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RESEARCH ARTICLE

Scopaeus punctatellus Fauvel, 1905 (Staphylinidae: Paederinae: Lathrobiini: Scopaeina), a polytypic species in the Afrotropical, Madagascan, and Saharo-Arabian regions

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Abstract

Scopaeus punctatellus Fauvel, 1905 is redescribed. *Scopaeus sharpi* Cameron, 1912, previously considered a synonym of *S. punctatellus*, is revalidated and elevated to the rank of subspecies. Consequently, this polytypic species is divided into the nominate subspecies *S. p. punctatellus*, which is widespread in the Afrotropics and the Madagascan region, and the Saharo-Arabian subspecies *S. punctatellus sharpi*, which is confined to the Red Sea coast and the Arabian Peninsula.
Scopaeus p. punctatellus is reported for the first time from Angola, Botswana, Burkina Faso, Cameroon, Chad, France (Mayotte), Ghana, Mozambique, Namibia, Niger, Nigeria, the Seychelles, Sierra Leone, Somalia, Sudan, Togo, Uganda, Yemen (Sokotra), Zambia, and Zimbabwe. The first record of *S. punctatellus sharpi* from Oman is provided. A lectotype is designated for *S. sharpi*. The relationships of *S. punctatellus* within *Scopaeus* Erichson, 1839 are discussed.

Keywords Taxonomy | distribution | Africa | Arabian Peninsula | Madagascar

1 Introduction

Scopaeus Erichson, 1939, the most species-rich genus of the paederine subtribe Scopaeina Mulsant & Rey, 1878, currently comprises 77 named species in the Afrotropics. While most of them have endemic distributions, for example the members of the recently revised South African *S. paludicola* species group (Frisch 2026) or *S. saotomensis* Frisch, 2024 from the island of Sao Tomé (Frisch, Turner & Aristophanous 2024), a small number of congeners have a distribution across most of the African continent or even beyond. One of these is *S. punctatellus* Fauvel, 1905, which was originally described from Kenya and Madagascar and later recorded at distant localities in South Africa (Fagel 1961: 274), Ivory Coast (Fagel 1973: 181), and the Democratic Republic of the Congo (Fagel 1973: 181). Like many widespread species, *S. punctatellus* also exhibits geographic polymorphism, which is the reason for the species' convoluted taxonomic history. When Cameron (1912: 102, 103) described *S. sharpi* from the west coast of the Red Sea, he did not compare it with *S. punctatellus*, but with the Palaearctic *S. debilis* Hochhuth, 1851. Perhaps he was unfamiliar

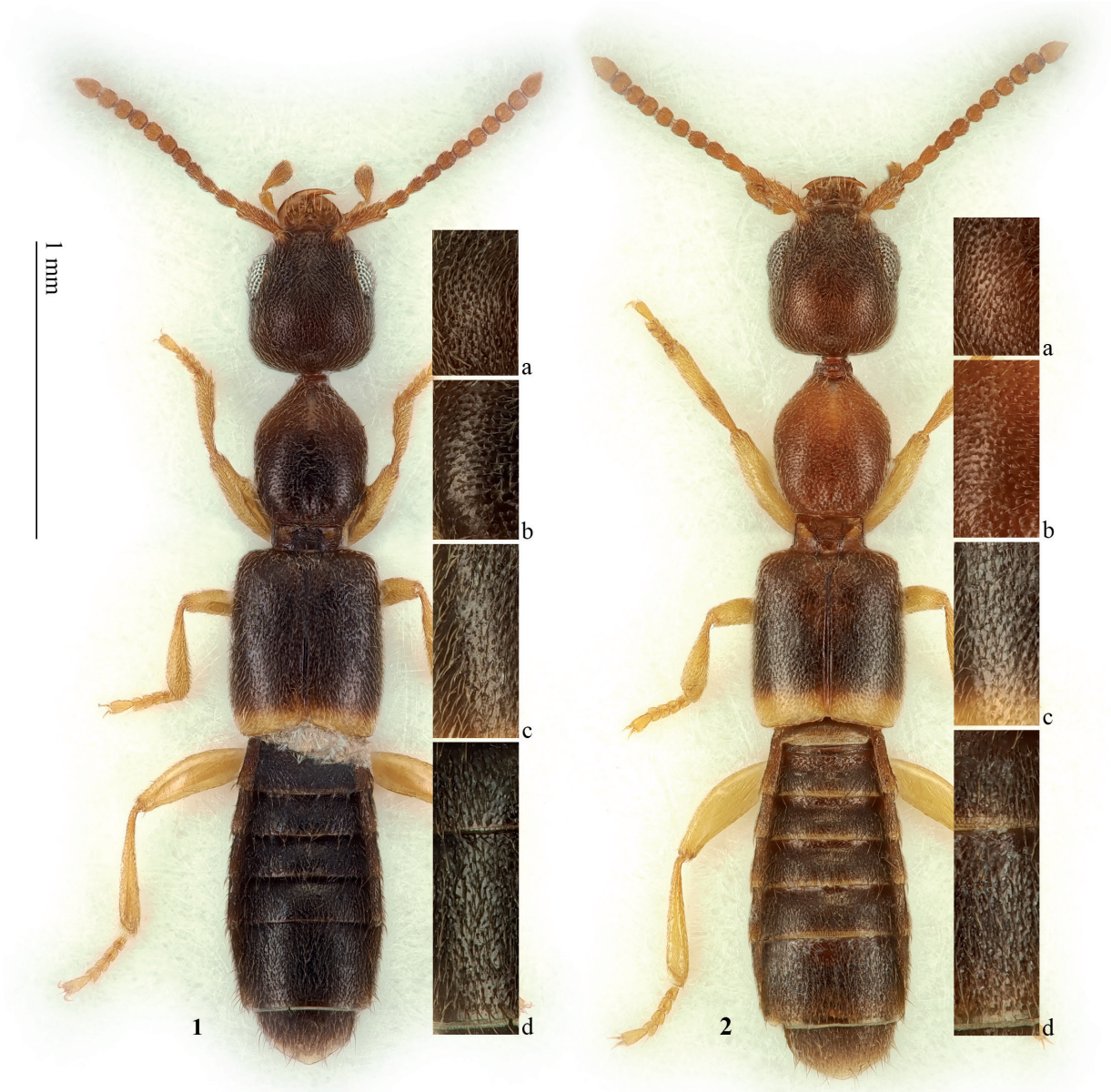
with the dark brown *S. punctatellus*, or he did not believe that the two are conspecific, since *S. sharpi* has a light coloration.

Decades later, in his seminal contribution on the Afrotropical *Scopaeus* species, Fagel (1973: 181) synonymized *S. sharpi* with *S. punctatellus*. However, he mistakenly considered the type specimens of *S. sharpi* to be teneral ("Un des synonymes est basé sur des spécimens peu matures, assez pâles, provenant des rives du Sud de la mer Rouge.") and was unaware of the wide distribution of this light-colored form in the Arabian Peninsula. Rather, he wrote that he expects *S. punctatellus* to be found on the Arabian Peninsula one day. Subsequent authors either followed Fagel (Smetana 2004: 618, Schülke 2015: 996) or continued to regard *S. sharpi* as a valid species (Coiffait 1981: 237, 1984: 183).

In this contribution, I redescribe *S. punctatellus*, propose *S. sharpi* as the Saraho-Arabian subspecies of the Afrotropical and Madagascan nominate form *S. p. punctatellus*, and present a map of the allopatric distribution of these taxa.

2 Material and methods

Specimen depositories: The specimens this study is based on are stored in the following collections and



Figures 1–2. Habitus (**1**, **2**) and microsculpture of head (a), pronotum (b), elytra (c), and abdomen (d) of *Scopaeus p. punctatellus*, ♀; Republic of South Africa, Limpopo, Soutpansberg (**1**); Madagascar, Boeny, Katsepy (**2**).

were made available to me by the mentioned curators, collection managers, and private collectors:

DMNH – Ditsong National Museum of Natural History, Pretoria (Ruth Müller, Werner Strümpfer); **FMFD** – Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main (Damir Kovac); **FMNH** – Field Museum of Natural History, Chicago (Alfred Newton, Margaret Thayer); **GHCR** – Gunnar Hirthe Private Collection, Rostock; **HECO** – Hope Entomological Collections, Oxford (Darron Mann, Chris O'Toole); **HMHM** – Hungarian Natural History Museum, Budapest (Gyorgy Macranczy); **ISNB** – Institut Royal des Sciences Naturelles de Belgique, Brussels (Alain Drugmand, Poul Limbourg); **JMCH** – Jan Matějiček Private Collection, Hradec Králové; **LEWC** – Laboratory of Entomology, Wageningen (Yde Yongema); **MHNG** – Muséum d'histoire naturelle, Genève (Giulio Cuccodoro, Ivan Löbl); **MFNB** – Museum für Naturkunde, Berlin; **MNHN** – Muséum National d'Histoire Naturelle, Paris (Azadeh Taghavian, Nicole Berti†); **MRAC** – Musée Royal de l'Afrique Centrale, Tervuren; **MSCB** – Michael Schülke Private Collection, Berlin; **NHMD** – Natural History Museum of Denmark, Copenhagen (Alexey Solodovnikov); **MZLU** – Zoological Museum, Lund (Roy Danielsson); **MZUF** – Museo Zoologico „La Specola", Florence (Luca Bartolozzi); **NBCL** – Naturalis Biodiversity Center, Leiden (Hans Huijbregts); **NHMB** – Naturhistorisches Museum, Basel (Matthias Borer, Michel Brancucci†, Eva Sprecher); **NHML** – Natural History Museum, London (Max Barclay, Roger Booth, Martin Brendell, Dmitry Telnov); **NHMW** – Naturhistorisches Museum, Wien (Matthias Seidel, Harald Schillhammer); **NMEC** – Naturkundemuseum, Erfurt (Matthias Hartmann); **NMPC** – Národni Muzeum, Prague (Jiři Hájek); **PKPC** – Pavel Krásenský Private Collection, Chomutov; **RMCA** – Royal Museum for Central Africa, Tervuren (Marc de Meyer); **SANC** – South African National Collection of Insects, Pretoria (Beth Grobbelaar, Riaan Stals); **SDEI** – Deutsches Entomologisches Institut, Eberswalde (Vinicius Ferreira, Mandy Schröter, Lothar Zerche); **SMNS** – Staatliches Museum für Naturkunde, Stuttgart (Arnaud Faille, Wolfgang Schawaller); **ZSMC** – Zoologische Staatssammlung, München (Michael Balke).

Measurements: A total of ten specimens of each *Scopaeus p. punctatellus* and *S. punctatellus sharpi* were measured magnified 140 x using a stereoscopic microscope with an eye-piece linear micrometer. Total length of specimen – 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; head length – interval from anterior margin of clypeus to posterior margin in front of nuchal groove; head width – maximum distance between lateral margins including eyes; eye length – maximum distance from anterior most to posterior most point of ocular suture measured in lateral view; temporal length – distance from posterior most point of ocular suture to nuchal groove measured in lateral view; pronotal length – interval from anterior to posterior pronotal margin along midline; elytral sutural length – interval from posterior end of scutellum to posterior end of suture.

Photographs: The habitus photographs and their excerpts (Figs 1–4) are based on image stacks taken with an Olympus OM 1 camera and a 10 x Mitutoyo macro lens. These images were taken under diffuse lighting to clearly show the body surface microstructure. The transmitted light microscopic images of the primary and secondary sexual characteristics (Figs 5–27) are based on image stacks acquired at 200 x magnification with a Leica imaging system, which consists of a DM6 B transmitted light microscope with a K3C camera and was operated using LasX software. The image stacks were processed into multifocus images with Helicon Focus.

Specimen and locality compilations: In the compilations of type material and additional records, the label data are not cited verbatim, but standardized to make it easier for the reader to identify the localities. Old place names that are no longer in use today are replaced by their current names, but are nevertheless retained in square brackets. Names of superior administrative units such as states and provinces are only mentioned once per paragraph and the locality data compiled afterwards. The list of the numerous records of *Scopaeus p. punctatellus* is limited to the names of the state and province.

3 Taxonomy

3.1 *Scopaeus punctatellus* Fauvel (Figs 1–28)

Scopaeus punctatellus Fauvel, 1905: 157, 158; lectotype designation by Fagel (1973: 183).
Scopaeus gratellus Cameron, 1950: 190; synonymized with *S. punctatellus* by Fagel (1973: 181).
Scopaeus sharpi Cameron, 1912: 102, 103; synonymized with *S. punctatellus* by Fagel (1973: 181); here revalidated to rank of subspecies.

Type specimens examined: *Scopaeus punctatellus*: Lectotype ♂, labelled "Madagascar / Forêt Côte Est / Alluaud 1901 90", "14. mars 91 [?] (printed) / Madagascar" (handwritten), "Coll. et det. A. Fauvel / *Scopaeus* / *punctatellus* Fvl. / R.I.Sc.N.B.17.479" (species name handwritten), "Ex-Typis" (red printed

letters), “G. Fauvel elig., 1968 / *Scopaeus punctatellus* Fvl. / Lectotype (species name handwritten)” (ISNB). Paralectotypes (4 specimens): 2 ♀, Madagascar, Antsiranana [Diego Suarez], 1893, Aluaud leg. (ISNB); 1 ♂, Madagascar, Anosy, Mandrare River [bassín du Mandraré] (ISNB); 1 ♀, Kenya, Nairobi County, “Wa-Kikuyu et Masai, 2.sem. 1903”, Alluaud leg. (ISNB). *Scopaeus gratellus*: Holotype ♀, Kenya, Rift Valley, Magadi, V.1942, van Someren leg. (NHML). *Scopaeus sharpi*: Lectotype ♂, Eritrea, Massawa [Massowah], Cameron leg. (NHML); here designated. Paralectotypes 2 ♀, same data as holotype (NHML).

Fauvel (1905: 157) did not specify how many specimens his description of *Scopaeus punctatellus* was based on. Consequently, Fagel (1973: 183), who examined the syntype series, designated a lectotype but failed to label the remaining type specimens as paralectotypes. Therefore, I have subsequently added paralectotype labels to them in accordance with ICZN (1999, Article 74.1.3.) („Paralectotype / *Scopaeus punctatellus* / Fauvel, 1905 / G. Fagel des., 1973 / label by J. Frisch, 2026“). According to Fauvel (1905: 157), there is reportedly another paralectotype from Nody Boraha (Island of Saint Marie) east of Madagascar, which I have not seen.

The original description of *Scopaeus sharpi* (Cameron 1912: 102, 103) contains no information regarding the number of underlying specimens nor does it specify a holotype by original designation (ICZN 1999: Article 73.1.1.). The NHML, where the Cameron collection is housed (Horn et al. 1990: 65), holds three conspecific specimens of *S. punctatellus sharpi* from the type locality of Massawa, a male and two females,

Figures 3–4. Habitus (**3**, **4**) and microsculpture of head (a), pronotum (b), elytra (c), and abdomen (d) of *Scopaeus punctatellus sharpi*, ♀; Yemen, Al-Hudaida, Jabal Bura.

each bearing a collection label affixed at a later date to indicate their status as type specimens. Cameron himself had labelled the male as the "type" of *S. sharpi*, as evidenced by the example of Cameron′s handwriting in Horn et al. (1990: 477). Since this specimen agrees with the original description, I designate it as the lectotype to stabilize the name *S. sharpi* according to ICZN 1999, Article 74.1.

Redescription: Habitus as in Figs 1–4. Examined specimens macrophthalmous, macropterous with palisade fringe of abdominal tergite VII. Total body length 2.6–3.1 mm; forebody length 1.5–1.8 mm.

Head comparatively slender, 1.1–1.18 times longer than wide, widest across eyes, posterior of eyes straight with widely convex posterior angles and straight posterior margin. Eyes large, 0.73–0.93 times as long as temples. Cephalic setation with relatively coarse and dense, deeply indented insertion points with interstices on average as wide as their diameters; microreticulation absent or indistinct (Figs 1a–4a). Impunctate midline absent.

Pronotum with finer and more spacious setation than head with insertion points of setules not indented but granular; microreticulation absent (Figs 1b–4b). Impunctate midline broad, about as wide as base of protibia, reaching anterior margin of pronotum, appearing posteriorly keeled due to distinct lateroposterior depressions.

Elytra at suture 1.0–1.9 times as long as pronotum, with well developed humeral calli. Elytral setation about as fine and spacious as pronotal setation, but insertion points coarser, obliquely indented from posterior direction and surrounded by narrow, flat, irregularly semicircular ridge (Figs 1c–4c); microreticulation absent.

Mesothoracal leg with tibia significantly dilated, about 5 times as wide as long in subposterior portion (Figs 1–4).

Metathoracic wings fully developed, functional.

Abdomen with setation about as fine and dense as elytral setation; insertion points obliquely punctured from posterior direction and keeled extended anteriorly in variable extend; abdominal surface thus somewhat longitudinally corrugate (Figs 1d–4d).

For additional ectomorphological characters including ventral side features see Herman (2023: 87, 88).

Male genital characters: Abdominal sternite VIII with broad subtriangular emargination in approximately posterior fourth of sternite length medially extended into thin, long process widened posteriorly toward subsemicircular end produced beyond lateroposterior sternite ends (Figs 5, 6); medioposterior process anteriorly followed by strong, subquadrate sclerotization comprising almost medial fourth of sternite width, in lateral view moderately s-shaped with short, dorsad curved apex (Fig. 7).

Laterotergite IX in lateral view with deep, triangular ventral emargination with small, medial extension (Figs 8, 9); ventral emargination separating broad distal portion with truncate end and minute, apicodorsal denticle (Fig. 9); distal portion of laterotergite IX with ventral band of few irregular rows of thick, short, mesially directed setae (Figs 8, 9).

Sternite IX remarkably slender, only apex more strongly sclerotized (Fig. 10).

Tergite X in posterior third concavely tapered toward narrow posterior end (Fig. 11).

Aedeagus shaped as in Figs 16–27. Lobe-bearing distal portion short, comprising about fifth of aedeagal length, separated by lateral constriction (Figs 17, 20). Distal portion of aedeagus including endophallic sclerites separated from phallobase by strongly sclerotized ring divided both ventrally and dorsally into lateral halves (Figs 16–18). Apical lobes weakly sclerotized, in lateral view convex dorsally, moderately concave apicoventrally, and with convex, moderately ventrad curved apex (Figs 16, 19, 22, 25), in dorsal view almost semicircularly curved towards narrow apices directed toward each other and with concave dorsomesial margins (Figs 18, 21, 24, 27). Dorsal lobe convexly curved towards proximoventrally curved distal portion gradually tapered in lateral view (Figs 16, 19, 22, 25), but wide and bilobate in ventral view (Figs 17, 20, 23, 26); in dorsal view, dorsal lobe subquadrate with broad, truncate end and more strongly sclerotized, subtriangular medial portion with narrow, emarginate tip (Figs 18, 21, 24, 27); dorsal lobe moreover with pair of submembranous distolateral lobes directed ventrad (Figs 19–24) or distad (Figs 16–18, 25–27). Flagellum short, not protruding ventrally from ostium (Figs 19–20). Ostial margin with bidentate ventral extension (Figs 17, 20, 23, 26). Medial portion of endophallic sclerites, in dorsal view, weakly convex sinistrally and semicircular dextrally (Figs 18, 21, 24, 27. Lateral lobes in lateral view with widely convex end (Figs 16, 19, 22, 25), in ventral and dorsal views narrow, moderately long, directed laterodistad, along entire length sparsely studded with ventrally and laterally directed setae (Figs 17, 18, 20, 21). Phallobase strongly enlarged proximally beyond median foramen, with conspicuous distodorsal membrane (Figs 16, 18, 22, 24). Postforamen convexly projecting proximad (Figs 16, 17, 22, 23).

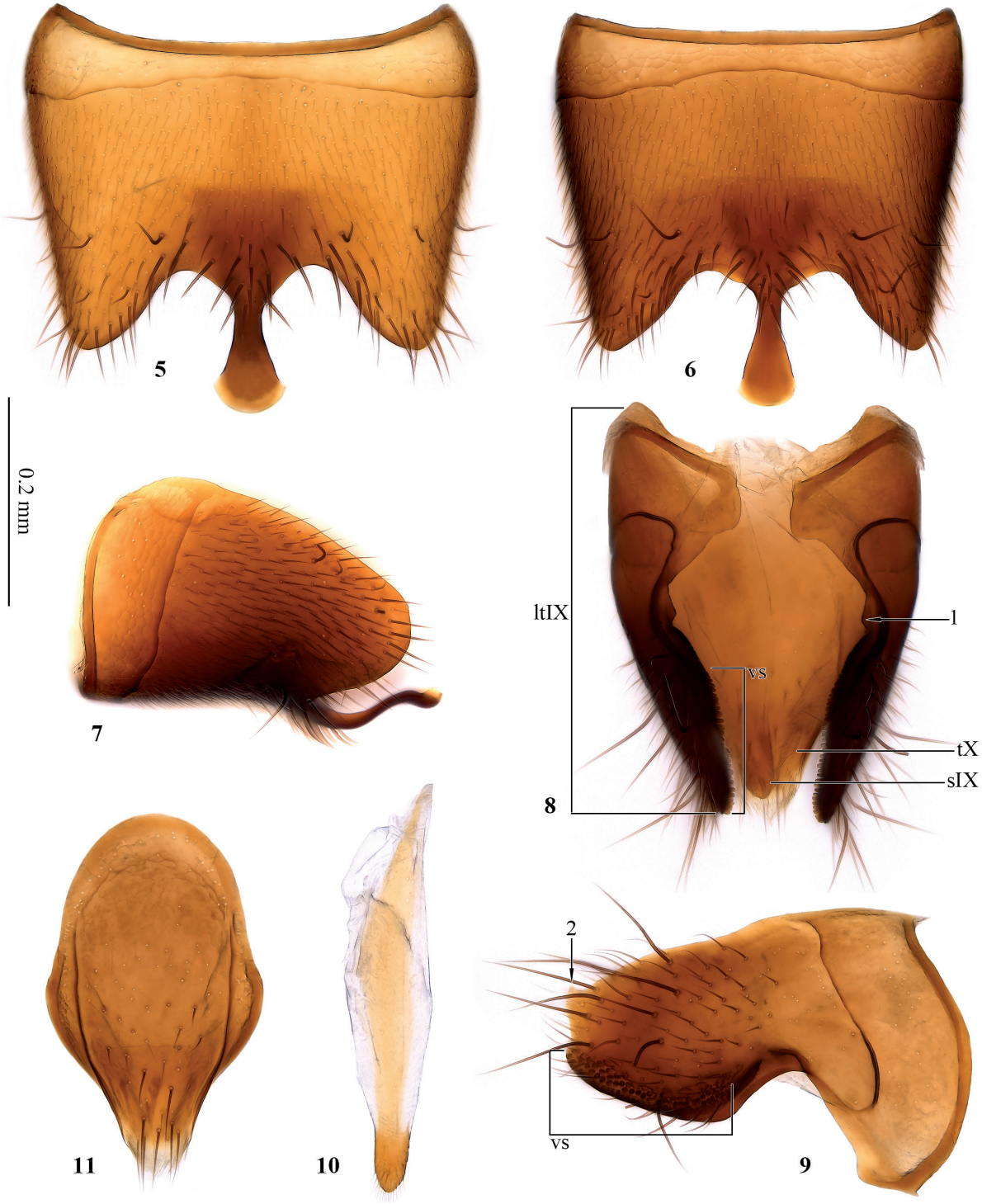
Female genital characters: Abdominal sternite VIII with subtriangular posterior margin (Fig. 12).

Tergite X moderately tapered toward posterior end (Fig. 13).

Bursa sclerotized, from broad, truncate distal end with characteristic pair of medioapical spots moderately tapered toward less strongly sclerotized proximal end where bursal duct inserts (Fig. 15). Bursal duct short,

four to five times as long as sperm pump (Figs 14, 15). Sperm pump with appendix of proximal portion.

Remarks: In both subspecies, the distolateral pair of submembranous lobes of the dorsal lobe of the aedeagus is oriented either ventrally (Figs 19, 20, 22, 23) or distally (Figs 16–18, 25–27). Therefore, this character is not taxonomically significant. Interestingly, the dorsal lobe of both aedeagal morphotypes appears to be in the same



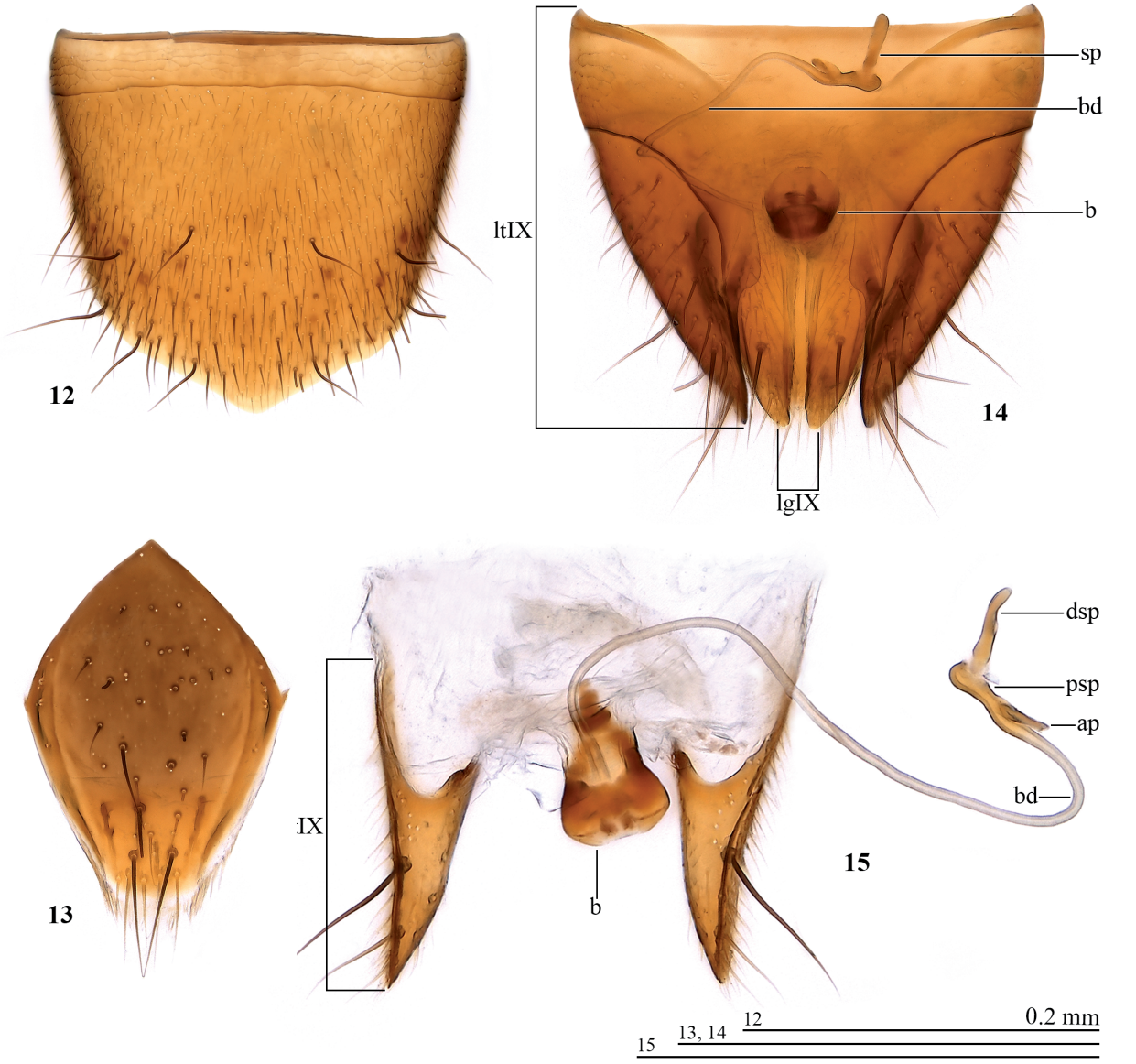
Figures 5–11. Genital sclerites of ♂ of *Scopaeus punctatellus*: Abdominal sternite VIII in ventral (**5**, **6**) and lateral view (**7**), abdominal segments IX–X in ventral view (**8**), laterotergite IX in lateral view (**9**), sternite IX in ventral view (**10**), tergite X in dorsal view (**11**) of *S. punctatellus sharpi*, Yemen, Al-Hudaida, Jabal Bura (**5**); *S. p. punctatellus*, Republic of South Africa, Limpopo, Soutpansberg (**6–11**). Abbreviations: **ltIX** – laterotergite IX; **sIX** – abdominal sternite IX; **tX** – abdominal tergite X; **vs** – ventromesial band of short, thick setae. Arrows: **1** – ventromedial extension of laterotergite IX; **2** – dorsoposterior denticle of laterotergite IX.

position, which is why the distal or ventral orientation of these lobes is not caused by a ventral displacement of the dorsal lobe. I have never before observed this type of dimorphism in features of the aedeagus.

3.1.1 *Scopaeus p. punctatellus* Fauvel (Figs 1, 2, 6–11, 16 –21, 28)

Diagnosis: Body color reddish medium brown to blackish brown; elytra blackish brown with light yellow brown, contrasted posterior margin covering about 0.1 to 0.18 of elytral humeral length; antennae and mouthparts medium brown; legs light yellow-brown; lighter colored specimens usually with reddish medium brown pronotum and lighter medium brown elytra becoming gradually darker posteriorly (Fig. 2).

Distribution: *Scopaeus p. punctatellus* is widespread throughout sub-Saharan Africa and the islands located to the east in the Indian Ocean (Madagascar, Mayotte, Seychelles, Sokotra) (Fig. 28). The northernmost record comes from northern Sudan. The taxon was described based on specimens from Kenya and Madagascar (Fauvel 1905: 157). It was later recorded for Tanzania (Eichelbaum 1913: 128; Fagel 1965: 210), the Republic of South Africa (Fagel 1961: 274), Ivory Coast (Fagel 1973: 181), and the Democratic Republic of the Congo

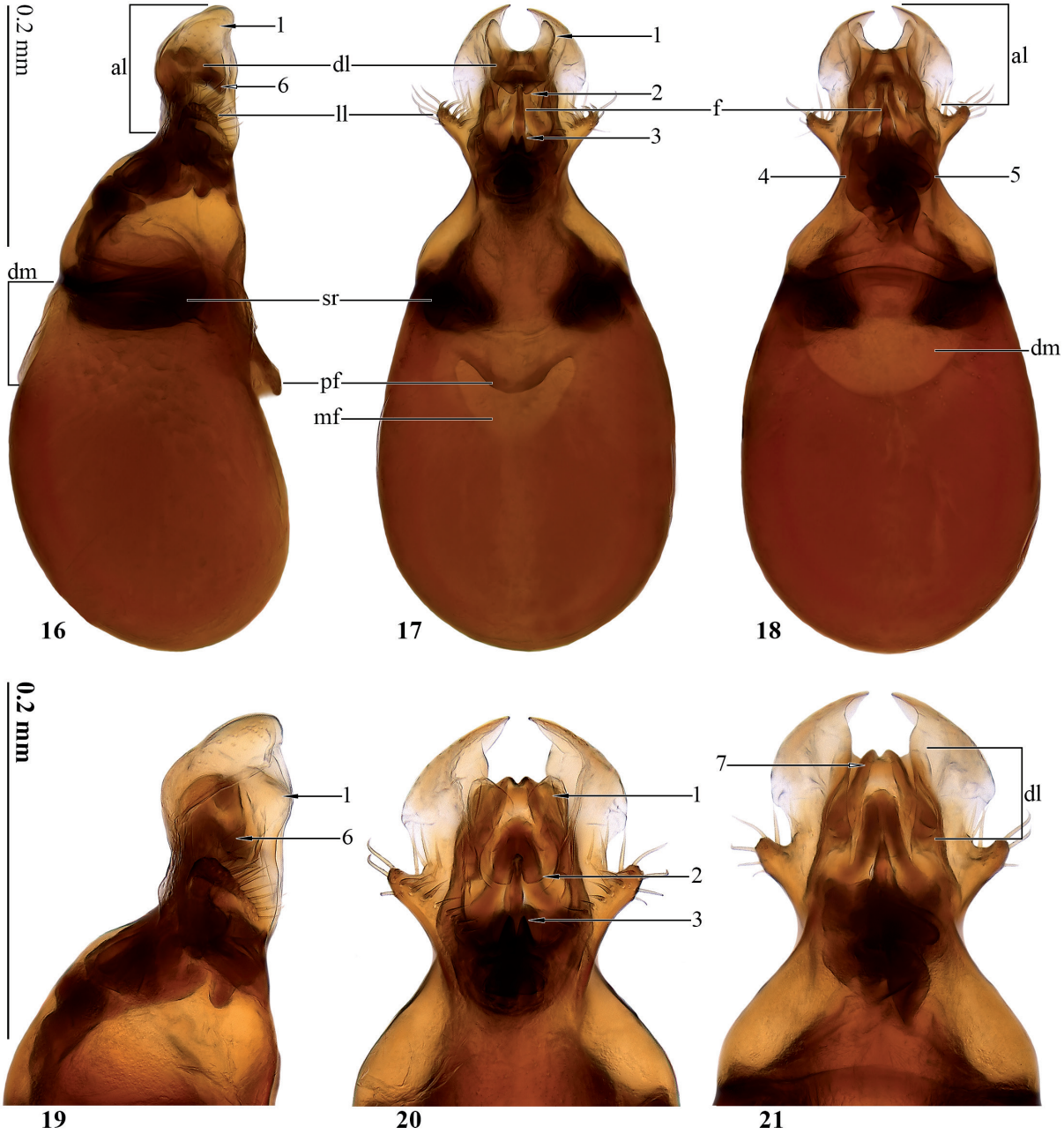


Figures 12–15. Genital sclerites and primary genitals of ♀ of *Scopaeus punctatellus*: Abdominal sternite VIII (**12**), abdominal tergite X in dorsal view (**13**), abdominal segments IX–X in ventral view (**14**), laterotergites IX with primary genitals (**15**) of *S. punctatellus sharpi*, Yemen, Tihama, N Bayt al Faqih (**12**, **13**); *S. punctatellus sharpi*, Oman, Dhofar, N Salalah (**14**, **15**). Abbreviations: **ap** – apophysis of proximal spermathecal portion; **b** – bursa; **bd** – bursal duct; **dsp** – distal portion of sperm pump; **lgIX** – lateral gonocoxal plates; **ltIX** – laterotergite IX; **psp** – proximal portion of sperm pump; **sp** – perm pump.

(Fagel 1973: 181). The records for Oman, Saudi Arabia, and Yemen (Smetana 2004: 618) refer to *S. punctatellus sharpi* (see following chapter).

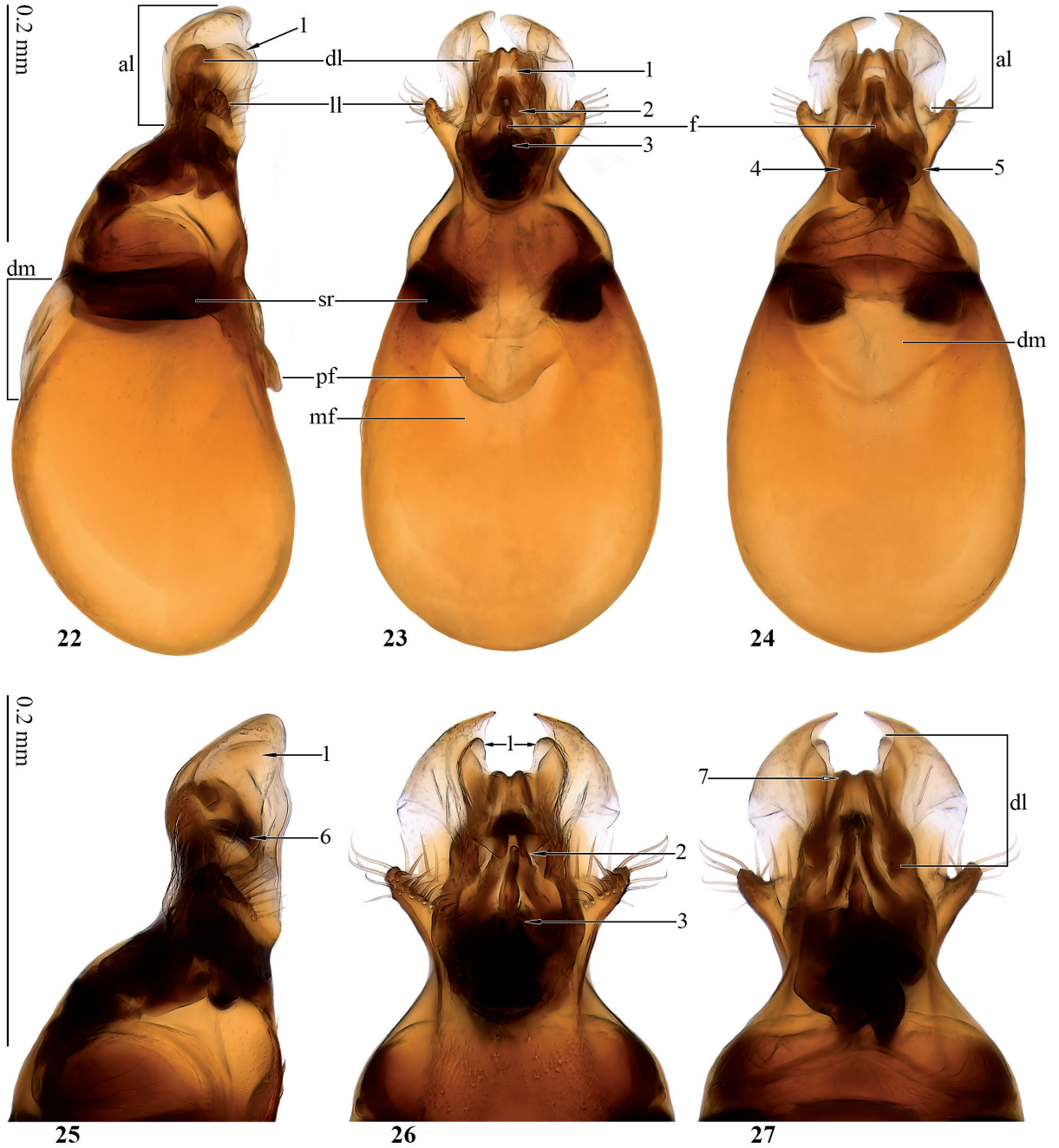
Scopaeus p. punctatellus is recorded here for the first time from Angola, Botswana, Burkina Faso, Cameroon, Chad, France (Mayotte), Ghana, Mozambique, Namibia, Niger, Nigeria, the Seychelles, Sierra Leone, Somalia, Sudan, Togo, Uganda, Yemen (Sokotra), Zambia, and Zimbabwe.

New records (7,942 specimens): **Angola** (NHML). **Botswana**: Central (NHML); Chobe (MFNB); Ghanzi (MFNB); North-East (NHML); North-West (NHML, MFNB, MSCB); South-East (MZLU). **Burkina Faso**: Boucle du Mouhoun (SMNS); Cascades (NHML, MFNB); Centre-Nord (NHML); Centre-Sud (NHML, MFNB); Centre-Ouest (NHML, MFNB); Sud-Ouest (NHML). **Cameroon**: Adamaoua (NHML); Nord



Figures 16–21. Aedeagus in lateral (**16, 19**), ventral (**17, 20**), and dorsal view (**18, 21**) of *Scopaeus p. punctatellus*; Republic of South Africa, Limpopo, Soutpansberg (**16–18**); Botswana, Chobe National Park (**19–21**). Abbreviations: **al** – apical lobes; **dl** – dorsal lobe; **dm** – dorsal membrane; **f** – flagellum; **ll** – lateral lobes; **mf** – median foramen; **pf** – postforamen; **sr** – sclerotized ring separating lobe-bearing apical portion of aedeagus and phallobase. Arrows: **1** – distolateral lobes of dorsal lobe; **2** – bilobate proximoventral end of dorsal lobe; **3** – bidentate extension of proximal margin of ostium; **4** – sinistral margin of medial portion of endophallic sclerites; **5** – dextral margin of medial portion of endophallic sclerites; **6** – proximoventrad curved portion of dorsal lobe; **7** – medial portion of dorsal lobe.

(MRAC). **Chad**: Tandjilé (NHMW). **Democratic Republic of the Congo**: Haut-Uele (NHML). **France**: Mayotte (MHNG). **Ghana**: Ashanti (HNHM, MHNG); Brong-Ahafo (HNHM); Eastern (NHML, HNHM); Northern (FMNH, HNHM, DMNH); Volta (HNHM). **Ivory Coast** (FMNH, GHCR, HNHM, MFNB, MHNG, MRAC, NHML, SMNS). **Kenya**: Coast (MFNB, MSCB, MZUF); Eastern (SDEI, NHMD, MFNB); Rift Valley (MFNB); Western (SMNS). **Madagascar**: Alaotra-Mangora (MRAC); Amoron'i Mania (MRAC, NHMW); Atsimo-Andrefana (NHML); Diana (MHNG, MFNB, NHML); Ihorombe (NHML); Melaky (MFNB, NHMB); Menabe (NHML). **Mozambique**: Gaza (FMNH); Manica (SMNS); Sofala (SMNS).



Figures 22–27. Aedeagus in lateral (**22**, **25**), ventral (**23**, **26**), and dorsal view (**24**, **27**) of *Scopaeus punctatellus sharpi*; Yemen, Al-Hudaida, Jabal Bura (**22–24**); Oman, Dhofar, N Salalah (**25–27**). Abbreviations: **al** – apical lobes; **dl** – dorsal lobe; **dm** – dorsal membrane; **f** – flagellum; **ll** – lateral lobes; **mf** – median foramen; **pf** – postforamen; **sr** – sclerotized ring separating lobe-bearing apical portion of aedeagus and phallobase. Abbreviations: **1** – distolateral lobes of dorsal lobe; **2** – bilobate proximoventral end of dorsal lobe; **3** – bidentate extension of proximal margin of ostium; **4** – sinistral margin of medial portion of endophallic sclerites; **5** – dextral margin of medial portion of endophallic sclerites; **6** – proximoventrad curved portion of dorsal lobe; **7** – medial portion of dorsal lobe.

Namibia: Caprivi (MFNB); Kavango (MFNB); Hardap (MFNB); Otjozondjupa (NMEC); Oshana (MFNB). **Niger**: Niamey (LEWC). **Nigeria**: Oyo (NHML, MRAC, NHMD); Plateau (NHMW). **Oman** (MSCB). **Seychelles**: Cousin Island (MHNG, MFNB); North Island (MFNB); Praslin Island (MFNB). **Sierra Leone**: Northern (MZLU). **Somalia**: Gedo (MZUF); Lower Juba (MZUF). **Republic of South Africa**: KwaZulu-Natal (MFNB, DMNH, SMNS); Limpopo (NHML, FMNH, MZLU, NHMW, SANC, SMNS, DMNH, MFNB). **Sudan**: Al-Chartum (ZSMC); Ash-Shamaliyyah (NHMW); Al-Dschazira (MFNB). **Tanzania**: Arusha (ISNB, HNHM); Daressalam (NHML); Iringa (JMCH, NHMB, NHML, SMNS, NHMW); Kilimandscharo (NHML); Lindi (NHML); Morogoro (HNHM, MRAC, NHMW, MFNB, MZUF); Pwani (FMFD, MFNB, SMNS); Tanga (SANC). **Togo**: Centrale (NHML). **Uganda**: Central (NHML); Northern (MFNB). **Yemen**: Sokotra (MFNB, NMPC). **Zambia**: Central (MFNB); Eastern (NHML); Lusaka (MFNB); Northern (MFNB, NHML); Southern (JFCG, MFNB). **Zimbabwe**: Matabeleland North (MFNB); Matabeleland South (NHML, FMNH); Masvingo (NHML).

3.2.2 *Scopaeus punctatellus sharpi*, stat. nov. (Figs 3, 4, 5, 12–15, 22–28)

Diagnosis: Vast majority of specimens significantly lighter in color (Figs 3, 4) compared to *S. p. punctatellus* (Figs 1, 2). Body color light reddish brown; elytra occasionally insignificantly darker than head and

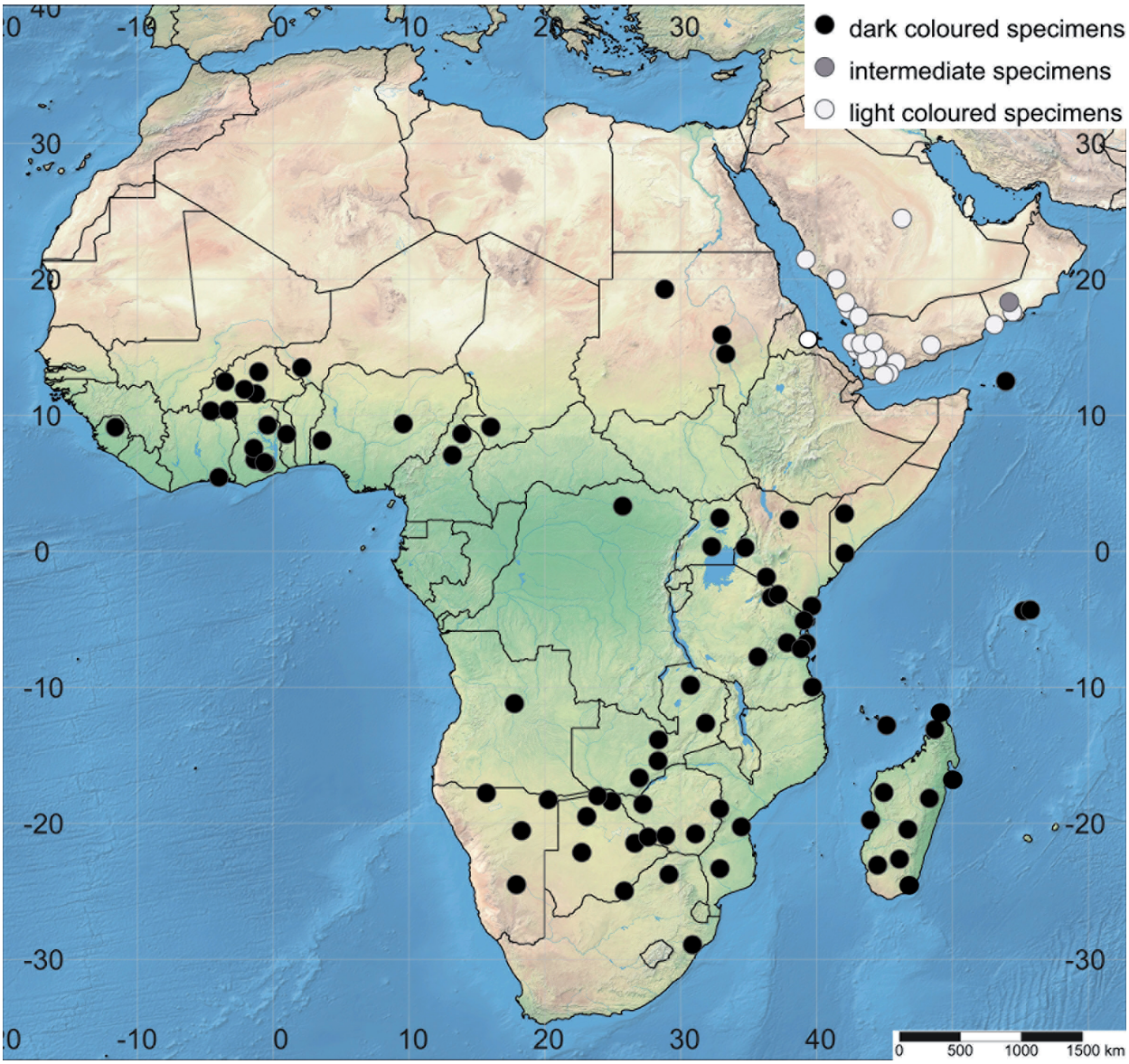


Figure 28. Known distribution of *Scopaeus p. punctatellus* (black dots) and *S. punctatellus sharpi* (white and gray dots).

pronotum, with insignificantly contrasted, pale yellow brown posterior margin; antennae and mouthparts light brown; legs pale yellow-brown; darker colored specimens only known from one locality in Oman, but never as dark as most specimens of nominate subspecies.

Distribution: *Scopaeus punctatellus sharpi* is distributed in the Arabian Peninsula and the western coast of the Red Sea (Fig. 28). Most records come from the Asir Mountains along the western coast of the Arabian Peninsula, as humidity is higher there than in the rest of the Arabian Pensinsula.

New records (240 specimens): **Oman:** Dhofar: 8 km N Salalah (17°11‘30‘‘N, 54°11‘28‘‘E), 350 m, 27.–28.IX.2018, Pelikán leg. (JMCH, MFNB); E Taqah: Sumhuram (17°36‘63‘‘N, 54°25‘29‘‘E), 10 m, 28.–29.IX.2018, Pelikán leg. (JMCH, MFNB). **Saudi Arabia**: (MNHN, NHMB). Al-Bahah [Baha] (NHMW). Asir: Wadi Atoud (17°48’N, 42°22’E), 250 m, 8.II.2016, Bezděk & Král leg. (NMPC); Wadi Sabeen (18°18’N, 42°08’E), 800 m, 10.II.2016, Bezděk & Král leg. (MFNB, NMPC). Mekka: Jiddah: Wadi Jizan, 31.XII.1988, Walker leg. (HECO). Dschaizan [Jāzān]: (MFNB, SMNS); Fayfa: Agricultural Exp. St., 880 m, IV.–VI.2013, Schawaller leg. (MFNB). Riad: Fayfa (MFNB). **Yemen**: Abyan: Lawdar (MSCB); Al Kowd, 21.–28.VIII.2001, van Harten & Al Haruri leg. (NBCL). Adan (NHML, MFNB). Al-Hudaida: (MFNB, NMPC, PKPC, NHMW); Jabal Bura‘ (MFNB, MSCB); Jabal Bura‘ (14°53‘N, 43°26‘E), 560 m, 21.III.2007, Kadlec leg. (MFNB); Jabal Bura‘ (14°52‘E, 43°24‘E), 225–600 m, 30.X.–01.XI.2005, Kadlec leg. (MFNB, PKPC); Kamaran (NHML); E Zabid: Wadi Zabid (HNHM, MNHN); E Zabid: Wadi Zabid (14°09‘N, 43°41‘E), 330 m, 22.III.2007, Kadlec leg. (MFNB); Al Kadan, IV.2002, van Harten & Abdul-Haq leg. (NBCL). Al Mahra: NE Al Ghaydah: Hawf (Jabal al Fatk) (16°40‘N, 53°05‘E, 730 m, 12.–13.X.2005, Rejzek leg. (MFNB, NHML). Hadramaut: NW Al Mukalla: Wadi Daw’an (15°09‘N, 48°26‘E), 950 m, 20.X.2005, Rejzek leg. (NHML). Sana‘a (PKPC).

4 Discussion

4.1 Classification

Polytypic species such as *Scopaeus punctatellus* are exceptions in the Staphylinidae. The only other polytypic species of the Scopaeina is *S. similis minor* Frisch, 2014, which is distinguished from the nominate subspecies by smaller size and lighter coloration (Frisch 2014: 206, 207). This is not surprising due to the endemic distributions of most Scopaeina.

Years ago I was struggling with the decision of whether to describe a new *Scopaeus* from Cyprus at the rank of species or merely as subspecies of the closely related, widespread *S. gracilis* Sperk, 1835, because it had a consistent, but minor difference in the aedeagus and a more contrasted body coloration. One of the most renowned contemporary European coleopterists advised me to formally name the Cypriot population as a species, since, given the biological definition of a species, it is usually impossible to determine reproductive isolation. In other words: We formally classify allopatric populations as nominate species if we consider them sufficiently distinct from their conspecifics, but we cannot clearly say whether they are biological species or merely subspecies. Even molecular data, such as the percentage differences between individual genes or phylogenetic analyses, do not provide a definite answer how to classify clusters or clades of specimens. As a morphologist, I usually describe allopatric populations formally in the rank of species, if there is at least a sufficient and consistent genital difference. However, despite their markedly different coloration, *S. p. punctatellus* and *S. punctatellus sharpi* show no genital differences (Figs 16–27).

Against this background, I consider it a pragmatic solution to classify *S. sharpi* as a subspecies of *S. punctatellus*. Even though I saw few intermediate specimens from southern Oman (Dhofar), the vast majority of specimens can be clearly distinguished by their different coloration. Furthermore, both subspecies occur in different zoogeographic regions. A broad clinal transition zone between them does not exist, as both forms were found relatively close to each other in Sudan and Eritrea (Fig. 28). Therefore, I consider *S. punctatellus* as a polytypic species with two differently colored subspecies – the dark-colored *S. p. punctatellus* (Figs 1, 2) in the Afrotropics and the Madagascan region, and the light-colored *S. punctatellus sharpi* (Figs 3, 4) in the Saharo-Arabian region on the Arabian Peninsula and at the western coast of the Red Sea (Fig. 28).

A pale form is also known for the widespread, macropterous European paederine species *Lobrathium multipunctum* (Gravenhorst, 1802) – a small, submicrophthalmous, submacropterous local high-mountain morphotype of the Sierra de Gredos in Spain. It was originally described as *Lathrobium* (*Lobrathium*) *hispanicum* Dodero, 1916, but was later synonymized with *L. multipunctum* by Assing (2007: 732, 735), primarily due to the absence of relevant genital differences. Based on COI barcodes, Hansen & Shaw (2023: 6) confirmed this synonymy and pointed out that caution is warranted when describing high-altitude endemics. They were correct in not classifying the smaller, light colored, submicrophthalmus mountain

form as a subspecies. In contrast to the widespread, allopatric color-forms of *S. punctatellus*, which lack a broad transition-zone (Fig. 28) and which I therefore classify as subspecies, the range of the smaller, lighter colored high mountain form of *L. multipunctum* lies within the entire range of the species. Furthermore, the question remains open as to whether there is vertical clinal variation between the light-colored mountain form and the lowland form.

4.2 Bionomics

Scopaeus punctatellus is a highly active flyer that – according to the label information of many specimens – is regularly collected using light traps. This is already evident from the large eyes (Figs 1–4), which are a typical feature of species that fly actively, are able to disperse, and are therefore widespread. This places *S. punctatellus* in accordance with the few remarkably widespread Scopaeina with large eyes, which are the Oriental *S. testaceus* Motschulsky, 1858 (Frisch 2003: 672–674) and the Palaeotropical *Micranops pallidulus* Kraatz, 1859 (Frisch 2025a: 529–533), *S. filiformis* Wollaston, 1867 (Frisch 1999: 370–373), and *S. subfasciatus* Kraatz, 1859 (Frisch 2003: 680–682).

Although the labels of the examined specimens reveal little about the niche preference of *S. punctatellus*, they often indicate moist or riparian habitats, which is consistent with the predominant ecological preference of the genus (cf. Frisch et al. 2002: 28).

4.3 Phylogeny

Fagel (1973: 177, 178) classified *Scopaeus punctatellus* within the *S. laetus* species group, which he had established to include five Afrotropical species characterized by a similar body shape, a comparatively shiny body surface, and a symmetrical aedeagus with a large phallobase. He emphasized, however, that *S. punctatellus* differs from the other species in this group primarily in its significantly broader mesotibia and the secondary sexual features of the males (Fagel 1973: 177, 181). I consider the *S. laetus* species group to be an artificial, polyphyletic grouping, since symmetrical aedeagi occur in many species groups and the sexual characters of the included species differ significantly. One of the species included therein, *S. laetus*, I transferred to the *S. laevigatus* species group and synonymized with *S. subfasciatus* (Frisch 2003: 680). For this reason, Herman (2023: 87, 88) renamed Fagel's grouping the *S. punctatellus* species group, since the name *S. laetus* was no longer included. I have also examined the type specimens of the other species from Fagel's *S. laetus* species group, which are *S. brunnescens* Fagel, 1956, *S. ruwenzoriensis* Fagel, 1973, and *S. nicetius* Fagel, 1973. These species are closely related to each other, but I see no closer relationship to *S. punctatellus*.

Herman (2023: 88) noted the similarity of the stridular characters of *S. punctatellus*, *S. laevigatus* Gyllenhal, 1827, and *S. subfasciatus*, with the latter two belonging to the *S. laevigatus* species group, but, unlike *S. laevigatus*, the abdominal sternite III of *S. punctatellus* lacks the median point that extends from the transverse basal ridge (Herman 2023: 52, Fig. 192).

Within *Scopaeus*, *S. punctatellus* appears to represent a distinct phylogenetic lineage based on several unique morphological features. Of the two hypothetical basal lineages of the genus (Frisch 2026: 130), the species must be assigned to the one defined by the sclerotized ring of the aedeagus (Figs 16–18, 22–24) and the appendage of the proximal portion of the sperm pump (Fig. 15), and which lacks the dorsodistal window of the aedeagus (Frisch 2026: Figs 107, 109, 111).

Scopaeus punctatellus differs from all other *Scopaeus* species I have examined to date in its conspicuous medioposterior process of abdominal sternite VIII (Figs 5–7), the ventral band of short, mesially arranged setae on the distal part of the laterotergite IX (Figs 8, 9), and the extremely narrow abdominal sternite IX (Fig. 10). These characters I consider to be strong autapomorphies of the species.

Other diagnostic characters of *S. punctatellus* could be regarded as putative convergences. The characteristic, dilated mesotibia also occurs in other lineages, such as the *S. minutus* (Frisch 1997: 529, 532) and *S. laevigatus* species groups (Frisch 2003). A sclerotized bursa, as found in *S. punctatellus*, is an exception within the genus, but also present in the distantly related *S. elegans* (Frisch 2010: 175, 182), *S. decipiens* (Frisch 2025b: 193), and *S. laevigatus* species groups (Frisch 2003: 724, 725).

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