

NOTA / NOTE

Two new bee species (Hymenoptera, Anthophila) recorded for mainland Portugal: *Hylaeus bifasciatus* (Jurine, 1807) and *Andrena praecox* (Scopoli, 1763)

Albano Soares¹, Renata Santos^{2,3}, Eva Monteiro¹, Rui Félix¹, Sandra Antunes¹, Sílvia Pina¹, Cândida Ramos¹, Rita Morais¹, Andreia Penado⁴ & Patrícia Garcia-Pereira²

¹ Tagis - Centro de Conservação das Borboletas de Portugal, Rua das Portas de Évora, 3, 7480-152 Avis, Portugal.
e-mail: infotagis@gmail.com

² Centro de Ecologia, Evolução e Alterações Ambientais, Faculdade de Ciências da Universidade de Lisboa. Edifício C2, Campo Grande, 1749-016 Lisboa, Portugal.

³ Linking Landscape, Environment, Agriculture and Food, Instituto Superior de Agronomia Universidade de Lisboa. Tapada da Ajuda, 1349-017 Lisboa, Portugal.

⁴ Ciência Viva - Agência Nacional para a Cultura Científica e Tecnológica, Departamento Educativo, Largo José Mariano Gago n.º 1, Parque das Nações, 1990-073 Lisboa - Portugal.

Abstract: *Hylaeus bifasciatus* (Jurine, 1807) and *Andrena praecox* (Scopoli, 1763) (Hymenoptera, Anthophila) are recorded from continental Portugal for the first time, extending their known range to the southwestern part of Europe.

Key words: Hymenoptera, Apoidea, *Hylaeus bifasciatus*, *Andrena praecox*, first record, Portugal.

Resumen: Dos nuevas especies de abejas (Hymenoptera, Anthophila) citadas para Portugal continental: *Hylaeus bifasciatus* (Jurine, 1807) y *Andrena praecox* (Scopoli, 1763). *Hylaeus bifasciatus* (Jurine, 1807) y *Andrena praecox* (Scopoli, 1763) (Hymenoptera, Anthophila) son registradas por primera vez en Portugal continental, aumentando hacia el suroeste su área de distribución conocida en Europa.

Palabras clave: Hymenoptera, Apoidea, *Hylaeus bifasciatus*, *Andrena praecox*, primera cita, Portugal.

Recibido: 29 de marzo de 2022

Aceptado: 10 de abril de 2022

Publicado on-line: 27 de abril de 2022

A great scientific advance took place recently in the knowledge of Portuguese bee fauna with the publication of a list with 680 species, adding over 300 species to previous works (BALDOCK et al., 2018) and which has been updated afterwards to a total of 722 species recorded in the country (WOOD et al., 2020). Nevertheless, the knowledge about the bee fauna is still incipient, with few researchers dedicated to the group, natural areas unrecorded and several gaps in species distribution. With the development of further fieldwork it is expected that new species will continue to be found.

Hylaeus bifasciatus (Jurine, 1807), together with *Hylaeus punctulatissimus* Smith, 1842, are the only two species in the world within the subgenus *Koptogaster* Alfken, 1912. These have distinct morphological features, such as: strong punctuations in thorax and T1, built head, truncated pronotum edges and distinct male genitalia shape (ORTIZ-SÁNCHEZ, 2018). The species *H. bifasciatus* has a vast European distribution range, occurring from France to Ukraine and reaching the Middle East (KUHLMANN et al., 2012). In the Iberian Peninsula there is only one record of this species in Spain (Ávila, Sierra de Gredos), regarding a female collected in 2008 at an altitude of 1100 m (ORTIZ-

SÁNCHEZ, 2018). The species is also listed as Data Deficient (DD) in the European IUCN Red List due to the lack of data (NIETO *et al.*, 2014).

Andrena praecox (Scopoli, 1763) is included in the subgenus *Andrena* Fabricius, 1775 s. str., which is characterized by large-sized bees, whose females often show a strong velvet hair cover and begin to fly at the first signs of spring (MICHEZ *et al.*, 2019). With a wide European distribution, mostly but not exclusively in central and northern countries (GBIF, 2021), this species is also recorded in Spain (ORTIZ-SÁNCHEZ, 2011) in Huesca (Valle de Ordesa, 1250 m of altitude), Ávila (Sierra de Gredos, 1350 m of altitude), Madrid (El Escorial) (WARNCKE, 1976) and Asturias (Soto de Rey, 129 m of altitude) (ÁLVAREZ FIDALGO *et al.*, 2021).

The presence of both *H. bifasciatus* and *A. praecox* in mainland Portugal is reported for the first time, extending their known range to the southwest of Europe.

Material examined

Colletidae: Hylaeinae

Hylaeus bifasciatus (Jurine, 1807) (Fig. 1)

PORTUGAL: Castelo Branco district: Vila Velha de Ródão municipality: Celtejo (39.666096, -7.661254, 80 m above sea level), in *Allium* sp., 07/06/2021, 1♂, Albano Soares leg., Tagis collection.

Andrenidae: Andreninae

Andrena praecox (Scopoli, 1763) (Fig. 2)

PORTUGAL: Santarém district: Constância municipality: Parque Ambiental de Santa Margarida (39.445848, -8.318253, 144 m above sea level), in *Salix* sp., 29/02/2020, 2♀♀, Albano Soares leg., Tagis collection.

Discussion

We present the first records of *H. bifasciatus* and *A. praecox* for mainland Portugal with specimens found near the river Tagus, although in opposite locations. The record of *H. bifasciatus* consists in one male (Fig. 1) collected in *Allium* sp. in an open area covered by Mediterranean vegetation and crossed by a temporary stream, about 2 km from the Tagus riverbed, in Vila Velha de Ródão, district of Castelo Branco (Map 1). The only known Spanish record is from Sierra de Gredos, which belongs to the Sistema Central mountain chain, at much higher altitude (ORTIZ-SÁNCHEZ, 2018). To better understand the distribution in Iberia, this species should be searched between the two known locations.

Two females of *A. praecox* (Fig. 2) were collected in *Salix* sp. in an environmental park in Constância, district of Santarém, on a hill 2.5 km from the Tagus riverbed (Map 1). Since the species is cited from several provinces in Spain, it can be present in the central and north part of the country and should be searched in the first months of the year.

The present contribution increases the Portuguese Anthophila list to 724 species and extends the known distribution of these species in the Iberian Peninsula.

Many aspects of the distribution, ecology and biology of bees are still poorly known in Portugal and additional new species are expected to be added to the list in the following years.

Acknowledgements

The authors wish to thank Thomas Wood (Laboratoire de Zoologie, Université de Mons, 7000, Mons,

Belgium) and Goran Holmstrom (Sweden) for the identification of the specimens, as well as Altri Florestal and Parque Ambiental de Santa Margarida, which supported the studies and environmental education activities in the sampled areas.

Bibliographical references

BALDOCK, D., WOOD, T.J., CROSS, I. & SMIT, J. 2018. The Bees of Portugal (Hymenoptera: Apoidea: Anthophila). *Entomofauna*, Supplement 22: 1-164.

ÁLVAREZ FIDALGO, P., ÁLVAREZ FIDALGO, M., NOVAL FONSECA, N., PASCUAL HERGUETA, J.I. & AGUADO MARTÍN, L.Ó. 2021. Description of the hitherto unknown male of *Andrena (Leucandrena) dinizi* Warncke, 1975 (Apoidea: Andrenidae) with the first record from the Iberian Peninsula of its potential broodparasite *Nomada leucophthalma* (Kirby, 1802) (Apoidea: Apidae). *Boletín de la Sociedad Entomológica Aragonesa*, 69: 124-136.

GBIF Secretariat. 2021. *Andrena praecox* (Scopoli, 1763). GBIF Backbone Taxonomy. Checklist dataset available at: <https://doi.org/10.15468/39omei>, accessed via GBIF.org on 2022-03-07.

KUHLMANN, M., ASCHER, J.S., DATHE, H.H., EBMER, A.W., HARTMANN, P., MICHEZ, D., MÜLLER, A., PATINY, S., PAULY, A., PRAZ, C., RASMONT, P., RISCH, S., SCHEUCHL, E., SCHWARZ, M., TERZO, M., WILLIAMS, P.H., AMIET, F., BALDOCK, D., BERG, Ø., BOGUSCH, P., CALABUIG, I., CEDERBERG, B., GOGALA, A., GUSENLEITNER, F., JOSAN, Z., MADSEN, H.B., NILSSON, A., ØDEGAARD, F., ORTIZ-SÁNCHEZ, F.J., PAUKKUNEN, J., PAWLIKOWSKI, T., QUARANTA, M., ROBERTS, S.P.M., SÁROPATAKI, M., SCHWENNINGER, H.-R., SMIT, J., SÖDERMAN, G. & TOMOZEI, B. 2012. *Checklist of the Western Palearctic Bees (Hymenoptera: Apoidea: Anthophila)*. Available online at: <http://westpalbees.myspecies.info>, accessed on 2022-03-07.

MICHEZ, D., RASMONT, P., TERZO, M. & VERECKEN, N.J. 2019. *Hymenoptera of Europe 1: Bees of Europe*. NAP Editions, Paris. 164 pp.

NIETO, A., ROBERTS, S.P.M., KEMP, J., RASMONT, P., KUHLMANN, M., GARCÍA CRIADO, M., BIESMEIJER, J.C., BOGUSCH, P., DATHE, H.H., DE LA RÚA, P., DE MEULEMEESTER, T., DEHON, M., DEWULF, A., ORTIZ-SÁNCHEZ, F.J., LHOMME, P., PAULY, A., POTTS, S.G., PRAZ, C., QUARANTA, M., RADCHENKO, V.G., SCHEUCHL, E., SMIT, J., STRAKA, J., TERZO, M., TOMOZII, B., WINDOW J. & MICHEZ, D. 2014. *European Red List of Bees*. Publication Office of the European Union, Luxembourg. 84 pp.

ORTIZ-SÁNCHEZ, F.J. 2011. Lista actualizada de las especies de abejas de España (Hymenoptera: Apoidea: Apiformes). *Boletín de la Sociedad Entomológica Aragonesa*, 49: 265-281.

ORTIZ-SÁNCHEZ, F.J. 2018. *Hylaeus (Koptogaster) bifasciatus* (Jurine, 1807), nueva especie para la fauna ibérica (Hymenoptera, Colletidae). *Boletín de la Sociedad Entomológica Aragonesa*, 62: 270.

WARNCKE, K. 1976. Die Bienengattung *Andrena* F., 1775, in Iberien (Hym. Apidae) Teil B. *Eos*, 50: 119-223.

WOOD, T.J., CROSS, I., & BALDOCK, D.W. 2020. Updates to the bee fauna of Portugal with the description of three new Iberian *Andrena* species (Hymenoptera: Apoidea: Anthophila). *Zootaxa*, 4790(2): 201-228.



Fig. 1.- *Hylaeus bifasciatus* (Jurine, 1807). Male collected in Vila Velha de Ródão, Portugal. (Photograph: Albano Soares).



Fig. 2.- *Andrena praecox* (Scopoli, 1763). Female collected in Parque Ambiental de Santa Catarina, Portugal. (Photograph: Albano Soares).



Map 1.- Portuguese distribution of *Hylaeus bifasciatus* (Jurine, 1807) (red circle) and *Andrena praecox* (Scopoli, 1763) (blue triangle).