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**A CONTRIBUTION TO THE KNOWLEDGE OF THE BUTTERFLY
FAUNA OF DHOFAR - SULTANATE OF OMAN
(LEPIDOPTERA: RHOPALOCERA)**

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Abstract - 27 species encountered at 9 sites during a 2 week survey in Dhofar - south Oman, are listed. Despite the late season almost half or exactly 43.5 % of the species known for Dhofar were observed. Among rare species one must mention *Colotis eris contractus* Gabriel, *Colotis antievippe zera* (Lucas), *Axiocerces harapax kadugli* Talbot, *Cycareus virilis* Aurvillius and *Euchrysops osiris* (Hopffer). The biogeographic composition of encountered species is given.

Izvešček - PRISPEVEK K POZNAVANJU FAVNE DNEVNIH METULJEV DHOFARJA - SULTANAT OMAN (LEPIDOPTERA: RHOPALOCERA)

Navedenih je 27 vrst dnevnih metuljev, najdenih na 9 krajih med dvo- tedenskimi raziskavami v Dhofarju na jugu Sultanata Omana. Kljub pozni sezoni je bilo opazovanih skoraj polovica, točneje 43,5 % vrst, znanih za Dhofar. Med redkimi vrstami moramo omeniti *Colotis eris contractus* Gabriel, *Colotis antievippe zera* (Lucas), *Axiocerces harapax kadugli* Talbot, *Cycareus virilis* Aurvillius in *Euchrysops osiris* (Hopffer). Podana je biogeografska zastopanost ugotovljenih vrst.

Introduction

The Slovene caving expedition to Dhofar organised by the DZRJL caving group, took place from October 30th to November 14th 1997. Our investigation was mainly focused on cave fauna. Nevertheless we managed to sample some groups of surface fauna. Butterflies were collected occasionally during free times and while searching for new caves. Nevertheless, our observations and the new localities represent a contribution to knowledge of butterfly fauna of Dhofar - Sultanate of Oman. The studied material is preserved in the authors' collections.

List of localities

Dhofar is the southern province of the Sultanate of Oman. Butterflies were collected at 9 localities on the limestone plateau of the Tawi Atayr area, between Salalah City and the western slopes of Mt. Jabal Samhan. The area is very dry, but with a strong influence of monsoon rains in July and August (Sale, 1980). We collected the butterflies around the Tawi Atayr and Qanaf villages as well as at cave entrances (Blown Gasket Cave) or water holes (Tawi Atayr Waterhole, Teyq Waterhole), where the vegetation is richer.

The permanent springs of Ain Arzat and Hasheer pools, as well as the Wadi al Ghazir with dense vegetation were also targets of our research. The butterflies were collected too in the semi-desert landscape of Irdit Akfor on the slopes of Jabal Samhan and in the surroundings of brackish coastal marshlands of Khawr Rawri.

1. TAWI ATAYR , alt. c. 700 m
 coord.: 17°06'45" / 54°33'30";
2. TEYQ WATERHOLE, alt. c. 800m
 coord.: 17°09'15" / 45°37'45"
3. QANAF, alt. alt. c. 800 m
 coord.: 17°06'45' / 54°36'15"
4. BLOWN GASKET cave, Qanaf, alt. c. 800 m
 coord.: 17°06'45' / 54°36'15"
5. IRDIT AKFOR, Jabal Samhan, alt. c. 1300 m
 coord.: 17°05'52" / 54°40'46"
6. HASHEER POOLS, Aytin. alt. c. 400 m
 coord.: 17°03'00" / 54°36'45"

7. WADI al GHAZIR, Aytin. alt. c. 50 m

coord.: 17°03'00" / 54°34'45"

8. AIN ARZAT springs, Salalah, alt.c.100 m

coord.: 17°08' / 54°15'

9. KHAWR RAWRI, alt. c. 20 m

coord.: 17°02' / 54°26'

Systematic list of species

Order LEPIDOPTERA

Subo. RHOPALOCERA

Family PAPILIONIDAE

Subf. PAPILIONINAE

1. *Papilio demodocus demodocus* Esper 1798

Material: 2 m., Tawi Atayr, 7.XI., 10.XI.1997

This widespread Afrotropical species reaches its easternmost border in Dhofar. It was discovered here during the Oman Flora and Fauna Survey in 1977 (Larsen 1980). The Asian sister species *P. demoleus demoleus* is present in northern Oman and it would be of great interest to find sympatric populations of both species to confirm their independent species status. Many badly worn specimens were observed flying at Tawi Atayr, Hasheer Pools, and Salalah.

Family PIERIDAE

Subf. PIERINAE

2. *Pinacopteryx eripha tritogenia* (Klug 1829)

Material: 1 m., Wadi al Ghazir, 9.XI.1997; 1 m., Khawr Rawri, 13.XI.1997

Another Afrotropical species confined to areas with moderate rainfall and that does not penetrate extremely dry areas. It has only been rarely found in Dhofar, where it seems to be confined to the very hot and dry wadis (Larsen 1984b). The species was rare at both collecting sites, which corresponds to the previous habitat description.

3. *Pontia glauconome glauconome* Klug 1829

Material: 1 f., Khawr Rawri, 13.XI.1997

The most common butterfly of Arabia (Larsen 1980) also found in deep deserts and high mountains. During our survey only a single fresh specimen of this Eremic butterfly was collected in a desert-like area at Khawr Rawri.

4. *Colotis calais amatus* (Fabricius 1793)

Material: 1 f., Wadi al Gazir, 9.XI.1997; 3 m., Khawr Rawri, 13.XI.1997

A fairly common butterfly in Dhofar congregating around the bushes of its probable foodplant *Salvadora persica* (Larsen 1980). This species was common and widespread in the dry coastal areas.

5. *Colotis eris contractus* Gabriel 1954

Material: 2 f., Hasheer pools, 14.XI.1997

The species seems to be rare and scarce in Dhofar (Larsen 1984b, Hoetz pers. com.) where it reaches its easternmost border. Both females collected fit with the subspecies description in the extent of black colouring on the upper sides of both wings (see Fig. 1).

6. *Colotis danae eupompe* (Klug 1829)

Material: 2 m., 1 f., Khawr Rawri, 13.XI.1997

This species is reported to be common and widely distributed in Dhofar by Larsen (1980 and 1984b). During our stay numerous fresh specimens were observed flying around bushes together with *Colotis calais amatus* in Khawr Rawri and Wadi al Ghazir.

7. *Colotis eucharis evarne* (Klug 1829)

Material: 2 f., Wadi al Ghazir, 9.XI.1997; 2 m., 1 f., Khawr Rawri, 13.XI.1997

Also common and locally abundant around bushes in both localities.

8. *Colotis antievippe zera* (Lucas 1852)

Material: 1 f., Ain Arzat, 3.XI.1997

Only known from a few locations in Yemen and Dhofar, where it is by all means uncommon. There are no specimens of this species in the Oman Natural History Museum (Hoetz pers. com.). Compared with specimens figured in Larsen (1984a, 1984b), the female collected had greatly reduced black markings on the upper side of the hind wing and inside the orange apex area of the forewing (see Fig. 1).

9. *Nepheronia buqueti buchnami* (Rotschild 1921)

Material: 1 f., 2 m., Tawi Atayr, 10.XI.1997; 2 m., Hasheer Pools, 14.XI.1997; 1 m., Teyq Waterhole, 31.X.1997

An Afrotropical species that does not occur in Northern Oman, but is quite common in Dhofar (Larsen 1980). The species was abundant in almost all localities with the exception of Irdit Akfor at higher altitude.

Subf. COLIADINAE

10. *Catopsillia florella* (Fabricius 1775)

Material: 1 f., Teyq Waterhole, 31.X.1997

This butterfly is a well known vagrant that occurs from the Canary Islands, through the entire Africa to the Indian subcontinent. It is also common in Arabia, but there were no records for Dhofar before the Oman Flora and Fauna Survey in 1977 (Larsen 1980). The only specimen was collected on wet sand deposits in front of Teyq Waterhole. There is a great possibility that this species was overlooked at other locations due to its similarity with the common *Nepheronia buqueti*.

11. *Euremia hecabe solifera* (Butler 1875)

Material: 1 f., Hasheer Pools, 14.XI.1997

Another widespread species reaching Japan in the north-east and found throughout Africa. In Arabia it was only known from the south-west and was discovered in Dhofar by the Oman Flora and Fauna Survey in 1977 (Larsen 1980). During our survey the species was observed only around water at Hasheer pools and Ain Arzat springs (on November 3rd 1997).

Family NYMPHALIDAE

Subf. DANAINAE

12. *Danaus chrysippus chrysippus* (Linnaeus 1758)

Material: 1f., 3 m., Tawi Atayr, 10.XI.1997

Another vagrant species that sometimes reaches even southern Europe and resides throughout Arabia. It is common both in Northern Oman (Larsen 1977) and Dhofar (Larsen 1980). One of the specimens caught belongs to the form *dorippus* with a reduced white band in the apex of the forewing. The species was also common at Wadi al Ghazir and Hasheer Pools, especially around *Calotropis procera*.

Subf. CHARAXINAE

13. *Charexes hansali arabica* Riley 1931

Material: 1 f., Hasheer Pools, 14.XI.1997

The subspecies is endemic to Dhofar. The only and badly broken specimen collected corresponds to the subspecies description (Larsen 1980) with a narrow white band and dark base area of the wings (see Fig.1). Only a few badly worn specimens were observed in the woods around Hasheer pools.

14. *Stonehamia varanes bertami* (Riley 1931)

Material: 2 m., Wadi al Ghazir, 9.XI.1997; 1 m. Hasheer Pools, 14.XI.1997

Another endemic subspecies to Dhofar. This is also the only locality known in Arabia (Larsen 1980). The specimens were also seen in the surroundings of Tawi Atayr, flying at the edge of the wood. All specimens caught were in bad condition.

Subf. NYMPHALINAE

15. *Vanessa cardui cardui* (Linnaeus 1758)

Material: none

Vagrant species with worldwide distribution. It has been reported from all parts of Arabia, but not in large numbers (Larsen 1980). Only a few specimens were observed in Irdit Akfor on the 3rd and 11th of November.

16. *Junonia hierta cebrene* (Trimen 1870)

Material: 3 m., Tawi Atayr; 10.XI.1997; 1 f., Hasheer Pools, 14.XI.1997

The Arabian populations belong to African subspecies. It was recorded for the first time in Dhofar during the Oman Flora and Fauna Survey in 1977 (Larsen 1980). It was also common elsewhere with the exception of Irdit Akfor and Khawr Rawri.

17. *Junonia orithya hera* (Lang 1884)

Material: 1 m., Hasheer Pools, 14.XI.1997; 1 f., 1m., Tawi Atayr, 10.XI.1997

A widespread species distributed from Australia to Africa. The subspecies *hera* is endemic to Arabia, where it appears to be widely distributed and common. During our survey the species was abundant only in the surroundings of Tawi Atayr.

18. *Byblia ilithya ilithya* (Drury 1773)

Material: 1 f., 1 m., Teyq Waterhole, 31.X.1997

A Palearctic species that occurs in south-west Arabia and Dhofar. It is reported quite common around dense vegetation in Dhofar (Larsen 1984b). The only observed specimens were found in the well vegetated sand deposits in front of the entrance of the waterhole surrounded with a desert-like landscape.

Subf. SATYRINAE

19. *Ypithima asterope asterope* (Klug 1832)

Material: 1 exs., Tawi Atayr; 10.XI.1997; 1 exs., Hasheer Pools, 14.XI.1997; 1 exs., Teyq Waterhole, 31.X.1997; 3 exs., Irdit Akfor, 3.XI.1997; 1 exs., Qanaf, 1.XI.1997

Another Palearctic species that is widespread in tropical Asia, the Middle East, Arabia and Africa. Larsen (1980) report the species as widespread and common in Dhofar, as it was during our survey.

Family LYCAENIDAE

Subf. APHIAEINAE

20. *Axiocerces harapax kadugli* Talbot 1935

Material: 1 f., Teyq Waterhole, 31.X.1997

An Afrotropical species that reaches its easternmost border in Dhofar. It was discovered here by the Oman Flora and Fauna Survey in 1977 (Larsen 1980). It is reported common throughout its range (Larsen 1980) but only a single specimen exists in the Oman Natural History Museum (Hoetz pers. com.). We collected our only specimen in the dry grassland on the slopes of the Teyq Waterhole valley.

Subf. POLYOMMATINAE

21. *Cycareus virilis* Aurvillius 1924

Material: 1 m., Qanaf, 1.XI.1997

An Afrotropical species that has not been reported by the Oman Flora and Fauna Survey 1977 (Larsen 1980). However, Larsen reports it common to Dhofar in his later publication (1984a). Many specimens were observed flying around at the entrance of the Blown Gasket Cave near the Qanaf village. The only specimen was caught in a well vegetated rock shelter.

22. *Syntarucus pirithous* (Linnaeus 1767)

Material: 1 ex., Tawi Atayr, 10.XI.1997

Another species of Afrotropical origin. It has penetrated the Mediterranean area and

Arabia where it is common in the south-west. It was recorded for the first time in Dhofar during the Oman Flora and Fauna Survey in 1977 (Larsen 1980). Similar specimens were common around the water pipes in the village Tawi Atayr.

23. *Tarucus theophrastus* (Fabricius 1793)

Material: 1 m., Khawr Rawri, 13.XI.1997

This Eremic species occurs in Northern and Subshel Africa and west to southern parts of Arabia, including Dhofar (Larsen 1984a). The species may be strictly localised to the areas with its foodplant (Larsen 1980). The butterflies of the genus *Tarucus* were occasionally common. Due to lack of collected material we are not able to note the abundance of this and the following species during our survey.

24. *Tarucus rosaceus* Austaut 1885

Material: 1 m., Wadi al Ghazir, 9.XI.1997; 1 m., Ain Arzat, 3.XI.1997

Another Eremic species that is distributed throughout Arabia. It had not been captured during the Oman Flora and Fauna Survey in 1977 (Larsen 1980), but was collected during Larsen's next visit (1980).

25. *Zizeeria knysna* (Trimen 1862)

Material: 1 f., 1 m., Tawi Atayr, 10.XI.1997; 1 f., Hasheer Pools, 14.XI.1997; 1 f., Teyq Waterhole, 31. X.1997

Distributed from the Canary Islands to south-west Arabia, including Dhofar. Its Oriental substitute *Z. kasandra* occurs in Northern Oman (Larsen 1977), but no sympatric populations have been found. The specimens collected are mostly worn out and a wrong determination of some specimens is possible.

26. *Euchrysops osiris* (Hopffer 1855)

Material: 1 f., Irdit Akfor, 3.XI. 1997

An African species that reaches only the southern part of Arabia. Only a single population was found during the Oman Flora and Fauna Survey in 1977 (Larsen 1980). During our search for caves in dry slopes of Jabal Samhan only a single fresh specimen was collected.

Family HESPERIIDAE

Subf. HESPERIINAE

27. *Pelopidas mathias mathias* (Fabricius 1798)

Material: 1 f., Tawi Atayr, 10.XI. 1997.

A Paleotropic species observed for the first time in Dhofar by the Oman Flora and Fauna Survey in 1977 (Larsen 1980). This species is very similar to *P. thrax*, which has been found only in northern Oman (Larsen 1984b). The only female caught had faintly visible white spots on the underside of the hind wings (see Fig. 2).

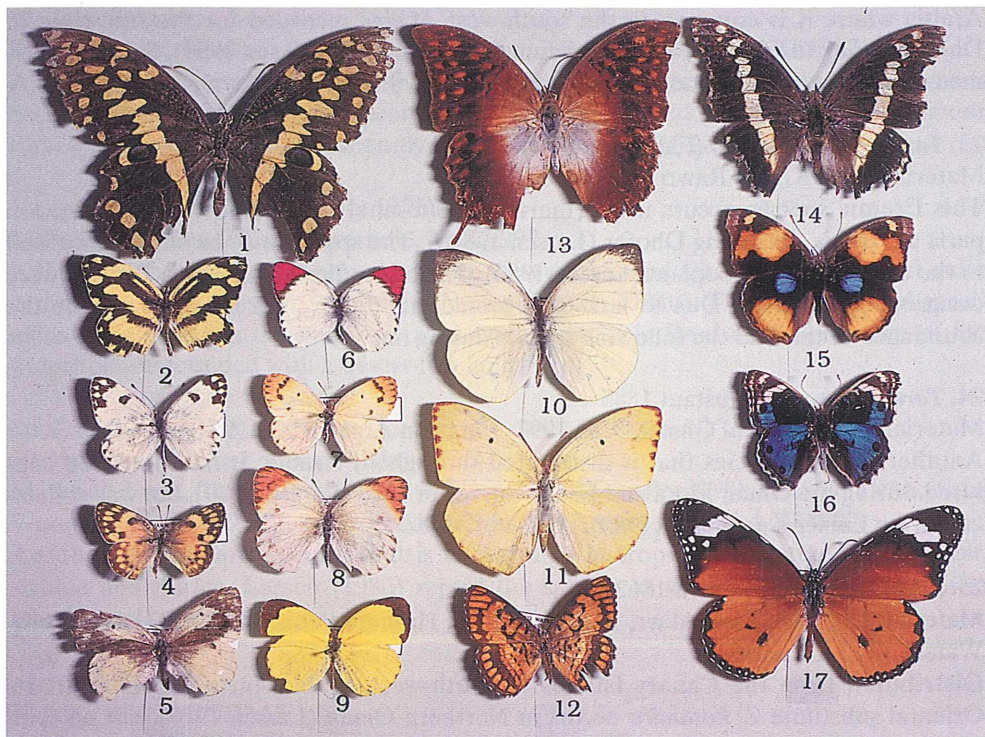


Fig. 1: 1. *Papilio demodocus demodocus* Esper 1798, 2. *Pinacopteryx eripha tritogenia* (Klug 1829), 3. *Pontia glauconome glauconome* Klug 1829, 4. *Colotis calais amatus* (Fabricius 1793), 5. *Colotis eris contractus* Gabriel 1954, 6. *Colotis danae eupompe* (Klug 1829), 7. *Colotis eucharis evarne* (Klug 1829), 8. *Colotis antievippe zera* (Lucas 1852), 9. *Euremia hecabe solifera* (Butler 1875), 10. *Nephronia buqeti buchnamei* (Rotschild 1921), 11. *Catopsillia florella* (Fabricius 1775), 12. *Byblia ilithyia ilithyia* (Drury 1773), 13. *Stonehamia varanes bertami* (Riley 1931), 14. *Charexes hansali arabica* Riley 1931, 15. *Junonia hierta cebrene* (Trimen 1870), 16. *Junonia orithya hera* (Lang 1884), 17. *Danaus chrysippus chrysippus* (Linnaeus 1758)



Fig. 2: 18. *Tarucus rosaceus* Austaut 1885, 19. *Cycareus virilis* Aurvillius 1924, 20. *Zizeeria knysna* (Trimen 1862), 21. *Euchrysops osiris* (Hopffer 1855), 22. *Axiocerces harapax kadugli* Talbot 1935, 23. *Yipithima asterope asterope* (Klug 1832), 24. *Pelopidas mathias mathias* (Fabricius 1798) (underwings)

Discussion

Although collecting butterflies was not the main objective of this survey and despite the late season, almost half, exactly 43.5%, of the species known for Dhofar were observed. Most of the species listed are common in the region and all had been found before in this area. 62 species are listed for Dhofar in Larsen (1984a) and only a few more are expected to be found as the butterfly fauna of this area has been comparatively well studied.

Dhofar lies almost in the centre of the southern coast of Arabia and therefore one should expect a mixture of Afrotropical and Oriental butterfly fauna. According to Larsen (1984a), 58% of species in Dhofar are of Afrotropical origin, giving butterfly fauna a clear Afrotropical flavour. More interestingly, only two species found in Dhofar are Oriental, *Hypolimnas bolina* (Linné) being found only once. The two larger biogeographical groups of butterflies in this region are the Eremic elements with 17% (Larsen 1980) and Paletropical group with 15%.

The biogeographic composition of the species encountered (Table 1) is congruent with Larsen (1980, 1984a), apart from the larger percentage of Paletropic species. That can be explained by the late season when more vagrant species are present and most of the Paletropic species observed do fall into this category.

biogeographical group	number of species	%
Afrotropical	14	52
Paletropical	9	33
Eremic	3	11
Ubiquitous	1	4

Table 1: The biogeographic composition of the Rhopalocera of Dhofar collected in the first half of November 1997.

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