



SECOND CONTRIBUTION TO THE KNOWLEDGE OF THE BUTTERFLY FAUNA OF THE SULTANATE OF OMAN (LEPIDOPTERA: RHOPALOCERA)

Slavko POLAK¹ & Rudi VEROVNIK²

¹Notranjska museum Postojna, Ljubljanska 10, SI-6230 Postojna;
e-mail: slavko.polak@guest.arnes.si

²Department of Biology, Biotechnical Faculty, University of Ljubljana,
Večna pot 111, SI-1000 Ljubljana; e-mail: rudi.verovnik@bf.uni-lj.si

Abstract – As a follow-up to the expedition in 1997 the second one was commenced in September-October 2000. Altogether 19 butterfly species were found, 8 of them have not been recorded during the first expedition. Butterflies were collected at 2 sites in northern Oman and 3 sites in the Dhofar region. A biogeographical composition of the observed species is given. *Colotis liagore* is confirmed for Dhofar.

KEY WORDS: distribution, biogeography, Dhofar, *Colotis liagore*

Izvleček – DRUGI PRISPEVEK K POZNAVANJU FAVNE DNEVNIH METULJEV SULTANATA OMAN (LEPIDOPTERA: RHOPALOCERA)

Po uspešni odpravi v letu 1997 je bila organizirana nova v septembru in oktobru leta 2000. Skupno je bilo najdenih 19 vrst dnevnih metuljev, od tega jih 8 ni bilo opaženih med prvo odpravo. Metulje smo zbirali na dveh krajih v severnem Omanu in treh v pokrajini Dhofar. Podana je biogeografska zastopanost opaženih vrst. Prisotnost vrste *Colotis liagore* v Dhofarju je potrjena.

KLJUČNE BESEDE: razširjenost, biogeografija, Dhofar, *Colotis liagore*

Introduction and methods

During the Slovene caving expedition to the Sultanate of Oman in 1997 some interesting faunistic investigations with encouraging results were carried out (Polak & Verovnik 1998; Polak 2001; Weygoldt, Pohl & Polak 2002; Harvey 2006). To provide additional material and to describe some new species of invertebrates, the

first author (SP) organised a second biological expedition to the Sultanate of Oman in the year 2000. The second expedition which lasted from 25th September to 7th October 2000 was joined by prof. Dr. Peter Weygoldt (Albert-Ludwigs University, Freiburg, Germany), Sylvia Weygoldt (Germany), Siegfried Huber (Germany) and Lara Jogan Polak (Slovenia). Butterflies were collected only occasionally as they were not the main objective of the expedition. Given the limited amount of published information on the Oman butterfly fauna and some new interesting data gathered, we consider this contribution to be valuable for further studies.

We collected butterflies in the following five localities:

- Wadi Hota near Al Hota Cave, 23°06'14''N / 57°21'58'' E, Al Hamra, Jabal Akhdar, Northern Oman. The collecting site was on the valley floor of Wadi Hota in front of the inlet of the Al Hota cave. It is situated on the southern side of the Jabal Akhdar anticline on the altitude of 1150 metres. The surrounding karst plateau is a rather barren landscape, but the wadi is relatively well vegetated with a rich butterfly fauna (Figure 2).
- Flatland near Al Hamra, 32°07'27''N / 57°15'39''E, Jabal Akhdar, Northern Oman. The collecting site is a semi desert area dominated by acacia trees and sporadic cultivations near the town of Al Hamra.
- A grassland near the village Tawi Atayr, 17°06'36''N / 54°33'24''E, Salalah, Dhofar. The site is situated above the Salalah city at an altitude of 680 metres on the Jabal Samhan karst plateau which is characterised by an abundance of sinkholes and forested wadis and steppe-like grasslands on the plateau. The area is influenced by the annual monsoon, which commonly occurs from mid-June to mid-September. In contrast to the semi-desert dry interior, the Tawi Atayr flatland looks rather similar to the upland regions of the African savannah.
- The southern part of Wadi Nahiz, 17°08'43''N / 54°07'07''E, Salalah, Dhofar. The area is a flat karst plateau mostly covered by grasslands and a number of large steep-sided wadis mostly thickly wooded with trees and shrubs. The collecting site was the bed of Wadi Nahis, approximately 15 km north of Salalah close to the Thumrait-Salalah road. The wadi is partially covered by a closed canopy forest.
- A high rocky plateau near the border with Yemen, 16°40'44''N / 53°06'28''E, on the main road from Mughsayl to the Yemen border crossing point, Salalah, Dhofar. Contrary to the vast rocky semi desert interior region, the calcareous rocky south-facing slopes and limestone cliffs above the coastal plain benefit from seasonal monsoon mists. The collecting site was situated near the main road, well vegetated with sparse trees and dense shrubs.

The collecting sites in the southern Omani Province of Dhofar are similar, close to or almost the same as those from our first survey in 1997 (Polak & Verovnik, 1998). The data collecting period in 2000 was approximately one month earlier than in 1997. The material was determined using the Butterflies of Oman (Larsen & Larsen 1980) and Butterflies of Saudi Arabia and its Neighbours (Larsen 1984) field

guides. The nomenclature of the latter is following the species list, but with a few updates. The genitalia were dissected using 15% KOH at room temperature overnight, cleaned and transferred into glycerine.

Systematic list of species

We consider this contribution as a continuation of the first report (Polak & Verovnik 1998), therefore only new findings are commented upon.

Family: PIERIDAE

Subfam. Pierinae

Colotis phisadia Godart 1819

Material: 1 ♂, flatland near Al Hamra, 26.9.2000.

This distinctly dark coloured Arab is a widespread species in Oman, inhabiting also the driest desert parts of the country (Larsen & Larsen 1980). The only limiting factor is the presence of its larval food plant *Salvadora persica* L. (Larsen 1980). Numerous specimens were seen on the bushes in a sandy semi-desert area.

Colotis eucharis evarne Klug 1829

Material: 5 ♀♀, 1 ♂, Wadi Nahiz, Salalah, 3.10.2000.

Colotis liagore Klug 1829

Material: 1 ♂, Wadi Nahiz, Salalah, 3.10.2000; 1 ♂, Wadi Hota, Al Hamra, 27.9.2000.

This species was observed in Dhofar only once, but no exact locality is known (Larsen, 1983). The specimens seen in Wadi Nahiz represent the first record of the species for the Dhofar region. They were found on the sandy flatland at the entrance to the more vegetated wadi interior.

Nepheronia buqueti buchanani Rothschild 1921

Material: 1 ♂, Tawi Atayr, Salalah, 2.10.2000.

The butterflies were common on wet soil near a water pipe in the Tawi Atayr village.

Family: NYMPHALIDAE

Subfam: Charaxinae

Stonehamia varanes bertrami Riley 1931

Material: 1 ♂, Wadi Nahiz, Salalah, 3.10.2000.

Subfam: Nymphalinae

Byblia ilithyia Drury 1773

Material: 1 ♀, near Yemen border, Mughsayl, Salalah, 5.10.2000.

Junonia hierta cebrene Trimen 1870

Material: 1 ♂, Tawi Atayr, Salalah, 2.10.2000.

It was observed on a wet soil near a water pipe in the Tawi Atayr village.

Junonia orithya here Lang 1884

Material: 1 ♂, Wadi Hota, Al Hamra, 27.9.2000.

It was observed on a wet soil near a water pipe in the Tawi Atayr village.

Subfam: Satyrinae

Ypthima asterope Klug 1832

Material: 1 ♂, Wadi Hota, Al Hamra, 27.9.2000; 1 ♀, Tawi Atayr, Salalah, 2.10.2000.

It was common, mostly on the rocky bare lands.

Family: LYCAENIDAE

Subfam: Polyommatainae

Anthene amarah Guerin 1849

Material: 2 ♂♂, near Yemen border, Mughsayl, Salalah, 5.10.2000.

This is one of the most widespread species in the arid zones of Africa and Arabia. Its larval food plants are acacia trees where adults congregate, especially when they are flowering. We found it locally common along the main road from Mughsayl to the Yemen border.

Syntarucus pirithous Linne 1767

Material: 1 ♂, Wadi Nahiz, Salalah, 3.10.2000.

A single male was collected. Due to its large size it could have been one of the two other species of the genus present on the Arabian Peninsula (Larsen 1984). However, according to the shape of the genitalia as depicted in Larsen (2005), it was definitely *L. pirithous* (Figure 1). So far, this is still the only species of the genus present in Oman (Larsen & Larsen 1980).

Tarucus rosaceus Austaut 1885

Material: 3 ♂♂, 2 ♀♀, Wadi Hota, Al Hamra, 27.9.2000. There were many specimens flying in the wadi in front of the Al Hota Cave.

Zizeeria knysna Trimen 1862

Material: 1 ♂, Tawi Atayr, Salalah, 2.10.2000; 3 ♂♂, 1 ♀, Wadi Nahiz, Salalah, 3.10.2000.

Ziziula hylax Fabricius 1775

Material: 1 ♂, Tawi Atayr, Salalah, 2.10.2000; 1 ♂, near Yemen border, Mughsayl, Salalah, 5.10.2000. The species is very similar in appearance and size to *Zizeeria*, but

with distinctly pale blue coloration of the male upper side. In Oman it is confined to Dhofar, where it is reported as local (Larsen & Larsen 1980). We found numerous specimens gathering on the wet soil near a water pipe on the edge of the Tawi Atayr village.

***Azanus jesous* Guerin 1847**

Material: 1 ♂, 2 ♀♀, near the Yemen border, Mughsayl, Salalah, 5.10.2000; 1 ♀, Wadi Nahiz, Salalah, 3.10.2000. This is the most common blue in Arabia and Oman (Larsen & Larsen 1980). It was probably overlooked during our first expedition. The butterflies were commonly observed near the acacia trees.

***Euchrysops osiris* Hopffer 1855**

Material: 2 ♂♂, Tawi Atayr, Salalah, 2.10.2000. Numerous specimens were gathering on the wet soil near a water pipe on the edge of the Tawi Atayr village.

***Chilades trochylus* Freyer 1844**

Material: 1 ♀, Wadi Hota, Al Hamra, 27.9.2000.

Due to its small size the species could easily be overlooked. It is one of the most widespread species with records from all Omani regions (Larsen & Larsen 1980). There were many specimens in the wadi in front of Al Hota Cave.

Family: HESPERIIDAE

Subfam: Coeliadinae

***Coeliades anchises jucunda* Butler 1881**

Material: 2 ♂♂, Wadi Hota, Al Hamra, 27.9.2000.

This large and vividly coloured Skipper is a typical Afrotropical species that reaches its north-eastern limit in northern Oman (Larsen 1984). The endemic subspecies *C. a. jucunda* has a restricted range in Oman and on the island of Socotra (Larsen & Larsen 1980). Both specimens were collected flying around the bushes exactly in front of the entrance of the Al Hota Cave.

Subfam: Pyrginae

***Sarangesa phidyle* Walker 1870**

Material: 4 ♂♂, Wadi Nahiz, Salalah, 3.10.2000.

This species is another easily recognisable Skipper with orange coloured underside. In Oman it is confined to Dhofar where it is widespread but localised (Larsen & Larsen 1980). We found this species common on the meadows between the wooded areas in a wadi bed. The specimens were fresh and predominately males.

Discussion

Altogether 19 species or 30.6 % of the 62 species listed for Oman (Larsen & Larsen 1980) were collected during our second expedition in 2000. Though we col-

lected the samples a month earlier, fewer species were encountered than during our first expedition (27 species) (Polak & Verovnik 1998). This can be explained by the limited time available for the butterfly collecting and by the lower number of the sites visited. A month of difference however did provide records for 8 species which were not found during our first expedition. This brings the number of species detected during both expeditions up to 35, which is more than half of the butterfly species known for Oman.

The newly encountered species were either overlooked during first expedition or are not flying in November. Certainly all of the blues (*Lycaenidae*) could fit in the first category as they are all small and inconspicuous. The large Skipper *Coeliades anchises jucunda* on the other hand is easily distinguishable but extremely rare in Dhofar, where it was found only at two sites (Larsen & Larsen 1980). During this expedition it was seen only in the northern part of Oman. Another species expected only in northern part of Oman is the white *Colotis liagore* (Larsen & Larsen 1984), but we found it also in Dhofar, confirming its presumed wider distribution in the country.

The biogeographic composition of the species encountered (Table 1) is congruent with Larsen (1980, 1984), confirming a dominance of the Afrotropical origin in the butterfly fauna of Oman. The lack of Eremic species, which are generally found in more open desert areas, and a high percentage of Palaeotropical species, is similar to the composition of the butterfly fauna data collected during our first expedition (Polak & Verovnik 1998). Because of their limited habitat choice, and in some cases also because of their rarity, the Eremic species are often more difficult to detect than the generally more vagrant and widespread Palaeotropical species.

Table 1: The biogeographical composition of the butterflies collected in Oman at the end of September and during the first week of October in 2000.

Tabela 1: Biogeografska zastopanost metuljev opaženih v Omanu ob koncu septembra in prvem tednu oktobra leta 2000.

biogeographical group	number of species	%
Afrotropical	12	63
Paleotropical	5	26
Eremic	1	5
Ubiquitous	1	5

Acknowledgements

We would like to express our gratitude to Ali bin Amer al Kiyumi, the Director – General of the Nature Conservation department (Ministry of Regional Municipalities & Environment of Sultanate of Oman) for providing us the official permission for the biological field work and staff of the Omani Natural History Museum in Muscat for cooperative collaboration. We are grateful to Peter, Sylvia, Siegfried and Lara for various field work efforts during our second expedition in Oman in 2000. We are thankful to Torben Larsen for his advice and improvement of the manuscript.



Fig. 1: Male genitalia of *Leptotes pirithous* collected in Wadi Nahiz, Salalah, Dhofar on 3.10.2000.

Sl. 1: Preparat genitalij samca *Leptotes pirithous* ujetega v Wadi Nahiz, Salalah, Dhofar dne 3. 10. 2000.



Fig. 2: The wadi Hota near the entrance to the Al Hota Cave, situated on the bare calcareous southern slopes of the Jabal Akhdar (Northern Oman) is relatively well vegetated and rich in butterfly fauna.

Sl. 2: Wadi Hota blizu vhoda v jamo Al Hota Cave, ki leži na južnih golih kraških pobočjih gorovja Jabal Akhdar (Severni Oman) je relativno dobro poraščeno in z dnevnimi metulji bogato območje.

Literature

- Harvey, S. M.**, 2006: The schizomid fauna (Arachnida: Schizomida: Hubbardiidae) of the Arabian Peninsula and Socotra. *Fauna of Arabia* 21: 167-177.
- Larsen, T. B.**, 1980: The Butterflies of Dhofar and their Zoogeographic Composition. The Scientific Result of the Oman Flora and Fauna Survey 1977 (Dhofar). Journal of Oman Studies, Special report No. 2. Diwan of H. M. for Protocol, Sultanate of Oman.
- Larsen, T. B.**, 1983: Insects of Saudi Arabia; Lepidoptera, Rhopalocera (a monograph of the butterflies of Arabia). *Fauna of Saudi Arabia*, 5:333-478.
- Larsen, T. B.**, 1984: Butterflies of Saudi Arabia and its Neighbours. Stacey International, London.
- Larsen, T. B.**, 2005: Butterflies of West Africa, vol. 1-2. Apollo books, Stenstrup, Denmark.
- Larsen T. B., Larsen K.**, 1980: Butterflies of Oman. John Bartholomew and Son Limited, Edinburgh.
- Polak, S.**, 2001: The first record of Yemen Serin (*Serinus menachensis*) in Oman. Oman Bird News 22: 2-4. Oman Bird Record Committee, Sultanate of Oman.
- Polak, S., Verovnik, R.**, 1998: A contribution to the knowledge of the butterfly fauna of Dhofar – sultanate of Oman (Lepidoptera: Rhopalocera). *Acta Entomologica Slovenica*, 6(1), s. 55-65
- Weygodt, P., Pohl, H. & Polak, S.**, 2002: Arabian whip spiders: four new species of the genera *Charinus* and *Phrynichus* (Chelicerata: Amblypygi) from Oman and Socotra. *Fauna of Arabia* 19: 289-309.

Received / Prejeto: 31. 3. 2009