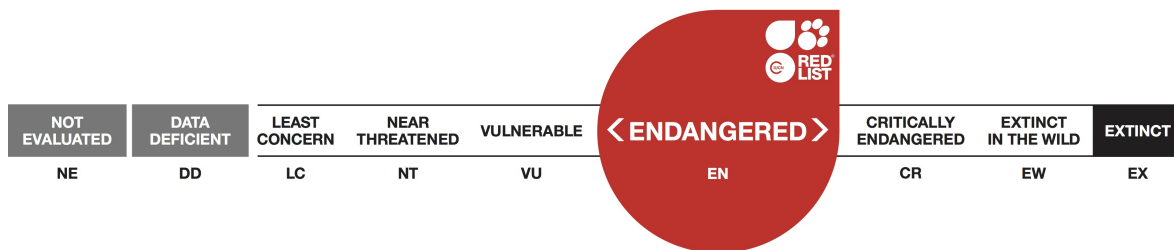


## *Metophtalmus occidentalis*, Mould beetle

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



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Coleoptera	Latridiidae

**Taxon Name:** *Metophtalmus occidentalis* Israelson, 1984

### Common Name(s):

- English: Mould beetle, Minute brown, Plaster beetle, Scavenger beetle

### 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 B2ab(i,ii,iii,iv,v) [ver 3.1](#)

**Year Published:** 2018

**Date Assessed:** January 14, 2017

### Justification:

*Metophtalmus occidentalis* is an endemic species present in Faial, Graciosa, S. Miguel and Sta. Maria islands (Azores, Portugal). It has a large extent of occurrence (EOO = ca 23,000 km<sup>2</sup>) and a relatively small area of occupancy (AOO = 48 km<sup>2</sup>). The species is common and known from at least seven fragmented subpopulations in four islands. In the past, the species has probably strongly declined due to changes in habitat size and quality. The main threat is the advance of the invasive plant *Hedychium gardnerianum* that is changing the habitat. 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 this species is assessed as Endangered.

## Geographic Range

### Range Description:

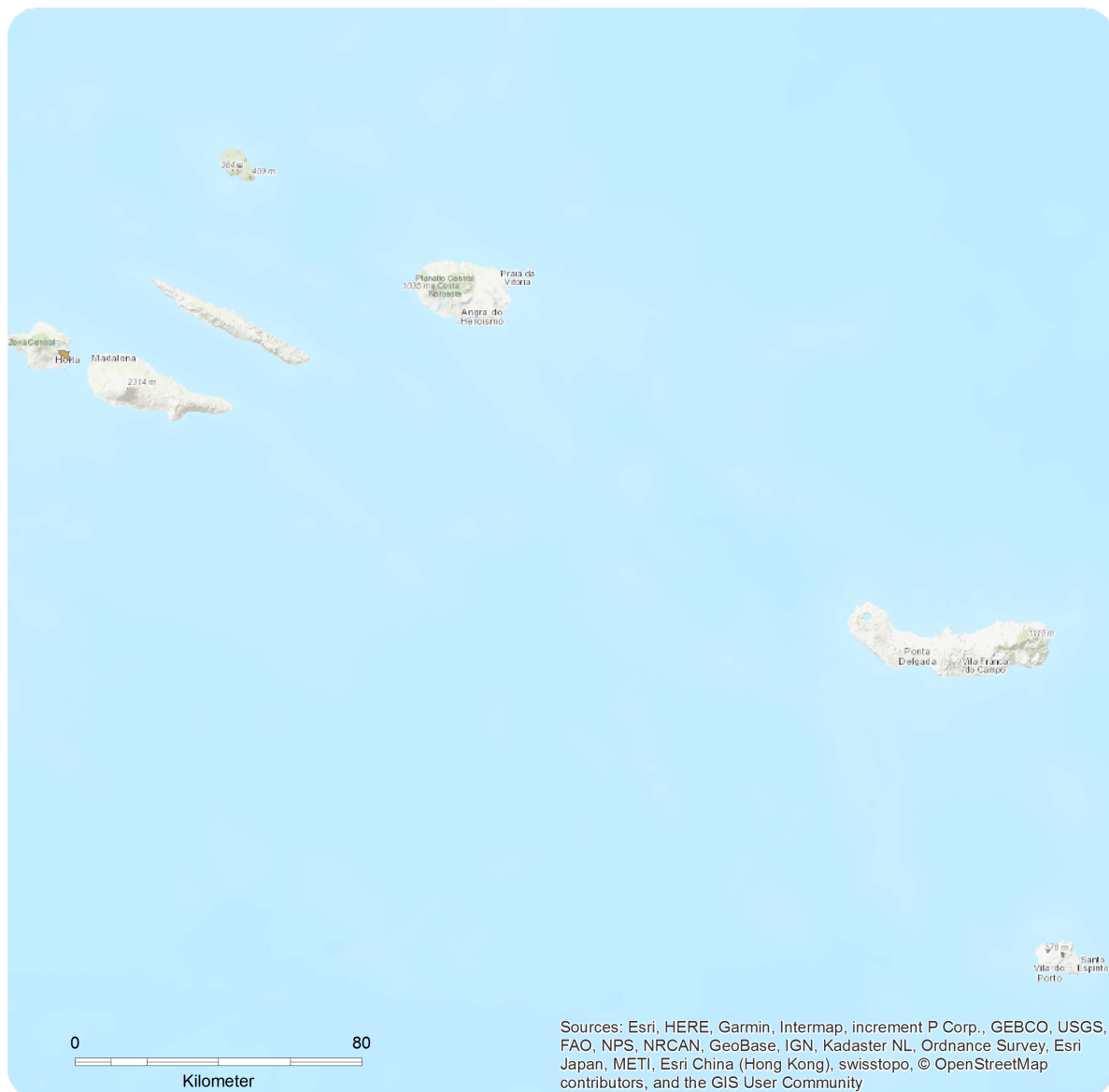
*Metophtalmus occidentalis* is an endemic species present in Faial, Graciosa, S. Miguel and Sta. Maria islands (Azores, Portugal) (Borges *et al.* 2010), known from Natural Forest Reserve of Pico Alto (Sta. Maria) and present also in some exotic plantations in the other islands. The extent of occurrence (EOO) is ca 23,000 km<sup>2</sup> and the maximum estimated area of occupancy (AOO) is 48 km<sup>2</sup>.

### Country Occurrence:

**Native:** Portugal (Azores)

# Distribution Map

*Metophtalmus occidentalis*



## 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

*M. occidentalis* is a widespread and particularly abundant species in native and exotic forests. A decline in the population abundance is inferred as a consequence of the spread invasive plant species and exotic forest cut. This species has been 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)

This species occurs in native forests, exotic forests (dominated by *Pittosporum undulatum*) and *Cryptomeria japonica* plantations in several Azorean islands (Faial, Graciosa, S. Miguel and Sta. Maria islands), with an altitudinal range between 100 and 500 m. This species is a decomposer of organic matter living in the soil. 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)

In the past, the species has probably strongly declined due to changes in its habitat size and quality (Triantis *et al.*, 2010). The main threats are the advance of the invasive plant *Hedychium gardnerianum* that is changing the habitat and the management of exotic patches of forest in which some subpopulations are still persisting. 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 areas (Natural Parks of S. Miguel and Santa Maria). 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 in historical sites and in additional low elevation sites and obtain information on population size, distribution and trends. It is also necessary to create a monitoring plan for the invertebrate community in the habitat in order to contribute to perform a species potential recovery plan. A monitoring every ten years using the BALA protocol will inform about habitat quality (see e.g. Gaspar *et al.* 2011).

## Credits

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

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

## Bibliography

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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.

Ferreira, M.T., Cardoso, P., Borges, P.A.V., Gabriel, R., Azevedo, E.B., Reis, F., Araújo, M.B. and Elias, R.B. 2016. Effects of climate change on the distribution of indigenous species in oceanic islands (Azores). *Climate Change* 138: 603-615.

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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

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## Appendix

### Habitats

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

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.4. Forest - Temperate	Resident	Suitable	Yes
14. Artificial/Terrestrial -> 14.3. Artificial/Terrestrial - Plantations	Resident	Suitable	Yes
0. Root -> 16. Introduced vegetation	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		
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		

### 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): 1-10
Area based regional management plan: No

## 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> ): 48
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> ): 23000

<b>Distribution</b>
Continuing decline in extent of occurrence (EOO): Yes
Extreme fluctuations in extent of occurrence (EOO): Unknown
Number of Locations: 7
Continuing decline in number of locations: Yes
Extreme fluctuations in the number of locations: Unknown
Lower elevation limit (m): 100
Upper elevation limit (m): 550
<b>Population</b>
Continuing decline of mature individuals: Yes
Population severely fragmented: Yes
<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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