

NOTA / NOTE

Aquarius paludum (Fabricius, 1794) (Hemiptera, Gerridae)
collected in mainland Portugal.José Manuel Grosso-Silva^{1, 2}

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Abstract: An historical overview of the study of the Gerridae of mainland Portugal is presented, including a revised list of the first record of each species in the country. The mid-20th century listing of the pond skater *Aquarius paludum* (Fabricius, 1794) (Hemiptera, Gerridae) in the catalogue of the Heteroptera of mainland Portugal is analysed; despite the clearly dubious nature of its original source, the unavailability of specimens for checking the identification prevents the discarding of the record. In this paper the species is recorded for two areas in the north of mainland Portugal and its presence in the country is therefore confirmed, greatly expanding its known Iberian distribution.

Key words: Hemiptera, Gerridae, *Aquarius paludum*, confirmation, Portugal.

Resumen: *Aquarius paludum* (Fabricius, 1794) (Hemiptera, Gerridae), capturado en Portugal continental. Se presenta una sinopsis histórica del estudio de la fauna de Gerridae de Portugal continental, incluyendo una lista revisada de la primera cita de cada especie en el país. Se analiza la inclusión del zapatero *Aquarius paludum* (Fabricius, 1794) (Hemiptera, Gerridae) en el catálogo de Heteroptera de Portugal continental de mediados del siglo XX; a pesar del carácter dudoso de su fuente original, la indisponibilidad de ejemplares para la verificación de la identificación impide descartar el registro. En este trabajo se cita la especie de dos áreas en el norte de Portugal continental y su presencia se considera, por ello, confirmada para la fauna portuguesa, ampliando significativamente su distribución conocida en la Península Ibérica.

Palabras clave: Hemiptera, Gerridae, *Aquarius paludum*, confirmación, Portugal.

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Introduction

The study of the pond skater fauna (Hemiptera, Gerridae) of mainland Portugal was initiated in the 18th century with the record of *Gerris lacustris* (Linnaeus, 1758) from Coimbra (BAPTISTA, 1789 - the earliest reference with entomological data from a precise locality in the country).

Almost a century elapsed until new records of gerrids were published from the country by LETHIERRY (1877) and OLIVEIRA (1896). Around the same time the presence of some of the species in Portugal was also acknowledged in the Iberian catalogue of BOLÍVAR & CHICOTE (1879) and its additions by CHICOTE (1880) but no new data was added in either of these studies.

In the first half of the 20th century only two authors provided Portuguese records of gerrids: JACZEWSKI (1925) and SEABRA (1926, 1927, 1928, 1930, 1939a, 1939b). Furthermore, a species catalogue summarising the information about the composition of the Portuguese fauna was published by the latter author (SEABRA, 1941).

In the following decades the knowledge about the distribution of the species that occur in mainland Portugal was significantly improved with small contributions such as PISSARRO (1951), POISSON (1957), LINDBERG (1962), DETHIER (1975), and CORTES *et al.* (1986) and more comprehensive surveys, as the ones produced by NIESER (1969a, 1969b, 1983). Globally these studies added two species to the Portuguese list and contained records for localities widely spread across the country.

In recent years the number of published records for mainland Portugal has been low, with only a few scattered records published by SILVA-SANTOS *et al.* (2004), DAMGAARD (2005), KMENT (2006), GROSSO-SILVA & SOARES-VIEIRA (2009), TORNERO *et al.* (2014), and VARANDAS *et al.* (2014).

As a result of the references mentioned, the fauna of Gerridae hitherto recorded from mainland Portugal comprises nine species (Table 1). Six of these species were listed in the Portuguese Heteroptera catalogue compiled by SEABRA (1941), which also featured information about the studies that first recorded each of the species from Portugal. Considering the fact that three species were added to the Portuguese list after 1941 and also that the reference presented by SEABRA (1941) for *Gerris lacustris* was not the actual earliest Portuguese record, a revised list of first citations for mainland Portugal is presented in Table 1.

The case of *Aquarius paludum* (Fabricius, 1794) in Portugal

Up to the mid 1980's, according to the bibliographic catalogues of Iberian aquatic Heteroptera compiled by NIESER & MONTES (1984) and BAENA & VÁZQUEZ (1986), the known distribution of *Aquarius paludum* in Spain comprised the provinces of Barcelona, Burgos, Gerona, and Zaragoza. Since then, the species has also been recorded from Madrid (LÓPEZ *et al.*, 1996), Navarra (OSCOZ *et al.*, 2003), and Tarragona (OLOSUTEAN, 2014).

Regarding Portugal, NIESER & MONTES (1984) mentioned only the inclusion of *Aquarius paludum* in the Portuguese Heteroptera list presented by SEABRA (1941) (without any geographic information) and considered that its presence in the country required confirmation. BAENA & VÁZQUEZ (1986) also mentioned SEABRA's (1941) work as the primary record for Portugal and listed NOGUEIRA & SILVA (1970) (as "Serrao & Azevedo, 1970") as a second reference for the country. Additionally, SEABRA's (1941) work was also considered as the primary record of *Aquarius paludum* for Portugal in NIESER's (1970) extensive list of additions to ILLIES's (1967) *Limnofauna Europaea*.

SEABRA (1941) is indeed the oldest reference and therefore the primary published record of *Aquarius paludum* from Portugal, NOGUEIRA & SILVA (1970) being just a citation of the former work. However, a closer look at SEABRA's (1941) work, which is a bibliographic list of the species recorded from Portugal up to that time, and therefore contains no geographic details for any of the species, shows that the listing of *Aquarius paludum* was based in BRAGA (1941), an unpublished list of the Homoptera of "Museu do Instituto de Zoologia «Augusto Nobre»" (nowadays *Museu de História Natural e da Ciência da Universidade do Porto*, MHNC-UP).

This (possibly handwritten) list is not available nowadays in MHNC-UP so it cannot be checked but the taxonomic incongruence it involves is clear [*Aquarius* sp. are heteropterans and the list focused on homopterans, according to the title mentioned by SEABRA (1941)]. A fact which is also worth mentioning is the circumstance that no actual data other than the listing of the species was ever published for the country. The inclusion of *Aquarius paludum* in SEABRA's (1941) catalogue seems thus erroneous but the fact that no specimens identified as or belonging to the taxon *Aquarius paludum* have been traced in the collections of the MHNC-UP prevents an adequate identity check. As a result, we consider the records detailed below to be a confirmation of the presence of *Aquarius paludum* in mainland Portugal. As shown in Map 1, these records represent a significant westwards expansion of the known range of *Aquarius paludum* in the Iberian Peninsula.

Material examined

BRAGANÇA: Miranda do Douro: Tributary of Santos stream, below Cabeço da Veiga (UTM 29TQF1496), 28/04/2015 (1♀, CIBIO/InBIO coll.); Tributary of river Angueira at São Martinho de Angueira (UTM 29TQG2113), 28/04/2015 (2♂♂, CIBIO/InBIO coll.).

PORTO: Vila do Conde: Vairão (Agricultural Campus, swimming pool) (UTM 29TNF2775), 09/04/2015 (1♂, CIBIO/InBIO coll.), 13/04/2015 (1♂, Grosso-Silva coll.).

Table 1. - Catalogue of the Gerridae recorded from mainland Portugal, with the oldest records from mainland Portugal according to the 1941 Heteroptera catalogue and those traced in the present study.

| Species | Oldest record from mainland Portugal | |
|---|--------------------------------------|----------------------|
| | According to SEABRA (1941) | Traced in this study |
| <i>Aquarius cinereus</i> (Puton, 1869) | Unrecorded | POISSON (1957) |
| <i>Aquarius najas</i> (De Geer, 1773) | LETHIERRY (1877) | |
| <i>Aquarius paludum</i> (Fabricius, 1794) | BRAGA (1941), possibly erroneous | Confirmed here |
| <i>Gerris (Gerris) argentatus</i> Schummel, 1832 | Unrecorded | LINDBERG (1962) |
| <i>Gerris (Gerris) brasili</i> Poisson, 1940 | Unrecorded | NIESER (1969a) |
| <i>Gerris (Gerris) gibbifer</i> Schummel, 1832 | LETHIERRY (1877) | |
| <i>Gerris (Gerris) lacustris</i> (Linnaeus, 1758) | LETHIERRY (1877) | BAPTISTA (1789) |
| <i>Gerris (Gerris) thoracicus</i> Schummel, 1832 | LETHIERRY (1877) | |
| <i>Gerris (Gerriselloides) lateralis</i> Schummel, 1832 | JACZEWSKI (1925) | |

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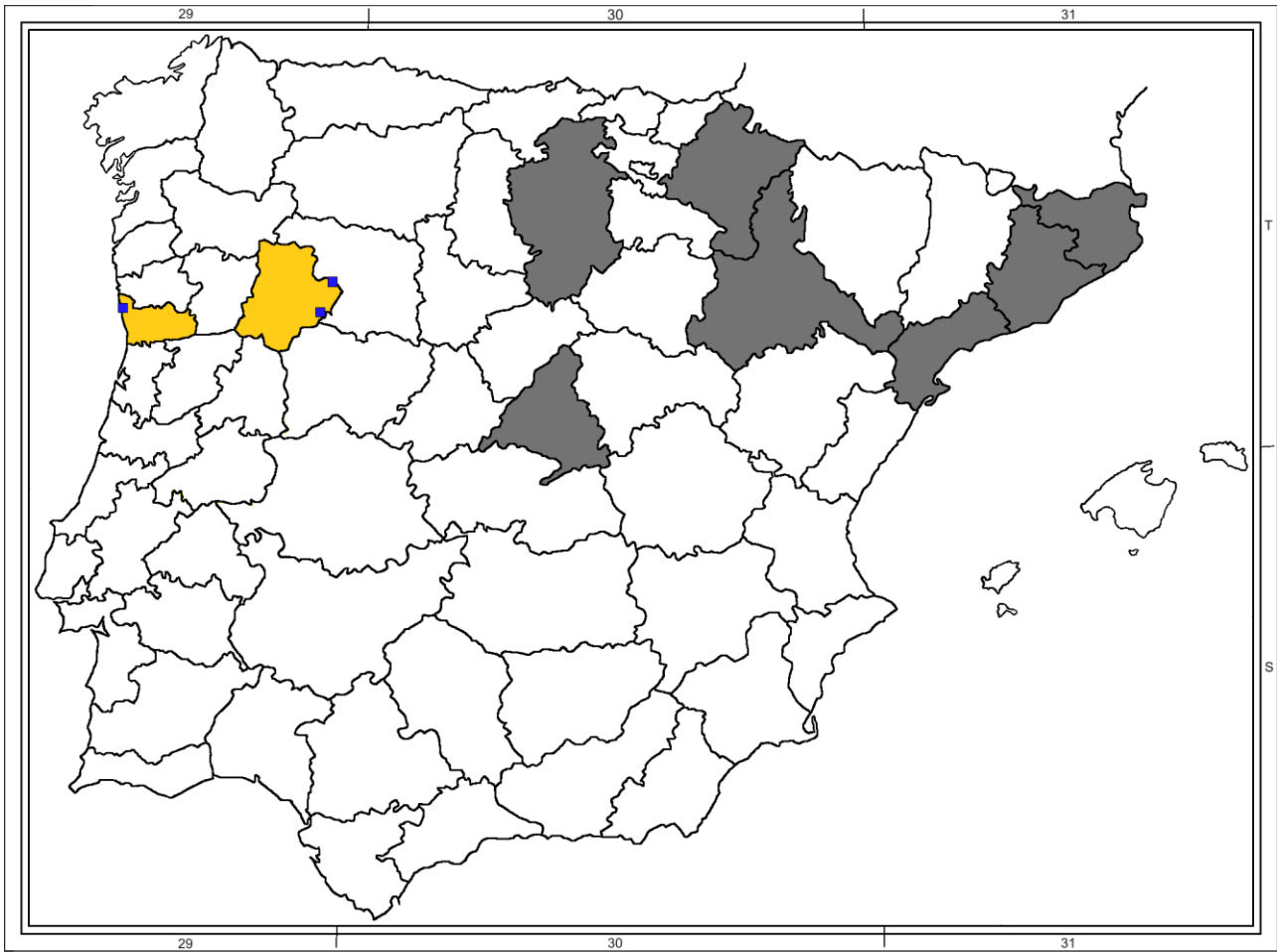
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Map 1. - Iberian distribution of *Aquarius paludum* (Fabricius, 1794), with the previously known Spanish provinces (in grey), the new Portuguese districts (in yellow) and the UTM 10x10 km squares of the collecting sites (in blue).