
Taxonomy and Iberian Distribution of *Hydraena bisulcata* Rey and *Hydraena barrosi* d'Orchymont (Coleoptera: Hydraenidae)

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Abstract

New data concerning the morphology of males and females of *Hydraena bisulcata* Rey, 1884, and *H. barrosi* d'Orchymont, 1934, are given, including illustrations. The taxonomic position and Iberian distribution of these species are discussed. Two previously proposed synonymies are validated: *Hydraena bisulcata* Rey, 1884 (= *H. berthelemyi* Lagar et Fresneda, 1990) and *H. barrosi* d'Orchymont, 1934 (= *H. valladaresi* Lagar et Fresneda, 1990).

Keywords: Coleoptera, Hydraenidae, *Hydraena bisulcata*, *Hydraena barrosi*, taxonomy, males, females, Iberian distribution.

Introduction

In a communication presented to the VI Iberian Congress of Entomology (Garrido et al., 1994) two new synonymies were proposed: *Hydraena bisulcata* Rey, 1884 (= *Hydraena berthelemyi* Lagar et Fresneda, 1990) and *Hydraena barrosi* d'Orchymont, 1934 (= *Hydraena valladaresi* Lagar et Fresneda, 1990). Although these name changes were formally made and were later accepted (Ribera et al., 1998), there is no publication justifying the proposed synonymies. Indeed the changes have not been acknowledged in the world-wide catalogue of the family Hydraenidae (Hansen, 1998).

Male and female characters supporting the suggested synonymies were examined on several specimens of *Hydraena bisulcata* and *Hydraena barrosi* collected in various localities of the Iberian Peninsula, and on several syntypes of *Hydraena berthelemyi* and *Hydraena valladaresi*, respectively. The present study facilitates the identification of both species by presenting, for the first time, female structures of

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evident taxonomic interest: the gonocoxite, the abdominal tergite X and the spermatheca. According to Berthélemy *et al.* (1991) both species belong to the *bisulcata* species group which comprises the present two species plus the Iberian endemic *Hydraena bolivari* d'Orchymont, 1936. Species distributions are reviewed, mapped and commented upon.

Acronyms

CDL Díaz Collection, University of Santiago, Lugo, Spain; CFL Fresneda Collection, Llesp, Spain; CGV Garrido Collection, University of Vigo, Spain; CVL Valladares Collection, University of León, Spain.

Results and Discussion

Hydraena bisulcata Rey, 1884 (Figs. 1–5, 11)

Hydraena bisulcata Rey, 1884. *Rev. Ent.*, 3: 270.

Hydraena nupera d'Orchymont, 1931. *Bull. Ann. Soc. Ent. Belg.*, 71: 66.

Hydraena (Hydraena) berthelemyi Lagar *et* Fresneda, 1990. *Bull. Inst. Roy. Sci. Nat. Belg. Ent.*, 60: 152.

Material examined

H. berthelemyi: Paratype ♂ (CFL): “Hispania, Cádiz, Los Barrios, stream of the Tiradero, 13.07.1987, J. Fresneda & C. Hernando leg.”; Paratype ♀ (CFL): same data.

H. bisulcata: 2 ♂♂, 2 ♀♀ (CGV): Spain: Cáceres: Monasterio de Tentudia, 24.06.1991, J. A. Régil leg.; 2 ♂♂, 2 ♀♀ (CDL): Spain: Cádiz, 2 km WSW Zahara de la Sierra, river Bocaleones 20.10.1998, J. A. Díaz leg.; 15 ♂♂, 10 ♀♀ (CDL): Spain: Cádiz, 15 km W. Los Barrios, stream of the Tiradero, 100 m, 22.10.1998, J. A. Díaz leg.; 4 ♂♂, 3 ♀♀ (CDL): Spain: Cádiz: Tarifa, river Guadalmejí, 10 km SW Algeciras, 23.10.1998, J. A. Díaz leg.; 1 ♂, 1 ♀ (CDL): Spain: A Coruña: Hortas, river Ulla, 30.07.1986, E. Sosa leg.; 1 ♀ (CDL) Spain: Soria, Beratón, stream Moncayo, 29.07.1994, J. A. Díaz leg.

The type specimens of *Hydraena berthelemyi* studied show features typical of *H. bisulcata*, for example the aedeagus (Fig. 1). The agreement between the present figure and the illustration in the description of *H. berthelemyi* (Lagar & Fresneda, 1990: Fig. 1) is obvious and confirms the conspecificity of the two nominal taxa: strong curvature of the main piece (the subapical setae not shown in the description of *H. berthelemyi*), membranous distal lobe slightly incurved and parameres rather longer than the main piece, with long hairs on ventral surface of apical third.

The species of the *H. bisulcata* group (*sensu* Berthélemy *et al.*, 1991) are characterized by the aedeagus with its membranous distal lobe. The female structures studied now (Figs. 3–5) also confirm this species grouping. On the other hand, the similarity that Lagar and Fresneda (1990) suggest between *H. berthelemyi* and *H. lucasi* Lagar, 1984, seems to be superficial. It is widely accepted that *H. lucasi* belongs to the *rufipes* species group (Berthélemy *et al.*, 1991).

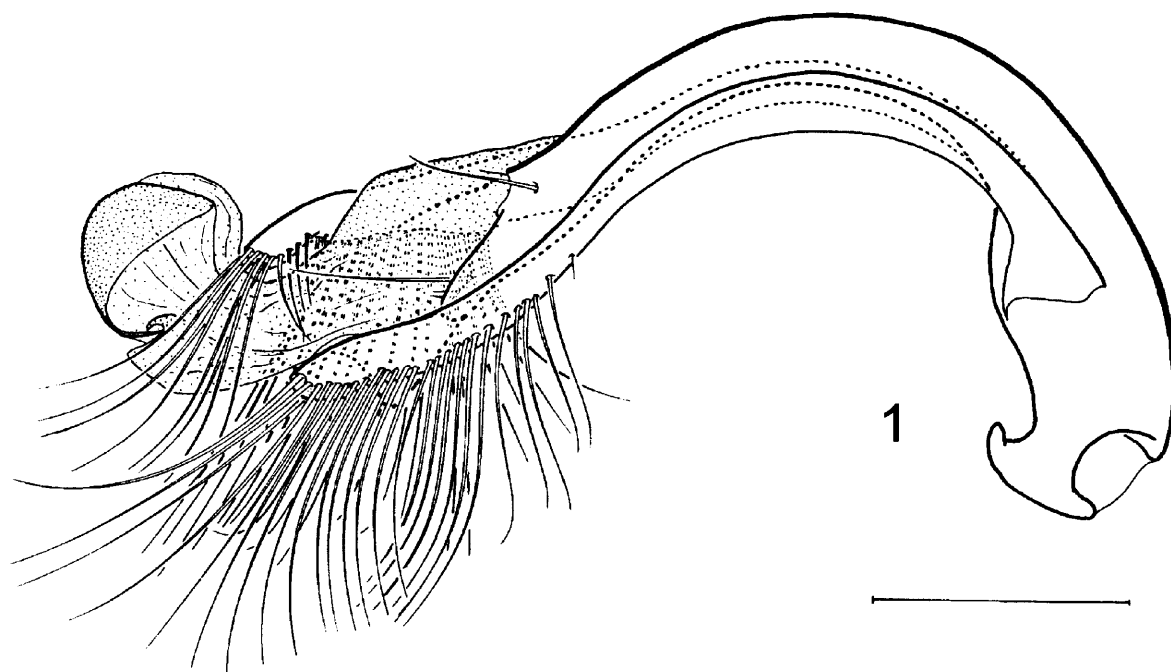
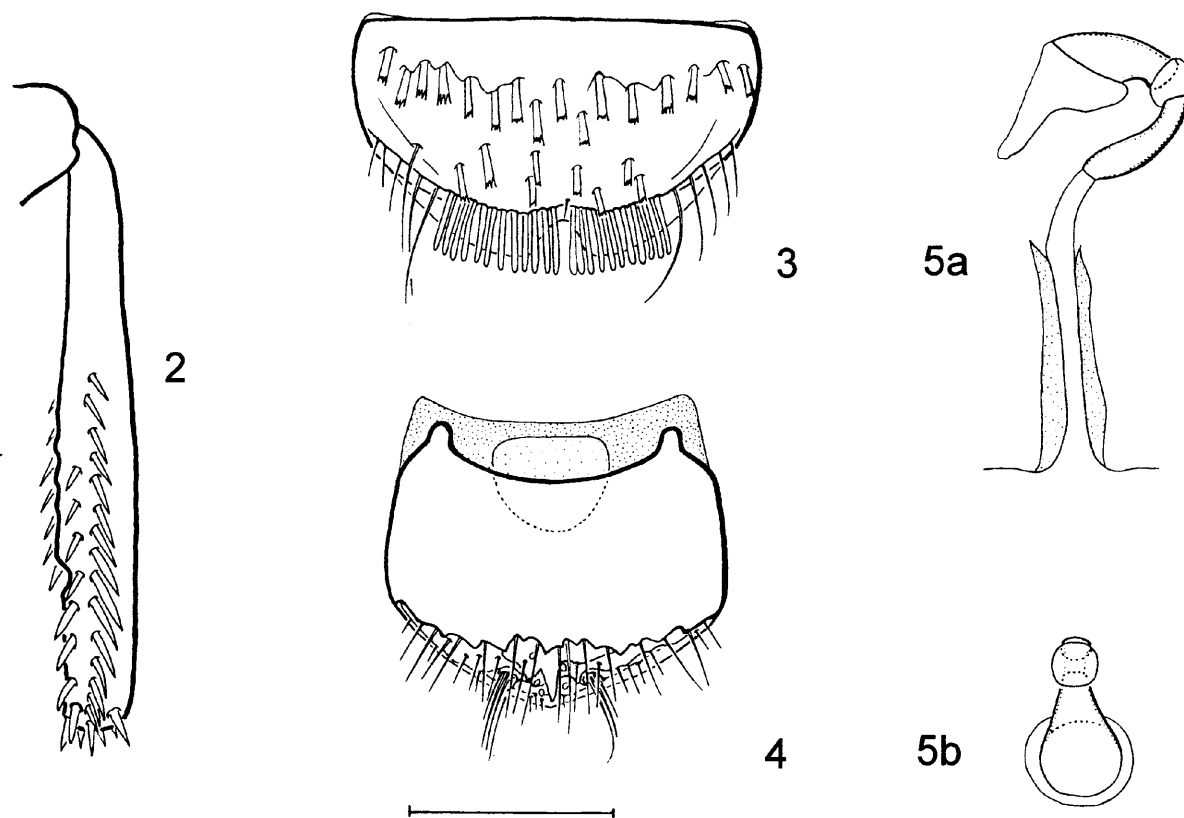


Figure 1. *Hydraena bisulcata* Rey (arroyo del Tiradero, Cádiz): Aedeagus in lateral view (scale: 0.4 mm).



Figures 2–5. *Hydraena bisulcata* Rey (arroyo del Tiradero, Cádiz): (2) Male mesotibia, (3) female abdominal tergite X, (4) gonocoxite and (5) spermatheca in lateral (a) and dorsal (b) view (scale: 0.4 mm).

We also illustrate the male mesotibia (Fig. 2), as well as female structures facilitating the identification of *H. bisulcata*: abdominal tergite X (Fig. 3), gonocoxite (Fig. 4) and spermatheca (Figs. 5a, b).

Distribution (Fig. 11)

Hydraena bisulcata is an Ibero-Moroccan species widespread all over the west of the Iberian Peninsula, the Andalusian mountain ranges, Central System and Iberian System (Valladares & Montes, 1991; Garrido *et al.*, 1994; Aceituno-Castro & Sáinz-Cantero, 1996; Sáinz-Cantero & Aceituno-Castro, 1997 a, b; Sáinz-Cantero *et al.*, 1997; Jäch *et al.*, 1999; Castro, 2000; Castro *et al.*, 2000; Valladares *et al.*, 2000; García-Criado, 2002) that also reaches the river Segura basin (Delgado, 1995; Millán *et al.*, 2002). The type localities of *Hydraena berthelemyi* (indicated in Fig. 11 by a white circle) are located in the mountain ranges of Córdoba, Cádiz and the Algarve (Lagar & Fresneda, 1990), where the presence of *H. bisulcata* is well known (Valladares & Montes, 1991).

Hydraena barrosi d'Orchymont, 1934 (Figs. 6–10, 12)

Hydraena barrosi d'Orchymont, 1934. *Bull. Mus. Roy. Hist. Nat. Belg.*, 46: 16.

Hydraena (Hydraena) valladaresi Lagar *et* Fresneda, 1990. *Bull. Inst. Roy. Sci. Nat. Belg. Ent.*, 60: 157.

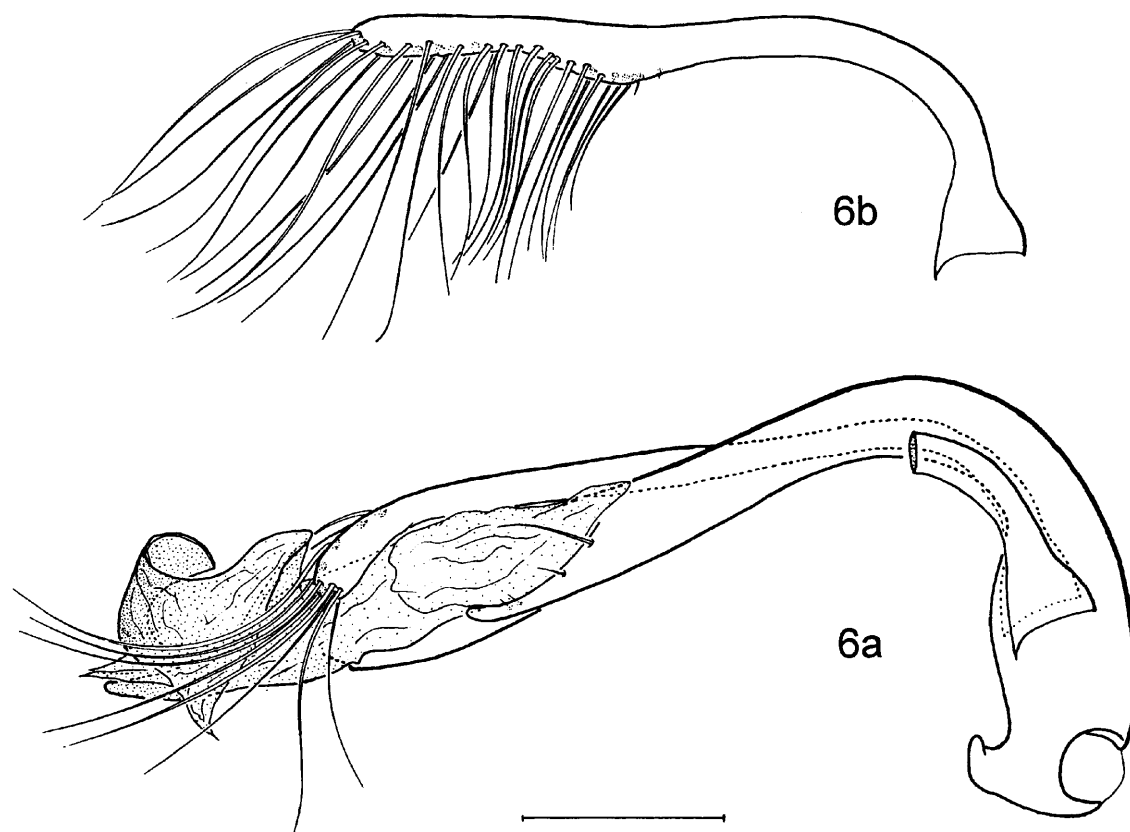
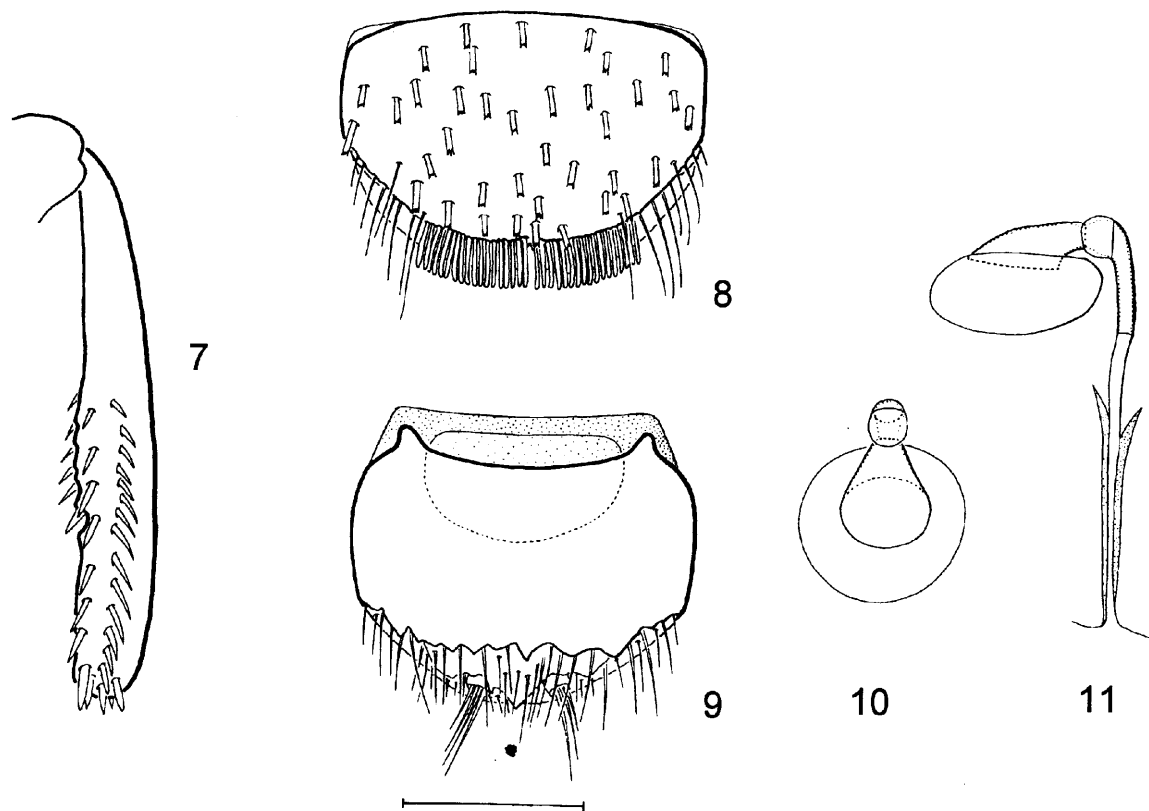


Figure 6. *Hydraena barrosi* Orchymont (Fasgar, León): Aedeagus in lateral view with only basal third of right paramere (a) and whole right paramere (b) (scale: 0.4mm).



Figures 7–10. *Hydraena barrosi* Orchymont (Fasgar, León): (7) Male mesotibia, (8) female abdominal tergite X, (9) gonocoxite and (10, 11) spermatheca in dorsal and lateral view, respectively (scale: 0.4 mm).

Material examined

H. valladaresi: Holotype ♂ (CFL): “Hispania: Madrid, Rascafría, Port of the Cotos, 09.7.1987, J. Fresneda leg.”

H. barrosi: 1 ♀ (CGV): Spain: Cáceres: Port of Tornavacas, 1200 m, 27.06.1991, J. A. Régil, leg.; 2 ♂♂, 2 ♀♀ (CDL): Spain: A Coruña: Península of Barbanza, river Artes, Lobeiras, 30.09.1995, J. Garrido leg.; 3 ♂♂, 3 ♀♀ (CDL): Spain: León, Oencia, 24.08.1986, J. Garrido leg.; 1 ♂, 1 ♀ (CVL): Spain: León: Fasgar, 22.02.1992, F. García Criado leg.; 2 ♂♂ (CDL): Spain: Lugo: Ourol, Ferreira, river Besteburiz, river Landro basin, 210 m, 12.12.1988, J. A. Díaz leg.; 1 ♂, 1 ♀ (CDL): Spain: Lugo: Muras, Xistral, river Landro, 780 m, 06.07.1988, J. A. Díaz leg.; 2 ♂♂, 2 ♀♀ (CDL): Spain: Ourense, Manzaneda, O Bolo, river Cernado, 25.07.1999, C. de Paz and F. Dávila leg.

Comparison between the holotype of *Hydraena valladaresi* and the specimens of *H. barrosi* collected at several Iberian localities confirms that all of them belong to the same species. In addition to the external morphology, the following diagnostic characters of the aedeagus (Fig. 6) permit the conclusion that the taxa are conspecific: main piece curved at an almost right angle, dorsal margin of its apical half gently emarginate, distal lobe with a characteristic structure in the form of a roofing tile and left paramere crossing over the main piece towards the right side.

As with *H. bisulcata*, the structure of the aedeagophore places *H. barrosi* in the *bisulcata* species group. That grouping is also supported by the morphology of the female structures studied (Figs. 8–10). Lagar and Fresneda (1990) comment on the similarity between *H. valladaresi* and *H. corinna* d’Orchymont, 1936 and also with

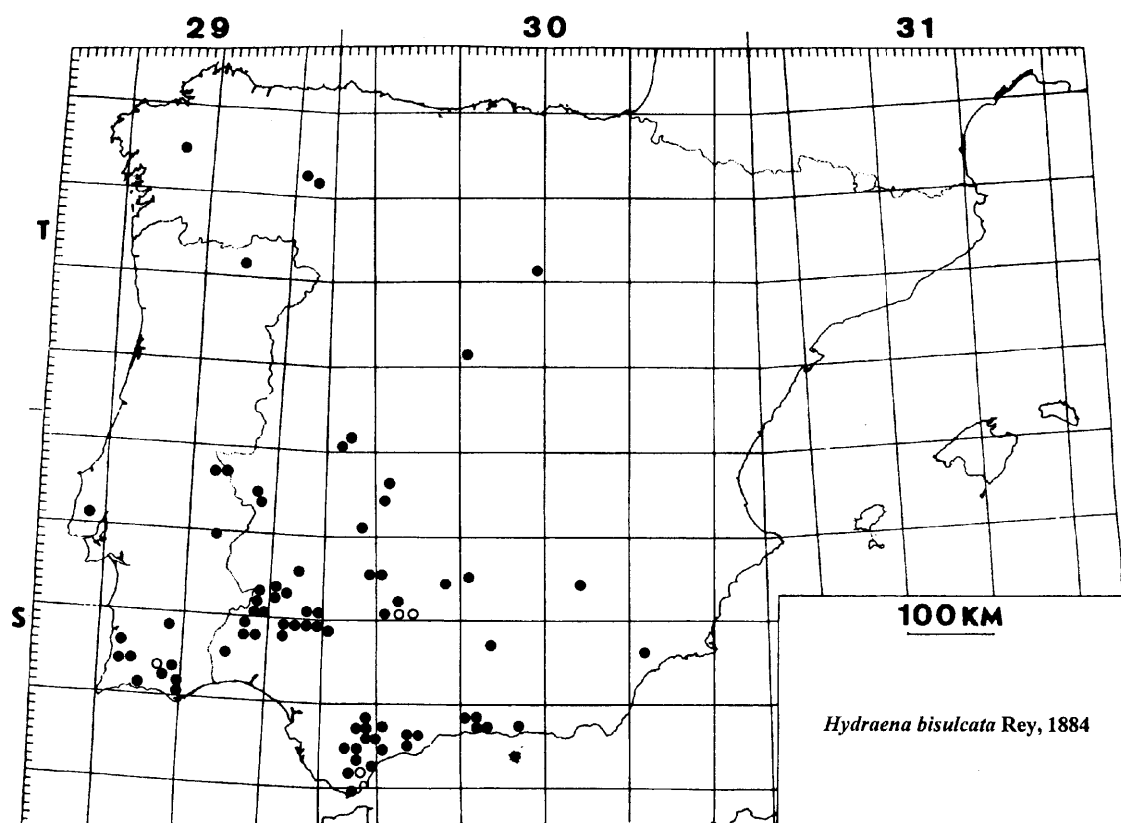


Figure 11. Iberian distribution of *Hydraena bisulcata* Rey (white circles indicate localities cited for *H. berthelemyi* Lagar & Fresneda).

H. bolivari d'Orchymont, 1936 but not to *H. barrosi* which is the valid name of the species.

We also illustrate the male mesotibia (Fig. 7) and female structures that facilitate the identification of *H. barrosi*: abdominal tergite X (Fig. 8), gonocoxite (Fig. 9) and spermatheca (Figs. 10a, b).

Distribution (Fig. 12)

Hydraena barrosi is an Iberian-Pyrenean endemic sharing its distribution pattern with many other Iberian species of the genus *Hydraena*. *H. barrosi* is well-known in the Pyrenees, the Cantabrian Mountains, the mountains of Galicia and the north of Portugal (Valladares & Montes, 1991; García-Criado, 2002), being spread also throughout the Central System (Garrido *et al.*, 1994; Sáinz-Cantero *et al.*, 1997), the area in which the type locality of *H. valladaresi* (white circle in Fig. 12) is located.

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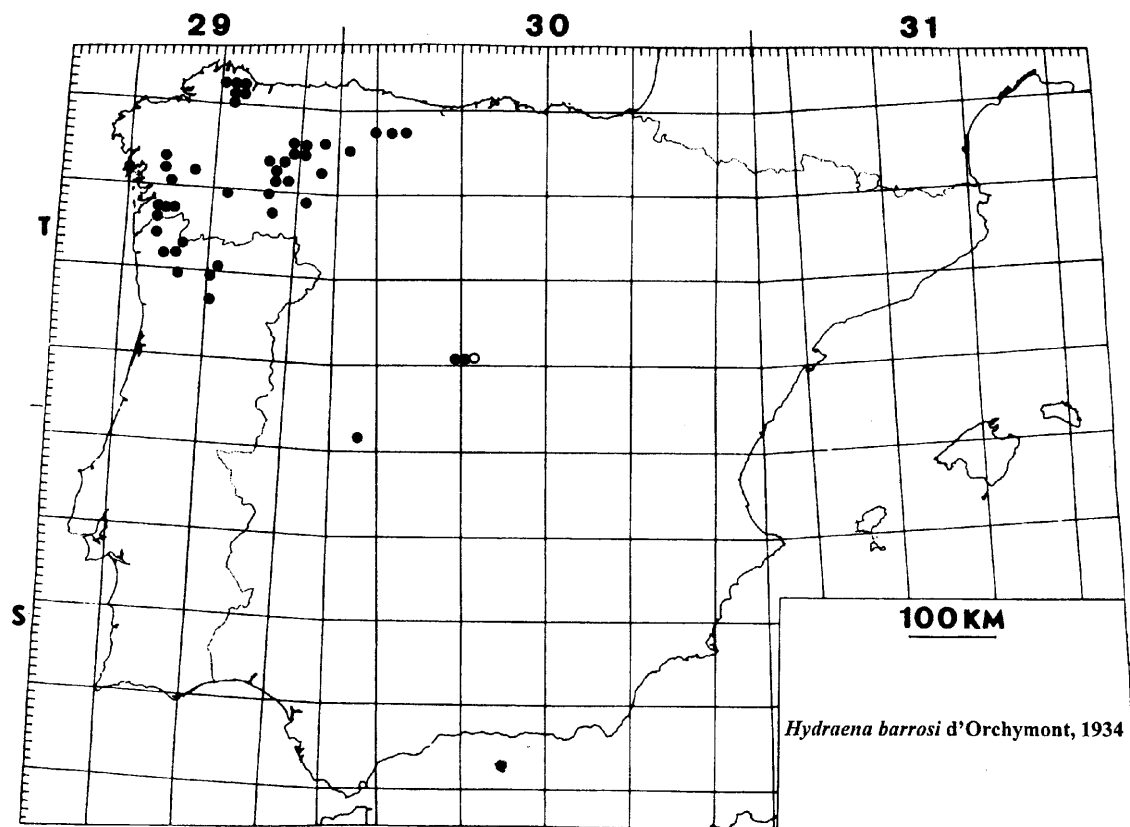


Figure 12. Iberian distribution *Hydraena barrosi* Orchymont (white circle indicates the type locality of *H. valladaresi* Lagar & Fresneda).

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