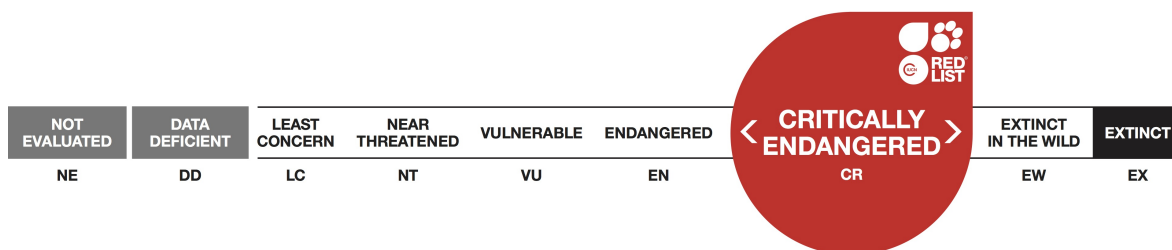


Centromerus anoculus

Assessment by: Cardoso, P., Crespo, L.C., Silva, I., Borges, P. & Boeiro, M.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Arachnida	Araneae	Linyphiidae

Taxon Name: *Centromerus anoculus* Wunderlich, 1995

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).

Taxonomic Notes:

Possible junior synonym of *Centromerus sexoculatus* Wunderlich, 1992 (Reboleira et al. 2011) which if true could considerably impact the species extinction risk assessment.

Assessment Information

Red List Category & Criteria: Critically Endangered B1ab(i,ii,iii,v)+2ab(i,ii,iii,v) [ver 3.1](#)

Year Published: 2018

Date Assessed: January 17, 2018

Justification:

Centromerus anoculus is only known from two lava tube systems on the island of Madeira, Portugal. This species is assessed as Critically Endangered (CR), since it has a very restricted geographic range (extent of occurrence (EOO) and area of occupancy (AOO) are both only 8 km²) and there is a continuing decline in the EOO, AOO, quality of habitat and the number of mature individuals. Additionally, the number of locations is only two, based on the habitat degradation due to the use of caves by domestic animals, uncontrolled visits and accumulation of litter. The remaining habitat of the species needs to be protected and a management plan for the habitat as well as the species should be implemented. More research is needed, especially into the taxonomy, the population trend and threats.

Geographic Range

Range Description:

Centromerus anoculus is only found in the lava tubes of Gruta dos Cardais in São Vicente, on northern Madeira Island, and Furnas do Cavalum in Machico, on eastern Madeira Island, Portugal (Wunderlich 1995, Reboleira *et al.* 2011). Gruta dos Cardais is part of the largest known cave system in Madeira. The neighbouring Grutas de São Vicente, which probably were once habitat for the species, are now in large part converted to show caves with extensive modifications in microclimate, including artificial lighting, water reservoirs and even newly built tunnels. Given the relative scarcity and small size of caves in Madeira, this could correspond to the entire range of the species although, as noted above, it probably is a junior synonym of *C. sexoculatus*. The extent of occurrence (EOO) and area of occupancy (AOO) are

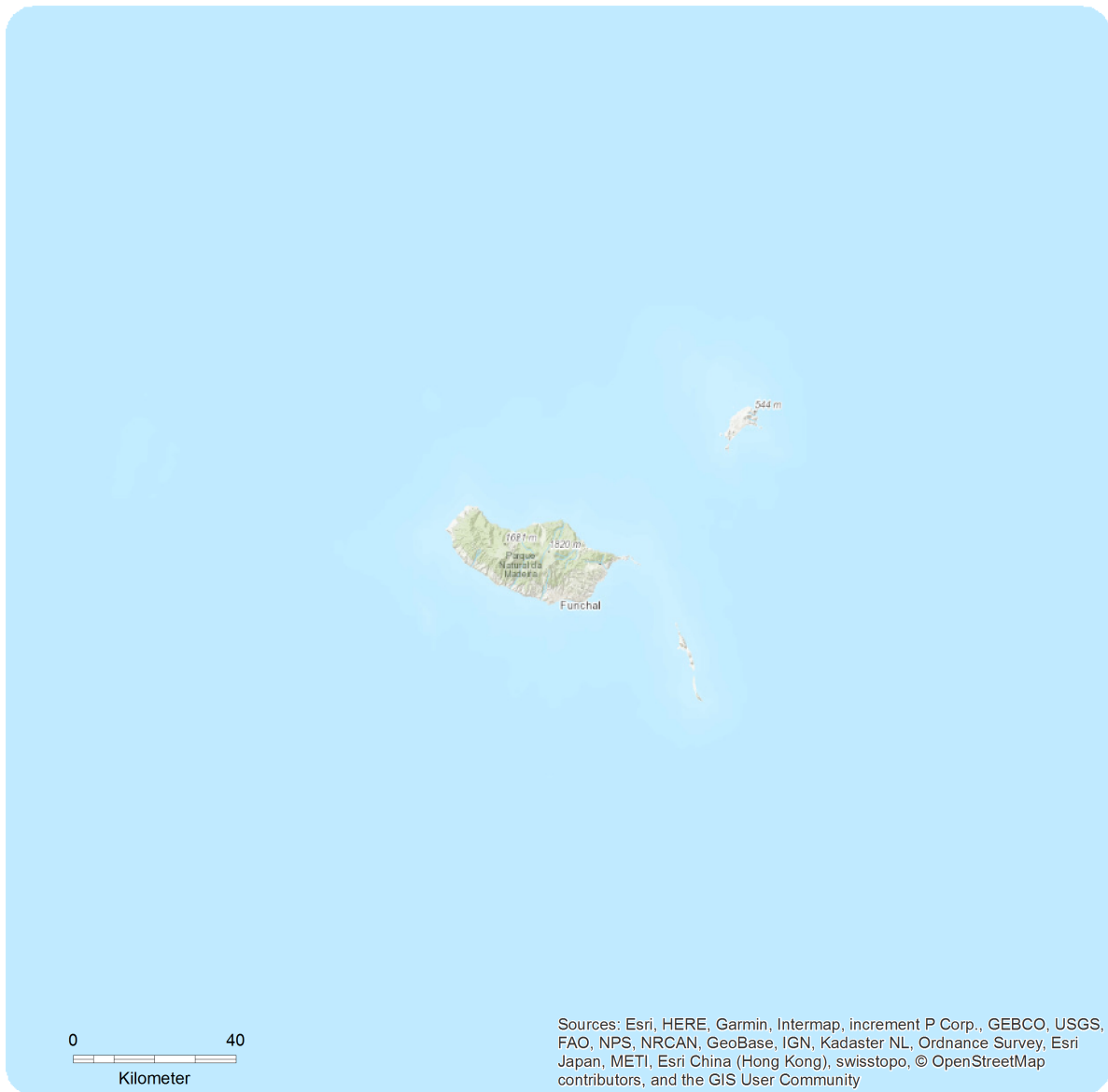
both 8 km².

Country Occurrence:

Native: Portugal (Madeira)

Distribution Map

Centromerus anoculus



Range

Extant (resident)

Compiled by:

IUCN (International Union for Conservation of Nature)



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



Population

The uncontrolled visits by tourists and locals that think of caves as adventure playground, accumulation of litter and use by domestic animals cause major changes in the cave environment and consequent decrease in quality of habitat for the species. This is believed to be leading to a decrease in population numbers, although no monitoring is being made and the rates are unknown.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species is known from two lava tube systems. Ecology and traits are largely unknown as the only references to the species are from a short taxonomic description and a checklist. Yet, congeners are known to build sheet webs and this species might build them on cave walls on the hunt for insects.

Systems: Terrestrial

Use and Trade

The species is not utilized.

Threats (see Appendix for additional information)

The species was probably driven away from part of its historical range by touristic activities that include digging of new tunnels, water regime modifications (artificial pools) and artificial lighting. Both current locations are threatened by use of caves by domestic animals, uncontrolled visits and accumulation of litter.

Conservation Actions (see Appendix for additional information)

There are no specific conservation measures in place for this species. Furnas do Cavalum are considered scientific patrimony by the "Plano Director Municipal" of Machico. Yet, this cave species would benefit from effective protection with adequate legislation of the two lava tube systems where it occurs with eventual restoration of natural conditions of the environment and recovery and re-introduction in the lost location. While this is not possible, or as an alternative, a strict code of conduct for touristic or other activities in caves should be enforced and both communication to the general public and training of touristic agents should be subject of a conservation plan. The taxonomical status of the species and possible synonymy with *C. sexoculatus* should be clarified. Research on both the species current population trend and the reasons for this is needed to know the real threat levels and how to minimize them. A species conservation plan and a management plan would improve its survival chances for the future.

Credits

Assessor(s): Cardoso, P., Crespo, L.C., Silva, I., Borges, P. & Boieiro, M.

Reviewer(s): Henriques, S. & Russell, N.

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Wunderlich, J. 1995. Zu Ökologie, Biogeographie, Evolution und Taxonomie einiger Spinnen der Makaronesischen Inseln (Arachnida, Araneae). *Beiträge zur Araneologie* 4: 385-439.

Citation

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External Resources

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?
7. Caves and Subterranean Habitats (non-aquatic) -> 7.1. Caves and Subterranean Habitats (non-aquatic) - Caves	Resident	Suitable	Yes

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.4. Scale Unknown/Unrecorded	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.6. Abstraction of ground water (commercial use)	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		

7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.9. Small dams	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	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 -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over part of range
Occur in at least one PA: No
Percentage of population protected by PAs (0-100): 0
Area based regional management plan: No
Invasive species control or prevention: No
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
Subject to any international management/trade controls: No

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.3. Habitat & natural process restoration
3. Species management -> 3.2. Species recovery
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.1. International level
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-national level
5. Law & policy -> 5.3. Private sector standards & codes
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 -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 8
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): No

Distribution
Estimated extent of occurrence (EOO) (km ²): 8
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): No
Number of Locations: 2
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
Lower elevation limit (m): 100
Upper elevation limit (m): 150
Population
Continuing decline of mature individuals: Yes
Extreme fluctuations: Unknown
Population severely fragmented: Yes
No. of subpopulations: 2
Continuing decline in subpopulations: No
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 1
Movement patterns: Not a Migrant

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