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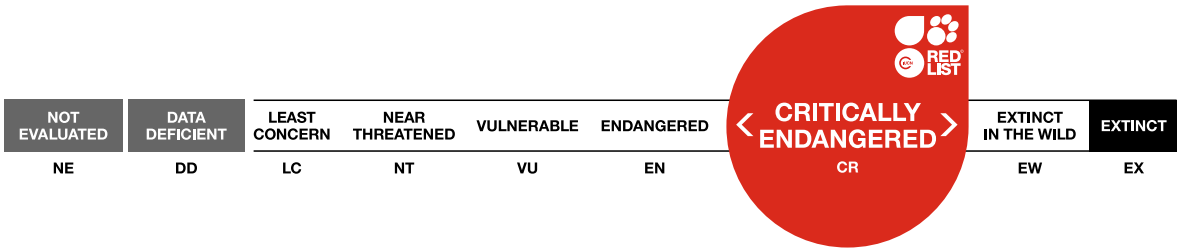
Savigniorrhipis topographicus

Assessment by: Borges, P.A.V. & Cardoso, P.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Arachnida	Araneae	Linyphiidae

Scientific Name: *Savigniorrhipis topographicus* Crespo, 2013

Taxonomic Source(s):

Crespo, L.C., Bosmans, R., Cardoso, P. and Borges, P.A.V. 2013. On the endemic spider species of the genus *Savigniorrhipis* Wunderlich, 1992 (Araneae: Linyphiidae) in the Azores (Portugal), with description of a new species. *Zootaxa* 3745(3): DOI: http://dx.doi.org/10.11646/zootaxa.3745.3.2.

Assessment Information

Red List Category & Criteria: Critically Endangered B1ab(i,ii,iii,v) ver 3.1

Year Published: 2020

Date Assessed: October 19, 2017

Justification:

Savigniorrhipis topographicus is a single-island endemic money spider species restricted to São Jorge island in Azores, Portugal (Crespo *et al.* 2013). It is a rare species, with a restricted Extent of Occurrence (EOO) (4-20 km^2) and Area of Occupancy (AOO) (4-20 km^2), although it is likely towards the higher end of this estimate. In the past, the species has probably strongly declined due to changes in habitat size, and there is a continuing decline in the EOO, AOO, extent and quality of habitat as well as the number of mature individuals as a result of the invasions of non-native plants and trampling of soil by dairy cows. The species occurs in a single patch of native forest (at Topo Nature Reserve), where it is under severe threat. Therefore, we suggest as future measures of conservation: (1) a long-term monitoring plan of the species; (2) control of invasive species, and (3) restrictions to the access of cattle to this area. The species is assessed as Critically Endangered (CR).

Geographic Range

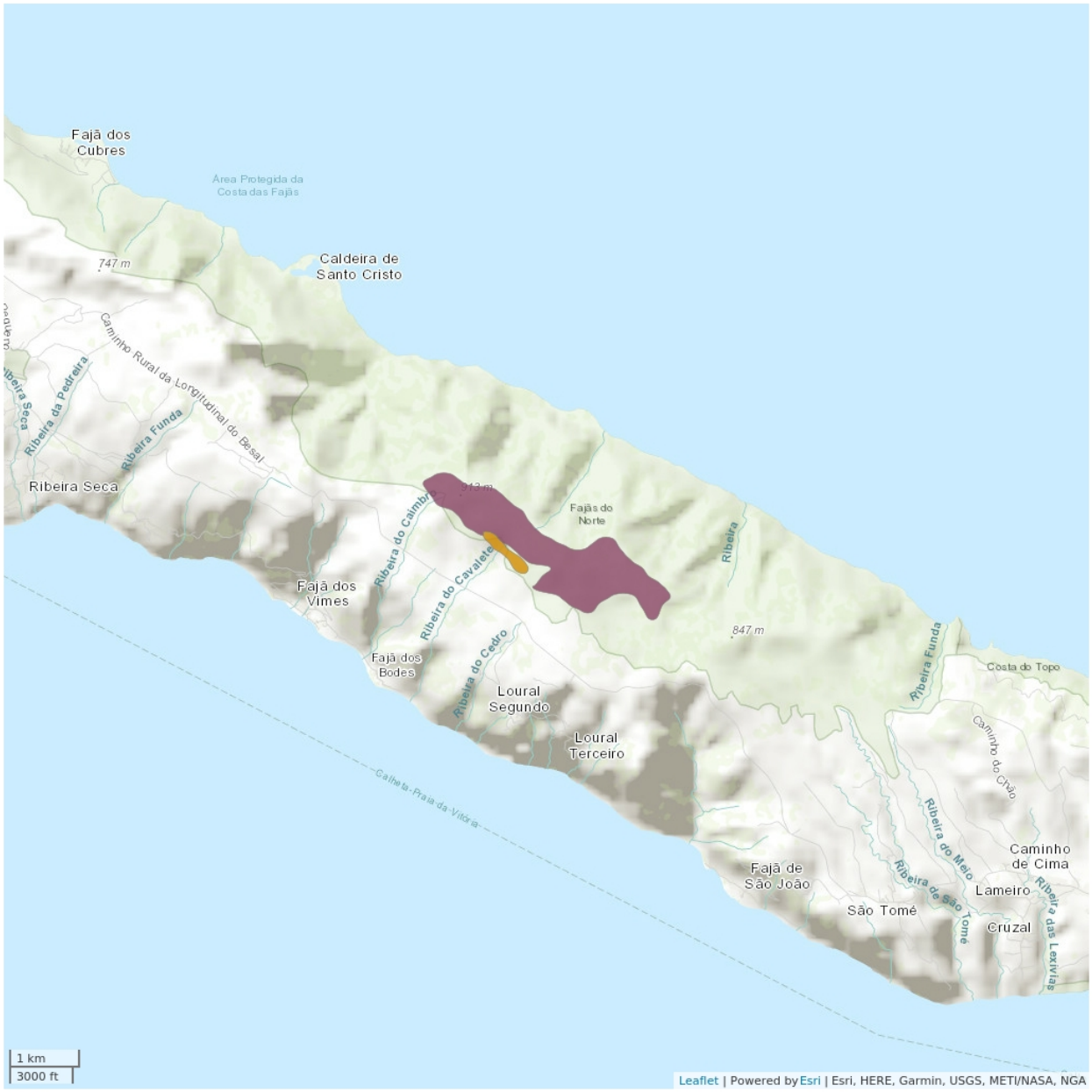
Range Description:

Savigniorrhipis topographicus is a single-island endemic money spider species restricted to São Jorge island in Azores, Portugal (Crespo *et al.* 2013), occurring in the Natural Forest Reserve of Topo (Natural Park of S. Jorge). The estimated Extent of Occurrence (EOO) is 4-20 km^2 and the estimated Area of Occupancy (AOO) is 4-20 km^2.

Country Occurrence:

Native, Extant (resident): Portugal (Azores)

Distribution Map



Legend

- EXTANT (RESIDENT)
- POSSIBLY EXTANT (RESIDENT)

Compiled by:

Azorean Biodiversity Group 2018

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

This is a very rare species, only known from a single sustainable subpopulation with very few individuals found during BALA project intensive sampling (Borges *et al.* 2016). A continuing decline in the number of mature individuals is inferred from monitoring schemes and from the ongoing habitat degradation due to invasions of alien plants (namely *Hedychium gardnerianum*) and soil erosion and degradation due to soil trampling by dairy cows.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The species is restricted to a hyper-humid native forest and builds a sheet weaver web in the ground between holes and the trunks of *Juniperus brevifolia* and *Ilex perado* subsp. *azorica*. The ground is also covered with mosses (*Sphagnum* spp.) and ferns (Crespo *et al.* 2013). The species occurs in the same habitat of another single-island endemic Linyphid spider, *Acorigone zebraneus* (see Crespo *et al.* 2013) which is also restricted to the same native forest fragment (Topo, S. Jorge) (Borges and Wunderlich 2008). The species is active during the night.

Systems: Terrestrial

Threats (see Appendix for additional information)

In the past, the species has probably strongly declined due to changes in habitat size and quality (Triantis *et al.* 2010), and the species seems to have survived only at a single site at high elevation native forest of S. Jorge island. The main current threats are: a) the spread of an invasive plant species, *Hedychium gardnerianum*, which is changing the structure of the forest and the cover of bryophytes and ferns with impacts on web construction; b) the soil erosion due to trampling by dairy cattle (cattle are entering the native areas in S. Jorge island without control by the Conservation Managers). Based on Ferreira *et al.* (2016) the habitat will further decline as a consequence of climate change (increasing number of droughts, and habitat shifting and alteration).

Conservation Actions (see Appendix for additional information)

The species is not protected by regional law, however, its habitat is in a regionally protected area (Natural Park of S. Jorge). However, the Topo Natural Forest Reserve has a low level of protection (currently classified in category V of the IUCN) and is managed mainly for landscape conservation and recreation, one of the lowest protection levels. As also indicated by Crespo *et al.* (2013), 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. Degraded areas, degraded due to invasive plant species and trampling by dairy cattle, should be restored and a strategy needs to be developed to address the current threat by invasive species and cattle, and the future threat from climate change. Formal education and awareness are needed to allow future investments in restored habitats invaded by invasive plants; while further research is needed into its ecology and life history in order to find additional specimens in other areas of native forest of S. Jorge and to obtain adequate information on population size, distribution and trends. An area-based management plan is also necessary for the most disturbed sites including invertebrate monitoring to contribute to a potential species recovery plan. Monitoring every ten years using the BALA protocol will inform about habitat quality (see e.g. Gaspar *et*

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al. 2011).

Credits

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Authority/Authorities: IUCN SSC Spider and Scorpion Specialist Group

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External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.4. Forest - Temperate	Resident	Suitable	Yes

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.2. Species disturbance		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Hedychium gardnerianum)	Ongoing	Whole (>90%)	Rapid declines	High impact: 8
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Whole (>90%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.2. Droughts	Future	Whole (>90%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring

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Conservation Action in Place
Action Recovery Plan: No
Systematic monitoring scheme: Yes
In-place land/water protection
Conservation sites identified: Yes, over entire range
Percentage of population protected by PAs: 91-100
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.2. Invasive/problematic species control
2. Land/water management -> 2.3. Habitat & natural process restoration
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-national level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

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Distribution
Estimated area of occupancy (AOO) (km²): 4-20
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km²): 4-20
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 1
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 743
Upper elevation limit (m): 941
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 1

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.