

Dermestes undulatus Brahm, 1790 species complex (Coleoptera: Dermestidae: Dermestinae): A reply to Háva

Graham J. Holloway¹ & Andreas Herrmann²

¹ Cole Museum of Zoology, Biological Sciences, HLS Building, University of Reading, Whiteknights, Reading RG6 6EX, UK.

e-mail: g.holloway@reading.ac.uk

<https://orcid.org/0000-0003-0495-0313>

² Bremervörder Strasse 123, 21682 Stade, Germany. e-mail: herrmann@coleopterologie.de

<https://orcid.org/0000-0001-5700-1125>

Abstract: A consideration of a recent critique of a previous paper by the authors is carried out and several general issues are also discussed. Evidence is produced confirming *Dermestes algeriensis* Holloway & Herrmann, 2025 as a valid species and not a synonym of *Dermestes undulatus* Brahm, 1790 (Coleoptera: Dermestidae). The claim that *Dermestes kazakhstanicus* Holloway & Herrmann, 2025 is a junior synonym of *Dermestes fasciventris* Reitter, 1881 could not be assessed for lack of evidence available.

Key words: Coleoptera, Dermestidae, *Dermestes algeriensis*, *Dermestes fasciventris*, *Dermestes kazakhstanicus*, *Dermestes smithi*, *Dermestes undulatus*, dissection, genitalia.

Resumen: El grupo de especies de *Dermestes undulatus* Brahm, 1790 (Coleoptera: Dermestidae: Dermestinae): una réplica a Háva. Se reflexiona sobre una crítica reciente a un trabajo previo de los autores y también se discuten varios temas generales. Se presentan evidencias que confirman que *Dermestes algeriensis* Holloway & Herrmann, 2025 es una especie válida y no un sinónimo de *Dermestes undulatus* Brahm, 1790 (Coleoptera: Dermestidae). La afirmación de que *Dermestes kazakhstanicus* Holloway & Herrmann, 2025 es un sinónimo más moderno de *Dermestes fasciventris* Reitter, 1881 no pudo evaluarse a falta de evidencias disponibles.

Palabras clave: Coleoptera, Dermestidae, *Dermestes algeriensis*, *Dermestes fasciventris*, *Dermestes kazakhstanicus*, *Dermestes smithi*, *Dermestes undulatus*, disección, genitalia.

Recibido: 20 de marzo de 2026

Aceptado: 21 de marzo de 2026

Publicado on-line: 7 de abril de 2026

Introduction

The Dermestidae numbers about 2000 species (Háva, 2025a). The development of our understanding of the taxonomy of the family should be predicated on careful and clear presentation of information that allows scholars to assess the validity of claims, and to build on previous work. *Dermestes undulatus* Brahm, 1790 is a widely distributed species, common on the Iberian Peninsula (including the Balearic Islands) and further east into Asia. Holloway & Herrmann (2025a) recently carried out an examination of a sample of *D. undulatus* from Spain and North Africa, north to Germany and east to Kazakhstan. The purpose behind the study was to confirm that only one species falls under the name *D. undulatus*.

Previous work showed that *Anthrenus pimpinellae* (Fabricius, 1775), which is also a widespread species, considered to be found across Europe, North Africa, North America, and Asia (Háva, 2025a) although evidence suggests the distribution is focused on Europe (Holloway *et al.*, 2023), consists of multiple species. Several of these *A. pimpinellae* lookalike species occur on or close to the Iberian Peninsula, including *A. amandae* Holloway, 2019, *A. chikatunovi* Holloway, 2020, and *A. algeriensis* Holloway, 2024, but also further east in Europe with *A. quernerii* Holloway, 2024 and *A. graecus* Holloway & Herrmann, 2025 (see Holloway, 2019, 2020, 2024a, b; Holloway & Bakaloudis, 2020; Holloway

& Herrmann, 2025b). In their study, Holloway & Herrmann (2025a) provided evidence of multiple species included under the name *D. undulatus*. Háva (2025b) objected to the findings of Holloway & Herrmann (2025a). In the current analysis, objections by Háva (2025b) and further comments are considered sequentially.

Results

The terms 'species group' or 'species complex' are considered arbitrary by the ICZN (1999). If the term 'species group' is used, an explanation of the characteristics binding a series of species together into a group needs to be provided (cf. Holloway, 2025). The *Dermestes murinus* Linnaeus, 1758 species group that appears in Háva (2025a) has never been defined. The term *Dermestes undulatus* species complex used by Holloway & Herrmann (2025a) refers to a series of species that look very similar to each other externally to the extent that they cannot (currently) be separated without dissection. It does not preclude the complex from residing in a more extensive group.

Háva (2025b) claimed one of the species named by Holloway & Herrmann (2025a) was a homonym of the species *Dermestes asiaticus* Háva, 2002 and raised a new species name, *Dermestes paraundulatus* Háva, nom. nov. Unfortunately, a species named *Dermestes asiaticus* does not appear in Holloway & Herrmann (2025a), but *Dermestes smithi* Holloway & Herrmann, sp. nov. does. *Dermestes paraundulatus* cannot be accepted as a replacement name, because it is proposed as a replacement for a name (*D. asiaticus* Holloway & Herrmann) that is unpublished, and therefore cannot be replaced.

Holloway & Herrmann (2025a) named a new species from North Africa as *D. algeriensis* based on genital characteristics since the authors could find 'no definitive external differences...between *D. algeriensis* and *D. undulatus*'. Háva (2025b) stated, as a result of his examination of a sample of more than 300 *D. undulatus* (where the sample originated was not mentioned) about 25 years ago (results that were never published as far as the authors are aware), that *D. algeriensis* is a synonym of *D. undulatus*. Háva (2025b) further argued that the difference in genital structure between *D. algeriensis* and *D. undulatus* represents normal variation found in *D. undulatus*. This point is interesting because nearly all taxonomic entomologists working on nearly all orders use among-species variation in genital morphology to identify new species; indeed, Háva himself does the same thing. If Háva saw variation at the genital level in his sample of *D. undulatus*, why didn't it occur to him that perhaps more than one species was involved (although if you embark on a study of *D. undulatus*, perhaps you only 'see' *D. undulatus*). Fig. 1 shows the difference between *D. algeriensis* median lobe (Fig. 1a) and examples of *D. undulatus* median lobe from Germany (Fig. 1b) and Greece (Fig. 1c). There is no difference between the German and Greek median lobes consistent with the claim made by Holloway & Herrmann (2025a) that *D. undulatus* extends across Europe (see Holloway & Herrmann, 2025a, Fig. 7). However, the difference between *D. algeriensis* and *D. undulatus* median lobes is striking. The *D. undulatus* median lobes are broad, membranous along convex margin, and evenly curved from base to apex. The *D. algeriensis* median lobe is narrower, longer, virtually no membrane along convex margin, and unevenly curved (strong curve in basal half, shallow curve in apical half). It is difficult to understand how Háva (2025b) believes these median lobes are from the same species. The structure of the median lobe in the Algerian specimen was not a one-off or something aberrant as a specimen from Morocco had an identical median lobe. The evidence indicates that *D. algeriensis* is a valid species. Háva (2025b) goes on to criticize the map of the study specimen distribution stating that data from the World Catalogue (Háva, 2025a) was not included. The map (see Holloway & Herrmann, 2025a, Fig. 7) was constructed to show the geographical range of the specimens studied only, not the geographical range of *D. undulatus* reported by Háva (2025a). Additionally, given that Holloway & Herrmann (2025a) described new species that externally resemble *D. undulatus*, the countries where *D. undulatus* are believed to exist might be incorrect, at least in peripheral regions.



Fig. 1.- Median lobes. 1a.- *Dermestes algeriensis*. 1b.- *Dermestes undulatus*, neotype, Germany. 1c.- *Dermestes undulatus*, Greece. All images set to same scale to illustrate size differences.

Holloway & Herrmann (2025a) described what they believed to be a new species, *Dermestes kazakhstanicus*. Háva (2025b) argued that *D. kazakhstanicus* is a synonym of *D. fasciventris* Reitter, 1881 based on comparisons made between specimens in Háva's own collection and Reitter's type material. No evidence is provided to enable readers to assess the authenticity of the claim. However, the claim is made 25 years after examining and comparing specimens of *D. fasciventris* rather than comparing with the holotype of *D. kazakhstanicus*. Holloway & Herrmann (2025a) acknowledge the *D. kazakhstanicus* ventrite image is not excellent, but the images of the genitalia are very clear so synonymization of *D. kazakhstanicus* with *D. fasciventris* could be achieved by producing clear images of *D. fasciventris* genitalia for comparison. The only thing that Háva (2025b) has argued is that he has *D. fasciventris* in his collection.

Discussion

Háva's (2025b) critique of Holloway & Herrmann (2025a) raises some important general points about taxonomic work in entomology. It is important to wait for a paper to be published in its final form complete with volume and page numbers before enthusiastically criticizing the contents of an unpublished preprint version. Also, it is an expectation to contact living authors to make them aware

that a species they have described is a homonym (or synonym). To publish a *nomen novum* without contacting the authors and giving them time to rectify the situation runs counter to ICZN (1999) Appendix A (code of ethics). In this case, had the authors been contacted about the potential homonym, they could have pointed out that the homonym had been spotted and corrected prior to the final publication of the paper.

The need to produce evidence to support an act of synonymization is not mandated by ICZN (1999), synonymization is subjective, an opinion, and as such does not require evidence to be provided. However, the authors believe evidence should be provided as often as possible to enhance our understanding of Dermestidae taxonomy, and to provide future scholars material to work with (e.g., Holloway & Herrmann, 2024a, b). At the very least, good descriptions of a species and the proposed synonym of that species should be available. *Dermestes kazakhstanicus* has been reasonably well described but *D. fasciventris* has not. Háva (2025b) provides no images and no associated arguments beyond mere claims. It is not sufficient to say that you have looked at many specimens, you have specimens in your collection, or to comment on the authors standard of 'study or knowledge'. The use of intemperate language also runs counter to ICZN Appendix A. Appendix A states 'Editors and others responsible for the publication of zoological papers should avoid publishing any material which appears to them to contain a breach of the above principles'; unfortunately, Háva is the editor of the journal in which Háva (2025b) was published. This approach and publishing in the absence of useful information does not enhance the general understanding of Dermestidae taxonomy and offers nothing for future scholars of Dermestidae to work with. The authors would be happy to see high quality work demonstrating that *D. kazakhstanicus* is a junior synonym of *D. fasciventris*, such a study would push understanding forward. Since there is no satisfactory description of *D. fasciventris* in the literature, if *D. kazakhstanicus* is a synonym of *D. fasciventris*, a good description (except for the ventrites) of *D. fasciventris* can be found in Holloway & Herrmann (2025a).

If a species is named without an associated description, it is deemed *nomen nudum*. In other words, it is unavailable, and the species can be named in future with an associated description. Likewise, if a synonym is claimed without a satisfactory descriptive support and justification, authors are under no obligation to accept it. In the current study, we have been able to demonstrate that *D. algeriensis* is not a junior synonym of *D. undulatus*. We are unable to confirm (or otherwise) that *D. kazakhstanicus* is a junior synonym of *D. fasciventris* since no evidence has been provided. This issue remains open.

Acknowledgements

The authors are grateful to Max Barclay and the Coleoptera curatorial team at NHMUK for maintaining and making available specimens for research. The authors are particularly indebted to Max Barclay and Professor Amanda Callaghan for scrutinizing the text in detail and making suggestions for improvement.

References

HÁVA, J. 2025a. *Dermestidae World (Coleoptera)*. Available from <http://dermestidae.wz.cz/world-dermestidae-2025/> [Last accessed 13th December 2025].

HÁVA, J. 2025b. Remarks on species of *Dermestes* Linnaeus, 1758, from the Palearctic Region, with a new homonymy and two new synonymy (Coleoptera: Dermestidae). *Folia Heyrovskyana, Series A*, **33**(2): 25-27.

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*) *algeriensis* (Coleoptera, Dermestidae, Megatominae), a new species from Algeria. *Baltic Journal of Coleopterology*, **24**(1): 33-41.

HOLLOWAY, G.J. 2024b. *Anthrenus* (*Anthrenus*) *quernerii* (Coleoptera: Dermestidae: Megatominae), a new species from Austria. *Insecta Mundi*, **1060**: 1-6.

HOLLOWAY, G.J. 2025. A review of the *Anthrenus maculifer* Reitter, 1881 species group (Coleoptera: Dermestidae: Megatominae). *Insecta Mundi*, **1118**: 1-13.

HOLLOWAY, G.J. & BAKALLOUDIS, D.E. 2020. A comparative morphological study of *Anthrenus pimpinellae pimpinellae* (Fabricius, 1775) and *Anthrenus amandae* Holloway, 2019 (Coleoptera: Dermestidae). *The Coleopterists Bulletin*, **74**(2): 315-321.

HOLLOWAY, G.J. & HERRMANN, A. 2024a. New synonym of *Anthrenus flavidulus* Reitter (Coleoptera: Dermestidae: Megatominae) from Iran. *Israel Journal of Entomology*, **53**: 123-130.

HOLLOWAY, G.J. & HERRMANN, A. 2024b. New synonym of *Attagenus tigrinus* (Fabricius, 1792) (Coleoptera: Dermestidae: Attageninae). *Insecta Mundi*, **1092**: 1-7.

HOLLOWAY, G.J. & HERRMANN, A. 2025a. The Palearctic *Dermestes undulatus* Brahm 1790 (Coleoptera: Dermestidae: Dermestinae) species complex: descriptions of neotype and three new species. *Natural History Sciences*, **12**(2): 48-56.

HOLLOWAY, G.J. & HERRMANN, A. 2025b. *Anthrenus* (*Anthrenus*) *graecus* (Coleoptera: Dermestidae: Megatominae), a new species from Greece. *Munis Entomology and Zoology*, **20** (suppl.): 4101-4109.

HOLLOWAY, G.J., MACLURE, C.J. & FOSTER, C.W. 2023. Palearctic distributions of *Anthrenus pimpinellae* (Fabricius) and *Anthrenus isabellinus* Küster (Coleoptera: Dermestidae). *The Entomologist's Monthly Magazine*, **159**: 239-244.

ICZN (International Commission on Zoological Nomenclature). 1999. *International Code of Zoological Nomenclature, Fourth Edition*. The International Trust for Zoological Nomenclature. London, 306 pp.