

The butterflies of the Greek island of Kós : a synthesis (Lepidoptera : Hesperioidea & Papilionoidea)

Alain OLIVIER* & Roland DE PRINS**

* Luitenant Lippenslaan 43 B 14, B-2140 Antwerpen, Belgium

** Liersesteenweg 437, B-2800 Mechelen, Belgium

Summary

The geography and vegetation of the Greek island of Kós are briefly described, followed by a review on the history of its lepidopterological investigation.

In the Systematic part, all previous literature records as well as numerous new field data gathered by both authors are dealt with. 46 species are known at present from the island, one of which — *Gonepteryx farinosa farinosa* (Zeller, 1847) — is entirely new. *Danaus chrysippus chrysippus* (Linnaeus, 1758) is again reported from Kós : this is the first record for Kós and indeed for the Eastern Aegean Islands in over 65 years. Since, the species has been found on Ródos (Rhodes) as well. A bilateral gynandromorph of *Pontia (daplidice) edusa* (Fabricius, 1777) is also mentioned.

The authors believe that at present over 90% of the actual butterfly fauna of Kós is known. No single species has differentiated significantly, not even sub-specifically, pointing to a very recent isolation of the island's fauna (< 9.000 B.P.). Vicariance of a biota that was still continuous in the recent past, Kós being part of the Anatolian mainland, largely explains the present configuration of its butterfly fauna, while present-day dispersal of migratory taxa is of more marginal significance to its make-up.

Résumé

L'article commence par un bref exposé sur la géographie et la végétation de l'île grecque de Kós, suivi d'un aperçu de l'histoire de son exploration lépidoptérique.

Dans la partie systématique sont traitées toutes les données précédemment citées dans la littérature, ainsi que les nombreuses nouvelles mentions résultant des activités sur le terrain des deux présents auteurs. Actuellement, on recense 46 espèces sur l'île, dont une — *Gonepteryx farinosa farinosa* (Zeller, 1847) — est entièrement nouvelle. *Danaus chrysippus chrysippus* (Linnaeus, 1758) a également été retrouvée récemment à Kós : il s'agit de la première mention depuis plus de 65 ans pour Kós, et même pour les îles égéennes orientales. Depuis, l'espèce a également été retrouvée à Ródos (Rhodes). Un gynandro-

morphe bilatéral de *Pontia (daplidice) edusa* (Fabricius, 1777) est également mentionné.

Les auteurs pensent que plus de 90% de la faune des papillons diurnes de Kós est connue à l'heure actuelle. Aucune espèce ne montre une différenciation significative, même au niveau subspécifique, probablement à cause d'un isolement très récent de la faune de l'île (< 9.000 ans).

Une fragmentation récente d'un biota qui était continu dans un passé proche, lorsque Kós faisait toujours partie de la masse continentale anatolienne, explique en grande partie la présente configuration de sa faune lépidoptérique, alors que l'apport d'espèces migratrices contemporaines n'influe celle-ci que marginalement.

Introduction

The Greek island of Kós has an area of 286 km², is about 43 km long and 8-10 km wide, stretching from NE to SW. It lies only at about 3,5 km off the SW Turkish coast, facing the Bodrum Peninsula (province of Muğla). The nearest neighbouring islands are Psérímos and Kálimnos to the north, and Gialí and Níssiros to the south (Fig. 1). The total length of the coast of Kós amounts to approximately 112 km.

The island can roughly be divided into four areas as far as the landscape is concerned :

- 1) the lowland along the northeastern and northern coast, from Ákron Fokás until about Marmári.
- 2) the Díkeos mountain chain, stretching over about 17 km, with the highest summit at 846 m. To the south it falls abruptly to the southern coast of the island.
- 3) the plateau, reaching an altitude of up to 160 m around the town of Andímáhia, from Pilí in the NE to the small isthmus of Ágios Stéfanos in the SW.
- 4) the mountain chain on the Kéfalos Peninsula, culminating at an altitude of about 428 m on Óros Látra.

The lowland consists mainly of fertile cultivated land, though there are several botanically interesting localities, principally the extensive sandy plains along the northern coast, especially near Ákron Psalídi, Ákron Skandári, Lámbi and Tingáki. Further the coastal meadows and lagunes, especially near Bellecitte and Tingáki and a truly wet, though strongly cultivated area to the west of Kós Town, with many meadows, ditches, rivulets, etc., that hauses a series of marsh and aquatic plants, that otherwise are quite rarely present on the Eastern Aegean Islands. This area is, moreover, strongly grown with trees and

bushes in field areas and, seen from a distance, it sometimes seemingly approaches a true forest area. Due to a steady rise of tourism and intensified irrigation for agricultural purposes, large areas of lowland dry out, with detrimental effects on the botanically interesting parts.

The Díkeos mountain chain is, on its northern side, only grown moderately with trees and bushes in the higher, steep parts (*Olea*, *Quercus*, *Cupressus*, *Pinus halepensis*, *Pistacia*), but mostly cultivated

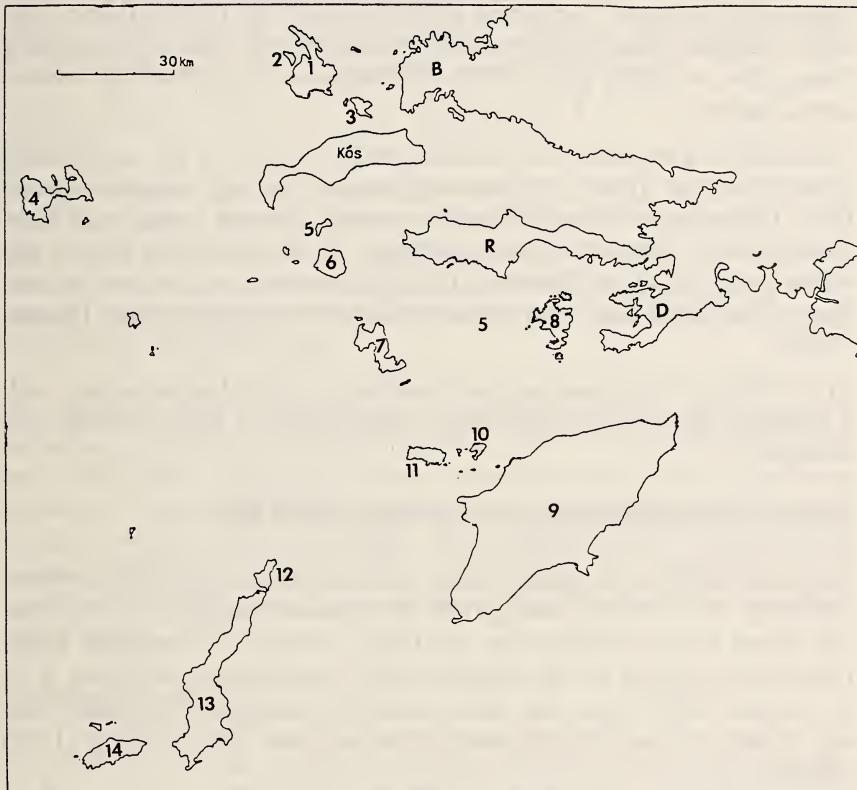


Fig. 1. Geographic situation of the island of Kós in the SE Aegean.

B	Bodrum Peninsula	7	Tílos
R	Reşadiye Yarimadası	8	Sími
D	Daracýa Yarimadası	9	Ródos
1	Kálimnos	10	Alimniá
2	Téleondos	11	Hálki
3	Psérimos	12	Sariá
4	Astipálea	13	Kárpathos
5	Gialí	14	Kássos
6	Níssiros		

or covered with meadowland. The geological structure of its ridge is quite varied, with several sorts of limestone, white marble and areas of volcanic stone.

The plateau is composed of marl and seasand, and over wide stretches it is overlaid by volcanic pumice tuffs, being much deteriorated in many places by repeated erosion caused by rains. The newly built roads and the construction of the airport, that have devastated the vegetation, show these phenomena very clearly. Large areas in this part are not cultivated anymore, just being grazed at best. At the northern coast near Mastihári, there is a considerable area of drift sand with imposing dunes, that are often grown with old *Juniperus oxycedrus* ssp. *macrocarpa* bushes.

The Kéfalos Peninsula is of volcanic origin. It is very dry and mostly covered with a typical phrygana-vegetation. The old volcanic cone of Óros Látra lies in the south and is sparsely covered with *Pinus halepensis* forest. Nearly all the inhabitants of the peninsula live in the villages of Kéfalos and Kamári. Detailed accounts on the geology and flora of the island can be found in resp. Jacobshagen (1986) and Hansen (1980).

The climate of the island can be described as arid Mediterranean, with a relatively short, cool, wet winter, followed by a long, hot and dry summer.

History of the lepidopterological investigation of Kós

The island of Kós was under Italian administration from 1912 to 1945 : therefore, it is not surprising that the first-ever butterfly records for this island were established by an Italian. Professor Alessandro Ghigi did some collecting on the islands of the Dodekánissa, including Kós, in August 1926. From the latter island he recorded 13 species, that are treated in Turati (1929) and a few of these also by Ghigi (1929) himself.

On 6-8.VI.1935, the Austrian herpetologist Dr Otto Wettstein-Westersheim collected several butterflies on the island, around the town of Kardámena and on Óros Díkeos. 18 species were found, of which 12 newly. These data are dealt with by Rebel (1936).

Hartig (1940) lists several species, based on previous records in Turati (1929) and Rebel (1936), but adds one additional taxon, “*Satyrus semele* L. *cretica* Rebel” [sic ! recte *Hipparchia senthes* (Fruhstorfer, 1908), see below].

Thomson (1985) reports 19 species from Kós, collected on 30.V.1983 at Kós Town, 3 of which are new. A fourth species, *Cupido minimus* (Fuessly, 1775), has not been retained (see below).

Kudrna (1986) mentions one species as new for Kós, that has not been listed in any previous publication.

Olivier (1986) summarizes existing knowledge on the butterflies of the island of Kós, publishing a checklist and dealing with own records for 19 species, 8 of which are new to the island.

Olivier (1987) lists 15 species, adding a series of new faunistic data for the island, but none of the species mentioned is new.

Finally, Olivier (1993a) notes 45 species from Kós, 7 of these for the first time.

Further records can be found in Rebel (1937, 1939), Bernardi (1961, 1971), Bretherton (1966), Tauber & Tauber (1968), Koutsafitikis (1973), Thomson (1987, 1990), van Oorschot, van den Brink & van Oorschot (1987), van Oorschot & van den Brink (1992), Olivier (1990, 1991, 1993b, 1996), Olivier & Coutsis (1993, 1995) and Hesselbarth, van Oorschot & Wagener (1995).

The senior author of the present contribution visited Kós on four occasions, viz. 10 & 11.IV.1986, 25-29.V.1988, 1, 4, 8 & 16-20.VI.1992 and 2-4.IV.1995. The junior author visited the island once in autumn, between 17 and 28.IX.1992. Together, we observed 44 species, one of which is entirely new to the island, while another one is reported again for the first time in over 65 years ! This brings the new total for Kós to 46 species. Only two taxa recorded in the literature have not been found by us.

Systematic part

Here we list both all previously published records about the butterflies of Kós that we could trace in literature (L) as well as our own new data (N) : together, 24 localities are involved (see Fig. 2) and coverage extends over each single month from early April until the very end of September.

Nomenclature largely follows Olivier (1993a) and Hesselbarth, van Oorschot & Wagener (1995), except when stated otherwise. Data on ecology and phenology can be found in those two works and these will not be repeated here.



Fig. 2. Map of localities listed in the Systematic part.

- | | | | |
|----|-------------------------------|----|---------------------------------------|
| 1 | Ágios Stéfanos | 13 | Óros Díkeos (400-846 m) ("Mt. Dikeo") |
| 2 | 3 km SW Andimáhia (50 m) | 14 | 1 km W Ágios Dimítrios (300 m) |
| 3 | Kardámena ("Cardamena") | 15 | Ágios Dimítrios (250-300 m) |
| 4 | Mastihári (0 m) | 16 | 2 km NE Ágios Dimítrios (150 m) |
| 5 | 4 km E Andimáhia (0-50 m) | 17 | 7 km W Kós (0 m) |
| 6 | Pilí (50-100 m) | 18 | 5 km W Kós (0 m) |
| 7 | Marmári (0 m) | 19 | Kós (0-50 m) ("Kos Town") |
| 8 | Tingáki | 20 | Paradísí (0-50 m) |
| 9 | Zipári (0 m) | 21 | 2 km E Paradísí (0-50 m) |
| 10 | 2 km N Asfendioú (100 m) | 22 | 4 km E Kós |
| 11 | Asfendioú | 23 | 1 km N Ákron Fokás (0-50 m) |
| 12 | Ziá (300-450 m) ("above Ziá") | 24 | between Ákron Fokás and Émpros Thermá |

Thymelicus sylvestris syriacus (Tutt, [1905])

- L — previously reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
 N — 3 km SW Andimáhia (50 m), 25.V.1988
 — 2 km N Asfendioú (100 m), 26.V.1988
 — Paradísí (0-50 m), 26.V.1988
 — Zipári (0 m), 27.V.1988
 — Óros Díkeos (400-800 m), 28.V.1988 (obs.)
 — Mastihári (0 m), 29.V.1988

Thymelicus acteon acteon (Rottemburg, 1775)

- L — "Ein kleines, dunkles Pärchen von Kos, Cardamena, 6.VI. [1935]." (Rebel, 1936 : 27)

- “Kos Town. Very common. [30.V.1983].” (Thomson, 1985 : 157)
- “Tigáki [Tingáki], 26.V.1979, 2 ♂ (C [W. CHRISPIJN]).” (Olivier, 1987 : 79)
- further reported by Olivier (1986 : 113 ; 1993a : 36, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
- N — Paradísi (0-50 m), 26.V.1988
- 2 km N Asfendioú (100 m), 27.V.1988
- Zipári (0 m), 27.V.1988
- Mastihári (0 m), 29.V.1988
- 5 km W Kós (0 m), 16.VI.1992

Gegenes pumilio pumilio (Hoffmannsegg, 1804)

- L — previously reported by Olivier (1993a : 38-39, 45, 198 [Table 12])
- N — Zipári (0 m), 27.V.1988
- Kós (0-50 m), 20.IX.1992
- Marmári (0 m), 22.IX.1992, 28.IX.1992

Carcharodus alceae alceae (Esper, [1780])

- L — “Kos, Cardamena, 6.VI.[1935], ein sehr großes ♀ (Vorderflügel-länge 16 mm)” (Rebel, 1936 : 27)
- “west of Kos Town. Locally common. [30.V.1983].” (Thomson, 1985 : 157)
- “above Ziá, 6.VII.1978, 1 ♀ (K [M.C. & G. KRUSEMAN])” (Olivier, 1987 : 79)
- further reported by Olivier (1986 : 113 ; 1993a : 45, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
- N — Zipári (0 m), 27.V.1988, 18.VI.1992
- Mastihári (0 m), 29.V.1988
- Kós (0-50 m), 20.IX.1992
- Marmári (0 m), 17.IX.1992, 19.IX.1992, 22.IX.1992

Carcharodus orientalis Reverdin, 1913

- L — previously reported by Olivier (1993a : 43, 192, 198 [Table 12] ; 1993b : 21) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
- N — Ziá (300 m), 28.V.1988
- Ziá (450 m), 4.VI.1992
- Zipári (0 m), 1.VI.1992
- Asfendioú (300 m), 16.VI.1992

Carcharodus stauderi ambiguus (Verity, 1925)

- L — previously reported by Olivier (1993a : 43-45, 192, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — Zipári (0 m), 27.V.1988

Spatialia (sertorius) orbifer orbifer (Hübner, [1823])

- L — previously reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — Mastihári (0 m), 29.V.1988

Zerynthia cerisy cerisy (Godart, [1824])

- L — “very few specimens at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986, 11.IV.1986] and C [2 km N Asfendioú (100 m), 11.IV.1986], abundant at B [7 km W Kós (0 m), 11.IV.1986] (...)” (Olivier, 1986 : 111-113)
— “2 km N. of Asfendioú (100 m), 11.IV.1986, 1 ♂ (very worn) (O[LIVIER])
7 km W. of Kós, 11.IV.1986, 3 ♂ (very worn) (O[LIVIER])” (Olivier, 1987 : 80)
— further reported by Olivier (1990 : 171 ; 1991 : 73 ; 1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — Ágios Dimítrios (300 m), 2.IV.1995
— 2 km E Paradísi (0-50 m), 3.IV.1995, 4.IV.1995
— Ziá (450 m), 4.IV.1995

Archon apollinus apollinus (Herbst, 1798)

- L — “H. PIEPER (pers. comm.) found the species in the island of Kos” (Kudrna, 1986 : 91)
— further reported by Olivier (1993a : 47, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 261, 1110 [Table 27])

Iphiclus podalirius podalirius (Linnaeus, 1758)

- L — “B [7 km W Kós (0 m), 11.IV.1986] and C [2 km N Asfendioú (100 m), 11.IV.1986]. One specimen observed in Kós Town on 10-IV.[1986].” (Olivier, 1986 : 111, 113)
— further reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — Zipári (0-50 m), 27.V.1988 (obs.), 18.VI.1992
— Óros Díkeos (400-800 m), 28.V.1988 (obs.)
— Marmári (0 m), 22.IX.1992, 23.IX.1992, 28.IX.1992

Papilio machaon syriacus Eller, 1936

- L — “3 esemplari ♀♀ Coo (...). Gli esemplari furono raccolti tutti e tre a Coo. [VIII.1926].” (Turati, 1929 : 177-178)
— “Kos, Mt. Dikeo, 8.VI.[1935], (...).” (Rebel, 1936 : 21)
— “Kos Town. Common with females ovipositing. [30.V.1983].” (Thomson, 1985 : 154)
— “I took one fresh male at B [7 km W Kós (0 m), 11.IV.1986].” (Olivier, 1986 : 111, 113)
— further reported by Bernardi (1971 : 25), Olivier (1993a : 56, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — Zipári (0 m), 27.V.1988, 1.VI.1992
— Marmári (0 m), 22.IX.1992, 28.IX.1992
— Mastihári (0 m), 26.IX.1992
— Pilí (50 m), 22.IX.1992, 26.IX.1992

Colias crocea (Fourcroy, 1785)

- L — “Kos Town. Very common, including many f. *helice* Hubner. [30.V.1983].” (Thomson, 1985 : 155)
— “I observed one single female at B [7 km W Kós (0 m), 11.IV.1986].” (Olivier, 1986 : 111, 113)
— “Kardámena, 1/7.VII.1978, 1 ♀ (worn) (K [M.C. & G. KRUSEMAN])
above Ziá, 6.VII.1978, 1 ♀ (worn) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 82)
— further reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1110 [Table 27])
N — 2 km N Asfendioú (100 m), 26.V.1988
— Paradísi (0-50 m), 26.V.1988
— Zipári (0 m), 27.V.1988 (obs.)
— Óros Díkeos (400-800 m), 28.V.1988
— Marmári (0 m), 17.IX.1992, 19.IX.1992, 22.IX.1992, 27.IX.1992, 28.IX.1992

Gonepteryx farinosa farinosa (Zeller, 1847)

- N — Óros Díkeos (750-846 m), 4.VI.1992 (1 ♂, obs.)
First-ever record for this island !
Dr Klaus Rose (in litt., VI.1996) collected 1 ♂ “1 km N Zipári”
on 3.VI.1996.

Euchloe (ausonia) ausonia taurica Röber, [1907]

- L — “I found the species quite commonly at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986] and C [2 km N Asfendioú

(100 m), 11.IV.1986]. All specimens observed belonged to the first brood.” [Erroneously recorded as *Euchloe simplonia* (Freyer, 1829)] (Olivier, 1986 : 111, 113)

— further reported by Olivier (1990 : 181 ; 1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])

N — Zipári (0 m), 27.V.1988

— Asfendioú (300 m), 2.IV.1995

— 2 km E Paradísi (0-50 m), 3.IV.1995

Pieris brassicae brassicae (Linnaeus, 1758)

L — “2 esemplari ♂ e ♀ (...) sono stati raccolti a Coo. [VIII.1926].” (Turati, 1929 : 178)

— “Kos Town. Very common (...). [30.V.1983].” (Thomson, 1985 : 155)

— “I took the species at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986] and C [2 km N Asfendioú (100 m), 11.IV.1986].” (Olivier, 1986 : 111, 113)

— “above Ziá, 6.VII.1978, 1 ♀ (fresh) (K [M.C. & G. KRUSEMAN]) between Ákron Fokás and Émpros Thermá, 3.VII.1978, 1 ♂ (rather worn) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 82)

— further reported by Bernardi (1971 : 25), Olivier (1993a : 76, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 111 [Table 27])

N — Ágios Dimítrios (250 m), 26.V.1988

— Paradísi (0-50 m), 26.V.1988

— Zipári (0 m), 27.V.1988

— Óros Díkeos (400-800 m), 28.V.1988

— 2 km E Paradísi (0-50 m), 3.IV.1995

Pieris krueperi krueperi Staudinger, 1860

L — previously reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])

N — Óros Díkeos (400-800 m), 28.V.1988

— Óros Díkeos (750-846 m), 4.VI.1992

Pieris rapae rapae (Linnaeus, 1758)

L — “Ein kleineres Pärchen von Kos, 6. bis 9.VI.[1935], (...).” (Rebel, 1936 : 21)

— “Kos Town (...). Common where noted. [30.V.1983].” (Thomson, 1985 : 155)

— “I found it at B [7 km W Kós (0 m), 11.IV.1986].” (Olivier, 1986 : 111, 113)

- “Kardámena, 1/7.VII.1978, 1 ♂ (fresh) (K [M.C. & G. KRUSEMAN])” (Olivier, 1987 : 83)
- further reported by Bernardi (1971 : 25), Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — Zipári (0 m), 27.V.1988
- Óros Díkeos (400-800 m), 28.V.1988
- Asfendioú (300 m), 16.VI.1992
- Kós (0-50 m), 19.IX.1992
- Marmári (0 m), 27.IX.1992, 28.IX.1992
- 2 km E Paradísi (0-50 m), 4.IV.1995

Pontia (daplidice) edusa (Fabricius, 1777)

- L — “6 esemplari ♂♂ e ♀♀ di Rodi e di Coo (...). [VIII.1926].” (Turati, 1929 : 179)
 - “Kos, Cardamena, 6.VI.[1935].” (Rebel, 1936 : 22)
 - “Kos Town. Common. [30.V.1983].” (Thomson, 1985 : 155)
 - further reported by Bernardi (1971 : 25), Olivier (1986 : 113 ; 1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
 - N — Pilí (50-100 m), 16.VI.1992, 26.IX.1992
 - Kós (0-50 m), 20.IX.1992
 - Marmári (0 m), 19.IX.1992, 22.IX.1992, 28.IX.1992
- One specimen collected at Marmári on 28.IX.1992 is a bilateral gynandromorph (Fig. 3).



Fig. 3. *Pontia (daplidice) edusa* (Fabricius, 1777)
Bilateral gynandromorph
Marmári (Kós, Greece) (0 m), 28.IX.1992 (leg. et coll. R. De Prins)

Lycaena phlaeas phlaeas (Linnaeus, 1761)

- L — “Kos, Cardamena, 6.VI.[1935], und Mt. Dikeo, 8.VI.[1935].” (Rebel, 1936 : 26)
- “Kos Town. (...). Common to the west and north of Kos Town. [30.V.1983].” (Thomson, 1985 : 157)

- “A single female observed at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986].” (Olivier, 1986 : 111, 113)
- further reported by Bernardi (1961 : 193 [Fig. 13] ; 1971 : 24, 26 [Map 2], Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — 2 km N Asfendioú (100 m), 25.V.1988
- Ágios Dimítrios (250 m), 26.V.1988
- 2 km NE Ágios Dimítrios (150 m), 26.V.1988
- Zipári (0 m), 27.V.1988
- Óros Díkeos (400-840 m), 28.V.1988, 4.IV.1995 (obs.)
- 5 kmW Kós (0 m), 16.VI.1992, 20.VI.1992
- 2 km E Paradísi (0-50 m), 3.IV.1995

Lycaena thersamon (Esper, [1784])

- L — “8 esemplari ♂♂ e ♀♀ di questa forma estiva caudata raccolta a Rodi ed a Coo. [VIII.1926].” (Turati, 1929 : 183)
- “Kardámena, 1/7.VII.1978, 1 ♂ (rather worn), 1 ♀ (rather fresh) (K [M.C. & G. KRUSEMAN]) above Ziá, 6.VII.1978, 1 ♂ (not so fresh) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 85)
- further reported by Bernardi (1971 : 27), Olivier (1986 : 113 ; 1993a : 45, 94, 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — Zipári (0 m), 27.V.1988
- 5 km W Kós (0 m), 16.VI.1992, 18.VI.1992, 20.VI.1992
- Kós (0-50 m), 20.IX.1992, 22.IX.1992, 26.IX.1992
- Marmári (0 m), 17.IX.1992, 19.IX.1992, 22.IX.1992, 26.IX.1992, 28.IX.1992

Callophrys rubi (Linnaeus, 1758)

- L — “one specimen found on a roadside at C [2 km N Asfendioú (100 m), 11.IV.1986], two more taken in dry garrigue flying around bushes of *Quercus ilex* at A [1 km W Ágios Dimítrios (300 m), 11.IV.1986].” (Olivier, 1986 : 111, 113)
- further reported by Olivier (1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — 2 km E Paradísi (0-50 m), 3.IV.1995

Satyrium ilicis ilicis (Esper, [1779])

- L — “west of Kos Town (...). A few males and females in a lightly wooded grass valley in Kos. [30.V.1983].” (Thomson, 1985 : 156-157)

- further reported by Olivier (1986 : 113 ; 1993a : 198 [Table 12] ; 1993b : 21) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — Ágios Dimítrios (250 m), 26.V.1988
- 2 km NE Ágios Dimítrios (150 m), 26.V.1988
- Óros Díkeos (400-800 m), 28.V.1988
- Mastihári (0 m), 29.V.1988

Lampides boeticus (Linnaeus, 1767)

- L — “Parecchi esemplari dei due sessi di (...) Coo (...). [VIII.1926].” (Turati, 1929 : 183)
- “Kardámena, 1/7.VII.1978, 1 ♂ (worn) (K [M.C. & G. KRUSEMAN]) between Ákron Fokás and Émpros Thermá, 3.VII.1978, 1 ♂ (worn) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 85)
- further reported by Bernardi (1971 : 24), Olivier (1986 : 113 ; 1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — Zipári (0 m), 27.V.1988, 1.VI.1992
- Kós (0 m), 8.VI.1992
- Marmári (0 m), 17.IX.1992, 19.IX.1992, 28.IX.1992

Leptotes pirithous (Linnaeus, 1767)

- L — “Kos, Cardamena, 6.VI.[1935], drei ♂.” (Rebel, 1936 : 26)
- further reported by Bernardi (1971 : 24), Olivier (1986 : 113 ; 1993a : 198 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — Marmári (0 m), 17.IX.1992, 19.IX.1992, 26.IX.1992, 28.IX.1992

Celastrina argiolus argiolus (Linnaeus, 1758)

- L — “A [1 km W Ágios Dimítrios (300 m), 10.IV.1986, 11.IV.1986] and C [2 km N Asfendioú (100 m), 11.IV.1986]. Observed flying around buckthorn (*Prunus spinosa* L.).” (Olivier, 1986 : 112-113)
- further reported by Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27])
- N — 3 km SW Andimáhia (50 m), 25.V.1988
- 2 km N Asfendioú (100 m), 26.V.1988, 27.V.1988
- Zipári (0 m), 27.V.1988
- Marmári (0 m), 17.IX.1992
- Pilí (50 m), 26.IX.1992

Glauopsyche alexis alexis (Poda, 1761)

- L — “found only at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986, 11.IV.1986] on dry garrigue and on an open spot with many *Asphodelia*. (...).” (Olivier, 1986 : 112-113).
— further reported by Olivier (1993a : 102, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1111 [Table 27]).
N — 2 km E Paradísi (0-50 m), 3.IV.1995, 4.IV.1995

Polyommatus loewii loewii (Zeller, 1847)

- L — “zwei ♂ von Kos, Mt. Dikeo, 8.VI.[1935], (...). Die Art erreicht auf Kos und Kalymnos wohl ihre nordöstliche Verbreitungsgrenze.” (Rebel, 1936 : 26-27)
— “west of Kos Town. Locally common. [30.V.1983].” (Thomson, 1985 : 157)
— “<<Kós, 23.V.1983>>, 1 ♂ (fresh, but badly damaged) [leg. J. J. v. OORT].” (Olivier, 1987 : 86)
— further reported by Bernardi (1961 : 184, 207 ; 1971 : 28), Olivier (1986 : 113 ; 1993a : 106, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 613, 614, 1112 [Table 27]).
N — 2 km E Paradísi (0 m), 4.VI.1992, 8.VI.1992
— Óros Díkeos (750-846 m), 17.VI.1992
Hesselbarth, van Oorschot & Wagener (1995 : 613-617, 627-631) treat the present as well as the next species as belonging to the genus *Plebeius* Kluk, 1780. We prefer to include these in the genus *Polyommatus* (cf. Olivier, 1993a : 26, 106-109), the more as Hesselbarth, van Oorschot & Wagener (1995 : 588) admit: “Bisher fehlt eine umfassende Untersuchung, die eine einigermaßen gesicherte, phylogenetisch begründete Aufteilung der Arten dieser und der folgenden Gattung *Polyommatus* auf die einzelnen Untergattungen und deren Stellung zueinander erlauben würde. (...). Unsere Beurteilung bleibt daher notgedrungen subjektiv (...).”

Polyommatus agestis ([Denis & Schiffermüller], 1775)

- L — “one single fresh female at A [1 km W Ágios Dimítrios (300 m)] on 10-IV.[1986].” (Olivier, 1986 : 112-113)
— “above Ziá, 6.VII.1978, 1 ♀ (not so fresh) (K [M.C. & G. KRUSEMAN].” (Olivier, 1987 : 87)
— further reported by Olivier (1993a : 108, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27]).
N — 2 km E Paradísi (0 m), 8.VI.1992
— 5 km W Kós (0 m), 16.VI.1992

Polyommatus thersites (Cantener, [1835])

- L — “1 ♂ e 2 ♀♀ di Coo e Rodi (...). [VIII.1926].” (Turati, 1929 : 184)
— “Drei frische ♂ und ein solches ♀ von Kos, Cardamena, 6.VI. [1935], (...).” (Rebel, 1936 : 26)
— “above Ziá, 6.VII.1978, 3 ♂ (not so fresh), 3 ♀ (one fresh, two not so fresh) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 87)
— further reported by Bernardi (1961 : 184 ; 1971 : 28), Olivier (1986 : 113 ; 1993a : 110, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])
N — Pilí (50-100 m), 16.VI.1992
— Ziá (450 m), 17.VI.1992
— Óros Díkeos (750-846 m), 17.VI.1992

Polyommatus icarus (Rottemburg, 1775)

- L — “Molti esemplari di Coo, (...). [VIII.1926].” (Turati, 1929 : 184)
— “Kos, Cardamena, 6.VI.[1935], 4 ♂, 1 ♀ (...).” (Rebel, 1936 : 26)
— “Kos Town. Very common. [30.V.1983].” (Thomson, 1985 : 157)
— “One single very fresh male at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986].” (Olivier, 1986 : 112-113)
— “Ágios Stéfanos, 24/29.VI.1978, 2 ♀ (worn) (K [M.C. & G. KRUSEMAN])
between Ákron Fokás and Émpros Thermá, 3.VII.1978, 1 ♀ (worn) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 88)
— further reported by Bernardi (1961 : 192 [Fig. 2] ; 1971 : 25, 26 [Map 2]), Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])
N — 5 km W Kós (0 m), 16.VI.1992
— Zipári (0 m), 18.VI.1992
— Marmári (0 m), 26.IX.1992, 28.IX.1992
— Kós (0-50 m), 20.IX.1992, 22.IX.1992

Danaus chrysippus chrysippus (Linnaeus, 1758)

- L — “16 esemplari raccolti a Coo, (...). [VIII.1926].” (Turati, 1929 : 179)
— “[Coo.] (...). Noto, fra i Lepidotteri, abbondante *Danaus chrysippus* [sic !], (...). [VIII.1926].” (Ghigi, 1929 : 309)
— further reported by Bretherton (1966 : 19), Bernardi (1971 : 27), Olivier (1986 : 113 ; 1993a : 116, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 767)

- N — Marmári (0 m), 27.IX.1992

One very fresh female (Fig. 4). The first record from this area in 66 years ! The senior author has been informed by Mr. Finn Iversen



Fig. 4. *Danaus chrysippus chrysippus* (Linnaeus, 1758) ♀
Marmári (Kós, Greece) (0 m), 27.IX.1992 (leg. et coll. R. De Prins)

(in litt., 17.I.1994) that he observed one specimen at Triánda, on the island of Ródos, on 10.X.1993.

Kirinia roxelana (Cramer, [1777])

- L — "ein Pärchen von Kos, Cardamena, 6.VI.[1935], davon das ♀ ganz frisch." (Rebel, 1936 : 24)
— "Kos Town. (...). Common west of Kos Town. [30.V.1983]." (Thomson, 1985 : 155)
— further reported by Bernardi (1971 : 27), Olivier (1986 : 113 ; 1993a : 190, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])
N — 2 km N Asfendioú (100 m), 25.V.1988, 26.V.1988, 27.V.1988
— Zipári (0 m), 27.V.1988

Pararge aegeria aegeria (Linnaeus, 1758)

- L — "one single male was taken at C [2 km N Asfendioú (100 m), 11.IV.1986], fluttering discretely under a scrub, near a small footpath. (...)." (Olivier, 1986 : 112-113)
— further reported by Olivier (1993a : 199 [Table 12], 207) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])

Lasiommata megera lyssa (Geyer, [1828])

- L — "ein Pärchen von Kos, Cardamena, 6.VI.[1935], (...)." (Rebel, 1936 : 24)
— "Kos Town (...). Common (...). [30.V.1983]." (Thomson, 1985 : 155)

- “Two males and one female were taken on 10-IV.[1986] at A [1 km W Ágios Dimítrios (300 m)] between the ruines of the abandoned village.” (Olivier, 1986 : 112-113)
 - further reported by Bernardi (1971 : 27), Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])
- N — 1 km N Ákron Fokás (0-50 m), 26.V.1988
- Óros Díkeos (400-800 m), 28.V.1988
 - Óros Díkeos (840 m), 4.IV.1995
 - Mastihári (0-50 m), 29.V.1988
 - Marmári (0 m), 26.IX.1992, 28.IX.1992
 - 2 km E Paradísi (0-50 m), 3.IV.1995

De Freina ([1992]) studied the geographic variation of *L. megera* and showed the material from the Balkans, Turkey and Iran to differ constantly from the remaining populations in both the male and female genitalia. Olivier (1993a), though knowing this publication, did not fully realize its significance and incorrectly lumped the East Mediterranean populations under *L. megera megera* (Linnaeus, 1767). Coutsis (pers. comm.) confirms the distinction of a western and eastern taxon after examination of the male genitalia. Hesselbarth, van Oorschot & Wagener (1995 : 782-783) use the name *L. megera transcaspica* (Staudinger, 1901) for Turkish populations, as they consider *lyssa*, the type-locality of which is Ragusa [Dubrovnik] in Dalmatia, as part of the “south-western” group on external markings. The male genitalia of a specimen from Dalmatia, described and illustrated by de Freina ([1992] : 169 [fig. 5], 171), clearly place it as belonging to the eastern type. Therefore, we consider material from the Balkans eastwards until Iran as belonging to *L. megera lyssa* (Geyer, [1828]), with *transcaspica* as a junior synonym, as already established by de Freina ([1992] : 172).

Lasiommata maera (Linnaeus, 1758)

- L — “Ein frisches ♂ von Kos, Cardamena, 6.VI.[1935], (...).” (Rebel, 1936 : 24)
- “Two males and one female taken at A [1 km W Ágios Dimítrios (300 m)] on 11-IV.[1986] along a steep rocky slope in an area of dry garrigue near a small pine wood. Two specimens are very fresh, one is very worn.” (Olivier, 1986 : 112-113)
 - further reported by Bernardi (1961 : 184 ; 1971 : 27), Olivier (1993a : 188, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])
- N — Óros Díkeos (400-800 m), 28.V.1988
- Kós (0-50 m), 19.IX.1992, 20.IX.1992

Maniola telmessia (Zeller, 1847)

- L — "Von Kos liegen, von Cardamena, 6.VI.[1935], und dem Mt. Dikeo, 8.VI.[1935], (...) vor (...)." (Rebel, 1936 : 25)
- "Kos Town and valley to the west of Kos Town (...). Very common in a variety of habitats (...) dry lightly wooded rough grassland (...) west of Kos Town, gardens at Kos Town (...). [30.V.1983]." (Thomson, 1985 : 155)
- further reported by Hartig (1940 : 231), Bernardi (1961 : 184 ; 1971 : 27), Tauber & Tauber (1968 : 83 [Fig. 3], 84), Olivier (1986 : 113 ; 1990 : 182 ; 1993a : 146-147, 148 [Table 6], 150 [Table 7], 155, 156 [Table 8], 158 [Table 9], 199 [Table 12] ; 1993b : 22), Olivier & Coutsis (1993 : 114, 115 [Fig. 1], 116, 119-121 [incl. Plates 1 & 2], 123 [Table 1], 124 [Table 2], 126 [Table 3], 127 [Table 4] ; 1995 : 10 [Fig. 2], 11, 12-15 [Table 2], 16 [Table 3], 18, 27, 32 [Table 12], 34 [Table 13], 36, 44 [Figs. 44-45], 56), Thomson (1987 : 13, 18 [Fig. 3], 19 ; 1990 : 153 [Table 3], 155), van Oorschot & van den Brink (1992 : 149, 150 [Fig. 1]) and Hesselbarth, van Oorschot & Wagener (1995 : 825-827, 1112 [Table 27])
- N — 2 km N Asfendioú (100 m), 25.V.1988, 26.V.1988, 27.V.1988, 16.VI.1992, 17.VI.1992
- 3 km SW Andimáhia (50 m), 25.V.1988
- Ágios Dimítrios (250 m), 26.V.1988
- 2 km NE Ágios Dimítrios (150 m), 26.V.1988
- Paradísí (0-50 m), 26.V.1988
- 1 km N Ákron Fokás (0-50 m), 26.V.1988
- Zipári (0 m), 27.V.1988
- Óros Díkeos (400-800 m), 28.V.1988
- Óros Díkeos (750-846 m), 17.VI.1992
- Mastihári (0 m), 29.V.1988
- Ziá (450 m), 4.VI.1992
- Marmári (0 m), 19.IX.1992, 26.IX.1992
- Pilí (50 m), 26.IX.1992
- Material collected in September 1992 consists exclusively of post-aestivation females.

Hyponephele lupina ? intermedia (Staudinger, 1886)

- L — "3 esemplari ♀♀ di Coo e Fonduclì [VIII.1926]." (Turati, 1929 : 182)
- "Ein frisches ♀ von Kos, Mt. Dikeo, 8.VI.[1935], stimmt vollkommen mit einem solchen von Kreta." (Rebel, 1936 : 25)

- “west of Kos Town. Four freshly emerged males only in heath garique’ [sic!]. [30.V.1983].” (Thomson, 1985 : 155)
- “Kós, 10/24.V.1982, 1 ♀ (rather worn) (P.J.H. van Bree)
4 km E. of Kós, 8.VII.1978, 1 ♀ (not so fresh) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 168)
- further reported by Bernardi (1971 : 28), Olivier (1986 : 113 ; 1993a : 177, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1112 [Table 27])

N — 4 km E Andimáhia (0-50 m), 19.VI.1992, 20.VI.1992

Male material from Kós is of the bright, brassy ochreous brown morph with long arcuate sex brand and pointed, elongated forewings, even more so than Ródos specimens, thus looking very much like nomotypic *H. lupina lupina* (Costa, [1836]) from the Greek mainland and from Calabria, though material of the latter population is distinctly smaller-sized (Olivier, pers. obs. July-August 1995). Females collected by the senior author on the nearby Bodrum Peninsula agree very well with those from Kós, but unfortunately no male material from there is available to us. Baldock & Bretherton (1988), however, refer their single male specimen to “*Hyponephele lupina Costa rhamnusia* Freyer”, thus suggesting that it is of the same type, recalling the Sicilian subspecies. We unhappily treat this material from Kós as belonging to ssp. *intermedia*, mainly because of its geographic location. A thorough taxonomic revision of this species is much needed !

Hipparchia senthes (Fruhstorfer, 1908)

L — previously reported by Hartig (1940 : 226, as “*Satyrus semele L. cretica* Rol.” [sic!]), Olivier (1986 : 110, 113 ; 1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])

N — Óros Díkeos (400-800 m), 28.V.1988

— Óros Díkeos (750-846 m), 4.VI.1992, 17.VI.1992

Hipparchia senthes has traditionally been included in a group of allopatric taxa referred to as the *H. aristaeus* (Bonelli, 1826) complex (see e.g. Kudrna, 1977 ; Kudrna, 1984 ; Balletto *et al.*, 1990 ; Hesselbarth, van Oorschot & Wagener, 1995), being considered either as a subspecies of *H. aristaeus* or as a distinct species. Recently, Cesaroni *et al.* (1994) studied a.o. allozymes and genital morphometrics of seventeen populations belonging to nine presumptive species or subspecies of *Hipparchia* (*Parahipparchia*), including three taxa of the *H. aristaeus* complex, convincingly refuting the conspecificity of these. Current investigations on the morphology of taxa of this group (Olivier &

Coutsis, in prep.) support these conclusions. Therefore, we consider *H. senthes* as specifically distinct from *H. aristaeus*.

Hipparchia fatua fatua Freyer, [1844]

- L — “Gli esemplari (...) furono presi a (...) Coo (...) [VIII.1926].” (Turati, 1929 : 180)
- “Ágios Stéfanos, 24/29.VI.1978, 1 ♀ (fresh) (K [M.C. & G. KRUSEMAN]) above Ziá, 6.VII.1978, 1 ♀ (fresh) (K [M.C. & G. KRUSEMAN]) 4 km E of Kós, 8.VII.1978, 1 ♂ (not so fresh) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 167)
- further reported by Ghigi (1929 : 309, 331), Bernardi (1961 : 184, 194 [Fig. 4]; 1971 : 26 [Map 3], 28), Bretherton (1966 : 36), Olivier (1986 : 113; 1990 : 187; 1993a : 135-136, 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 913, 914, 1113 [Table 27])
- N — 4 km E Andimáhia (0-50 m), 19.VI.1992
- Marmári (0 m), 19.IX.1992, 28.IX.1992 (only females !)

Pseudochazara anthelea anthelea (Hübner, [1824])

- L — “Vier ♂ und ein frisches ♀ von der Insel Kos, Mt. Dikeo, 8.VI. [1935]. (...). Sie flog nur in der Gipfelregion, dort aber häufig. Weiter unten wurde sie nirgends gesehen.” (Rebel, 1936 : 23-24)
- further reported by Rebel (1939 : 508), Hartig (1940 : 226), Bernardi (1961 : 189, [190], 194 [Fig. 4], 201, 207, [209]; 1971 : 28), van Oorschot, van den Brink & van Oorschot (1987 : 91, 94), Olivier (1986 : 113; 1993a : 140-141, 199 [Table 12]; 1996 : 5-6, 8 [Plate 2], 9 [Tables 1 & 2], 10-12) and Hesselbarth, van Oorschot & Wagener (1995 : 962, 1113 [Table 27]).
- N — Óros Díkeos (400-800 m), 28.V.1988
- Óros Díkeos (750-846 m), 4.VI.1992 (obs.), 17.VI.1992

Limenitis reducta herculeana Stichel, [1908]

- L — “west of Kos Town. A few very worn individuals. [30.V.1983].” (Thomson, 1985 : 156)
- further reported by Olivier (1986 : 113; 1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])

Vanessa atalanta atalanta (Linnaeus, 1758)

- L — “1 esemplare di Coo (...) [VIII.1926].” (Turati, 1929 : 182)
- Observed at C [2 km N Asfendioú (100 m), 11.IV.1986].” (Olivier, 1986 : 112-113)

- further reported by Ghigi (1929 : 309), Bernardi (1971 : 25), Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])

N — 2 km N Asfendioú (100 m), 25.V.1988

- Zipári (0 m), 27.V.1988

— Ágios Dimítrios (300 m), 2.IV.1995 (obs.)

- Asfendioú (300 m), 2.IV.1995 (obs.)

— 2 km E Paradisi (0-50 m), 3.IV.1995 (obs.), 4.IV.1995 (obs.)

— Óros Díkeos (840 m), 4.IV.1995 (obs.)

— Ziá (450 m), 4.IV.1995 (obs.)

Very common to abundant in all forementioned localities visited in April 1995.

Vanessa cardui (Linnaeus, 1758)

L — “5 esemplari di Coo, (...) [VIII.1926].” (Turati, 1929 : 183)

— “Kos, Cardamena, 6.VI.[1935], ein frisches ♂.” (Rebel, 1936 : 22)

— “Kos Town. Common. [30.V.1983].” (Thomson, 1985 : 156)

— “Observed at A [1 km W Ágios Dimítrios (300 m), 10.IV.1986].” (Olivier, 1986 : 112-113)

— further reported by Ghigi (1929 : 309), Bernardi (1971 : 27), Koutsaftikis (1973 : 171), Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])

N — 2 km N Asfendioú (100 m), 25.V.1988 (obs.), 26.V.1988

— Zipári (0 m), 27.V.1988 (obs.)

— Mastihári (0 m), 29.V.1988

— Marmári (0 m), 22.IX.1992

— Ágios Dimítrios (300 m), 2.IV.1995 (obs.)

— Asfendioú (300 m), 2.IV.1995 (obs.)

— 2 km E Paradísi (0-50 m), 3.IV.1995 (obs.), 4.IV.1995 (obs.)

— Óros Dikeos (840 m), 4.IV.1995 (obs.)

— Ziá (450 m), 4.IV.1995 (obs.)

Very common to abundant in all forementioned localities visited in April 1995, even more so than *V. atalanta*.

Polygonia egea (Cramer, [1775])

L — “5 esemplari di Nisiro, Coo e Scarpanto. [VIII.1926].” (Turati, 1929 : 183)

— “Kos Town. Several in gardens. [30.V.1983].” (Thomson, 1985 : 156)

— “One male was observed at A [1 km W Ágios Dimítrios (300 m)] on 10-IV.[1986] and again on 11-IV.[1986].” (Olivier, 1986 : 112-113)

- further reported by Ghigi (1929 : 309), Hartig (1940 : 232), Bernardi (1971 : 27), Olivier (1993a : 193, 199 [Table 12]) ; 1993b : 21) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])
- N — Zipári (0 m), 27.V.1988 (obs.)
- Óros Díkeos (400-800 m), 28.V.1988
- Óros Díkeos (750-846 m), 4.VI.1992
- Kós (0-50 m), 24.IX.1992

Nymphalis polychloros polychloros (Linnaeus, 1758)

- L — previously reported by Olivier (1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])
- N — Óros Díkeos (400-800 m), 28.V.1988 (obs.)

Melitaea trivia trivia ([Denis & Schiffermüller], 1775)

- L — “Vier ♂ von Kos, Cardamena, 6.VI.[1935], (...).” (Rebel, 1936 : 23)
- “4 km E. of Kós, 8.VII.1978, 1♀ (not so fresh) (K [M.C. & G. KRUSEMAN]).” (Olivier, 1987 : 166)
- further reported by Rebel (1937 : 65), Hartig (1940 : 226), Bernardi (1961 : 184, 195 [Fig. 5] ; 1971 : 26 [Map 3], 28), Koutsafitikis (1973 : 176), Olivier (1986 : 113 ; 1993a : 199 [Table 12]) and Hesselbarth, van Oorschot & Wagener (1995 : 1113 [Table 27])
- N — Óros Díkeos (400-800 m), 28.V.1988

Doubtful and erroneous records

Euchloe simplonia Boisduval, [1828]

This taxon, which is very closely related to *E. ausonia*, is restricted to the central and western Alps, the Pyrenees and the Cantabrian Mountains. Olivier (1986) was wrong in ascribing his *E. ausonia* records from Kós to *E. simplonia* (Freyer, 1829), that was described after material from Croatia and hence is a junior subjective synonym of *E. ausonia* (Hübner, [1804]).

Pontia daplidice (Linnaeus, 1758)

All records from Kós previous to Olivier (1993a) refer to *Pontia daplidice*, while this nominal taxon has been shown to consist of two genetically distinct taxa. Kós lies within the distribution range of the “eastern” taxon, i.e. *P. edusa*. Both are currently united in one super-species.

Cupido minimus (Fuessly, 1775)

Thomson (1985 : 157) recorded this butterfly from Kós, stating : “west of Kos Town. Locally common in grassy valley. Found in mainland Greece but new to the Dodecanes.” Subsequently, Olivier (1986 : 113) mentions this species again in his checklist, but it is not listed anymore in Olivier (1993a).

Its presence on Kós is very unlikely, considering its distribution in Turkey (cf. Hesselbarth, van Oorschot & Wagener, 1995).

Thomson (in litt., 8.II.1989) says : “I do not have specimens of *minimus* from Kos”, hence we prefer not to include this species among the butterfly fauna of this island on present evidence.

Hipparchia cretica (Rebel, 1916)

This species belongs to a complex of taxa that resemble each other closely externally. On Kós, the senior author collected a small series of specimens that all belong to the rather distantly related *H. senthes*. *H. cretica* is an insular endemic restricted to the island of Kríti (Crete). Hartig's (1940) record is surely erroneous and probably refers to *H. senthes* as well.

Argynnis pandora pandora ([Denis & Schiffermüller], 1775)

One large nymphalid, most probably a fritillary belonging to this species, was observed on Óros Díkeos, at an altitude of about 800 m, on 17.VI.1992. As the identification is not absolutely sure, the species is not included in the island list until possible confirmation in the future.

Discussion

All 46 species positively recorded on Kós are widespread over the neighbouring areas : 38 of these have been traced on at least five other of the Eastern Aegean Islands (Olivier, 1993a ; 1993b ; 1994) and 33 on the adjacent Bodrum Peninsula (Baldock & Bretherton, 1988 ; Olivier & Coutsis, 1995 ; Hesselbarth, van Oorschot & Wagener, 1995 ; Olivier, unpublished records). Of the 13 taxa that remain unrecorded from the latter area (*Gegenes pumilio pumilio*, *Carcharodus orientalis*, *C. staudei ambiguus*, *Archon apollinus apollinus*, *Pieris krueperi krueperi*, *Callophrys rubi*, *Leptotes pirithous*, *Glaucoopsyche alexis alexis*, *Polyommatus thersites*, *Danaus chrysippus chrysippus*, *Pararge aegeria aegeria*, *Lasiommata maera* and *Polygonia egea*), 11 have been found in the remainder of the province of Muğla. Both remaining taxa, *C. staudei ambiguus* and *P. krueperi krueperi*, have been located in the neighbouring provinces of İzmir and Antalya, while *P. krueperi*

krueperi is known from Aydin as well (Hesselbarth, van Oorschot & Wagener, 1995). *C. stauderi ambiguus* has been found on more than five other islands in the Dodekánnissa (Olivier, 1993a ; 1993b ; 1994).

We believe that at present over 90% of the actual butterfly fauna of Kós is already known. Only 7 taxa known from the Bodrum Peninsula have not yet been recorded on Kós and the very most of these are probably truly absent there. The fact that 13 butterfly species listed from Kós are not known from the Bodrum Peninsula probably reflects incomplete exploration of the latter area : future investigations, especially in early spring (April) and in early June, will certainly reveal the presence there of most of these taxa. Interestingly, *Pseudophilotes vicrama schiffermuelleri* (Hemming, 1929) has not been found either on Kós or on the Bodrum Peninsula, while it has been spotted by the senior author on Kálimnos and Léros (April 1995) as well as on Níssiros (May 1992). It has possibly been overlooked in both former areas so far.

No single butterfly species on Kós has differentiated significantly, not even subspecifically, from its counterparts in SW Turkey : this points to a very recent isolation of its fauna. Indeed, about 9.000 B.P., Kós was still part of the Anatolian mainland, being interconnected with the present-day Bodrum Peninsula, Kálimnos, Léros and some smaller islands. To the south, the islands of Níssiros and Gialí were already as much isolated as they are now (van Andel & Shackleton, 1982).

Vicariance of a biota that was still connected in the recent past largely explains the present configuration of the butterfly fauna of Kós, while dispersal of migratory taxa that reach the island either occasionally (*Danaus chrysippus chrysippus*) or on a more regular base (e.g. *Leptotes pirithous*), is of more marginal significance to its make-up.

A supposed special biogeographic affinity of the *Pseudochazara anthelea* population from Kós with that from Kípros (Cyprus) (Rebel, 1936) has recently been shown to be unsupported (Olivier, 1996).

Acknowledgements

We wish to thank Dr George Thomson (Lockerbie, Scotland, U.K.), Mr Finn Iversen (Greve, Denmark), Dr Klaus Rose (Mainz-Bretzenheim, Germany) and Mr John G. Coutsis (Athens) for interesting personal communications, as well as Mr Willy De Prins (Antwerpen) for making both photographs (Figs. 3 and 4).

References

- ANDEL, T. H. VAN & SHACKLETON, J. C., 1982. Late Paleolithic and Mesolithic Coastlines of Greece and the Aegean. *J. Field Archaeology* 9 : 445-454.
- BALDOCK, D. W. & BRETHERTON, R. F., 1988. Some Butterflies from Turkish Asia Minor. *Entomologist's Rec. J. Var.* 100 : 133-134.
- BALLETTO, E., GIACOMA, C., PALESTRINI, C., ROLANDO, A., SARÀ, M., BARBERIS, A., SALVIDIO, S., MENSI, P. & CASSULO, L., 1990. On some aspects of the biogeography of Northern Macaronesia. *Atti Convegni Lincei* 85 : 167-199.
- BERNARDI, G., 1961. Biogéographie et spéciation des Lépidoptères Rhopalocères des îles méditerranéennes. *Colloques int. Cent. natn. Rech. scient.* 94 : 181-215.
- BERNARDI, G., 1971. Biogéographie des Lépidoptères Rhopalocères des îles égéennes. *C. r. somm. Séanc. Soc. Biogéogr.* 1971 : 21-32.
- BRETHERTON, R. F., 1966. A Distribution List of the Butterflies (Rhopalocera) of Western and Southern Europe. *Trans. Soc. Br. Ent.* 17 : 1-94.
- CESARONI, D., LUCARELLI, M., ALLORI, P., RUSSO, F. & SBORDONI, V., 1994. Patterns of evolution and multidimensional systematics in graylings (Lepidoptera : *Hipparchia*). *Biol. J. Linn. Soc. Lond.* 52 : 101-119.
- FREINA, J. J. DE, [1992]. Untersuchungen zu Artreicht, Verbreitung und Systematik von *Lasiommata paramegaera* (Hübner, 1824) und *Lasiommata megera* (Linnaeus, 1758) [sic!] (Lepidoptera, Satyridae). *Mitt. münchen. ent. Ges.* 81(1991) : 165-173.
- GHIGI, A., 1929. Ricerche faunistiche nelle isole italiane dell'Egeo. Risultati generali e conclusioni. *Archo zool. ital.* 13 : 293-354.
- HANSEN, A., 1980. Eine Liste der Flora der Inseln Kos, Kalymnos, Pserimos, Telendos und Nachbar-Inselchen (Ostädäis, Griechenland). *Biologia gallo-hellen.* 9 : 3-105.
- HARTIG, F., 1940. Nuovi contributi alla conoscenza della fauna delle isole italiane dell'Egeo XIII. Conoscenza attuale della fauna lepidotteroologica dell'Isola di Rodi. *Boll. Lab. ent. agr. Portici* 18 : 221-246.
- HESSELBARTH, G., OORSCHOT, H. VAN & WAGENER, S., 1995. Die Tagfalter der Türkei unter Berücksichtigung der angrenzenden Länder. Selbstverlag Sigbert Wagener, Bocholt.
- JACOBSHAGEN, V. (Ed.), 1986. Geologie von Griechenland. *Beitr. Reg. Geol. Erde* 19 : X + 363 pp. Gebrüder Borntraeger, Berlin, Stuttgart.
- KOUTSAFTIKIS, A., 1973. Nachträge, Ergänzungen und Ökologisch-Zoogeographische Berichtigungen der Nymphalidae-Fauna Griechenlands (Lepidoptera). *Beitr. naturk. Forsch. Südwest.* 32 : 169-177.
- KUDRNA, O., 1977. A Revision of the Genus *Hipparchia* Fabricius. E.W. Classey, Faringdon.
- KUDRNA, O., 1984. On the taxonomy of the genus *Hipparchia* Fabricius, 1807, with descriptions of two new species from Italy (Lepidoptera, Satyridae). *Fragm. ent.* 17 : 229-243.

- KUDRNA, O., 1986. Butterflies of Europe. Vol. 8 : Aspects of the Conservation of Butterflies in Europe. Aula-Verlag, Wiesbaden.
- OLIVIER, A., 1986. Spring butterflies on the Island of Kós (Greece) (Lepidoptera : Hesperioidae & Papilionoidea). *Phegea* 14 : 109-114.
- OLIVIER, A., 1987. Catalogue of the butterflies of the Greek islands in the collection of the Instituut voor Taxonomische Zoölogie (Zoölogisch Museum) Amsterdam (Lepidoptera : Hesperioidae & Papilionoidea). *Phegea* 15 : 77-88, 165-170.
- OLIVIER, A., 1990. Critical notes on the butterflies of the Greek island of Kastellórizo (Lepidoptera : Hesperiidae & Papilionoidea). *Phegea* 18 : 169-190.
- OLIVIER, A., 1991. The taxonomic status of the population of *Zerynthia cerisy* (Godart, [1824]) on the Greek island of Sámos (Lepidoptera : Papilionidae). *Phegea* 19 : 71-74.
- OLIVIER, A., 1993a. The butterflies of the Greek island of Ródos : taxonomy, faunistics, ecology and phenology with a tentative synthesis on the biogeography of the butterflies of Kríti (Crete), Kárpathos, Ródos, the Eastern Aegean islands and Kípros (Cyprus) (Lepidoptera : Hesperioidae & Papilionoidea). Vlaamse Vereniging voor Entomologie, Antwerpen.
- OLIVIER, A., 1993b. The butterflies of the Greek island of Tílos (Lepidoptera : Hesperiidae & Papilionoidea). *Phegea* 21 : 17-23.
- OLIVIER, A., 1994. New data on the butterflies of the Greek island of Sími (Lepidoptera : Hesperiidae & Papilionoidea). *Phegea* 22 : 85-88.
- OLIVIER, A., 1996. Notes on the taxonomic status and supposed biogeographic affinity of the *Pseudochazara anthelea* (Hübner, [1824]) populations from Kípros (Cyprus) and from the Greek island of Kós (Lepidoptera : Nymphalidae Satyrinae). *Phegea* 24 : 5-12.
- OLIVIER, A. & COUTSIS, J. G., 1993. Notes on *Maniola telmessia* (Zeller, 1847) from the Eastern Aegean islands, with new insights about its populations on the Greek islands of Kárpathos and Kássos (Lepidoptera : Nymphalidae Satyrinae). *Phegea* 21 : 113-130.
- OLIVIER, A. & COUTSIS, J. G., 1995. Rhopalocera of Turkey 13. Sympatry and supposed gene exchange between *Maniola telmessia* (Zeller, 1847) and *Maniola halicarnassus* Thomson, 1990 on the Bodrum Peninsula (SW. Turkey) vs. evidence for their specific distinctness : two sides of the same coin (Lepidoptera : Nymphalidae Satyrinae). *Entomobrochure* 7 : 1-60.
- OORSCHOT, H. VAN & BRINK, H. VAN DEN, 1992. Rhopalocera of Turkey. 9. Morphological and biological aspects of *Maniola telmessia* (Lepidoptera : Satyridae). *Ent. Ber., Amst.* 52 : 149-156.
- OORSCHOT, H. VAN, BRINK, H. VAN DEN & OORSCHOT, B. VAN, 1987. Rhopalocera of Turkey. 3. Geographical variation of *Pseudochazara anthelea* (Hübner) and description of *P. anthelea selcuki* n. ssp. (Lepidoptera : Satyridae). *Ent. Ber., Amst.* 47 : 91-95.
- REBEL, H., 1936. Zoologische Ergebnisse einer Dodekanesreise von O. Wettstein 1935. Lepidoptera. *Sber. Akad. Wiss. Wien* 145 : 19-33.
- REBEL, H., 1937. Griechische Lepidopteren IV. Z. öst. *Ent. Ver.* 22 : 63-67.

- REBEL, H., 1939. Zur Lepidopterenfauna Cyperns. *Mitt. münchen. ent. Ges.* 29 : 487-564.
- TAUBER, A. F. & TAUBER, W., 1968. Die Gattung *Maniola* (Lep. Satyridae) in der Ägäis. *Ent. NachrBl., Wien* 15 : 78-86.
- THOMSON, G., 1985. Greek island butterflies. Dodecanes 1983. *Entomologist's Rec. J. Var.* 97 : 154-158.
- THOMSON, G., 1987. *Maniola chia* - a new Satyrid from the Greek island of Chios (Lepidoptera : Nymphalidae : Satyrinae). *Phegea* 15 : 13-22.
- THOMSON, G., 1990. *Maniola halicarnassus* - a new Satyrid from south-western Turkey (Lepidoptera : Nymphalidae : Satyrinae). *Phegea* 18 : 149-155.
- TURATI, E., 1929. Lepidotteri. In : Ricerche faunistiche nelle isole italiane dell'Egeo. *Archo zool. ital.* 13 : 177-186.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Nota lepidopterologica](#)

Jahr/Year: 1996

Band/Volume: [19](#)

Autor(en)/Author(s): Olivier Alain, de Prins Roland

Artikel/Article: [The butterflies of the Greek island of Kos: a synthesis
\(Lepidoptera : Hesperioidea & Papilioidea\) 185-211](#)