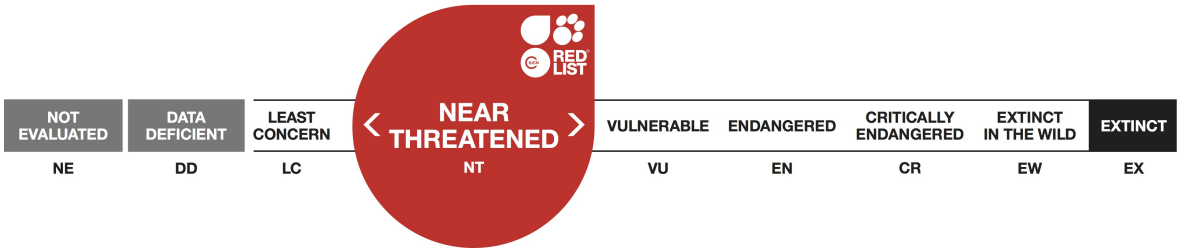
The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2008: T97241503A99166979
Scope: Global
Language: English

Limnephilus atlanticus, Caddisfly

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



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Citation: Borges, P.A.V. & Nunes, R. 2018. *Limnephilus atlanticus*. The IUCN Red List of Threatened Species 2018: e.T97241503A99166979. http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T97241503A99166979.en

Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Trichoptera	Limnephilidae

Taxon Name: *Limnephilus atlanticus* Nybom, 1948

Common Name(s):

- English: Caddisfly

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: Near Threatened ver 3.1

Year Published: 2018

Date Assessed: February 28, 2017

Justification:

Limnephilus atlanticus in an endemic caddisfly species present in six islands of the Azorean archipelago (Faial, Flores, Pico, Terceira, São Jorge and São Miguel) (Borges *et al.* 2010), being known from eleven Natural Forest Reserves of the islands. It has a large extent of occurrence (EOO = *ca* 19,000 km²) and a relatively small area of occupancy (AOO = 108 km²). The species is abundant and known from at least 11 subpopulations. In the past, the species has probably strongly declined due to changes in habitat size and quality. Human activity, particularly the drainage of wetlands and the contamination of freshwater bodies with agricultural runoff are also major threats to this species. The main current threat in forest floor is the spread of invasive species namely *Hedychium gardenerianum.* The main future threat to this species will be the habitat decline as a consequence of invasive species and climate change (increasing number of droughts) (Ferreira *et al.* 2016). The species is assessed as Near Threatened (NT), since the species has an AOO of 108 km² (i.e. < 2,000 km²), and there is a continuing decline in the number of locations.

Geographic Range

Range Description:

Limnephilus atlanticus in an endemic caddisfly species present in six islands of the Azorean archipelago (Faial, Flores, Pico, Terceira, São Jorge and São Miguel) (Borges *et al.* 2010). Within these six islands it is known from eleven Natural Forest Reserves: Morro Alto e Pico da Sé (Flores); Caldeira do Faial (Faial); Mistério da Prainha and Caveiro (Pico); Topo (S. Jorge); Biscoito da Ferraria, Pico Galhardo, Caldeira Sta. Bárbara e Mistérios Negros and Terra Brava (Terceira); Graminhais and Pico da Vara (S. Miguel). The

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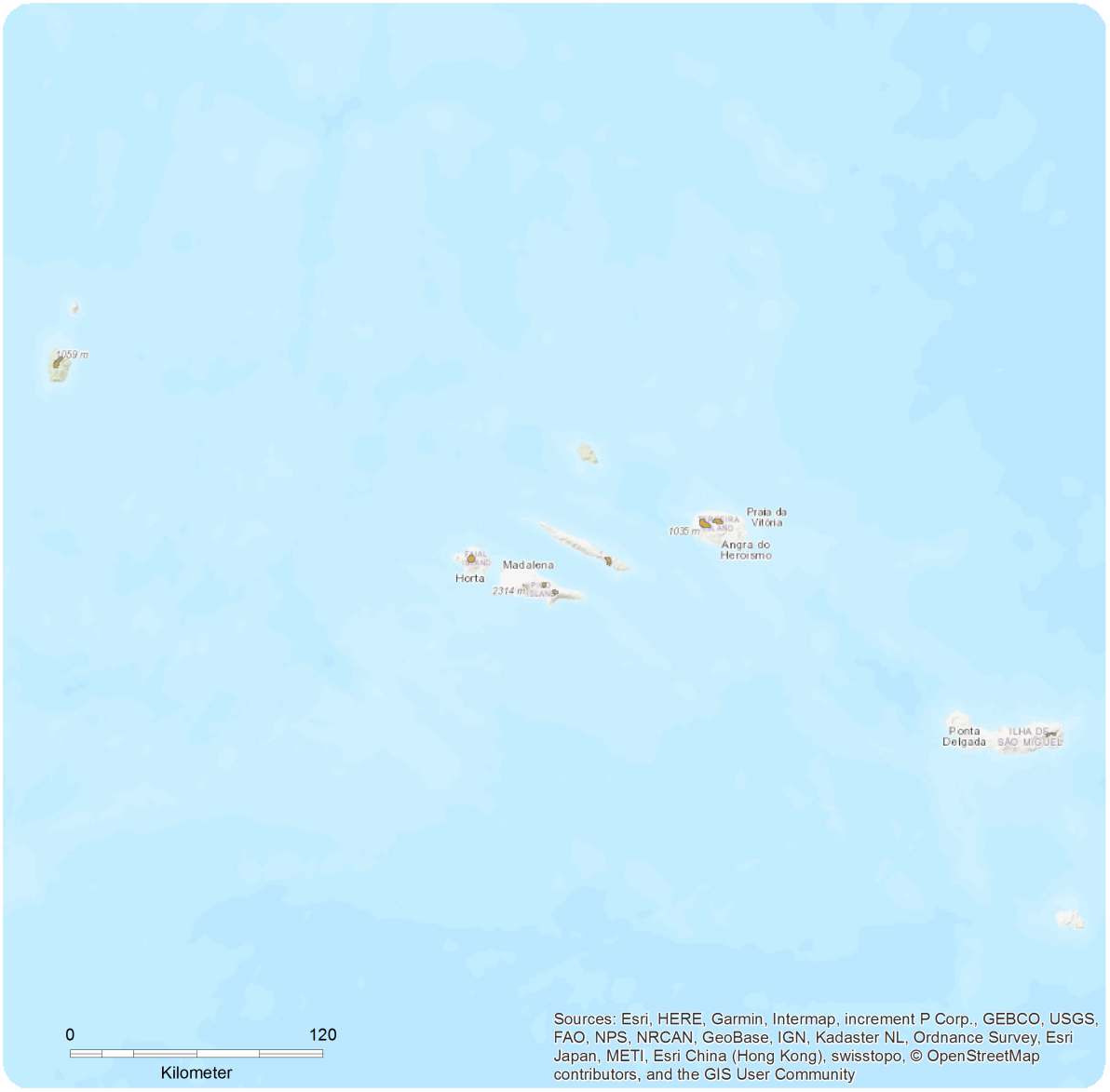
extent of occurrence (EOO) is *ca* 19,000 km² and the maximum estimated area of occupancy (AOO) is 108 km².

Country Occurrence:

Native: Portugal (Azores)

Distribution Map

Limnephilus atlanticus



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.

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Population

The species is widespread and relatively abundant, but limited to suitable pristine habitats. At least in some islands the species continues in decline due to native forest destruction and habitat fragmentation and wetland drainage.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The adults occur mainly in the native forest with twilight activity. They are generalist phytophagous. The larvae construct portable cases from plant and mineral materials. The larvae are aquatic, but are also found in the forest floor in small streams and puddles or in other hiper-humid conditions. The larvae act as active shredders, exhibiting the same basic patterns of food exploitation as its European counterparts (Balibrea *et al.* 2016). Based on seasonal data from SLAM traps obtained in several islands between 2012 and 2016, the adults are active all year, being most abundant in spring and summer (Borges *et al*. 2017).

Systems: Terrestrial, Freshwater

Use and Trade

The species is not utilised.

Threats (see Appendix for additional information)

In the past, the species has probably strongly declined due to changes in habitat size and quality (Triantis *et al.* 2010, Terzopoulou *et al.* 2015). Based on Ferreira *et al.* (2016) the habitat will further decline as a consequence of climate change (increasing number of droughts). Human activity, particularly the drainage of wetlands and the contamination of freshwater bodies with agricultural runoff are also major threats to this species. The main current threat in forest floor is the spread of invasive species namely *Hedychium gardenerianum*.

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, Faial, Flores, Pico, S. Jorge, Terceira, S. Miguel). Degraded habitats should be restored and a strategy needs to be developed to address the current threat by invasive species and the future threat by climate change. Further research is needed into its ecology and life history in order to understand its dynamics, namely at larvae stage. 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. & Nunes, R.

Reviewer(s): Danielczak, A.

http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T97241503A99166979.en

Contributor(s): Lamelas-López, L.

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Disclaimer

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
3. Shrubland -> 3.4. Shrubland - Temperate	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.7. Wetlands (inland) - Permanent Freshwater Marshes/Pools (under 8ha)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.8. Wetlands (inland) - Seasonal/Intermittent Freshwater Marshes/Pools (under 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 -> 1.1. Ecosystem conversion 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%)	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		

8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Hedychium gardnerianum)	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Minority (50%)	Rapid declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Systematic monitoring scheme: Yes
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over part of range
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 81-90

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
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

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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) (km²): 108
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km²): 19000
Continuing decline in extent of occurrence (EOO): No
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 11
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 500
Upper elevation limit (m): 1200
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

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The IUCN Red List Partnership

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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.