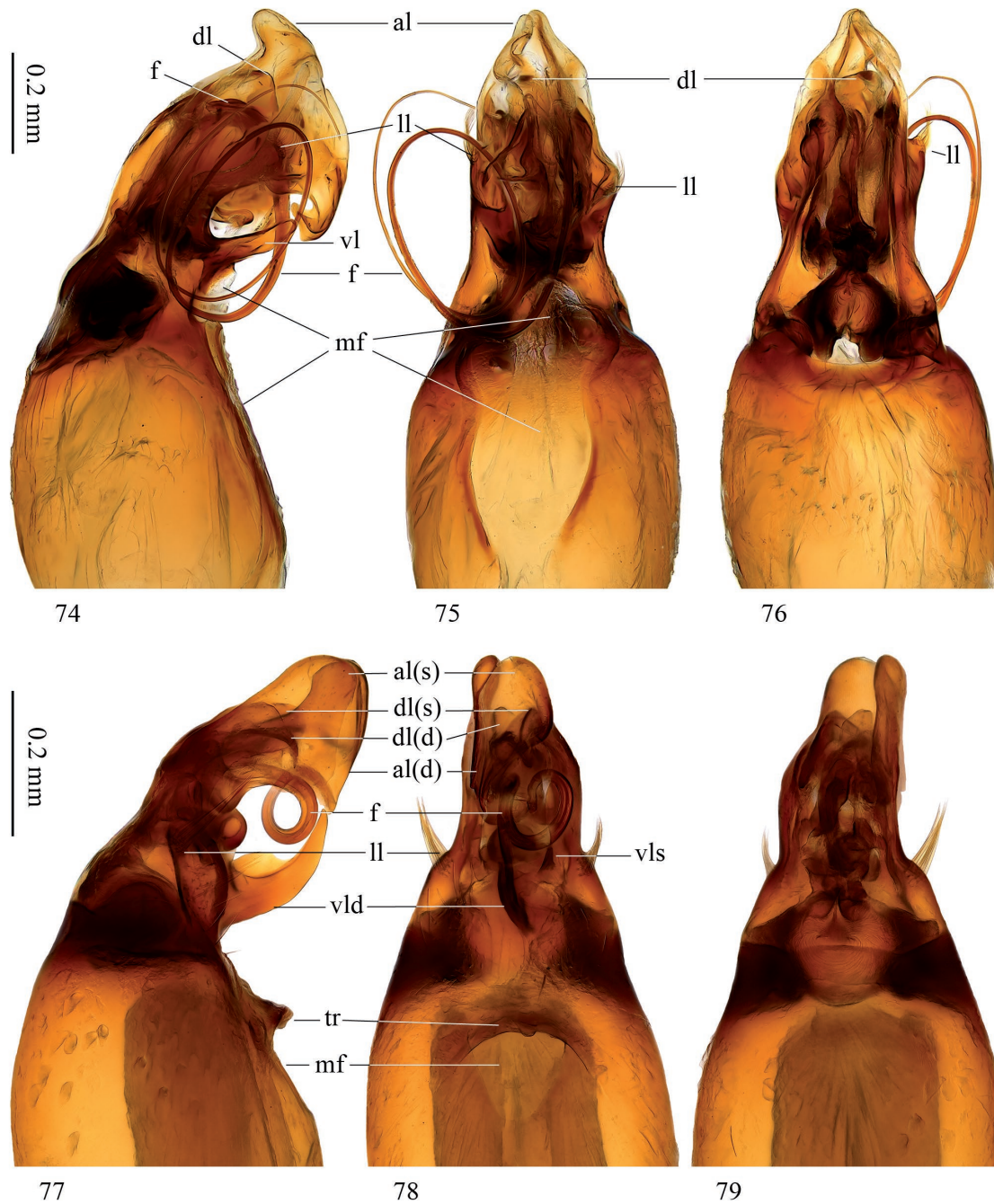
Figures 56–61. Apex of aedeagus in lateral (56, 59), ventral (57, 60), dorsal view (58, 61) of *Scopaeus riedeli*, holotype, Sumatra, South Lampung: Rajabasa Mts (56–58); *S. jacobsoni*, holotype, Sumatra: Padang (59–61). **Abbreviations:** al – apical lobes, dl – dorsal lobe, ll – lateral lobes, mf – median foramen, s – groups of setae of lateral lobes, tr – transverse ridge of median foramen, vl – ventral lobe. **Arrows:** ventral margin of apical lobes (I); apex of dorsal lobe (II); apicolateral margins of apical lobes (III); ventral lobes of dorsal lobe (IV); apical extension of dextral, ventral spine of dorsal lobe (V); apical extension of sinistral, ventral spine of dorsal lobe (VI); unpaired lobe of aedeagus (VII).



Figures 62–67. Apex of aedeagus in lateral (62, 65), ventral (63, 66), dorsal view (64, 67) of *Scopaeus mixtus*, holotype, Malaysia, Sabah: Sandakan (62–64); *S. halimunsalakensis*, holotype, Jawa Barat, Sukabumi: Sirnarasa (65–67). **Abbreviations:** al – apical lobes, dl – dorsal lobe, f – flagellum, II – lateral lobes, mf – median foramen, s – groups of setae, vl – ventral lobe. **Arrows:** dorsal emargination of apical lobes, dorsal lobe and flagellum (I); apical emargination of dorsal lobe (II).



Figures 68–73. Apex of aedeagus in lateral (68, 71), ventral (69, 72), dorsal view (70, 72) of *Scopaeus tortuosiflagellatus*, holotype, Jawa Barat, Sukabumi: Cisalimas (68–70); *S. posoanus*, holotype, Sulawesi Tengah: Lake Poso (71–73). **Abbreviations:** al – apical lobes, dl – dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, s – groups of setae, tr – transverse ridge, vl – ventral lobe, vld – dextral portion of ventral lobe, vls – sinistral portion of ventral lobe. **Arrows:** ventral spine of apical lobe (I, II), proximal enlargement of flagellum (III), ventral tooth of apical lobe (IV), tip of dorsal lobe (V, VI).



Figures 74–79. Apex of aedeagus in lateral (74, 77), ventral (75, 78), dorsal view (76, 79) of *Scopaeus spiraliflagellatus*, holotype, Sulawesi Tengah: Lake Poso (74–76); *S. anuliflagellatus*, holotype, Jawa Barat, Sukabumi: Cidahu (77–79). **Abbreviations:** al – apical lobes, al(d) – dextral apical lobe, al(s) – sinistral apical lobe, dl – dorsal lobe, dl(d) – dextral end of dorsal lobe, dl(s) – sinistral end of dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median foramen, vld – dextral portion of ventral lobe, vls – sinistral portion of ventral lobe.

dorsal view convex laterally with somewhat retracted, acute apex (Figs 90, 91); flagellum curved ventrosinistrad with thin end projecting from apical lobes ventrally (Figs 39, 89); lateral lobes reduced, indicated by group of setae (Figs 89, 90); ventral lobe long, slender, adjacent to aedeagus (Figs 39, 89), in ventral view narrow and shifted sinistrad (Fig. 90); transverse ridge of median foramen not projecting ventrally (Fig. 89).

Female: Sperm pump with process segment and apophysis of chamber long, slender and curved at ends (Fig. 166); bursal duct about twice as long as sperm pump; bursa membranous (Fig. 165).

Phylogeny: *Scopaeus diversilobatus* is to be classified in the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: Hitherto recorded from western Java, Bali and northern Borneo, *Scopaeus diversilobatus* is widespread in the Sunda Islands.

Etymology: The epithet *diversilobatus* [adjective, Latin, composed of the adjectives *diversus* (different) and *lobatus* (indicating a characteristic/feature of the lobe)] describes the different size and shape of the apical lobes of the aedeagus of this new species, one of which is strongly reduced unlike the other (Figs 87, 88).

***Scopaeus cuspilobatus* Frisch, spec. nov.**
(Figs 16, 38, 92–94, 134, 167, 168)

Type specimens: Indonesia: Holotype ♂, Jawa Barat, Sukabumi: Sirnarasa (Cimaja River), (06°51'32''S, 106°31'06''E), 670 m, 21.9.2015, leg. Frisch (MZB). Paratype: 1 ♀, same data as holotype (MFNB).

Description: Habitus and coloring as in Fig. 16. Head subquadrate. Penultimate antennal segment quadrate. Mesotibia moderately thickened. Setose punctation of body surface fine, dense on subnitid head, rugulose on matt elytra, more spacious on shiny pronotum; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body dark brown except for narrow, light brown posterior margin of elytra and tip of abdomen; antennae medium brown with darker segments 2–6; maxillary palpi light brown with darker penultimate segment; legs light brown with medium brown femora. Total body length 3.6 mm; forebody length 2.0–2.1 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with posterior margin with two very short, lateral emarginations and barely recognizably concave middle (Fig. 134). Aedeagus (Figs 38, 92–94) about 0.8 mm long with asymmetrical distal lobes; apical lobes curved ventrad with round ends (Figs 38, 92), in ventral and dorsal view stout with broad, subtruncate apices (Figs 93, 94);

dextral apical lobe with little, ventroproximal tooth (Fig. 92: arrow I), convexly widened dextrad distally (Figs 93, 94); sinistral apical lobe evenly convex distolaterally, somewhat overlapping dextral apical lobe ventrally (Fig. 93); dorsal lobe broad with convex apex (Fig. 94); flagellum winding dextrad (Fig. 93), strongly projecting from apical lobes ventrally (Figs 38, 92); lateral lobes reduced, marked by unequal groups of setae (Figs 93, 94); ventral lobe broad, subquadrate, with truncate apex (Figs 38, 92), in ventral view narrow, strongly shifted sinistrad (Fig. 93); transverse ridge of median foramen concave (Fig. 93), strongly projecting ventrally (Figs 38, 92).

Female: Sperm pump with chamber abruptly narrowed at transition point towards bursal duct (Fig. 168); bursal duct about three times as long as sperm pump; bursa membranous (Fig. 167).

Phylogeny: *Scopaeus cuspilobatus* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: *Scopaeus cuspilobatus* is hitherto known only from the type locality in Jawa Barat.

Etymology: The epithet *cuspilobatus* [adjective, Latin, composed of the noun *cuspis* (sting, thorn, spine) and *lobatus* (indicating a characteristic/feature of the lobe)] refers to the distinct, ventral spine of the dextral apical lobe of the aedeagus of this new species (Figs 38, 83).

***Scopaeus elegantulus* Cameron, 1930**
(Figs 18, 43, 95–97, 136, 170, 171)

Scopaeus elegantulus Cameron, 1930: 346, 347.

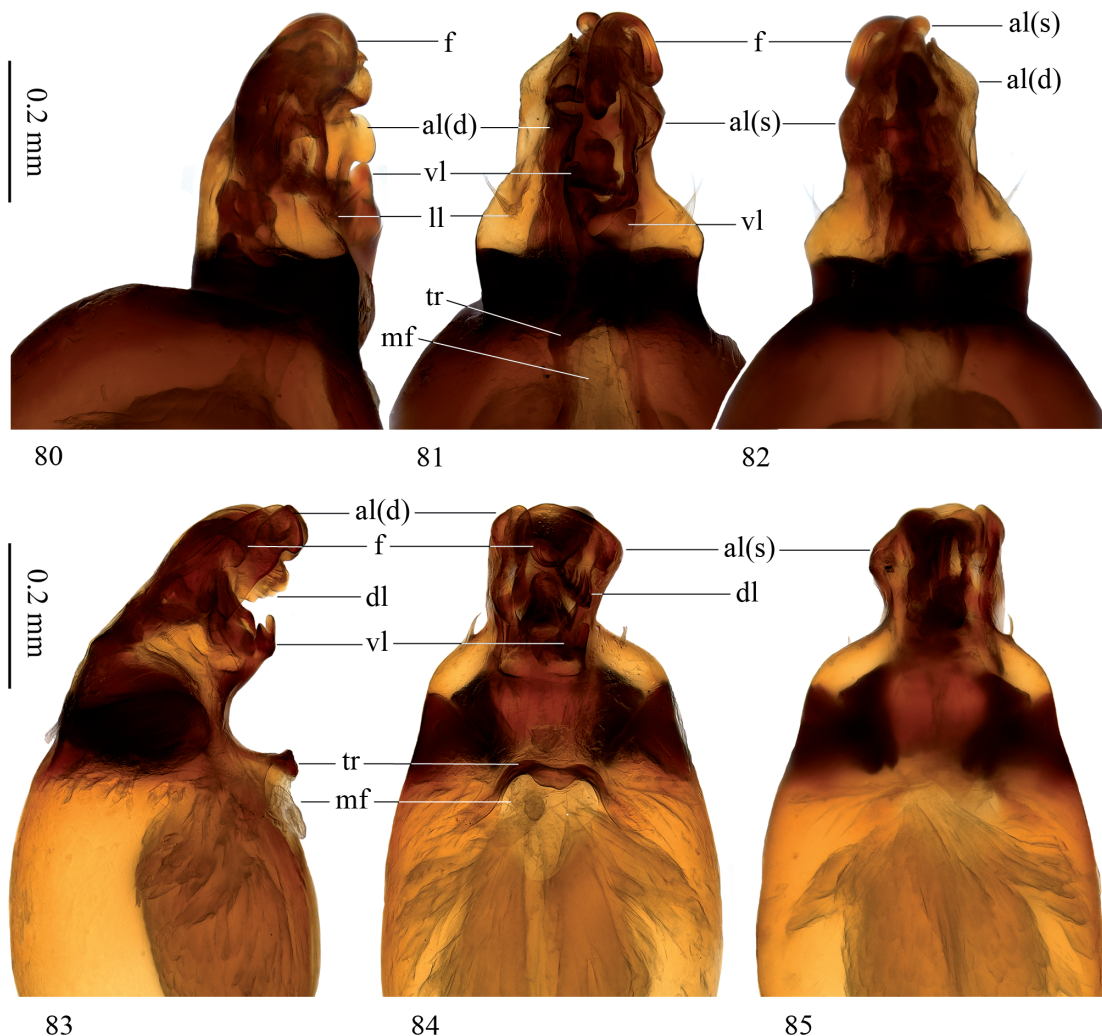
Type specimens examined: Holotype ♂, Malaysia, Pahang: Raub; labeled 'Type' (red edged, round, printed label), 'Raub / Pahang F.M.S. / Dr. Cameron' (printed), 'S. / elegantulus Cam. / TYPE' (handwritten), 'M. Cameron / Bequest / B.M.1955-147.' (printed), 'NHMUK014663052' (printed with QR-code), 'Holotype / *Scopaeus elegantulus* / Cameron 1930 / label by J. Frisch, 2022' (red, printed) (NHML). Paratypes: 4 ♂, labeled 'Raub / Pahang F.M.S. / Dr. Cameron' (printed), 'M. Cameron / Bequest / B.M.1955-147.' (printed), 'Paratype / *Scopaeus elegantulus* / Cameron 1930 / label by J. Frisch, 2022' (subsequent paratype label, red, printed) (NHML).

Comment: In the original description of *Scopaeus elegantulus*, the number of underlying specimens is missing, but Cameron (1930: 347) wrote the type was from Raub and labeled it as the 'type'. Thus, the specimen is a holotype by original designation (ICZN 1999: Article 73.1.1.). In the same paper, Cameron (1930) several times termed holotypes by monotypy

(ICZN 1999: Article 73.1.2.) as ‘unique’, but not for *S. elegantulus*, which is why I conclude that the species was described after more than one specimen. Thus, I consider the four remaining specimens as paratypes, because they originate from the type locality and the Cameron collection at NHML.

New Indonesian records: Bali: Jembrana: env. Cekik, 20.6.1994, 300 m, leg. Wunderle (PWCM). Jawa Barat: Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39''S, 106°30'48''E), 680 m, 20.9.2015, leg. Frisch (MFNB, MZB); Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), 950 m, 26.4.1999, leg. MZB (MZB); Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46''S, 106°32'25''E), 1020 m, 17.9.2015, leg. Frisch (MZB); Sukabumi, Sirnarasa: Cimaja River (S-slope Mt

Halimun), (06°51'32''S, 106°31'06''E), 670 m, 21.9.2015, leg. Frisch (MFNB, MZB); Sukabumi: Simaresmi (Halimun-Salak NP), (06°49'44''S, 106°30'02''E), 1190 m, 22.9.2015, leg. Frisch (MFNB, MZB); Sukabumi, Kiara Dua: Ciletuh River (07°08'27''S, 106°37'46''E), 710 m, 24.9.2015, leg. Frisch (MFNB); Sukabumi, N Djampang Kulon: Cikarang River (07°14'03''S, 106°36'49''E), 250 m, 25.9.2015, leg. Frisch (MFNB, MZB); Bogor [Buitenzorg], leg. Lea & wife (SAMA). Jawa Timur: Situbondo: 15 km N Wonorejo (Baluran NP), 50 m, 24.–28.6.2001, leg. Bolm (SMNS); Tulungagung [Toeloengagoeng], 84 m, leg. Louwerens (NHML). Riau: Bukit Tigapuluh NP (0°50'S, 102°26'E), 18.–25.1.2000, leg. Bezděk (PKCC). Sumatera Barat: Bukittingii: Fort de Kock, 920 m, 1926, leg. Jacobson (NHML).

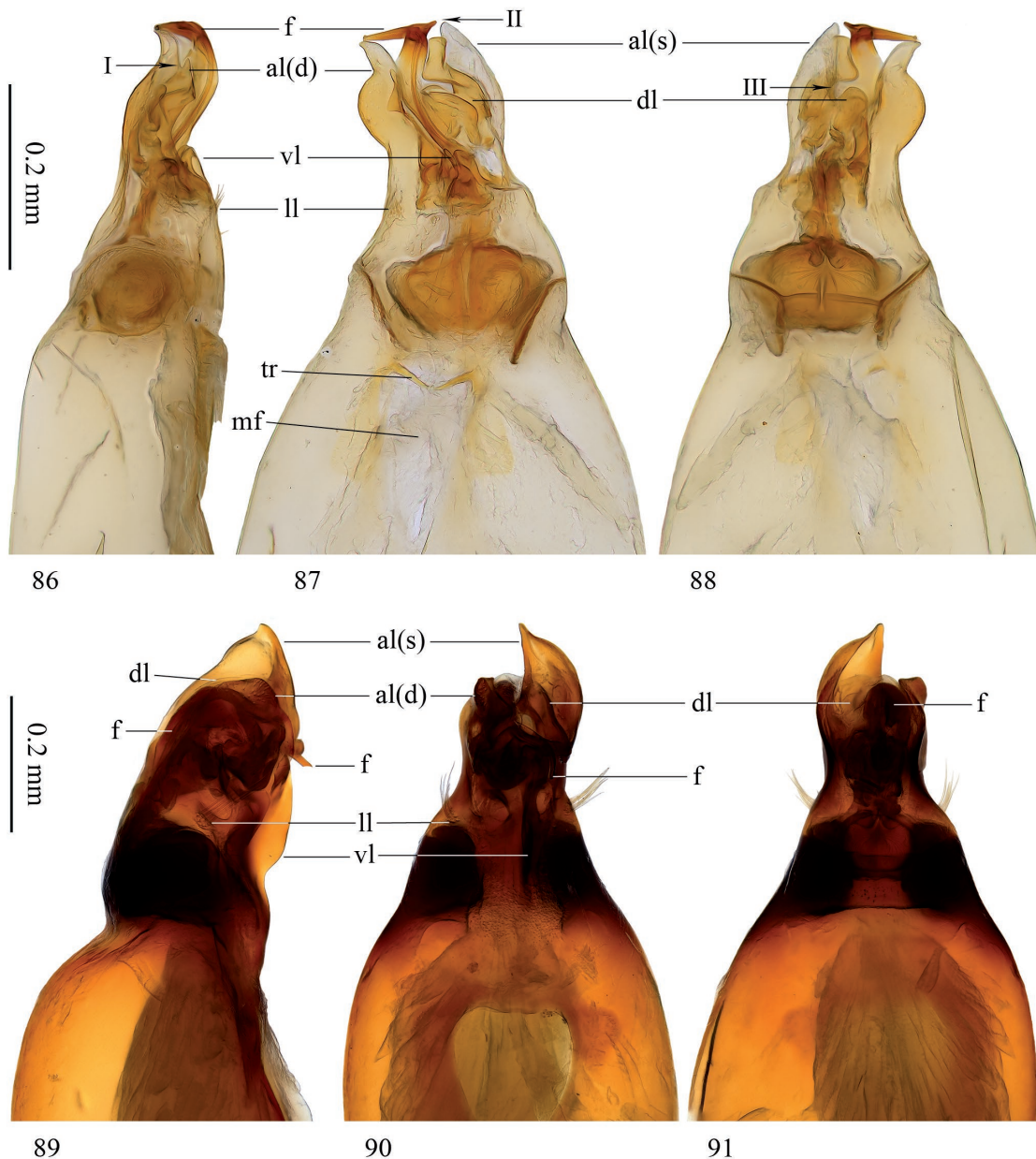


Figures 80–85. Apex of aedeagus in lateral (80, 83), ventral (81, 84), dorsal view (82, 85) of *Scopaeus grandis*, holotype, Jawa Barat, Sukabumi: Cidahu (80–82); *S. pulcher*, holotype, Jawa Barat, Sukabumi: Cikaniki (83–85). **Abbreviations:** al(d) – dextral apical lobe, al(s) – sinistral apical lobe, dl – dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median lobe, vl – ventral lobe.

Redescription: Habitus and coloring as in Fig. 18. Head subcircular. Penultimate antennal segment quadrate or slightly elongate. Mesotibia strongly thickened. Body surface shiny with fine, spacious, setose punctation; microreticulation absent. Pubescence of body surface short, erect. Body orange-brown to black-brown with reddish tinge, usually reddish dark brown with pronotum and abdomen somewhat lighter than head and elytra; tip of abdomen and posterior sixth of elytra

yellow-brown; maxillary palpi light medium brown; antennae with scapus medium brown and pedicellus and subsequent segments more or less blackened, gradually lighter towards light brown terminal segments. Total body length 3.1–3.7 mm; forebody length 1.9–2.1 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII in about posterior fifth with wide, triangular emargination straight in median fourth (Fig. 136). Aedeagus (Figs 43,



Figures 86–91. Apex of aedeagus in lateral (86, 89), ventral (87, 90), dorsal view (88, 91) of *Scopaeus heronifer*, holotype, Banten, Lebak: Majasari (86–88); *S. diversilobatus*, holotype, Jawa Barat, Sukabumi: Djampang Kulon (89–91). **Abbreviations:** al(d) – dextral apical lobe, al(s) – sinistral apical lobe, dl – dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median foramen, vl – ventral lobe. **Arrows:** distoventral incision of dextral apical lobe (I); sinistral, apical tooth of flagellum (II); distal emargination of dorsal lobe (III).

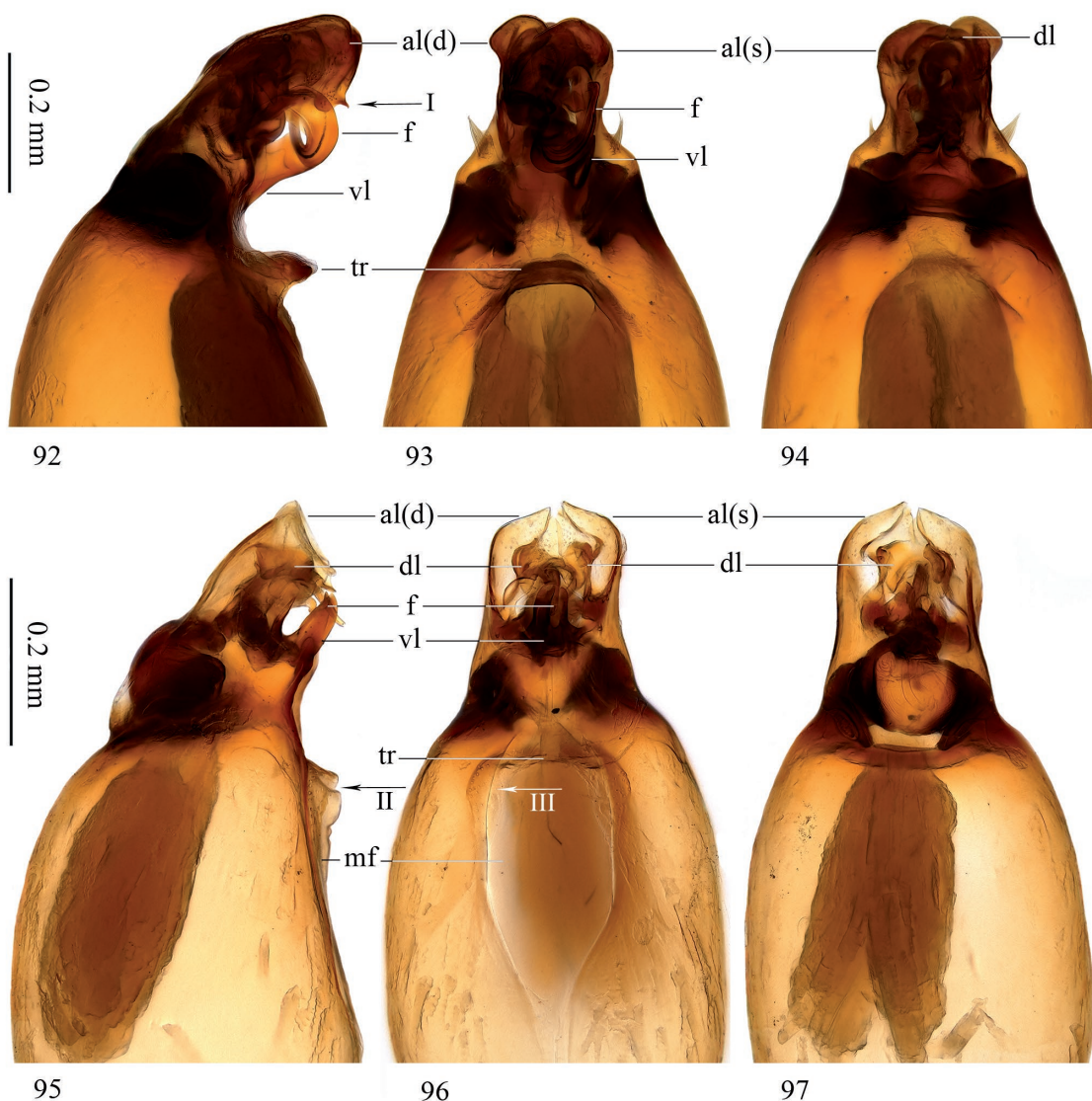
95–97) about 0.7 mm long, with short, asymmetrical distal lobes; apical lobes rectangular with wide, truncate apex and small, acute, apicoventral tooth (Figs 43, 95), in ventral strongly curved distomedial and slightly overlapping distomedially (Figs 96); dorsal lobe stout, transverse, with apex emarginate (Figs 96, 97); flagellum short, thin, projecting from apical lobes ventrally as well as small, proximad curved tooth proximal of flagellum (Figs 43, 95); setose lateral lobes absent (Figs 96, 97); ventral lobe about twice as long as wide with apex acute in lateral view (Figs 43, 95), but deeply emarginate in ventral view (Fig. 96); median foramen oblong with acute proximal end, occupying more than half of

phallobase length (Fig. 96), with transverse ridge weakly sclerotized and lateral ridges of median foramen bent up ventrad (Figs 95, 96: arrows II, III).

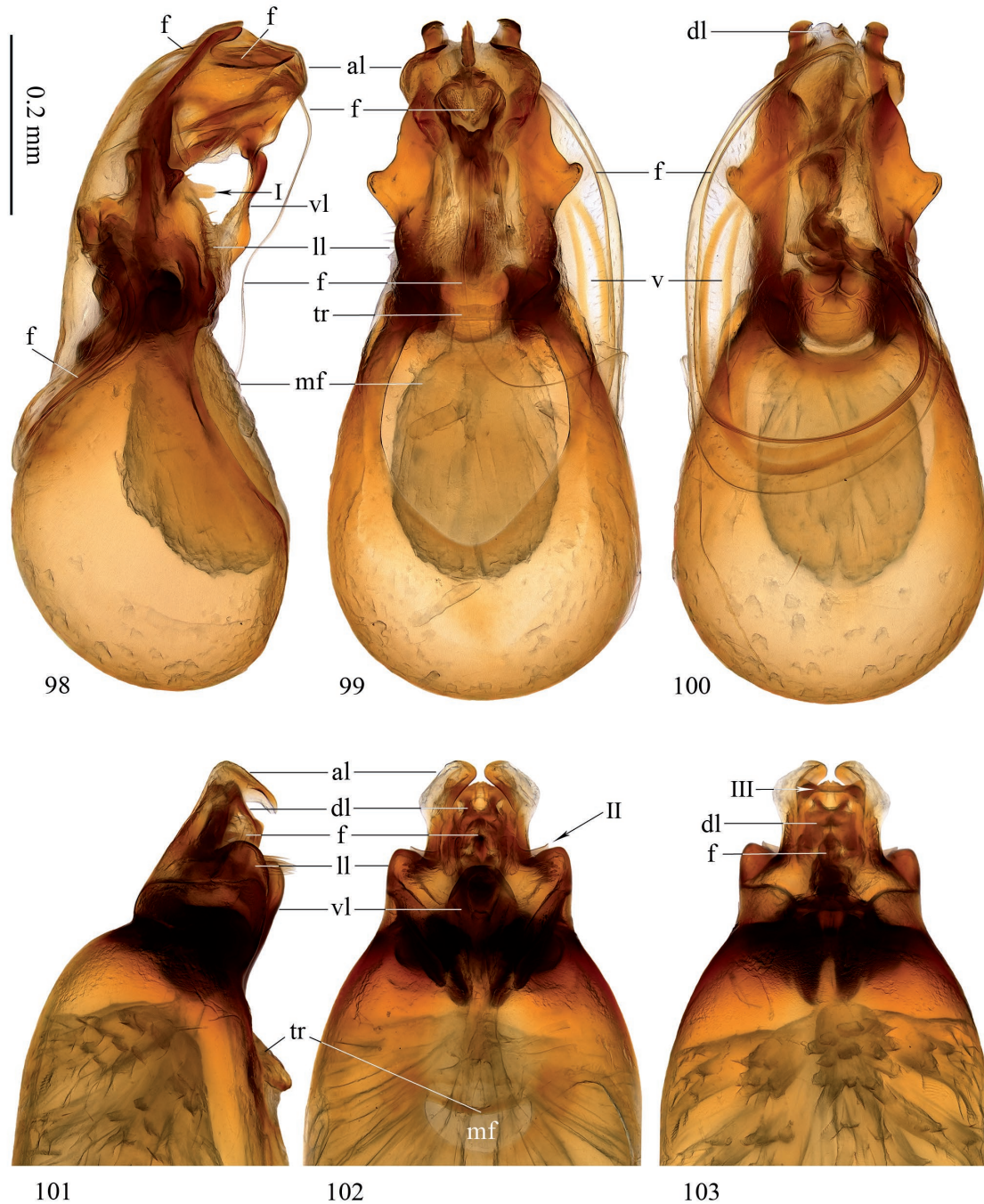
Female: Chamber of sperm pump elongate, with apophysis adjacent to bursal duct (Fig. 171); bursal duct about twice as long as sperm pump; bursa membranous (Figs 170).

Phylogeny: *Scopaeus elegantulus* is a member of the *S. gracilis* species group (Frisch et al. 2002: 39).

Distribution: Described from Pahang in the Malay Peninsula, *Scopaeus elegantulus* is widely distributed across Indonesia and recorded for Java, Sumatra and Bali.



Figures 92–97. Apex of aedeagus in lateral (92, 95), ventral (93, 96), dorsal view (94, 97) of *Scopaeus cuspilobatus*, holotype, Jawa Barat, Sukabumi: Sinarasa (92–94); *S. elegantulus*, Jawa Barat, Sukabumi, Sinarasa: Cisarua (95–97). **Abbreviations:** al(d) – dextral apical lobe, al(s) – sinistral apical lobe, dl – dorsal lobe, f – flagellum, mf – median foramen, tr – transverse ridge of median foramen, vl – ventral lobe. **Arrows:** ventral tooth of dextral apical lobe (I), lateral ridges of median foramen (II, III).



Figures 98–103. Aedeagus of *Scopaeus velifer*, holotype, Banten, Lebak: Citorek Kidul in lateral (98), ventral (99), dorsal view (100); apex of aedeagus of *S. uncinatus*, holotype, Banten, Lebak: Citorek Kidul in lateral (101), ventral (102), dorsal view (103). **Abbreviations:** al – apical lobes, dl – dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median foramen, v – velum, vl – ventral lobe. **Arrows:** small, ventral lobe (I); distal enlargement of lateral lobe (II); apicodorsal bridge of apical lobes (III).

***Scopaeus velifer* Frisch, spec. nov.**
(Figs 17, 42, 98–100, 135, 169)

Type specimens: Indonesia: Holotype ♂, Banten, Lebak: Citorek Kidul (06°44'51''S, 106°19'13''E), 870 m, 23.5.2016, leg. Frisch (MZB). Paratypes: 1 ♂, 4 ♀, same data as holotype (MFNB, MZB).

Description: Habitus and coloring as in Fig. 17. Head subquadrate. Penultimate antennal segment quadrate. Mesotibia moderately thickened. Forebody surface matt with dense, rugulose, setose punctation; abdomen somewhat shiny; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body dark brown with slight, reddish tinge except for yellow-brown tip of abdomen and appendages; antennae unicolorous yellow-brown, or with scapus medium brown and median segments, beginning with pedicellus, with black tinge, but gradually lighter towards yellow-brown terminal segments; maxillary palpi unicolorous yellow-brown or with darker penultimate segment; femora darker brown in variable extent, gradually lighter towards distal ends. Total body length 2.7–3.4 mm; forebody length 1.6–1.8 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with two lateral, narrow, deep, triangular incisions occupying almost posterior half of sternite length; subbasal ridge of sternite angled projecting posteriad (Fig. 135). Aedeagus (Figs 42, 98–100) about 0.6 mm long, with conspicuous, unique, subcircular, lateral structure, here termed velum, made up of translucent membrane studded with numerous microsetae, stretched between aedeagus and extremely lengthened flagellum accompanied by outer, thin, sclerotized ring and two inner, yellow stripes (Figs 99, 100); flagellum thin, filamentous, arising from strongly sclerotized median structure of aedeagus dextroproximad, running dorsally across phallobase and widely sinistrad of aedeagus, and projecting from apex of apical lobes ventrally, seemingly attached to velum sinistroproximally (Figs 42, 98, 99); apical lobes strongly curved ventrad, tapered towards wide, truncate apex, with subacute, ventral extension (Figs 42, 98), in proximal portion widened laterally with stout, lateroapical pointing tooth, in distal portion convexly widened laterally and strongly tapered towards narrow, short, subtruncate apices (Figs 99, 100); dorsal lobe with membranous apex (Fig. 100); lateral lobes marked by numerous, short, spacious setae (Fig. 99), slightly convex in ventral view (Fig. 99); ventral lobe slender, narrowed in middle, somewhat widened towards subacute apex and reaching apical lobes (Figs 42, 98); small, narrow lobe projecting ventrally distal of ventral lobe (Fig. 98: arrow I); median foramen conspicuously large and wide,

longer than half of phallobase, limited distally by weakly sclerotized, straight transverse ridge (Fig. 99).

Female: Chamber segment of sperm pump without apophysis (Fig. 169); bursa membranous.

Distribution: *Scopaeus velifer* is known only from the type locality at the western edge of Mount Halimun-Salak National Park.

Etymology: The epithet *velifer* [adjective, Latin, composed of the noun *velum* (sail) and the verb *ferre* (to carry, to bring)] addresses the peculiar, dorsolateral 'sail' of the aedeagus of this species (Figs 42, 98–100).

***Scopaeus uncinatus* Frisch, spec. nov.**
(Figs 19, 44, 101–103, 137, 172)

Type specimens: Indonesia: Holotype ♂, Banten, Lebak: Citorek Kidul (06°44'51''S, 106°19'13''E), 870 m, 23.5.2016, leg. Frisch (MZB). Paratypes (9 specimens): 2 ♂, 3 ♀, same data as holotype (MFNB, MZB). Jawa Barat: 3 ♀, Sukabumi, NNW Cidahu: Cirasamala River (S-slope Mt Salak), (06°44'18''S, 106°42'52''E), 1210 m, 29.9.2015, leg. Frisch (MFNB, MZB); 1 ♂, Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46''S, 106°32'25''E), 1020 m, 5.10.2015, leg. Frisch (MZB).

Description: Habitus and coloring as in Fig. 19. Head subquadrate. Penultimate antennal segment quadrate. Mesotibia moderately thickened. Body surface subnitid with fine, dense, setose punctation; microreticulation obtuse or absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Forebody dark brown; abdomen medium brown with blackened disk of abdominal segments to unicolorous black-brown; posterior margin of elytra and tip of abdomen medium brown; maxillary palpi light brown; antennae unicolorous light brown or with darker median segments, in dark specimens from blackened scapus gradually lighter towards light brown terminal segments. Total body length 3.6–4.3 mm; forebody length 2.1–2.3 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Emargination of abdominal sternite VIII very short, shaped like transverse '}', occupying posterior tenth of sternite length only (Fig. 137). Aedeagus (Figs 44, 101–103) about 1.0 mm long, with short distal lobes; apical lobes in lateral view slender with hooked ventrad curved apices divided in strongly sclerotized distal and membranous proximal part (Figs 44, 101), membranous and convex laterally with parallel, mediad curved subtruncate ends (Fig. 102) connected by transverse, mediolateral bridge (Fig. 103: arrow III); dorsal lobe in lateral view with acute end, triangularly widened ventrad and projecting from apical lobes

ventrally, in ventral and dorsal view widely convex with minute, apicomedian incision (Figs 102, 103); flagellum short, not projecting ventrally (Figs 44, 101–103); lateral lobes large, strongly projecting ventrolaterally, each with membranous, strip-like, proximal enlargement (Fig. 102: arrow II) and group of ventromedial pointing setae; ventral lobe large, strongly projecting ventrodistad, with convex end in lateral and ventral view (Figs 44, 101, 102); median foramen small, shaped like transverse crescent moon, with transverse ridge projecting ventrally (Figs 44, 101).

Female: Chamber of sperm pump with short, curved apophysis; bursal duct about as long as sperm pump; bursa with strongly sclerotized end (Fig. 172).

Distribution: *Scopaeus uncinatus* is hitherto known from western Java only. It was collected at the edge of Mount Halimun-Salak National Park in Banten and Jawa Barat.

Etymology: The epithet *uncinatus* (adjective, Latin: 'hook-shaped') refers to the hooked apical lobes of the aedeagus of this new species (Figs 44, 101).

***Scopaeus crassipunctatus* Frisch, spec. nov.**
(Figs 22, 48, 104–106, 144, 177)

Type specimens: Indonesia: Holotype ♂, Jawa Barat, Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39''S, 106°30'48''E), 680 m, 20.9.2015, leg. Frisch (MZB). Paratypes (11 specimens): 1 ♂, 2 ♀, same data as holotype (MFNB, MZB). Banten: 1 ♂, 1 ♀, Lebak: NE Majasari (06°37'32''S, 106°23'53''E), 460 m, 26.5.2016, leg. Frisch (MFNB, MZB). Jawa Barat: 2 ♀, Bogor, NO-slope Mt Salak (06°39'55''S, 106°45'36''E), 640 m, 13.9.2015, leg. Frisch (MFNB, MZB); 1 ♀, Sukabumi, Simaresmi: Cisareno River (06°49'02''S, 106°30'09''E), 1000 m, 22.9.2015, leg. Frisch (MFNB); 1 ♀, Sukabumi, Kiara Dua: Ciletuh River (07°08'40''S, 106°36'55''E), 670 m, 23.9.2015, leg. Frisch (MZB); 1 ♂, Sukabumi, Kiara Dua: Ciletuh River (07°08'27''S, 106°37'46''E), 710 m, 24.9.2015, leg. Frisch (MFNB); 1 ♀, Sukabumi, N Djampang Kulon: Cikarang River (07°14'03''S, 106°36'49''E), 250 m, 25.9.2015, leg. Frisch (MZB).

Description: Habitus and coloring as in Fig. 22. Head trapezoidal. Antennae short with segments 6–10 increasingly transverse. Mesotibia moderately thickened. Body surface shiny; setose forebody punctation conspicuously coarse, but relatively spacious; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Forebody orange-brown, in about middle of elytral length with transverse, blackish band of variable extent interrupted at suture, occupying up to posterior four

fifths of elytra except for very posterior margin; abdomen black-brown except for light orange-brown tip; maxillary palpi, antennae and legs unicolorous yellow-brown. Total body length 2.0–2.5 mm; forebody length 1.6–1.7 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII with very short emargination in median third of posterior sternite width (Fig. 144). Aedeagus (Figs 48, 104–106) about 0.3 mm long, with short, symmetrical distal lobes and narrow, bean-shaped, dextrad curved phallobase; apical lobes evenly curved apicoventrally towards subacute end and with straight ventral margins (Figs 48, 104), in ventral and dorsal view with straight lateral margins in proximal half, then angled bent apicomediad with acute ends (Figs 105, 106); dorsal lobe wide with subtruncate apex (Figs 105, 106); flagellum inconspicuous, not projecting from apical lobes ventrally (Figs 48, 104); lateral lobes wide, convexly projecting ventrolaterally, with long, ventral row of close, long setae reaching apex of apical lobes (Figs 48, 104, 105); ventral lobe long, narrow, straight ventrally, followed proximally by irregular line of few, tooth-like macrosetae (Figs 48, 104), with apex convex in lateral view and V-shaped in ventral view (Fig. 105); median foramen situated close to proximal end of phallobase, divided by longitudinally wide, transverse ridge in narrow, circular distal and wide proximal half (Fig. 105).

Female: Sperm pump with process segment narrow, chamber partly membranous and short apophysis of chamber; bursal duct and bursa membranous (Fig. 177).

Distribution: *Scopaeus crassipunctatus* was collected at the edge of Mount Halimun-Salak National Park in the provinces of Banten and Jawa Barat in western Java.

Etymology: The epithet *crassipunctatus* [adjective, Latin, composed of the adjectives *crassus* (coarse) and *punctatus* (punctate)] relates to the remarkably coarse forebody punctation of this new species (Fig. 22).

Comment: *Scopaeus crassipunctatus* is closely related and similar to *S. puncticeps* Kraatz, 1859 from 'India orientali'. The female type specimen at SDEI differs by somewhat finer, denser forebody punctation. A strong argument for the specific difference of *S. crassipunctatus* and *S. punctipennis* is the existence of another undescribed species of this clade in Malaysia (Selangor) against the background of a high degree of allopatry in monophyletic species groups of *Scopaeus* (Frisch et al. 2002: 42–44).

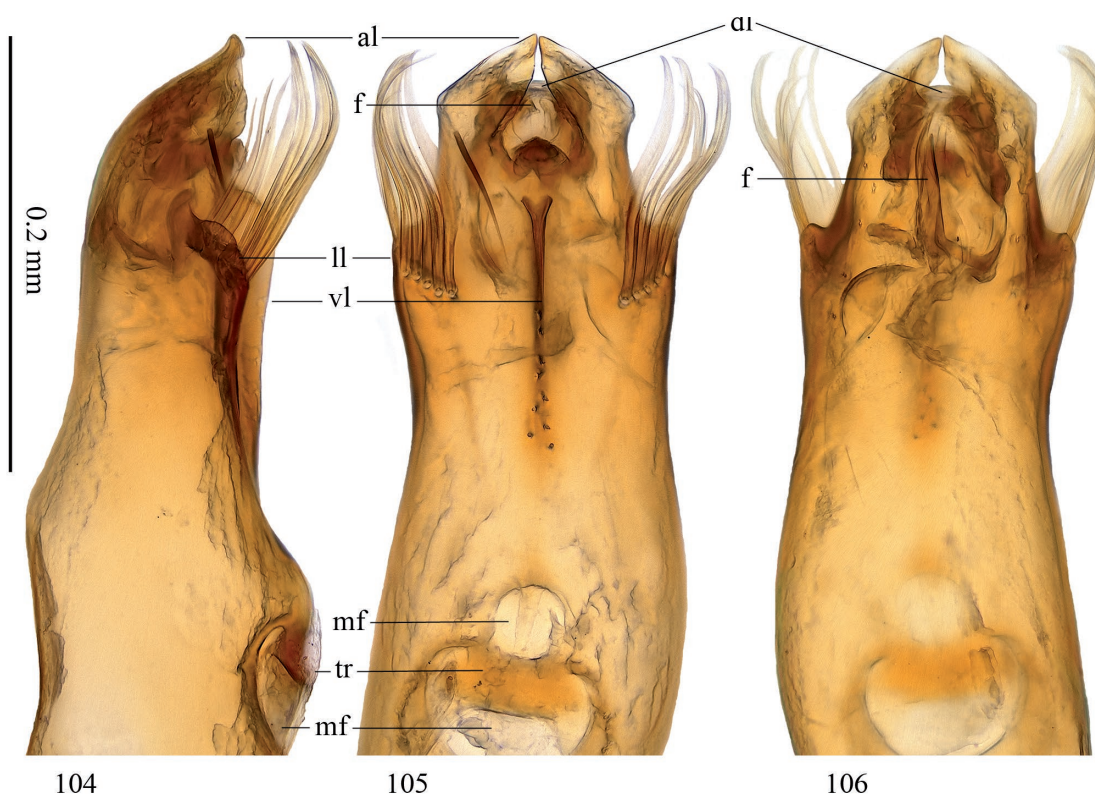
***Scopaeus bipenicillatus* Frisch, spec. nov.**
(Figs 20, 45, 107–109, 138, 139, 173, 174)

Type specimens: Indonesia: Holotype ♂, Sulawesi Tengah, Sigi: Pagana (01°23'52''S, 119°58'37''E), 640 m,

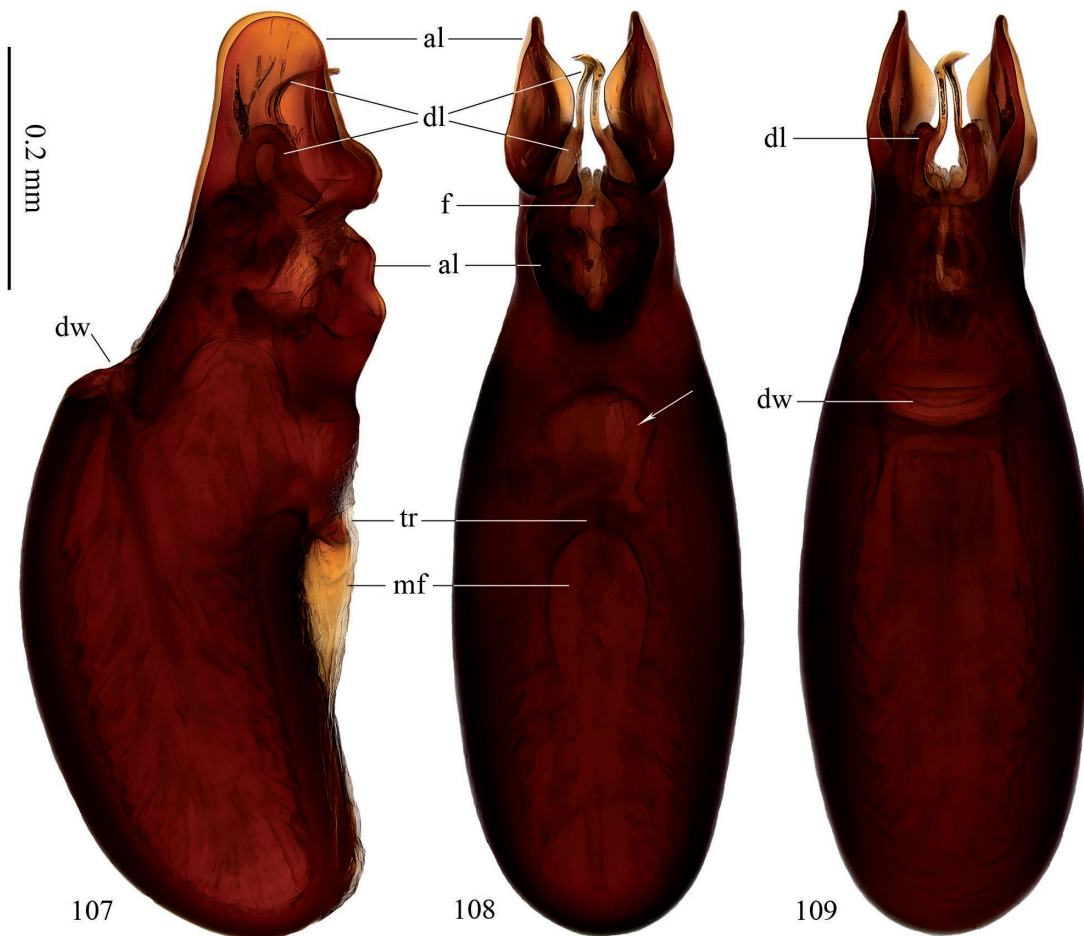
5.5.2017, leg. Frisch (MZB). Paratypes (45 specimens): 14 ♂, 5 ♀, same data as holotype (MFNB, MZB). Sulawesi Tengah: 4 ♂, 4 ♀, Poso: Tentena – Taipa (Lake Poso), (01°47'58"S, 120°31'48"E), 530 m, 11.5.2017, leg. Frisch (MFNB); 1 ♂, 20 km SE Tambarana: Camp Mauro, 11.–16.7.1999, leg. Bolm (SMNS). Sulawesi Utara: 1 ♂, Kotamobagu: Mt Ambang, 11.1.1985, leg. Project Wallace, Royal Entomological Society London (NHML); 5 ♂, 1 ♀, Dumoga-Bone NP (Tumpah River), 200–300 m, 1.–2.1985, leg. Project Wallace, Royal Entomological Society London (NHML). Maluku: 7 ♂, 3 ♀, Manusela (Ceram Island), 16.–18.2.1989, leg. Schillhammer (MFNB, NHMW).

Description: Habitus and coloring as in Fig. 20. Head subquadrate. Penultimate antennal segment quadrate. Mesotibia moderately thickened. Body surface subnitid with fine, dense, setose punctation; pronotum not more finely punctate than head; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body color varying from medium brown to black; appendages yellow-brown; dark specimens with head usually slightly lighter than pronotum, elytra gradually reddish medium brown posteriad in variable extent, and tip of abdomen light brown. Total body length 4.0–4.1 mm; forebody length 2.1–2.3 mm.

Male: Abdominal sternite VII with semicircular emargination in median third of posterior sixth at either side studded with posterior, dense cluster of long macrosetae (Fig. 138). Abdominal sternite VIII with triangular emargination in almost posterior fourth (Fig. 139). Aedeagus (Figs 45, 107–109) about 0.6 mm long, strongly sclerotized, thus dark reddish brown; phallobase small compared to distal lobes and with dorsodistal window (Figs 45, 107, 109); apical lobes in lateral view somewhat tapered distad with broad, convex apices and round, ventromedian enlargement followed proximally by moderately projecting, ventral enlargement with shallow, median emargination (Figs 45, 107); distal portion of apical lobes in ventral view with straight lateral margins convexly narrowed towards proximal portion, convex inner margins and acute apices (Figs 108, 109); in proximal portion, inner margins of apical lobes with distal teeth pointing towards each other in between bases of distal portion of apical lobes and with short lobes in middle of longitudinal length also pointing towards each other (Fig. 108); dorsal lobe in narrow curve bent ventroproximad (Figs 45, 107), with deep, round, mediodistal emargination dividing lobe in two narrow, parallel, medioapicad curved halves (Fig. 109) continued in long, thin, apicoventrad curved



Figures 104–106. Apex of aedeagus of *Scopaeus crassipunctatus*, holotype, Jawa Barat, Sukabumi, Sirnarasa: Cisarua in lateral (104), ventral (105), dorsal view (106). **Abbreviations:** al – apical lobes, dl – dorsal lobe, f – flagellum, ll – lateral lobes, mf – median foramen, tr – transverse ridge of median foramen, vl – ventral lobe.



Figures 107–109. Aedeagus of *Scopaeus bipenicillatus*, holotype, Sulawesi Tengah, Sigi: Pagana in lateral (107), ventral view (108), dorsal view (109). **Abbreviations:** al – apical lobes, dl – dorsal lobe, dw – dorsodistal window of phallobase, f – flagellum, mf – median foramen, tr – transverse ridge. **Arrow Fig. 108:** ventral window of phallobase.

processes (Figs 45, 107) with tips curved to the right (Fig. 109); flagellum short, inconspicuous; lateral lobes absent (Figs 108, 109); median foramen elongate with curved, transverse ridge (Fig. 108) followed distally by subrectangular, ventral ‘window’ of phallobase (Fig. 108: arrow).

Female: Process of sperm pump long, slender, evenly curved; chamber segment stout, without process, strongly curved and continued in spiral bursal duct; bursa sclerotized, amber (Figs 173, 174).

Distribution: *Scopaeus bipenicillatus* is presently known from Sulawesi and the Moluccan island Ceram.

Etymology: The epithet *bipenicillatus* [adjective, Latin, composed of the numeral *bi* (two) and the adjective *penicillatus* (penicillate, brush-like)] refers to the two brushes of macrosetae delimiting the posterior emargination of abdominal sternite VII (Fig. 138) of the new species.

***Scopaeus bipectenatus* Frisch, spec. nov.**
(Figs 21, 46, 110–112, 140, 141, 175)

Type specimens: Indonesia: Holotype ♂, Sulawesi Tengah, Poso: S Taipa (Lake Poso), (01°55′03″S, 120°31′18″E), 570 m, 13.5.2017, leg. Frisch (MZB). Paratypes: 10 ♂, 4 ♀, same data as holotype (MFNB, MZB).

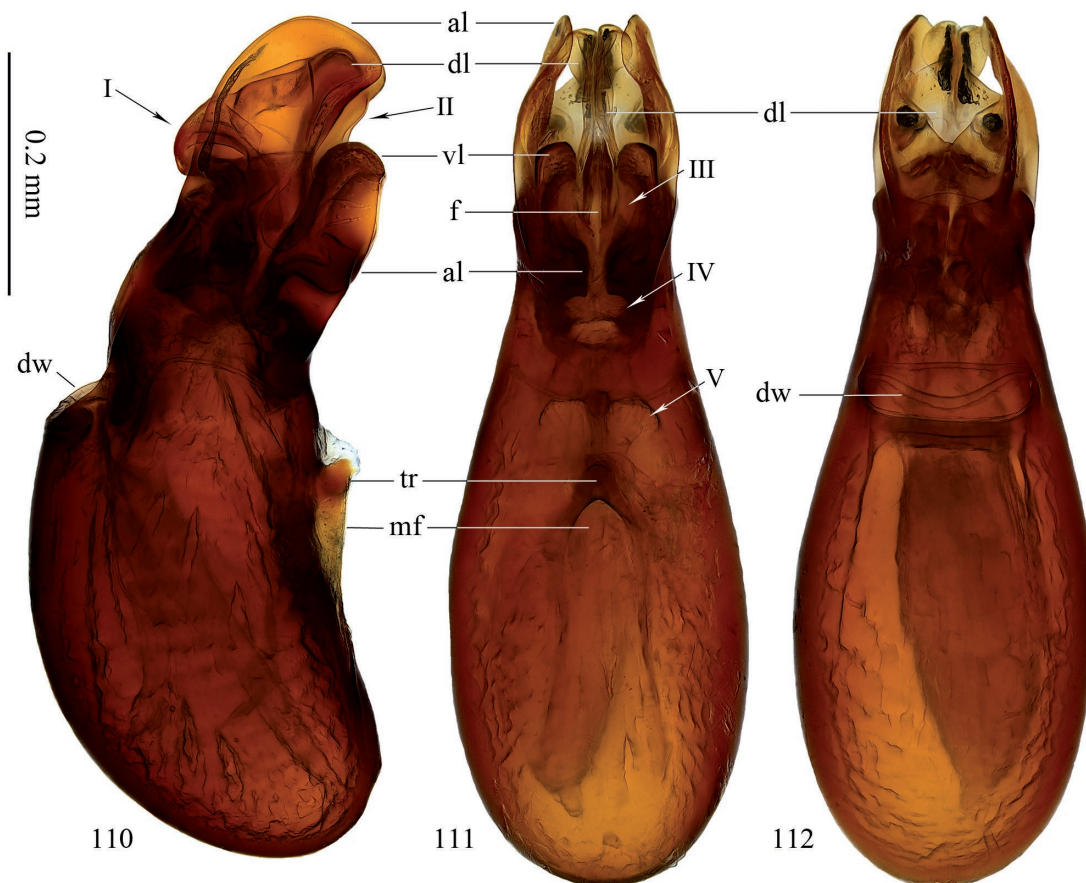
Description: Habitus and coloring as in Fig. 21. Head trapezoidal with notably concave posterior margin. Penultimate antennal segment slightly transverse. Mesotibia moderately thickened. Forebody matt with relatively coarse, dense, setose punctation; abdomen more finely punctate, thus somewhat shiny; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Pronotum broad with pronounced, obtuse, lateroanterior angles. Body unicolorous black-brown except for light brown tip of

abdomen, light brown antennae, light brown maxillary palpi with darkened penultimate segment, and light brown legs with dark brown femora. Total body length 2.9–3.2 mm; forebody length 1.6 mm.

Male: Abdominal sternite VII with posterior margin with two short, lateral emarginations and deeper, median, almost semicircular emargination occupying about posterior eighth of sternite length; sternite VII with mediolongitudinal depression delimited laterally by two convexities with irregular rows of macrosetae continued in short lobes projecting from posterior sternite margin studded with transverse row of six or seven short, close, spine-like macrosetae (Fig. 140). Posterior third of abdominal sternite VIII with deep, triangular emargination with narrowed anterior end (Fig. 141). Aedeagus (Figs 46, 110–112) about 0.6 mm long, strongly sclerotized, thus dark reddish brown; phallobase small compared to distal lobes, with dorsodistal window (Fig. 46, 110, 112); apical lobes in distal portion slightly curved ventrad towards wide, convex apices (Figs 46,

110), in ventral view with weakly convex lateral margins narrowed towards slender, subacute ends (Fig. 111), in dorsal view V-shaped distomedially (Fig. 112); proximal portion of apical lobes with large, ventral, elongate, distad pointing lobe (Fig. 110) and inner ventral margins forming concave ventroproximal and ventrodistal, circular windows (Fig. 111: arrows III, IV); dorsal lobe in lateral view wide, evenly tapered towards truncate apex and projecting from apical lobes both dorsally and ventrally (Fig. 110: arrows I, II), in ventral and dorsal view triangular proximally with convexly widened ends (Figs 111, 112); flagellum short, not projecting from aedeagus ventrally (Fig. 111); lateral lobes absent (Figs 111, 112); transverse ridge of median foramen shaped like upside down V (Fig. 111), separating median foramen and short, bipartite, ventral window (Fig. 111: arrow V) of phallobase.

Female: Chamber segment of sperm pump without apophysis, strongly curved towards long spiral duct (Fig. 175); bursa membranous.



Figures 110–112. Aedeagus of *Scopaeus bipectenatus*, holotype, Sulawesi Tengah, Poso: Lake Poso in lateral (110), ventral view (111), dorsal view (112). **Abbreviations:** al – apical lobes, dl – dorsal lobe, dw – dorsodistal window of phallobase, f – flagellum, mf – median foramen, tr – transverse ridge of median foramen. **Arrows:** dorsal lobe projecting from apical lobes dorsally and ventrally (I, II); ventral, circular windows of apical lobes (III, IV); ventral, bipartite window of phallobase (V).

Distribution: *Scopaeus bipectenatus* is hitherto known only from the type locality at Lake Poso, Sulawesi Tengah.

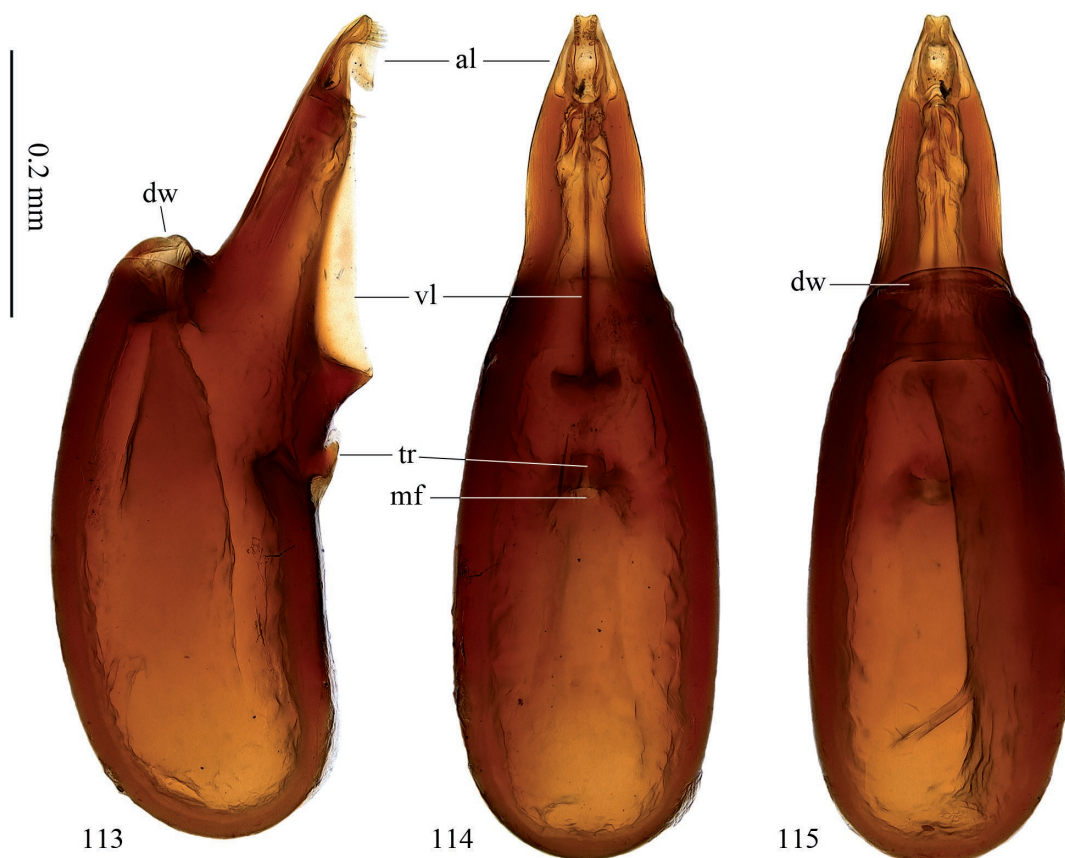
Etymology: The epithet *bipectenatus* was selected [adjective, Latin, composed of the numeral *bi* (two) and the adjective *pectenatus* (pectenate, wearing combs)] with regard to the two rows of spine-like macrosetae delimiting the median emargination of the posterior margin of abdominal sternite VII (Fig. 140), which are reminiscent of combs.

***Scopaeus cuspidatus* Frisch, spec. nov.**
(Figs 23, 47, 113–115, 142, 143, 176)

Type specimens: Indonesia: Holotype ♂, Bali, Jembrana: Cekik, 20.6.1994, 300 m, leg. Wunderle (PWCM). Paratypes (2 specimens): 1 ♂, Central Sulawesi, Morowali: Beteleme – Tinompo (02°06'06"S, 121°08'26"E), 430 m, 12.5.2017, leg. Frisch (MFNB); 1 ♀, Jawa Barat, NO Bogor: NO-slope Mt Salak (06°39'55"S, 106°45'36"E), 640 m, 13.9.2016, leg. Frisch (MZB).

Description: Habitus and coloring as in Fig. 23. Head trapezoidal with concave posterior margin. Penultimate antennal segment transverse. Mesotibia moderately thickened. Forebody surface with relatively coarse, spacious, setose punctation; microreticulation absent; body surface shiny. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Forebody unicolorous orange brown; abdomen light brown; appendages yellow-brown. Total body length 2.3–2.5 mm; forebody length 1.2–1.3 mm.

Male: Posterior margin of abdominal sternite VII extended in narrow, tapered, median lobe (Fig. 142). Abdominal sternite VIII with short, narrow, triangular emargination in posterior eighth and basal margin in median third notably concave, almost reaching subbasal ridge (Fig. 143). Aedeagus (Figs 47, 113–115) about 0.5 mm long, strongly sclerotized, thus dark reddish brown; phallobase compact, with large, distad projecting dorsodistal window (Fig. 47, 113), strongly narrowed towards long, slender, apicad tapered distal portion of aedeagus with narrow, short apical lobes each with ventroapical widening studded with longitudinal row



Figures 113–115. Aedeagus of *Scopaeus cuspidatus*, holotype, Bali, Jembrana: Cekik in lateral (113), ventral (114), dorsal view (115). **Abbreviations:** *al* – apical lobes, *dw* – dorsodistal window of phallobase, *mf* – median foramen, *tr* – transverse ridge of median foramen, *vl* – ventral lobe.

of about six stout setae followed proximally by weakly sclerotized, broad, longitudinal enlargement with acute ventroproximal end (Figs 113, 114); dorsal lobe and flagellum inconspicuous; ventral lobe beginning with wide, triangular, proximal enlargement projecting from phallobase, then weakly sclerotized distad, very thin in ventral view (Fig. 114), in lateral view straight ventrally and evenly narrowed towards base of apical lobes (Figs 47, 113); median foramen small, limited distally by ventrally projecting, transverse ridge (Figs 113, 114).

Female: Sperm pump with short process segment and long, straight chamber without apophysis, narrowed towards thin, weakly sclerotized bursal duct (Fig. 176); bursa membranous.

Distribution: *Scopaeus cuspidatus* was found in Bali, Jawa and Sulawesi and seems to be widespread across Indonesia.

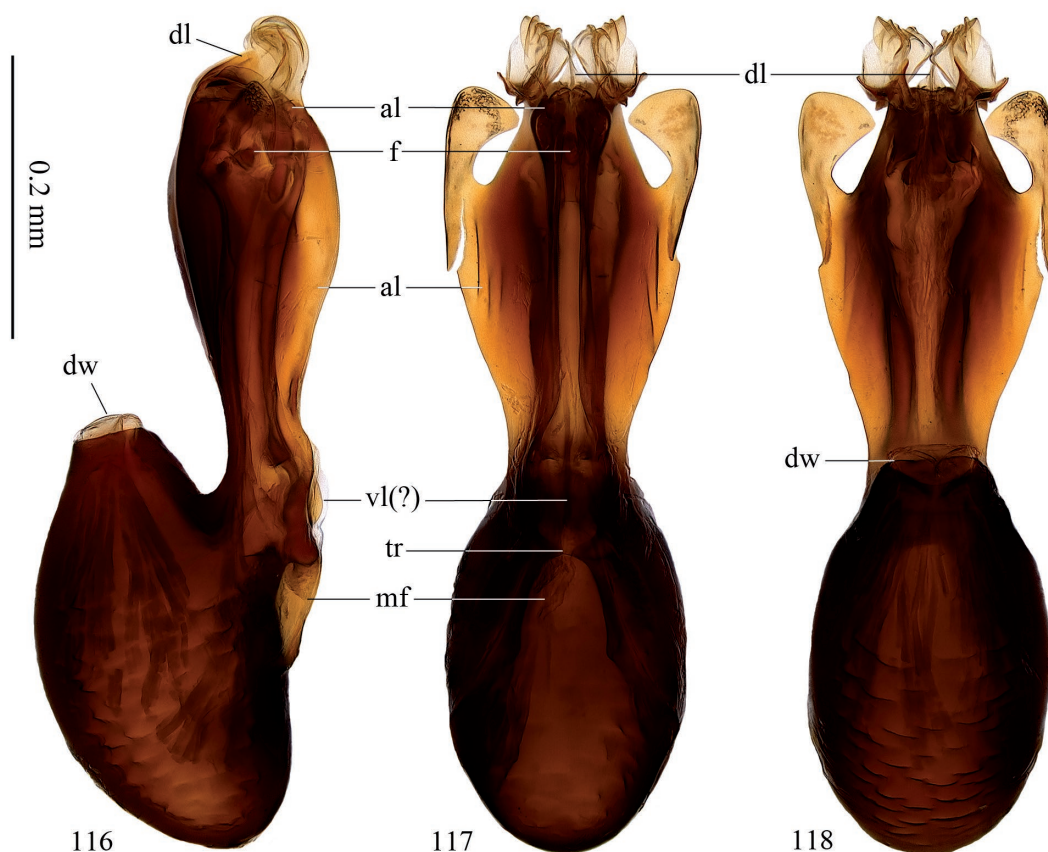
Etymology: For this new species the epithet *cuspidatus* (adjective, Latin: 'tapered, pointed') was chosen in reference of the distinct spine at the posterior margin of abdominal sternite VII (Fig. 142).

***Scopaeus sulawesianus* Frisch, spec. nov.**
(Figs 24, 49, 116–118, 145, 178)

Type specimens: Indonesia: Holotype ♂, Sulawesi Selatan, Engrekang (Sadang River), (03°34'S, 119°46'E), 46 m, 27.7.2015, leg. Puchner (MZB). Paratypes (9 specimens): 2 ♂, 1 ♀, same data as holotype (MFNB, MZMB). 3 ♂, 3 ♀, Sulawesi Tengah, 6 km E Tambarana (01°11'15''S, 120°28'06''E), 50 m, 9.–11.7.1999, leg. Bolm (MFNB, SMNS).

Description: Habitus and coloring as in Fig. 24. Head subquadrate. Penultimate antennal segment elongate. Mesotibia moderately thickened. Body surface dull with extremely fine, dense, setose punctation; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body including appendages light brown; disc of abdominal segments darker brown. Total body length 3.1–3.3 mm; forebody length 1.8–1.9 mm.

Male: Abdominal sternite VII with unmodified posterior margin. Abdominal sternite VIII in almost



Figures 116–118. Aedeagus of *Scopaeus sulawesianus*, holotype, Sulawesi Selatan: Engrekang in lateral (116), ventral (117), dorsal view (118). **Abbreviations:** al – apical lobes, dw – dorsodistal window of phallobase, mf – median foramen, tr – transverse ridge of median foramen, vl – ventral lobe.

posterior half with deep, triangular emargination with somewhat concave margins and acute anterior end; disc of sternite VIII with large depression wider than half sternite width stretching from emarginate posterior margin close to subbasal ridge; depression of sternite VIII surrounded laterally by long, medioposteriorly pointing macrosetae neighboured by sublateral, lateroposteriorly pointing macrosetae situated within depression (Fig. 145). Aedeagus (Figs 49, 116–118) about 0.5 mm long; phallobase stout, strongly sclerotized, thus dark reddish brown, shorter than distal lobes; distal portion of aedeagus seemingly attached to phallobase ventromedially owing to remarkable, dorsodistal extension of phallobase evenly narrowed towards wide, membranous, dorsodistal window (Figs 49, 116); apical lobes in lateral view very narrow basally but convexly widened distad (Figs 49, 116), in ventral and dorsal view with pronounced proximal waist, widened distolaterally and extended in remarkable, wing-like lobes with triangularly enlarged, mediolateral curved ends (Figs 117, 118); apical lobes ventrally separated in lateral halves with straight, parallel inner margins; ends of apical lobes membranous, in lateral view narrow and curved dorsad (Figs 49, 116), in ventral and dorsal view widened laterally, subflabellate apically (Figs 117, 118); dorsal lobe curved apicoventrad (Figs 49, 116), with membranous apex triangularly projecting between membranous ends of apical lobes (Figs 117, 118); flagellum inconspicuous (Fig. 117); small convex lobe, presumably ventral lobe, projecting from distal portion of aedeagus ventroproximally; median foramen oblong, with ends of lateral ridges curved proximolaterad; transverse ridge slender, curved distad (Fig. 117).

Female: Sperm pump with long, slender process segment; chamber without apophysis; bursal duct long, spirally tortuous (Fig. 178); bursa membranous.

Distribution: *Scopaeus sulawesianus* is known from Sulawesi only.

Etymology: With the epithet *sulawesianus* (adjective, Latin, composed of the geographic name Sulawesi and the suffix *-anus*, which indicates the geographical affiliation), reference is made to the distribution of this presumed Sulawesi endemic.

Comment: *Scopaeus bipectenatus*, *S. bipenicillatus*, *S. cuspidatus* and *S. sulawesianus* share the dark, strongly sclerotized aedeagus with small phallobase, which has a dorsodistal, membranous window of unknown function (Figs 107–118), and the missing apophysis of the chamber segment of the sperm pump (Figs 173–175, 178). They constitute a distinctive, speciose phylogenetic lineage of *Scopaeus* in the Oriental, Australasian, Nearctic and Neotropical regions with a large number of undescribed species.

***Scopaeus niger* Cameron, 1918** (Figs 25, 179)

Scopaeus niger Cameron, 1918: 77, 78.

Type specimens examined: Lectotype ♀, Singapore, Mandai, by present designation; labeled 'Type' (round, printed label with red margin), 'Type' (red, handwritten), 'Mandai, / Singapore. / Dr. Cameron.' (printed), 'Bank of Stream' (printed), 'M. Cameron. / Bequest. / B.M.1955-147.' (printed), 'Syntype / *S. niger* Cam. / (original det. label / missing? / M. T. O. Brendell. ii. 2000' (handwritten); 'Lectotype / *Scopaeus niger* / Cameron 1918 / label by J. Frisch, 2022' (red, printed) (NHML). Paralectotypes: 3 ♀, same labels as lectotype except for type label; subsequent paratype label 'Paratype / *Scopaeus niger* / Cameron 1918 / label by J. Frisch, 2022' (red, printed) (NHML).

Cameron (1918: 77, 78) described *Scopaeus niger* based on four female specimens without designating a holotype, which thus are syntypes. As no male syntype is available, I designate a female specimen as lectotype to stabilize the name *S. niger* Cameron, 1918 according to ICZN 1999, Article 74.1.

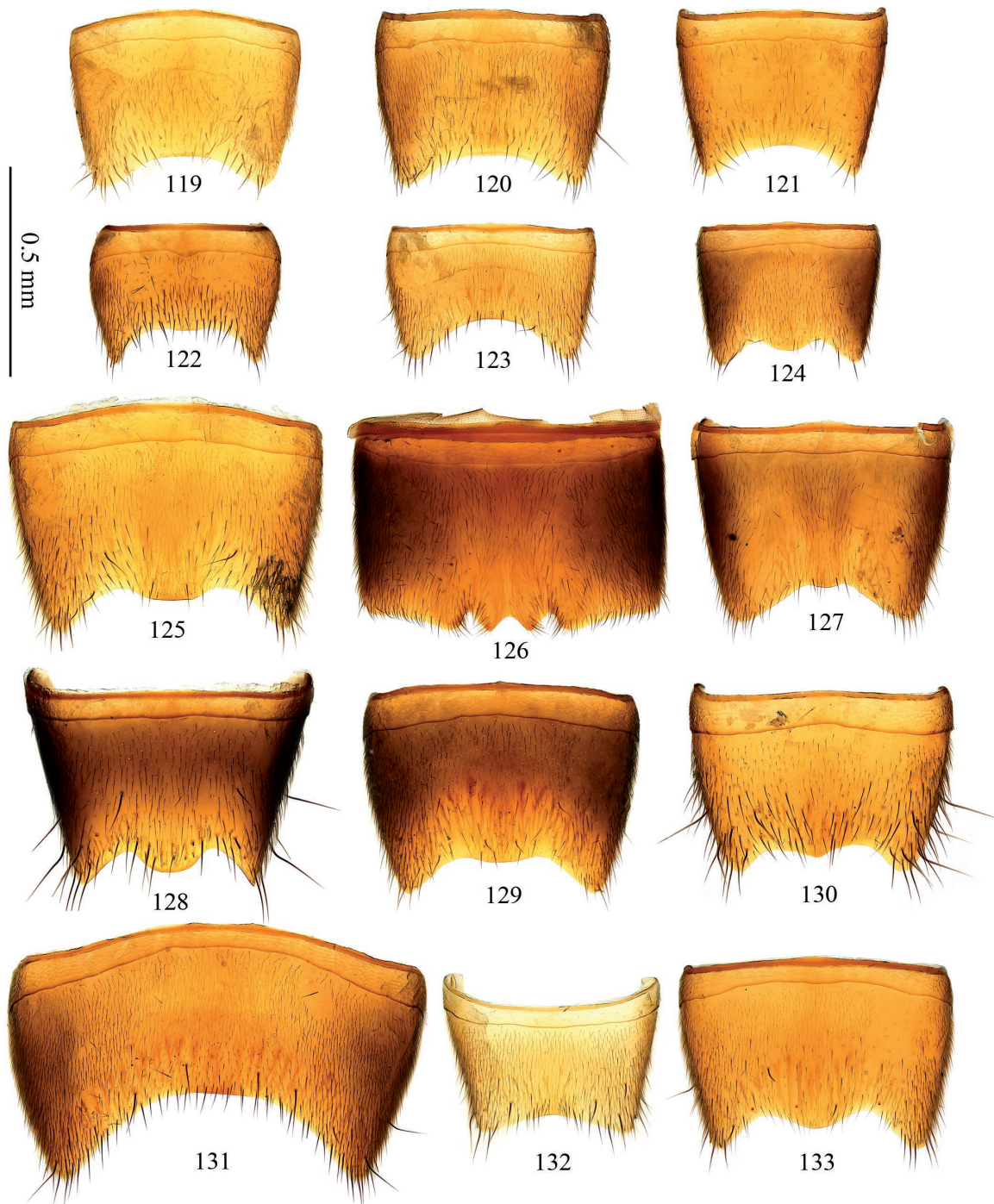
Redescription: Habitus as in Fig. 25. Head subcircular. Penultimate antennal segment elongate. Mesotibia slender. Body surface subnitid with fine, dense, setose punctation; microreticulation absent. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Body color of type specimens reddish medium brown to dark brown; maxillary palpi medium brown; antennae medium brown proximally, gradually lighter towards yellow-brown terminal segments; legs yellow-brown with light brown femora. Type specimens probably bleached during last century, because Cameron (1918: 77) described the coloration as follows: 'Black, moderately shining; antennae with first six segments pitchy-testaceous, the others clear testaceous; legs testaceous, the femora more or less infusate.' Total body length 3.4–4.0 mm; forebody length 2.0–2.1 mm.

Male: Unknown.

Female: Chamber segment of sperm pump short, circular, not projecting from large apophysis towards bursal duct (Fig. 179); bursa membranous.

Phylogeny: Judging from the body shape with long, slender antennae and legs, *Scopaeus niger* is expected to belong to the *S. gracilis* species group (Frisch et al. 2002: 39). Male specimens are needed to confirm this hypothesis.

Distribution: *Scopaeus niger* is hitherto known from Singapore only, but might be found in Sumatra as well, which is why it is included in this contribution.



Figures 119–133. Abdominal sternite VII (126) and abdominal sternite VIII (119–125, 127–133) of ♂ of *Scopaeus javanus*, lectotype, Jawa Barat, N Bandung: Mt Tangkuban Perahu (119); *S. batukaruensis*, holotype, Bali, Tabanan: Bedugul (120); *S. riedeli*, holotype, Sumatra, South Lampung: Rajabasa Mts (121); *S. jacobsoni*, Jawa Barat: Mt Salak (122); *S. mixtus*, Malaysia, Sabah: Lokan (123); *S. halimunsalakensis*, holotype, Jawa Barat, Sukabumi: Simarasa (124); *S. tortuosiflagellatus*, holotype, Jawa Barat, Sukabumi: Cisalimas (125); *S. posoanus*, holotype, Sulawesi Tengah: Lake Poso (126, 127); *S. spiraliflagellatus*, holotype, Sulawesi Tengah: Lake Poso (128); *S. anuliflagellatus*, holotype, Jawa Barat, Sukabumi: Cidahu (129); *S. pulcher*, holotype, Jawa Barat, Sukabumi: Cikaniki (130); *S. grandis*, holotype, Jawa Barat, Sukabumi: Cidahu (131); *S. heronifer*, holotype, Banten, Lebak: Majasari (132); *S. diversilobatus*, holotype, Jawa Barat, Sukabumi: Djampang Kulon (133).

***Scopaeus borneensis* Cameron, 1941**
(Figs 26, 180, 181)

Scopaeus borneensis Cameron, 1941: 229.

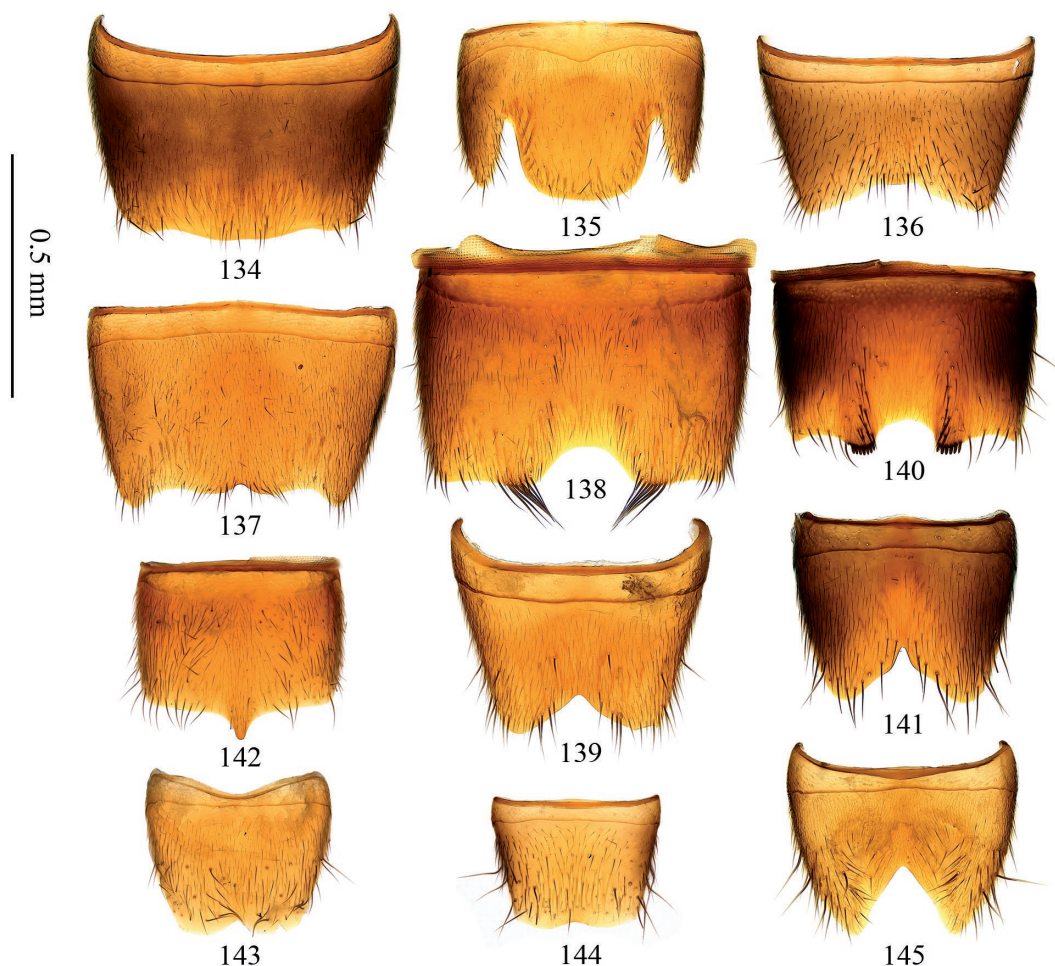
Type specimen examined: Holotype ♀, Kalimantan Barat, Pontianak; labeled 'Type' (round, printed label with red margin), 'Pontianak / Borneo' (handwritten), 'S. / borneensis / TYPE Cam.' (handwritten), 'M. Cameron./Bequest./B.M.1955-147.' (printed), 'Holotype/*Scopaeus borneensis* / Cameron 1941 / label by J. Frisch, 2022' (red, printed) (NHML).

Cameron (1941: 229) described *Scopaeus borneensis* based on a 'unique' specimen. Thus, it is a holotype by monotypy (ICZN, Article 73.1.2).

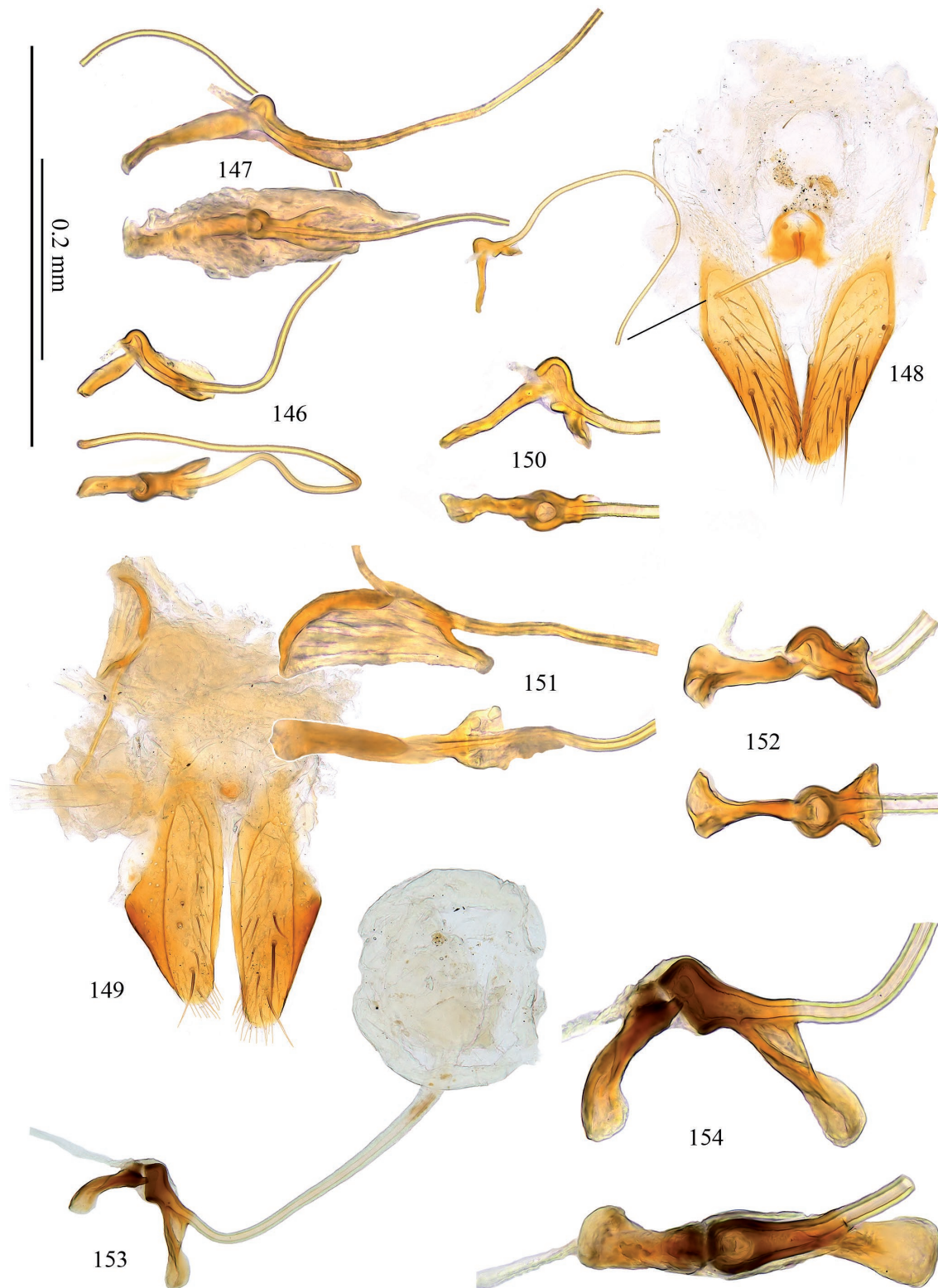
Redescription: Habitus and coloring as in Fig. 26. Head subquadrate. Penultimate antennal segment slightly elongate. Mesotibia moderately thickened. Body surface subnitid, finely, densely punctate, without microreticulation. Pubescence of body surface short, decumbent, without conspicuous macrosetae. Forebody reddish dark brown; abdomen and antennae medium brown; maxillary palpi and legs light brown. Total body length 3.8 mm; forebody length 2.4 mm.

Male: Unknown.

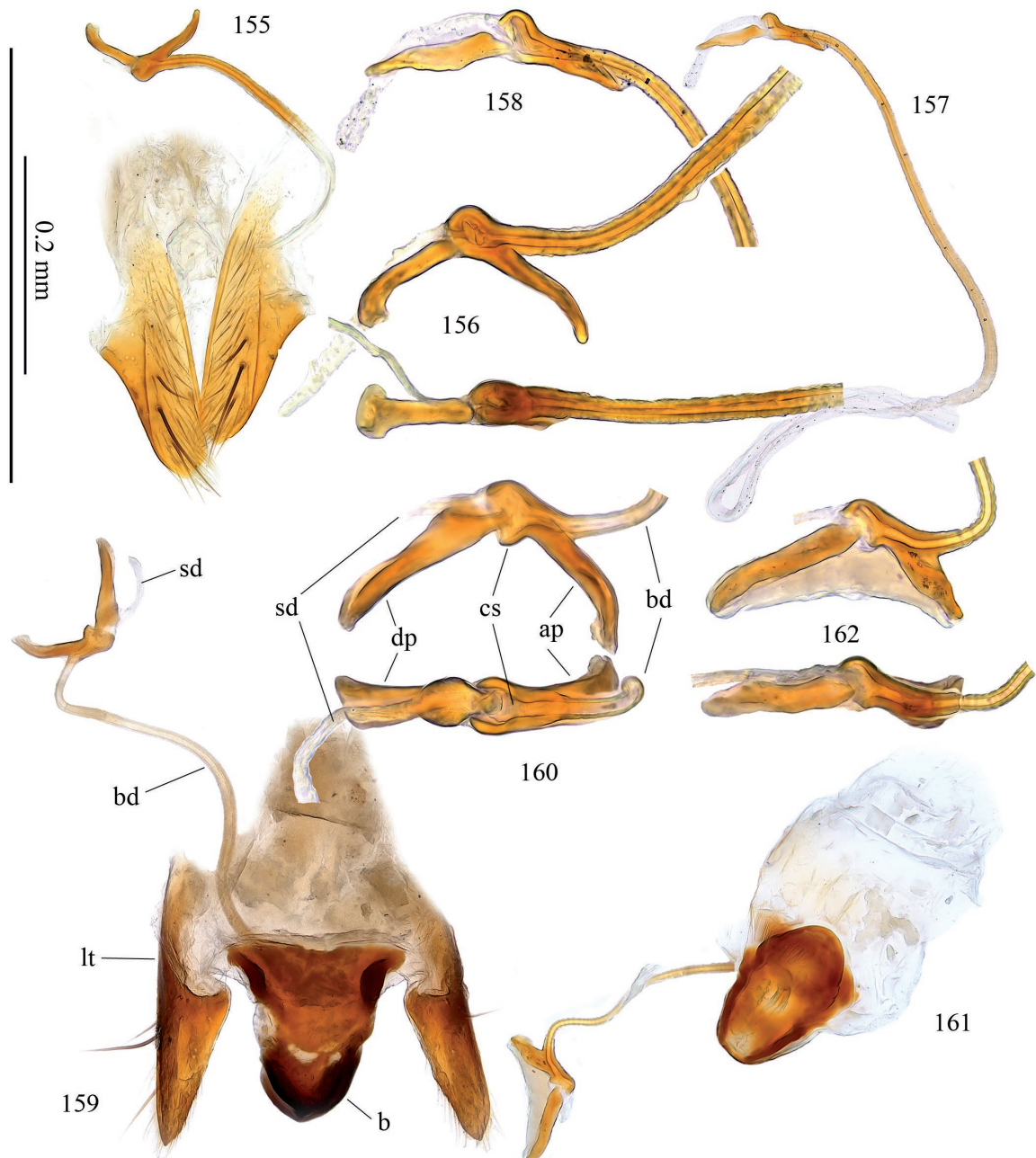
Female: Chamber segment of sperm pump short, without apophysis, acute-angled attached to distal process with strongly widened apex (Fig. 181); bursal duct strong, with S-shaped portion gradually widened, then strongly narrowed towards sperm pump (Fig. 180).



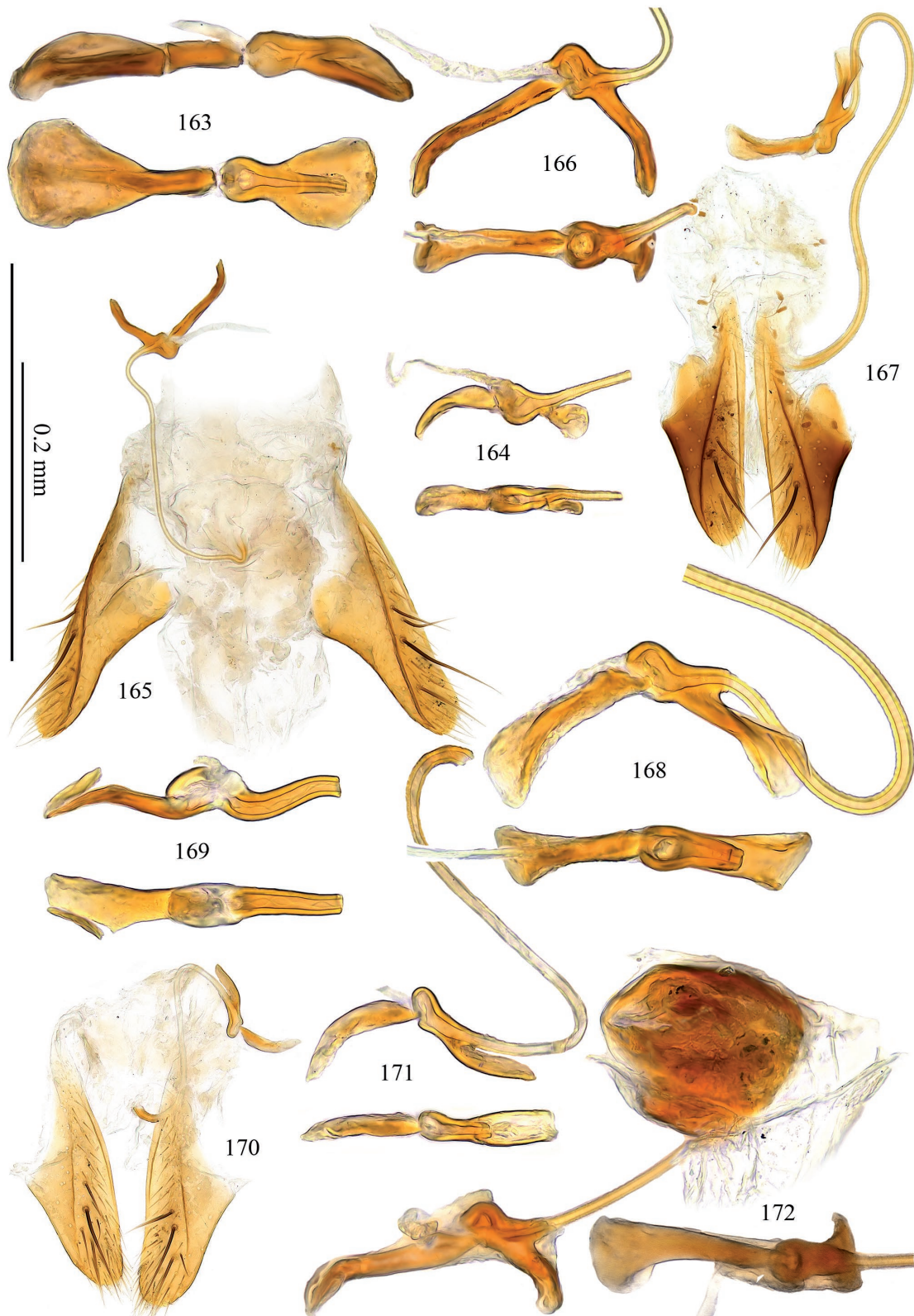
Figures 134–145. Abdominal sternite VII (138, 140, 142) and abdominal sternite VIII (134–138, 139, 141, 143–145) of ♂ of *Scopaeus cuspidatus*, holotype, Jawa Barat, Sukabumi: Simarasa (134); *S. velifer*, holotype, Banten, Lebak: Citorek Kidul (135); *S. elegantulus*, Jawa Barat, Sukabumi, Simarasa: Cisarua (136); *S. uncinatus*, holotype, Banten, Lebak: Citorek Kidul (137); *S. bipenicillatus*, paratype, Sulawesi Tengah, Sigi: Pagana (138); *S. bipenicillatus*, holotype, Sulawesi Tengah, Sigi: Pagana (139); *S. bipectenatus*, holotype, Sulawesi Tengah, Poso: Lake Poso (140, 141); *S. cuspidatus*, holotype, Bali, Jembrana: Cekik (142, 143); *S. crassipunctatus*, holotype, Jawa Barat, Sukabumi, Simarasa: Cisarua (144); *S. sulawesianus*, holotype, Sulawesi Selatan: Engrekang (145).



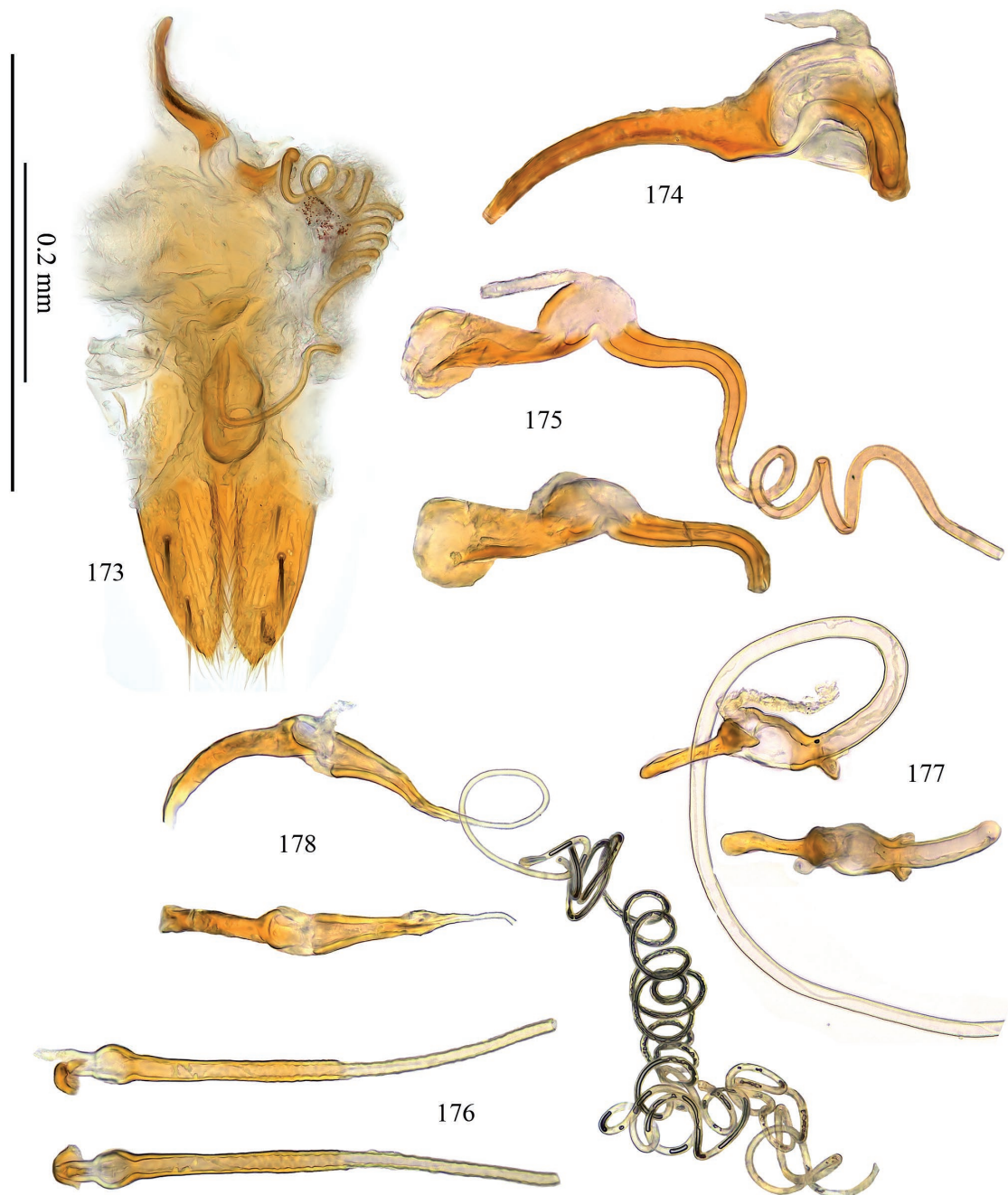
Figures 146–154. Sperm pump (146–154) and bursa (148, 149) of ♀ of *Scopaeus javanus*, Jawa Barat, Sukabumi: Kiara Dua (146); *S. batukaruensis*, paratype, Bali, Tabanan: Batukaru (147); *S. jacobsoni*, Jawa Barat, Sukabumi: Cidahu (148, with lateral gonocoxal plates IX; 150); *S. mixtus*, Malaysia, Sabah: Lokan (149, with lateral gonocoxal plates IX; 151); *S. halimunsalakensis*, paratype, Jawa Barat, Sukabumi: Sirnaresmi (152); *S. tortuosiflagellatus*, paratype, Jawa Barat, Sukabumi: Cisalimas (153, with bursal duct and bursa; 154). Long scale bar: 146, 147, 150–152, 154; short scale bar: 148, 149, 153.



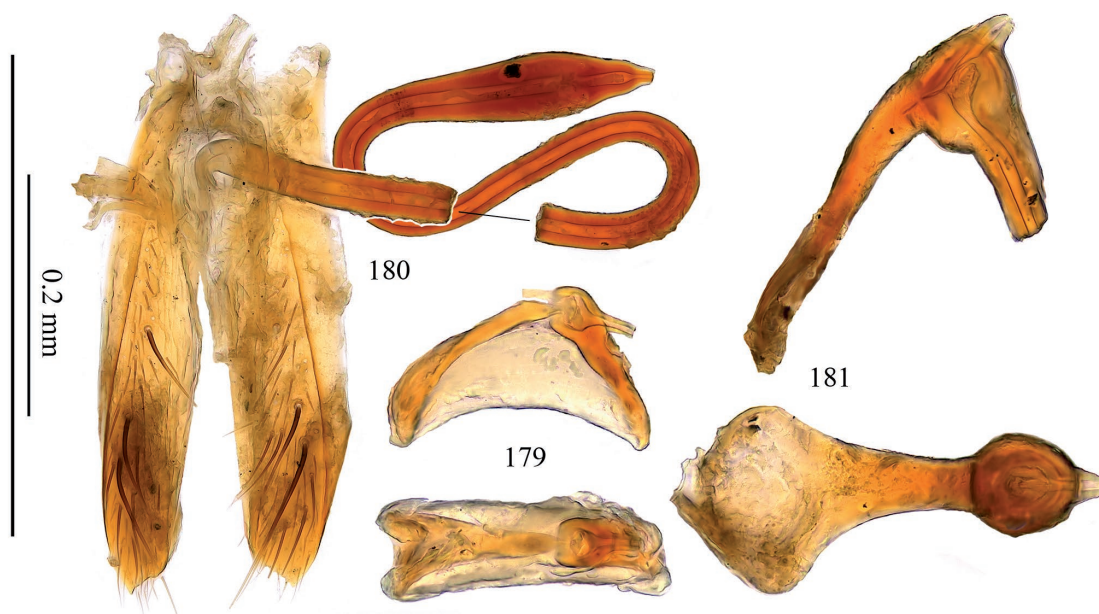
Figures 155–162. Sperm pump (155–162) and bursa (155, 159, 161) of ♀ of *Scopaes posoanus*, paratype, Sulawesi Tengah: Lake Poso (155, with lateral gonocoxal plates IX; 156); *S. spiraliiflagellatus*, paratype, Sulawesi Tengah: Lake Poso (157, with bursal duct; 158); *S. anuliflagellatus*, paratype, Jawa Barat, Sukabumi: Cikaniki (159, with lateral gonocoxal plates folded laterally; 160); *S. pulcher*, paratype, Jawa Barat, Sukabumi: Cikaniki (161, 162). Long scale bar: 156, 158, 160, 162; short scale bar: 155, 157, 159, 161. **Abbreviations:** ap – apophysis of chamber segment, b – (sclerotized end of) bursa, bd – bursal duct, cs – chamber segment, dp – distal process of chamber segment, lt – lateral gonocoxal plate IX, sd – spermathecal duct.



Figures 163–172. Sperm pump (163–172) and bursa (165, 167, 170, 172) of ♀ of *Scopaeus grandis*, paratype, Jawa Barat, Sukabumi: Cidahu (163); *S. heronifer*, paratype, Jawa Barat, Sukabumi: Simarasa (164); *S. diversilobatus*, paratype, Jawa Barat, Sukabumi, Djampang Kulon (165, with lateral gonocoxal plates IX folded laterally; 166); *S. cuspilobatus*, paratype, Jawa Barat, Sukabumi: Simarasa (167, with lateral gonocoxal plates IX, 168); *S. velifer*, paratype, Banten, Lebak: Citorek Kidul (169); *S. elegantulus*, Jawa Barat, Sukabumi: Djampang Kulon (170, with lateral gonocoxal plates IX, 171), *S. uncinatus*, paratype, Banten, Lebak: Citorek Kidul (172). Long scale bar: 163, 164, 166, 168, 169, 171, 172; short scale bar: 165, 167, 170.



Figures 173–178. Sperm pump (173–178) and bursa (173) of ♀ of *Scopaeus bipenicillatus*, paratype, Sulawesi Tengah, Sigi: Pagana (173, with lateral gonocoxal plates IX; 174); *S. bipectenatus*, paratype, Sulawesi Tengah: Lake Poso (175); *S. cuspidatus*, paratype, Jawa Barat: Mt Salak (176); *S. crassipunctatus*, paratype, Jawa Barat, Sukabumi: Simarasa (177); *S. sulawesianus*, paratype, Central Sulawesi, Tambarana (178, with bursal duct). Long scale bar: 174–178; short scale bar: 173.



Figures 179–181. Sperm pump (179, 181) and bursal duct (180) of ♀ of *S. niger*, lectotype, Singapore (179); *S. borneensis*, holotype, Kalimantan Barat: Pontianak (180, with lateral gonocoxal plates; 181). Long scale bar: 179, 181; short scale bar: 180.

Phylogeny: *Scopaeus borneensis* must be classified in the subgenus *Hyperscopaeus* Coiffait, 1984 (see Frisch et al. 2002: 38).

Distribution: This species is known only from the type locality in Kalimantan Barat, Indonesian Borneo.

4. Biogeography

4.1 New distributional data from Indonesia

Scopaeus filiformis Wollaston, 1867

New Indonesian records: Banten: Lebak, Ciparasi: Ciparasi River (06°39'27"S, 106°20'21"E), 450 m, 28.5.2016, leg. Frisch. Jakarta: 7.1948, 1949, leg. Nidek (NBCL). Jawa Barat: Karawang, 1975, leg. Pusakanegara & Hummelen (NBCL); Bogor, NO-slope Mt Salak (06°39'55"S, 106°45'36"E), 640 m, 13.9.2015, leg. Frisch; Bogor, Legok Dulang: Ciangsana River (06°43'08"S, 106°31'15"E), 1020 m, 18.9.2015, leg. Frisch; Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46"S, 106°32'25"E), 1020 m, 17.9.2015, 5.10.2015, leg. Frisch; Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39"S, 106°30'48"E), 680 m, 20.9.2015, leg. Frisch; Sukabumi, Simaresmi: Cisareno River (06°49'02"S, 106°30'09"E),

1000 m, 22.9.2015, leg. Frisch; Sukabumi, N Djampang Kulon: Cikarang River (07°14'03"S, 106°36'49"E), 250 m, 25.9.2015, leg. Frisch. Jawa Tengah: Semarang, leg. Jacobson (NBCL). Jawa Timur: Jombang [Djombang] (NBCL); Situbondo, Wonorejo (Baluran NP), 50 m, 24.–25.3.1994, leg. Bolm (MFNB, SMNS). Sulawesi Tengah: Morowali: Ranu River, 27.1.–20.4.1980, leg. Rees & Sutton (NHML).

The distribution of *Scopaeus filiformis* was revised by Frisch (1999: 371–373; 2016: 65). This common species occurs in most of the tropics and subtropics of the Old World and is commonly attracted by light traps. *Scopaeus filiformis* is expected to be distributed in all of Indonesia and presently known from Java, Sumatra, Borneo, Sulawesi, Lombok, Sumba and Sumbawa.

Scopaeus limbatus Kraatz, 1859

New Indonesian records: Jawa Barat: Bogor, NO-slope Mt Salak (06°39'55"S, 106°45'36"E), 640 m, 13.9.2015, leg. Frisch; Bogor, SW Pamijahan (Cimuaru Herang River), (06°42'41"S, 106°41'03"E), 990 m, 3.10.2015, leg. Frisch; Sukabumi, Cisalimas: Cisalimas River (E-slope Mt Halimun), (06°45'21"S, 106°33'38"E), 870 m, 19.9.2015, 14.5.2016, leg. Frisch; Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39"S, 106°30'48"E), 680 m, 20.9.2015, leg. Frisch; Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun), (06°51'32"S,

106°31'06"E), 670 m, 21.9.2015, leg. Frisch; Sukabumi, Kiara Dua: Ciletuh River (07°08'40"S, 106°36'55"E), 670 m, 23.9.2015, 27.9.2015, leg. Frisch; Sukabumi, Kiara Dua: Ciletuh River (07°08'27"S, 106°37'46"E), 710 m, 24.9.2015, 27.9.2015, leg. Frisch; Sukabumi, Simpenan: Cilulumpang River (07°08'43"S, 106°38'24"E), 740 m, 26.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Javana Spa (06°44'43"S, 106°42'51"E), 1150 m, 30.9.2015, leg. Frisch.

The distribution of *Scopaeus limbatus*, widespread throughout the Oriental Region, was presented by Frisch (2005: 76, 77) in the framework of a revision of the *S. limbatus* species group. It turned out, that old records for Indonesia, e.g. Sumatra [Sumatera Barat, Bukittingi, Fort de Kock (Cameron 1930: 346)], often are based on misidentification. Only the occurrence on Jawa and Timur is proven by specimens. The records presented here are the first for Jawa Barat.

Scopaeus nitidulus Motschulsky, 1858

New Indonesian records: Jawa Barat: Preanger, Tjigembong, 4.1945 (NBCL). Jawa Tengah: Cilacap [Tjilatjap], 6.1911, leg. Drescher (NBCL). Riau: Bukit Tigapuluh NP (0°50'S, 102°26'E), 18.–25.1.2000, leg. Bezděk (PKCC). Sumatera Barat: Padang, leg. Klein (ZMUC).

The distribution of *Scopaeus nitidulus* was revised by Frisch (2003: 684–686). Accordingly, the species is known from the Oriental region as far south as the Greater Sunda Islands. It was already recorded for Indonesia by Bernhauer & Schubert (1912: 249; Sunda Islands), Biswas & Biswas (1995: 280; Sumatra), Cameron (1931: 175; Sumatra), Coiffait (1978: 11; Sumatra), and Fauvel (1905: 82; Bogor [Buitenzorg], Sumatra, Borneo).

Scopaeus sundaensis Frisch, 2005

New Indonesian records: Banten: Lebak, E Bengkung: Cibeber (Cibareno River), (06°48'49"S, 106°26'10"E), 470 m, 22.9.2015, leg. Frisch. Jawa Barat: Bogor, NO-slope Mt Salak (06°39'55"S, 106°45'36"E), 640 m, 13.9.2015, leg. Frisch; Bogor, Legok Dulang: Ciangsana River (06°43'08"S, 106°31'15"E), 1020 m, 18.9.2015, leg. Frisch; Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46"S, 106°32'25"E), 1020 m, 17.9.2015, 5.10.2015, leg. Frisch; Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39"S, 106°30'48"E), 680 m, 20.9.2015, leg. Frisch; Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun), (06°51'32"S, 106°31'06"E),

670 m, 21.9.2015, leg. Frisch; Sukabumi, Simaresmi: Cisareno River (06°49'02"S, 106°30'09"E), 1000 m, 22.9.2015, leg. Frisch; Sukabumi, Kiara Dua: Ciletuh River (07°08'27"S, 106°37'46"E), 710 m, 24.9.2015, 27.9.2015, leg. Frisch; Sukabumi, N Djampang Kulon: Cikarang River (07°14'03"S, 106°36'49"E), 250 m, 25.9.2015, leg. Frisch; Sukabumi, Simpenan: Cilulumpang River (07°08'43"S, 106°38'24"E), 740 m, 26.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Javana Spa (06°44'43"S, 106°42'51"E), 1150 m, 30.9.2015, leg. Frisch. Jawa Timur: Jember [Djember] (NBCL); Jombang [Djombang] (NBCL); Tulungagung, 84 m, leg. Louwerens (NBCL). Riau: Bukit Tigapuluh NP (0°50'S, 102°26'E), 18.–25.1.2000, leg. Bezděk (MFNB, PKCC). Sulawesi Selatan: Enrekang: Sadang River (03°34'S, 119°46'E), 50 m, 27.7.2015, leg. Puchner (MFNB, MZMB). Sumatera Utara: Lake Toba, Samosir Island: Ambarita, 4.1977, leg. Jaccoud (MHNG).

Scopaeus sundaensis is widespread from the Malay Peninsula across the Sunda Islands eastwards to New Guinea and Tahiti (Frisch 2005: 83, 84; 2016: 77). It is expected to occur in all of Indonesia, but hitherto known from Sumatra, Jawa, Sulawesi, Flores and Lombok only. The species is here recorded for Sulawesi for the first time.

Scopaeus testaceus Motschulsky, 1858

New Indonesian records: Aceh: Aceh Tenggara, Balelutu (Alas Valley), (03°43'N, 097°38'E), 320 m, 7.1972, leg. Krikken (NBCL); N Kutacane: Tanah-Merah (03°31'N, 097°47'E), 6.1972, leg. Krikken (NBCL). Bengkulu: South Bengkulu: Manna, leg. Knappert (NBCL). Sumatera Barat: Bukittinggi [Fort de Kock], leg. Jacobson (NBCL); Rimbo Panti (0°21'N, 100°41'E), 24.–25.2.2002, leg. G. Riedel (NHMW). Sumatera Utara: Simalungun, Dolok Merangir: Deli (03°06'N, 099°03'E), 200 m, 31.5.–1.6.1972, leg. Krikken (NBCL).

The distribution of *Scopaeus testaceus*, which is widespread throughout the Oriental region, was revised by Frisch (2003: 672–674). Accordingly, the species is proven for Borneo, Sulawesi, Sumatra and Java. Old records for Indonesia, which need confirmation by examination of reference specimens, were published by Bernhauer (1922: 230; Sunda Islands), Bernhauer & Schubert (1912: 252; Java, Sumatra) and Cameron (1930: 346, Sumatra Utara: Medan; 1936: 52, Jawa Tengah: Cilacap [Tjilatjap]). Fauvel (1886: 147) published records for Sulawesi, Sumatra and Java under the name *S. suturalis* Kraatz, a junior synonym of *S. testaceus* (Frisch 2003: 672). Records from New Guinea (Biswas & Biswas 1995: 281, Cameron 1931: 173, Last 1966: 3,

Scheerpeltz 1933: 1270) are implausible and probably refer to related members of the *S. laevigatus* species group (Frisch 2003). *Scopaeus testaceus* is here for the first time recorded for Aceh, Bengkulu and Sumatera Barat.

Scopaeus unifasciatus Fauvel, 1889

New Indonesian records: Papua Barat: Fakfak, 16.–18.7.1996, leg. Schüle & Stüben (SMNS); Maybrat: 8.3 km SE Ayamaru (01°18'54''S, 132°15'28''E), 360 m, 2.–3.9.2015, leg. Telnov (NMEC).

This Australasian species is distributed in New Guinea, northern and western Australia, the Solomon Islands, Vanuatu and New Caledonia (Frisch 2003: 683, 684).

Scopaeus wunderlei Frisch, 2003

New Indonesian records: Bali: Denpasar, 16.11.–4.12.1993, leg. Pankow (NHMW); Pulaki, 22.6.1994, leg. Wunderle (MFNB). Jakarta: 5.1913, leg. Corporaal (NBCL); 1948, leg. van Nidek (NBCL). Jawa Barat: Karawang, 1975, leg. Pusakanegara & Hummelen (NBCL); Bogor [Buitenzorg], 18.1.1921 (MZB); Bogor, 250 m, 13.12.1943, leg. Olthot (MZB); Bogor, Mt Salak: Sungai Ciapus, 800 m, 31.7.1994, leg. Schuh (MFNB); Bogor, NO-slope Mt Salak (06°39'55''S, 106°45'36''E), 640 m, 13.9.2015, leg. Frisch; Bogor, Legok Dulang: Ciangsana River (06°43'08''S, 106°31'15''E), 1020 m, 18.9.2015, leg. Frisch; Bogor, S Tenjolaja, Tapos: Ciampea River (06°41'36''S, 106°42'24''E), 1040 m, 2.10.2015, leg. Frisch; Bogor, SW Pamijahan (Cimuara Herang River), (06°42'41''S, 106°41'03''E), 990 m, 3.10.2015, leg. Frisch; Sukabumi, Halimun-Salak NP, Cikaniki (06°44'91''S, 106°32'26''E), 950 m, 7.–8.7.2000, leg. Rofik & Sarino (MZB); Sukabumi, Halimun-Salak NP, Cikaniki (06°44'91''S, 106°32'26''E), 950 m, 10.–12.6.2002, leg. Kahono, Rofik & Sarino (MZB); Sukabumi, Halimun-Salak NP, Cikaniki (06°44'S, 106°32'E), 900 m, 21.8.2001, leg. Woro, Cholik & Sarino (MZB); Sukabumi, Halimun-Salak NP, Mt Kendeng, 2000 m, leg. Cholik & Sarino (MZB); Sukabumi, Halimun-Salak NP, Mt Kendeng (06°45'S, 106°32'E), 1100 m, 20.12.2002, leg. Insect Team & IBOY (MZB); Sukabumi, Cikaniki: Cikaniki River (Mt Halimun, Halimun-Salak NP), (06°44'46''S, 106°32'25''E), 1020 m, 17.9.2015, 5.10.2015, leg. Frisch; Sukabumi, Sirnarasa, Cisarua: Ciawitali River (06°51'39''S, 106°30'48''E), 680 m, 20.9.2015, leg. Frisch; Sukabumi, Sirnarasa: Cimaja River (S-slope Mt Halimun), (06°51'32''S, 106°31'06''E), 670 m, 21.9.2015, leg. Frisch; Sukabumi: Simaresmi

(Halimun-Salak NP), (06°49'44''S, 106°30'02''E), 1190 m, 22.9.2015, leg. Frisch; Sukabumi, Simaresmi: Cisareno River (06°49'02''S, 106°30'09''E), 1000 m, 22.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Cirasamala River (S-slope Mt Salak), (06°44'18''S, 106°42'52''E), 1210 m, 29.9.2015, leg. Frisch; Sukabumi, NNW Cidahu: Javana Spa (06°44'43''S, 106°42'51''E), 1150 m, 30.9.2015, leg. Frisch. Jawa Tengah: Cilacap [Tjilatjap], 1919, leg. Drescher (NBCL); Semarang, leg. Jacobson (NBCL); Surakarta, leg. de Vos (NBCL); Pekalongan, Linggosari, Mt Dieng, 9.–12.7.2001, leg. Tan (MZB); Tjibodas (06°30'S, 107°43'E), 1923 (MZB). Jawa Timur: Jombang [Djombang] (NBCL); Kediri (NBCL); Surabaya, 12.1922, leg. Buitendijk (NBCL); Tegal: Slawi, 1909, leg. Lucassen (NBCL); Tengger Caldera [Tengger Geb.], leg. Drescher (NBCL); Tulungagung, 84 m, leg. Louwerens (NBCL); Situbondo, 15 km N Wonorejo: Baluran NP, 50 m, 24.–28.6.2001, leg. Bolm (MFNB, SMNS). Sulawesi Selatan: Enrekang: Sadang River (03°34'S, 119°46'E), 50 m, 27.7.2015, leg. Puchner (MFNB, MZMB). Sulawesi Tengah: Morowali: Ranu River, 27.1.–20.4.1980, leg. Rees & Sutton (NHML). Sulawesi Tenggara: Rawa Aopa NP: Aopa, 8.–10.2.1984, leg. Strba (MFNB).

Scopaeus wunderlei is hitherto known from Indonesia only, where it is recorded from Riau Kepulauan in the north across Borneo and Sulawesi southeastwards to Java, Bali, Lombok, Sumbawa and Papua Barat (Frisch 2003: 676–678). I still have not seen specimens from Sumatra, but the species is certainly present there. In Jawa Barat, the flying species is a frequent visitor of light traps.

4.2 Species excluded from the fauna of Indonesia

The following *Scopaeus* species were described from the Indian subcontinent and former East India by Kraatz (1859) and Motschulsky (1858) and in the late 19th and early 20th century reported to occur in Indonesia. The examination of their type material in the Senckenberg Deutsches Entomologisches Institut, Müncheberg (Kraatz), and the Zoological Institute of the Russian Academy of Sciences, Moscow (Motschulsky), and of reference specimens identified by Bernhauer, Cameron and Fauvel, the authors of these subsequent records, prove that these species were misinterpreted and records for Indonesia probably wrong. *Scopaeus planiusculus* (Kraatz, 1859), described from 'India orientali' (Kraatz 1859: 132) and recorded for Sumatera Utara (Indrapura; Cameron 1930: 346) and Java (Cameron 1931: 182), was transferred to *Micranops* Cameron, 1913 by Frisch & Herman (2014: 70).

***Scopaeus dilutus* Motschulsky, 1858**

Motschulsky (1858: 642) described *Scopaeus dilutus* from 'Indes orientales'. Old records for Indonesia [Sunda Islands (Bernhauer & Schubert 1912: 247); Java, Sumatra, Sulawesi (Fauvel 1903: 153)] are doubtful. Cameron's records for Indonesia [Sumatera Utara: Arnhemia; Sumatera Barat: Bukittingi, Fort de Kock (Cameron 1930: 346); Sumatra, Java, New Guinea (Cameron 1931: 177)] are based on misidentifications, because his illustration of the abdomen (Cameron 1931: 177) proves that 'his' *S. dilutus* in fact represents the common, Oriental *S. testaceus* Motschulsky, which indeed is distributed in Java and Sumatra, but absent from New Guinea [see Frisch (2003: 672–674) and species chapter for *S. testaceus* above]. The false records for Indonesia were adopted by Biswas & Biswas (1995: 282) and Scheerpeltz (1933: 1266).

***Scopaeus fuscus* Motschulsky, 1858**

Motschulsky (1858: 641) described *Scopaeus fuscus* from 'Indes orientales' without precise locality data. However, 'Birma' (= Myanmar) is written on the original label of the single type specimen. The species was later recorded for Jawa Barat [Bandung (Bandoeng Dago), 08.12.1929; Cilacap (Tjilatjap), 20.01.1927 (Cameron 1936: 52)]. There is no evidence for the occurrence in Indonesia, which is why *S. fuscus* should not be listed for the country.

***Scopaeus micros* Kraatz, 1859**

Kraatz (1859: 133) described *Scopaeus micros* from Sri Lanka. Decades later, Cameron (1930: 346) recorded it for Sumatera Utara (Medan). Because reference specimens are unknown and due to the wide geographical distance, the distribution of *S. micros* in Indonesia is unproven and unlikely.

***Scopaeus procerus* Kraatz, 1859**

Records of *Scopaeus procerus*, described from 'India orientali' (Kraatz 1859: 127), for Sumatera Utara (Medan; Cameron 1930: 346) and Java (Cameron 1931: 171) are dubious. Specimens from Bogor and Singapore identified as *S. procerus* by Bernhauer and Cameron at NHML are not conspecific with Kraatz's syntypes.

***Scopaeus subfasciatus* Kraatz, 1859**

This species was recorded for Java by Fauvel (1886: 147). *Scopaeus subfasciatus* is widespread across the Afrotropical and Oriental Regions and proven as far south as the Malay Peninsula (Frisch 2003: 680–682). Even though the presence in Sumatra is possible, I have not seen Indonesian specimens so far.

***Scopaeus velutinus* Motschulsky, 1858**

This species was described from 'Indes orientales' by Motschulsky (1858: 642, 643). The record for Borneo (Bernhauer 1922: 230) may go back to two male Bornean specimens (Pagate, Telang 1881, leg. Grabowsky) of an undescribed species in the Fauvel collection (ISNB) identified as *Scopaeus decipiens* Kraatz, 1859, which is considered a synonym of *S. velutinus* since Fauvel (1904: 53). Type studies revealed that this synonymy is incorrect. Both *S. velutinus* and *S. decipiens* are absent from Indonesia. The undescribed species from Borneo is, however, closely related to the 'true' *S. decipiens* from India.

5. Catalogue of Indonesian *Scopaeus* Erichson, 1839 with distribution by province

The following alphabetical compilation of the *Scopaeus* species of Indonesia includes their distribution in Indonesia by province and is based on revised and original data in Frisch (1999, 2003, 2005, 2016), Frisch & Mainda (2022) and information published herein. Incorrect or unproven, dubious literature records for Indonesia (see chapter above) are omitted from this list. *Scopaeus borneensis* Cameron, 1941 and *S. laticollis* Cameron, 1925 are not included, because they will be classified in other genera (Frisch & Herman, in prep.; Herman, in press). At present, 33 species of *Scopaeus* are proven to occur in Indonesia.

Scopaeus anuliflagellatus Frisch, spec. nov.
Distribution: Jawa Barat.

Scopaeus arfakmontium Frisch & Mainda, 2022: 142, 143
Distribution: West Papua.

Scopaeus baliensis Frisch, 2005: 84, 85
Distribution: Bali.

Scopaeus balkei Frisch & Mainda, 2022: 143, 146
Distribution: Papua.

Scopaeus batukaruensis Frisch, spec. nov.
Distribution: Bali, Lombok.

Scopaeus bipectenatus Frisch, spec. nov.
Distribution: Sulawesi Tengah.

Scopaeus bipenicillatus Frisch, spec. nov.
Distribution: Maluku (Ceram), Sulawesi Tengah, Sulawesi Utara.

Scopaeus crassipunctatus Frisch, spec. nov.
Distribution: Banten, Jawa Barat.

Scopaeus cuspidatus Frisch, spec. nov.
Distribution: Bali, Jawa Barat, Sulawesi Tengah.

Scopaeus cuspilobatus Frisch, spec. nov.
Distribution: Jawa Barat.

Scopaeus diversilobatus Frisch, spec. nov.
Distribution: Bali, Jawa Barat.

Scopaeus elegantulus Cameron, 1930: 346, 347
Distribution: Jawa Barat, Jawa Timur, Sumatera Barat.

Scopaeus filiformis Wollaston, 1867: 243
Scopaeus sutteri Scheerpeltz, 1957: 296–298;
synonymized with *S. filiformis* by Frisch 2016: 65.
Distribution: Banten, ‘Borneo’, Jakarta, Jawa Barat,
Jawa Tengah, Jawa Timur, Nusa Tenggara Barat
(Lombok, Sumbawa), Nusa Tenggara Timur (Sumba),
Sulawesi Tengah, ‘Sumatra’.

Scopaeus grandis Frisch, spec. nov.
Distribution: Bali, Jawa Barat.

Scopaeus halimunsalakensis Frisch, spec. nov.
Distribution: Jawa Barat.

Scopaeus heronifer Frisch, spec. nov.
Distribution: Banten, Jawa Barat.

Scopaeus jacobsoni Cameron, 1930: 346
Distribution: Bali, Banten, Jawa Barat, Jawa Timur,
Padang, Sumatera Barat, Sumatera Utara, Nusa
Tenggara Barat (Lombok).

Scopaeus javanus Cameron, 1936: 52
Distribution: Jawa Barat.

Scopaeus limbatus Kraatz, 1859: 130, 131
Distribution: Jawa Barat, Jawa Timur.

Scopaeus nitidulus Motschulsky, 1858: 643.
Distribution: Jawa Barat, Jawa Tengah, Kalimantan,
Riau, Sumatera Barat, Sumatera Selatan, Sumatera
Utara.

Scopaeus posoanus Frisch, spec. nov.
Distribution: Sulawesi Tengah.

Scopaeus pulcher Frisch, spec. nov.
Distribution: Jawa Barat.

Scopaeus riedeli Frisch, spec. nov.
Distribution: Lampung.

Scopaeus spiraliflagellatus Frisch, spec. nov.
Distribution: Sulawesi Tengah, Sulawesi Tenggara (?).

Scopaeus sulawesianus Frisch, spec. nov.
Distribution: Sulawesi Selatan, Sulawesi Tengah.

Scopaeus sumbaensis Scheerpeltz, 1957: 293–396

Scopaeus ivani Frisch, 2003: 678–680; synonymized
by Frisch 2016: 77.
Distribution: Bali, Nusa Tenggara Barat (Sumbawa),
Nusa Tenggara Timur (Flores, Sumba).

Scopaeus sundaensis Frisch, 2005: 82–84
Distribution: Aceh, Banten, Jawa Barat, Jawa Timur,
Nusa Tenggara Barat (Lombok), Nusa Tenggara
Timur (Flores), Sumatera Barat, Sulawesi Selatan,
Sumatera Utara.

Scopaeus testaceus Motschulsky, 1858: 642
Scopaeus suturalis Kraatz, 1859: 130; synonymized
with *S. testaceus* by Frisch (2003: 672).
Distribution: Aceh, Bengkulu, Kalimantan Barat,
Kepulauan Riau, Sumatera Barat, Sumatera Utara,
Sulawesi Selatan, Sulawesi Tenggara.

Scopaeus tortuosiflagellatus Frisch, spec. nov.
Distribution: Jawa Barat.

Scopaeus uncinatus Frisch, spec. nov.
Distribution: Banten, Jawa Barat.

Scopaeus unifasciatus Fauvel, 1889: 256
Distribution: Papua Barat.

Scopaeus velifer Frisch, spec. nov.
Distribution: Banten.

Scopaeus wunderlei Frisch, 2003: 676–678
Distribution: Bali, Jakarta, Jawa Barat, Jawa Timur,
Kalimantan Selatan, Kalimantan Tengah, Kepulauan
Riau, Nusa Tenggara Barat (Lombok, Sumbawa),
Sulawesi Tengah, Sulawesi Tenggara, Sulawesi Utara.

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7. References

- Bernhauer, M. (1922): Sauter's Formosa-Ausbeute: Staphylinidae. – Archiv für Naturgeschichte **88**. Jahrgang 1922, Abteilung A, 7. Heft: 220–237.
- Bernhauer, M. & Schubert (1912): Staphylinidae III (Pars 40). Pp. 191–288. – In: Junk, W. & Schenkling, S. (eds): Coleopterorum Catalogus. – Vol. **5**. Staphylinidae, Berlin: 988 pp.
- Biswas, D. N. & S. Biswas (1995): Insecta: Coleoptera: Staphylinidae. – Zoological Survey of India. State Fauna Series 3: Fauna of West Bengal, Part **6** (A): 201–361.
- Cameron, M. (1918): New species of Staphylinidae from Singapore. Part 1. – Transactions of the Entomological Society of London 1918: 58–90.
- Cameron, M. (1930): Fauna Sumatrensis. Bijdrage No. 67, Staphylinidae (Col.). – Tijdschrift voor Entomologie **73**: 325–348.
- Cameron, M. (1931): The Fauna of British India, including Ceylon and Burma. Coleoptera. Staphylinidae – Vol. II. – Today and Tomorrow's Printers & Publishers, New Delhi, 257 pp.
- Cameron, M. (1936): Fauna Javanica. The Staphylinidae (Col.) Collected by Mr. F. C. Drescher. – Tijdschrift voor Entomologie **79**: 25–54.
- Cameron, M. (1938): XV. - New Staphylinidae (Col.) from New Guinea. – The Annals and Magazine of Natural History **3** (11): 139–152.
- Cameron, M. (1941): New Species of Staphylinidae (Col.) from Borneo. – The Entomologist's Monthly Magazine **77** (Fourth Series, Vol. 2): 203–230.
- Coiffait, H. (1978): Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Coleoptera: Fam. Staphylinidae Subfam. Paederinae, Euaesthetinae, Piestinae, Osoriinae et Omaliinae. – Entomologica Basiliensia **3**: 109–150.
- Erawati, N. V. & S. Kahono (2010): Keanekaragaman dan kelimpahan belalang dan kerabatnya (Orthoptera) pada dua ekosistem pegunungan di Taman Nasional Gunung Halimun-Salak. – Jurnal Entomologi Indonesia **7** (2): 100–115.
- Fauvel, A. (1886): Staphylinides des Iles Philippines. – Revue d'Entomologie **5**: 143–150.
- Fauvel, A. (1889): Les Coléoptères de la Nouvelle-Calédonie et Dépendances. – Revue d'Entomologie **8**: 242–271.
- Fauvel, A. (1903): Mission de M. Maurice Maindron dans l'Inde Méridionale. Staphylinides. – Revue d'Entomologie **22**: 149–163.
- Fauvel, A. (1904): Staphylinides de l'Hindoustan et de la Birmanie. – Revue d'Entomologie **23**: 43–70.
- Fauvel, A. (1905): Staphylinides de Java. – Mitteilungen aus dem Naturhistorischen Museum in Hamburg **22**, Beiheft 2: 75–86.
- Frisch, J. (1999): A revision of the *Scopaeus debilis* species group, with description of a new species from Madagascar (Coleoptera, Staphylinidae, Paederinae). – Revue Suisse de Zoologie **106** (2): 361–383.
- Frisch, J. (2003): A Revision of the *Scopaeus laevigatus* species group, with descriptions of ten new species from the East Palaearctic, the Oriental and the Australian Regions (Coleoptera, Staphylinidae, Paederinae). – In: Cuccodoro, G. & A. B. Leschen (eds): Systematics of Coleoptera: Papers celebrating the Retirement of Ivan Löbl. – Memoirs on Entomology, International **17**: 649–725.
- Frisch, J. (2005): “*Scopaeus limbatus* Kraatz” of ancient authors – a monophyletic species group distributed in the Mascarene Islands, the South-East Palaearctic, the Oriental and the Australian regions (Coleoptera, Staphylinidae, Paederinae). – Mitteilungen aus dem Museum für Naturkunde Berlin, Deutsche Entomologische Zeitschrift **52**: 73–96.

- Frisch, J. (2007): A review of the *Scopaeus gracilis* species group (Coleoptera, Staphylinidae, Paederinae), with description of new species from Sardinia, southern Africa and Middle East. – *Deutsche Entomologische Zeitschrift* **54** (2): 195–218.
- Frisch, J. (2010): On the taxonomy and biogeography of West Palaearctic Scopaeina Mulsant & Rey (Staphylinidae, Paederinae) with emphasis on the Middle East. – *Deutsche Entomologische Zeitschrift* **57** (2): 159–202.
- Frisch, J. (2014): A revision of the Central Asian *Scopaeus similis* species group (Staphylinidae, Paederinae). – *Soil Organisms* **86** (3): 199–220.
- Frisch, J. (2015): A new species of *Scopaeus* Erichson, 1839 (Coleoptera, Staphylinidae, Paederinae) from Socotra Island, with distributional and phylogeographical notes on related species. – *Soil Organisms* **87** (1): 61–70.
- Frisch, J. (2016): On the Scopaeina Mulsant & Rey of Australasia (Staphylinidae, Paederinae): type revisions and new biogeographic data. – *Soil Organisms* **88** (1): 55–88.
- Frisch, J. & L. Herman (2014): A catalogue of *Micranops* Cameron, with description of a new species from Tanzania (Coleoptera, Staphylinidae: Paederinae). – *Soil Organisms* **86** (1): 67–75.
- Frisch, J. & T. Mainda (2022): The *Scopaeus kokodanus* species group (Coleoptera: Staphylinidae: Paederinae) from New Guinea and the Solomon Islands, with description of three new species. – *Soil Organisms* **94** (3): 139–147.
- Frisch, J., D. Burckhardt & V. Wolters (2002): Rove beetles of the subtribe Scopaeina Mulsant & Rey (Coleoptera: Staphylinidae) in the West Palaearctic: Phylogeny, biogeography and species catalogue. – *Organisms, Diversity & Evolution* **2**: 27–53.
- GHSNPMP-JICA (2009): Ecological study Halimun-Salak Corridor Mount Halimun-Salak National Park. – GHSNPMP-JICA, Bogor: 41 pp.
- International Code of Zoological Nomenclature (ICZN), fourth edition (1999): International Commission of Zoological Nomenclature (ed.). – The International Trust for Zoological Nomenclature, London: 306 pp.
- Herman, L. (in press): Generic revisions of the Scopaeina and Sphaeronina (Coleoptera: Staphylinidae: Paederinae: Lathrobiini). – *Bulletin of the American Museum of Natural History*.
- Kahono, S. & M. Amir (2003): Ekosistem dan Khasanah Serangga Taman Nasional Gunung Halimun. – In: Amir, M. & S. Kahono (eds): Serangga Taman Nasional Gunung Halimun Jawa Bagian Barat. – BPC-JICA, Bandung: 1–22.
- Kraatz, G. (1859): Die Staphylinen-Fauna von Ostindien, insbesondere der Insel Ceylan. – Nicolaische Verlagsbuchhandlung, Berlin: 196 pp.
- Last, H. R. (1966): Coleoptera from Southeast Asia 4. Family Staphylinidae. – *Memoirs of the Faculty of Liberal Arts and Education, Kagawa University*. Part **2** (135): 1–10.
- Motschulsky, M. V. (1858): Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages. – *Bulletin de la Société Impériale des Naturalistes de Moscou* **31**: 634–670.
- Peggie, D. & H. Harmonis (2014): Butterflies of Gunung Halimun-Salak National Park, Java, Indonesia, with an overview of the area importance. – *Treubia* **41**: 17–30.
- Prawiradilaga, D. M. (2017): Birds of Halimun-Salak National Park, West Java, Indonesia: endemism, conservation and threatened status. – *Treubia* **43**: 47–70.
- Priyadi, H., G. Takao, I. Rahmawati, B. Supriyanto, W. I. Nursal & I. Rahman (2010): Five hundred plant species in Gunung Halimun Salak National Park, West Java: a checklist including Sundanese names, distribution, and use. – CIFOR, Bogor: 194 pp.
- Rosleine, D., E. Suzuki, A. Sundawati, W. Septiana & D. Ekawati (2014): The Effect Of Land Use History On Natural Forest Rehabilitation At Corridor Area Of Gunung Halimun Salak National Park, West Java. – *Reindwardtia* **14** (1): 85–99.
- Scheerpeltz, O. (1933): Staphylinidae 7. – In: Schenkling, S. (ed.): *Coleopterorum Catalogus* **6** (129). – Junk, Berlin: 989–1500.
- Scheerpeltz, O. (1957): *Wissenschaftliche Ergebnisse der Sumba-Expedition des Museum für Völkerkunde und des Naturhistorischen Museums in Basel, 1949*. – *Verhandlungen der naturforschenden Gesellschaft in Basel* **68** (2): 217–357.
- Sutrisno, H. (2008): Moth Diversity at Gunung Halimun-Salak National Park, West Java. – *HAYATI Journal of Biosciences* **15** (3): 111–117.
- Wollaston, T. V. (1867): *Coleoptera Hesperidum, being an Enumeration of the Coleopterous Insects of the Cape Verde Archipelago*. – Taylor and Francis, London, 285 pp.

