

## *Phlogophora kruegeri*, Owlet moth

Assessment by: Vieira, V. & Borges, P.A.V.



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae

**Taxon Name:** *Phlogophora kruegeri* Saldaitis & Ivinskis, 2006

### Common Name(s):

- English: Owlet moth

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

**Year Published:** 2017

**Date Assessed:** March 20, 2017

### Justification:

*Phlogophora kruegeri* is a single island endemic species from Flores island (Azores, Portugal) (Borges *et al.* 2010). It has a very small extent of occurrence (EOO = 8 km<sup>2</sup>) and area of occupancy (AOO = 8 km<sup>2</sup>). There is a continuing decline in the EOO, AOO, extent and quality of habitat as well as the number of mature individuals as a result of major land-use change in the last 100 years. Main recent past and ongoing threats are the invasive plants *Hydrangea macrophylla* and *Hedychium gardnerianum* that are changing the habitat. Based on Ferreira *et al.* (2016) the habitat will decline as a consequence of climate change (increasing number of droughts). Based upon the small geographic range of the species with only one location and continuing decline of its habitat area and quality, it is assessed as Critically Endangered.

## Geographic Range

### Range Description:

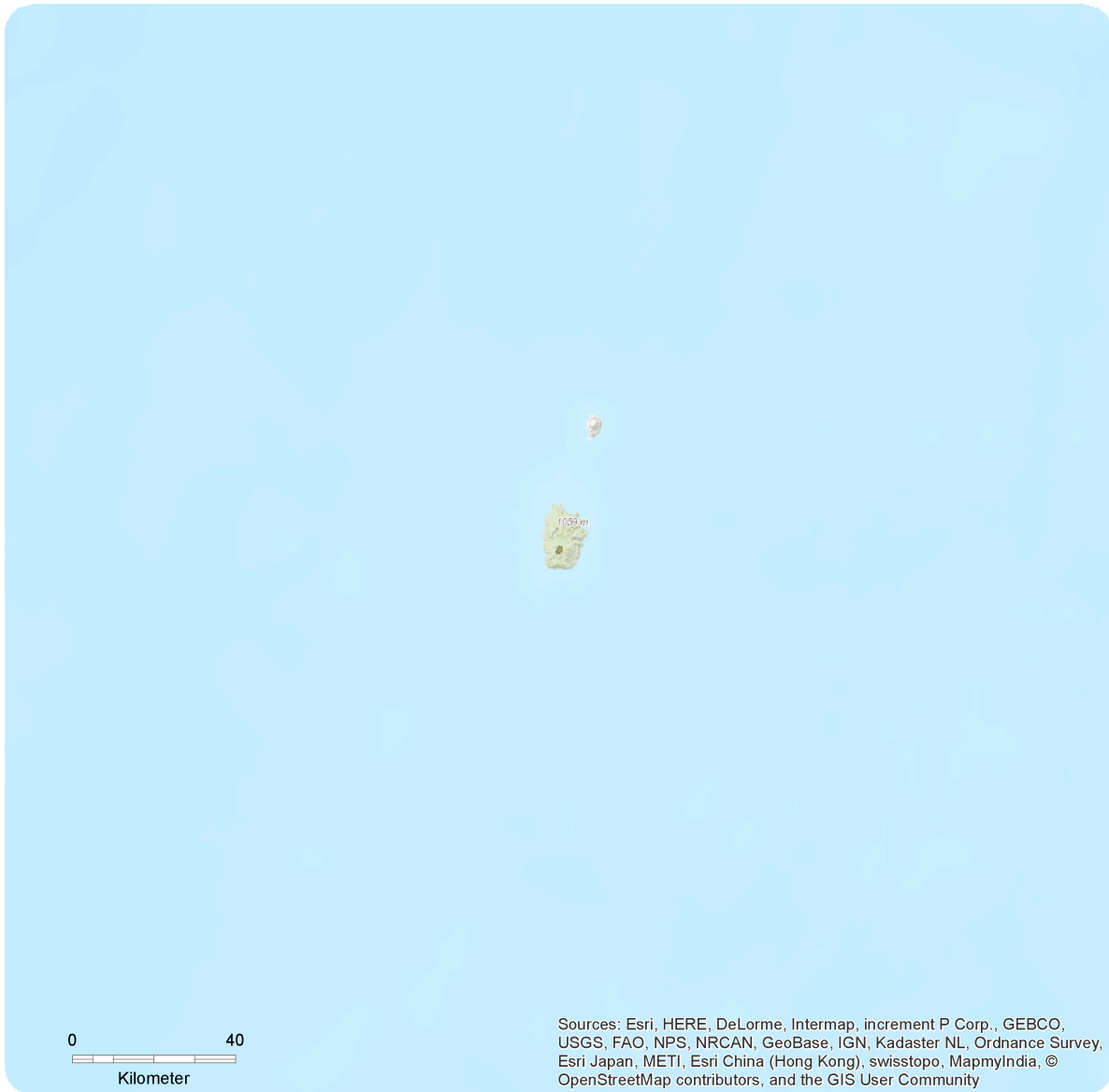
*Phlogophora kruegeri* is a single island endemic species present in Flores island (Azores, Portugal) (Borges *et al.* 2010), occurring in highland biotopes of *Juniperus brevifolia* woodland forest (e.g. Caldeira Rasa, Marcela) (Saldaitis and Ivinskis 2006). The species occurs in a single Natural Forest Reserve: Caldeiras Funda e Rasa (Flores). The extent of occurrence (EOO) is 8 km<sup>2</sup> and the maximum estimated area of occupancy (AOO) is 8 km<sup>2</sup>.

### Country Occurrence:


**Native:** Portugal (Azores)

# Distribution Map

*Phlogophora kruegeri*



**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

This species is still abundant in Flores island, occurring mostly in highland *Juniperus brevifolia* woodland wet habitats with grass and *Sphagnum* spp. moss (Saldaitis and Ivinskis 2006). A decline is probable due to the degradation of habitat caused by human activities and invasions of alien plants. Habitat destruction and invasive plants can drive this species to extinction very fast.

**Current Population Trend:** Decreasing

## Habitat and Ecology (see Appendix for additional information)

This species occurs mostly in typical highland wet *Juniperus brevifolia* woodland habitats with native grasses and mosses on Flores island (Saldaitis and Ivinskis, 2006). Possibly, it is a polyphagous herbivore, and adults are nearly always present, except in winter, with a maximum of individuals being attracted readily to light from July to August.

**Systems:** Terrestrial

## 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, mostly the creation of pastures (Triantis *et al.* 2010). Currently invasive plants (mostly *Hydrangea macrophylla* and *Hedychium gardnerianum*) are changing some of the areas and decreasing the quality of the habitat. These changes are decreasing the relative cover of endemic plants and changing the soil cover (decreasing the cover of bryophytes and ferns) with the expansion of other plants and potential threats to the species. 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 Park of Flores). Further research is needed into its ecology and life history in order to find extant specimens. Degraded habitats should be restored and a strategy needs to be developed to address the future threat by climate change. 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):** Vieira, V. & Borges, P.A.V.

**Reviewer(s):** Danielczak, A.

**Contributor(s):** Nunes, R. & Lamelas-López, L.

## Bibliography

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Saldaitis, A. & Ivinskis, P. 2006. Three new Noctuidae taxa from the Macaronesian archipelago (Lepidoptera). *Atalanta* 37((1/2)): 291-300.

Triantis, K.A., Borges, P.A.V., Ladle, R.J., Hortal, J., Cardoso, P., Gaspar, C., Dinis, F., Mendonça, E., Silveira, L.M.A., Gabriel, R., Melo, C., Santos, A.M.C., Amorim, I.R., Ribeiro, S.P., Serrano, A.R.M., Quartau, J.A. and Whittaker, R.J. 2010. Extinction debt on oceanic islands. *Ecography* 33: 285-294.

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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
3. Shrubland -> 3.4. Shrubland - Temperate	Resident	Suitable	Yes
4. Grassland -> 4.4. Grassland - Temperate	Resident	Suitable	Yes

## 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	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	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. 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		

8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.2. Named species (Hydrangea macrophylla)	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		

## Conservation Actions in Place

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

<b>Conservation Actions in Place</b>
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>)

<b>Conservation Actions Needed</b>
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>)

<b>Research Needed</b>
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

<b>Distribution</b>
Estimated area of occupancy (AOO) (km <sup>2</sup> ): 8
Continuing decline in area of occupancy (AOO): Yes
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km <sup>2</sup> ): 8
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: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 600
Upper elevation limit (m): 750
<b>Population</b>
Continuing decline of mature individuals: Yes
Population severely fragmented: No
<b>Habitats and Ecology</b>
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 0.5
Movement patterns: Not a Migrant

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