

Pelopidas thrax, a new species for the Island of Kós and an update of its distribution in Greece (Lepidoptera: Hesperioidea & Papilionoidea)

Sylvain Cuvelier

Abstract. During a journey (20–28 September 2007) on the island of Kós, a few days were spent to butterfly observation (Lepidoptera: Hesperioidea & Papilionoidea). For the first time, the presence of *Pelopidas thrax* (Hübner, 1821) is documented. Male and female, dorsal and ventral side, are figured. Observations from the islands of Ródos, Kastellórizo and Lesbos are discussed and the Greek distribution of *P. thrax* is updated. Confirmation is also given concerning the presence of *Argynnis pandora* ([Denis & Schiffermüller], 1775) on the island of Kós. A table with all the observations of butterflies during this trip is included.

Samenvatting. *Pelopidas thrax*, een nieuwe soort voor het eiland Kós en een actualisering over zijn verspreiding in Griekenland (Lepidoptera: Hesperioidea & Papilionoidea) Gedurende een verblijf (20–28 september 2007) op het eiland Kós, werden enkele dagen gespenderd aan vlinderobservatie (Lepidoptera: Hesperioidea & Papilionoidea). Voor het eerst wordt de aanwezigheid van *Pelopidas thrax* (Hübner, 1821) gedocumenteerd. Bovenzijde en onderzijde van mannetje en wijfje worden afgebeeld. Observaties op de eilanden Ródos, Kastellórizo en Lesbos worden besproken en de Griekse verspreiding van *P. thrax* wordt geactualiseerd. Ook de aanwezigheid van *Argynnis pandora* ([Denis & Schiffermüller], 1775) op het eiland Kós wordt bevestigd. Er is een tabel met alle vlinderobservaties van deze trip.

Résumé. *Pelopidas thrax*, une nouvelle espèce pour l'île de Kós et une mise à jour concernant sa distribution en Grèce (Lepidoptera: Hesperioidea & Papilionoidea) Au cours d'un séjour (20–28 septembre 2007) à l'île de Kós, quelques jours ont été consacrés à l'observation des papillons (Lepidoptera: Hesperioidea & Papilionoidea). Pour la première fois la présence de *Pelopidas thrax* (Hübner, 1821) est signalée. Les recto et verso du mâle et de la femelle sont représentés. Des observations des îles de Rhodes, Kastellorizo et Lesbos sont discutées et la distribution de *P. thrax* en Grèce est mise en évidence. La présence d'*Argynnis pandora* ([Denis & Schiffermüller], 1775) dans l'île de Kós est également confirmée. Un tableau de toutes les observations faites au cours de ce voyage est inclus.

Key words: Greece – Kós – Rhopalocera – *Pelopidas thrax* – *Argynnis pandora*.

Cuvelier, S.: Diamantstraat 4, B-8900 Ieper, Belgium. Email: sylvain.cuvelier@pandora.be.

Introduction

The Greek island of Kós is an elongated island in the SE Aegean Sea, in the centre of the Dodecanese Islands (Fig. 1). North of Kós lie the Greek islands Kalimnos, Pserimos, Píati and the Turkish peninsula of Bodrum. The Greek islands of Pergausa, Pacheia, Nissiros, Giali and the Turkish Reşadiye Yarımadası peninsula are situated to the south.

In 1926 Professor Alessandro Ghigi was the first to collect butterflies in Kós (Turati 1929, Ghigi 1929). Since then, a few other articles were published on the butterflies of this island (Rebel 1936, Hartig 1940, Thomson 1985, Olivier 1986, 1987, 1993). An excellent synthesis (Olivier & De Prins 1996) was published mentioning 46 species. One species was confirmed since then (Olivier 1998) bringing the total number to 47 (Dennis *et al.* 2000).

It is obvious from the literature that many places in Kós have either never been prospected or were visited only occasionally. Concerning the second half

of September, being at the end of the touristic season and looking less promising for butterflies, even less data are known.

Pelopidas thrax (Hübner, 1821) ranges from the eastern Mediterranean to Africa and from the Arabian Peninsula to the Far East.

In Greece the presence of *P. thrax* has been mentioned in literature for the islands of Sámos and Ródos (Tolman & Lewington 1997, Lafranchis 2004). The species is known from the Turkish coast (Hesselbarth *et al.* 1995) and Cyprus (Makris 2003). But as far as known by the author, the butterfly is documented hereafter for the first time from Kós.

Observations on the island of Kós

A total of 19 butterfly species were observed on the island of Kós during 20–28 September 2007 (Table 1).

A dark grey Skipper, looking a lot larger than the species of the genus *Gegenes* (Hübner, 1819), was first observed by the author on the 21st September 2007 in the garden of the Club Med at Kefalos, in the south-western part of Kós (Fig. 2), at 50 m from the sea shore. The butterfly was sitting on the ground for a few seconds and flew away without returning to the same spot. Not having a net at that moment, it was impossible to make a clear identification.

During a field trip on the 23rd September near Troulos (Fig. 2), situated in the centre of the northern coast, 10 specimens of *P. thrax* were observed and a fresh male (Fig. 3) and female were collected to document this observation. A few days later, on the 27th September, the species was seen again in the same area.

A female specimen (Fig. 3) of this species was collected in Kefalos on the 25th of September, indeed confirming its presence on the south-western side of Kós.

The third locality where the species was observed on the 25th September is the ancient agora in the city of Kós (Fig. 2) which lies on the eastern side of the island.

During a search for documentation about *P. thrax* on the Internet, an URL (http://www.lepiforum.de/cgi-bin/lepiwiki.pl?Pelopidas_Thrax) was found with a photograph (Kissling 2007) taken at Mastihari (Fig. 2) on the 20th October 2007, clearly showing a specimen of *P. thrax*. This locality is situated on the northern coast, not far from Troulos.

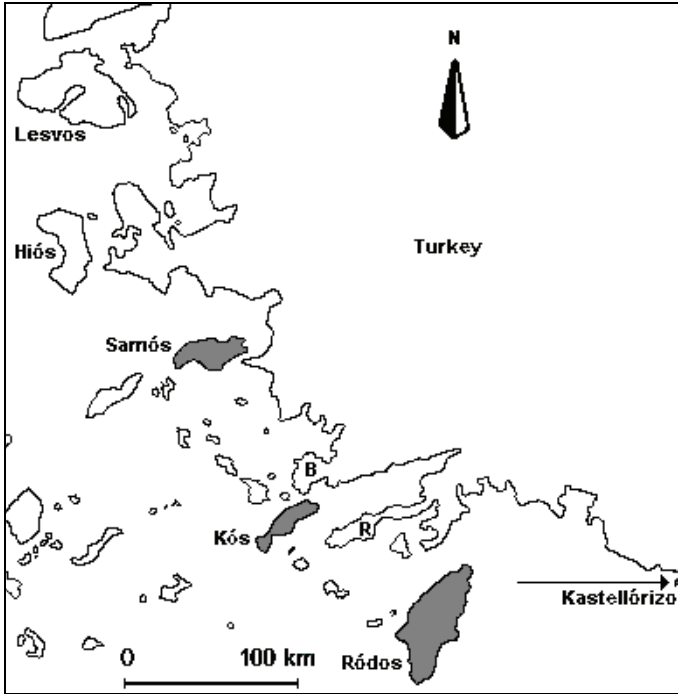


Fig. 1. Greek distribution of *Pelopidas thrax* (islands in grey + arrow). B: peninsula of Bodrum; R: Reşadiye Yarımadası peninsula.

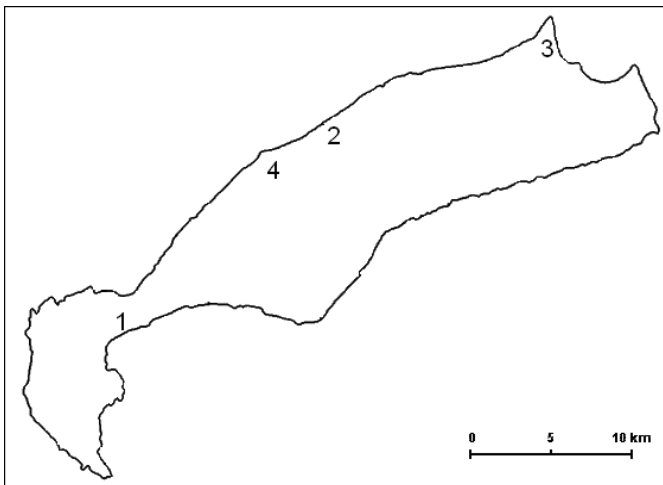


Fig. 2. Location map of *Pelopidas thrax* observations. 1: Kefalos; 2: Troulos; 3: Kós City; 4: Mastihari.

On the 25th of September, one specimen of *Argynnis pandora* (Denis & Schiffermüller, 1775) was observed flying in the archaeological site of Asklepion, near Kós city. This confirms the uncertain observation on 17.vi.1992 in the Óros Díkeos at 800 meter (Olivier & De Prins 1996). It is, at this moment however, impossible to draw conclusions on its status, as it might well have been a migrating specimen.

Table 1. Butterfly species observed on the island of Kós during 20–28 September 2007.

Legend:

A: Kefalos (21 ix 2007, 22 ix 2007 & 26 ix 2007)

B: Troulos (23 ix 2007 & 27 ix 2007)

C: Tigaki (23 ix 2007)

D: Zia (23 ix 2007 & 24 ix 2007)

E: Kós city (24 ix 2007 & 25 ix 2007)

F: Asklepion (25 ix 2007)

G: Plaka wood (27 ix 2007)

	A	B	C	D	E	F	G
Papilionidae							
<i>Papilio machaon</i>	x		x		x		
<i>Iphiclides podalirius</i>	x						
Pieridae							
<i>Pieris brassicae</i>	x		x	x	x	x	
<i>Pieris rapae</i>	x	x	x	x	x	x	
<i>Colias croceus</i>	x	x	x				
<i>Pontia edusa</i>		x					
Nymphalidae							
<i>Danaus chrysippus</i>			x		x		
<i>Polygonia egea</i>					x		
<i>Vanessa cardui</i>	x	x				x	
<i>Vanessa atalanta</i>	x						
<i>Argynnis pandora</i>						x	
<i>Maniola telmessia</i>					x		x
Lycaenidae							
<i>Lycaena thersamon</i>	x		x				
<i>Celastrina argiolus</i>		x		x	x		
<i>Lampides boeticus</i>	x	x	x				
<i>Leptotes pirithous</i>	x	x	x				
<i>Polyommatus icarus</i>			x				
Hesperiidae							
<i>Carcharodus alceae</i>		x	x		x		
<i>Pelopidas thrax</i>	x	x			x		

Review of the Greek distribution of *Pelopidas thrax*

The literature on the Greek distribution of *P. thrax* was critically screened in order to update and clarify its occurrence in this country and to elucidate the phenology in this part of its distribution.

It is clear that the butterfly is present in Sámos and this was confirmed by recent observations from different colleagues (T. Benton, M. S. Mølgaard, L. Pamperis, and P. van den Branden).

There is, however, no detailed published record of *P. thrax* from Ródos. The book on the butterflies of Ródos (Olivier 1993) does not mention this species for Ródos but confirms its occurrence in Sámos. Pamperis (1997) mentions two places in the Aegean Islands without precise indications and confirmed (oral communication) spring observations from Sámos (17th June 1991 at Palaiokastro and 30th May 1999 at Chora).

The first reference stating the occurrence of *P. thrax* in Ródos comes from Tolman & Lewington (1997) and its occurrence there is also mentioned in Roine (1999) and Lafranchis (2004). The last author confirmed (oral communication) that his mention is based exclusively on Tolman & Lewington (1997).

Dennis *et al.* (2000) confirm the occurrence of *P. thrax* in Sámos but again do not mention Ródos. Dennis *et al.* (2001) presented an overview from 64 islands in the Aegean archipelago stating Sámos as having records of *P. thrax* and >50% probability for the occurrence of *P. thrax* on Ródos.

In the distribution map of MEB-1 (Kudrna 2003) the occurrence of *P. thrax* is confirmed only for Sámos (Kudrna, oral communication).

Trying to elucidate this unclear situation, attempts were made to contact J. Coutsis, R. de Jong, M. S. Mølgaard, A. Olivier, L. Pamperis, E. Philippou, T. Tolman, and P. van den Branden.

John Coutsis (oral communication) confirmed knowing no other record from Ródos than the one mentioned by Tolman & Lewington (1997) and Lafranchis (2004).

Rienk de Jong (oral communication) confirmed that no authentic records are known by him for Ródos but that he observed one specimen on the third of May 2007 at the hotel Palm Beach, on the eastern side of Kós-City. This is not only a confirmation for Kós but also evidence for a spring generation.

Peter van den Branden (oral communication) mentioned finding *P. thrax* in Thermes Kalitheas, 7 km south of Ródos city, between the 22nd and 24th April 2008. The butterflies were flying in a dry river bed at a distance of 500 to 1500 m of the coast together with *Gegenes pumilio* (Hoffmannsegg, 1804). Only males of *P. thrax* were found and collected. The specimen and photographs sent by P. van den Branden showed some fresh specimens of *P. thrax* and *G. pumilio* (confirmed by genitalia). These observations confirm that *P. thrax* has a spring generation in this area of its distribution. He was, however, unable to find the species again during a visit (mid September 2008) at the same biotope where *G. pumilio* was again present. This was probably just before the start of the autumn generation.

After his reaction, I also received information from T. Tolman. The reason for mentioning Ródos in the Field Guide is based on observations (July 1988) given to him by J. Tierney who observed *P. thrax*, in a small stream bed, near the coast, in the neighbourhood of Mandrakos. It was impossible to locate a place with this name. It probably is Mandrikó, 44 km south-west of Ródos city. These data are in line with the prediction of Dennis (2001) and clearly confirm that *P. thrax* is present in different localities on the island of Ródos. There remains no doubt about the occurrence of *P. thrax* in Ródos.



Fig. 3. Left: upperside and underside of male *Pelopidas thrax*, Troulos, 23.ix.2007; Right: upperside and underside of female *Pelopidas thrax*, Kefalos, 25.ix.2007.

For other Greek islands, Dennis *et al.* (2001) give distribution predictions for *P. thrax* from a model based on geographical variables. For the already well studied islands, this model predicts, with >50% probability, the occurrence of *P. thrax* on Megisti (= Kastellórizo) and Simi. For the poorly studied islands the probability was >50% only for the island of Halki.

Very important is the observation from L. Pamperis on the Greek island of Kastellórizo (Fig. 1), at sea level, on 18th October 2004, confirming the prediction of Dennis *et al.* (2001). This Greek island lies at 1.8 km to the South of the coast near Kaş (Prov. Antalya, Turkey) and 144 km to the east of Ródos.

L. Pamperis also added three URL addresses that might provide new information on *P. thrax* on Lesvos. He immediately expressed his doubts concerning the correct identification of the species on the two following URL (<http://www.go12islands.com/index.php?cat=50&parent=50&photo=200> and <http://www.greecephotobank.com/showphoto.php?photofilescode=104&page=&keywords=&categorycode>) showing a photograph of a skipper from Ródos. In my opinion, and confirmed by R. de Jong, this is a *Gegenes*. The photograph does, however, not allow for identification at species level.

At that moment, the species list on the third URL (<http://home.zonnet.nl/lesvos/vlinders.htm>) mentioned the presence of *P. thrax* on Lesvos without any proof or detail, plus the observation of *Gegenes nostradamus* (Fabricius, 1793) on 23rd May 2005 near Lisvori on the same island.

In her first answer, S. van Leeuwen did send two photographs proving the presence of a *Gegenes*. Some days later she provided a photograph, taken in Lesvos by J. Noorddijk & E. Morriën in September 2004, that was at the origin for mentioning *P. thrax* on the website. This photograph is only adding proof for the presence of *G. nostradamus* in Lesvos but gives no evidence for *P. thrax*. The website was recently adapted and now states that the presence of *P. thrax* on Lesvos is uncertain.

Later two other websites were found, mentioning again *P. thrax* from Lesvos: http://www.pbase.com/paulcools666/lesvos_2007_butterflies_vlinders and http://www.nederpix.nl/album_page.php?pic_id=41920. In my opinion the photographed specimens are *Gegenes* and this was confirmed by J. Coutsis, V. Dincă, M. S. Mølgaard, and L. Pamperis. There is actually no evidence for the presence of *P. thrax* in Lesvos.

Conclusions

The presence of *P. thrax* is documented by the author from three different and quite distant localities on the island of Kós. A fourth locality where this species has been photographed by Kissling, was found on the Internet.

Hot, dry grassy places are the preferred habitat of the species. The larval host-plant in Greece is unknown (Tolman & Lewington 1997). Various species of the Poaceae family have been mentioned. In Cyprus the species has been observed ovipositing on *Oryzopsis miliacea* (Makris 2003). It is to be expected that the species is more widespread, especially along the coastline, and further searches during spring and from September to October might add substantial data to the actual known distribution of this species in Kós.

The distribution in Greece is updated (Fig. 1). The species has actually been documented from 4 Greek islands: Sámos, Kós, Ródos, and Kastellórizo. It is to be expected that in the future the butterfly will be found on other Greek islands near the Turkish coast.

The current data indicate that in Greece the butterfly is bivoltine.

The observation of *A. pandora* brings the number of observed species in Kós to 49, but no conclusion can be drawn concerning its status.

Acknowledgements

I thank Vlad Dincă for his invaluable comments and critical advices. I would like to express my gratitude to John Coutsis, Morten Schneider Mølgaard, Lazaros Pamperis, Colin Plant and Tom Tolman for the personal communications and bibliographic input. I am grateful to Otakar Kudrna for his communication on the published map in the MEB-1 project. My appreciation goes also to Rienk de Jong, Peter van den Branden, and Sylvia van Leeuwen for

sending their detailed observations. Erik Desombere improved the background of the photographs for this article. Last words of gratitude to Thomas Cuvelier for the linguistic support.

References

- Dennis, R. L. H., Shreeve, T. G., Olivier, A. & Coutsis, J. G. 2000. Contemporary geography dominates butterfly diversity gradients within the Aegean archipelago (Lepidoptera: Papilionoidea, Hesperioidea). — *Journal of Biogeography* **27**: 1365–1383.
- Dennis, R. L. H., Olivier, A., Coutsis, J. G. & Shreeve, T. G. 2001. Butterflies on islands in the Aegean archipelago: predicting numbers of species and incidence of species using geographical variables. — *Entomologist's Gazette* **52**: 3–39.
- Ghigi, A. 1929. Ricerche faunistiche nelle isole italiane dell'Egeo. Risultati generali e conclusioni. — *Archo zool.ital.* **13**: 293–354.
- Hartig, F. 1940. Nuovi contributi alla conoscenza della fauna delle isole italiane dell'Egeo XIII. Conoscenza attuale della fauna lepidopterologica dell'Isola di Rodi. — *Bollettino del Laboratorio di entomologia agraria di Portici* **18**: 221–246.
- Hesselbarth, G., van Oorschot, H. & Wagener, S. 1995. *Die Tagfalter der Türkei, mit Berücksichtigung der angrenzenden Länder*. 3 vols. — Bocholt (Germany), p. 1–1354, 1–847, pls. 1–141, maps I–IV, 1–342.
- Kissling, T. 2007. http://www.lepiforum.de/cgi-bin/lepiwiki.pl?Pelopidas_Thrax
- Kudrna, O. 2002. The Distribution Atlas of European Butterflies. — *Oedippus* **20**: 1–342.
- Lafranchis, T. 2004. *Butterflies of Europe. Identifying butterflies is easy!* — Diatheo, Paris, 351 p.
- Makris, C. 2003. *Butterflies of Cyprus*. — Bank of Cyprus Cultural Foundation, Nicosia, 329 p.
- Olivier, A., 1986. Spring butterflies on the island of Kós (Greece) (Lepidoptera: Hesperioidea and 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: Hesperioidea & Papilionoidea). — *Phegea* **15**: 77–88, 165–170.
- Olivier, A. 1993. *The butterflies of the Greek island of Ródos: taxonomy, faunistics, ecology and phenology with a tentative synthesis on the biogeography of the butterflies of Kriti (Crete), Kálpáthos, Ródos, the Eastem Aegean islands and Kipros (Cyprus) (Lepidoptera: Hesperioidea & Papi/ionoidea)*. — Vlaamse Vereniging Voor Entomologie, Antwerpen. 250 p.
- Olivier, A. & De Prins, R. 1996. The butterflies of the Greek island of Kós: a synthesis (Lepidoptera: Hesperioidea and Papilionoidea). — *Nota Lepidopterologica* **19**: 185–211.
- Olivier, A. 1998. *Pseudophilotes vicrama schiffermuelleri* confirmed from the Greek island of Kós (Lycaenidae). — *Nota lepidopterologica* **21**: 296–297.
- Roine, A. 1999. *Butterflies of Europe*. — CD-ROM Lepibase 2.0.
- Pamperis, L. N. 1997. *The butterflies of Greece*. — A. Bastas, D. Plessas Graphic Arts S.A., Athens, 559 p.
- Philippou, E. 2008. <http://www.go12islands.com/index.php?cat=50&parent=50&photo=200>.
- Philippou, E. 2008. <http://www.greecephotobank.com/showphoto.php?photofilescode=104&page=&keywords=&categorycode>.
- Rebel, H. 1935. Lepidopteren von den Ägäischen Inseln. — *Sitzungsbericht der Akademie der Wissenschaften zu Wien* **144**: 253–262.
- Thomsson, G. 1985. Greek island butterflies. Dodecanes 1983. — *Entomologist's Record and Journal of Variation* **97**: 154–158.
- Tolman, T. & Lewington, R. 1997. *Field Guide of the Butterflies of Britain and Europe*. — Harper Collins Publishers, London, 320 p.
- Turati, E. 1929. Lepidotteri. — In: Ricerche faunistiche nelle isole italiane dell'Egeo. — *Archo zool.ital.* **13**: 177–186.
- van Leeuwen, S. 2007. *Vlinders in Lesbos*. — <http://home.zonnet.nl/lesvos/vlinders.htm>.

Bibliography

Additional background literature, without references in the article, concerning the butterfly fauna on nearby Greek islands and the Turkish coast.

- Asselbergs, J. E. F. 1978. A contribution to the knowledge of the Lepidoptera fauna of Samos. — *Entomologische Berichten, Amsterdam* **38**: 55–57.
- Bernardi, G. 1961. Biogéographie et spéciation des Lépidoptères Rhopalocères des îles méditerranéennes. — *Colloques internationales du Centre national des Recherches scientifiques* **94**: 181–215, 5 figs. (cartes).
- Benton, T. 2002. Butterflies on the Greek island of Samos, 12–26 September 1999. — *Entomologist's Record and Journal of Variation* **114**: 78–82.
- Bernardi, G. 1971. Biogéographie des Lépidoptères des îles égéennes. — *Comptes rendus et sommaires des Séances de la Société de Biogéographie* **1971**: 21–32.
- Bretherton, R. F. 1966. A Distribution List of the Butterflies (Rhopalocera) of Western and Southern Europe. — *Transactions of the Society of British Entomology* **17**: 1–94.
- Coutsis, J. G. 2005. Butterflies of the Greek Island of Patmos in the first half of July 2004 (Lepidoptera, Hesperioidea & Papilionoidea). — *Phegea* **33**: 115–117.
- Dennis R. L. H., Olivier A., Coutsis J. G. 2001. Butterflies on islands in the Aegean archipelago: a correction, additions, an aid to identification and a cautionary tale. — *Entomologist's Record and Journal of Variation* **113**: 265–268.
- Dennis, R. L. H., Dapporto, L., Shreeve, T. G., Coutsis, J. G., Kudrna, O., Saarinen, K., Ryrholm, N. & Williams, W. R. 2008. Butterflies of European islands: the implications of the geography and ecology of rarity and endemism for conservation. — *Journal of Insect Conservation* **12**: 205–236.
- Mølgaard, M. S. 2003. Samos. — *Nordisk Lepidopterolog-Klub* **2**: 5–9.
- Koutsafikis, A. 1974. Die Lepidopterenfauna der ostägäischen Insel Simi. — *Annales Musei Goulandris* **2**: 93–98.
- Olivier, A. 1987. Dagvlinders van de Griekse eilanden in drie verzamelingen (Lepidoptera: Papilionoidea). — *Phegea* **15**: 39–46.
- Olivier, A. 1990a. Butterfly records from the Greek island of Patmos (Lepidoptera: Papilionoidea). — *Phegea* **18**: 31–32.
- Olivier, A. 1990b. Critical notes on the butterflies of the Greek island of Kastellórizo (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **18**: 169–190.
- Olivier, A. 1991. The butterflies of the Greek island of Simi (Lepidoptera: Papilionoidea). — *Phegea* **19**: 63–70.
- Olivier, A. 1992. Butterflies of the Greek island of Astipálea (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **20**: 121–123.
- Olivier, A. 1993. The butterflies of the Greek island of Tilos (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **21**: 17–23.
- Olivier, A. 1994. New data on the butterflies of the Greek island of Simi (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **22**: 85–88.
- Olivier, A. 1996a. Notes on the taxonomic status and supposed biogeographic affinity of the *Pseudochazara anthelea* (Hübner, [1824]) populations from Kipros (Cyprus) and from the Greek island of Kós (Lepidoptera: Nymphalidae Satyrinae). — *Phegea* **24**: 5–12.
- Olivier, A. 1996b. The butterflies of the Greek island of Kálimnos (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **24**: 149–156.
- Olivier, A. 1997a. The butterflies of the Greek island of Léros (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **25**: 123–128.
- Olivier, A. 1997b. Butterflies on the island of Patmos (Greece) in April 1995, with an updated checklist and biogeographic notes (Lepidoptera: Hesperioidea & Papilionoidea). — *Entomologists' Record and Journal of Variation* **109**: 295–298.
- Olivier, A. 1998. The butterflies of the Bodrum Peninsula (Province of Muğla, Turkey): a review. — *Entomologist's Gazette* **49**: 21–34.

- Olivier, A. 2000. The butterflies of the Greek island of Nissiros (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **28**: 25–36.
- 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 Kásson (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.
- Olivier, A. & Riemis, A. 1987. Spring butterflies and moths from the Greek island of Kárpathos (Greece) (Lepidoptera). — *Phegea* **15**: 9–12.
- Schmidt, E. 1989. Tagfalterbeobachtungen auf Samos. — *Entomologische Zeitschrift, Frankfurt-am-Main* **99**: 249–256, 267–270.
- van der Poorten, D. 1985. *Ypthima asterope* Klug op Rodos en andere dagvlinderwaarnemingen op dit eiland in juni 1984 (Lepidoptera: Satyridae). — *Phegea* **13**: 77–80.
-