Limnellia helmuti

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

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Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Arthropoda</td>
<td>Insecta</td>
<td>Diptera</td>
<td>Ephydridae</td>
</tr>
</tbody>
</table>

Scientific Name: *Limnellia helmuti* Hollmann-Schirrmacher & Zatwarnicki, 1995

Assessment Information

Red List Category & Criteria: Data Deficient [ver 3.1]

Year Published: 2020

Date Assessed: March 26, 2018

Justification:

*Limnellia helmuti* is an endemic species of the Azores (Portugal), being present (at least historically) on S. Miguel island. From the historical data, this species has only been recorded in a disturbed area (Furnas) and would have a very small Extent of Occurrence (8 km²) and Area of Occupancy (8 km²). It is possible that this species has declined in the past as a result of human activity. However, the present situation of this species needs to be further assessed and further research is needed into its population, distribution, threats, ecology and life history; while conservation of native wet and boggy areas and other water bodies could potentially aid this species conservation. Based upon the lack of recent in data regarding this species population, distribution, threats and ecology, this species is assessed as Data Deficient (DD).

Geographic Range

Range Description:

*Limnellia helmuti* is an Azorean-endemic species that was described from the island of S. Miguel (Azores, Portugal) (Borges et al. 2010), known from only one disturbed site (Furnas). Based on the description data, the Extent of Occurrence (EOO) would be ca. 8 km² and the Area of Occupancy (AOO) would be ca. 8 km². However, there is no recent information regarding the distribution of this species.

Country Occurrence:

Native, Extant (resident): Portugal (Azores)
Population
No current population size estimates exist for this species.
Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)
The ecology and traits of this species are unknown. Ephydridae usually live in aquatic and semiaquatic habitats; maritime marshes, tidal salt pools, salt and alkaline lakes of arid regions (McAlpine et al. 1987). Larvae of most Ephydridae are filter-feeders, feeding on microscopic algae bacteria and yeasts from the surrounding semiliquid medium. Others prefer dead and decaying animal tissue or excrement, while others are leaf miners. Larvae of some species are predators (McAlpine et al. 1987). This species was collected in a disturbed site, in the vicinity of several fumaroles and small lakes and rivulets or geothermal origin.

Systems: Terrestrial, Freshwater (=Inland waters)

Threats (see Appendix for additional information)
A lack of information regarding the present status of this species precludes an assessment of potential threats. Nevertheless, the ecology of other members of the Ephydridae family suggests that this species might be affected by future habitat declines as a consequence of climate change (Ferreira et al. 2016) and increased droughts. Contamination of surface waters by agricultural and livestock runoff can also potentially affect this species, and given that the site where this species was collected includes geothermal lakes and hot springs, future violent geothermal events might as well affect it. This species was collected from a currently highly disturbed site, so past and present human disturbance and land use changes, coupled with habitat degradation by invasive species might have also affected it.

Conservation Actions (see Appendix for additional information)
The species is not protected by regional law; but historically at least, this species was present in one area that is currently highly disturbed, but included in the Natural Park of S. Miguel. The present situation of this species needs to be further assessed, and further research is needed into its population, distribution, threats, ecology and life history. From what is known of its habitat preferences, conservation of natural water bodies, of native wet and boggy areas and other wet habitats, together with problematic species control, could potentially aid this species' conservation.

Credits
Assessor(s): Nunes, R. & Borges, P.A.V.
Reviewer(s): Danielczak, A.
Bibliography


Citation

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External Resources
For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.
Appendix

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

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Wetlands (inland) -&gt; 5.12. Wetlands (inland) - Geothermal Wetlands</td>
<td>Resident</td>
<td>Suitable</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Threat</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Invasive and other problematic species, genes &amp; diseases -&gt; 8.1. Invasive non-native/alien species/diseases -&gt; 8.1.1. Unspecified species</td>
<td>Ongoing</td>
<td>Unknown</td>
<td>Slow, significant declines</td>
<td>Unknown</td>
</tr>
<tr>
<td>Stresses:</td>
<td></td>
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<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.3. Indirect ecosystem effects</td>
<td></td>
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</tr>
<tr>
<td>9. Pollution -&gt; 9.3. Agricultural &amp; forestry effluents -&gt; 9.3.1. Nutrient loads</td>
<td>Ongoing</td>
<td>Unknown</td>
<td>Slow, significant declines</td>
<td>Unknown</td>
</tr>
<tr>
<td>Stresses:</td>
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</tr>
<tr>
<td>9. Pollution -&gt; 9.3. Agricultural &amp; forestry effluents -&gt; 9.3.3. Herbicides and pesticides</td>
<td>Ongoing</td>
<td>Unknown</td>
<td>Rapid declines</td>
<td>Unknown</td>
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<td>Stresses:</td>
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</tr>
<tr>
<td>2. Species Stresses -&gt; 2.1. Species mortality</td>
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<tr>
<td>Stresses:</td>
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</tr>
<tr>
<td>1. Ecosystem stresses -&gt; 1.1. Ecosystem conversion</td>
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<tr>
<td>1. Ecosystem stresses -&gt; 1.2. Ecosystem degradation</td>
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<tr>
<td>2. Species Stresses -&gt; 2.1. Species mortality</td>
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</tr>
<tr>
<td>11. Climate change &amp; severe weather -&gt; 11.1. Habitat shifting &amp; alteration</td>
<td>Future</td>
<td>Unknown</td>
<td>Slow, significant declines</td>
<td>Unknown</td>
</tr>
<tr>
<td>Stresses:</td>
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<tr>
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<tr>
<td>11. Climate change &amp; severe weather -&gt; 11.2. Droughts</td>
<td>Future</td>
<td>Unknown</td>
<td>Slow, significant declines</td>
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Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

<table>
<thead>
<tr>
<th>Conservation Action in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-place research and monitoring</td>
</tr>
</tbody>
</table>
**Conservation Action in Place**

- Action Recovery Plan: No
- Systematic monitoring scheme: No
- In-place land/water protection
- Occurs in at least one protected area: Yes

**Conservation Actions Needed**

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

**Conservation Action Needed**

2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.2. Invasive/problematic species control

**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
3. Monitoring -> 3.4. Habitat trends

**Additional Data Fields**

**Distribution**

- Estimated area of occupancy (AOO) (km²): 8
- Continuing decline in area of occupancy (AOO): Unknown
- Extreme fluctuations in area of occupancy (AOO): Unknown
- Estimated extent of occurrence (EOO) (km²): 8
- Continuing decline in extent of occurrence (EOO): Unknown
- Extreme fluctuations in extent of occurrence (EOO): Unknown
- Continuing decline in number of locations: Unknown
- Extreme fluctuations in the number of locations: Unknown
- Lower elevation limit (m): 200

https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T124914828A124930711.en
### Distribution
Upper elevation limit (m): 400

### Population
Continuing decline of mature individuals: Unknown
Extreme fluctuations: Unknown
Population severely fragmented: Unknown
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