



Nota breve | Short note

A new record of the orb spider *Argiope sector* (Araneidae) for the island of Santa Luzia, Cabo Verde

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Argiope Audouin, 1826 is a genus of rather large spiders, with pronounced sexual dimorphism and often coloured opisthosoma containing 89 species (Wang *et al.* 2021, World Spider Catalog 2021) and worldwide distribution (Levi 1983, Jäger 2012). *Argiope sector* (Forsskål, 1776) occurs in Cabo Verde, Senegal, North Africa and the Middle East (Bjørn 1997). In Cabo Verde, it has been reported as probably native for Santo Antão, São Vicente, São Nicolau, Sal, Boavista, Santiago, Fogo, and Maio (Fig. 1A; Capello 1866, García *et al.* 2005, Jäger 2012).

The collection of *Argiope sector* spiders was opportunistic while carrying invertebrate inventories on Santa Luzia between the 13th–20th November 2021 by two observers. The fieldwork consisted on two days and two

nights in the northern region and the same duration in the centre and in the south regions (Fig.1A). Species identification was based on the epigynum shape and presence of a median knob (Bjørn 1997).

All individuals were found on their orb webs. One was found in a dry river canal between *Sporoboletum virginici* grass in the north (16°46,58 N, 24°46,31 W; Fig.1B); none in the centre; and nine others were found in the south, on *Suaeda mollis* shrubs. Of those nine, one spider was found at the southernmost locality (16°44,16 N, 24°42,15 W), four near dunes (16°44,51 N, 24°42,35 W), and four others (two adults and two juveniles) close together (16°44,23 N, 24°42,29 W, Fig. 1A). Only two individuals were seen preying, a grasshopper and a fly, respectively (Fig. 1C).

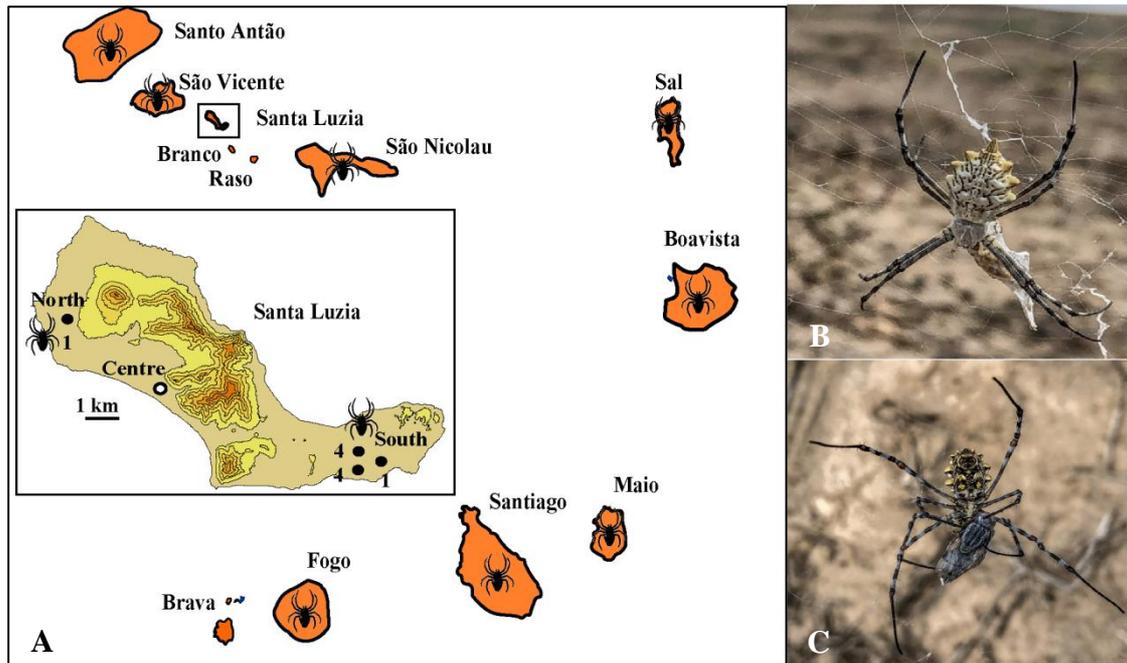


Fig. 1. Location of the study area and depictions of the study species (photos by S. Caut). **A)** Distribution of *Argiope sector* in the Cabo Verde Islands according to the literature, and on Santa Luzia Island (spider symbol). The insert map shows Santa Luzia elevation range and the study sites in detail (new presence records in black with number of individuals and absence records in white) Note: Jager (2012) cites *A. australis* on Fogo. **B)** The individual found at the northern site. **C)** An individual preying on a fly in the southern site.

The lack of spiders in the centre of Santa Luzia is likely an artefact of reduced sampling effort. Breitling *et al.* (2011) based on a spider collection obtained in 2009, and an extensive literature review from Maio Island, described 10 new species of arachnids to Cabo Verde. Further surveys are likely to reveal new records to the archipelago or for some of the islands (e.g., Fortes in press). It is plausible that *A. sector* has not been recorded in the uninhabited Desertas Islands (Santa Luzia, Branco, Raso) by the lack of specialized surveys.

Spiders can disperse by ballooning through

the air by releasing gossamer threads to catch the wind currents and electric fields (Morley & Robert 2018). The presence of the species in Senegal and in other Cabo Verde islands, could suggest colonization from the nearby mainland, as well as possible gene flow among islands. Genetic identification of several mainland and island haplotypes may determine the direction of colonization. The shortage of systematic studies from the Desertas Islands, specifically for some groups (i.e., invertebrates), highlights the importance of conducting such studies for future conservation assessment.

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REFERENCES

- Bjørn, P.D.P. (1997) A taxonomic revision of the African part of the orb-weaving genus *Argiope* (Araneae: Araneidae). *Insect Systematics & Evolution*, 28, 199–239.
- Breitling, R., Coleing, A., Peixoto, T., Nagle, H., Hancock, E. G., Kelsh, R.N. & Székely, T. (2011) An overview of the spider fauna of Maio (Cape Verde Islands), with some additional recent records (Arachnida, Araneae). *Zoologia Caboverdiana*, 2, 43–52.
- Capello, F. de B. (1866) Especies novas ou pouco conhecidas d'aracnidos d'Africa occidental. *Jornal de Sciencias Mathematicas, Physicas e Naturaes, Academia Real das Sciencias de Lisboa*, 1, 79–8.
- Fortes, L. (in press) *Levantamento da Araneofauna das ilhas desertas (Santa Luzia e Raso) de Cabo Verde*. Graduation thesis in Biological Sciences. Institute of Engineering and Marine Sciences, Atlantic Technical University, Mindelo, Cabo Verde, 48 pp.
- García A., Macías E.A. & Oromi P. In: Arechavaleta, M., Zurita, N., Marrero, M.C. & Martin Esquivel, J.L. (2005) *Lista preliminar de especies silvestres de Cabo Verde (hongos, plantas y animales)*. Consejería de Medio Ambiente y Ordenación Territorial. Gobierno de Canarias, Santa Cruz de Tenerife, Spain. pp 60–64.
- Jäger, P. (2012) A review on the spider genus *Argiope* Audouin 1826 with special emphasis on broken emboli in female epigynes (Araneae: Araneidae: Argiopinae). *Beiträge zur Araneologie*, 7, 272–331.
- Levi, H.W. (1983) The orb-weaver genera *Argiope*, *Gea*, and *Neogea* from the western Pacific region (Araneae: Araneidae, Argiopinae). *Bulletin of the Museum of Comparative Zoology*, 150, 247–338.
- Morley, E. & Robert, D. (2018) Electric fields elicit ballooning in spiders. *Current Biology*, 28, 2324–2330.
- Wang, C., Gan, J. & Mi, X. (2021) On four species of the genus *Argiope* Audouin, 1826 (Araneae Araneidae) from China. *Zookeys*, 1019, 15–34.
- World Spider Catalog (2021) World Spider Catalog. Version 22.5. Natural History Museum Bern. Download from <http://wsc.nmbe.ch> on 20/12/2021

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