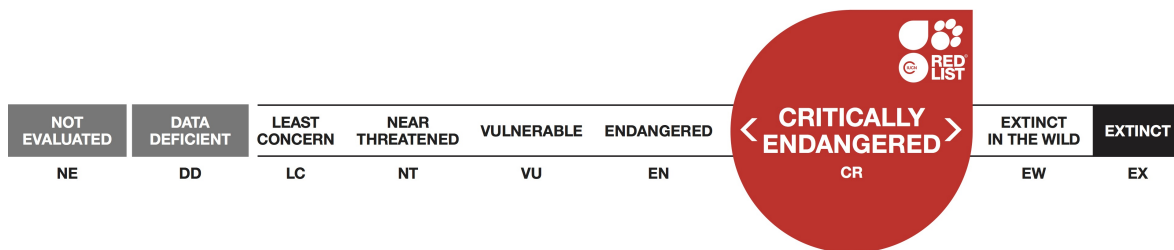


Pseudophilotes sinaicus, Sinai Baton Blue

Assessment by: Thompson, K. & Gilbert, F.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae

Taxon Name: *Pseudophilotes sinaicus* Nakamura, 1975

Common Name(s):

- English: Sinai Baton Blue

Assessment Information

Red List Category & Criteria: Critically Endangered B1ab(i,ii,iii,iv,v)c(iv)+2ab(i,ii,iii,iv,v)c(iv) [ver 3.1](#)

Year Published: 2012

Date Assessed: November 9, 2010

Justification:

The Sinai Baton Blue (*Pseudophilotes sinaicus*) has a very restricted distribution. It is confined to high elevation areas of the Mt Sinai massif in Egypt, with an extent of occurrence (EOO) no greater than 7 km² and an area of occupancy (AOO) less than 2 km². Its distribution is sufficiently small as to be considered a single, fragmented, location which could be threatened by a single drought event. Droughts have already had devastating implications for this species and its host plants over the past decade. The distribution of this butterfly is limited by that of its host plant, which has a highly fragmented distribution and which is subject to ongoing human exploitation. There is a continuing decline in habitat quality for this species; for example, between 2002 and 2010 the patch with the highest local population size of *P. sinaicus* lost 43.4% of its resource area, along with the death of 53% of the plant individuals and a reduction in average condition of the surviving plants (K. Thompson unpublished data). Climate change is projected to further reduce the EOO and AOO of this species, which is limited to high-elevation habitats. There are also extreme fluctuations in the number of mature individuals: population survey data for a single patch between 2002 to 2010 show that the species undergoes dramatic population cycles with severe crashes every three years. Such fluctuations could lead to stochastic local and global extinction (Gilbert *et al.* 2010).

Geographic Range

Range Description:

The Sinai Baton Blue is endemic to Egypt, occurring only at altitudes above 1,800 m within the Ring Dyke of St Katherine Protectorate, with its stronghold on Gebel Safsafa, the massif of Mt Sinai. The entire known extent of occurrence (EOO) is about 7 km²; its area of occupancy (AOO) is less than 2 km².

Country Occurrence:

Native: Egypt (Sinai)

Distribution Map



Pseudophilotes sinaicus

Range

■ Extant (resident)

Compiled by:
Butterfly SRLI Team, University
of Oxford

NE DD LC NT VU EN **< CR >** EW EX



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 butterfly has been found to live on 25 of the 39 discrete patches of the host plant, existing in a classic metapopulation. Because of the small area and the prevailing threats, this makes up a single location. In 2001, the total global population size was estimated at approximately 2,300 adults.

From surveys conducted over consecutive years in a single patch, the species has been inferred to undergo severe fluctuations. This is based on observed tenfold population increases between 2009–2010, and ninefold decreases observed in the 2002–2003 season. It is likely that fluctuations such as these are characteristic of the population as a whole, since they reflect environmental stochasticity acting at a range-wide scale rather than deterministic local habitat changes or demographic stochasticity within a patch.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The larvae feed exclusively on the flowers of Sinai Thyme (*Thymus decussatus*) Benth., 1834 (Labiatae), which is a near-endemic to the Ring Dyke and the nearby Asir Mountains of Saudi Arabia. The caterpillar has a facultative relationship with the ant *Lepisiota* which it appeases with sugar solution, and which in return protects the caterpillar from predatory ants such as *Crematogaster*. Adults are observed in a single generation during April–July but are poor dispersers due to their small size (James 2006a,b).

Systems: Terrestrial

Threats (see Appendix for additional information)

Anthropogenic climate change is a current threat to this species: with the host plant already restricted to mountain tops, any increase in temperature is likely to lead to a reduction in available habitat for this butterfly (Hoyle and James 2005). Climate change around the Mediterranean basin is likely to result in a 2°C temperature rise along with an additional month of drought each year, resulting in a reduction in available resources for the butterfly and larvae. The butterfly exists in a metapopulation and is threatened by increasing fragmentation/habitat isolation, whilst small population size also increases its extinction risk. Other threats include yearly environmental variation in this butterfly's host plant (*Thymus decussatus*), with a 40% reduction in the number of inflorescences noted between years. This would have a direct impact on the survival of the species (Hoyle and James 2005). Its host plant has been threatened by over-collection for medicinal purposes, and is currently listed as Endangered in the 1997 IUCN plants Red List (Walter and Gillett 1998). Hoyle and James (2005) also include overgrazing as a threat, but this is now not thought to be a significant threat; on the contrary, grazing might actually be required to maintain plant vigour.

Conservation Actions (see Appendix for additional information)

This butterfly's distribution is entirely within the St Katherine Protectorate with the rangers continuing to monitor the species by carrying out 9–14 survey days each year (Gilbert *et al.* 2010). Recent conservation efforts are mainly focused on the endangered host plant. The thyme was previously threatened by over-collection due to its high medicinal value in Cairo. The Protectorate has recently banned collection with enforced fines for anyone caught. A fence has recently been erected around a

patch found to contain a large butterfly population to prevent public access to stop further plant collection and to control grazing. Two dams were also built in this patch to hold more water in the soil to improve the condition of the thyme. The rangers have also tried to increase public awareness for this butterfly, considered as a flagship species for the Protectorate (El-Deen 2010).

Credits

Assessor(s): Thompson, K. & Gilbert, F.

Reviewer(s): Lewis, O. & Bohm, M.

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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?
8. Desert -> 8.2. Desert - Temperate	-	Suitable	Yes

Threats

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

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.2. Unintentional effects (species is not the target)	Ongoing	-	-	-
	Stresses:	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 -> 11.1. Habitat shifting & alteration	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.3. Temperature extremes	Ongoing	-	-	-
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		

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: Yes
In-Place Land/Water Protection and Management
Occur in at least one PA: Yes
Percentage of population protected by PAs (0-100): 100

Additional Data Fields

Distribution
Estimated area of occupancy (AOO) (km ²): 2
Continuing decline in area of occupancy (AOO): Yes
Estimated extent of occurrence (EOO) (km ²): 7
Continuing decline in extent of occurrence (EOO): Yes
Number of Locations: 1
Lower elevation limit (m): 1800
Population
Number of mature individuals: 2302
Continuing decline of mature individuals: Yes
Extreme fluctuations: Yes
Continuing decline in subpopulations: Yes
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes

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