First record of *Runcinia flavida* (Simon, 1881) (Araneae: Thomisidae) in Europe

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Introduction

The genus *Runcinia* Simon, 1875, as redescribed by Dippenaar-Schoeman (1980), comprises around 30 species distributed throughout the Old World (Platnick 2012). Afrotropical and Oriental region are the areas with the greatest species richness (Dippenaar-Schoeman 1983). The only species of *Runcinia* so far recorded in Europe is *Runcinia grammica* (C. L. Koch, 1837), a crab-spider from the herbaceous stratum of different types of habitats, widely distributed through southern Europe, North Africa, the Near East and Central Asia. *R. grammica* has also been recorded from South Africa and St Helena, although it is possible that it was introduced by marine traffic at these locations, or that these reports represent misidentifications (Dippenaar-Schoeman 1983, Dmitri Logunov, personal communication).

In the Palaearctic region at least six other *Runcinia* species have been described: *R. acuminata* (Thorell, 1881), *R. caudata* Schenkel, 1963, and *R. tarabayevi* Marusik & Logunov, 1990 from Asia, *R. depressa* Simon, 1906 and *R. flavida* (Simon, 1881) from North Africa, and *R. affinis* Simon, 1897 from both Asia and North Africa. Although many of these species have distribution areas close to Europe, and many of them could potentially live in existing habitats from this continent (warm and mild natural or anthropogenic grassland areas, as well as dry farmed and irrigated crops; Dippenaar-Schoeman 1983, Chen & Tso 2004, Warui *et al*. 2005), none of these species has ever been detected in similar European habitats until now, despite the great many Palaearctic spiders that occupy wide regions divided by maritime or terrestrial barriers (Platnick 2012) and the great long-distance dispersion ability of many crab spider generalists inhabiting common habitats (Bonte *et al*. 2003; Bell *et al*. 2005). Here, we report the first European record of *R. flavida* (Simon 1881), previously recorded in Africa and whose nearest location to Europe is in Morocco (reported from Essaouira, Western Morocco by Simon 1909). We also discuss the implications of this discovery.

Material and Methods

During the spring of 2009, we collected several spider samples in the Del Estrecho Natural Park (municipality of Tarifa and Algeciras, Cádiz, Spain). On 12 May, an unidentified adult male crab spider was collected using the method of sweep-netting in grassland and low vegetation; subsequently this specimen was identified as *Runcinia flavida*. The sampling plot where this individual was captured is situated in Punta Paloma, Tarifa (36°03'56.40"N 5°42'22.37"E), in a reforested pine area of *Pinus pinea*, with sandy soils and herbaceous stratum composed mainly of grass and flowering liliaceous *Allium pallens*. *R. grammica* was not collected in the same area but in a nearby location, also in the Del Estrecho Natural Park (1 adult ♀, 12 May 2009, River Jara marshes, 36°02'23.94"N 5°37'53.20"E). Both individuals have been placed in the Zoological Collection at the Estación Experimental de Zonas Áridas (EEZA), with the catalogue numbers 7608 (*R. flavida*) and 7609 (*R. grammica*).

Discussion

Runcinia flavida can easily be distinguished from *R. grammica* by the opisthosoma, with a length 3–4 times greater than its width and truncated anteriorly and posteriorly (Fig. 1A–B.). Male palpal organs of both species are remarkably small, but distinctive when viewed from below. The tibia has ventral and retrolateral apophyses. The ventral apophysis is very short and the retrolateral apophysis is cone-shaped in both species, but thinner and slightly pointed at the apex in *R. flavida*. Also, the tegulum is more sclerotized in the central to upper part in *R. flavida* than in *R. grammica*. The sperm duct encircles the bulb in both species, but with a sclerotized and hook-like distal embolus in the duct of *R. flavida* (Fig. 1C–F).

The specimen presented a very characteristic cryptic behaviour, similar to other Mediterranean crab spiders with elongated abdomens, like in the genera *Tmarus* or *Monaeses*, in placing the body parallel to the stems of herbaceous plants, with the first two pairs of legs pointing directly forward.

The presence of *R. flavida* in Spain contributes an addition to knowledge about the biodiversity of Iberian and European crab spiders. This record is especially relevant since only one species of *Runcinia* has been found in Europe before this study. In Africa, *R. flavida* is a common species, being the most abundant species of this genus in some specific areas (Dippenaar-Schoeman 1983), since it occupies different types of herbaceous strata, becoming resistant to significant levels of anthropogenic perturbations (Warui *et al*. 2005).

Del Estrecho Natural Park is the southernmost protected area in continental Europe, and the nearest point to Africa from the Iberian Peninsula. The continents are separated by the Gibraltar Strait, constantly crossed by migrating and dispersing birds, sea mammals and other animals, as well as intensive marine traffic. Since only one specimen has been collected, information about the origins of the recorded individual, or about ecology and biogeography of this species in the south of the Iberian Peninsula, cannot be provided. However, climatic and ecological conditions where *R. flavida* was found (mild winters and dry summers with occasional rains, as well as wide open areas, anthropized grazing lands, and the presence of open forests with a rich herbaceous stratum) resemble those conditions observed in many African regions where this species is present; see, for example, locality records in Simon (1909), Millot (1942) and Dippenaar-Schoeman (1983). For these reasons, this

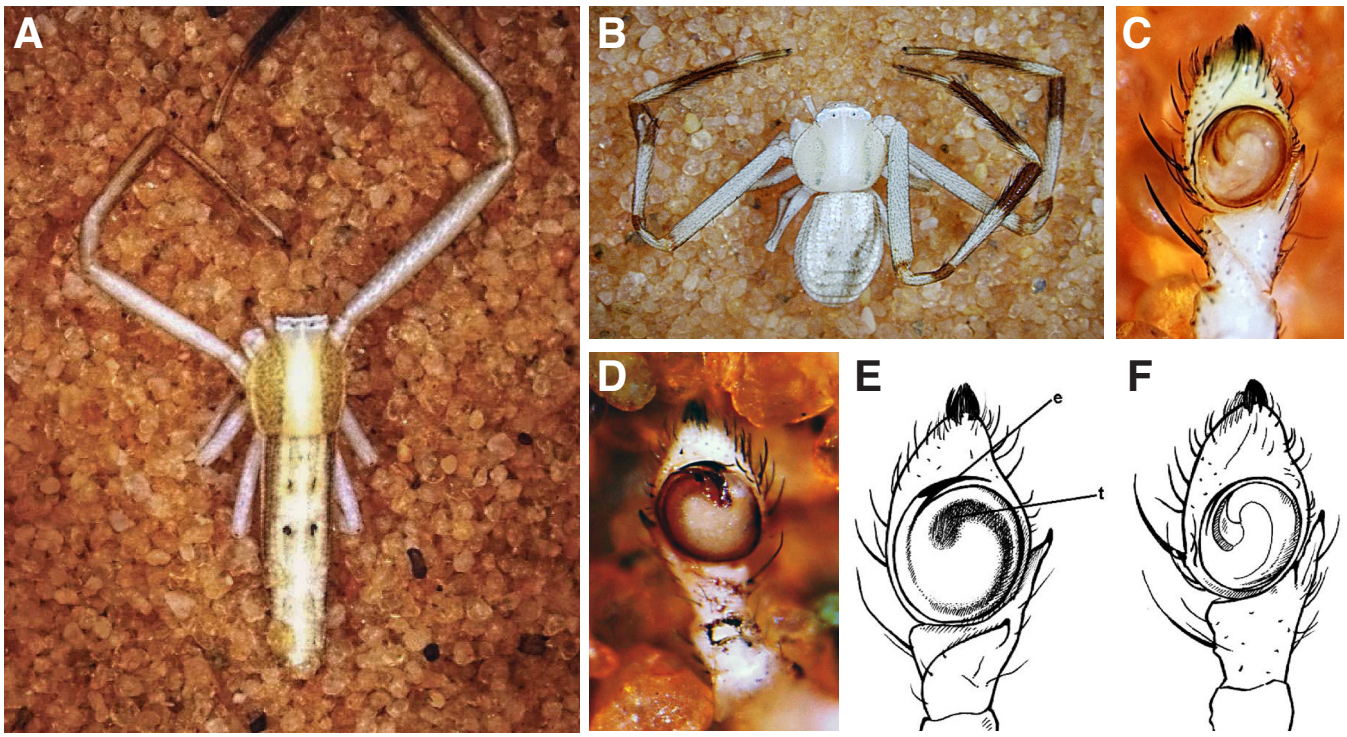

Fig. 1: Habitus (A–B) and palps (C–F) of male *Runcinia* spp. **A** *R. flavida*, Punta Paloma, Tarifa; **B** *R. grammica*, La Alberca, Salamanca; **C** right palp of *R. grammica*, ventral view. **D** left palp of *R. flavida*, ventral view; **E** *R. flavida*, ventral view; **F** *R. grammica*, ventral view. e, embolus; t, tegulum.

region and adjacent areas could be an optimal habitat where *R. flavida* could survive and even breed successfully.

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