

Zizula hylax (Fabricius, 1775) new butterfly species for Socotra (Lepidoptera: Lycaenidae)

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Abstract

Zizula hylax (Fabricius, 1775) is a widespread butterfly species, known from West Africa across Tropical Asia to Northern Australia. We report the first record of this species for Socotra, Archipelago in Yemen, which increases Socotra's total number of recorded butterfly species to 26. We also present a revised list of Socotran butterflies.

KEY WORDS: Lepidoptera, Lycaenidae, *Zizula hylax*, distribution, new record, Yemen.

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Resumen

Zizula hylax (Fabricius, 1775) es una mariposa de distribución extensa, conocida desde África occidental, Asia tropical hasta el norte de Australia. Informamos sobre el primer registro de esta especie para el archipiélago de Socotra en Yemen. Lo que aumenta la cantidad de especies conocidas en Socotra a 26. Presentamos una lista de las mariposas presentes en Socotra.

PALABRAS CLAVE: Lepidoptera, Lycaenidae, *Zizula hylax*, distribución, nuevo registro, Yemen.

Introduction

Socotra is an archipelago made up of one bigger island and three small islets, located in the Indian Ocean close to the Horn of Africa and the Arabian Peninsula. The main island bears the name of the archipelago and is isolated by some distance from the continent: 240 km to East Africa and 380 km to the Arabian Peninsula (CHEUNG *et al.*, 2006). Politically it is a part of the Yemen Republic. Scientific exploration of Socotra started with the expedition of the British ship *Palinurus* (WELLSTED, 1835), followed by the expedition of Balfour in 1880 (BALFOUR, 1888) and two main expeditions to the archipelago were organised in 1898 by (1) a joint expedition of the British Museum in London and the Liverpool museum, and (2) by the Vienna Academy of Sciences (NIEDOBOVÁ *et al.* in press). The fauna of Socotran butterflies was investigated by DIXEY *et al.* (1898), and furthermore by OGILVIE-GRANT (1899), who described three Socotran endemic species. REBEL (1899, 1931) summed the Lepidoptera findings from the Austrian expedition. From recent studies it is necessary to mention works on Noctuidae (HACKER & SALDAITIS, 2010, 2011, IVINSKIS & SALDAITIS, 2008), GEOMETRIDAE (HAUSMANN, 2009, HERBULOT, 1993) and Cossidae (BORTH *et al.*, 2011).

Up to now, there were 25 known species of butterflies from Socotra (Table 1). Five species form unique endemic species, five other species form endemic subspecies for the archipelago and the remaining 14 species are common widespread taxa. The largest amount (20) of the non-endemic

species occur in Africa, 17 species occur also in the Arabian Peninsula and 10 species are known to occur also in the Orient. However, all these taxa also have African distribution. The only exception from the pattern is the Oriental butterfly *Hypolimnas bolina* (Linnaeus, 1758), which is, on the other hand, distributed also in Madagascar and has been reported twice from the Arabian Peninsula (LARSEN & LARSEN, 1980; LARSEN, 1983).

Here, we present the record of a new butterfly species for Socotra.

Material: YEMEN, Socotra Island, Deiqab cave, *Jatropha unicostata* Balfour, 1884 shrubland, 12° 23.1' N, 54° 00.9' E, 115 m. a.s.l. 1 ♂, 16-VI-2010 (V. Hula leg.). The specimen is deposited in the collection of Zdenek Fric in Institute of Entomology (IECA) under code ZF-LY-001039. The butterfly was found close to the entrance of the Deiqab cave (BEZDĚK *et al.*, 2012), flying around water sources in the entrance. The surroundings of the cave entrance are covered by typical Socotra coastal plain vegetation (*Croton socotranus* Balfour, 1884, *Jathropha unicosatata* with scattered specimens of *Ziziphus spina-christi* (Linn) Desf., 1798). Cliffs around the cave entrance are occupied by *Capparis cartileginea* Decne, 1835, *Tamarix nilotica* (Ehrenb.) Bunge, 1852, *Lycium socotranum* Wagner & Vierh., 1907 and other vegetation. Possible larval host plants of the family Verbenaceae grow on nearby locations and, another larval host genus (*Zygophyllum*) grows close to the seashore, approximately 2 km away.

This is the first record of *Zizula hylax* (Fabricius, 1775) for Socotra island as well as for the whole archipelago.

The genus *Zizula* Chapman, 1910 was erected for the very small butterfly from South Africa *Lycaena gaika* Trimen, 1862. The genus has unique wing venation and unusual genital organs (CHAPMAN, 1910). ELIOT (1973) established for this genus a separate section within Polyommatae: Polyommataini. *Lycaena gaika* was synonymized by CORBET (1940) with the Oriental taxon *Zizula hylax*. The genus has only two species. The first species is *Zizula hylax*, with wide Palaetropical distribution covering nearly the whole of Africa (LARSEN, 2005), across the southern half of the Arabian Peninsula (LARSEN, 1983), the Oriental Region (WYNTER-BLYTH, 1957), and Papua New Guinea (PARSONS, 1999) to Northern Australia (BRABY, 2004). The second species, *Zizula cyna* (Edwards, 1881) is distributed in Tropical America from Texas to Argentina (OPLER, 1999).

Zizula hylax is throughout its range a widespread but unpredictable species. It can use different habitats and easily adapts to human altered habitats such as lawns in city parks, gardens or golf courses. It uses a wide range of larval host plants from the families Acanthaceae, Oxalidaceae, Verbenaceae and Zygophyllaceae (LARSEN, 2005).

Discussion

We have no idea whether the butterfly species was overlooked by previous researchers or the species was recently introduced to the island. Socotra Island is protected as a UNESCO Biosphere reserve (UNESCO, 2004) and all imports of plants and animals from the mainland are prohibited (VAN DAMME & BANFIELD, 2011). On the other hand, these policies are probably not very effective since there have been recent records of invasive species of ants (COLLINGWOOD *et al.*, 2004) and plants (MILLER & MORRIS, 2004). Finally, the occurrence of such a widespread species, probably with good passive dispersal abilities is not surprising. We believe that it is only a question of time that other widespread species, such as *Lampides boeticus* (Linnaeus, 1767) or *Zizina otis antanossa* (Mabille, 1877) will be also discovered in Socotra.

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Family	Butterfly species	Afrotropic	Arabian Peninsula	Oriental	Socotran endemic
Hesperiidae	<i>Gegenes pumilio</i> (Hoffmannsegg, 1804)	+	+	+	
	<i>Coeliades anchises jucunda</i> (Butler, 1881)	+	+	-	e
Papilionidae	<i>Papilio demodocus bennetti</i> Dixey, 1898	+	+	-	
Pieridae	<i>Pontia glauconome</i> Klug, 1829	+	+	+	
	<i>Colotis evagore niveus</i> (Butler, 1881)	+	+	-	
	<i>Belenois anomala</i> (Butler, 1881)	-	-	-	E
	<i>Catopsilia florella</i> (Fabricius, 1775)	+	+	+	
Lycaenidae	<i>Freyeria trochylus</i> (Freyer 1845)	+	+	+	
	<i>Leptotes socotranus</i> (Ogilvie-Grant, 1899)	-	-	-	E
	<i>Tarucus quadratus</i> Ogilvie-Grant, 1899	-	-	-	E
	<i>Cacyreus lingeus</i> (Stoll, [1782])	+	-	-	
	<i>Zizeeria knysna</i> (Trimen 1862)	+	+	-	
	<i>Azanus jesous</i> (Guérin, 1847)	+	+	+	
	* <i>Zizula hylax</i> (Fabricius, 1775)	+	+	+	
	Nymphalidae	<i>Charaxes velox</i> (Ogilvie-Grant, 1899)	-	-	-
<i>Charaxes balfouri</i> (Butler, 1881)	-	-	-	E	
<i>Hypolimnas misippus</i> (Linnaeus, 1764)	+	+	+		
<i>Hypolimnas bolina</i> (Linnaeus, 1758)	-	-1	+		
<i>Danaus chrysippus</i> (Linnaeus, 1758)	+	+	+		
<i>Phalanta phalantha granti</i> (Rothschild & Jordan, 1903)	+	+	+	e	
<i>Junonia oenone</i> (Linnaeus, 1758)	+	-	-		
<i>Junonia hierta</i> (Fabricius, 1798)	+	+	+		
<i>Vanessa cardui</i> (Linnaeus, 1758)	+	+	+		
<i>Byblia anvataru boydi</i> Dixey, 1898	+	+	-	e	
<i>Acraea neobule socotrana</i> Rebel, 1907	+	+	-	e	
<i>Bicyclus anynana socotrana</i> (Butler, 1881)	+	-	-	e	
Total		20	17	12	5 + 5

Table 1.– List of butterfly species found in Socotra with their biogeographic affinities (+). Asterisk (*) indicates the species recorded in this paper. E: endemic species, e: endemic subspecies. For *Hypolimnas bolina* (L.) in the table for a -1 sing because Oman is in the Arabian Peninsula.