

SPIDERS (ARACHNIDA: ARANEAE) FROM THE PAÚL DE ARZILA NATURAL RESERVE (PORTUGAL)

Luís Carlos Crespo¹, Pedro Cardoso², Rui Carvalho³,
Sérgio Henriques³ & Ana Cristina Rufino¹

¹ IMAR – Coimbra Interdisciplinary Center, Department of Zoology, University of Coimbra, Largo Marquês de Pombal, 3004-517 Coimbra, Portugal – luiscarloscrespo@gmail.com ; ana.rufino@gmail.com

² Azorean Biodiversity Group – CITA-A, University of Azores, Terra-Chã, 9701-851 Angra do Heroísmo, Portugal – pcardoso@ennor.org

³ Department of Biology, University of Évora, Núcleo da Mitra, 7002-554 Évora, Portugal

Abstract: A list of spiders collected in a marshy habitat in western central Portugal is presented, with comments on their known distribution. Overall, 201 species are identified and listed from the area.

Key words: Arachnida, Araneae, inventory, marsh, Portugal.

Arañas (Arachnida: Araneae) de la Reserva Natural Paúl de Arzila (Portugal)

Resumen: Se presenta una lista de las arañas colectadas en un humedal de Portugal centro-occidental, con comentarios sobre su distribución conocida. En total se identifican y enumeran 201 especies de la zona.

Palabras clave: Arachnida, Araneae, inventario, humedal, Portugal.

Introduction

The Portuguese spider fauna is still poorly known. Only two persons worked on spiders before the 1990's; Amélia Bacelar started to build a checklist (Bacelar, 1927a, b, 1928, 1933, 1935, 1936, 1940) and this work was continued by António de Barros Machado (Machado, 1937, 1941, 1949), who did not only added species to the list, but also described new spider species. Since then, and until 10 years ago, there was no relevant arachnological work in Portugal. During that time only occasional work from foreigner researchers was made with Portuguese fauna (e.g. Ferrández, 1986; Alderweireldt & Bosmans, 2001). However, the panorama began to change in the late 1990's when a new interest for the group developed. During the last 10 years much work was made and a number of papers were published on the subject (Cardoso, 1998, 2004, 2008; Pekár *et al.*, 2003; Gouveia, 2004; Silva, 2004; Pekár & Cardoso, 2005; Barrientos & Cardoso, 2007; Cardoso *et al.*, 2008a, b, 2009; Crespo, 2008; Sousa, 2006). This last decade's work allowed the checklist for the country to rise from 642 species (Cardoso, 2000) to more than 800 species, now compiled online at the Portugal spider catalogue (Cardoso, 2009) However, despite this increase in the number of species, the distribution of most is still unknown, with few and scattered records that do not allow to infer on their real distribution (Cardoso, 2008a). The work now presented is an attempt to provide more information to the national catalogue.

Methods

Study area

The study area was the marsh of Arzila, located 11 km west of Coimbra (fig. 1), with the UTM coordinates of 29TNE38 (using 10x10 km squares), at an altitude of 25 m. This marsh, with periodical flooding of surrounding habitats, comprises an area of about 150 ha (3 km x 500 m), in the left margin of the Mondego River (fig. 2). The annual mean temperature is 15.3

°C, being the minimum mean temperature 4.9 °C in January and the maximum mean temperature 27.5 °C in August. The mean annual precipitation recorded is 891 mm and the mean annual relative air humidity is 75%.

The vegetation of the sites regularly used for collecting was mainly composed of: *Salix alba* L., *Salix atrocinerea* Brot., *Fraxinus angustifolia* Vahl, *Fraxinus excelsior* L., *Quercus faginea* Lam., *Eucalyptus globulus* Labill., *Populus alba* L., for the arboreal stratum and of *Rubus ulmifolius* Schott, *Geranium purpureum* L., *Urtica membranacea* Poir., *Arundo donax* L., *Cirsium vulgare* (Savi) Ten., *Lythrum salicaria* L., *Lythrum junceum* Banks et Sol. ex Russell, *Holcus lanatus* L., *Dittrichia viscosa* (L.), *Tolpis barbata* (L.) Gaertn. and *Andryala integrifolia* (L.) for the herbaceous stratum. See further floristic details in Paiva *et al.*, 1993.

This area, currently classified as a Natural Reserve, was very close to a drainage process in 1980, under the Hydroagricultural Plan for the Lower Mondego; however, different studies (Ferrand de Almeida *et al.*, 1983, 1984) granted the actual status of conservation to the habitat. Unfortunately, the faunistics studies dealt only with vertebrate taxa and nothing is known of its invertebrate species, apart from a study of Lepidopteran fauna (Pires & Corley, 2007) of the Lower Mondego. This is, therefore, the first contribution to the knowledge of the arachnofauna of this site.

Sampling methods

The sampling effort was divided into two different approaches: ad-hoc samples, explicitly made with no standardization of methods or effort and standardized sampling.

The ad-hoc samples were performed since 23 of October, 2005, to 14 of May, 2008 (with no sampling activity in 2007), throughout the year when possible, but focusing mostly on spring time. In order to avoid over-collecting of common species, specimens were released in the field when

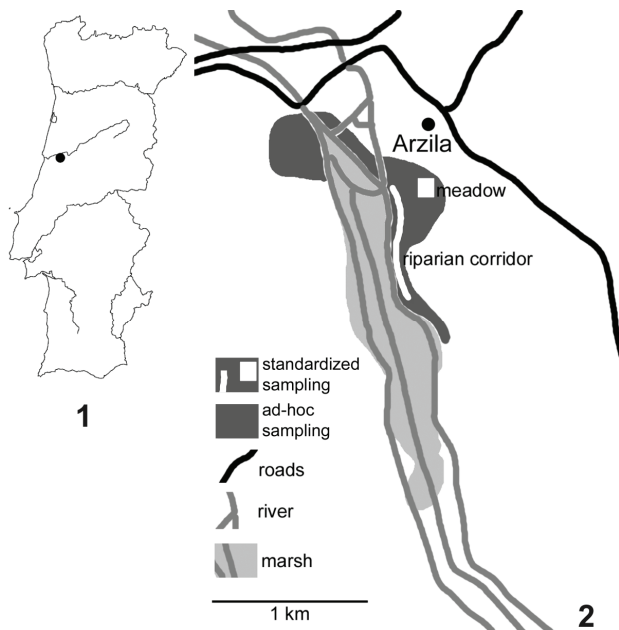


Fig. 1. Map of Portugal with the location of the Paúl de Arzila natural Reserve. **Fig. 2.** Schematic representation of the Paúl de Arzila Natural Reserve. Plots used for standardized sampling are represented in black whereas ad-hoc sampling took place in gray areas.

their identity was recognized as a previously captured species. Only 3 night samples were performed. The applied methods for collecting consisted of: net sweeping, tree beating, pitfall trapping, direct hand collecting and leaf litter examination.

The standardized sampling consisted of two COBRA protocols applied to two different sites, optimized for capturing 50% of the total diversity present in a site (see Cardoso, 2008 for details on the protocol). The purpose of the COBRA sampling was to cover habitats as dissimilar as possible in order to capture the maximum diversity with minimum effort. Due to human and logistic factors we covered only two sites with this sampling protocol. The selected sites were a riparian corridor situated along the margin of a small river that surrounds the marshy area and a meadow about 100 m away from the same small river.

While in the laboratory, biological material was analyzed using either a Leica Wild M3B or a Zeiss Stemi 2000 binocular microscope; when needed, female's genital structure was prepared in a slide, using a solution to degrade the soft tissue around the sclerotized structures (Silva, 2004).

Classification of species and their distribution was made, in most cases, according to Platnick's World Spider Catalogue (Platnick, 2008). Identification of most species was used mainly with the help of Roberts (1987, 1995).

All specimens are deposited in the first author's personal collection unless stated otherwise.

Results

Family Agelenidae C.L. Koch, 1837 (6 species)

- *Malthonica lusitanica* Simon, 1898
Material: 1 female, 11.V.2008, hand collecting; 1 male and 1 female, 14-28.V.2008, pitfall trap.
- *Malthonica oceanica* Barrientos & Cardoso, 2007
Material: 1 male, 17-31.V.2006, pitfall trap; 5 males, 9-23.X.2006, pitfall trap.

- *Tegenaria atrica* C.L. Koch, 1843
Material: 1 female, 6.XI.2005, hand collecting; 1 female, 25.IV.2006, hand collecting; 1 female, 27.IX.2006, hand collecting.
- *Tegenaria feminea* Simon, 1870
Material: 1 female, 11.V.2008, hand collecting; 5 females, 14-28.V.2008, pitfall trap.
- *Tegenaria montigena* Simon, 1937
Material: 2 males, 14-28.V.2008, pitfall trap.
- *Tegenaria picta* Simon, 1870
Material: 3 females, 11.V.2008, hand collecting; 6 females, 14-28.V.2008, pitfall trap.

Family Anyphaenidae Bertkau, 1878 (1 species)

- *Anyphaena accentuata* (Walckenaer, 1802)
Material: 1 male, 10.IV.2006; 1 male, 11.IV.2006; 2 females, 25.IV.2006; 2 males and 1 female, 11.V.2008, tree beating; 1 female, 11.V.2008, hand collecting; 1 female, 11.V.2008, net sweeping.

Family Araneidae Simon, 1895 (17 species)

- *Agalenatea redii* (Scopoli, 1763)
Material: 1 male, 15.III.2006, net sweeping; 1 male, 10.IV.2006; 1 female, 25.IV.2006; 1 female, 11.V.2008, hand collecting; 10 females, 11.V.2008, net sweeping.
- *Araneus diadematus* Clerck, 1757
Material: 2 males, 27.IX.2006, net sweeping.
- *Araneus triguttatus* (Fabricius, 1793)
Material: 1 female, 25.IV.2006.
- *Argiope bruennichi* (Scopoli, 1772)
Material: 1 female, 13.VIII.2008, hand collecting.
- *Cyclosa conica* (Pallas, 1772)
Material: 1 female, 10.IV.2006, hand collecting.
- *Cyclosa insulana* (Costa, 1834)
Material: 1 female, 4.IV.2008, net sweeping; 1 male, 13.III.2008, net sweeping; 3 females, 11.V.2008, hand collecting; 6 males and 7 females, 11.V.2008, net sweeping.
- *Cyrtarachne ixoides* (Simon, 1870)
Material: 1 male, 19.VI.2006, net sweeping; 4 males and 2 females, 2.VII.2006, net sweeping.
Comment: 2 males and 1 female caught on 2.VII.2006 are deposited in the Zoological Museum of Copenhagen.
- *Cyrtophora citricola* (Forsskål, 1775)
Material: 1 female, 19.VI.2006, hand collecting.
- *Gibbaranea bituberculata* (Walckenaer, 1802)
Material: 1 male and 1 female, 15.III.2006, net sweeping; 2 females, 10.IV.2006; 1 female, 11.V.2008, hand collecting; 1 male and 6 females, 11.V.2008, net sweeping.
- *Gibbaranea* sp.
Material: 1 male, 11.V.2008, net sweeping.
- *Hypsosinga sanguinea* (C.L. Koch, 1844)
Material: 1 male, 25.VII.2006, net sweeping; 2 males and 4 females, 11.V.2008, net sweeping.
- *Larinioides cornutus* (Clerck, 1757)
Material: 1 female, 20.XI.2005, net sweeping; 1 male, 10.IV.2006; 1 female, 17.V.2006; 1 male, 2.VII.2006; 4 males and 5 females, 11.V.2008, hand collecting.
- *Mangora acalypha* (Walckenaer, 1802)
Material: 1 male and 1 female, 15.III.2006, net sweeping; 1 male, 10.IV.2006; 1 female, 3.V.2006, 1 female, 17.V.2006; 1 male, 2.VII.2006; 3 females, 11.V.2008, hand collecting; 4 males and 65 females, 11.V.2008, net sweeping.

- *Nuctenea umbratica* (Clerck, 1757)

Material: 1 female, 13.VIII.2008, hand collecting.

- *Singa hamata* (Clerck, 1757)

Material: 5 males and 1 female, 10.IV.2006, net sweeping; 1 female, 3.V.2006, net sweeping; 1 male, 17.V.2006, net sweeping; 1 male, 24.V.2006, net sweeping; 2 females, 2.V.2006, net sweeping; 1 male and 3 females, 11.V.2008, tree beating; 5 males and 22 females, 11.V.2008, hand collecting; 11 males and 21 females, 11.V.2008, net sweeping.

Comments: This species' only record in Portugal is from the Paúl de Arzila Natural Reserve (Crespo, 2008).

- *Zilla diodia* (Walckenaer, 1802)

Material: 1 female, 26.IV.2005, hand collecting; 1 male and 1 female, 10.IV.2006, net sweeping; 1 male, 25.IV.2006; 1 male, 11.V.2008, hand collecting.

- *Zygiella x-notata* (Clerck, 1757)

Material: 2 females, 25.IV.2006, hand collecting.

Family Clubionidae Wagner, 1887 (6 species)

- *Clubiona brevipes* Blackwall, 1841

Material: 1 female, 25.IV.2006; 1 male, 4.IV.2008, tree beating.

- *Clubiona comta* C.L. Koch, 1839

Material: 2 females, 11.IV.2006; 3 males and 2 females, 25.IV.2006; 1 female, 2.VII.2006; 1 female, 4.IV.2008; 3 females, 11.V.2008, tree beating; 2 males and 7 females, 11.V.2008, net sweeping.

- *Clubiona corticalis* (Walckenaer, 1802)

Material: 2 females, 25.IV.2006.

- *Clubiona leucasps* Simon, 1932

Material: 1 male and 1 female, 11.IV.2006; 3 males and 1 female, 25.IV.2006; 1 male, 4.IV.2008, tree beating; 1 male, 11.V.2008, tree beating.

- *Clubiona phragmitis* C.L. Koch, 1843

Material: 2 females, 10.IV.2006; 3 females, 25.IV.2006; 1 male, 24.V.2006; 1 male, 2.VII.2006; 3 females, 11.V.2008, hand collecting; 1 male, 11.V.2008, net sweeping; 2 females, 11.V.2008, tree beating.

- *Clubiona terrestris* Westring, 1851

Material: 1 male, 10.IV.2006; 1 female, 17-31.V.2006, pitfall trap; 2 females, 2.VII.2006; 1 female, 25.VII.2006; 5 males and 11 females, 11.V.2008, net sweeping; 2 females, 11.V.2008, tree beating; 2 males, 11.V.2008, hand collecting; 1 male and 1 female, 14.V.2008, hand collecting; 1 female, 14-28.V.2008, pitfall trap.

Family Corinnidae Karsch, 1880 (5 species)

- *Liophrurillus flavitarsis* (Lucas, 1846)

Material: 1 male and 2 females, 17-31.V.2006, pitfall trap; 1 female, 19.VI.2006, hand collecting; 7 females, 14-28.V.2008, pitfall trap.

- *Phrurolinillus lisboensis* Wunderlich, 1995

Material: 1 male, 10.IV.2006; 1 male, 17-31.V.2006, pitfall trap; 1 female, 2.VII.2006, hand collecting; 1 male, 27.IX.2006; 1 male, 9-23.X.2006, pitfall trap; 1 male and 4 females, 11.V.2008, hand collecting; 3 males and 4 females, 14-28.V.2008, pitfall trap.

- *Phrurolithus minimus* C.L. Koch, 1839

Material: 2 males and 2 females, 3.V.2006, hand collecting; 1 male, 17.V.2006; 8 males and 8 females, 17-31.V.2006, pitfall trap; 99 males and 119 females, 14-28.V.2008, pitfall trap.

- *Phrurolithus szilyi* Herman, 1879

Material: 9 males and 3 females, 14-28.V.2008, pitfall trap.

- *Trachelas minor* O. Pickard-Cambridge, 1872

Material: 2 males, 20.XI.2005, net sweeping; 1 female, 10.IV.2006; 1 female, 11.V.2008, net sweeping; 1 female, 11.V.2008, tree beating; 1 male, 14-28.V.2008, pitfall trap.

Family Dictynidae (6 species)

- *Altella* sp.

Material: 3 males, 17-31.V.2006, pitfall trap; 22 males, 14-28.V.2008, pitfall trap.

- *Dictyna civica* (Lucas, 1850)

Material: 2 males and 1 female, 19.VI.2006; 1 male and 6 females, 2.VII.2006.

- *Dictyna latens* (Fabricius, 1775)

Material: 3 males and 1 female, 11.V.2008, net sweeping.

- *Dictyna uncinata* Thorell, 1856

Material: 1 female, 25.IV.2006; 1 male and 4 females, 3.V.2006; 3 males and 1 female, 17.V.2006; 2 females, 2.VII.2006; 3 females, 25.VII.2006; 1 male, 14.V.2008, hand collecting; 1 female, 11.V.2008, hand collecting; 4 males and 21 females, 11.V.2008, tree beating; 20 males and 22 females, 11.V.2008, net sweeping.

- *Lathys humilis* (Blackwall, 1855)

Material: 7 males and 2 females, 10.IV.2006; 6 males, 11.IV.2006; 9 males and 2 females, 25.IV.2006; 2 females, 3.V.2006; 1 male and 1 female, 17.V.2006; 2 females, 2.VII.2006; 2 males and 3 females, 11.V.2008, net sweeping; 1 female, 11.V.2008, hand collecting; 4 males and 19 females, 11.V.2008, tree beating.

- *Nigma puella* (Simon, 1870)

Material: 1 female, 11.IV.2006; 6 males and 7 females, 10.IV.2006, 1 male, 11.IV.2006; 1 male, 15.IV.2006; 2 males and 2 females, 3.V.2006; 2 males, 17.V.2006; 1 male and 2 females, 2.VII.2006; 1 female, 25.VII.2006; 4 males, 11.V.2008, hand collecting; 6 males and 14 females, 11.V.2008, net sweeping; 12 males and 1 female, 11.V.2008, tree beating.

Family Dysderidae C.L. Koch, 1837 (5 species)

- *Dysdera fuscipes* Simon, 1882

Material: 1 male, 4.II.2006, hand collecting; 1 male, 17-31.V.2006, pitfall trap; 1 male, 14-28.V.2008, pitfall trap.

- *Dysdera lusitanica* Kulczynski, 1915

Material: 1 male, 17-31.V.2006, pitfall trap; 1 male, 14-28.V.2008, pitfall trap.

- *Dysdera machadoi* Ferrández, 1996

Material: 3 males, 17-31.V.2006, pitfall trap; 4 males, 14-28.V.2008, pitfall trap.

- *Harpactea* n. sp.

Material: 13 males and 1 female, 17-31.V.2006, pitfall trap; 1 male, 19.V.2006, hand collecting; 1 female, 2.VII.2006, hand collecting; 1 male and 1 female, 9-23.X.2006, pitfall trap; 13 males and 4 females, 14-28.V.2008, pitfall trap.

Comments: This is a new species, currently being studied by a specialist (Rezac, personal comm.).

- *Rhode scutiventris* Simon, 1882

Material: 1 male, 17-31.V.2006, pitfall trap; 3 females, 19.VI.2006, hand collecting; 3 females, 14-28.V.2008, pitfall trap.

Family Gnaphosidae Pocock, 1898 (16 species)

- *Drassodes pubescens* (Thorell, 1856)

Material: 1 male, 14-28.V.2008, pitfall trap.

- *Drassyllus lutetianus* (L. Koch, 1866)

Material: 7 males and 7 females, 17-31.V.2006, pitfall trap; 40 males and 15 females, 14-28.V.2008, pitfall trap.

- *Leptodrassus albidus* Simon, 1914

Material: 1 female, 2.VII.2006, hand collecting.

- *Micaria guttigera* Simon, 1878

Material: 6 males and 2 females, 14-28.V.2008, pitfall trap.

- *Micaria pulicaria* (Sundevall, 1831)
Material: 2 males and 3 females, 17-31.V.2006, pitfall trap; 13 females, 14-28.V.2008, pitfall trap.
- *Phaeoedus braccatus* (L. Koch, 1866)
Material: 1 female, 19.VI.2006, hand collecting; 1 male, 2.VII.2006, hand collecting.
- *Poecilochroa albomaculata* (Lucas, 1846)
Material: 1 male, 25.IV.2006, hand collecting.
- *Scotophaeus blackwalli* (Thorell, 1871)
Material: 1 female, 11.V.2008, hand collecting.
- *Setaphis carmeli* (O. Pickard-Cambridge, 1872)
Material: 2 males, 14-28.V.2008, pitfall trap.
- *Trachyzelotes bardiae* (Caporiacco, 1928)
Material: 1 male and 4 females, 17-31.V.2006, pitfall trap; 7 males and 1 female, 14-28.V.2008, pitfall trap.
- *Trachyzelotes fuscipes* (L. Koch, 1866)
Material: 10 males and 1 female, 17-31.V.2006, pitfall trap; 1 female, 2.VII.2006, hand collecting; 1 male, 9-23.X.2006, pitfall trap; 19 males, 14-28.V.2008, pitfall trap.
- *Trachyzelotes holosericeus* (Simon, 1878)
Material: 11 males and 4 females, 17-31.V.2006, pitfall trap.
- *Zelotes civicus* (Simon, 1878)
Material: 1 female, 24.V.2006, hand collecting; 2 males and 3 females, 17-31.V.2006, pitfall trap; 2 females, 2.VII.2006, hand collecting; 2 females, 11.V.2008, hand collecting; 36 males and 10 females, 14-28.V.2008, pitfall trap.
- *Zelotes tenuis* (L. Koch, 1866)
Material: 1 male, 17-31.V.2006, pitfall trap.
- *Zelotes* sp. (a)
Material: 1 female, 17-31.V.2006, pitfall trap.
- *Zelotes* sp. (b)
Material: 1 female, 17-31.V.2006, pitfall trap; 2 males and 4 females, 9-23.X.2006, pitfall trap.

Family Hahniidae Bertkau, 1878 (2 species)

- *Hahnia candida* Simon, 1875
Material: 1 female, 19.VI.2006, hand collecting; 1 female, 14-28.V.2008, pitfall trap.
- *Hahnia montana* (Blackwall, 1841)
Material: 1 male, 9-23.X.2006, pitfall trap.

Family Linyphiidae Blackwall, 1859 (34 species)

- *Araeoncus humilis* (Blackwall, 1841)
Material: 1 female, 10.IV.2006; 2 females, 17.V.2006; 5 females, 24.V.2006; 1 male and 1 female, 17-31.V.2006, pitfall trap; 2 females, 19.VI.2006; 6 males and 6 females, 11.V.2008, net sweeping; 2 females, 14-28.V.2006, pitfall trap.
- *Bathyphantes gracilis* (Blackwall, 1841)
Material: 1 male and 3 females, 4.II.2006. 5 females, 10.IV.2006; 4 females, 25.IV.2006; 1 female, 3.V.2006; 4 males and 3 females, 17-31.V.2006, pitfall trap; 1 male, 9-23.X.2006, pitfall trap; 1 male and 3 females, 11.V.2008, net sweeping; 9 males and 6 females, 14-28.V.2008, pitfall trap.
- *Canariphantes zonatus* (Simon, 1884)
Material: 4 males and 2 females, 17-31.V.2006, pitfall trap; 41 males and 7 females, 14-28.V.2008, pitfall trap.
- *Centromerus phocorum* Simon, 1929
Material: 1 male and 5 females, 14-28.V.2008, pitfall trap.

- *Diplocephalus* n. sp.
Material: 2 females, 11.V.2008, sweep netting; 13 males and 3 females, 14-28.V.2008, pitfall trap (2 females deposited in Robert Bosmans' personal collection).
Comments: This species will be described in an upcoming revision (Bosmans *et al.*, in prep.).
- *Diplocephalus permixtus* (O. Pickard-Cambridge, 1871)
Material: 3 females, 14-28.V.2008, pitfall trap. 2 females are deposited in Robert Bosmans' personal collection.
- *Entelecara acuminata* (Wider, 1834)
Material: 1 female, 3.V.2006; 1 male, 17.V.2006; 3 females, 2.VII.2006; 1 male, 11.V.2008, sweep netting; 13 females, 11.V.2008, tree beating (5 females deposited in Robert Bosmans' personal collection). 4 males, 14.V.2008, hand collecting (all deposited in Robert Bosmans' personal collection).
- *Erigone promiscua* (O. Pickard-Cambridge, 1873)
Material: 1 female, 23.X.2005; 1 female, 10.IV.2006; 1 male, 25.IV.2006; 2 males and 1 female, 3.V.2006; 5 males and 3 females, 17.V.2006; 2 males and 3 females, 24.V.2006; 16 males, 17-31.V.2006, pitfall trap; 1 male and 1 female, 19.VI.2006; 2 males, 2.VII.2006; 1 male, 11.V.2008, tree beating; 1 male and 7 females, 11.V.2008, sweep netting.
- *Erigonoplus castellanus* (O. Pickard-Cambridge, 1875)
Material: 2 males and 1 female, 14-28.V.2008, pitfall trap.
- *Frontinellina frutetorum* (C.L. Koch, 1834)
Material: 2 males and 1 female, 10.IV.2006; 1 male, 4.IV.2008, sweep netting; 1 female, 11.V.2008, hand collecting; 22 females, 11.V.2008, sweep netting; 1 female, 14-28.V.2008, pitfall trap.
- *Gnathonarium dentatum* (Wider, 1834)
Material: 3 females, 20.XI.2005, sweep netting; 1 male, 4.II.2006; 1 male, 15.III.2006; 1 male, 3.V.2006; 1 male, 19.VI.2006; 1 male, 11.V.2008, sweep netting.
- *Gongyliidium vivum* (O. Pickard-Cambridge, 1875)
Material: 2 females, 6.XI.2005; 1 female, 10.IV.2006; 2 females, 24.V.2006; 1 male and 1 female, 9-23.X.2006, pitfall trap; 2 males and 1 female, 11.V.2008, sweep netting; 11 males and 1 female, 14-28.V.2008, pitfall trap.
- *Hybocoptus corrugis* (O. Pickard-Cambridge, 1875)
Material: 1 male and 7 females, 10.IV.2006; 5 males and 23 females, 11.IV.2006; 16 females, 25.IV.2006; 2 females, 2.VII.2006; 5 males and 5 females, 13.III.2008, tree beating.
- *Hypomma cornutum* (Blackwall, 1833)
Material: 1 male, 11.V.2008, hand collecting; 1 male and 2 females, 11.V.2008, sweep netting (1 male and 1 female deposited in Robert Bosmans' personal collection); 6 males and 23 females, 11.V.2008, tree beating.
- *Maso sundevalli* (Westring, 1851)
Material: 1 female, 11.V.2008, sweep netting.
- *Meioneta fuscipalpa* (C.L. Koch, 1836)
Material: 1 male, 11.V.2008, sweep netting.
- *Meioneta mollis* (O. Pickard-Cambridge, 1871)
Material: 1 male, 17-31.V.2006, pitfall trap (deposited in Robert Bosmans' personal collection); 1 male, 9-23.X.2006, pitfall trap (2 males deposited in Robert Bosmans' personal collection).
- *Meioneta pseudorurestris* (Wunderlich, 1980)
Material: 1 male, 11.V.2008, sweep netting; 9 males, 14-28.V.2008, pitfall trap.
- *Microlinyphia pusilla* (Sundevall, 1830)
Material: 1 female, 15.III.2006; 2 females, 10.IV.2006; 1 female, 24.V.2006.

- *Minicia elegans* Simon, 1894
Material: 2 males and 2 females, 10.IV.2006; 2 males and 7 females, 11.IV.2006; 1 male and 7 females, 25.IV.2006; 1 male and 7 females, 2.VII.2006.
- *Nerienne clathrata* (Sundevall, 1830)
Material: 1 female, 26.IV.2005, hand collecting; 2 males, 17-31.V.2006, pitfall trap; 1 male and 2 females, 2.VII.2006; 1 female, 11.V.2008, sweep netting; 1 male and 1 female, 14-28.V.2008, pitfall trap.
- *Oedothorax fuscus* (Blackwall, 1834)
Material: 1 male, 11.IV.2006; 1 female, 24.V.2006; 4 males and 11 females, 17-31.V.2006, pitfall trap. 11 males and 4 females, 14-28.V.2008, pitfall trap.
- *Ostearius melanopygius* (O. Pickard-Cambridge, 1879)
Material: 1 male, 11.V.2008, sweep netting; 1 male, 14-28.V.2008, pitfall trap.
- *Palliduphantes stygius* (Simon, 1884)
Material: 1 female, 9-23.X.2006, pitfall trap; 17 males and 8 females, 14-28.V.2008, pitfall trap.
- *Parapelecopsis* n.sp.
Material: 1 male and 1 female, 17-31.V.2006, pitfall trap; 8 males and 7 females, 9-23.X.2006, pitfall trap. All specimens but 1 female and 1 male are deposited in Robert Bosmans' personal collection. Comments: This is a new species, known only from the Paúl de Arzila Natural Reserve and Coimbra. See the description of the species in Bosmans et al., in prep.
- *Pelecopsis bucephala* (O. Pickard-Cambridge, 1875)
Material: 1 male, 24.V.2006, hand collecting.
- *Pelecopsis inedita* (O. Pickard-Cambridge, 1875)
Material: 1 male and 1 female, 11.V.2008, sweep netting.
- *Porrhomma pygmaeum* (Blackwall, 1834)
Material: 1 male and 6 females, 20.XI.2005; 4 males and 6 females, 4.II.2006; 1 male and 2 females, 1.III.2006, sweep netting; 2 females, 15.III.2006; 15 males and 19 females, 10.IV.2006; 1 male and 3 females, 11.IV.2006; 1 female, 25.IV.2006; 1 female, 17.V.2006, sweep netting; 1 male and 2 females, 24.V.2006; 1 male and 3 females, 2.VII.2006; 1 male and 2 females, 9-23.X.2006, pitfall trap; 13 males and 28 females, 11.V.2008, tree beating; 3 females, 11.V.2008, hand collecting; 6 males and 17 females, 11.V.2008, sweep netting; 2 males and 1 female, 14-28.V.2008, pitfall trap.
- *Prinerigone vagans* (Audouin, 1826)
Material: 1 male, 6.XI.2005, hand collecting; 1 female, 17-31.V.2006, pitfall trap.
- *Sintula* n. sp.
Material: 1 male and 1 female, 17-31.V.2006, pitfall trap; 1 male, 14-28.V.2008, pitfall trap.
Comments: This is a new species. See the description in Bosmans et al., in prep.
- *Stylotector romanus* (O. Pickard-Cambridge, 1872)
Material: 1 female, 11.V.2008, sweep netting.
- *Tenuiphantes tenuis* (Blackwall, 1852)
Material: 1 female, 4.II.2006; 1 female, 19.VI.2006; 1 female, 2.VII.2006; 6 males, 9-23.X.2006, pitfall trap; 23 males and 9 females, 14-28.V.2008, pitfall trap.
- *Tiso vagans* (Blackwall, 1834)
Material: 1 female, 14-28.V.2008, pitfall trap.
- *Walckenaeria acuminata* Blackwall, 1833
Material: 2 females, 17-31.V.2006, pitfall trap; 1 female, 14-28.V.2008, pitfall trap.

Family Liocranidae Simon, 1897 (3 species)

- *Agraecina lineata* (Simon, 1878)
Material: 30 males and 6 females, 17-31.V.2006, pitfall trap; 1 male, 2.VII.2006; 1 female, 9-23.X.2006, pitfall trap; 54 males and 5 females, 14-28.V.2008, pitfall trap.
- *Agroeca inopina* O. Pickard-Cambridge, 1886
Material: 1 female, 17-31.V.2006, pitfall trap; 1 male, 9-23.X.2006, pitfall trap; 1 female, 14-28.V.2008, pitfall trap.
- *Scotina celans* (Blackwall, 1841)
Material: 1 female, 28.V.2008, pitfall trap.

Family Lycosidae Sundevall, 1833 (12 species)

- *Alopecosa albofasciata* (Brullé, 1832)
Material: 1 female, 17-31.V.2006, pitfall trap; 2 males and 2 females, 14-28.V.2008, pitfall trap.
- *Alopecosa pulverulenta* (Clerck, 1757)
Material: 1 female, 10.IV.2006, hand collecting; 2 females, 17-31.V.2006, pitfall trap; 5 females, 14-28.V.2008, pitfall trap.
- *Arctosa lacustris* (Simon, 1876)
Material: 1 male, 17-31.V.2006, pitfall trap.
- *Arctosa leopardus* (Sundevall, 1833)
Material: 1 male, 3.V.2006, hand collecting; 26 males and 6 females, 17-31.V.2006, pitfall trap; 9 males and 7 females, 14-28.V.2008, pitfall trap.
- *Arctosa personata* (L. Koch, 1872)
Material: 3 males and 2 females, 17-31.V.2006, pitfall trap; 1 male, 14-28.V.2008, pitfall trap.
- *Hogna radiata* (Latreille, 1817)
Material: 1 female, 2.VII.2006, hand collecting.
- *Pardosa femoralis* Simon, 1876
Material: 2 females, 10.IV.2006; 1 male, 17.V.2006, sweep netting; 1 male, 3.V.2006; 6 males and 4 females, 17-31.V.2006, pitfall trap; 1 female, 2.VII.2006; 1 male, 11.V.2008, sweep netting; 60 males and 16 females, 14-28.V.2008, pitfall trap.
- *Pardosa hortensis* (Thorell, 1872)
Material: 1 male and 1 female, 17-31.V.2006, pitfall trap; 2 females, 11.V.2008, hand collecting; 5 females, 14-28.V.2008, pitfall trap.
- *Pardosa proxima* (C.L. Koch, 1847)
Material: 1 female, 6.XI.2005, hand collecting; 2 males and 1 female, 4.II.2006; 1 female, 17.V.2006; 1 female, 24.V.2006; 25 males and 9 females, 17-31.V.2006, pitfall trap; 2 females, 9-23.X.2006, pitfall trap; 1 female, 11.V.2008, sweep netting; 1 female, 11.V.2008, hand collecting; 8 males and 35 females, 14-28.V.2008, pitfall trap.
- *Pirata latitans* (Blackwall, 1841)
Material: 10 males and 1 female, 14-28.V.2008, pitfall trap.
- *Pirata piraticus* (Clerck, 1757)
Material: 3 males and 5 females, 17-31.V.2006, pitfall trap; 1 male and 7 females, 14-28.V.2008, pitfall trap.
- *Trochosa ruricola* (De Geer, 1778)
Material: 1 male, 23.X.2005; 1 female, 24.V.2006; 58 males and 17 females, 17-31.V.2006, pitfall trap; 2 males, 9-23.X.2006, pitfall trap; 1 female, 11.V.2008, hand collecting; 2 females, 11.V.2008, sweep netting; 172 and 42 males, 14-28.V.2008, pitfall trap.

Family Mimetidae Simon, 1881 (1 species)

- *Ero aphana* (Walckenaer, 1802)
Material: 6 males and 9 females, 25.IV.2006; 3 females, 2.VII.2006; 1 female, 4.IV.2008; 2 females, 11.V.2008, sweep netting.

Family Miturgidae Simon, 1886 (3 species)

- *Cheiracanthium mildei* L. Koch, 1864
Material: 1 male, 25.IV.2006.
- *Cheiracanthium pelagicum* (C.L. Koch, 1837)
Material: 5 males and 5 females, 11.V.2008, sweep netting; 1 male and 1 female, 11.V.2008, hand collecting.
- *Cheiracanthium striolatum* Simon, 1878
Material: 1 male, 11.IV.2006; 1 male and 1 female, 25.IV.2006; 1 female, 2.VII.2006; 1 female, 11.V.2008, sweep netting.

Family Nemesiidae Simon, 1889 (1 species)

- *Nemesia bacelarae* Decae, Cardoso & Selden, 2007
Material: 9 males, 9-23.X.2006, pitfall trap.

Family Oecobiidae Blackwall, 1862 (1 species)

- *Oecobius navus* Blackwall, 1859
Material: 2 males and 3 females, 2.VII.2006, hand collecting.

Family Oonopidae (1 species)

- *Oonops* sp.
Material: 2 males and 2 females, 11.V.2008, sweep netting.

Family Oxyopidae Thorell, 1870 (3 species)

- *Oxyopes heterophthalmus* (Latreille, 1804)
Material: 1 male, 11.V.2008, sweep netting.
- *Oxyopes lineatus* Latreille, 1806
Material: 2 males and 1 female, 2.VII.2006; 1 female, 11.V.2008, sweep netting.
- *Oxyopes nigripalpis* Kulczynski, 1891
Material: 3 males, 17.V.2006; 1 female, 2.VII.2006; 20 males and 2 female, 11.V.2008, sweep netting.

Family Philodromidae Thorell, 1870 (6 species)

- *Philodromus buxi* Simon, 1884
Material: 1 male, 25.IV.2006; 2 females, 2.VII.2006.
- *Philodromus cespitum* (Walckenaer, 1802)
Material: 1 female, 19.VI.2006.
- *Philodromus pulchellus* Lucas, 1846
Material: 1 female, 25.VII.2006; 1 male and 2 females, 11.V.2008, sweep netting.
- *Philodromus rufus* Walckenaer, 1826
Material: 1 male, 10.IV.2006; 1 male, 11.IV.2006; 3 males and 1 female, 25.IV.2006; 1 male and 4 females, 3.V.2006; 1 female, 24.V.2006; 1 female, 2.VII.2006; 1 male, 4.IV.2008; 6 males and 23 females, 11.V.2008, tree beating; 4 males and 6 females, 11.V.2008, sweep netting.
- *Philodromus* sp.
Material: 1 female, 2.VII.2006.
- *Tibellus oblongus* (Walckenaer, 1802)
Material: 1 male, 3.V.2006; 2 females, 17.V.2006; 1 male, 11.V.2008, hand collecting; 8 males and 13 females, 11.V.2008, sweep netting.

Family Pisauridae Simon, 1890 (1 species)

- *Pisaura mirabilis* (Clerck, 1757)
Material: 1 female, 11.V.2008, hand collecting; 4 females, 11.V.2008, sweep netting.

Family Salticidae Blackwall, 1841 (17 species)

- *Ballus chalybeius* (Walckenaer, 1802)
Material: 1 male, 25.IV.2006; 1 male, 17.V.2006; 1 female, 19.VI.2006, sweep netting.
- *Bianor albobimaculatus* (Lucas, 1846)
Material: 1 female, 23.X.2005; 1 female, 18.XII.2005, sweep netting; 1 male, 10.IV.2006; 1 male, 17-31.V.2006, pitfall trap; 1 male, 19.VI.2006.
- *Carrhottus xanthogramma* (Latreille, 1819)
Material: 1 male and 1 female, 25.IV.2006; 1 male, 3.V.2006.
- *Chalcoscirtus infimus* (Simon, 1868)
Material: 1 male, 17-31.V.2006, pitfall trap.
- *Euophrys semiglabrata* (Simon, 1868)
Material: 2 females, 17-31.V.2006, pitfall trap; 1 female, 19.VI.2006; 1 female, 11.V.2008, hand collecting.
- *Evarcha jucunda* (Lucas, 1846)
Material: 1 male, 10.IV.2006; 1 male and 1 female, 17.V.2006; 1 male, 2.VII.2006; 1 female, 9-23.X.2006, pitfall trap; 1 male and 1 female, 11.V.2008, sweep netting.
- *Heliophanus cupreus* (Walckenaer, 1802)
Material: 1 male and 1 female, 10.IV.2006; 1 male, 3.V.2006; 2 males and 1 female, 17.V.2006; 2 males and 1 female, 24.V.2006; 1 female, 2.VII.2006; 1 female, 11.V.2008, hand collecting; 1 male and 7 females, 11.V.2008, sweep netting; 1 male, 14-28.V.2008, pitfall trap.
- *Icius hamatus* (C.L. Koch, 1846)
Material: 1 male, 10.IV.2006; 1 male and 1 female, 3.V.2006; 5 males and 2 females, 25.IV.2006; 2 males and 3 females, 17.V.2006; 1 male, 24.V.2006; 1 female, 11.V.2008, sweep netting.
- *Macaroesis nidicolens* (Walckenaer, 1802)
Material: 1 male, 2.VII.2006; 1 male, 11.V.2008, sweep netting.
- *Marpissa nivoyi* (Lucas, 1846)
Material: 1 male, 6.XI.2005, hand collecting; 2 females, 20.XI.2005, sweep netting; 1 male, 18.XII.2005, sweep netting; 2 females, 10.IV.2006; 1 female, 24.V.2006; 1 male, 11.V.2008, sweep netting.
- *Myrmarachne formicaria* (De Geer, 1778)
Material: 1 male, 11.V.2008, hand collecting; 1 female, 14.V.2008, hand collecting.
- *Neon levis* (Simon, 1871)
Material: 1 female, 17-31.V.2006, pitfall trap.
- *Pseudeuophrys erratica* (Walckenaer, 1826)
Material: 1 male, 17.V.2006; 1 female, 2.VII.2006.
- *Pseudicius encarpatus* (Walckenaer, 1802)
Material: 1 female, 24.V.2006; 1 female, 11.V.2008, tree beating.
- *Salticus scenicus* (Clerck, 1757)
Material: 1 male, 19.VI.2006; 1 female, 2.VII.2006.
- *Salticus zebraneus* (C.L. Koch, 1837)
Material: 1 male, 25.IV.2006.
- *Synageles venator* (Lucas, 1846)
Material: 1 male, 10.IV.2006; 1 female, 19.VI.2006; 2 females, 11.V.2008, sweep netting; 2 males and 2 females, 11.V.2008, tree beating.

Family Sparassidae Bertkau, 1872 (2 species)

- *Micrommata ligurina* (C.L. Koch, 1845)
Material: 1 male, captured at 27.IX.2006 as a juvenile, it was raised in captivity and reached adulthood by February, 2007.
- *Olios argelasius* (Walckenaer, 1805)
Material: 1 female, 25.IV.2006.

Family Tetragnathidae Menge, 1866 (7 species)

- *Metellina mengei* (Blackwall, 1870)
Material: 2 females, 1.III.2006, sweep netting; 1 male, 15.III.2006, sweep netting; 1 male and 1 female, 13.III.2008, sweep netting.
- *Metellina merianae* (Scopoli, 1763)
Material: 2 males, 11.V.2008, hand collecting.
- *Pachygnatha degeeri* Sundevall, 1830
Material: 2 males and 1 female, 17-31.V.2006, pitfall trap; 1 male, 19.VI.2006; 5 males and 9 females, 2.VII.2006; 5 females, 11.V.2008, sweep netting; 1 male, 14-28.V.2008, pitfall trap.
- *Tetragnatha extensa* (Linnaeus, 1758)
Material: 1 male, 15.III.2006, sweep netting; 2 females, 10.IV.2006; 1 male, 3.V.2006; 2 males and 1 female, 25.IV.2006; 3 males and 1 female, 19.VI.2006; 1 male, 27.IX.2006; 2 males and 2 females, 11.V.2008, sweep netting.
- *Tetragnatha montana* Simon, 1874
Material: 1 male, 10.IV.2006; 2 males and 1 female, 15.IV.2006; 1 male, 17.V.2006; 1 male, 24.V.2006; 6 males and 3 females, 2.VII.2006; 4 males, 25.VII.2006; 41 males and 28 females, 11.V.2008, hand collecting; 12 males and 1 female, 11.V.2008, tree beating; 32 males and 88 females, 11.V.2008, sweep netting.
- *Tetragnatha nigrita* Lendl, 1886
Material: 1 male, 2.VII.2006.
- *Tetragnatha obtusa* C.L. Koch, 1837
Material: 1 male, 10.IV.2006; 1 male, 25.VII.2006; 1 female, 11.V.2008, tree beating; 7 males and 4 females, 11.V.2008, sweep netting.

Family Theridiidae Sundevall, 1833 (24 species)

- *Achaearanea lunata* (Clerck, 1757)
Material: 1 female, 23.X.2005, hand collecting; 1 male, 4.IV.2008, hand collecting.
- *Anelosimus pulchellus* (Walckenaer, 1802)
Material: 1 female, 10.IV.2006; 1 male and 1 female, 25.IV.2006.
- *Anelosimus vittatus* (C.L. Koch, 1836)
Material: 1 female, 11.V.2008, tree beating.
- *Argyrodes argyroides* (Walckenaer, 1802)
Material: 1 female, 23.X.2005, hand collecting; 1 male and 1 female, 2.VII.2006.
- *Episinus maculipes* Cavanna, 1876
Material: 1 female, 18.XII.2005, sweep netting.
- *Episinus truncatus* Latreille, 1809
Material: 4 males, 17-31.V.2008, pitfall trap; 1 male and 4 females, 11.V.2008, hand collecting; 3 males and 7 females, 11.V.2008, sweep netting; 15 males and 2 females, 14-28.V.2008, pitfall trap.
- *Keijia tincta* (Walckenaer, 1802)
Material: 1 male and 1 female, 10.IV.2006; 2 females, 11.IV.2006; 2 males and 7 females, 25.IV.2006; 1 female, 2.VII.2006; 1 male, 4.IV.2008; 1 male and 1 female, 11.V.2008, sweep netting; 2 females, 11.V.2008, tree beating.
- *Kochiura aulica* (C.L. Koch, 1838)
Material: 1 male, 4.II.2006; 2 males, 15.III.2006, sweep netting; 3 males, 10.IV.2006; 1 male and 1 female, 11.IV.2006; 1 male and 1 female, 25.IV.2006; 1 male, 3.V.2006; 1 male, 17.V.2006; 1 male, 2.VII.2006; 1 female, 27.IX.2006; 1 male, 4.IV.2008; 8 males and 6 females, 11.V.2008, hand collecting; 30 males and 97 females, 11.V.2006, sweep netting; 1 female, 14.V.2008, hand collecting.
- *Lasaeola testaceomarginata* Simon, 1881
Material: 2 females, 10.IV.2006; 1 female, 2.VII.2006.

- *Neottiura uncinata* (Lucas, 1846)
Material: 4 males and 6 females, 11.V.2008, sweep netting; 1 male, 14-28.V.2008, pitfall trap.
- *Paidiscura pallens* (Blackwall, 1834)
Material: 1 male and 2 females, 10.IV.2006; 2 males, 25.IV.2006; 2 females, 3.V.2006; 1 male, 13.III.2008; 3 females, 11.V.2008, sweep netting; 3 males and 8 females, 11.V.2008, tree beating.
- *Phoroncidia paradoxa* (Lucas, 1846)
Material: 1 male, 4.II.2006 (presumed lost); 1 female, 10.IV.2006; 1 female, 11.IV.2006.
- *Robertus arundineti* (O. Pickard-Cambridge, 1871)
Material: 1 male, 11.V.2008, tree beating; 5 males, 11.V.2008, sweep netting; 5 males, 14-28.V.2008, pitfall trap.
- *Romphaea rostrata* (Simon, 1873)
Material: 1 male, 25.IV.2006; 3 males, 11.V.2008, sweep netting; 1 female, 11.V.2008, hand collecting.
- *Simitidion simile* (C.L. Koch, 1836)
Material: 2 males, 11.IV.2006; 1 male and 1 female, 25.IV.2006; 1 female, 3.V.2006; 1 male and 1 female, 17.V.2006; 1 female, 2.VII.2006; 1 female, 11.V.2008, hand collecting; 1 female, 11.V.2008, tree beating; 3 males and 3 females, 11.V.2008, sweep netting.
- *Steatoda nobilis* (Thorell, 1875)
Material: 1 female, 6.XI.2005, hand collecting; 1 female, 2.VII.2006, hand collecting.
- *Theridion blackwalli* O. Pickard-Cambridge, 1871
Material: 5 males, 25.IV.2006; 1 male, 14.V.2008, hand collecting.
- *Theridion hannoniae* Denis, 1944
Material: 1 male, 11.V.2008, hand collecting; 2 males, 11.V.2008, sweep netting.
- *Theridion hemerobium* Simon, 1914
Material: 1 male, 26.IV.2005, hand collecting; 3 males and 1 female, 10.IV.2006; 7 males and 4 females, 25.IV.2006; 1 male, 17.V.2006; 2 females, 2.VII.2006; 3 males, 11.V.2008, hand collecting; 6 males, 11.V.2008, sweep netting.
- *Theridion musivum* Simon, 1873
Material: 2 males, 25.IV.2006; 1 male, 11.V.2008, sweep netting.
- *Theridion mystaceum* L. Koch, 1870
Material: 1 female, 11.V.2008, sweep netting.
- *Theridion nigropunctatum* Lucas, 1846
Material: 1 male, 10.IV.2006; 1 male, 25.IV.2006; 1 female, 3.V.2006; 1 male and 1 female, 4.IV.2008; 3 males and 5 females, 11.V.2008, sweep netting.
- *Theridion* sp.
Material: 1 male, 25.IV.2006.
- *Theridula gonygaster* (Simon, 1873)
Material: 3 males, 2.VII.2006; 1 female, 11.V.2008, hand collecting; 3 males and 6 females, 11.V.2008, sweep netting.

Family Theridiosomatidae Simon, 1881 (1 species)

- *Theridiosoma gemmosum* (L. Koch, 1877)
Material: 1 male, 25.IV.2006; 1 female, 3.V.2006, sweep netting; 1 female, 17.V.2006, sweep netting; 3 males and 1 female, 11.V.2008, sweep netting.

Family Thomisidae Sundevall, 1833 (14 species)

- *Diaea dorsata* (Fabricius, 1777)
Material: 2 males, 25.IV.2006; 1 female, 11.V.2008, sweep netting.
- *Ebrechtella tricuspida* (Fabricius, 1775)
Material: 1 male, 20.XI.2005, sweep netting; 2 males and 1 female, 10.IV.2006; 1 female, 17.V.2006; 1 female, 24.V.2006; 1 male and 1

female, 11.V.2008, hand collecting; 8 males and 4 females, 11.V.2008, tree beating; 4 males and 9 females, 11.V.2008, sweep netting.

• *Misumena vatia* (Clerck, 1757)

Material: 1 male, 17.V.2008; 1 female, 19.VI.2006; 1 female, 11.V.2008, sweep netting.

• *Ozyptila bicuspis* Simon, 1932

Material: 7 males, 17-31.V.2006, pitfall trap; 1 male, 11.V.2008, sweep netting; 12 males and 1 female, 14-28.V.2008, pitfall trap.

• *Ozyptila pauxilla* (Simon, 1870)

Material: 1 male, 14-28.V.2008, pitfall trap.

• *Ozyptila simplex* (O. Pickard-Cambridge, 1862)

Material: 3 males, 14-28.V.2008, pitfall trap.

• *Runcinia grammica* (C.L. Koch, 1837)

Material: 1 female, 18.XII.2005, sweep netting; 1 male, 17.V.2006; 1 male and 1 female, 19.VI.2006; 5 males, 11.V.2008, sweep netting.

• *Synema globosum* (Fabricius, 1775)

Material: 2 males, 10.IV.2006; 1 male, 17.V.2006; 1 female, 11.V.2008, hand collecting; 24 males and 16 females, 11.V.2008, sweep netting.

• *Thomisus onustus* Walckenaer, 1805

Material: 1 male, 11.V.2008, sweep netting.

• *Xysticus acerbus* Thorell, 1872

Material: 2 female, 4.IV.2008, sweep netting; 1 female, 13.III.2008, sweep netting; 1 female, 14-28.V.2008, pitfall trap.

• *Xysticus cristatus* (Clerck, 1757)

Material: 1 male, 17.V.2006; 1 male and 1 female, 11.V.2008, hand collecting; 2 males and 1 female, 11.V.2008, sweep netting; 3 males, 14-28.V.2008, pitfall trap.

• *Xysticus ferrugineus* Menge, 1876

Material: 1 female, 13.III.2008, sweep netting.

• *Xysticus kochi* Thorell, 1872

Material: 1 male, 4.IV.2008, sweep netting. This specimen was captured in the referred date as a juvenile, it was reared in captivity and turned adult on early May.

• *Xysticus lanio* C.L. Koch, 1835

Material: 1 male, 19.VI.2006; 1 female, 27.IX.2006; 3 males, 2.VII.2006.

Family Uloboridae Thorell, 1869 (2 species)

• *Hyptiotes paradoxus* (C.L. Koch, 1834)

Material: 2 females, 6.XI.2005; 1 male, 4.II.2006.

• *Uloborus walckenaerius* Latreille, 1806

Material: 1 male, 15.VIII.2006; 3 males and 4 females, 11.V.2008, hand collecting; 26 males and 20 females, 11.V.2008, sweep netting.

Family Zodariidae Thorell, 1881 (2 species)

• *Zodarion atlanticum* Pekár & Cardoso, 2005

Material: 126 males and 14 females, 17-31.V.2006, pitfall trap (deposited in Stanislav Pekár's personal collection); 1 female, 19.VI.2006, hand collecting; 1 female, 2.VII.2006, hand collecting.

• *Zodarion costablancae* Bosmans, 1994

Material: 3 males, 17-31.V.2008, pitfall trap (deposited in Stanislav Pekár's personal collection); 17 males and 6 females, 14-28.V.2008, pitfall trap.

Family Zoridae O. Pickard-Cambridge, 1893 (2 species)

• *Zora parallela* Simon, 1878

Material: 1 male, 4.IV.2008, hand collecting.

• *Zora spinimana* (Sundevall, 1833)

Material: 2 females, 10.IV.2006; 3 males, 17-31.V.2006, pitfall trap; 1 female, 27.IX.2006.

Family Zoropsidae Bertkau, 1882 (1 species)

• *Zoropsis spinimana* (Dufour, 1820)

Material: 1 male and 1 female, 6.XI.2005, hand collecting; 1 female, 25.IV.2006; 1 male and 4 females, 11.V.2008, hand collecting.

Discussion

In this work, a sum of 201 spider species is accounted for the Paúl de Arzila Natural Reserve. Nevertheless, although a considerable effort was made, the inventory is still incomplete. Juveniles of the genera *Araniella* Chamberlin & Ivie, 1942 and *Nurscia* Simon, 1874 were spotted several times but the lack of adults does not allow their identification to species.

Of these 201 species, seven are reported for the first time to Portugal (Crespo, 2008; Bosmans *et al.*, in prep.) and four are new to science. Also, it is possible that seven unidentified species (*Gibbaranea* sp., *Altella* sp., *Zelotes* sp., *Oonops* sp., *Philodromus* sp. and *Theridion* sp.) belong to species unknown to the Portuguese territory or even to science. For instance, the *Oonops* female specimens appear to have spines that match Dalmas' description of *O. pulcher hispanicus* (Dalmas, 1916), but since no detailed description of those specimens or material is easily available, the identity of these specimens remains uncertain. Furthermore, some relatively rare species are noticed in this material. The known distribution of *Theridiosoma gemmosum*, is enlarged further to the south in the Iberian Peninsula; *Cyrtarachne ixoides*, a rare and remarkable araneid, as well as *Erigonoplus castellanus*, were found only once in Portugal (Telfer *et al.*, 2003), and see their presence confirmed. In addition, 5 species from this material were previously reported as new to Portugal (Crespo, 2008) and 2 more are now cited for the first time as well, *Meioneta mollis* and *Entelecara acuminata* (see further information about these species in Bosmans (2006) and Roberts (1987), respectively).

The species richness of the area is one more demonstration of the richness of Mediterranean habitats. It is far too common that much sampling work developed in the Iberian Peninsula and considered as exhaustive captures no more than a few dozen species per site. However, recent estimates consistently point to 150 to more than 200 species as being possible to co-exist in any habitat type in the region, even in areas as small as one hectare and in a time-frame as limited as two weeks (Cardoso *et al.*, 2008a, b, 2009). Apparently, the richness of Mediterranean habitats requires a consistent sampling effort to reach reasonable species lists, like the one now presented (Cardoso, 2008a). Although the knowledge of the Portuguese and Iberian spider fauna is just experiencing a new interest from both professional and amateur arachnologists, works like these could prove useful in realizing which species inhabit the protected areas of the region.

Acknowledgements

The authors would like to thank Roberts Bosmans, Jose Antonio Barrientos, Stano Pekár and Pedro Sousa for the helpful comments

and/or bibliographic support on identifying some species, to the Paúl de Arzila Natural Reserve, more precisely Manuel Santos and Lino Nossa for the permission to make samplings in the site and the maintenance staff for help with logistics; to Jorge Paiva for kindly identifying the most common plants in the Reserve. Finally, for the collaboration in the field work we are thankful to Harith Morgadinho, Gonçalo Ferreira and Sandra Videira.

Literature

- ALDERWEIRELDT, M. & R. BOSMANS 2001. A contribution to the knowledge of the Arachnofauna (Araneae) of Portugal: New or confirmed species for the country checklist. *Revista Iberica de Aracnologia*, **3**: 89-91.
- BACELAR, A. 1927a. Aracnídeos Portugueses I. *Bulletin de la Société Portugaise de Sciences Naturelles*, **10**: 87-97.
- BACELAR, A. 1927b. Aracnídeos Portugueses II. *Bulletin de la Société Portugaise de Sciences Naturelles*, **10**: 129-138.
- BACELAR, A. 1928. Aracnídeos Portugueses III. *Bulletin de la Société Portugaise de Sciences Naturelles*, **10**: 169-203.
- BACELAR, A. 1933. Aracnídeos Portugueses IV. Continuação do inventário dos Aracnídeos. *Bulletin de la Société Portugaise de Sciences Naturelles*, **11**: 295-302.
- BACELAR, A. 1935. Aracnídeos Portugueses V. *Bulletin de la Société Portugaise de Sciences Naturelles*, **12**: 33-39.
- BACELAR, A. 1936. Aracnídeos Portugueses III. Continuação do inventário dos Aracnídeos. *Bulletin de la Société Portugaise de Sciences Naturelles*, **12**: 179-183.
- BACELAR, A. 1940. Aracnídeos Portugueses VI (continuação do inventário dos Aracnídeos). *Bulletin de la Société Portugaise de Sciences Naturelles*, **13**: 99-110.
- BARRIENTOS, J.A. & P. CARDOSO 2007. The genus *Malthonica* Simon, 1898 in the Iberian Peninsula (Araneae: Agelenidae). *Zootaxa*, **1460**: 59-68.
- BOSMANS, R. 2006. Contribution to the knowledge of the Linyphiidae of the Maghreb. Part XI. Miscellaneous linyphiid genera and additions (Araneae: Linyphiidae: Linyphiinae). *Bulletin et Annales de la Société royale Belge d'Entomologie*, **141**: 125-161.
- BOSMANS, R., C. CARDOSO & L. CRESPO, in prep. A review of the Linyphiid spiders of Portugal, with the description of six new species (Araneae: Linyphiidae).
- CARDOSO, P. 2000. Portuguese spiders (Araneae): a preliminary checklist. In P. Gajdos & S. Pekár (eds.), Proceedings of the 18th European Colloquium of Arachnology. *Ekológia*, **19**: 19-29.
- CARDOSO, P. 2008. Biodiversity and conservation of Iberian spiders: past, present and future. *Boletín de la Sociedad Entomológica Aragonesa*, **42**: 487-492.
- CARDOSO, P. 2009. Portugal spider catalogue (v1.5). Available online at <http://www.ennor.org/catalogue.php>
- CARDOSO, P., C. GASPAS, L.C. PEREIRA, I. SILVA, S.S. HENRIQUES, R.R. SILVA & P. SOUSA 2008a. Assessing spider species richness and composition in Mediterranean cork oak forests. *Acta Oecologica*, **33**: 114-127.
- CARDOSO, P., N. SCHARFF, C. GASPAS, S.S. HENRIQUES, R. CARVALHO, P.H. CASTRO, J.B. SCHMIDT, I. SILVA, T. SZÜTS, A. CASTRO & L.C. CRESPO 2008b. Rapid biodiversity assessment of spiders (Araneae) using semi-quantitative sampling: a case study in a Mediterranean forest. *Insect Conservation and Diversity*, **1**: 71-84.
- CARDOSO, P., S.S. HENRIQUES, C. GASPAS, L.C. CRESPO, R. CARVALHO, J.B. SCHMIDT, P. SOUSA & T. SZÜTS, 2009. Species richness and composition assessment of spiders in a Mediterranean scrubland. *Journal of Insect Conservation*, **13**: 45-55.
- CRESPO, L. 2008. Contribution to the knowledge of the portuguese spider (Arachnida: Araneae) fauna: 7 new additions to the Portuguese checklist. *Boletín de la Sociedad Entomológica Aragonesa*, **43**: 403-407.
- DALMAS, R. DE 1916. Révision du genre *Orchestina* E.S., suivie la description de nouvelles espèces du genre *Oonops* et d'un étude sur les Dictynidae du genre *Scotolathys*. *Annales de la Société Entomologique Française*, **85**: 203-258.
- FERRAND DE ALMEIDA, F. *et al.*, 1983. Aspectos faunísticos, florísticos, geológicos e geográficos do Paúl de Arzila. *Ciência Biológica*, **5**: 43-78.
- FERRAND DE ALMEIDA, F. *et al.*, 1984. Nova contribuição para o conhecimento da fauna do Paúl de Arzila. *Ciência Biológica*, **5**: 191-194.
- FERRÁNDEZ, M.A. 1986. Los Dysderidae (Araneae) de la fauna portuguesa. *Boletim da Sociedade Portuguesa de Entomologia*, **4**: 17-24.
- MACHADO, A. DE B. 1937. Aranhas novas para a fauna portuguesa. *Memórias e Estudos do Museu Zoológico da Universidade de Coimbra*, **107**: 1-7.
- MACHADO, A. DE B. 1941. Araígnees nouvelles pour la faune portugaise, II. *Memórias e Estudos do Museu Zoológico da Universidade de Coimbra*, **117**: 1-60.
- MACHADO, A. DE B. 1949. Araígnees nouvelles pour la faune portugaise, III. *Memórias e Estudos do Museu Zoológico da Universidade de Coimbra*, **191**: 1-69.
- PAIVA, J., M.C. LOPEZ, N.M. SAMANIEGO & P.I.A. CRUZ 1993. A Flora e a Vegetação da Reserva Natural do Paúl de Arzila. *Natureza e Paisagem*, **12**: 1-66.
- PEKÁR, S. & P. CARDOSO 2005. Zodariid spiders (Araneae, Zodariidae) of Portugal: further additions. *Zootaxa*, **1009**: 51-60.
- PEKÁR, S., P. CARDOSO & C. MEIERROSE 2003. Additions to the Portuguese zodariid spiders (Araneae: Zodariidae). *Bulletin of the British Arachnological Society*, **12**(9): 385-395.
- PIRES, P. & M. CORLEY 2007. The Lepidoptera of Baixo Mondego (Beira Litoral, Portugal) (Insecta: Lepidoptera). *Shilap, Revista de Lepidopterologia*, **35**: 187-230.
- PLATNICK, N. I. 2008. The World Spider Catalog. Version 9.0. American Museum of Natural History, available online at <http://research.amnh.org/entomology/spiders/catalog/INTR01.html>
- ROBERTS, M. J. 1987. *The spiders of Great Britain and Ireland*, Volume 2: Linyphiidae and check list. Harley Books, Colchester, England.
- ROBERTS, M.J. 1995. *Collins Field Guide: Spiders of Britain & Northern Europe*. HarperCollins, London, 383 pp.
- SOUSA, P. 2006. Spider records from Serra da Estrela Natural Park (Portugal): families Araneidae and Tetragnathidae (Arachnida, Araneae). *Boletim Sociedade Entomológica Aragonesa*, **39**(2006): 245-250.
- TELFER, G., R. BOSMANS, A. MELIC & F. REGO 2003. The spiders of Portugal: some additions to the current checklist (Araneae). *Revista Ibérica de Aracnologia*, **7**: 251-255.

Unpublished documents

- CARDOSO, P. 1998. *Arachnofauna of Arrábida mountain chain – inventory and characterization of selected biotopes*. BSc thesis.
- CARDOSO, P. 2004. *The use of arachnids (class Arachnida) in biodiversity assessment and monitoring of natural areas*. PhD thesis.
- GOUVEIA, A.F. 2004. *Araneofauna (Arachnida: Araneae) do Parque Natural da Serra de São Mamede: Faunística e Métodos de Avaliação de Riqueza Específica*. MSc thesis.
- SILVA, R. 2004. *Biodiversidade de Aranhas em Zona de Pousios – Um Ensaio*. Trab. F. C. Univ. Évora 46 pp.