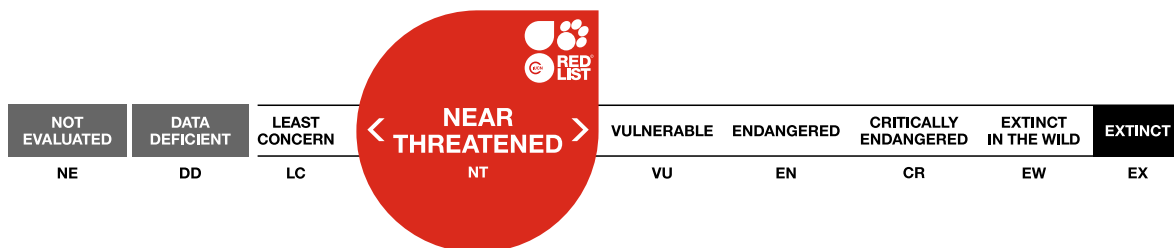


Liacarus angustatus

Assessment by: Nunes, R. & Borges, P.A.V.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Arachnida	Oribatida	Liacaridae

Scientific Name: *Liacarus angustatus* (Weigmann, 1976)

Synonym(s):

- *Dorycranosus angustatus* Weigmann, 1976

Assessment Information

Red List Category & Criteria: Near Threatened B1ab(iii)+2ab(iii) [ver 3.1](#)

Year Published: 2021

Date Assessed: April 1, 2018

Justification:

Liacarus angustatus is an endemic species of the Azores (Portugal), known from the islands of Faial, Pico, Terceira, S. Miguel and Sta. Maria. From the available data, it could have an extent of occurrence (EOO) of 22,992 km², but a limited area of occupancy (AOO = 64 km²), but these are likely underestimates, as this species probably has a wider distribution through the soil component of the islands. It can be assumed that this species is affected by human activities and invasive plant species that alter the natural structure and composition of the soil, as such it could be said to occur at only a small number of locations. Future climatic changes and increased risk of droughts will also affect this species. The present situation of this species needs to be assessed and further research is needed into its population, distribution, threats, ecology and life history. However, the EOO and AOO of the species are relatively small, on the global scale, and if there were more data available it is possible that the species could qualify as threatened under criterion B. Therefore, the species is assessed as Near Threatened. Conservation of natural habitats and invasive species control could potentially aid this species' conservation.

Geographic Range

Range Description:

Liacarus angustatus is an Azorean-endemic oribatid mite species known from Faial, Pico, Terceira, S. Miguel and Sta. Maria islands (Azores, Portugal) (Borges *et al.* 2010). It has been recorded from several natural and disturbed areas and also in the lava tube of Furna dos Montanheiros in Pico. It is present in four Natural Forest Reserves; Caldeira do Faial (Faial), Biscoito da Ferraria and Caldeira Sta. Bárbara e Mistérios Negros (Terceira), Graminhais (S. Miguel) and Pico Alto (Sta. Maria). From the available data, the Extent of Occurrence (EOO) could be ca. 22,992 km² and the Area of Occupancy (AOO) could be 64 km².

Country Occurrence:

Native, Extant (resident): Portugal (Azores)

Distribution Map

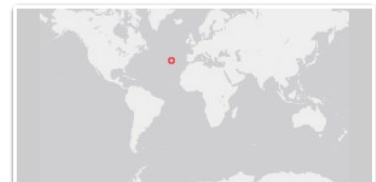


Legend

■ 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.



Population

No current population size estimates exist for this species. This species occurs on several islands and as an oribatid mite, it is likely common and widespread in the soil habitat.

Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)

The ecology and traits of this species are unknown. Oribatid mites are associated with organic matter in most terrestrial ecosystems, being found throughout the soil profile, in surface litter, on grasses, shrubs or in the bark and leaves of trees, among other habitats. Oribatida are also one of the most numerically dominant arthropod groups in the organic horizons of most soils (Behan-Pelletier 1999). This species has been found in a range of natural and disturbed habitats and in the vicinity of urban areas. Additionally, *Liacarus angustatus* was also collected from a lava tube, but according to Morell and Subias (1991), oribatid mites are soil species and should not be considered as strictly cave species. This species is likely an eutroglophile (epigeal species able to maintain a permanent subterranean population) (Borges *et al.*, 2012).

Systems: Terrestrial

Threats (see Appendix for additional information)

A lack of information regarding the present range of this species precludes an accurate assessment of potential threats. Nevertheless, it can be assumed that this species will be affected by future habitat declines as a consequence of climate change (Ferreira *et al.* 2016) and increased droughts. This species has been found in areas of native vegetation but also in disturbed areas, and it can be assumed that factors degrading habitat quality, in the form of changes in the soil structure and composition, namely land use changes, agricultural practices, urbanisation, pesticides and nutrient loads or invasive plants might also affect this species.

Conservation Actions (see Appendix for additional information)

The species is not protected by regional law, but part of its habitat is in regionally protected areas (Natural Parks of Faial, Pico, Terceira, S. Miguel and Sta. Maria). Besides climate change and increased risk of droughts, land-use changes and invasive species are likely the main current and future threats faced. As such, conservation of native habitats and invasive species control could potentially aid this species' conservation. Further research is needed into its population, distribution, threats, ecology and life history, and it is necessary to develop a monitoring plan for the invertebrate community in order to contribute to the conservation of this species.

Credits

Assessor(s): Nunes, R. & Borges, P.A.V.

Reviewer(s): Russell, N.

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	Yes
7. Caves and Subterranean Habitats (non-aquatic) -> 7.1. Caves and Subterranean Habitats (non-aquatic) - Caves	Resident	Suitable	No

Threats

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

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	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. 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. 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 -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or 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		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Minority (50%)	Very rapid declines	Medium impact: 7
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Majority (50-90%)	Slow, significant declines	Low impact: 4
	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%)	Slow, significant declines	Low impact: 4
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		

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: No
In-place land/water protection
Conservation sites identified: No
Occurs in at least one protected area: Yes

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
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
1. Research -> 1.5. Threats
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends

Research Needed
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 64
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km ²): 22992
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 8
Continuing decline in number of locations: Unknown
Lower elevation limit (m): 50
Upper elevation limit (m): 950
Population
Continuing decline of mature individuals: Unknown
Extreme fluctuations: Unknown
Population severely fragmented: Unknown
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Unknown

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