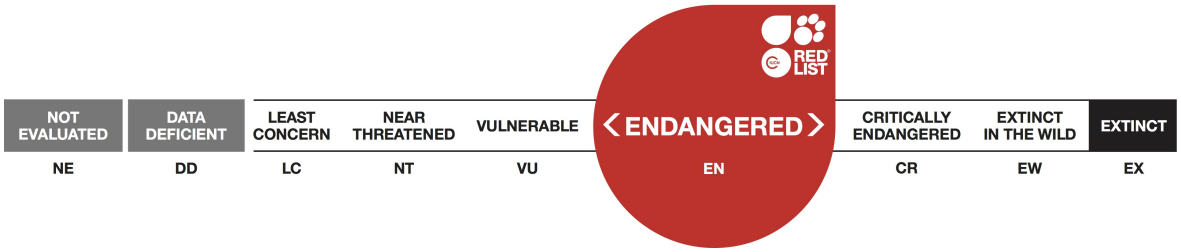
The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2008: T97167384A99166674
Scope: Global
Language: English

Hydroporus guernei, Predacious diving beetle

Assessment by: Borges, P.A.V., Lamelas-López, L. & Amorim, I.R.



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Citation: Borges, P.A.V., Lamelas-López, L. & Amorim, I.R. 2018. *Hydroporus guernei*. The IUCN Red List of Threatened Species 2018: e.T97167384A99166674.
http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T97167384A99166674.en

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Coleoptera	Dytiscidae

Taxon Name: *Hydroporus guernei* Régimbart, 1891

Synonym(s):

- *Girinus atlanticus guernei* Méquignon, 1942
- *Hydroporus planus* Fabr.

Common Name(s):

- English: Predacious diving beetle

Taxonomic Source(s):

Sama, G. 2016. Fauna Europaea: Cerambycidae. Fauna Europaea version 2.6, http://www.fauna-eu.org.

Assessment Information

Red List Category & Criteria: Endangered B2ab(i,ii,iii,iv,v) ver 3.1

Year Published: 2018

Date Assessed: January 4, 2017

Justification:

Hydroporus guernei is an endemic species present in Flores, Faial, Pico, S. Jorge, Terceira, S. Miguel and Sta. Maria islands (Azores, Portugal). It has a large extent of occurrence (EOO = ca. 33,600 km²) and small area of occupancy (AOO = 156 km²). The species is common and known from at least 19 locations comprehending seven fragmented subpopulations. In the past, the species has probably strongly declined due to changes in habitat size and quality. The main threat to this species is the impact of introduced species and the agricultural activities (landscape transformation, pollution, habitat destruction). Based on Ferreira *et al.* (2016) the habitat will further decline as a consequence of climate change (increasing number of droughts). Based upon the small area of occupancy and associated decline in extent of occurrence, area of occupancy and habitat quality it is assessed as Endangered.

Geographic Range

Range Description:

Hydroporus guernei is an endemic species present in Flores, Faial, Pico, S. Jorge, Terceira, S. Miguel and Sta. Maria islands (Azores, Portugal) (Borges *et al.* 2010), known from Natural Forest Reserves of Morro Alto and Pico da Sé (Flores); Caldeira do Faial (Faial); Lagoa do Caiado (Pico); Caldeira Sta. Bárbara e Mistérios Negros e Mistérios Negros and Terra Brava (Terceira). The extent of occurrence (EOO) is *ca* 33,600 km² and the maximum estimated area of occupancy (AOO) is 156 km².

Country Occurrence:

Native: Portugal (Azores)

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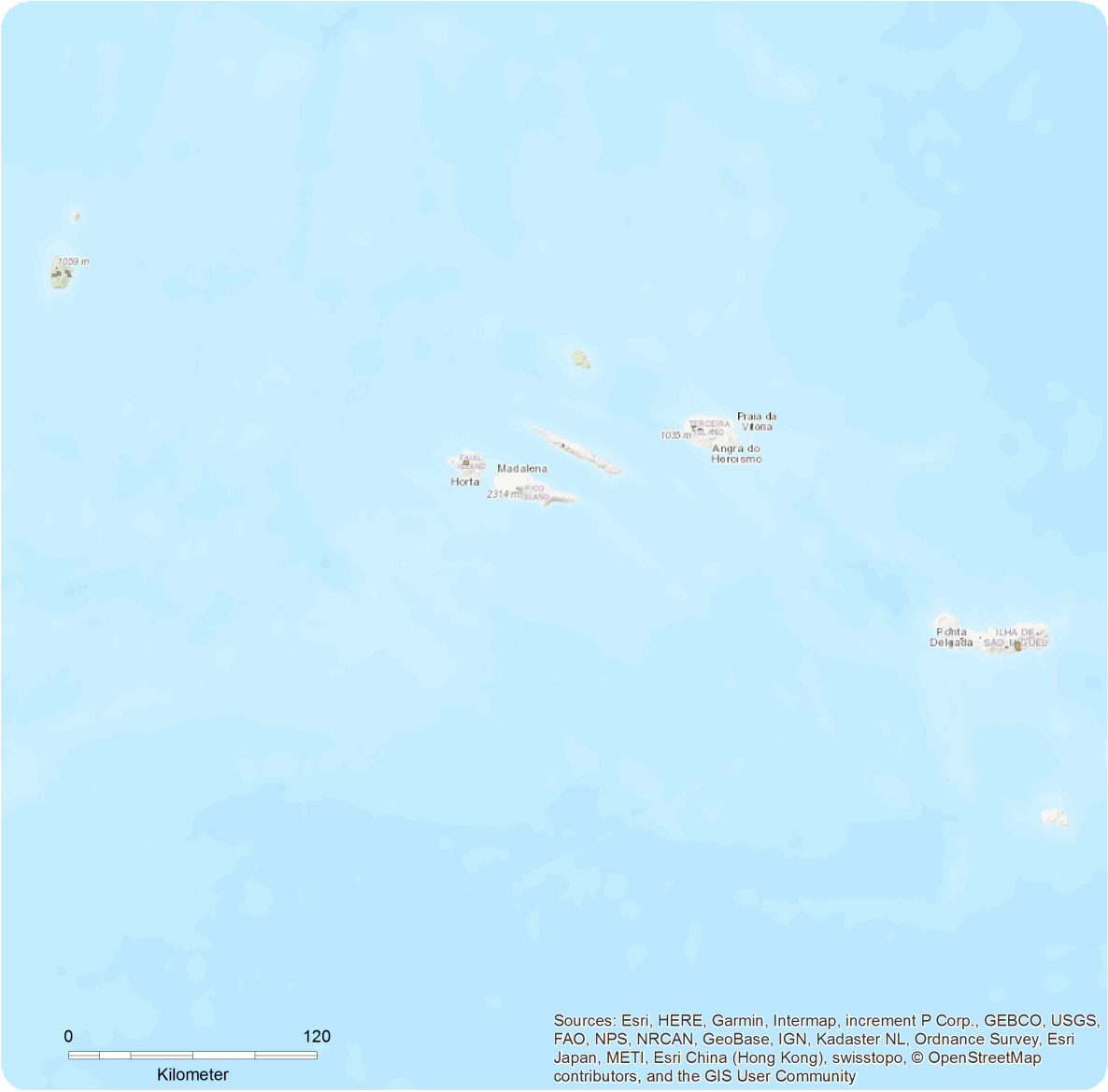
Distribution Map

Hydroporus guernei



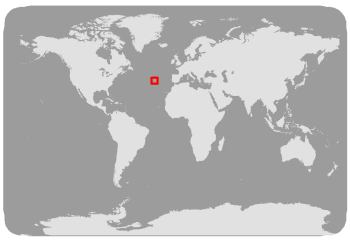
Range

Extant (resident)

Compiled by:

Paulo Borges

NE DD LC NT VU EN ENDANGERED CR 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 rare in all known subpopulations in freshwater areas in several islands (Flores, Faial, Pico S. Jorge,Terceira, S. Miguel and Sta. Maria islands). A continuing decline in the number of mature individuals is inferred from the ongoing habitat degradation due to human activities (habitat transformation associated to agricultural activities and cattle pollution) and introduced species (particularly introduced fishes) (Florencio and Lamelas-López 2016). This species is assessed here as severely fragmented as at least 50% of its population can be found in subpopulations that are 1) smaller than would be required to support a viable population, and 2) separated from other habitat patches by a large distance. In fact, the species occurs in fragments that are isolated in a matrix of pastures.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The species occurs in freshwater habitats (mainly freshwater ponds) located in native forests of Flores, Faial, Pico, S. Jorge, Terceira, S. Miguel and Sta. Maria islands (Azores), with an altitudinal range between 200 and 1200 m. *H. guernei* also can inhabit artificial environments like artificial water tanks (Svensson 1977, Florencio and Lamelas-López 2016). Adults and larvae are nocturnal predators that lives in the water column of freshwater systems.

Systems: Freshwater

Use and Trade

This species is not utilised.

Threats (see Appendix for additional information)

The main threat to this species are the impact of introduced species (*Gambusia holbrooki*) and the agricultural activities (landscape transformation, pollution by herbicides and pesticides and nutrient loads, habitat destruction). However, we may add to these the impact of climatic changes with major impact on habitat shifting & alteration and droughts (Ferreira *et al.* 2016).

Conservation Actions (see Appendix for additional information)

The species is not protected by regional law. Its habitat is in regionally protected areas (Natural Parks of Flores, Faial, Pico, S. Jorge and Terceira). Degraded habitats should be restored and a strategy needs to be developed to address the future threat by climate change. 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. A habitat management plan is needed and anticipated to be developed during the coming years. Monitoring every ten years using the BALA protocol will inform about habitat quality (see e.g. Gaspar *et al.* 2010).

Credits

Assessor(s): Borges, P.A.V., Lamelas-López, L. & Amorim, I.R.

Reviewer(s): Danielczak, A.

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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?
1. Forest -> 1.4. Forest - Temperate	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	Resident	Suitable	Yes
15. Artificial/Aquatic & Marine -> 15.2. Artificial/Aquatic - Ponds (below 8ha)	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 2. Species Stresses -> 2.1. Species mortality		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Whole (>90%)	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		
11. Climate change & severe weather -> 11.2. Droughts	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. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.1. Small-holder plantations	Ongoing	Minority (50%)	Causing/could cause fluctuations	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 -> 2.3. 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		

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		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 -> 8.1.1. Unspecified species (Gambusia holbrooki)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	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		
8. Invasive and other problematic species, genes & diseases -> 8.2. Problematic native species/diseases -> 8.2.2. Named species (Gambusia holbrooki)	Ongoing	Minority (50%)	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		
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 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	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		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Land/Water Protection and Management
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 61-70
In-Place Education
Subject to recent education and awareness programmes: Yes

Conservation Actions Needed

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

Conservation Actions 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

Conservation Actions Needed
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
1. Research -> 1.5. Threats
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) (km²): 156
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km²): 33600
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 19
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 200
Upper elevation limit (m): 1200
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: Yes
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes

Habitats and Ecology
Generation Length (years): 1
Movement patterns: Not a Migrant

The IUCN Red List Partnership

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