The IUCN Red List of Threatened Species™
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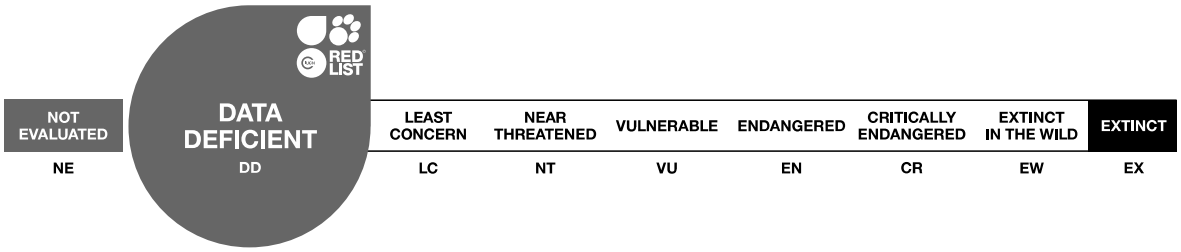
Scope(s): Global
Language: English

Kowarzia storai

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



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Diptera	Empididae

Scientific Name: *Kowarzia storai* (Frey, 1945)

Synonym(s):

- *Clinocera storai* Frey, 1945

Assessment Information

Red List Category & Criteria: Data Deficient ver 3.1

Year Published: 2020

Date Assessed: March 26, 2018

Justification:

Kowarzia storai is an endemic species of the Azores (Portugal), being present (at least historically) on Flores island. From the historical data, this species would have a very small Extent of Occurrence (24 km ^{2}) and Area of Occupancy (24 km^2), and it is possible that this species has declined in the past as a result of human activity. 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. Conservation of native wet and boggy areas and natural streams 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:

Kowarzia storai is an Azorean-endemic species that was described from the island of Flores (Borges *et al.* 2010). Based on the old historical data (Frey 1945), the Extent of Occurrence (EOO) would be *ca* 24 km² and the Area of Occupancy (AOO) would be *ca* 24 km². However, there is no recent information regarding the distribution of this species.

Country Occurrence:

Native, Extant (resident): Portugal (Azores)

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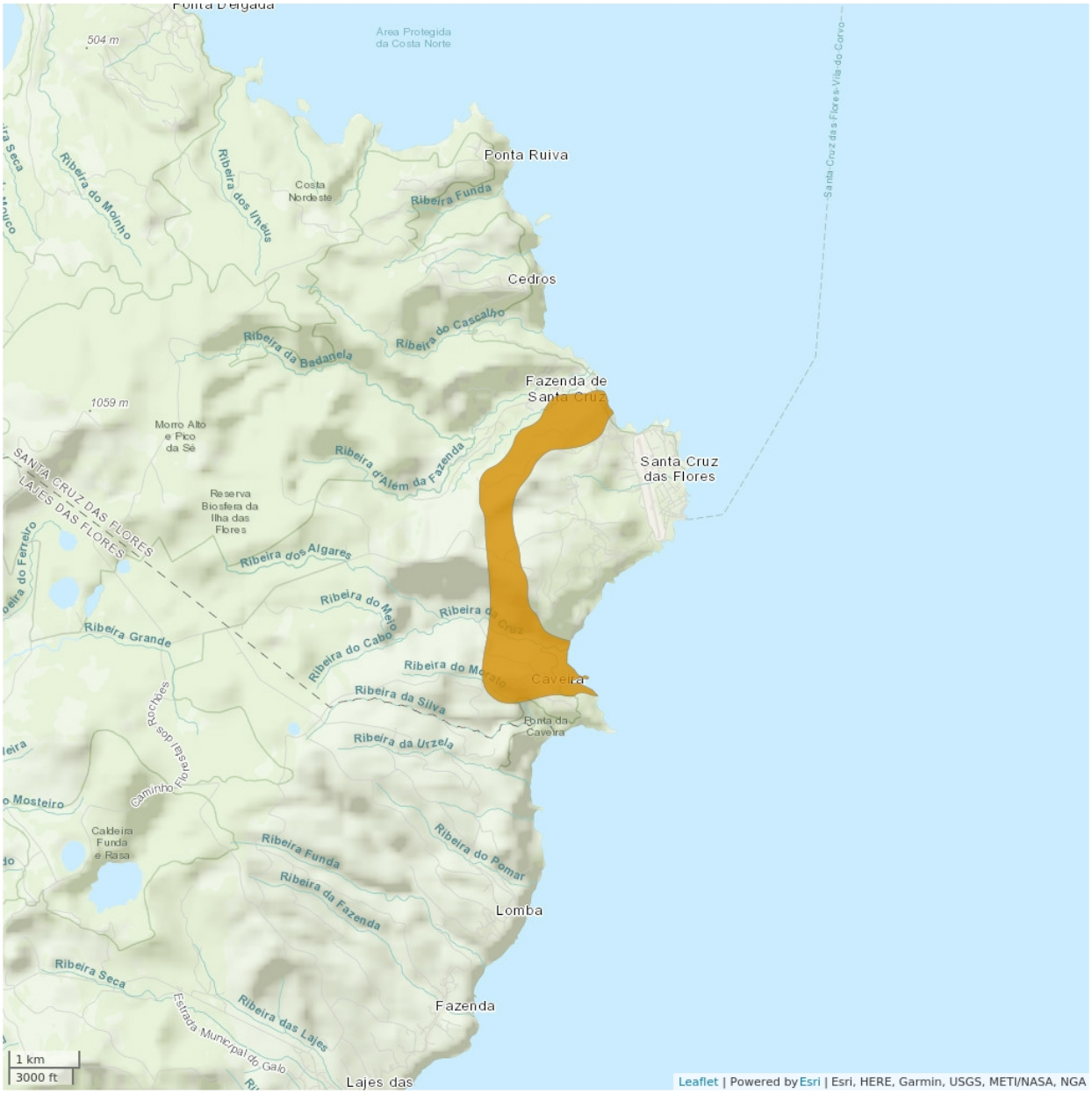
Distribution Map

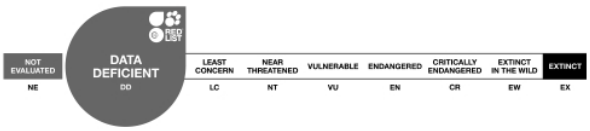


Legend

EXTANT (RESIDENT)

Compiled by:

Azorean Biodiversity Group 2018



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

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. Empididae are mainly predatory flies. Adult empidids are found in a variety of forest habitats, on the leaves of plants, on tree trunks, aquatic vegetation and also in stream beds and seepage habitats (McAlpine *et al.* 1981). Adults capture arthropod prey, including other Diptera, Hemiptera and Lepidoptera, among others. Some adult Empididae species also feed on nectar and pollen (McAlpine *et al.* 1981). Larvae are generally found in moist soil, rotten wood, dung, or in aquatic habitats. Larvae often feed on decaying organic matter in the soil, but most are likely predatory (McAlpine *et al.* 1981). As predators, Empididae species are important biocontrol agents of various pest insect species (McAlpine *et al.* 1981). Species from the subfamily Clinoceridae are typically found near water, and *Kowarzia storai* specimens were found in a stream and in a wet rockwall.

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 Empididae 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. Past human disturbance and land use changes might have also affected this species.

Conservation Actions (see Appendix for additional information)

The species is not protected by regional law. 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 native forests and of natural streams and water bodies could potentially aid this species' conservation.

Credits

Assessor(s): Nunes, R. & Borges, P.A.V.

Reviewer(s): Danielczak, A.

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Bibliography

Borges, P.A.V., Costa, A., Cunha, R., Gabriel, R., Gonçalves, V., Martins, A.F., Melo, I., Parente, M., Raposeiro, P., Rodrigues, P., Santos, R.S., Silva, L., Vieira, P. and Vieira, V. 2010. *A list of the terrestrial and marine biota from the Azores*. Princípia, Cascais.

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(3-4): 603-615.

Frey, R. 1945. Tiergeographische studen über die Dipterenfauna der Azores. *Commentatione biologicae* 8(10): 1-114.

IUCN. 2020. The IUCN Red List of Threatened Species. Version 2020-3. Available at: www.iucnredlist.org. (Accessed: 10 December 2020).

McAlpine, J.F., Peterson, B.V., Shewell, G.E., Teskey, H.J., Vockeroth, J.R. and Wood, D.M. 1981. *Manual of Nearctic Diptera - Volume 1*. Research Branch, Agriculture Canada, Ottawa.

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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)

Habitat	Season	Suitability	Major Importance?
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	Resident	Suitable	Yes
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	Resident	Suitable	Yes

Threats

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

Threat	Timing	Scope	Severity	Impact Score
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	Unknown	Slow, significant declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Unknown	Rapid declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Future	Unknown	Slow, significant declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
11. Climate change & severe weather -> 11.2. Droughts	Future	Unknown	Slow, significant declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		

Conservation Actions in Place

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

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No

Conservation Actions Needed

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

Conservation Action Needed
2. Land/water management -> 2.1. Site/area management

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 -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km²): 24
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): Unknown
Estimated extent of occurrence (EOO) (km²): 24
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): 0
Upper elevation limit (m): 350
Population
Continuing decline of mature individuals: Unknown
Extreme fluctuations: Unknown
Population severely fragmented: Unknown

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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.