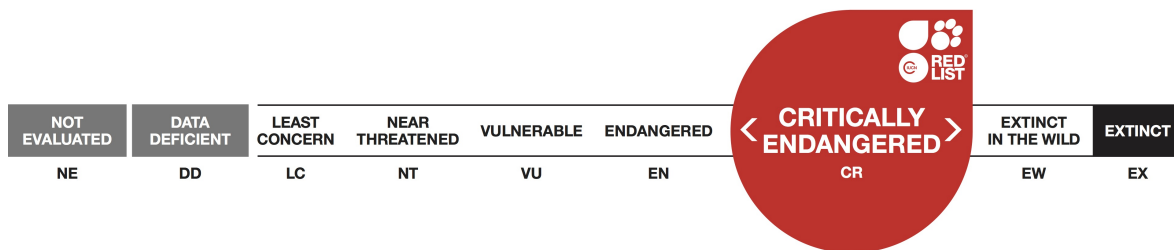


Trechus jorgensis, Cave ground-beetle

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



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Citation: Borges, P.A.V. & Amorim, I.R. 2017. *Trechus jorgensis*. The IUCN Red List of Threatened Species 2017: e.T97120924A99166569. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T97120924A99166569.en>

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Coleoptera	Carabidae

Taxon Name: *Trechus jorgensis* Oromí & Borges, 1991

Common Name(s):

- English: Cave 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(i,ii,iii,v)+2ab(i,ii,iii,v) [ver 3.1](#)

Year Published: 2017

Date Assessed: November 24, 2016

Justification:

Trechus jorgensis is an endemic cave adapted species from a single island, S. Jorge (Azores, Portugal). It has a very small extent of occurrence (EOO = 4 km²) and reduced area of occupancy (AOO = 4 km²). The species is very rare and only known from a single subpopulation in the volcanic pit of Algar das Bocas do Fogo. The area surrounding the cave is heavily impacted by human activities and used as a damp area. We suggest as future measures of conservation the regular monitoring of the species (every ten years) and the creation of a fence surrounding the top of the pit. The species is assessed as Critically Endangered (CR).

Geographic Range

Range Description:

Trechus jorgensis is an endemic cave adapted species known from a single island, S. Jorge (Azores, Portugal) (Borges *et al.* 2010), and occurring in a single cave, the volcanic pit of Algar das Bocas do Fogo (Pereira *et al.* 2016). The extent of occurrence (EOO) is 4 km² and the maximum estimated area of occupancy (AOO) is 4 km².

Country Occurrence:

Native: Portugal (Azores)

Distribution Map

Trechus jorgensis



Range

Extant (resident)

Compiled by:

Paulo Borges



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 species is very rare and only known from a single subpopulation. The area surrounding the cave is heavily impacted by human activities and used as a damp area.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species occurs in a 50 m deep volcanic pit (Algar das Bocas do Fogo, S. Jorge island), whose internal vault is in penumbra (not complete darkness). The surrounding area consists of exotic plantations of *Pittosporum undulatum* (Oromí and Borges 1991; Borges *et al.* 2004; Amorim 2005). It is a cavernicolous (i.e. a troglobitic species) predator and/or saprophagous species.

Systems: Terrestrial

Use and Trade

The species is not utilised.

Threats (see Appendix for additional information)

The main current threats to this species are the loss of habitat quality, as the volcanic pit has been used as a dump site, as well as the destruction of the surrounding habitat with invasive plants. However, there are several future potential threats: climatic changes (see Ferreira *et al.* 2016) that can change the conditions inside the volcanic pit; change in the road and urban infrastructure around the cave; potential human recreational activities with radical cave visitation; reforestation of the area with exotic trees with unknown impact and geological events (volcanic activity and earthquakes).

Conservation Actions (see Appendix for additional information)

The species is protected by regional law (RAA 2012), however the cave where it occurs is not protected. Further research is needed into its ecology and life history in order to find extant specimens. It is 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 surrounding the top of the pit. A habitat management plan is needed and anticipated to be developed during the coming years.

Credits

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

Reviewer(s): Danielczak, A.

Contributor(s): Lamelas-López, L.

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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
10. Geological events -> 10.1. Volcanoes	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		
10. Geological events -> 10.2. Earthquakes/tsunamis	Future	Whole (>90%)	Very rapid declines	Medium impact: 7
	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		
1. Residential & commercial development -> 1.1. Housing & urban areas	Future	Majority (50-90%)	Slow, significant declines	Low impact: 4
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Future	Majority (50-90%)	Slow, significant declines	Low impact: 4
	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 -> 1.1. 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 -> 1.2. Ecosystem degradation 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	Future	Whole (>90%)	Slow, significant declines	Low impact: 5
	Stresses:	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 -> 2.2.2. Agro-industry plantations	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 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	Future	Whole (>90%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.1. Abstraction of surface water (domestic use)	Future	Majority (50-90%)	Slow, significant declines	Low impact: 4
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 2. Species Stresses -> 2.1. Species mortality		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	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		
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 Land/Water Protection and Management
Conservation sites identified: No
Occur in at least one PA: No
Percentage of population protected by PAs (0-100): 0

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
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
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): 4
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km ²): 4
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 1
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 385
Upper elevation limit (m): 385
Population
Continuing decline of mature individuals: Yes

Population
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

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