# *A redescription of Anthrenus Sordidulus Reitter, 1889 (Coleoptera: Dermestidae: Megatominae)*

# A REDESCRIPTION OF *ANTHRENUS SORDIDULUS* REITTER, 1889 (COLEOPTERA: DERMESTIDAE: MEGATOMINAE)

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ABSTRACT: Many species of Dermestidae, especially those discovered in the 18th and 19th centuries, have brief descriptions that are inadequate for modern taxonomic studies because many more species are now known. In the current study, the description of *Anthrenus* (*Florilinus*) *sordidulus* is extended to include images of habitus, antennae, genitalia.

KEY WORDS: Antenna, dissection, distribution, genitalia, habitus, taxonomy, description

The discovery of new species of Dermestidae continues at a pace. There are now over 1900 known species (Háva, 2025) with about 300 species in the large genus *Anthrenus* Geoffroy, 1762. The discovery of new species is dependent on good descriptions of known species. However, new species of Dermestidae have not always been well described, especially species described in the 18th and 19th centuries. Even where the species is considered well-known and easy to recognize, it is not sensible to assume that it is impossible for more than one species to have similar external characteristics.

*Anthrenus* is split into 10 subgenera based mostly on the number of antennal segments (Peacock, 1993). In the current study we consider and extend the original description of the eastern Mediterranean species *Anthrenus sordidulus* Reitter, 1889. *Anthrenus sordidulus* belongs to the subgenus *Florilinus* Mulsant & Rey, 1868 characterised by having eight antennal segments. Many species discovered in the 18th and 19th centuries are associated with inadequate descriptions in the sense that they do not facilitate the consideration of new species as knowledge of a group expands (Ang et al., 2013). In addition, workers at that time did not have the imaging facilities that are currently available (Ang et al., 2013). This issue has been noted on numerous occasions in Dermestidae and extended descriptions have been published on several European *Anthrenus*, including *A. pimpinellae* (Fabricius, 1775) (Holloway & Bakaloudis, 2020), *A. munroi* Hinton, 1943 (Holloway & Cañada Luna, 2022), *A. flavipes* LeConte, 1854 (Armstrong et al., 2023), *A. sarnicus* Mroczkowski, 1963 (Holloway & Pinniger, 2024), *A. goliath* Saulcy in Mulsant & Rey, 1868 (Holloway & Herrmann, 2023), *A. minor* Wollaston, 1865 (Holloway & Herrmann, 2024a), and *A. oceanicus* Fauvel, 1903 (Holloway, 2025) among others. Extending brief Dermestidae descriptions has facilitated the discovery of *A. amandae* Holloway, 2019

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(Holloway, 2019), *A. chikatunovi* Holloway, 2020 (Holloway, 2020), *A. algeriensis* Holloway, 2024 (Holloway, 2024), *A. querneri* Holloway, 2024 (Holloway, 2024), *A. canadalunai* Holloway & Herrmann, 2024 (Holloway & Herrmann, 2024b), *A. valenzuelai* Holloway & Herrmann, 2024 (Holloway & Herrmann, 2024c) and *A. graecus* Holloway & Herrmann, 2025 (Holloway & Herrmann, 2025). Reitter's (1889) description of *A. sordidulus* is brief (although better than many from the 18th and 19th centuries) and reads as follows (translated from German).

A very small egg-shaped species somewhat similar to *Anth. molitor*. Oval, brown-red, dirty white all over, with a yellowish tinge on top, without bands or clear spots, the scales triangular, with the acute angle pointing forward, slightly crowded, nowhere arranged in a roof-like manner on top of each other. The antennae and legs are bright rust-red, the antenna club brown, the tarsi blackish. The antennae furrow on the sides of the pronotum reaches the middle in the ♀ and extends far beyond it in the ♂. Differs from the related 2 species: *museorum* and *caucasicus* in the uniformly scaled body and very small shape.

## MATERIALS AND METHODS

Eight specimens of *A. sordidulus* were obtained from Andreas Herrmann's Entomology Collection (AHEC), six specimens from Naturalis Biodiversity Centre, Leiden (ZMAN), The Netherlands and 10 specimens from Natural History Museum, London (NHMUK) for dissection and study. Dissection was carried out under a Brunel BMSL zoom stereo LED microscope. The abdomen was removed, the ventrites peeled away and the male genitalia or female sternite VIII and tergite VIII removed. Habitus images were captured at ×20 magnification using a Canon EOS 2000D camera mounted on the BMSL microscope. Images of aedeagus, male sternite IX, female sternite VIII, and female tergite VIII were captured at ×200 magnification using a Canon EOS 1300D camera mounted on a Brunel monocular SP28 microscope. After dissection, for each specimen all body parts were mounted on a card. The antennae were teased out and images were taken at ×200 magnification. All images were fed through Helicon Focus Pro version 8.2.2 focus-stacking software. Measurements were made using DsCap.Ink software version 3.90. Measurements taken:

- Body length (BL): distance from anterior margin of pronotum to the apex of the elytra
- Antennal club length (AL): length of antennomeres 7 and 8 combined
- Paramere length (PL): from anterior end of paramere to posterior tip
- Median lobe length (ML): from posterior to anterior tip
- Male sternite IX length (SL): from anterior attachment point to posterior margin
- Female sternite VIII length (SL8): from tip of anterior stem to posterior margin
- Female sternite VIII width (SW8): maximum distance across posterior lobe
- Female tergite VIII length (TL8): distance from middle of posterior margin to middle of anterior margin

- Female tergite VIII width (TL8): maximum distance from one lateral margin to the other

Scale bars added using ImageJ 1.53M (Schneider et al., 2012). Distribution map was generated using SimpleMappr (Shorthouse, 2010). Andreas Herrmann's Entomology Collection = AHEC. Natural History Museum, London = NHMUK. Zoologisch Museum, Amsterdam, The Netherlands [deposited in Naturalis Biodiversity Centre, Leiden, The Netherlands = ZMAN.

## RESULTS
## Taxonomy

Dermestidae Latreille, 1803
Megatominae Dalla Torre, 1911
Anthrenini Gistel, 1848
Anthrenina Gistel, 1848
*Anthrenus* Geoffroy, 1762

### *Anthrenus* (*Florilinus*) *sordidulus* Reitter, 1889

**External features.** Male (Fig. 1A) mean BL = 1.96 mm (n = 8), female BL = 2.1 mm (n = 10), range 1.8 – 2.15 mm. Integument of head and pronotum black/dark brown. Single, amber-coloured ocellus in centre of head just below line joining tops of eyes. Vertex and face covered in yellow scales, labrum reddish. Eyes not emarginated along inner margins. Deep excavations along outer margin of pronotum to accommodate antennae extending halfway in females, somewhat further in males. Pronotum with uniform coating of triangular yellow scales. Elytral integument brown with reddish hue, becoming slightly redder towards elytral apices. Elytra covered in non-overlapping triangular yellow to brownish yellow scales. Ventrite (Fig. 1B) integument black/dark brown, covered in off-white, non-overlapping scales.

Antenna (Figs. 1C, 1D) eight-segmented, segments 1 – 5 reddish in males, segment 6 darker in some individuals, otherwise also reddish, two-segmented hirsute club dark brown. In males, AL is approximately 200 µm with the large terminal segment 5-6 times as long as the penultimate segment. Female segments 1 – 6 reddish, AL approximately 150 µm with terminal segment 2 – 3 times longer than penultimate segment. Legs pale reddish, tarsi dark brown with hint of red.

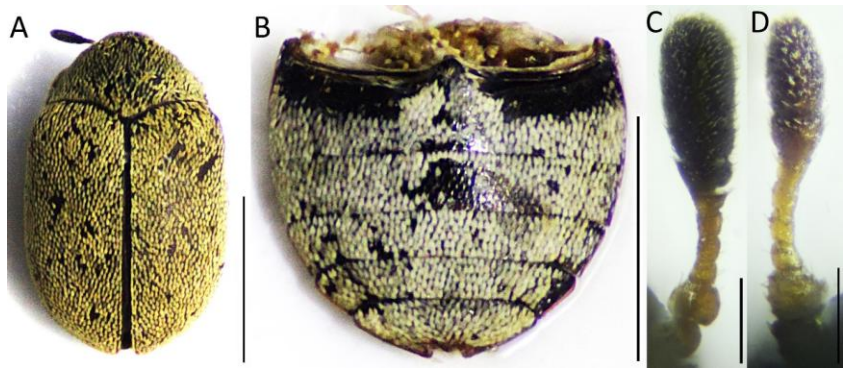


Figure 1. *Anthrenus* (*Florilinus*) *sordidulus*. A) Habitus (scale bar = 1 mm). B) Ventrites (scale bar = 1 mm). C) Antenna male (scale bar = 100 µm). D) Antenna female (scale bar = 100 µm).

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**Internal features.** *Males*. Aedeagus (Fig. 2A) small. Parameres broad and divergent (PL = 255µm) bordering a short, but slim, median lobe (Fig. 2B, ML = 215 µm) strongly hooked dorsally that terminates well short of the paramere tips and only a short way beyond the bridge joining the parameres. Anterior end of median lobe terminates in two spatulate rods. Inner margin of paramere carrying numerous, long setae that extend to paramere tips. Sternite IX (Fig. 2C, SL = 325 µm) broad with shallow, convex posterior margin. Lateral margins slightly diverge from posterior margin to halfway where they converge down to a single anterior attachment point. Form attachment point to halfway, colour mostly pale yellow, from halfway to posterior margin pale yellow across reticulated disc, but whitish around margins. White marginal tissue carrying many marginal and submarginal setae, especially around posterior margin.


Figure 2. *Anthrenus* (*Florilinus*) *sordidulus*. A) Aedeagus, dorsal aspect. B) Median lobe, lateral aspect C) Male sternite IX. All scale bars = 100 µm.

***Females.*** No sclerites within the bursa copulatrix could be found. Female sternite VIII (Fig. 3A) and tergite VIII (Fig. 3B) very fragile structures. Sternite VIII umbrella shaped structure (SL8 = 400 µm, SW8 = 400 µm). Anterior stem pale yellow, brown. Parasol shaped posterior lobe pale yellow brown (ignoring white membranous tissue below parasol). Posterior and lateral margins of parasol not forming a smooth curve. Margin from one side to the other consisting of six straight components so that margin has five angles in it. Posterior margin carrying several evenly spaced, strong setae, no setae on lateral margins. Tergite VIII (TL8 = 185 µm, TW8 = 360 µm) evenly rounded from one anterior corner, around posterior margin to other anterior corner. Anterior margin concave, white, with white tissue extending into centre of tergite. Rest of tergite VIII pale brown. Posterior margin carrying many long setae, swept inward to centre of margin.

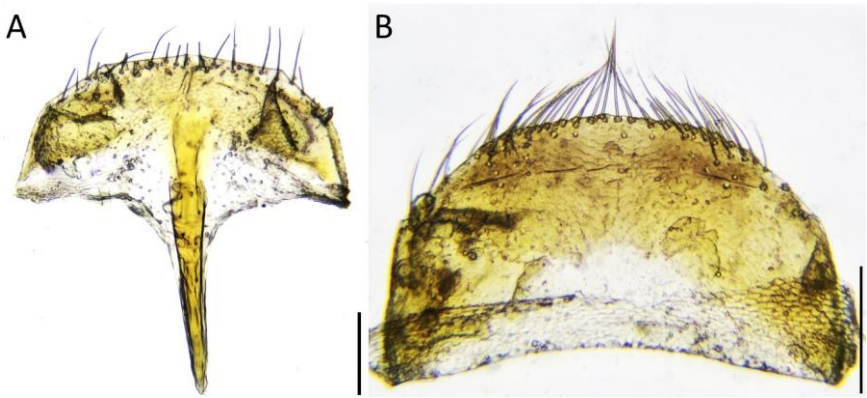


Figure 3. *Anthrenus* (*Florilinus*) *sordidulus*. A) Female sternite VIII. B) Female tergite VIII. All scale bars = 100 µm.

**Distribution.** *Anthrenus sordidulus* is distributed around the eastern end of the Mediterranean (Fig. 4). Study specimens were collected in Turkey (Antalya [36.896, 30.671]), Cyprus (Limassol [34.692, 33.027], Paramali [34.682, 32.801], Mandria [34.713, 32.531], Krios [34.836, 32.859], and Greece (Kardamyli [36.887, 22.233]).

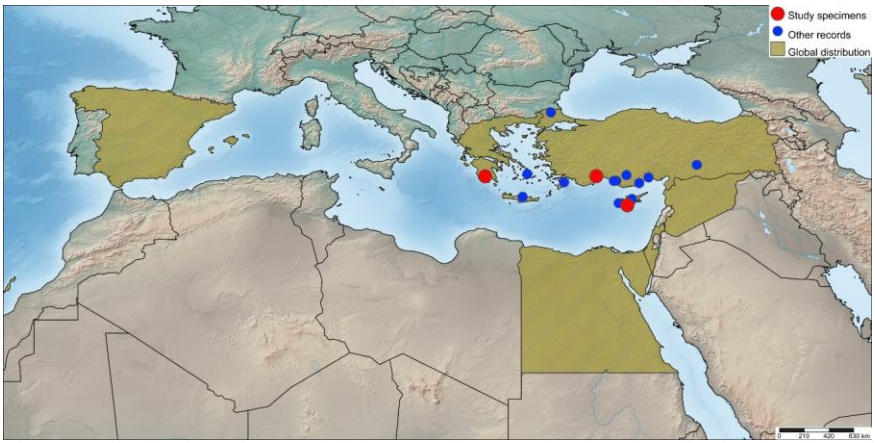


Figure 4. Distribution of *A. sordidulus* according to Háva (2025), collection locations of study specimens, and other site records from AHEC and Háva (2025).

**Confusion species.** A likely confusion species is *Anthrenus* (*Nathrenus*) *molitor* Aubé, 1850. That too has dark integument with pale scales, except that the scales are slim rather than broad a triangular as in *A. sordidulus*. *Anthrenus molitor* antenna is 10-segmented with a three segmented club. The aedeagus is very different with two rod-shaped parameres and a long median lobe that extends almost to the paramere tips. *Anthrenus molitor* is distributed around the whole of the Mediterranean, so overlaps with *A. sordidulus* in eastern Mediterranean (Háva, 2025).

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## DISCUSSION

As far as the authors are aware, this is the first time the male genitalia and internal female components of *A. sordidulus* have been published (but see Herrmann, 2025). The value of male genital structure is generally accepted as a good guide to species in Dermestidae but there has been much less focus on female internal components, especially in *Anthrenus*. Quite often, the bursa copulatrix in *Anthrenus* is devoid of any sclerites that might offer useful information, but this is not always the case. For example, *A. sarnicus* (Holloway & Pinniger, 2024), *A. olgae* Kalík, 1946 (Adams, 1988), *A. muehlei* Holloway & Herrmann, 2024 (Holloway & Herrmann, 2024d) and *A. oceanicus* (Holloway, 2025) all carry sclerites within the bursa copulatrix. Other genera, such as *Attagenus* Latreille, 1802 have large obvious sclerotic plates in the bursa copulatrix (Holloway & Herrmann, 2024e). Here we present the structures of female sternite VIII and tergite VIII. The value of female internal components in *Anthrenus* taxonomy has not been assessed. Often, they are very delicate, difficult to dissect undamaged, and do not survive long-term preservation very well so few have been published. An exception is Holloway & Herrmann (2024a) who presented female sternite VIII and tergite VIII for *A. minor* from the Canary Islands.

The distribution is shown in Fig. 4. Spain is a clear outlier and might not refer to *A. sordidulus*. Holloway et al. (2019) listed *A. sordidulus* as a Spanish species but were not able to provide a source for the record. Most likely it comes from Mroczkowski (1954), but a lot of work has been carried out since then, so it is possible that the Mroczkowski (1954) record is incorrect. It is possible that a record of *A. molitor* or perhaps *A. bellulus* Chobaut, 1897 (Herrmann & Baena, 2004) has been confused with *A. sordidulus*. The origins of the study specimens lie within the range proposed by Háva (2025) but in both cases close to the Mediterranean Sea. Further specific points of collection are shown in Fig. 4 (Kadej & Háva, 2007), all are relatively close to the sea making it less certain that they can be found in hotter, drier climates such as southern Egypt, South-eastern Turkey and eastern Syria.

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## LITERATURE CITED

**Adams, R. G.** 1988. *Anthrenus olgae* Kalík new to Britain (Coleoptera: Dermestidae) with notes of its separation from *A. caucasicus* Reitter. Entomologist's Gazette, 39: 207-212.

**Ang, Y., Wong, L. J. & Meier, R.** 2013. Using seemingly unnecessary illustrations to improve the diagnostic usefulness of descriptions in taxonomy–a case study on *Perochaeta orientalis* (Diptera, Sepsidae). ZooKeys, 355: 9.

**Armstrong, E., Bakaloudis, D. E. & Holloway, G. J.** 2023. A morphometric examination of *Anthrenus flavipes flavipes* Le Conte1854 (Coleoptera: Dermestidae: Anthrenini). Bulletin of Insectology, 76 (2): 265-270.

**Háva, J.** 2025. Dermestidae World (Coleoptera). World Dermestidae | Dermestidae world (Coleoptera), Megatominae. Available at Subfamily-Megatominae.pdf (Last accessed 26th August 2025).

**Herrmann A.** 2025. Dermestidae (Coleoptera) of the World. Dermestidae (Coleoptera)— Homepage of Andreas Herrmann. Available from: http://www.dermestidae.com/ (accessed 23rd August 2025).

**Herrmann, A. & Baena, M.** 2004. New records of Dermestidae (Coleoptera) for Spain and Europe. Boletín de la Sociedad Entomológica Aragonesa, 34: 211-213.
**Holloway, G. J.** 2019. *Anthrenus* (s. str.) *amandae* (Coleoptera: Dermestidae): a new species from Mallorca, Spain. Zootaxa, 4543 (4): 595-599.
**Holloway, G. J.** 2020. *Anthrenus* (s. str.) *chikatunovi* (Coleoptera: Dermestidae): a new species from southern France. Israel Journal of Entomology, 50: 69-75.
**Holloway, G. J.** 2024a. *Anthrenus* (*Anthrenus*) *querneri* (Coleoptera: Dermestidae: Megatominae), a new species from Austria. Insecta Mundi, 1060: 1-6.
**Holloway, G. J.** 2024b. *Anthrenus* (*Anthrenus*) *algeriensis* (Coleoptera, Dermestidae, Megatominae), a new species from Algeria. Baltic Journal of Coleopterology, 24 (1): 33-41.
**Holloway, G. J.** 2025. Morphological examination of *Anthrenus oceanicus* Fauvel (Coleoptera Dermestidae: Megatominae). Entomologists Monthly Magazine, 161: 45-56.
**Holloway, G. J. & Bakaloudis, D. E.** 2020. A comparative morphological study of *Anthrenus pimpinellae ssp. pimpinellae* (Fabricius, 1775) and *Anthrenus amandae* Holloway, 2019 (Coleoptera: Dermestidae). The Coleopterists Bulletin, 74 (2): 315-321.
**Holloway, G. J. & Cañada Luna, I.** 2022. A morphometric analysis of *Anthrenus munroi* Hinton, 1943, and a key for citizen scientists to the Western European species in the *Anthrenus pimpinellae* complex (Coleoptera: Dermestidae). The Entomologist's Monthly Magazine, 158 (4): 289-298.
**Holloway, G. J., Cañada Luna, I. & Kadej, M.** 2019. A review of the literature and a checklist of the Spanish Dermestidae (Coleoptera). The Coleopterists Bulletin, 73 (3): 513-520.
**Holloway, G. J. & Herrmann, A.** 2023. Neotype designation of *Anthrenus goliath* Saulcy in Mulsant & Rey, 1867 (Coleoptera, Dermestidae, Megatominae). Baltic Journal of Coleopterology, 23 (2): 341-348.
**Holloway, G. J. & Herrmann, A.** 2024a Redescription of *Anthrenus* (*Anthrenodes*) *minor* Wollaston, 1865 (Coleoptera, Dermestidae, Megatominae). Arquivos Entomoloxicos, 30: 269-276.
**Holloway, G. J. & Herrmann, A.** 2024b. A new species of the genus *Anthrenus* Geoffroy, 1762 (Coleoptera: Dermestidae) from Turkey and Lebanon. Annales Zoologici, 74 (4): 641-649.
**Holloway, G. J. & Herrmann, A.** 2024c. *Anthrenus* (*Anthrenus*) *valenzuelai* (Coleoptera, Dermestidae, Megatominae): a new species from Sardinia (Italy), Tunisia, and Morocco. Zootaxa, 5453 (1): 144-150.
**Holloway, G. J. & Herrmann, A.** 2024d. *Anthrenus* (*Anthrenus*) *muehlei*, a new species (Coleoptera: Dermestidae: Megatominae) from Iran. Insecta Mundi, 1035: 1-6.
**Holloway, G. J. & Herrmann, A.** 2024e. New synonym of *Attagenus tigrinus* (Fabricius, 1792) (Coleoptera: Dermestidae: Attageninae). Insecta Mundi, 1092: 1-7.
**Holloway, G. J. & Herrmann, A.** 2025. *Anthrenus* (*Anthrenus*) *graecus* (Coleoptera: Dermestidae: Megatominae), a new species from Greece. Munis Entomology & Zoology, 20 (suppl.): 4117-4125.
**Holloway, G. J. & Pinniger, D. B.** 2024. *Anthrenus sarnicus* Mroczkowski (Coleoptera: Dermestidae: Megatominae): a peculiar species indeed. Entomologist's Monthly Magazine, 160 (4): 235-242.
**Kadej, M. & Háva, J.** 2007. Contribution to the Dermestidae (Coleoptera) from Turkey. Annals of the Upper Silesian Museum (Entomology), 14-15: 85-98.
**Mroczkowski, M.** 1954. Contribution to the knowledge of Dermestidae. (Coleoptera) *Anthrenus flavidus* Solskij. Annales Zoologici, 16: 1-7.
**Peacock, E. R.** 1993. Adults and larvae of hide, larder and carpet beetles and their relatives (Coleoptera: Dermestidae) and of derodontid beetles (Coleoptera: Derodontidae). Handbooks for the identification of British insects, vol. 5, no. 3. Natural History Museum; London, UK. 144 p.
**Reitter, E.** 1889. Neue Coleopteren aus Europa, den angrenzenden Ländern und Sibirien, mit Bemerkungen über bekannte Arten. Deutsche Entomologische Zeitschrift, 1889.
**Schneider, C. A., Rasband, W. S. & Eliceiri, K. W.** 2012. NIH Image to ImageJ: 25 years of image analysis. Nature Methods, 9: 671-675.
**Shorthouse, D. P.** 2010. SimpleMappr, an online tool to produce publication-quality point maps. Available at https://www.simplemappr.net (Last accessed 12th July 2025).