

First record of *Cacyreus marshalli* in Greece, and comments on the potential occurrence of *Zizeeria karsandra* on the Greek island of Crete (Lepidoptera: Lycaenidae)

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Abstract. A thriving colony of *Cacyreus marshalli* (Butler, 1898) is reported for the first time from Greece. The butterflies appeared in large numbers in late summer and throughout autumn of 2009 in parkland and gardens in the northern suburbs of Athens. Introduced *Pelargonium* plants in a particular park were identified as the most probable explanation of this sudden occurrence. Moreover, the authors' persistent, yet unsuccessful efforts to locate *Zizeeria karsandra* (Moore, 1865) on the island of Crete are discussed.

Samenvatting. Eerste vermelding van *Cacyreus marshalli* in Griekenland, en bemerkingen over het mogelijke voorkomen van *Zizeeria karsandra* op het Griekse eiland Kreta (Lepidoptera: Lycaenidae)

Een succesvolle kolonie *Cacyreus marshalli* (Butler, 1898) wordt voor het eerst uit Griekenland vermeld. De vlinders vlogen talrijk in de nazomer en de herfst van 2009 in parken en tuinen van de noordelijke buitenwijken van Athene. De meest waarschijnlijke oorzaak van dit plotse voorkomen zijn de talrijke *Pelargonium* planten in een van deze parken. Verder worden de doorgedreven, maar tot nu toe onsuccesvolle, pogingen besproken om het voorkomen van *Zizeeria karsandra* (Moore, 1865) op Kreta te bevestigen.

Résumé. Première mention de *Cacyreus marshalli* en Grèce, et remarques sur la présence éventuelle de *Zizeeria karsandra* en Crête (Lepidoptera: Lycaenidae)

Une colonie florissante de *Cacyreus marshalli* (Butler, 1898) est mentionnée pour la première fois en Grèce. Les papillons volaient en grand nombre pendant la fin de l'été et l'automne de 2009 dans des parcs et jardins des quartiers septentrionaux d'Athènes. La raison de cette explosion est probablement la plantation des *Pelargonium* dans un parc particulier. Les efforts persistants, mais jusqu'à présent effectués sans succès, pour localiser *Zizeeria karsandra* (Moore, 1865) sur l'île de Crête, sont également discutés.

Key words: Lycaenidae – *Cacyreus marshalli* – Greece – Athens – *Pelargonium* – *Zizeeria karsandra* – Crete.

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Introduction

The South African Lycaenid butterfly *Cacyreus marshalli* (Butler, 1898) was accidentally introduced to the Balearic Islands in 1987 (Eitschberger & Stamer 1990, Raynor 1990, Myncke 1991, Grey 1992, Sarto i Monteys & Maso 1992, Maso 1994, Tolman & Lewington 1997). Since then, it gradually extended its range, occurring in several areas of continental Spain (Latasa-Asso 1993, Redondo & Murria 1993, Cervello 1995, Ortiz-Garcia 1995, Dantart 1996, Lalanne-Cassou 1996, Stefanescu 1996, Torres-Villa & Bielza 1997, Crawforth 1998, Fernandez *et al.* 1998, Reinhardt 1999, Oliver-Sanz 2000, Suarez-Fernandez 2003), in the Canary Islands (Fernandez 2003, Acosta-Fernandez 2004 & 2005, Hornemann 2004, Tennent *et al.* 2004), in continental Portugal,

(Tarrier 1998, White 1998, Dunkin 2005), in Madeira (Wakeham-Dawson & Aguiar 2003), in Morocco (Tarrier 1998), in various areas of continental France (Reid 1998, Tarrier 1998, Billi *et al.* 1999, Maechler 2000, Pasquir 2000, Quivron 2000, Savina 2001, Adge 2002, Marney 2002, Girod & Sauce 2002, Mérit & Mérit 2002, Mérit 2003, White 2004, Binon 2005, Mace 2007), in Corsica (Shaw 2001, Landemaine 2002), in continental Italy (Trematerra *et al.* 1997, Lang 2002, Casini 2003, Russo 2003, Tropinao 2003, White 2004, Aistleitner & Pollini 2004, Dapport 2004, Favilli & Manganelli 2006), in Sicily (Cernigliaro *et al.* 2003), in Sardinia (Contini *et al.* 2005), in Switzerland (Aistleitner 2003, Aistleitner & Pollini 2004), in Germany (Gries 2000, Thiele & Nassig 2000, Filus *et al.* 2001) and in Malta (Sammut 2007). Isolated specimens have also been recorded from further north, in countries such as Belgium (Troukens 1991, Heylen *et al.* 2002, Cuvelier *et al.* 2009), Sweden (Ryrholm 2007), and unofficially the UK (Eeles 2009). Very recently the species was recorded from Slovenia (Polak 2009) and from Mali Lošinj, an Adriatic island of Croatia (Kosmač & Verovnik 2009).

First record from Greece

Given the obvious tendency of the species to expand its range eastwards, the authors have been monitoring the western coast of Greece over the past few years, but no traces of the butterfly were seen in that area. According to Pamperis, pictures of the butterfly were taken by him on the island of Kérkira (Corfu) in August 2009, but this record requires confirmation through collected specimens (Pamperis 2009). Finally, on August 14, 2009, the first author spotted and captured a worn male, sitting on *Ocinum americanum* Linnaeus (sweet basil), on the sidewalk of a very busy street, in the Athens suburb of Maroussi, more than a mile away from any major parkland. A second male was captured on September 2, fluttering around a cedar tree, in a small park in the same suburb. On October 2–4, 2009, and after a month of no records, possibly because the search for the butterfly was carried out in the wrong places, more than 30 specimens were collected in several northern suburbs of Athens, namely Maroussi, Kifissia and Néa Erithra. Most males were worn, and found scattered over a large area that includes gardens and other open spaces, where they were observed feeding on various kinds of flowers, especially *Heliotropium hirsutissimum* Grauer. The only significant concentration of females, which were usually fresh, was found at a circular, three meters in diameter flower bed, full of *Pelargonium* plants, inside the Singrou parkland in Kifissia.

Discussion on the origin of the Athens specimens and their viability

Interviewing the local gardener revealed that the particular *Pelargonium* plants had been planted within 2009, replacing older ones that had been damaged by frost last winter. The gardener insisted that the plants had not been imported from abroad, however the reliability of his claims is in question. Given that no specimens have been officially recorded between Athens and the closest

hitherto known location of occurrence, i.e. Mali Lošinj, it is very unlikely that the species has arrived from Croatia through the Balkans. It is much more probable that it was accidentally introduced through imported *Pelargonium* transplants, as originally was the case in the Balearic Islands.



Figs. 1–2. *Cacyreus marshalli*, Greece, upperside. 1.– ♂, Athens, Maroússi, 300 m, 20.xii.2009; 2.– ♀, Athens, Maroússi, 300 m, 30.xii.2009. Scale bar: 1 cm.



Figs. 3–4. *Cacyreus marshalli*, Greece, underside. 1.– ♂, Athens, Maroússi, 300 m, 20.xii.2009; 2.– ♀, Athens, Maroússi, 300 m, 30.xii.2009. Scale bar: 1 cm.

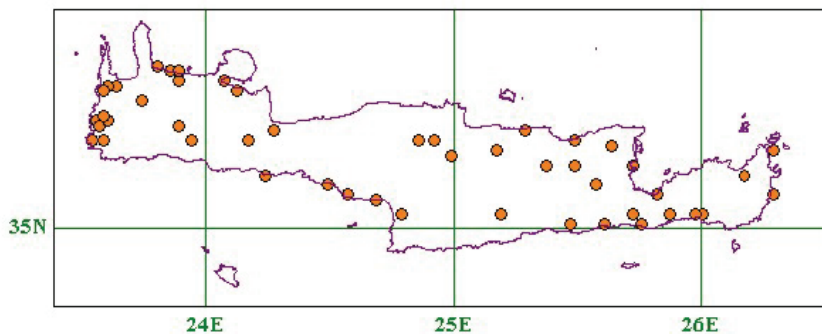


Fig. 5. Locations on Crete visited in search of *Zizeeria karsandra*.

Several specimens were frequently seen in the northern suburbs of Athens throughout October and, more scarcely, in November and December (Figs.1, 2). One specimen was also recorded on *Pelargonium* plants in an urban area much closer to downtown Athens (suburb of Galátsi). The latest record in 2009 comprised a fresh female specimen on *Pelargonium* plants in Maroussi on December 30, an unusually warm day after a month of alternate warm and cold weather periods, implying that the species is quite resilient to rough conditions. Also, two caterpillars were collected and kept indoors on a pile of *Pelargonium* leaves. They soon pupated and the butterflies emerged in late January 2010.

The climate in Athens, and generally in Greece, though generally mild, may occasionally be quite severe, often subjecting the country to lasting subzero temperatures and plenty of snow. Given these adverse conditions it remains to be seen whether or not this butterfly will be able to establish itself in Greece on a permanent basis, as it has already done in SW Europe.

The possibility of occurrence of *Zizeeria karsandra* (Moore, 1865) on Crete

According to Hesselbarth *et al.* (1995), Tolman & Lewington (1997) and Makris (2003), *Z. karsandra* is widespread in E. Algeria, Tunisia, N. Libya, Malta, Turkey and Cyprus, and probably occurs also on the Greek islands of Crete and Rhodes. The original record for Crete was made by Beuret (1955), who examined one male and one female specimen, both belonging to Hans Reisser. The female was purportedly captured at "Listovounos" and the male at "Palialimata" (Pilalimata), both located in southern Crete. Pamperis (1997) presents several pictures of the species in his book, and claims that they were taken in Crete, but avoids disclosing the exact location on the basis of his controversial attitude towards ecological protection. Recently, a highly surprising, anonymous, unofficial record (again, without collected specimens) has been added to the lot from the southern Aegean island of Milos, where, however, the dry environment is completely incompatible with the usual, humid habitat of *Z. karsandra* (see Bonetti 2008).

The authors have tried to spot this butterfly on Crete in dozens of trips, from early spring to late autumn, over several years. In the end of September 2009, i.e. the most favourable time of the year for this species, the first author devoted a trip solely to this butterfly, driving about 1100 km in the eastern three quarters of the island and checking almost all suitable, accessible habitats (mostly rivers and dry river beds), all to no avail. The locations visited by the three authors over the past years, in addition to places visited by other entomologists known to the authors, are depicted in Fig. 5. Areas not covered in the map are either mountainous or densely urbanized, and therefore not suitable for *Z. karsandra* habitat. It is obvious that the island has been scanned thoroughly, and the fact that the species has been encountered by nobody else except Pamperis is puzzling. Its apparently extreme rarity is baffling indeed, since all known

colonies of the species within its range, including the island of Cyprus (Makris 2003), are richly populated.

If the butterfly indeed occurred on Crete, it is reasonable to assume that it should also be expected to occur in SW Turkey, to ensure some minimum distribution continuity for a typically lowland species, such as *Z. karsandra*. However, in Hesselbarth *et al.* (1995) the following localities are given for Turkey: Provinces of Adana, Gaziantep, Hatay, Diyarbakır and İçel. All are in the east of Anatolia and most are along the Mediterranean coast across from Cyprus. Not a single record from more western localities, i.e. from those that are closer to Greece. All of this means that the existence of this species in Greece is highly improbable, and that, perhaps, the Beuret record from Crete was based on mislabeled specimens.

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