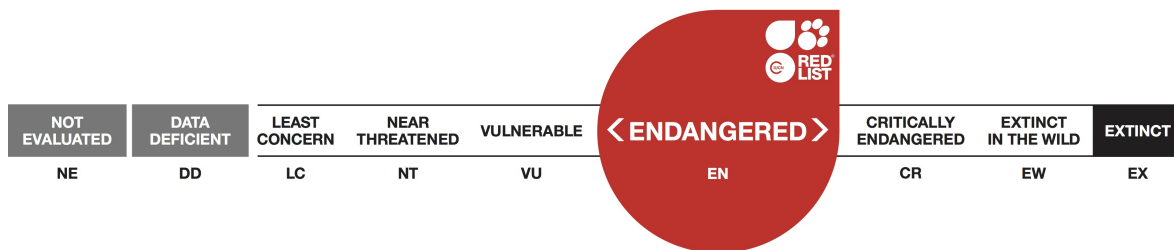


Cixius azofloresi, Tree lacehopper

Assessment by: Rego, C., Boieiro, M. & Borges, P.A.V.



View on www.iucnredlist.org

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Hemiptera	Cixiidae

Taxon Name: *Cixius azofloresi* Remane & Asche, 1979

Synonym(s):

- *Cixius insularis* (Lindberg, 1954)
- *Cixius verticalis* (Noulh. 1897)

Common Name(s):

- English: Tree lacehopper

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., Wetzell, 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: Endangered B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) [ver 3.1](#)

Year Published: 2018

Date Assessed: January 29, 2017

Justification:

Cixius azofloresi is an Azorean endemic tree lacehopper that occurs in Flores and Corvo islands (Azores, Portugal). It has a small extent of occurrence (EOO = 188 km²) and area of occupancy (AOO = 72 km²). The species is abundant and known from at least three fragmented subpopulations in two islands. In the past, the species has probably strongly declined due to changes in habitat size and quality. The main threat to this species will be the habitat decline as a consequence of climate change (Ferreira *et al.* 2016). Based upon the small extent of occurrence, area of occupancy and decreasing quality of habitat it is assessed as Endangered.

Geographic Range

Range Description:

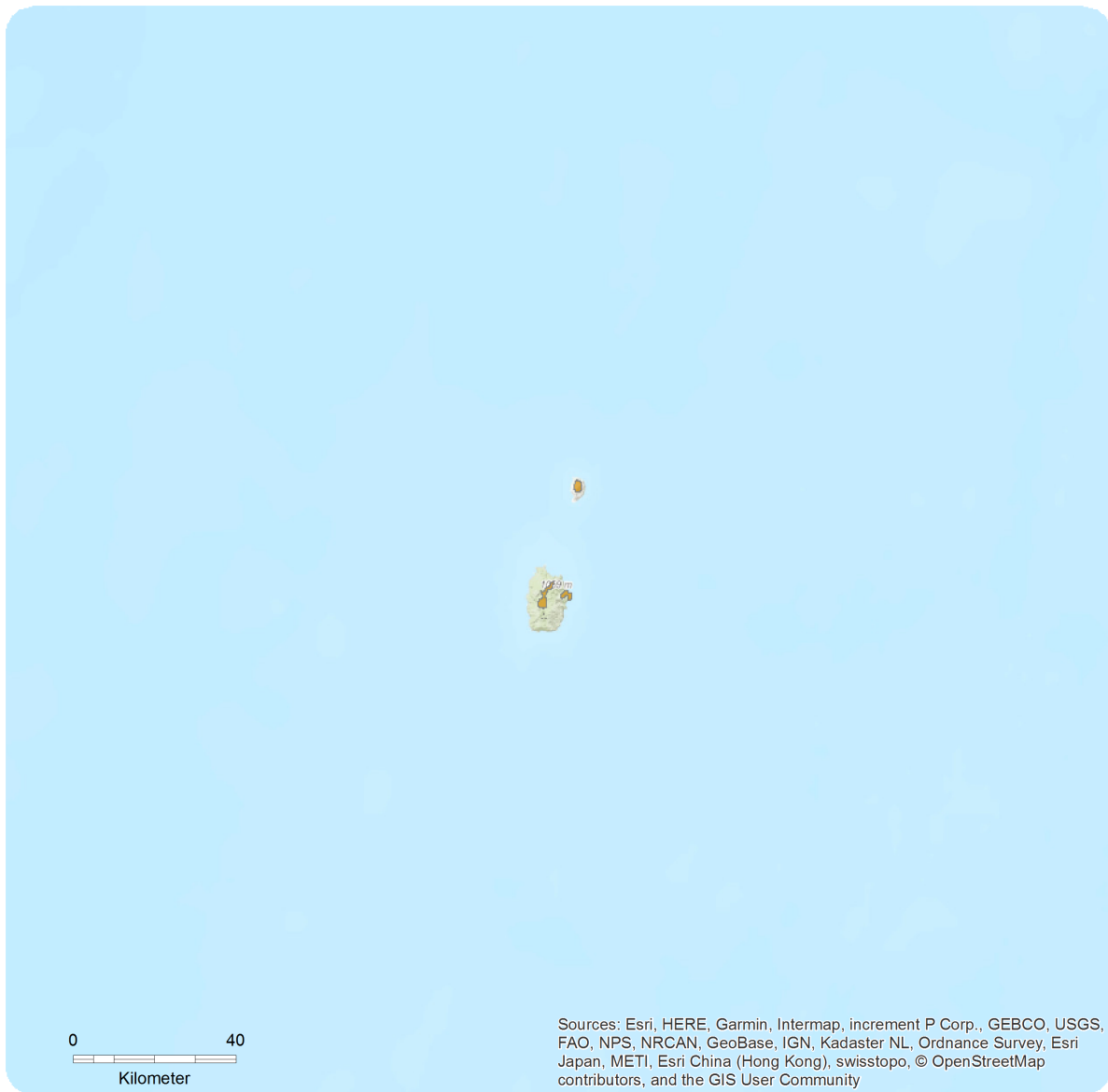
Cixius azofloresi Remane & Asche, 1979 is an Azorean endemic tree lacehopper that occurs in Flores and Corvo islands (Azores, Portugal) (Borges *et al.* 2010). This canopy phytophagous species occurs in the native forest of the Azores (Natural Park of Flores), but has also been found associated to native plants in other habitat-types. It has an area of occupancy (AOO) of 72 km² and the extent of occurrence (EOO) is 188 km².

Country Occurrence:


Native: Portugal (Azores)

Distribution Map

Cixius azofloresi



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 occurs mainly in three sites, two in Flores in native forest fragments and one in Corvo Island where no native forest fragments remain. Some historical records nowadays have no suitable habitat for the species due to urban development. Ongoing land-use changes in Corvo is changing the habitat dramatically in some sites with an inferred impact on the subpopulation abundances.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

This species occurs mainly in the Azorean native forest. It is a generalist diurnal canopy phytophagous species that has been found on different native plants, but also in some exotic plants. 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

Use and Trade

The species is not utilised.

Threats (see Appendix for additional information)

Cixius azofloresi occurs mainly in two native forest fragments in Flores and on natural vegetation in Corvo Island, where native forest no longer exists. Flores has one of the best preserved native forest fragments in the Azores (Gaspar *et al.* 2011). However, in recent years, strong storms created clearings in areas of pristine native forest that were rapidly occupied by the invasive species *Hedychium gardnerianum*, thus reducing habitat quality for this species. Ongoing land-use changes in Corvo is changing the habitat dramatically in some sites with an inferred impact on the subpopulation abundances. Based on Ferreira et al. (2016) the habitat will further decline as a consequence of climate change (increasing number of droughts and habitat shifting & alteration).

Conservation Actions (see Appendix for additional information)

The species is not protected by regional law. Its habitat is in a regionally protected area (Natural Parks of Flores and Corvo). Further research is needed to monitor the species and conservation measures to control the invasive *Hedychium gardnerianum* should be implemented to improve habitat quality for this species. Additional research is needed into its ecology and life history in order to find extant specimens in additional native habitats. Degraded habitats should be restored and a strategy needs to be developed to address the future threat by climate change. It is necessary an area-based management plan in Corvo Island and a monitoring plan for the invertebrate community in the habitat in order to contribute to the conservation of this species. Monitoring every ten years using the BALA protocol will inform about habitat quality (see e.g. Gaspar *et al.* 2010).

Credits

Assessor(s): Rego, C., Boieiro, M. & Borges, P.A.V.

Reviewer(s): Danielczak, A.

Contributor(s): Lamelas-López, L.

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Borges, P.A.V., Pimentel, R., Carvalho, R., Nunes, R., Wallon, S. & Ros Prieto, A. 2017. Seasonal dynamics of arthropods in the humid native forests of Terceira Island (Azores). *Arquipelago Life and Marine Sciences* 34: 105-122.

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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
0. Root -> 16. Introduced vegetation	Resident	Suitable	No

Threats

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

Threat	Timing	Scope	Severity	Impact Score
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Unknown	Slow, significant declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
11. Climate change & severe weather -> 11.4. Storms & flooding	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	Minority (50%)	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		
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.2. Agro-industry plantations	Future	Minority (50%)	Slow, significant declines	Low impact: 3
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Hedychium gardnerianum)	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		

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: 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): 71-80

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
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): 72
Continuing decline in area of occupancy (AOO): Yes

Distribution
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km ²): 188
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 2
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 0
Upper elevation limit (m): 1100
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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