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## On the endemic spider species of the genus *Savigniorrhapis* Wunderlich, 1992 (Araneae: Linyphiidae) in the Azores (Portugal), with description of a new species

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### Abstract

*Savigniorrhapis topographicus* new species is described from the Azores. The synapomorphies of *Savigniorrhapis* are discussed along with the affinities of the genus within the *Savignia*-group. Given the extremely restricted and increasingly disturbed habitat, *S. topographicus* new species should be classified as Critically Endangered and its single forest habitat at Topo (São Jorge Island) should increase its current protection level to a strict nature reserve.

**Key words:** Arachnida, Erigoninae, *Diplocephalus*, *Savignia*, taxonomy, São Jorge, Azores, Macaronesia, endemism, laurel forest

### Introduction

The limits of the genus *Savignia* Blackwall, 1833 can be considered as ill-defined, with species often transferred to or from other genera. *Savignia* was initially created to host a single species, *S. frontata* Blackwall, 1833, a supposed six-eyed erigonine spider which went back and forth to the genus *Walckenaeria* Blackwall, 1833. Blackwall (1864) removed it and then Hull (1909) transferred it back, due to its male's remarkable cephalic lobe. It later became harder to define *Savignia*, as well as its close relatives, when taxonomists started to analyze the structure of the genitalic features of these taxa. Dahl described 2 species back in 1912, *S. conwentzi* Dahl, 1912 and *S. foveata* Dahl, 1912, but these were later transferred out of *Savignia* by Wiehle (1960). It was only by the end of the twentieth century that the genus saw a reasonable amount of species being described, with the greater bulk of them found in Russia (*S. amurensis* Eskov, 1991, *S. badzhalensis* Eskov, 1991, *S. basarukini* Eskov, 1988, *S. borea* Eskov, 1988, *S. burensis* Tanasevitch & Trilikauskas, 2006, *S. centrasiatica* Eskov, 1991, *S. eskovi* Marusik, Koponen & Danilov, 2001, *S. saitoi* Eskov, 1988, *S. ussurica* Eskov, 1988, *S. zero* Eskov, 1988). Other species were described from a large variety of locations, such as Japan (*S. kawachiensis* Oi, 1960), Korea (*S. pseudofrontata* Paik, 1978), Spain (*S. harmsi* Wunderlich, 1980), France (*S. superstes* Thaler, 1984), Greece (*S. naniplopi* Bosselaers & Henderickx, 2002) or even the Comoro Islands (*S. kartalensis* Jocqué, 1985). Additionally, several species were transferred to the genus *Savignia* from other genera, such as *S. birostra* (Chamberlin & Ivie, 1947), *S. erythrocephala* (Simon, 1908), *S. fronticornis* (Simon, 1884) and *S. yasudai* (Saito, 1986), and currently the genus comprises 23 species (Platnick 2013).

There was some consensus by the first authors (Lockett & Millidge 1953; Merrett 1963; Millidge 1977) who tried to understand the relationships of the *Savignia* genus with other genera. They suggested *Savignia* to be closely related to *Alioranus* Simon, 1926, *Araeoncus* Simon, 1884, *Delorrhapis* Simon, 1884, *Diastanillus* Simon, 1926,

forest is a major cause of past and future extinctions of spiders (Cardoso *et al.* 2010a) and arthropods (Triantis *et al.* 2010) in this archipelago. The same sampling effort was made in 1999/2000 and 2010 in two sites of Topo forest. Ten individuals of the species were found in 2000 in one site in the core area of the forest. Four individuals were found in 2010 in a different site at the margin of the forest, none was found in the initial site. With the necessary caution, namely given the Prestonian shortfall (see Cardoso *et al.* 2011b), the data seem to indicate a reduction and/or extreme fluctuations in both abundance and Area of Occupancy (AOO) or Extent of Occurrence (EOO) of the species. In addition, in 2010 we observed some additional disturbance in both sites and some invasive plants. This knowledge calls for its urgent classification according to the IUCN criteria (IUCN 2001; Cardoso *et al.* 2011a). With an EOO < 100 km<sup>2</sup> and AOO < 10 km<sup>2</sup>, presence in a single location, possible continuing decline and/or extreme fluctuations in AOO and EOO, a category of Critically Endangered is suggested for the species.

The Topo Natural Reserve is now the top ranked hotspot in Azorean endemic spiders, with 15 of the 24 currently known species (Borges & Wunderlich 2008; Cardoso *et al.* 2010; Borges *et al.* in prep.). Cardoso *et al.* (2007) and Gaspar *et al.* (2011) consider Topo as one of the most pristine areas of the Azores, and the presence of two single island endemics, *Acorigone zebraneus* and *S. topographicus* **n. sp.**, restricted to this forest reveal a great conservation value of this protected area. Yet, this area is currently classified in category V of the IUCN, a protected landscape managed mainly for landscape conservation and recreation, one of the lowest protection levels. As also indicated by Fattorini *et al.* (2012), we strongly recommend a future change to category I, a wilderness area managed mainly for wilderness protection, so that its natural features can be properly safeguarded.

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