

Two species of *Hylaeus* Fabricius, 1793 new to the Iberian Peninsula (Hymenoptera, Apoidea, Colletidae)

Dos especies de *Hylaeus* Fabricius, 1793 nuevas para la península ibérica (Hymenoptera, Apoidea, Colletidae)

Hylaeus Fabricius, 1793 is a genus of rather hairless small to medium sized black bees with pale markings on the head and mesosoma (MICHENER, 2007). This genus is distributed worldwide, only being absent from Antarctica and several islands, with nearly 800 described species of which 90 occur in Europe (ASCHER and PICKERING, 2023; GHISBAIN and ROSA *et al.*, 2023). According to the last checklist of the Iberobalearic wild bees (ORTIZ-SÁNCHEZ, 2020), the genus *Hylaeus* is represented in the Iberian fauna by 52 species in 8 subgenera. More recently, *H. purpurissatus* (Vachal, 1895) has been added to the Iberian fauna and *H. praenotatus* Förster, 1871 has been synonymized with *Hylaeus (Prosopis) gibbus* Saunders, 1850 (LE DIVELEC, 2022). We provide here the first Iberian records for two species, *H. tyrolensis* Förster, 1871 and *H. styriacus* Förster, 1871. The specimens were found among unidentified and recently donated material stored in the collection of entomology of the Museo Nacional de Ciencias Naturales, Madrid (MNCN).

In the material examined sections, the abbreviation FF designates the collector F. Fresno, TJWC refers to TJ Wood private collection, and the specimen code of the material housed at the MNCN is provided in square brackets. All material mentioned in this note has been determined by the first author. The map (Fig. 1) shows the known distribution of both species in Spain.

Hylaeus (Paraprosopis) styriacus Förster, 1871 (Fig. 2)

Material examined. LEÓN: Abalgas de Luna, 1 ♀, 9-VII-2021, FF leg. [MNCN_Ent 369667]; Rodiezmo, 1 ♂, 14.VIII.2008, FF leg. [MNCN_Ent 369662] – 1 ♀, 20.VIII.2008, FF leg. [MNCN_Ent

369663] – 1 ♀, 10.VIII.2010, FF leg. [MNCN_Ent 369664] – 1 ♀, 29-VIII-2011, FF leg. [MNCN_Ent 369665] – 1 ♀, 6-IX-2011, FF leg. [MNCN_Ent 369666]; Sena de Luna, 1 ♂, 29-VII-2011, FF leg. [MNCN_Ent 369661].

Distribution. Western Palearctic species known from France through central and southern Europe to Turkey (WARNCKE, 1992; KUHLMANN *et al.*, 2023).

Diagnosis. Without examination of the metasomal sternum 7 (that unequivocally makes possible the distinction of *Paraprosopis* and *Hylaeus*), males of *H. styriacus* could be confused with some males of *H. (Hylaeus) tyrolensis* Förster, as they are superficially similar and the only external characters



Fig. 1. Known distribution of *Hylaeus (Paraprosopis) styriacus* Förster, 1871 and *Hylaeus (Hylaeus) tyrolensis* Förster, 1871 in the Iberian Peninsula.

Fig. 1. Distribución conocida de *Hylaeus (Paraprosopis) styriacus* Förster, 1871 e *Hylaeus (Hylaeus) tyrolensis* Förster, 1871 en la península ibérica.

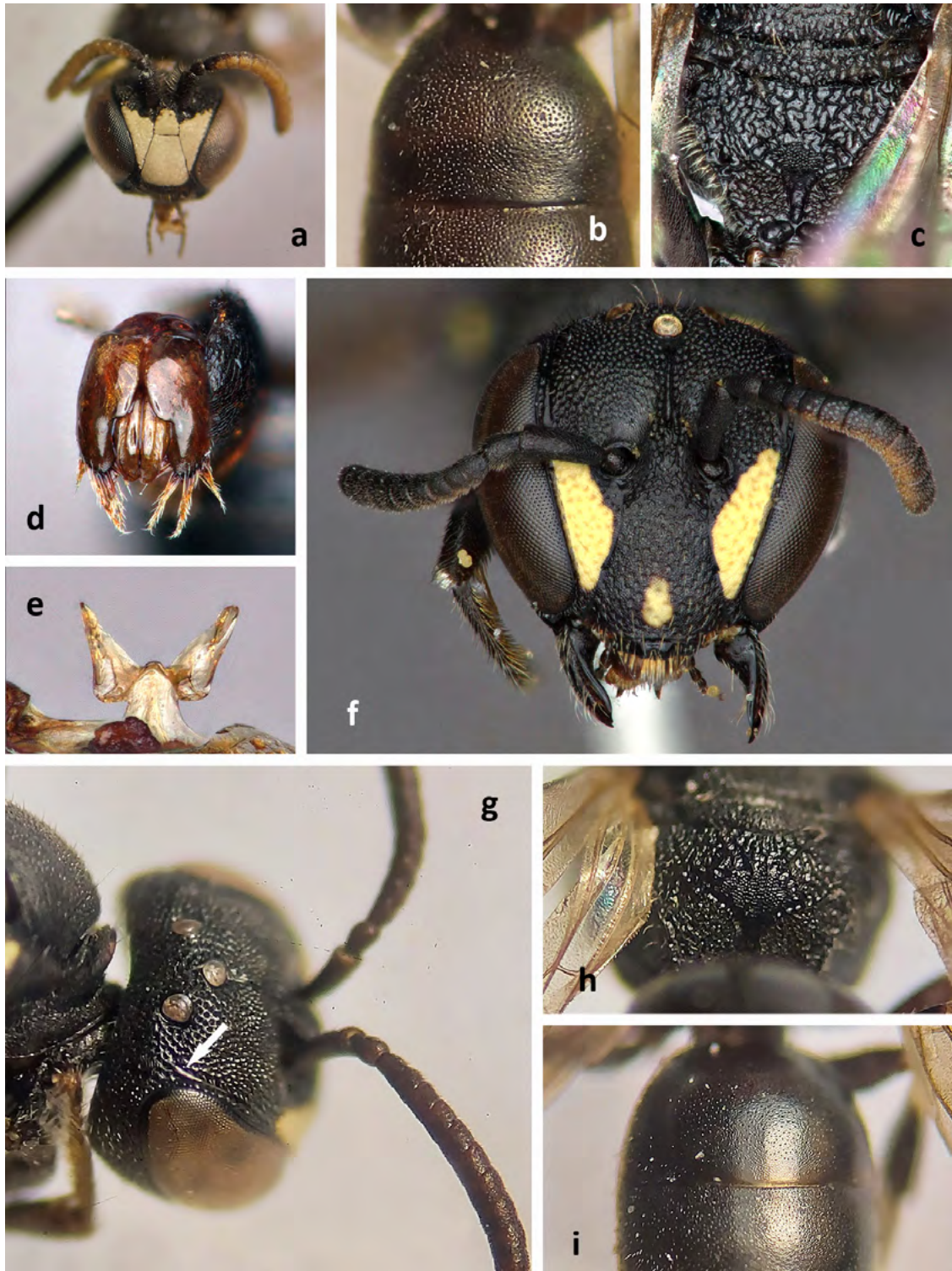


Fig. 2. *Hylaeus (Paraprosopis) styriacus* Förster, 1871. Male: (a) face in frontal view; (b) metasomal terga 1 and 2; (c) propodeum; (d) genitalia, showing the short subtruncate gonoforceps; (e) sternum 7. Female: (f) head in frontal view; (g) head in dorsolateral view, the arrow indicates the facial fovea; (h) propodeum; (i) metasomal terga 1 and 2.

Fig. 2. *Hylaeus (Paraprosopis) styriacus* Förster, 1871. Macho: (a) cara en vista frontal; (b) terguitos 1 y 2 del metasoma; (c) propodeo; (d) genitalia, se muestran los gonocoxitos cortos y subtruncados; (e) esternito 7. Hembra: (f) cabeza en vista frontal; (g) cabeza en vista dorso-lateral, la flecha señala la fovea facial; (h) propodeo; (i) terguitos 1 y 2 del metasoma.

that allow a positive identification may be subtle for neophytes. Males of *H. styriacus* have shorter median flagellomeres (Fig. 2a) than *H. tyrolensis* (Fig. 3a), less dense punctation on mesepisternum, and the posterior area of the propodeum is carinate (Fig. 2c) whilst it is not carinate in *H. tyrolensis* (Fig. 3b). Males can easily be recognized from other Iberian *Paraprosopis* by the conspicuously shagreened metasomal tergum 1 which is progressively more finely punctate towards its posterior margin (Fig. 2b), the short subtruncated gonoforceps (Fig. 2d), the typical shape of sternum 7 (Fig. 2e) and the pointy tip of the median lobe of the metasomal sternum 8 (bifid in other *Paraprosopis*). Females are very easy to distinguish from other Iberian *Hylaeus* by the combination of elongated facial foveae curved towards the ocellar triangle (Fig. 2g), a carinate propodeum (Fig. 2h) and an entirely

shagreened metasomal tergum 1 with scarce and minute punctures (Fig. 2i). The yellow spot on the clypeus of the female of this species (Fig. 2f) is usually obvious, although this character is not really useful as a pale spot is also present in the females of some other species of *Hylaeus*.

Hylaeus (Hylaeus) tyrolensis Förster, 1871 (Fig. 3)

Material examined. SEGOVIA: Ribota, 1 ♀, 9-VII-2014, FF leg. [MNCN_Ent 369660]. There is an additional unpublished record also from the province of Segovia (1 ♂, Castroserna de Abajo, leg. TJ Wood, TJWC; TJ Wood pers. comm.).

Distribution. Western Palearctic species known from France through central and southern Europe to Near East (WARNCKE, 1992).



Fig. 3. *Hylaeus (Hylaeus) tyrolensis* Förster, 1871. Male: (a) face in frontal view; (b) propodeum; (c) metasomal terga 1 and 2; (d) genitalia; (e) sternum 7. Female: (f) face in frontal view; (g) propodeum; (h) metasomal terga 1 and 2.

Fig. 3. *Hylaeus (Hylaeus) tyrolensis* Förster, 1871. Macho: (a) cara en vista frontal; (b) propodeo; (c) terguitos 1 y 2 del metasoma; (d) genitalia; (e) esternito 7. Hembra: (f) cara en vista frontal; (g) propodeo; (h) terguitos 1 y 2 del metasoma.

Diagnosis. The male has a pectinate metasomal sternum 7 (Fig. 3e) that makes possible its placement among the *Hylaeus* subgenus. Without access to the last metasomal sterna, males of *H. tyrolensis* might be easily confused with some males of *H. (Paraprosopis) styriacus* (see above). It can be recognized from other Iberian *Hylaeus* by the combination of a short rounded head with a reduced whitish mask (whitish markings do not go above antennal sockets) (Fig. 3a), a narrow black scape (Fig. 3a), a rounded propodeum (lateral and median areas not bordered posteriorly by a carina) (Fig. 3b), a conspicuously shagreened metasomal tergum 1 (Fig. 3c), which is progressively more finely punctate towards its posterior margin and short subtruncated gonoforceps (Fig. 3d). The female can be distinguished from other Iberian *Hylaeus* by the following combination of characters: mandibles bidentate, shagreened black face with a coarsely and densely punctate clypeus (Fig. 3f); propodeum rounded in lateral view, its lateral and median areas not bordered posteriorly by a carina (Fig. 3g); metasomal tergum 1 without apical fringes, conspicuously shagreened, with shallow and scarce indistinct punctures (Fig. 3h).

CONCLUSION

With the addition of two new species to the Iberian fauna, the number of species present in mainland Spain rises to 54. This number is provisional as some species listed in ORTIZ-SÁNCHEZ

(2020) are dubious records and require confirmation (ORNOSA and ORTIZ-SÁNCHEZ, 2004). The recent finding of these two widespread species also suggests that the Iberian fauna of *Hylaeus* is far from being perfectly known.

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REFERENCES

- ASCHER, J.S. & J. PICKERING, 2023. Discover Life bee species guide and world checklist (Hymenoptera: Apoidea: Anthophila). https://www.discoverlife.org/mp/20q?guide=Apoidea_species&flags=HAS: (accessed 2 November 2023)
- GHISBAIN, G., ROSA, P., P. BOGUSCH, S. FLAMINIO, R. LE DIVELEC, A. DORCHIN, M. KASPAREK, M. KUHLMANN, J. LITMAN, M. MIGNOT, A. MÜLLER, C. PRAZ, V.G. RADCHENKO, P. RASMONT, S. RISCH, S.P.M. ROBERTS, J. SMIT, T.J. WOOD, D. MICHEZ & S. REVERTÉ, 2023. The new annotated checklist of the wild bees of Europe (Hymenoptera: Anthophila). *Zootaxa*, 5327(1): 001-147.
- KUHLMANN, M., J.S. ASCHER, H.H. DATHE, A.W. EBMER, P. HARTMANN, D. MICHEZ, A. MÜLLER, S. PATINY, A. PAULY, C. PRAZ, P. RASMONT, S. RISCH, E. SCHEUHL, M. SCHWARZ, M. TERZO, P.H. WILLIAMS, F. AMIET, D. BALDOCK, Ø. BERG, P. BOGUSCH, I. CALABUIG, B. CEDERBERG, A. GOGALA, F. GUSENLEITNER, Z. JOSAN, H.B. MADSEN, A. NILSSON, F. ØDEGAARD, F.J. ORTIZ-SÁNCHEZ, J. PAUKKUNEN, T. PAWLIKOWSKI, M. QUARANTA, S.P.M. ROBERTS, M. SÁROPATAKI, H.-R. SCHWENNINGER, J. SMIT, G. SÖDERMAN & B. TOMOZEI, 2023. *Checklist of the Western Palaearctic Bees (Hymenoptera: Apoidea: Anthophila)*. <http://westpalbees.myspecies.info> (accessed 6 November 2023).
- LE DIVELEC, R., 2022. A taxonomic account on the *Hylaeus gibbus* species-group (Hymenoptera: Apoidea: Colletidae). *Annales de la Société entomologique de France* (N.S.) 58(3): 229-249. <https://doi.org/10.1080/00379271.2022.2085627>

- MICHENER, C.D., 2007. *The Bees of the World*, 2nd edition. The Johns Hopkins University Press, Baltimore, xvi + 953 pp.
- ORNOSA, C. & F.J. ORTIZ SÁNCHEZ, 2004. *Hymenoptera, Apoidea I. Fauna Ibérica, vol. 23*. Madrid, Museo Nacional de Ciencias Naturales, 556 pp.
- ORTIZ-SÁNCHEZ, F.J., 2020. Checklist de Fauna Ibérica. Serie Anthophila (Insecta: Hymenoptera: Apoidea) en la península ibérica e islas Baleares. En: Documentos Fauna Ibérica. Ramos MA, Sánchez Ruiz M (eds.). Museo Nacional de Ciencias Naturales, CSIC. Madrid. 2 (sn) + 83 pp. <https://www.fauna-iberica.mncn.csic.es/publicaciones/dfi/dfi-0014.pdf>
- WARNCKE, K., 1992. 2. Beitrag zur systematik und verbreitung der Bienengattung *Prosopis* F. in der Westpaläarkt (Hym., Apidae). *Linzer Biologische Beiträge*, 24(2): 747-801.

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