The genus *Hellinsia* Tutt, 1905 (Pterophoridae) in Portugal

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Abstract

Re-examination of Portuguese records of the genus *Hellinsia* results in the conclusion that records of *H. inulae* (Zeller, 1852) and of *H. carphodactyla* (Hübner, 1813) belong to *H. coniodactylus* (Staudinger, 1859). The only record of *H. osteodactylus* (Zeller, 1841) belongs to *H. pectodactylus* (Staudinger, 1859).
Key words: Revision, *inulae*,*coniodactylus*, *carphodactyla*, *osteodactylus*, *pectodactylus*.

Resumo

A reapreciação de registos para Portugal do género *Hellinsia* levam a concluir que os registos de *H. inulae* (Zeller, 1852) e de *H. carphodactyla* (Hübner, 1813) pertencem a *H. coniodactylus* (Staudinger, 1859). O único registo de *H. osteodactylus* (Zeller, 1841) pertence a *H. pectodactylus* (Staudinger, 1859).
Palavras-chave: Revisão, *inulae*, *coniodactylus*, *carphodactyla*, *osteodactylus*, *pectodactylus*.

Introduction

The Portuguese checklist (Corley, 2015) is currently 11 years old. Numerous species have been added and a small number deleted over those 11 years. There have also been changes in the concept of certain species, usually resulting from DNA barcoding examination or due to the correction of morphological misidentifications, as in a few genera of Pyralidae, Noctuidae and Erebidae (Corley, 2025b; Corley, 2025c; Corley et al., 2025).

Following the realisation that the treatment of the genus *Merrifieldia* Tutt, 1905 was unsatisfactory, which led to changes and additions to the Portuguese list (Nel et al., 2025; Corley, 2026a), it became apparent that there were also problems in other genera of Pterophoridae.

During the 1980s and 1990s various French authors described a number of new species of Pterophoridae, based on small differences in genitalia, larval morphology and host-plants. The family was monographed by Arenberger (1995) and by Gielis (1996). In the preparation of the checklist (Corley, 2015), these works were followed on the assumption that they were the most authoritative at the time. Both authors had a wider species concept than the French authors and many of the newly described French species were synonymised (Arenberger, 1995; Gielis, 1996). More recently these species described from France have been subject to DNA barcoding analysis (e.g. Nel & Huemer, 2023) with the result that many have been found to be valid species. From

this, it is now clear that the treatment in the Portuguese checklist of several genera is unsatisfactory and needs revision.

In this paper Portuguese records of the genus *Hellinsia* Tutt, 1905 are re-evaluated, resulting in the removal of *H. osteodactyla* (Zeller, 1841) and *H. carphodactyla* (Hübner, 1813) from the Portuguese fauna and the transfer of all records of *H. inulae* (Zeller, 1852) to *H. coniodactylus* (Staudinger, 1859).

Materials and Methods

Material examined is listed under the individual species. Permanent genitalia preparations were made following the methods of Robinson (1976).

Genitalia preparations by Martin Corley are mostly in RCMC.

Differences between species depend on details of the valvae and associated structures, as figured in Nel (2003).

DNA barcodes were obtained as described in Ferreira et al. (2024) within the IBI – InBIO Barcoding Initiative and Sample ID are indicated with the code INVXXXX to each specimen DNA barcoded. The associated voucher information, including locality metadata, is publicly accessible through the BOLD dataset - DS-IBILP12 - The genus *Hellinsia* Tutt, 1905 in Portugal (Pterophoridae) (dx.doi.org/10.5883/DS- IBILP12).

Abbreviations

AAL Alto Alentejo
ALG Algarve
BA Beira Alta
BAL Baixo Alentejo
BB Beira Baixa
BL Beira Litoral
DL Douro Litoral
E Estremadura
f female
Gen. prep., GP genitalia preparation
m male
MNHNC Museu Nacional de História Natural e da Ciência, Universidade de Lisboa
RCAR Research Collection of A Rocha, Mexilhoeira Grande
RCEM Research collection of Eduardo Marabuto
RCJF Research collection of José Fabião
RCJN Research collection of João Nunes
RCJR Research collection of Jorge Rosete
RCMC Research collection of Martin Corley
RCMD Research collection of Michael Dale
RCPP Research collection of Pedro Pires
TM Trás-os-Montes

***Hellinsia* Tutt, 1905**

Species to be removed from the Portuguese list are preceded by †
Species to be added to the Portuguese list is preceded by *

† *Hellinsia carphodactyla* (Hübner, 1813)

There are only four published records of this species in Portugal:
BB: Monte Barata, Monforte da Beira, 1.vii.2005, P. Pires, det. Corley (Corley GP 2455 f) (RCPP) (Corley et al., 2007; Marabuto et al., 2013).
AAL: Ribeira de Seda, Alter do Chão, 4.vi.2007, E. Marabuto, det. Corley (Corley GP 3106 m) (RCEM) (Corley et al., 2009).
BAL: Sobral da Adiça, 5.vi.2008, M. Corley, E. Marabuto and I. Rodrigues, det. Corley (RCMC) (Corley et al., 2009).
BL: Castelo do Germanelo, 30.iv.2022, Rosete, gen. det. Rosete (JR452 m) (RCJR) (Corley et al., 2024).

These have been re-examined and the genitalia agree fully with others originally determined as *H. inulae* and therefore for the reasons given under *H. coniodactlus* must be transferred to that species. *H. carphodactyla* should therefore be deleted from the Portuguese list.

The main known host-plant of *H. carphodactyla* is *Inula conyza* DC. which is locally distributed in Portugal north of Rio Tejo (Flora-on, 2026), so the presence of this species in Portugal remains a possibility.

*** *Hellinsia coniodactylus* (Staudinger, 1859)**

Listed for Portugal by Karsholt & Razowski (1996) without data. Both Arenberger (1995) and Gielis (1996) treated *H. coniodactylus* as a synonym of *H. inulae*. Corley (2015) did not accept the species based on the absence of a record with data coupled with the published synonymy.

Nel (2003) treated *H. coniodactylus* as distinct from *H. inulae* and this distinctiveness has been recently confirmed by DNA barcode analysis (Nel & Huemer, 2023). All available genitalia preparations of *H. inulae* from Portugal have been re-examined. They appeared to belong to a single species, which was not *H. inulae* as figured by Nel (2003) and Nel & Huemer (2023). The distinction from *H. carphodactyla* as illustrated by the same authors was less clear.

From this it is concluded that all records of *H. inulae* from Portugal are likely to belong to *H. coniodactylus*. This is reinforced by the distribution of *H. inulae* given in Nel & Huemer (2023), which indicates it to be a species of the middle latitudes of Europe. Furthermore, the main known host-plants of *H. coniodactlus* listed by Nel & Huemer (2023) (from outside Portugal) are *Dittrichia viscosa* (L.) Greuter and *Pallenis spinosa* (L.) Cass., both common species in Portugal, while *H. inulae* feeds on *Inula britannica* L. and *I. salicina* L., Central European species that are not present in Portugal.

In the list of records below, apart from two indicated as new records, all were previously referred to *H. inulae* and are here transferred to *H. coniodactylus*.
ALG: São Romão, 10.vi.1976, J. Passos de Carvalho, det. Bigot (MNHNC) (Bigot & Carvalho, 1983); Tavira, iv.1979, J. Passos de Carvalho (MNHNC) (Monteiro & Carvalho, 1984); Praia Verde, 20.iv.1992, M. Corley (GP287 m) (RCMC) (Carvalho & Corley, 1995); N.W. of Sagres, 15.x.1996, A.J. Gardiner, det. Corley (Corley GP AJG79) (RCAR) (Corley et al., 2000). Additional records: Ludo,

20.iv.1994, M. Corley, (GP 541 f) (RCMC); Alportel,16.vi.1997, M. Corley (GP 1152 f) (RCMC) (both in Corley & Afonso, 2021); Cruzinha, Mexilhoeira Grande, 9.x.1997, A.J. Gardiner, det. Corley (Corley GP AJG123) (RCAR) (previously unpublished); Monchique, Faro, 7.x.2018, M. Corley) (Barcoded INV07667) (new record); Zavial, Vila do Bispo, 10.iv.2026, J. Fabião, GP 101-7827 m (RCJF) (new record). (Figs 1, 2).

BAL: Zambujeira do Mar, 18.viii.2011, P. Pires, det. Corley (Corley GP3972 m) (RCPP) (Corley et al., 2015); BAL: Porto de Alcaçer, Ribeira de Oeiras, Mértola, 7.iv.2021, J. Nunes and S. Ferreira (RCJN) (Nunes et al., 2025).

E: Trafaria, Almada, 13.vi.2026, J. Fabião, GP 101-9305 m (RCJF) (new record). (Figs 3, 4).

BL: Monte Santa Olaia, 30.vii.2003, P. Pires, det. Corley (RCPP); Madriz, 29.iv.2004, P. Pires, det. Corley (RCPP) (Pires & Corley, 2007); Poço, Condeixa-a-Nova, 7.iv.2017, J. Rosete, det. Corley (Corley GP 5359 m) (Barcoded INV05605) (RCJR); Abiúl, 22.vi.2019, J. Rosete, det. Corley (Corley GP 5829 m) (Barcoded INV09959) (RCJR).

BB: Lentiscais, 15.vii.2007, M. Corley and P. Pires (Corley GP 2937 m) (RCMC) (Marabuto et al., 2013).

DL: Valongo, 23.viii.2014, J. Nunes, det. Corley (RCMC) (Corley et al., 2015).

† *Hellinsia inulae* (Zeller, 1852)

First recorded from Portugal by Bigot & Carvalho (1983): Corley (2015) lists ALG, BAL, BL, BB and DL.

All records of *H. inulae* must be transferred to *H. coniodactylus* for the reasons given under that species (see above).

† *Hellinsia osteodactylus* (Zeller, 1841)

Recorded from Algarve, Silves by A.E. Eaton (Ragonot, 1881) and from Estremadura, Setúbal by P. Vieilledent (1905). Neither of these records has been confirmed as specimens could not be found (Corley, 2008).

The only recent record is from TM: Amieiro, Tua Valley, 6.v.2007, M. Corley (GP2808 f) (RCMC) (Corley et al., 2008; Corley, 2025a). Re-examination of the genitalia preparation shows it to be *H. pectodactyla*.

The known host-plant of *H. osteodactylus* is *Solidago virgaurea* L., which is not recorded from the Tua Valley, nor from Algarve (Flora-on, 2026), although it also feeds on some *Senecio* species (Gielis, 1996). The historic records are unconfirmed. In view of the difficulties in the identification of species in this genus, there is no reason to suppose that they would have been correct, therefore *H. osteodactylus* should be deleted from the Portuguese fauna.

***Hellinsia pectodactylus* (Staudinger, 1859)**

Recorded from Algarve: Lagoa da Nave, 15.iv.1994, M. Corley (Corley GP 573 f) (RCMC); Sargaçal, 12.iv.1995, A.J. Gardiner, det. Corley (Corley GP AJG95 m) (RCAR); Cruzinha, Mexilhoeira Grande, 16.iv.1996, P. Wallis, det. Corley (RCAR) (all in Corley et al., 2000). There are additional Algarve records from Boliqueime, 18.iv.2011 and 31.iii.2012, M. Dale (RCMD) (pers. comm., latter with male gen. prep. on Moth Dissection UK).

TM: Amieiro, Tua Valley, 6.v.2007, M. Corley (GP2808 f) (RCMC). Previously published as *H. osteodactylus* (Corley et al., 2008; Corley, 2025a).

Known host-plants of *H. pectodactylus* according to Gielis (1996) are *Solidago virgaurea* L. and *Gallatella linosyris* (L.) Rchb. f. The latter species is absent from Portugal. *Solidago* is not known from the localities where *H. pectodactylus* occurs (Flora-on, 2026), so it is likely to have a different host-plant.

Final results

Province distributions:

H. coniodactylus. ALG, BAL, AAL, E, BL, BB, DL.

H. pectodactylus. ALG, TM.

There are no accepted Portuguese records of *Hellinsia inulae*, *Hellinsia carphodactyla* or *Hellinsia osteodactylus*, so these three species must be deleted from the Portuguese list.

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References

Arenberger, E. 1995. Pterophoridae I. - In H. G. Amsel (ed.): *Microlepidoptera Palaearctica* **9**: 1–258. 153 pls.

Bigot, L. & Carvalho, J. Passos de, 1983. Contribution a la connaissance des Lepidopteres *Pterophoridae* du Portugal. *Alexanor*, **13**: 133–137.

Carvalho, J. Passos de & Corley, M.F.V. 1995. Additions to the Lepidoptera of Algarve, Portugal. *SHILAP Revista de lepidopterología*, **23** (91), 191–230.

Corley, M.F.V. 2008. The Lepidoptera collections of deceased Portuguese entomologists. *Entomologist's Gazette*, **59**: 145-171.

Corley, M.F.V. 2015. *Lepidoptera of Continental Portugal. A fully revised list*. 288 pp. Martin Corley, Faringdon.

Corley, M. 2025a. The Lepidoptera of the Tua Valley, Portugal 2006–2014. *Artimelia – Lepidoptera Ibérica*, **1**(1): 4–42.

Corley, M. 2025b. A revision of Portuguese records of the genus Gymnancyla Zeller, 1848 (Pyralidae: Phycitinae). *Artimelia – Lepidoptera Ibérica*, **1**(1): 57–60.

Corley, M. 2025c. Two corrections to the Noctuidae fauna of Portugal. *Artimelia – Lepidoptera Ibérica*, **1**(1): 71–72.

Corley, M. 2026a. *Merrifieldia menthae* (Chrétien, 1925) (Lepidoptera: Pterophoridae) in Portugal. *Artimelia – Lepidoptera Ibérica*, **2**: 36–40.

Corley, M. 2026b. A revision of Portuguese records of the genus *Psorosa* Zeller, 1846 (Pyralidae: Phycitinae). *Artimelia – Lepidoptera Ibérica*, **2**: 41–46.

Corley, M. & Afonso, B. 2021. Portuguese Lepidoptera records compiled by Martin Corley's database. CIBIO (Research Center in Biodiversity and Genetic Resources) Portugal. Occurrence dataset https://doi.org/10.15468/ca4xt8; https://www.gbif.org/dataset/0f7c7942-c5d2-435e-afba-97df549dbc19

Corley, M.F.V., Gardiner, A.J., Cleere, N. & Wallis, P.D. 2000. Further additions to the Lepidoptera of Algarve, Portugal (Insecta: Lepidoptera). *SHILAP Revista de lepidopterología*, **28** (111), 245–319.

Corley, M.F.V., Marabuto, E. & Pires, P. 2007. New Lepidoptera for the fauna of Portugal (Insecta: Lepidoptera). *SHILAP Revista de lepidopterología*, **35** (139):321–334.

Corley, M.F.V., Marabuto, E., Maravalhas, E., Pires, P. & Cardoso, J.P. 2008. New and interesting Portuguese Lepidoptera records from 2007. S*HILAP Revista de lepidopterología*, **36** (143): 283–300.

Corley, M.F.V., Marabuto, E., Maravalhas, E., Pires, P. & Cardoso, J.P. 2009. New and interesting Portuguese Lepidoptera records from 2008. *SHILAP Revista de lepidopterología*, **37** (148): 463–484.

Corley, M., Nunes, J. & Yela, J.L. 2025. The status of some Arctiinae (Erebidae) in Portugal. *Artimelia – Lepidoptera Ibérica*, **1**: 102–113.

Corley, M.F.V., Rosete, J., Romão, F., Dale, M. J., Marabuto, E., Maravalhas, E., & Pires, P. 2015. New and interesting Portuguese Lepidoptera records from 2014. (Insecta: Lepidoptera). *SHILAP Revista de lepidopterología*, **43** (172): 583–613.

Corley, M.F.V., Fabião, J.L., Lemos, P., Nunes, J., & Rosete, J. 2024. New and interesting Portuguese Lepidoptera records from 2023 (Insecta: Lepidoptera). *SHILAP Revista de lepidopterología*, **52** (208): 761–786. https://doi.org/10.57065/shilap.1018

Ferreira, S., Corley, M.F.V., Nunes, J., Rosete, J., Vasconcelos, S., Mata, V.A., Veríssimo, J., Silva, T., Sousa, P., Andrade, R., Grosso-Silva, J.M., Pinho, C.J., Chaves, C, Martins, F.M., Pinto, J., Puppo, P., Muñoz-Mérida, A., Archer, J., Pauperio, J. & Beja, P. 2024. The InBIO Barcoding Initiative Database: DNA barcodes of Portuguese moths. *Biodiversity Data Journal*, **12**: e117169. https://doi.org/10.3897/BDJ.12.e117169

Flora-On. 2026. Flora de Portugal Interativa. Sociedade Portuguesa de Botânica. Available at: https://flora-on.pt/ Accessed 12 June 2026.

Gielis, C. 1996. Pterophoridae. In Huemer, P., Karsholt, O. & L. Lyneborg |(Eds.). *Microlepidoptera of Europe* **1**: 1–222. Stenstrup (Apollo Books).

Karsholt, O. & Razowski, J. 1996. *The Lepidoptera of Europe*. Apollo Books, Stenstrup. 380 pp.

Marabuto, E., Pires, P. & Corley, M.F.V. 2013. The Lepidoptera of Parque Natural do Tejo Internacional, Portugal (Insecta: Lepidoptera). *SHILAP Revista lepidopterologica* **41** (161): 5–42.

Monteiro, T. & Carvalho, J. Passos de, 1984. Lepidópteros do Algarve. *Anais da Faculdade de Ciências de Porto*, **64**: 95–219.

Moth Dissection UK. 2026. https://mothdissection.uk.com/ Accessed 15 September 2026.

Nel, J. 2003. Atlas des Lépidoptères Pterophoridae de France, genitalia mâles et femelles, iconographie couleur. *Supplément au Tome XII de la Revue de l'Association Roussillonnaise d'Entomologie*, 1–61, 118 pp.

Nel, J., Corley, M., Varenne, Th. & Ferreira, S. 2025. Description de *Merrifieldia thibaulti* sp. n., découverte en France et au Portugal (Lepidoptera, Pterophoridae). *Revue de l'Association Roussillonnaise d'Entomologie*, **118**: 247–251.

Nel, J. & Huemer, P. 2023. New data in the *carphodactyla* section of the genus *Hellinsia* Tutt, 1905: a bona species and a new synonymy (Lepidoptera, Pterophoridae). *Revue de l'Association Roussillonnaise d'Entomologie*, **32**: 27–33.

Nunes, J., Corley, M.F.V., Grundy, D., & Ferreira, S. 2025. The Heterocera of Mértola (Alentejo, Portugal) (Insecta: Lepidoptera). *SHILAP Revista De lepidopterología*, **53** (209): 101–120. https://doi.org/10.57065/shilap.1028

Pires, P. & Corley, M.F.V. 2007. The Lepidoptera of Baixo Mondego (Beira Litoral, Portugal) (Insecta: Lepidoptera). *SHILAP Revista lepidopterologica*, **35** (138):187–230.

Ragonot, E.L. 1881. Notes on the entomology of Portugal. IV. Lepidoptera (continued). Micro-lepidoptera (except Tineina) collected by the Rev. A.E. Eaton in 1880 with descriptions of new species. *Entomologist's Monthly Magazine*, **17**: 229–233.

Robinson, G.S. (1976) The preparation of slides of Lepidoptera genitalia with special reference to the Microlepidoptera. *Entomologist´s Gazette*, **2**: 127–132.

Vieilledent, P., 1905. Lepidópteros da Região de Setúbal. *Brotéria*, **4**: 185–206.

Figure 1. *Hellinsia coniodactylus* (Staudinger, 1859). Algarve, Vila do Bispo, Zavial, 10.iv.2026, J. Fabião 101-7827.

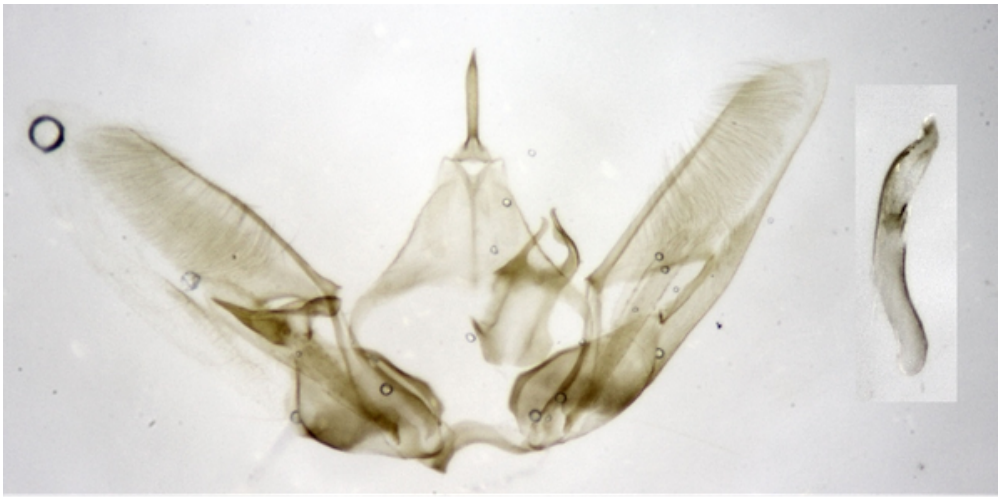

Figure 2. *Hellinsia coniodactylus* (Staudinger, 1859). Algarve, Vila do Bispo, Zavial, 10.iv.2026, J. Fabião GP 101-7827m, male genitalia.

Figure 3. *Hellinsia coniodactylus* (Staudinger, 1859). Setúbal, Almada, Trafaria, 13.vi.2026, J. Fabião 101-9305.

Figure 4. *Hellinsia coniodactylus* (Staudinger, 1859). Setúbal, Almada, Trafaria, 13.vi.2026, J. Fabião GP 101-9305m male genitalia.