

## First records of the endangered spider *Macrothele calpeiana* (Walckenaer, 1805) (Hexathelidae) in Portugal

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**Summary:** The first records of the endangered spider *Macrothele calpeiana* (Walckenaer, 1805) for Portugal are given.

**Keywords:** first records, *Macrothele calpeiana*, Portugal

**Resumen:** Se publican en este trabajo los primeros registros de *Macrothele calpeiana* (Walckenaer, 1805) para Portugal.

**Palabras clave:** *Macrothele calpeiana*, Portugal, primeras citas

### Introduction

*Macrothele calpeiana* (Walckenaer, 1805), the cork oak black spider, is an endemic Iberian spider included in the Bern Convention (1979 appendix II) and Habitat directives (92/43/EEC, appendix IV). It is the only spider in Europe with this strong protection. It belongs to the family Hexathelidae, a group of spiders of probable Gondwanic origin (Raven, 1980). The genus *Macrothele* contains 26 species distributed from Western Europe to Japan, being four of them exclusive of central Africa (Platnick, 2006). Just only two species can be found in Europe: *M. cretica* Kulczynski, 1903, endemic to the island of Crete, and *M. calpeiana* (Snazell & Allison, 1989). Until now, *M. calpeiana* was only known from southern Spain and from the city of Ceuta in North Africa, although it has been speculated that this population could be a recent introduction (Fernández & Fernández de Céspedes, 1996). The old dubious record from El Arrouch (Algeria) (Lucas, 1849) should be confirmed, as suitable climate has been identified in this location (Jiménez-Valverde & Lobo, in press).

The distribution range of *M. calpeiana* is mainly constrained by precipitation regime and temperature, but its presence negatively affected by agricultural activities (Jiménez-Valverde & Lobo, 2006). A recent potential distributional model (Jiménez-Valverde & Lobo, in press) shows that there are suitable climate conditions in North Africa and Portugal for this species. As well-preserved oak forests (the main habitat of the species) occur in these regions, historical factors have been proposed to explain its current distribution and the supposed absence of the species from these two areas (Jiménez-Valverde & Lobo, in press).

In this short contribution we present the first records for *M. calpeiana* in Portugal, yielded by a recent survey in the Algarve, one of the areas where the occurrence of the spider was predicted as highly probable according to Jiménez-Valverde & Lobo (in press).

### *Macrothele calpeiana* in Portugal (Fig. 1-2)

**Records:** Portugal, Alportel, Parque da Fonte férrea, 20 June 2007, geographical co-ordinates in the Universal Transversal Mercator projection system 29SNB9615. Alportel, Casa de Cantoneiros, 20 June 2007, geographical co-ordinates in the Universal Transversal Mercator projection system 29SNB9517. Barranco Velho, 20 June 2007, geographical co-ordinates in the Universal Transversal Mercator projection system 29SNB9523.

**Habitat:** *Quercus suber* forest with pines and eucalyptus (Fig. 3). High nest densities in terraces of path and road edges.

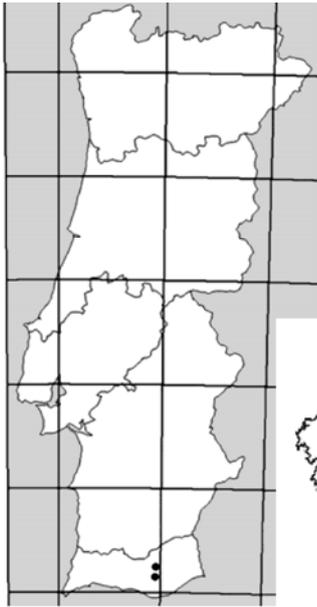
**Discussion:** The new records of *M. calpeiana* for Portugal are extremely interesting as they increase the known distribution of this endangered species outside the Guadiana river basin. The spider was relatively abundant in the three localities where it was found, inhabiting degraded areas (road and path edges, resting areas for drivers) into the forest matrix. This fact does not mean that the spider prefers human-altered habitats, as suggested by Helsdinge & Decae (1992), but just simply that these were the places where it was looked for due to access and visual location of the nests facilities (see also Jiménez-Valverde & Lobo, 2006).

The presence of *M. calpeiana* in Portugal supports the usefulness of predictive modelling techniques, as the new records

correspond to areas previously identified as highly suitable (Fig. 2; Jiménez-Valverde & Lobo, in press). Other authors have demonstrated this practical application of distribution models, i.e. discovering new species and/or populations (Raxworthy *et al.*, 2003; Bourg *et al.*, 2005; Guisan *et al.*, 2006). Thus, *M. calpeiana* should be mainly surveyed in those areas revealed as suitable in previous studies (Fig. 2; Jiménez-Valverde & Lobo, 2006 and Jiménez-Valverde & Lobo, in press). The addition of new records to the present known distribution will permit the update of the models and the increase in the knowledge of biogeography and habitat requirements of this endangered species.

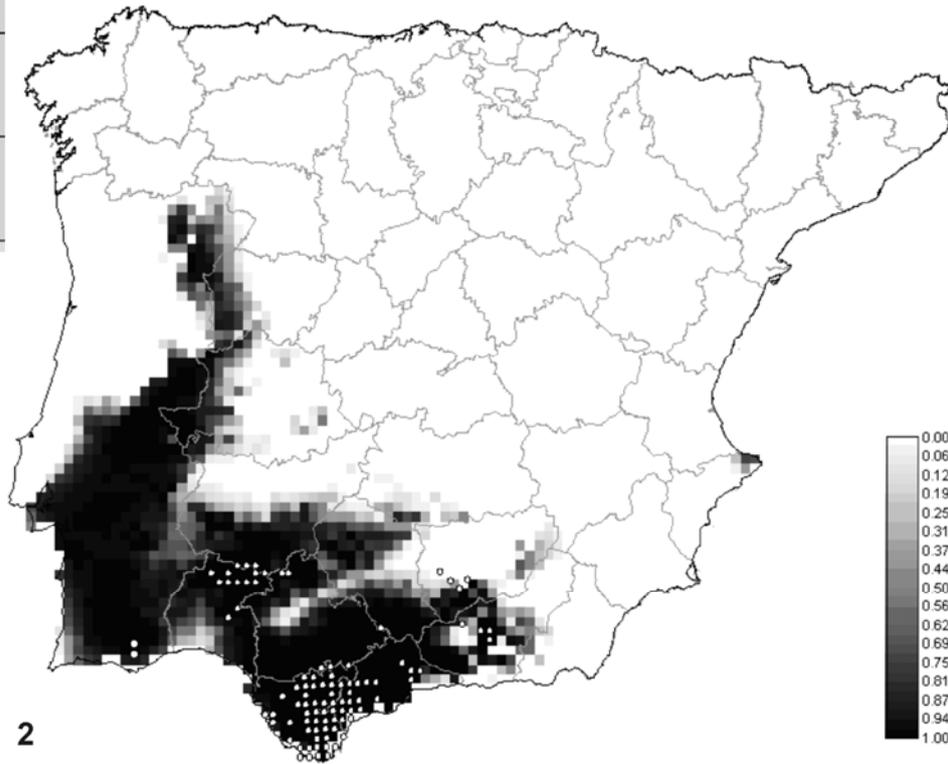
Further investigations are needed. As a first step, given that the potential distribution of *M. calpeiana* extends through great part of the country (Fig. 2) and its vulnerable status (IUCN criteria; Fernández, 2006), field surveys are urgently necessary to delimit its actual distribution range and to determine the strategy towards protection of the habitats of this new species for Portugal.

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**Fig 1.** New records of *Macrothele calpeiana* in Portugal, at a resolution of 10×10 km

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**Fig 2.** Climate favourability (1.00, high favourability; 0.00, low favourability) for the species in the Iberian Peninsula (adapted from Jiménez-Valverde & Lobo, in press) showing the presence points used by the authors for training the model and the new records.

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**Fig 3.** Typical habitat conditions in which *Macrothele calpeiana* has been found in Portugal.



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