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Gibbaranea occidentalis

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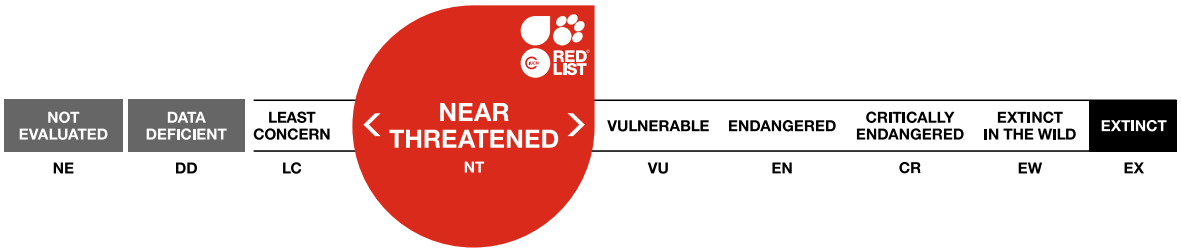

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Arachnida	Araneae	Araneidae

Scientific Name: *Gibbaranea occidentalis* Wunderlich, 1989

Taxonomic Source(s):

Platnick, N.I. 2014. The World Spider Catalog, Version 14.5. P. Merrett & H.D. Cameron (eds). American Museum of Natural History. Available at: http://research.amnh.org/iz/spiders/catalog/index.html. (Accessed: 31 March 2014).

Assessment Information

Red List Category & Criteria: Near Threatened B2b(i,ii,iii,iv,v) ver 3.1

Year Published: 2020

Date Assessed: November 26, 2014

Justification:

Gibbaranea occidentalis is an orb-weaver spider species occurring in eight islands of the Azorean archipelago (Azores, Portugal). It has a relatively large Extent of Occurrence (EOO = 42,175 km²) and relatively small Area of Occupancy (AOO = 404-1,940 km²). This species occurs mainly in Azorean native forest, but also in shrubland, exotic forest and other disturbed habitats, although these contain marginal subpopulations mostly dominated by juvenile stages. It is abundant in the canopies of endemic trees but can also be found on the forest floor and on exotic trees. It favours humid and sheltered microhabitats being a nocturnal species. Based upon the fragmentation of subpopulations and inferred decline in EOO, AOO, decline in the quality and structure of habitat, this species is assessed as Near Threatened (NT).

Geographic Range

Range Description:

Gibbaranea occidentalis is an orb-weaver spider species occurring on eight islands of the Azorean archipelago (only absent in Corvo) (Azores, Portugal) (Borges *et al*. 2010). Within these eight islands it is known from 18 Natural Forest Reserves: Caldeiras Funda e Rasa and Morro Alto e Pico da Sé (Natural Park of Flores); Caldeira do Faial and Cabeço do Fogo (Natural Park of Faial); Mistério da Prainha, Caveiro and Caiado Pico (Natural Park of Pico); Pico Pinheiro and Topo (Natural Park of S. Jorge); Biscoito da Ferraria, Pico Galhardo, Caldeira Guilherme Moniz, Caldeira Sta. Bárbara e Mistérios Negros and Terra Brava Natural Park of Terceira); Atalhada, Graminhais and Pico da Vara (Natural Park of S. Miguel) and Pico Alto (Natural Park of S. Maria). The estimated Extent of Occurrence (EOO) is 42,175 km^2 and the estimated Area of Occupancy (AOO) is between 404-1,940 km^2.

Country Occurrence:

Native, Extant (resident): Portugal (Azores)

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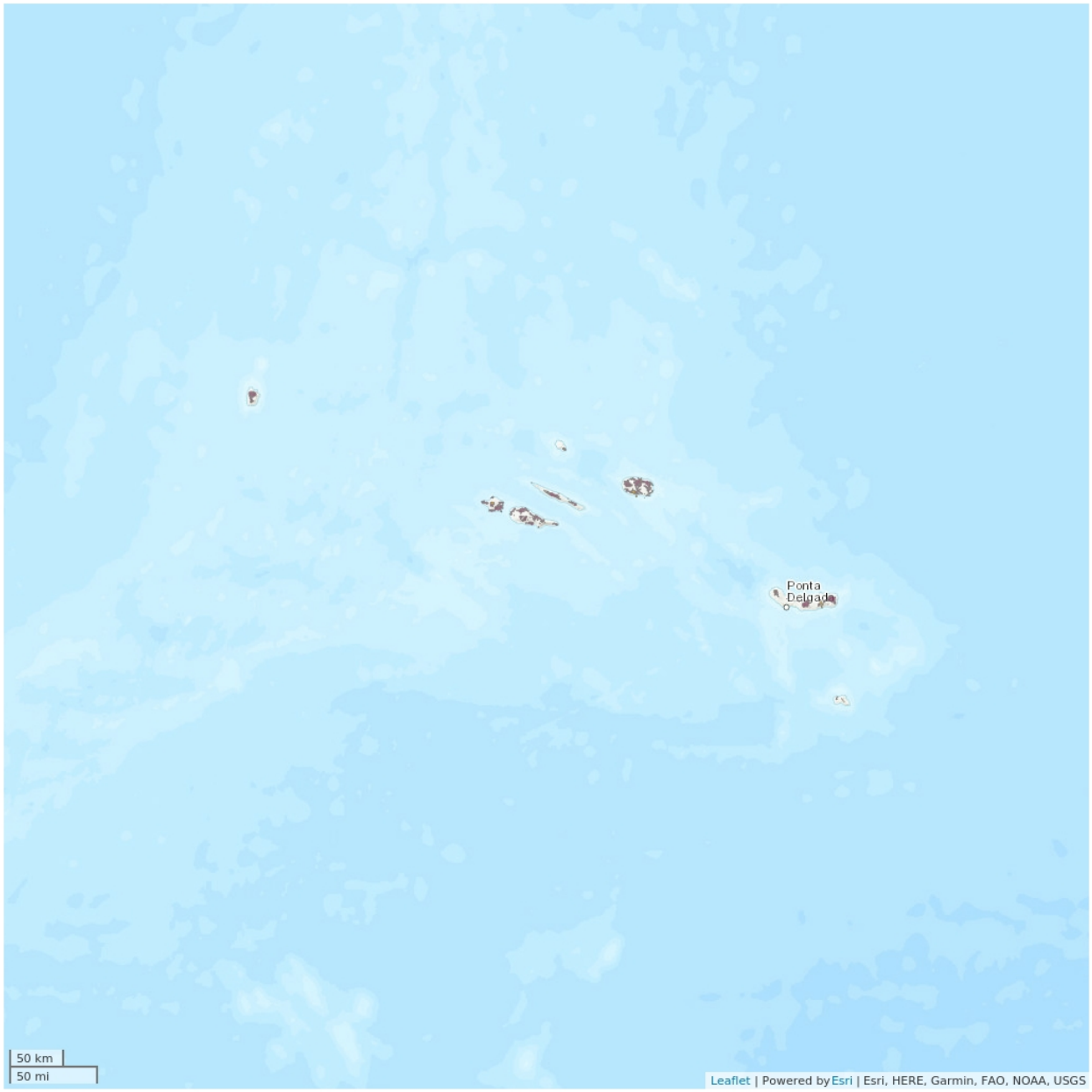
Distribution Map



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 species can be considered one of the most abundant endemic Azorean spider species, with the highest concentration found in native forest. However, in exotic fragments individuals that are found are mostly juveniles, which means that these areas may be occupied by sink subpopulations.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The species occurs mainly in native forests and builds its orb weaver web in the canopies of endemic trees, but can also build them in the shrubs *Vaccinium cylindraceum* and *Myrsine africana*. It is also frequently found in man-made habitats, namely exotic forests and marginal fields, but with a predominance of juvenile life-stages in these marginal habitats, which may indicate that subpopulations in marginal habitats are sink subpopulations (see Borges *et al*. 2008).

The species is active during the night and based on long-term data with SLAM traps (Borges *et al.* 2017) it is observed to occur in all seasons, but with adults being dominant in summer. The species may compete with the exotic species *Metellina merianae* (Scopoli) (Araneae, Tetragnathidae) that builds similar webs in the same habitats mostly at low to medium elevations.

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). However, the species seems to have survived in the remaining native forests of the Azores, as well as in some human modified habitats (still with marginal sink subpopulations, see Borges *et al.* 2008). The main current threats are *Cryptomeria japonica* wood and pulp plantation management, orchard management and the spread of invasive species namely *Hedychium gardnerianum* and *Pittosporum undulatum* on most islands, and *Clethra arborea* in S. Miguel, which are changing the structure of the native forest with impacts on web construction. At lower and medium elevations the species may compete with the exotic species *Metellina merianae* (Araneae, Tetragnathidae) which builds similar webs in the same micro-habitats. 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, although its habitat is in regionally protected areas (Natural Parks of Faial, Flores, Pico, S. Jorge, Graciosa, Terceira, S. Miguel and S. Maria). Degraded habitats in some islands, degraded due to invasive plant species, should be restored and a strategy needs to be developed to address the current threat by invasive species in all islands and the future threat by climate change. A habitat management plan is needed and is anticipated to be developed during the coming years. 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 obtain adequate information on population size, distribution and trends. It is also necessary to develop a monitoring plan for the wider invertebrate community in its habitat in order to contribute to a

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potential future species recovery plan. Monitoring every ten years using the BALA protocol will inform about habitat quality (see e.g. Gaspar et al. 2011).

Credits

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Contributor(s): Mendonca, E. & Lamelas-López, L.

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
3. Shrubland -> 3.4. Shrubland - Temperate	Resident	Suitable	No

Threats

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

Threat	Timing	Scope	Severity	Impact Score
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.1. Small-holder plantations	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
	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		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Clethra arborea)	Ongoing	-	-	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Pittosporum undulatum)	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
	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		

8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Hedychium gardnerianum)	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
	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%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
11. Climate change & severe weather -> 11.2. Droughts	Future	Majority (50-90%)	Very rapid declines	Medium impact: 6
	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		

Conservation Actions in Place

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

Conservation Action in Place
In-place research and monitoring
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: 71-80
Area based regional management plan: No
Occurs in at least one protected area: Yes
Invasive species control or prevention: Yes
In-place species management
Harvest management plan: No
Successfully reintroduced or introduced benignly: No
Subject to ex-situ conservation: No
In-place education
Subject to recent education and awareness programmes: No
Included in international legislation: No

Conservation Action in Place
Subject to any international management / trade controls: No

Conservation Actions Needed

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

Conservation Action Needed
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 -> 5.4. Compliance and enforcement -> 5.4.3. 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 -> 2.1. Species Action/Recovery Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km^2): 404-1940
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km^2): 42175
Continuing decline in extent of occurrence (EOO): No
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 34
Continuing decline in number of locations: Yes

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Distribution
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 0
Upper elevation limit (m): 1,268
Population
Continuing decline of mature individuals: Yes
Extreme fluctuations: No
Population severely fragmented: No
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: Unknown
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 0.5

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The IUCN Red List Partnership

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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.