

BUTTERFLY PHOTOGRAPHY IN MOROCCO

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ABSTRACT.— Morocco, on the boundary between the Palearctic and the tropical African zones, supports the richest butterfly fauna in all of North Africa, with 140 species and subspecies. Discussed and illustrated here are 21 species, including two endemics.

KEY WORDS: *Anthocharis*, *Aricia*, *Autographa*, *Azanus*, *Carcharodes*, *Coenonympha*, *Colotis*, *Cupido*, *Euchloe*, *Euphydryas*, *Glaucopsyche*, *Gonepteryx*, Hesperidae, High Atlas, hostplants, *Hyponephele*, Lepidoptera, Lycaenidae, *Lysandra*, *Melanargia*, *Melitaea*, Middle Atlas, *Nordmannia*, Nymphalidae, *Pandoriana*, Papilionidae, *Philotes*, Pieridae, *Plebicula*, *Pseudochazara*, *Pyrgus*, *Tarucus*, *Thersamonia*, *Zegris*, *Zerynthia*, *Zizeeria*.



Fig. A. High Atlas, view of Masif Asni, Morocco.

Morocco lies on the border of and constitutes a contact zone between the Palearctic (Southern Mediterranean) and Ethiopian zoogeographic regions. I visited Morocco twice, in June 1982 and in May 1987, to collect and photograph butterflies in the areas of Ifrane in the Middle Atlas (Moyen Atlas), in Marrakech, and also in the High Atlas itself at several locations, including Asni and the gorges of Moulay Brahim in the High Atlas piedmont. I also travelled throughout the northern slopes of the High Atlas using the main transatlantic highway going to the Sahara through the Tizi-n-Tichka Pass (2260m).

It is perhaps useful to describe the basic geological background of the above mentioned areas. The region near Ifrane is a Continental Plateau Moyen Atlas (Middle Atlas) at the elevation of approximately 1600m. The prevailing rocks are limestones of the Liassic (Lower Jurassic) age. Some areas are still covered by the original cedar forests of historic times. Marrakech, located approximately 50km north from the High Atlas Mountains, is a beautiful oasis in the lowland at approximately 550m, characterized by young Neogene sediments. The area around Asni and Moulay Brahim is a border zone between schists and limestones. In some places the dividing line is very sharp, consisting of only several meters. Schist and limestones each have a different

typical flora; therefore, the entomological fauna inhabiting the areas of these two formations is also very rich. The rocks of the "Massif Moulay-Brahim" are characterized as Lower Carboniferous sediments and the composition of the area at Asni as Permian and Triassic. Of course, the composition of the High Atlas, to the south from the just described areas, is very complicated, and encompasses the oldest rocks of Precambrian basements followed, in the higher reaches, by other Paleozoic and Mesozoic layers. The red color of the soil, so typical of the High Atlas and beautifully contrasting with the green vegetation, is caused by trivalent iron oxides. Silurian and Devonian formations are very rich in fossils, such as Orthoceras, Trilobites and others which one can purchase in the street shops on the way to Tizi-n-Tichka Pass.

The butterfly fauna of Morocco is the richest and most diverse of all of North Africa. The number of species gradually increases from Egypt westward along the Mediterranean sea coast. According to the "Calendar of the Flying Period of the Rhopalocera of Morocco" (Mokhles, 1984), the Moroccan rhopaloceran fauna comprised in that year 5 families, 70 genera and 140 species and subspecies. There are several endemic species here, the most prominent among them being *Coenonympha vaucheri* Blachier



Fig. 1. *Zerynthia runina ornator*
Fig. 2. *Euchloe ausonia crameri*

Fig. 3. *Zegrus eupheme meridionalis*
Fig. 4. *Colotis evagore nouna*

Fig. 5. *Anthocharis belia belia*
Fig. 6. *Gonepteryx cleopatra*



Fig. 7. *Pandoriana pandora*, ♀
Fig. 8. *Pandoriana pandora*, ♂

Fig. 9. *Pandoriana pandora*, ♀
Fig. 10. *Melanargia ines*

Fig. 11. *Melitaea aetherie*, ♀
Fig. 12. *Melitaea aetherie*, ♂



Fig. 13. *Euphydryas desfontainii*
Fig. 14. *Azanus jesous*

Fig. 15. *Euphydryas desfontainii*
Fig. 16. *Glaucopsyche melanops*, ♂

Fig. 17. *Zizeeria knysna*, ♂
Fig. 18. *Zizeeria knysna*, ♀

1905, *Hyponephele marrocana* Blachier 1908, *Nordmannia esculi mauretanicus* Staudinger 1892, *Plebicula atlantica* Elwes 1905, *Pseudochazara atlantis* Austaut 1905, and *Thersamonia phoebus* Blachier 1908. I was able to photograph two of these species (see the color plates).

When collecting in the Moroccan mountains, one has to use one's "entomological instinct" to locate butterflies. They are not always to be found in the vicinity of the creeks, as expected in the tropics. On the contrary, one often finds them on very dry hot schist slopes or gorges. Pierids are usually not far from their larval food plants, and adults often spend the night perched directly on the blossoms (e.g., note the cryptic coloration of *Zegris eupheme* in the color plates). In the lowlands, however, the entomologist's attempts are usually not rewarded, unless one finds a well irrigated field of lucerne (*Medicago*). In such places, one is lucky to find abundant Lycaenidae and Pieridae.

In Marrakech, the greatest number of butterflies is found in the gardens (palm groves) on the north-east margins of the city, behind the city fortifications in the vicinity of Bab-el-Khemis. It is best to go there via taxi cab. In that area, dangerous unexpected holes in the sandy-gravel terrain of about 4 m diameter and 6 m or 8 m deep should be avoided. These holes look like giant cone-shaped pits of ant lion larvae, but the walls are more vertical, which would make climbing out very difficult or impossible. The origin of these holes is unknown to me. A very painful death of dehydration would await a person trapped inside.

It would be beyond the scope of this article to try to mention all of the butterfly species which I collected or observed in Morocco. Therefore, I would like to describe my observations and list records for only those 21 species which I photographed and whose illustrations accompany this article. The type locality (TL) for each species or subspecies described from Morocco is included.

1. PAPILIONIDAE

Zerynthia rumina ornatior Blachier, 1905 Fig. 1
TL: Morocco. Larval food plant, *Aristolochia*. Ifrane, 7 May 1987.

2. PIERIDAE

Anthocharis belia belia Linnaeus, 1767 Fig. 5
Male. TL: "Barbaria," i.e., Morocco. Larval food plant, *Biscutella lyrata*. Ifrane, 8 May 1987.

Colotis evagore nouna Lucas, 1849 Fig. 4
Larval food plant, *Capparis*. Flies in very hot and dry mountain gorges, both on schist as well as limestone terrain. Asni, Moulay-Brahim, 22 June 1982.

Euchloe ausonia crameri Butler, 1869 Fig. 2
Larval food plant, Cruciferae. Ifrane, 5 May 1987.

Gonepteryx cleopatra cleopatra Linnaeus, 1767 Fig. 6
Male. Ifrane, 8 May 1987.

Zegris eupheme meridionalis Lederer, 1852 Fig. 3
Larval food plant, *Sinapis incana*. Note the cryptic resemblance to the plant in the photograph. This specimen was photographed in its roosting position after sunset. Ifrane, 6 May 1987.

3. NYMPHALIDAE

Euphydryas desfontainii desfontainii Godart, 1819 Fig. 13-15
Larval food plant, *Knautia*. Ifrane, 8 May 1987.

Melanargia ines Hoffmannsegg, 1804 Fig. 10
Asni, Moulay-Brahim, schist-limestone contact zone. 22 June 1982.

Melitaea aetherie algerica Ruhl, 1892 Fig. 11-12
Ifrane, 6 May 1987.

Pandoriana pandora Denis & Schiffermüller, 1775 Fig. 7-9
One of the largest Moroccan butterflies. In Ifrane (7 May 1987), I saw only one specimen. My pictures are from Asia Minor, Sultan Dagi Mountain (also limestone), where this butterfly was abundant on 19 July 1988, at 2000m. Larval food plants are violets.

4. LYCAENIDAE

Aricia cramera Eschscholtz, 1821 Fig. 25-26
Ifrane, 8 May 1987.

Azonus jesous Guerin, 1849 Fig. 14
Larval food, *Acacia*, perhaps also *Medicago*. Flies around Mimosa bushes, also nectaring at *Medicago*. Marrakech, 10 May 1987.

Cupido lorquini Herrich-Schäffer, 1847 Fig. 27
Male. Ifrane, 8 May 1987. Dry Cedar-Ilex-Oak scrub, the same locality as *A. belia belia*.

Glaucopsyche melanops algerica Heyne, 1895 Fig. 16
Male. High Atlas, 1700 m. 12 May 1987. Vicinity of tall broom. Small, very steep dry schist valley with miniature spring. Several specimens were patrolling up and down the valley, sometimes imbibing water from the wet stones, but also nectaring at yellow flowers of a species of Cruciferae.

Lysandra punctifera Oberthür, 1876 Fig. 19-20
Male. Ifrane, 6 May 1987. Flies on dry limestone semiarid areas, together with *A. cramera*, *P. abencerragus*, *E. ausonia crameri* and *M. aetherie*.

Nordmannia esculi mauretanicus Staudinger, 1892 Fig. 29
TL: Morocco. This specimen was photographed in the High Atlas at an altitude of around 1700m, in a dry Ilex-Oak mixed thorny scrub. In the afternoon hours, it was very common to find this species lateral-basking and nectaring. This species was not recorded from High Atlas by Higgins & Riley (1970). Note that the ventral side of both the forewing and the hindwing is almost without any marking, simply pale grayish brown, unlike *N. ilicis*! 21 June 1982.

Philotes abencerragus Pierret, 1837 Fig. 21-22
TL: Morocco.

Found in rough places around *Erica arborea*. I observed this species in May in the Middle Atlas (Ifrane) and in June in the High Atlas (Asni, Moulay-Brahim). Found on both schist as well as limestone terrain. Ifrane, 8 May 1987.

Tarucus theophrastus Fabricius, 1793 Fig. 28

TL: Morocco. Larval food plant, *Zizyphus vulgaris* (a very spiny shrub). Butterflies usually fly around and "inside" the bush, where they also mate. Sometimes they are nectaring on lucerne in the immediate vicinity. As a rule, they sat with wings closed, so only the ventral side could be photographed. This pair in copula was photographed 24 June 1982 in Marrakech.

Thersamonia phoebus Blachier, 1908 Fig. 23-24



Fig. 19. *Lysandra punctifera*, ♂
Fig. 20. *Lysandra punctifera*, ♂

Fig. 21. *Philotes abencerragus*
Fig. 22. *Philotes abencerragus*

Fig. 23. *Thersamonia phoebus*, ♂
Fig. 24. *Thersamonia phoebus*, ♀

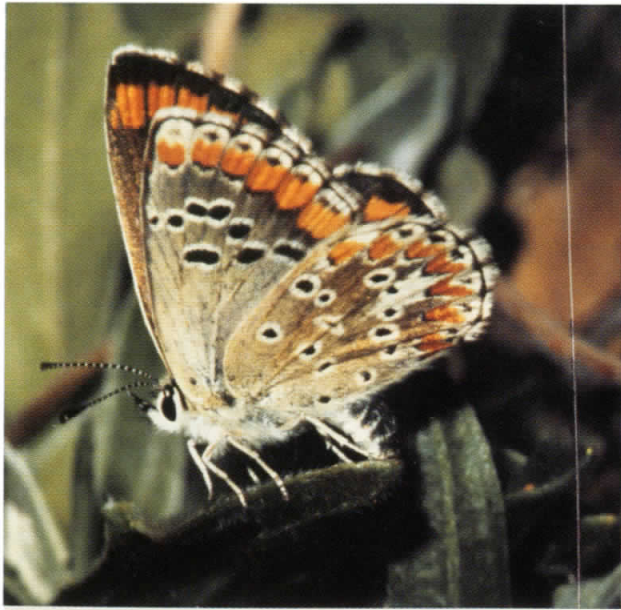


Fig. 25. *Aricia cramera*, ♀ ovipositing
Fig. 26. *Aricia cramera*, ♀

Fig. 27. *Cupido lorquini*, ♂
Fig. 28. *Tarucus theophrastus*, ♂ ♀

Fig. 29. *Nordmannia esculi*
Fig. 30. *Carcharodes boeticus*

TL: High Atlas, Morocco. This true Moroccan endemic species was observed by me in Marrakech in June 1982 and again in May 1987. I found it in the well-irrigated areas nectaring on *Medicago*, and also flying very low among the vegetation of the water-filled irrigation ditches. It behaves like a typical copper. Larval food plant, *Rumex*. According to Higgins & Riley (1970), it is "confined to the High Atlas in western Morocco." Marrakech, 17 June 1982. Elevation around 550m.

Zizeeria knysna Trimen, 1862

Fig. 17-18

Larval food plant, *Oxalis* and *Medicago*. I observed it at the same locality as *T. phoebus*, *T. theophrastus* and *A. jesous*, nectaring on *Medicago*. In contrast to *T. phoebus*, it was sometimes even several hundred meters away from moist places. It is very difficult to photograph, as a rule closing the wings when being approached by the camera. Marrakech, 10 May 1987.

5. HESPERIIDAE

I saw many hesperids in Morocco, most of them of the "Pyrgus" type, and I also photographed several. Here, I am showing one species of the genus *Carcharodus*.

Carcharodus boeticus stauderi Reverdin, 1913

Fig. 30

I saw it primarily on hot and very dry schist slopes in the High Atlas. Its cryptic coloration makes it indiscernible from its background. This species is a close mimic of some day-flying Noctuids of the *Autographa gamma* group, which are abundant in the same localities. I never found *C. boeticus* itself to be common or abundant. It is very shy, and hard to photograph. I observed it in the Asni and Moulay-Brahim area on 22 June 1982. The accompanying illustration shows *Carcharodus boeticus* (subspecific determination unknown) which I photographed in Asia Minor, Sultan Dagi Mountains, at an elevation of about 2000 m, on limestone background, 22 July 1988.

In conclusion, I would like to say that safety should be a concern to an entomologist travelling in Morocco. While the nomadic tribes (Bedouines and Berbers) in the desert and mountains far from civilization are friendly people (be sure to have a large supply of coins, if you want to photograph children; without reward, they may become aggressive!), crime is flourishing in the cities. The most professional, highly trained criminals



Fig. 31-32. High Atlas foothill habitats.



Fig. 33. Jebel Torbkal, Masif Asni, High Atlas.

wait for a tourist immediately inside or in front of his hotel. They usually work as a team of two men, one on a motorcycle who will help to carry away the successful pickpocket. Try to avoid any people, especially on trains and buses, who will try, very politely but adamantly, to involve you in a conversation saying that they are "students" who like to talk to foreigners to train their language skills. Very soon, these "students" will ask for financial reward, because the conversation was actually a service of a "tourist guide" that provided you with a "lot of information." Or they will push you to go into a particular hostel or hotel, whose manager is "their friend," and so forth. In northern Morocco, your car may be stopped far from civilization by hashish peddlers, who want to sell hashish to you and will threaten your personal safety if you refuse. It is better not to go to Morocco alone. Two or three persons, however, may feel fairly safe on an entomological expedition and have most interesting and stimulating collecting and photography in this fascinating country.

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