The IUCN Red List of Threatened Species™
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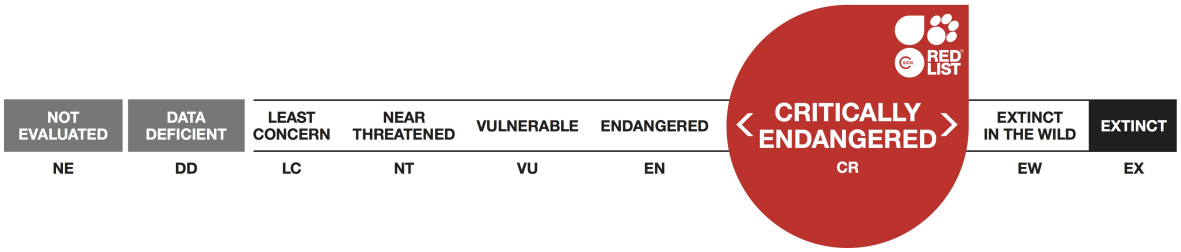
Scope: Global
Language: English

Thalassophilus azoricus, Ground beetle

Assessment by: Borges, P.A.V. & Amorim, I.R.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Coleoptera	Carabidae

Taxon Name: *Thalassophilus azoricus* Oromí & Borges, 1991

Common Name(s):

- English: Ground beetle

Taxonomic Source(s):

De Jong, Y., Verbeek, M., Michelsen, V., Bjørn, P.P., Los, W., Steeman, F., Bailly, N., Basire, C., Chylarecki, P., Stloukal, E., Hagedorn, G., Wetzel, F.T., Glöckler, F., Kroupa, A., Korb, G., Hoffmann, A., Häuser, C., Kohlbecker, A., Müller, A., Güntsch, A., Stoev, P. and Penev, L. 2014. Fauna Europaea – all European animal species on the web. *Biodiversity Data Journal* 2: e4034. DOI: 10.3897/BDJ.2.e4034.

Assessment Information

Red List Category & Criteria: Critically Endangered B1ab(iii,iv,v)+2ab(iii,iv,v) ver 3.1

Year Published: 2017

Date Assessed: November 24, 2016

Justification:

Thalassophilus azoricus is an endemic cave adapted species occurring in a single island, S. Miguel (Azores, Portugal). It has a very small extent of occurrence (EOO = 8 km²) and reduced area of occupancy (AOO = 8 km²). The species is very rare and only known from a single natural population occurring in the coastal lava-tube Gruta da Água de Pau. A continuing decline in the number of mature individuals is inferred from the ongoing cave habitat degradation, We suggest as future measure of conservation the regular monitoring of the species (every ten years) and the creation of a fence in the entrance of the cave. The species is assessed as Critically Endangered based on the single location and current and future possible cave degradation.

Geographic Range

Range Description:

Thalassophilus azoricus is an endemic species from a single island, S. Miguel (Azores, Portugal) (Borges *et al.* 2010), and known from a single lava-tube cave, Gruta da Água de Pau (Oromí and Borges 1991). The extent of occurrence (EOO) is 8 km² and the maximum estimated area of occupancy (AOO) is 8 km².

Country Occurrence:

Native: Portugal (Azores)

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Distribution Map

Thalassophilus azoricus

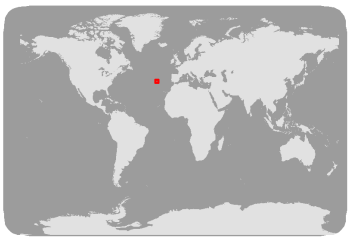
Range

Extant (resident)

Compiled by:

Paulo Borges

NE DD LC NT VU EN CR CRITICALLY ENDANGERED EW EX



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

The species is very rare and only known from a single subpopulation. A continuing decline in the number of mature individuals is inferred from the ongoing cave habitat degradation due to pasture cattle pollution.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species occurs in a volcanic cave (a lava tube only 15 m above the sea level and covered by some 70 m of overburden) in the S. Miguel island (Gruta de Água de Pau) (Oromí and Borges 1991). It is a cavernicolous (i.e. a Troglobitic species) predator.

Systems: Terrestrial

Use and Trade

The species is not utilised.

Threats (see Appendix for additional information)

The main threats to this species are: i) residential and commercial development in coastal areas; ii) cave visitation by tourists and coastal recreational activities; iii) agriculture activities with cattle pollution; iv) creation of roads or coastal tracks; v) domestic water management; and vi) future Climate Change impacts on coastal habitats.(Ferreira *et al.* 2016).

Conservation Actions (see Appendix for additional information)

The species is protected by regional law (RAA 2008, 2012). Its habitat is in a regionally protected area (Natural Park of S. Miguel). Additional research is needed in order to know levels of population size as well as its ecology and life history. It is also necessary a monitoring plan for the invertebrate community in the habitat in order to contribute to the conservation of this species. We suggest as future measure of conservation the creation of a fence in the entrance of the cave. A habitat management plan is needed and anticipated to be developed during the coming years.

Credits

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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	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 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%)	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 -> 11.4. Storms & flooding	Future	Whole (>90%)	Very rapid declines	Medium impact: 7
	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		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
4. Transportation & service corridors -> 4.1. Roads & railroads	Future	Whole (>90%)	Very rapid 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		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		

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7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.1. Abstraction of surface water (domestic use)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
9. Pollution -> 9.1. Domestic & urban waste water -> 9.1.2. Run-off	Ongoing	Majority (50-90%)	Slow, significant 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 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 entire range
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 91-100
Area based regional management plan: No

Conservation Actions Needed

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

Conservation Actions Needed
2. Land/water management -> 2.1. Site/area management
4. Education & awareness -> 4.1. Formal education
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

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Research Needed
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): No
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km^2): 8
Continuing decline in extent of occurrence (EOO): No
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: Unknown
Lower elevation limit (m): 0
Upper elevation limit (m): 15
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
Movement patterns: Not a Migrant

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.