Critical notes on the butterflies of the Greek island of Kastellórizo (Lepidoptera : Hesperioidea & Papilionoidea)

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Samenvatting. Kritische beschouwingen over de dagvlinders van het Griekse eiland Kastellórizo (Lepidoptera : Hesperioidea & Papilionoidea)
In de inleiding wordt ingegaan op de geografische ligging van het eiland Kastellórizo en het daar reeds gedane lepidopterologisch onderzoek. Vervolgens bericht de auteur over zijn persoonlijke waarnemingen op het eiland op 17 en 18 april 1990. 4 soorten worden voor het eerst van het eiland vermeld. 22 soorten zijn momenteel bekend van Kastellórizo. 2 soorten welke vermeld zijn in de publikaties van KOUTSAFTIKIS (1977) en KATTULAS & KOUTSAFTIKIS (1977) worden niet opgenomen in de soortenlijst. De synonymie van de taxa *Gonepteryx rhamni matsakii* en *Euchloe ausonia kastellorisii* door REISSINGER (1990) wordt bevestigd. 4 andere taxa worden in deze publikatie gesynonymiseerd, nl. *Allancastria cerisyi koroneii, Anthocharis cardamines ondrii, Epinephele telmessia pelekasii* en *Ypthima asterope marlenii.*

Résumé. Notes critiques concernant les papillons diurnes de l'île grecque de Kastellórizo (Lepidoptera : Hesperioidea & Papilionoidea)
L'introduction donne un bref exposé de la situation géographique de l'île de Kastellórizo et de la recherche lépidoptérologique qui y a été effectuée précédemment. Ensuite l'auteur fait part de ses observations personnelles faites sur cette île les 17 et 18 avril 1990. Quatre espèces sont mentionnées pour la première fois de l'île en question. 22 espèces sont actuellement connues de Kastellórizo. Deux espèces mentionnées dans les publications de KOUTSAFTIKIS (1977) et de KATTULAS & KOUTSAFTIKIS (1977) n'ont pas été inclues dans la liste d'espèces. La mise en synonymie des taxa *Gonepteryx rhamni matsakii* et *Euchloe ausonia kastellorisii* par REISSINGER (1990) est confirmée. Quatre autres taxa sont placés en synonymie dans la présente étude, à savoir *Allancastria cerisyi koroneii, Anthocharis cardamines ondrii, Epinephele telmessia pelekasii* et *Ypthima asterope marlenii.*

Key words : Kastellórizo - *Allancastria cerisyi koroneii - Anthocharis cardamines phoenissa - Anthocharis cardamines ondrii - Epinephele telmessia pelekasii - Ypthima asterope marlenii.*

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Introduction

The Greek island of Kastellórizo lies at a distance of only 1,8 km to the south of the Turkish coast, facing the town of Kaş (Prov. Antalya, Turkey), at a latitude of 36°08'N and a longitude of 29°37'E, about 144 km to the east of Ródos. The area is 16 km^2, the length 6 km and the width 4 km. The length of the coastline is of 24 km. The highest of the six hills of the island, the Vígla, amounts to about 270 m.

Two small papers are dedicated to the butterfly fauna of this island, viz. KOUTSAFTIKIS (1977) and KATTULAS & KOUTSAFTIKIS (1977) : in the latter paper six endemic subspecies of butterflies are described from Kastellórizo and altogether 19 butterfly species are reported. The nominal taxa are *Allancastria cerisyi koroneii, Euchloe ausonia kastellorisii, Anthocharis cardamines ondrii, Gonepteryx rhamni matsakii, Ypthima asterope marlenii* and *Epinephele telmessia pelekasii.* The records of *Hipparchia statilinus* Hufn. and *Lycaena loewii* Z. are most probably due to misidentifications (see below).

Z. cerisy is mentioned again from Kastellórizo by ONDRIAS, KOUTSAFTIKIS & DOUMA-PETRIDOU (1979). KUDRNA (1986 : 185) adds one species to the list, viz. *Thaleropis ionia* (EVERSMANN in FISCHER DE WALDHEIM & EVERSMANN, 1851). REISSINGER (1990) discusses the taxonomic status of 3 described subspecies of butterflies of the family Pieridae from Kastellórizo and two of these are sunk in synonymy. Only *Anthocharis cardamines ondrii* KATTULAS & KOUTSAFTIKIS, 1977 is maintained.

In order to investigate the butterfly fauna of Kastellórizo and especially to get material of the taxa described as endemic subspecies I paid a short visit to the island on 17 and 18 April 1990. Below is given a survey of my personal observations and of the existing literature records, with a critical evaluation of the taxonomic actions undertaken by KATTULAS & KOUTSAFTIKIS (l.c.). All of my observations were made in the vicinity of the harbour of Kastellórizo in orchards, in garrigue and along dry roadsides.

Systematic part

[Species recorded for the first time from Kastellórizo are indicated by an asterisk *]

* ***Gegenes pumilio pumilio*** (HOFFMANSEGG, 1804)

Taxonomic status : LARSEN (1982, 1983) gives a comprehensive discussion on the taxonomic problems associated with the taxon currently known as *Gegenes pumilio*. FERNÁNDEZ VIDAL (1987) recently described a subspecies from Mallorca (Balearic Islands, Spain) which is said to be distinguished by some genitalic and, to a lesser extent, external characters. For the time being, the populations from Greece and Turkey are best listed under nominotypical *pumilio*.

New records : Kastellórizo (0-50 m), 18.IV.1990.

Recorded here for the first time from Kastellórizo. A single female was collected sitting on a roadside in a dry rocky area.

Carcharodus alceae alceae (ESPER, [1780])

Carcharodus alceae Esp.; KOUTSAFTIKIS 1977 : 314.
Carcharodus alceae Esp.; KATTULAS & KOUTSAFTIKIS 1977 : 158.

Taxonomic status : *C. alceae* has a widespread West-Palearctic distribution. All populations from Greece (including the islands) and Turkey belong to the nominotypical subspecies. Distinct subspecies have been described from the eastern part of its range and from SW Arabia (cf. EVANS 1949). *C. tripolinus* (VERITY, 1925) from N. Africa and the Southern Iberian Peninsula is specifically distinct (DE JONG 1978). KOUTSAFTIKIS (l.c.) and KATTULAS & KOUTSAFTIKIS (l.c.) mention the species as rare from Kastellórizo. I didn't see it.

Zerynthia cerisy (GODART, [1824])

Allancastria cerisyi Godt.; KOUTSAFTIKIS 1977 : 313
Allancastria cerisyi koroneii KATTULAS & KOUTSAFTIKIS 1977 : 152-153, **n. syn.**
Allancastria cerisyi Godt.; ONDRIAS, KOUTSAFTIKIS & DOUMA-PETRIDOU 1979 : 359.

Taxonomic status : Despite of statements to the contrary (e.g. KOÇAK 1981 : 49-50), the first nomenclatorially available description of this species by

GODART is from 1824 (COWAN 1969, 1970, cf. BRIDGES 1988 : IV.38).

Although I visited Kastellórizo at a proper time I haven't found neither *Z. cerisy* nor its foodplant (*Aristolochia* sp.).To clarify the status of *A. cerisyi koroneii* we shall first summarize the characteristics of this subspecies as stated in its original description. After that we shall analyse the geographic variation of *Z. cerisy* from SW Turkey (Prov. Muğla) and from the Eastern Aegean islands (Ródos, Símí, Kós, Sámos, Híos,Lésvos), especially as related to its relevance to the characters of *koroneii*. The final step is to compare this variation with the characters said to be typical for *A. cerisyi koroneii* and to decide whether this last taxon is to be maintained or if it falls within the range of variation of nominotypical *cerisy*.

a) Description of *A. cerisyi koroneii* (after KATTULAS & KOUTSAFTIKIS 1977):
-groundcolour pale yellowish
-black markings on forewing cell extensive and, instead of black dots, forming transverse lines from the top [costa?] till the end of the cell
-the row of red postdiscal markings on the hindwing is either hardly visible or at least reduced
-tails on the hindwings are present
-black markings on underside well developed
-black markings also by the female strongly developed; the red postdiscal markings however are not only present but they are also more distinct.

b) Geographical variation of *Z. cerisy* in SW. Turkey and on the Eastern Aegean islands :
-the male groundcolour from all areas is pale yellow; the females vary in groundcolour from (almost) identical to the males (e.g. Híos) to darker yellowish with, in some populations (e.g. Sámos, Kós, Lésvos) a high proportion of ochreous females (cf. SCHMIDT 1989, OLIVIER 1986 and unpublished data)
-in all populations examined the black markings along the costa of the forewing cell are usually well developed and not rarely at least some of these are nearly or completely reaching the outer part of the cell, especially in the females
-the row of red postdiscal markings on upperside hindwing can be nearly absent to weakly, moderately or strongly developed in all populations examined (on Ródos these markings are yellow in more than two-thirds of the population)
-tails on the hindwings are present in all the populations examined
-the black markings are often well developed on the underside in all populations examined
-all markings are better developed and more complete in the females than in the males in all populations of *Z. cerisy*.

c) Evaluation of the taxonomic status of *A. cerisyi koroneii* :
-all characters mentioned to define an endemic subspecies from Kastellórizo do occur in all populations examined from other areas

-the comparison made by the authors with the population from Kríti is irrelevant : the last one is quite different from all the other populations of *Z. cerisy* and has recently been elevated to species rank (KOÇAK 1981 : 50)
-although no material of *Z. cerisy* from Kastellórizo was available to me, a comparison of the characters mentioned by KATTULAS & KOUTSAFTIKIS (l.c.) with those exhibited by the material examined for the present purpose shows that they entirely fall within the range of variation of the species.

Consequently the population from Kastellórizo is considered to belong to nominotypical *Z. cerisy* and *A. cerisyi koroneii* is sunk in synonymy under that taxon here.

Papilio machaon syriacus ELLER, 1936

Papilio machaon L.; KOUTSAFTIKIS 1977 : 313.
Papilio machaon L.; KATTULAS & KOUTSAFTIKIS 1977 : 151-152.

Taxonomic status : Several monographs have been dedicated to the taxonomy and the geographical variation of *Papilio machaon* LINNAEUS, 1758 (e.g. ELLER 1936, 1939a, b; SEYER 1974, 1982). Nevertheless the situation doesn't seem very clear. I follow the recommendations of WAGENER (pers. comm.) for convenience. I would not be surprised however if all West-Palearctic populations (with the possible exception of *P. saharae* OBERTHÜR, 1879) turn out to belong all to the nominotypical subspecies.

KOUTSAFTIKIS (l.c.) and KATTULAS & KOUTSAFTIKIS (l.c.) consider specimens from Kastellórizo to be much alike those from other areas of Greece and the Aegean islands. My own material (1 male, 3 females) agrees very well with specimens from SW Turkey and the Aegean islands too.

New records : Kastellórizo (0-50 m), 17.IV.1990; 18.IV.1990

Iphiclides podalirius podalirius (LINNAEUS, 1758)

Iphiclides podalirius L.; KOUTSAFTIKIS 1977 : 313.
Iphiclides podalirius L.; KATTULAS & KOUTSAFTIKIS 1977 : 152.

Taxonomic status : The nominotypical *I. podalirius podalirius* is widespread in Europe and W. Asia. In the Iberian Peninsula and NW Africa it is replaced by *I. podalirius feisthamelii* (DUPONCHEL, 1832) (WOHLFAHRT 1980, HIGGINS & RILEY 1984). KOUTSAFTIKIS (l.c.) and KATTULAS & KOUTSAFTIKIS (l.c.) state that the groundcolour of specimens from Kastellórizo is very light and that they differ from butterflies from other parts of Greece and the Aegean islands in that the yellow area between the black marginal band and the second black band is broader. Comparison of my material from Kastellórizo with specimens from central Greece (Delfí etc.) and the eastern Aegean islands does not support this statement : in fact Kastellórizo specimens look quite like those from other populations!

New records : Kastellórizo (0-50 m), 17.IV.1990; 18.IV.1990.

Colias crocea (FOURCROY, 1785)

Colias croceus Fourcr.; KOUTSAFTIKIS 1977 : 313.
Colias crocea Fourch (!); KATTULAS & KOUTSAFTIKIS 1977 : 154.

Taxonomic status : It is generally agreed that this species, which is widespread

in Europe, N. Africa and W. Asia and which has a strong migratory capacity, has no definable subspecies within its distribution area.

New records : Kastellórizo (0-50 m), 18.IV.1990.

Gonepteryx farinosa farinosa (ZELLER, 1847)

Gonepteryx rhamni L.; KOUTSAFTIKIS 1977 : 313.
Gonepteryx rhamni matsakii KATTULAS & KOUTSAFTIKIS 1977 : 155.
Gonepteryx rhamni ssp.? = *matsakii* KATTULAS & KOUTSAFTIKIS, 1978 TL: Insel Kastelloriso; REISSINGER 1990 : 171, 183.
Gonepteryx farinosa farinosa (Zeller, 1847) = ? *rhamni matsakii* KATTULAS & KOUTSAFTIKIS, 1978; REISSINGER 1990 : 172, 183.

Taxonomic status : DE FREINA (1983) gives an exhaustive taxonomic revision of *Gonepteryx farinosa* and reviews its geographical distribution. KATTULAS & KOUTSAFTIKIS (l.c.) claim that they found a population of *G. rhamni* (LINNAEUS, 1758) on Kastellórizo that looks totally different from material of the nominate form as well as from Greece in its external morphology as well as in its genitalia. Some of the morphological differences (according to KATTULAS & KOUTSAFTIKIS l.c.) are :

-the forewings are very large [broad?] at their apex
-the orange-coloured discoidal spots on the upperside of the forewings are absent, on the underside they are hardly visible and often only recognizable as very small points
-(the authors do nowhere specify in which features the genitalia of *matsakii* are different from those of other *rhamni* populations).

REISSINGER (1990 : 183) finds no useful criterion in the description of *matsakii* that allows even for an unambiguous identification as to know whether the taxon belongs either to *G. rhamni* or to *G. farinosa*, and thus declares it to be a nomen nudum; however, the name is published so that it fulfills the requirements of the ICZN Art. 13, and is available and valid; beside declaring it a nomen nudum he sinks it in synonymy at the same time (sic!). I could not find any *Gonepteryx* in April 1990, nor on Kastellórizo, nor on Ródos, Símí, Sámos and SW Turkey (Bozburun, Prov. Muğla) as the season was in great advance and overwintered specimens apparently had already disappeared. I see no reason however to doubt a priori about the occurrence of a *Gonepteryx* species on Kastellórizo. I am convinced that - if present - the butterfly will be rather *farinosa* than *rhamni* and this for the following reasons :

1) the large [broad] apex of the forewings mentioned by KATTULAS & KOUTSAFTIKIS (l.c.) is a feature of *G. farinosa* rather than of *G. rhamni*, the latter having a more slender and pointed apex.
2) the orange discoidal spot is usually well-developed on the forewing of *G. rhamni*, in *G. farinosa* this spot is less well expressed and sometimes hardly visible, especially in overwintered specimens
3) the very dry climatic conditions and the xerothermic biotopes (rocky garrigue) prevailing on Kastellórizo seem more suitable for *G. farinosa* than for *G. rhamni*. The former taxon is known e.g. from Ródos and I also collected it near Bodrum (Prov. Muğla, Turkey) in a similar biotope (the type-locality

of the species is Macri [Fethiye], also in SW Turkey). The distribution data for *G. rhamni* seem to show a general avoidance by this species of coastal areas in S. Turkey (cf. DE FREINA 1983, compare p. 16, fig. 2 to p. 45, fig. 21). *G. rhamni* seems to be absent from the Eastern Aegean islands too (OLIVIER pers. obs. 1986-1990).

Pieris brassicae brassicae (LINNAEUS, 1758)

Pieris brassicae L.; KOUTSAFTIKIS 1977 : 313.
Pieris brassicae L.; KATTULAS & KOUTSAFTIKIS 1977 : 153.

Taxonomic status : *P. brassicae* is a widespread species occurring in NW. Africa and all over Europe and Asia till the Himalayas. REISSINGER (1990) recognizes no less than 9 subspecies from this area but none of these seems justified by my opinion. On the Atlantic islands there are some well-differentiated taxa (some of these could be specifically distinct). KATTULAS & KOUTSAFTIKIS (l.c.) agree that their specimens are identic to material from Greece and the Aegean islands. I haven't seen the butterfly but it very probably occurs on Kastellórizo indeed.

Pieris rapae rapae (LINNAEUS, 1758)

Pieris rapae L.; KOUTSAFTIKIS 1977 : 313.
Pieris rapae L.; KATTULAS & KOUTSAFTIKIS 1977 : 153.

Taxonomic status : *P. rapae* is found from NW. Africa all over Europe and Asia till Japan. It has been introduced in N. America and Australia. REISSINGER (1990) mentions no less than 10 West-Palearctic subspecies which is unbelievable, taking into account its incredible powers of dispersal and of colonizing all kinds of habitats, combined with its great phenotypic plasticity. In E. Asia there are some well-defined subspecies but all West-Palearctic populations certainly belong to the nominotypical subspecies.

KATTULAS & KOUTSAFTIKIS (l.c.) mention that the apical patch of the forewing runs less downwards along the outer margin in material from Kastellórizo as compared to other Greek specimens. I have compared my 4 male specimens from Kastellórizo with great series from other Aegean islands and SW Turkey and the shape of their apical patch entirely falls within the range of variation of the other specimens.

New records : Kastellórizo (0-50 m), 18.IV.1990.

Anthocharis cardamines phoenissa KALCHBERG, 1894 (figs. 1 & 2)

Anthocharis cardamines L.; KOUTSAFTIKIS 1977 : 313.
Anthocharis cardamines ondrii KATTULAS & KOUTSAFTIKIS 1977 : 154, **n. syn.**
Anthocharis cardamines ondrii KATTULAS & KOUTSAFTIKIS, 1978; REISSINGER 1990 : 160, 180.

Taxonomic status : WAGENER (in litt.) uses the subspecific name *Anthocharis cardamines phoenissa* KALCHBERG, 1894 for populations in the area under consideration. In the Levant, Irak, Iran and the Turkish province of Hakkari it is the only form encountered and in S. Turkey it is found westwards till near Fethiye. In SW Anatolia he admits a broad zone of intergradation with nominotypical *A. cardamines* (LINNAEUS, 1758). KATTULAS & KOUTSAFTIKIS (l.c.) described a new subspecies of *A. cardamines* from Kastellórizo.

In April 1990 I collected a series of 13 males and 12 females on Kastellórizo. This material was compared to other material from Kípros (Cyprus), Sámos, Híos, Lésvos, NW Turkey (Prov. Bursa) and central Greece (Delfí-Óros Parnassós area) (cf. tables 1 and 2 below). I shall give here :

-the characteristics of both *A. cardamines phoenissa* and *A. cardamines ondrii* as stated in the original descriptions
-a discussion of some trends of geographical variation as observed in the material examined
-an evaluation of the taxonomic status of *A. cardamines ondrii* and of *A. cardamines phoenissa.*

a) Description of *A. cardamines phoenissa* (after KALCHBERG 1894) :

-orange apical patch just reaching black median [=discocellular] spot
-black median spot very strongly developed
-in 10 out of the 19 male specimens examined there are black scales along the inner margin of the orange patch, the black scaling being developed to various degrees (in 2 specimens as strongly as in *A. eupheno* L. [= *A. belia* (LINNAEUS, 1767)] and *A. euphenoides* STAUDINGER, 1869)
-apex and outer margin of underside forewing white, with greenish scaling only at veins 2 and 3 and casually on the inferior radial vein
-strongly reduced yellowish green mottling on hindwings, giving these a predominant white appearance

apical patch of a slightly more saturated tinge than in typical *cardamines.*

The type-locality of this subspecies is Haifa [N. of Israel].

b) Description of *A. cardamines ondrii* (after KATTULAS & KOUTSAFTIKIS 1977) :

-the orange of the former [= apical] part of the [male] forewing has a different tinge
-the black discocellular spot is large and rounded
-greyish black stripe at the outer margin of the apex of the forewing runs down till the end of the orange-coloured part of the wing
-on underside hindwing the green design is uneven and quite different from that of specimens of other parts of Greece
-apex of underside forewing greyish white
-in some males the wing shape is more rounded

The type-locality of this subspecies is the island of Kastellórizo (Greece).

c) An analysis of the geographical variation observed in some Eastern Mediterranean populations of *A. cardamines* :

-the forewing size seems to increase gradually from Kípros westwards till central Greece (most of the female samples and the male samples from Híos and Prov. Bursa are too small to be taken into account) (cf. tables 1 and 2), although there seems to be a gap of about 2 mm between the mean size of material from resp. Kípros/Kastellórizo and Sámos/Lésvos
-the black discocellular spot on upperside forewing lies at the inner margin of the orange apical patch or just inside of it in 100% of the specimens

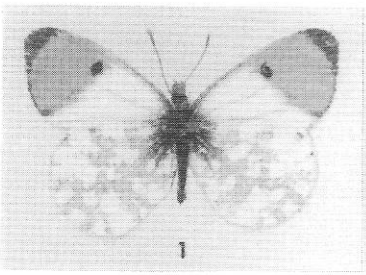

Fig. 1 : *Anthocharis cardamines phoenissa* KALCHBERG, 1894, ♂, Kastellórizo (Kastellórizo, Greece) (0-50 m), 17.IV.1990, leg. et coll. A. OLIVIER

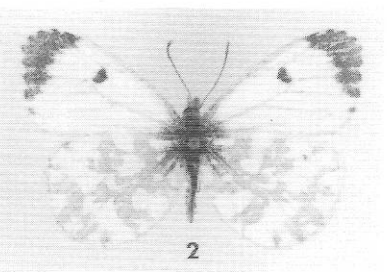

Fig. 2 : *Anthocharis cardamines phoenissa* KALCHBERG, 1894, ♀, Kastellórizo (Kastellórizo, Greece) (0-50 m), 17.IV.1990, leg. et coll. A. OLIVIER

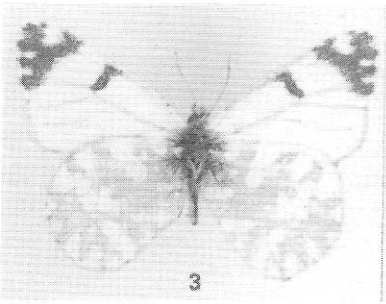

Fig. 3 : *Euchloe ausonia taurica* RÖBER, 1907, ♂, Kastellórizo (Kastellórizo, Greece) (0-50 m), 17.IV.1990, leg. et coll. A. OLIVIER.

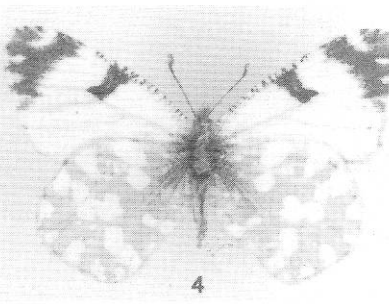

Fig. 4 : *Euchloe ausonia taurica* RÖBER, 1907, ♀, Kastellórizo (Kastellórizo, Greece) (0-50 m), 17.IV.1990, leg. et coll. A. OLIVIER.

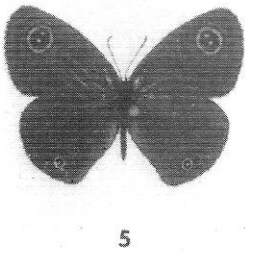

Fig. 5 : *Ypthima asterope asterope* (KLUG, 1832), ♂, Kastellórizo (Kastellórizo, Greece) (0-50 m), 18.IV.1990, leg. et coll. A. OLIVIER.

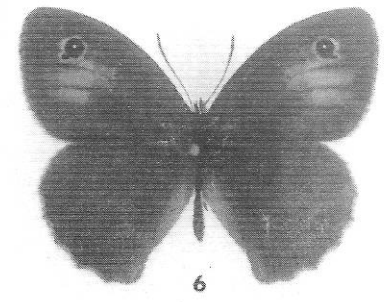

Fig. 6 : *Maniola telmessia* (ZELLER, 1847), ♂, Kastellórizo (Kastellórizo, Greece) (0-50 m), 18.IV.1990, leg. et coll. A. OLIVIER.

Table 1 : Variation in size and wing markings in the males of some Eastern Mediterranean populations of *Anthocharis cardamines* (LINNAEUS, 1758)

AREA OF ORIGIN	NUMBER OF SPECIMENS EXAMINED	FOREWING SIZE in mm (FROM BASE TO APEX)			POSITION OF BLACK DISCOCELLULAR SPOT ON UPPERSIDE FOREWING		BLACK SCALING INNER MARGIN OF ORANGE APICAL PATCH			
		min.	max.	mean	o	-	absent	weak	moderate	strong
KÍPROS (CYPRUS)	13	15,3	19,8	17,65	13 (100 %)	0 (0 %)	1 (7,69 %)	4 (30,77 %)	4 (30,77 %)	4 (30,77 %)
KASTELLÓRIZO	14	16,5	20,2	18,79	14 (100 %)	0 (0 %)	6(42,86 %)	1 (7,14 %)	5 (35,71 %)	2 (14,29 %)
SÁMOS	13	18,6	22,2	20,76	6 (46,15%)	7 (53,85 %)	10(76,92 %)	2 (15,39 %)	0 (0 %)	1 (7,69 %)
HÍOS	3	15,9	19,0	17,93	0 (0 %)	3 (100 %)	3(100 %)	0 (0 %)	0 (0 %)	0 (0 %)
LÉSVOS	7	19,4	22,5	20,67	3 (42,86%)	4 (57,14 %)	4(57,14 %)	1 (14,29 %)	2 (28,57 %)	0 (0 %)
PROV. BURSA (NW TURKEY)	3	16,7	21,8	19,03	2 (66,67%)	1 (33,33 %)	0(0 %)	2 (66,67 %)	1 (33,33 %)	0 (0 %)
CENTRAL GREECE (DELFÍ - ÓR. PARNASSÓS)	12	20,4	23,7	21,30	1 (8,33 %)	11(91,67 %)	12(100 %)	0 (0 %)	0 (0 %)	0 (0 %)

Symbols used :

o = black discocellular spot at the inner margin of the orange apical patch or just inside of it (< 1 mm). Orange patch not or barely invading the cell.

- = black discocellular spot within the orange apical patch (> 1 mm from inner margin). Orange patch clearly invading the cell.

Table 2 : Variation in size in the females of the Eastern Mediterranean populations of *Anthocharis cardamines* (LINNAEUS, 1758)

AREA OF ORIGIN	NUMBER OF SPECIMENS EXAMINED	FOREWING SIZE in mm (FROM BASE TO APEX)		
		min.	max.	mean
KÍPROS (CYPRUS)	2	17,1	18,9	18,00
KASTELLÓRIZO	12	18,5	21,3	19,80
SÁMOS	4	19,5	24,2	21,30
HÍOS	1	21,0	21,0	21,00
LÉSVOS	5	17,5	23,7	21,04
CENTRAL GREECE (DELFÍ - ÓR. PARNASSÓS)	5	19,8	23,2	20,90

examined from Kípros and Kastellórizo. In the samples from Sámos and Lésvos this frequency drops significantly to less than 47% and 43% respectively. Only one of the examined specimens from central Greece shows this position of the discocellular spot. The orange apical patch is thus nearly constantly larger (and invading the cell) in material from mainland Greece, and often so in specimens from the Eastern Aegean islands, the black spot thus lying more than 1 mm inside the orange apical patch (cf. table 1)

-the black scaling along the inner margin of the orange apical patch is present in 10 out of the 19 male specimens of the type-series of *A. cardamines phoenissa* from Haifa [Israel] (KALCHBERG l.c.). The values for the presence of the black scaling are decreasing from Kípros (92,31%) westwards via Kastellórizo (57,14%), Lésvos (42,86%) and Sámos (23,08%) till central Greece (0%) (table 1, also for values for the relative development of this feature)

-the black discocellular spot is large and rounded in all material from Kastellórizo and nearly all material from Kípros, but this character is also occasionally found in material from other areas (although here the spot is usually smaller and often more elongated)
-the apex of the underside of the forewing is greyish white in most specimens from Kastellórizo and a good deal of the material from Kípros, but this is sometimes the case in specimens from other areas too (Sámos, Híos, central Greece); the outer margin however is usually not white as stated in the description of *phoenissa*
-the reduction of the greenish design on the underside of the hindwing seems to be generally most pronounced in material from Kípros and Kastellórizo, especially as compared to the specimens from central Greece, but there are exceptions to this general trend even in some specimens from both forementioned islands
-none of the examined population samples appears to have a distinctly tinged orange apical patch as compared to the other ones
-the greyish black stripe at the outer margin of the apex of the forewing runs down till the end of the orange-coloured part of the wing in (nearly) all the specimens from Kípros, Kastellórizo and Prov. Bursa as well as in most specimens from the Eastern Aegean islands and some specimens from central Greece
-the wing shape of specimens from Kastellórizo shows no significant difference in comparison to material from other areas.

d) An evaluation of the taxonomic status of *A. cardamines ondrii* and *A. cardamines phoenissa* :
-the analysis of the geographical variation exhibited by the examined material has revealed that there is a great similarity between the populations of Kípros and Kastellórizo and that both these populations are more alike to each other than they are to the other examined material. Both populations agree well with the description of *A. cardamines phoenissa*
-none of the characters mentioned by KATTULAS & KOUTSAFTIKIS (l.c.) to justify the naming of an independent subspecies from Kastellórizo appear to differ constantly from those exhibited by populations from other areas, especially from Kípros. Consequently the population from Kastellórizo is considered to belong to *A. cardamines phoenissa* and *A. cardamines ondrii* is sunk in synonymy under that taxon here
-material from Prov. Bursa (NW Turkey), Lésvos, Híos and Sámos is best ascribed to *A. cardamines cardamines* but some specimens show characters that are reminiscent of those considered typical for *phoenissa* (size, position of discocellular spot, black scaling along the inner margin of the orange apical patch in the male, cf. table 1).

The zone of intergradation between nominotypical *cardamines* and *phoenissa* seems to comprise at least the islands of Lésvos, Híos and Sámos and the province of Bursa. Interestingly the species seems to be absent from great parts of SW Anatolia as well as from the nearby islands of Ródos and

Kós (cf. OLIVIER 1986 : 112-113).

A biometrical analysis of large samples from throughout Turkey and the Aegean islands as well as from the adjacent areas will eventually establish the extent of the zone of intergradation and help to resolve the problem whether the intergradation zone is in fact an area of gradual change of characters (clinal variation) from a «*phoenissa* type» to a «*cardamines* type» or an area of secondary intergradation between two taxa that evolved in allopatry. Such an extensive study is beyond the scope of the present paper. For the time being the wisest solution seems to consider *A. cardamines phoenissa* as a distinct subspecies.

New records : Kastellórizo (0-50 m), 17.IV.1990; 18.IV.1990; 1-2 km S. Kastellórizo (100-200 m), 17.IV.1990.

Specimens were collected mostly in orchards where they preferred areas with some shade, but also on open sunny places where they frequented yellow Cruciferae, together with the more common *Euchloe ausonia taurica* RÖBER, 1907.

Euchloe ausonia taurica RÖBER, 1907 (figs. 3 & 4)

Euchloe ausonia Hb.; KOUTSAFTIKIS 1977 : 313.
Euchloe ausonia kastellorisii KATTULAS & KOUTSAFTIKIS 1977 : 153-154.
Euchloe ausonia taurica Röber, 1907 = *kastellorisii* KATTULAS & KOUTSAFTIKIS, 1978 TL : Insel Kastelloriso; REISSINGER 1990 : 158, 179-180.

Taxonomic status : The taxonomy and nomenclature of the *Euchloe ausonia* (HÜBNER, [1804])-group have been most confused up till now and the status of some taxa in this group remains questionable. In the West-Palearctic region at least three or four phenotypically well-characterized groups exist (cf. BERNARDI 1947, BACK 1979, REISSINGER 1990) :

1) *Euchloe simplonia* (FREYER, [1829]). This taxon is restricted to the Central and Western Alps, the Pyrenees and the Cantabrian Mountains.
2) *Euchloe crameri* BUTLER, 1869. This taxon occurs from NW Italy (Liguria eastwards till Genova) through S. France and the Iberian Peninsula via NW Africa along the mediterranean coast eastwards till Libya.
3) *Euchloe ausonia* (HÜBNER, [1804]). This taxon occurs in Italy from the neighbourhood of Modena southwards till Sicily and from Dalmatia, Macedonia, Albania, Bulgaria and Greece via the Aegean islands eastwards till Turkey and S. Russia and further eastwards. Populations from Lebanon, Israel and East Jordan are often recorded as «*Euchloe ausonia melisande* Fruhstorfer, 1908» (BENJAMINI 1983, LARSEN & NAKAMURA 1983, BOZANO 1990). Whether they belong either to *crameri* or *ausonia* is unclear, at least to me.

A further taxon known as *Euchloe aegyptiaca* VERITY, 1911 has been recorded from Libya, Egypt, the Sinai, the south of Israel (Negev desert), East Jordan and W. Saudi Arabia (BENYAMINI 1983, 1984, LARSEN & NAKAMURA 1983, PITTAWAY 1985, BOZANO 1990, LARSEN 1990). According to LARSEN (l.c.) this taxon will remain as a distinct species.

Other related taxa occur in North America.

All Greek populations are thus referable to *ausonia* and not to *simplonia* as reported in some of my own earlier publications (OLIVIER 1986, 1987a, b, 1988; OLIVIER & RIEMIS 1987).

Various subspecies have been described for *Euchloe ausonia*, a review of which can be found in REISSINGER (1990). I examined extensive material from mainland Greece, the Eastern Aegean islands and Turkey and I couldn't find any significant difference between all these populations. The oldest available name for these is *Euchloe ausonia taurica* RÖBER, 1907, which should thus be applied to all the populations from the Balkans and Greece too.

BACK (1979) couldn't find any significant phenotypic difference between the larvae, pupae and adults of *E. ausonia* populations from Italy, Yugoslavia and Greece. I follow WAGENER (pers. comm.) in applying the name *taurica* to the eastern mediterranean populations as I haven't seen material from Italy.

KATTULAS & KOUTSAFTIKIS (1977) described a subspecies of *E. ausonia* from Kastellórizo and REISSINGER (1990) sunk it in synonymy and at the same time (sic!) considered it to be a nomen nudum; however, the name is published so that it fulfills the requirements of the ICZN Art. 13, and is available and valid.

I was able to collect a nice series of 28 males and 7 females on Kastellórizo, all specimens belonging to the first brood. As material is available to me I shall give here the description of *E. ausonia kastellorisii* as stated in the original description, followed by an evaluation of its taxonomic status when compared to material from central Greece, the Eastern Aegean islands and SW Turkey.

a) Description of *E. ausonia kastellorisii* (after KATTULAS & KOUTSAFTIKIS 1977) :

-on the upperside the colour is dark, at the apex of the underwings [hindwings or upper- or underside of forewings?] it is either very dark or it has faint white stripes

-on the underside the apex of the wing is clearly green, more downwards it becomes sometimes dark brown and shows broad white spots

-the green spots of the hindwings are smaller and in greater numbers in some specimens; in other specimens broader but nevertheless of the same frequency.

b) Evaluation of the taxonomic status of *E. ausonia kastellorisii* :

A comparison with the extensive material from the other areas gives the following results :

-on the upperside of the forewing the apex is dark grey in material from Kastellórizo as well as in that of all other populations examined

-white spots (stripes) on the apex variably expressed, no difference existing in this respect between material from Kastellórizo as compared to all other material examined [in all evidence KATTULAS & KOUTSAFTIKIS l.c. mean the apex of the upperside forewing with their «Apex der Unterfluegel»!]

-on the underside of the forewing the apex is green, this being due to an optical effect caused by the mixed occurrence of yellow and brown scales. The extent to which the brown scaling is developed determines whether the colour is vivid green or green with darker brownish areas. This feature is variably expressed in material from Kastellórizo as well as from all the other populations examined
-the underside of the hindwing has extensive irregular green markings which can vary somewhat in size, in material from Kastellórizo as well as in material from all other populations examined.

Comparative material from other areas includes specimens from SW Turkey (Prov. Muğla: Bozburun, Marmaris) and from the following islands: Kríti, Kárpathos, Ródos, Kós, Sámos, Ikaría, Híos, Psará, Lésvos and Límnos, as well as from Delfí (central Greece) (all material in coll. A. OLIVIER) as well as extensive series of Turkish material in coll. Instituut voor Taxonomische Zoölogie (Zoölogisch Museum) Amsterdam (ITZ). All these findings do corroborate the sinking in synonymy of *Euchloe ausonia kastellorisii* under *E. ausonia taurica* by REISSINGER (1990).

New records : Kastellórizo (0-50 m), 17.IV.1990; 18.IV.1990.

Lycaena phlaeas phlaeas (LINNAEUS, 1761)

Lycaena phlaeas L.; KOUTSAFTIKIS 1977 : 314.
Lycaena phlaeas L.; KATTULAS & KOUTSAFTIKIS 1977 : 158.

Taxonomic status : *L. phlaeas* occurs almost continuously from Europe and N. Africa through temperate Asia to Japan. It has a patchy distribution in the mountainous regions of SW Arabia and tropical Africa and is also found in the eastern states of N. America. West-Palearctic populations nearly all belong to the nominotypical taxon. Different subspecies occur in arctic Europe, on Madeira, in SW Arabia and in Africa (LARSEN 1983, HIGGINS & RILEY 1984).

KATTULAS & KOUTSAFTIKIS (1977) note that material from Kastellórizo is quite different but they add further «Uns fehlt leider Vergleichsmaterial aus den Nachbargebieten.» (!). I collected only 2 males during my stay, one of these showing blue spots proximad of the orange submarginal band («f. *caeruleopunctata*»).

New records : Kastellórizo (0-50 m), 18.IV.1990.

* ***Lampides boeticus*** (LINNAEUS, 1767)

Taxonomic status : *L. boeticus* is one of the world's most widely distributed butterflies due to its strong migratory habits and it is found throughout the Old World's tropics, subtropics and warm-temperated zone. No subspecies should be recognized.

New records : Kastellórizo (0-50 m), 18.IV.1990, one female.

* ***Pseudophilotes vicrama schiffermuelleri*** (HEMMING, 1929)

Taxonomic status : HEMMING (1929) distinguishes four subspecies of *P. vicrama*. His taxonomic classification is followed here. Considered

conspecific with the vicariant *P. baton* (BERGSTRÄSSER, 1779) by some authors.

New records : 1-2 km S. Kastellórizo (100-200 m), 17.IV.1990; Kastellórizo (0-50 m), 18.IV.1990.

In garrigue habitats on the hills inland the species was locally very common.

Thaleropis ionia (EVERSMANN in FISCHER DE WALDHEIM & EVERSMANN, 1851)

Thaleropis ionia Fischer & Eversmann, 1851; KUDRNA 1986 : 185.

Taxonomic status : *T. ionia* occurs in Turkey and has also been recorded from Irak and Iran (WILTSHIRE 1957, ECKWEILER & HOFMANN 1980). As far as I know no subspecies have been described for this butterfly. Its inclusion in the present list is based on the following statement in KUDRNA (1986 : 185) : «*Thaleropis ionia* is reported for the first time from Europe. J.G. COUTSIS (pers. comm.) found and identified 1 male of this species in the Lepidoptera collection of the Goulandris Museum (Greece : Kifisia). Locality : Island of Kastelorizon (a small off-shore island south of the Turkish town of Kas, some 140 km east of Rhodos». According to COUTSIS (pers. comm.) the specimen was collected in the autumn (September or October).

Vanessa atalanta atalanta (LINNAEUS, 1758)

Vanessa atalanta L.; KOUTSAFTIKIS 1977 : 313.
Vanessa atalanta L.; KATTULAS & KOUTSAFTIKIS 1977 : 155.

Taxonomic status : Widespread in N. Africa, the Atlantic islands, Europe and W. Asia till Iran (*V. atalanta atalanta*) and in N. America southwards to Guatemala (*V. atalanta rubria* FRUHSTORFER, 1909). Probably introduced to Haiti and New Zealand (FIELD 1971, HIGGINS & RILEY 1984).

New records : Kastellórizo (0-50 m), 17.IV.1990.

* ***Polygonia egea*** (CRAMER, 1775)

Taxonomic status : This species occurs from S. France across Italy and SE Europe (Balkans, Greece) through Turkey and the Levant till Iran and Afghanistan. No distinct subspecies should be recognized.

New records : Kastellórizo (0-50 m), 17.IV.1990, 1 male.

Maniola telmessia (ZELLER, 1847) (fig. 6)

Epinephele telmessia Z.; KOUTSAFTIKIS 1977 : 314.
Epinephele telmessia pelekasii KATTULAS & KOUTSAFTIKIS 1977 : 157, **n. syn.**

Taxonomic status : *M. telmessia* occurs from the Eastern Aegean islands (Lésvos, Sámos, Foúrni, Ikaría, Pátmos, Kálimnos, Kós, Tílos, Símí, Ródos, Kárpathos : own material from most of these islands in coll. A. OLIVIER), via the western coast of Turkey and through the south of Turkey (VAN OORSCHOT & VAN DEN BRINK 1986) and the adjacent parts of Irak and Iran (LE CERF 1913, WILTSHIRE 1957, ECKWEILER & HOFMANN 1980) till Lebanon (LARSEN 1974), Israel (BENJAMINI 1983) and East Jordan (LARSEN & NAKAMURA 1983, BOZANO 1990). Various subspecies have been described, but probably none of these is justified.

KATTULAS & KOUTSAFTIKIS (1977) described an endemic subspecies from

Kastellórizo which has the following characteristics (according to the authors) :

-apex of the forewing clearly rounded
-there is a broad, short black sex brand as well as a yellowish red subapical patch in the middle cell
-apical ocellus joined to a very small additional ocellus
-underside of the hindwing brownish grey with two big and two small yellow-ringed spots
-yellowish red distal parts of all wings sharply bordered black
-the reddish yellow patches on the upperside of the hindwing also sharply bordered.

During my trip on Kastellórizo the emergence was just beginning and I thus could take only 3 very fresh males. Examination of these specimens and a comparison with extensive series of material that I had collected from SW Turkey (Prov. Muğla, Aydin, İzmir) and from the eastern Aegean islands (all forementioned ones except Pátmos, Kálimnos and Tílos) lead me to the following conclusions :

-apex of the forewing rounded in all material examined : the Kastellórizo specimens have nothing peculiar in this respect
-the sex brand is absolutely like that of all material examined from other populations
-subapical patch on upperside forewing well-developed as in most of the material from the other populations. Only among material from Çesme (Prov. İzmir, Turkey) and Lésvos is there a substantial proportion in which the subapical patch is reduced or entirely lacking. Colour of the subapical patch when present orange-yellow to orange-red in all material examined
-apical ocellus duplicated by a small blind ocellus in all three Kastellórizo specimens. This feature is commonly encountered among material of all other populations examined
-underside of the hindwing of the Kastellórizo specimens brownish grey as in all material examined from other populations
-the hindwing spotting is highly variable. My 3 Kastellórizo specimens have resp. «splay 2» (anal spot 2 and costal spot 5), «anal 4» (anal spots 1 & 2, median spot 3 and costal spot 5) and «anal 1» (anal spot 2) (terminology following BRAKEFIELD 1984). For comparison 7 males from near Marmaris (Prov. Muğla, Turkey) had between 0 and 4 spots on underside hindwing etc. Also the relative size of each spot can vary a lot
-orange patches on upperside forewing sharply bordered by the dark brown groundcolour in specimens from Kastellórizo and from all other areas
-reddish yellow patches on upperside hindwing absent in two out of the three Kastellórizo specimens, vestigial in the third one and surely not sharply bordered by the groundcolour, this in contrast to the observations of KATTULAS & KOUTSAFTIKIS (l.c.) and in agreement with the expression of this feature in most of my material from other populations.

It is noteworthy that the authors apparently used only males for their

description (according to the characters listed by them). In the genus *Maniola* females of different populations and even species are even more difficult to tell apart than males, so it is highly improbable that the females of *M. telmessia* from Kastellórizo could differ constantly in any external character from those of other populations.

As we can see all characters mentioned by KATTULAS & KOUTSAFTIKIS to differentiate *pelekasii* do entirely fall within the range of variation of nominotypical *M. telmessia*. Consequently *E. telmessia pelekasii* is sunk in synonymy under nominotypical *M. telmessia* here.

New records : Kastellórizo (0-50 m), 18.IV.1990.

Ypthima asterope asterope (KLUG, 1832) (fig. 5)

Ypthima asterope Klug; KOUTSAFTIKIS 1977 : 314.

Ypthima asterope marlenii KATTULAS & KOUTSAFTIKIS 1977 : 156-157, **n. syn.**

Taxonomic status : *Y. asterope* is widespread in the tropical parts of Africa and Asia and via the Arabian Peninsula through Israel, Jordan, Lebanon, Turkey and Cyprus westwards till the islands of Ródos, Símí and Sámos (LARSEN 1974, 1983, BENJAMINI 1983, LARSEN & NAKAMURA 1983, HESSELBARTH 1983, KOUTSAFTIKIS 1974, ASSELBERGS 1978, VAN DER POORTEN 1985). The nominate subspecies was described from «Arabia Felix» [SW Arabia]. A different subspecies flies in eastern India and Burma (LARSEN 1983).

KATTULAS & KOUTSAFTIKIS (1977) described an endemic subspecies of this butterfly from Kastellórizo and they listed the following characters :

-three of the collected specimens have an uniform blackish brown colour
-on the forewing there is an apical ocellus with two greyish white points on the inner side and one of this colour on the outer edge. This ocellus extends veil-shaped [?]
-under the ocellus the outline leaves a free area. In specimens from Kastellórizo this area extends till the middle of the wing and it begins at the apical ocellus. (In specimens from Syria it begins at the starting of the wing and extends till the end)
-the ocellus on the hindwing is rounded (Syrian specimens have two such ocelli)
-the underside of the forewing is grey instead of blackish brown, the hindwings are light blackish grey with fine brown stripes
-the hindwings carry only two spots on the underside
-one butterfly which is larger has a greyish brown colour. This seems to be the generation [?].

In April 1990 I found this species in an extremely localized colony where it was very common on a dry rocky grassy slope. Single specimens were encountered on one or two other spots. Altogether 45 males and 16 females were collected. We shall examine material from Kastellórizo and compare it to material from other areas (Bozburun [Prov. Muğla, Turkey], Ródos, Símí) and analyse the possible occurrence of differentiating characters in the Kastellórizo sample :

-all material examined (from Kastellórizo as well as from other areas) has a uniform brown groundcolour on the upperside
-on the forewing upperside there is a black apical ocellus with two metallic blue pupils. This ocellus is yellow-ringed and this yellow ring is in turn surrounded by a brownish grey area that is lighter than the groundcolour
-the ocellus and the surrounding area are larger in females than in males. Specimens from Kastellórizo show nothing particular to differentiate them in this respect from other material examined
-all specimens from different localities have one single rounded ocellus on upperside hindwing
-on the underside specimens from Kastellórizo in no way differ from examined specimens from other areas : basal area along inner margin of forewing brown, costa and apical area brownish grey; hindwings brownish grey with fine brown striae; the hindwings usually - but not always - carry two spots on the underside.

It is to be noted that LARSEN (1984: 142-143, pl. 20) illustrates three specimens of *Y. asterope* from Yemen (type-locality «Arabia Felix», vide supra!). These specimens apparently agree in all respects with those I collected on Kastellórizo, Ródos, Símí and at Bozburun. All these considerations lead to the conclusion that *Y. asterope marlenii* cannot be separated on morphological grounds. It is therefore sunk in synonymy under nominotypical *Y. asterope* here.

New records : Kastellórizo (0-50 m), 17.IV.1990; 18.IV.1990.

Lasiommata megera megera (LINNAEUS, 1767)

Lasiommata megaera L.; KOUTSAFTIKIS 1977 : 314.
Lasiommata megera L.; KATTULAS & KOUTSAFTIKIS 1977 : 156.

Taxonomic status : Widespread from W. Europe and N. Africa through Russia and Asia Minor to Syria, Lebanon and Iran (HIGGINS & RILEY 1984). All these populations belong to the nominotypical subspecies. Populations from Corsica and Sardinia belong to a closely related but distinct taxon, *L. paramegaera* (HÜBNER, [1824]) which, according to different authors, is given either specific or subspecific status (cf. KUDRNA 1977).

KATTULAS & KOUTSAFTIKIS (l.c.) note some features which, according to them, differentiate the Kastellórizo material from other populations but they do not describe it as a distinct subspecies. These features are :

-groundcolour on the upperside like that of material from the mainland, namely orange-brown, the lattice-formed markings however coffee-brown
-on the forewings of the male there is a strongly marked sex brand as well as a white-pupilled ocellus. In some specimens there is one (or two) additional small ocellus(-i)
-on the hindwing the area from the base of the wing till the white-pupilled ocellus is almost uniformly of a very dark coffee-brown colour
-the underside of the hindwing of the female is unmarked and light brownish grey.

All these features are in fact characteristic of any population of *L. megera*. On upperside hindwing there is not one but a row of (2 to) 4 submarginal ocelli, 3 of which are white-pupilled.

New records : Kastellórizo (0-50 m), 18.IV.1990. I observed one single female which I could not take as it was out of reach, flying and sitting behind a fence. The specimen apparently looked quite «normal».

Lasiommata maera maera (LINNAEUS, 1758)

Lasiommata maera L.; KOUTSAFTIKIS 1977 : 314.
Lasiommata maera L.; KATTULAS & KOUTSAFTIKIS 1977 : 156.

Taxonomic status : The nominate subspecies flies from W. Europe across Russia, Asia Minor and Syria to Iran, central Asia and the Himalayas. In NW Africa (Morocco and Algeria) a distinct subspecies is said to occur (HIGGINS & RILEY 1984). KATTULAS & KOUTSAFTIKIS (l.c.) found the species very rarely on Kastellórizo and they state that their material looks exactly like that from the mainland. I didn't see it during my visit.

Kirinia roxelana (CRAMER, 1777)

Kirina roxelana Cr.; KOUTSAFTIKIS 1977 : 314.
Kirinia roxelana Cp.; KATTULAS & KOUTSAFTIKIS 1977 : 157.

Taxonomic status : The species occurs from SE Europe through Asia Minor to Cyprus, Syria, Lebanon, Israel and Iraq (LARSEN 1974, HIGGINS & RILEY 1984). KATTULAS & KOUTSAFTIKIS (l.c.) record it as very rare from Kastellórizo. I was too early in the season to find it.

Dubious records

Polyommatus loewii loewii (ZELLER, 1847)

Lycaena loewii Z.; KOUTSAFTIKIS 1977 : 314.
Lycaena loewii Z.; KATTULAS & KOUTSAFTIKIS 1977 : 158.

Discussion : Only two species come into consideration according to the description given by the authors, viz. *Polyommatus loewii* (ZELLER, 1847) and *Polyommatus trochylus* (FREYER, [1844]). They are the only two lycaenids which accord more or less to the description (a.o. the mention of the metallic points in the submarginal lunules) and which are likely to occur in a coastal garrigue habitat in SW Turkey (or one of the off-shore islands). *P. loewii* comes closest to what the description states, although it seems highly improbable that the males are all brown. A colour dimorphism (blue vs. brown) is known in the **females** of some eremic populations of this taxon, but from every locality from where the species is known the male is always blue on the upperside!

The most plausible alternative is that the authors had a large series of females and that the males were already over (end of the brood).

P. trochylus agrees rather well with the description too and in this species both sexes have a brown upperside indeed. However, this alternative is less likely as the authors mention :

-on the forewings as well as on the hindwings [on the underside] there is a white band between the regularly positioned submarginal spots and the

orange-yellow submarginal band [lunules]
-forewing size : 15-17 mm (!).

Until more information becomes available this record is best not included in the species list.

Hipparchia fatua fatua (Freyer, [1845])

Hipparchia statilinus Hufn.; KOUTSAFTIKIS 1977 : 313.
Hipparchia statilinus Hufn.; KATTULAS & KOUTSAFTIKIS 1977 : 155.

Discussion : KATTULAS & KOUTSAFTIKIS (l.c.) state that «the morphological characters lie between those of *statilinus* and *fatua*» but that there is not enough material available from neighbouring areas.

On the coast of SW Turkey and on the islands of Ródos, Kós, Sámos, Híos and Lésvos *H. fatua* is a common butterfly in summer (flight period starting about the middle of June). *H. fatua* is very likely to occur on Kastellórizo. The presence of *H. statilinus* there is much less probable. Until more information comes at hand it is better to exclude both *Hipparchia* species of the list.

Concluding remarks

The aims outlined in the introduction have entirely been fulfilled. 4 species have been recorded for the first time from the island of Kastellórizo. Two other species recorded by KOUTSAFTIKIS (1977) and by KATTULAS & KOUTSAFTIKIS (1977) have (provisionally) been omitted from the species list. 22 species are thus currently known from Kastellórizo up to date.

The more important task is to evaluate the endemism level for the butterfly fauna of Kastellórizo. The small size of the island, its close proximity to the Turkish mainland (and the situation of several small islets between both) were already conditions which made the possibility of any endemic taxon occurring on Kastellórizo very questionable.

Although THOMSON (in litt.) states that he found very distinct forms of *Maniola jurtina* (LINNAEUS, 1758) on islands separated by a similar distance from the mainland in Italy, the available evidence suggests that this is not the case on Kastellórizo, neither for the population of *Maniola telmessia* occurring there, nor for the populations of the other taxa. All butterflies that I collected on Kastellórizo agree entirely morphologically with their counterparts on the Turkish mainland and on the Eastern Aegean islands.

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Weiden vormen in het Westeuropese kultuurlandschap de meest voorkomende levensgemeenschap. Dikwijls zijn het groene tapijten met intensieve begrazing, maar soms zijn het bloemrijke stukjes natuur met een grote variatie aan soorten. Weiden zijn meestal door menselijke aktiviteit ontstaan, maar zijn daarom niet minder belangrijk voor de natuur.

Naargelang de samenstelling van het plantenkleed, worden de weiden in verschillende types ingedeeld. Er worden tips gegeven voor wie in weiden aan natuurstudie wil doen. Dan worden de verschillende types weiden besproken in de vier seizoenen. Telkens wordt aangegeven waarop in een bepaalde weide moet worden gelet. Het gaat hierbij in de meeste gevallen om insekten. Het boekje is prachtig geïllustreerd met kleurenfoto's van planten en dieren.

Achteraan volgen nog enkele raadgevingen voor wie zelf een tuin bezit en daar in plaats van een «steriele» grasmat een bloemenrijke weide van wil maken. Een literatuurlijst verwijst naar verdere lectuur en in een adressenlijst kan men de belangrijkste organisaties (in Duitsland) terug vinden die zich met natuurbescherming e.d. bezig houden.

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