



SHILAP Revista de Lepidopterología  
ISSN: 0300-5267  
avives@eresmas.net  
Sociedad Hispano-Luso-Americana de  
Lepidopterología  
España

Seven, S.; Demirsoy, A.  
Contribution to the knowledge of the butterfly fauna of Erzincan Province (North East  
Turkey) with their Redlist status analysis (Insecta: Lepidoptera)  
SHILAP Revista de Lepidopterología, vol. 42, núm. 168, diciembre, 2014, pp. 531-543  
Sociedad Hispano-Luso-Americana de Lepidopterología  
Madrid, España

Available in: <http://www.redalyc.org/articulo.oa?id=45540983003>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in redalyc.org

redalyc.org

Scientific Information System  
Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal  
Non-profit academic project, developed under the open access initiative

# Contribution to the knowledge of the butterfly fauna of Erzincan Province (North East Turkey) with their Redlist status analysis (Insecta: Lepidoptera)

S. Seven & A. Demirsoy

## Abstract

In this study, a collection of butterflies from Kemaliye, Erzincan province, Turkey made in 2005 and 2007 is investigated. 141 species belonging to 7 families and 67 genera were recorded. Among these, 13 taxa are new records for the province of Erzincan. Eight species are endemic to Turkey. (*Polyommatus (Agrodiaetus) wagneri*, *Sublysandra cornelia*, *Glaucopsyche astraea*, *Polyommatus (Agrodiaetus) antidolus*, *Polyommatus (Agrodiaetus) actis*, *Polyommatus (Agrodiaetus) menalcas*, *Polyommatus (Agrodiaetus) poseidon*, *Polyommatus (Agrodiaetus) hopfferi*. Threatened species are given below: (RA) *Colias chlorocoma*; (EN) *Cigaritis cilissa*; (LC) *Hyponephele wagneri*, *Parnassius (Parnassius) apollo*, *Parnassius (Driopa) mnemosyne*, *Papilio (Papilio.) alexanor*, *Archon apollinus*, *Zerynthia deyrollei*, *Anthocharis gruneri armeniaca*, *Pieris (Artogeia) bryoniae*, *Glaucopsyche (Iolana) lessei*.

KEY WORDS: Insecta, Lepidoptera, fauna, endemic, redlist, Erzincan, Kemaliye, Turkey.

## Contribución al conocimiento de la fauna de mariposas de la provincia de Erzincan (Noreste de Turquía) con el análisis del estatus de su lista roja (Insecta: Lepidoptera)

## Resumen

En este estudio, fueron investigadas una colección de mariposas recogidas en Kemaliye, provincia de Erzincan, Turquía entre 2005 y 2007. Se registraron 141 especies correspondientes a 7 familias y 67 géneros. De ellos, 13 taxa son nuevos registros para la provincia de Erzincan. Ocho especies son endémicas de Turquía *Polyommatus (Agrodiaetus) wagneri*, *Sublysandra cornelia*, *Glaucopsyche astraea*, *Polyommatus (Agrodiaetus) antidolus*, *Polyommatus (Agrodiaetus) actis*, *Polyommatus (Agrodiaetus) menalcas*, *Polyommatus (Agrodiaetus) poseidon*, *Polyommatus (Agrodiaetus) hopfferi*. La especies en peligro son dadas a continuación: (RA) *Colias chlorocoma*; (EN) *Cigaritis cilissa*; (LC) *Hyponephele wagneri*, *Parnassius (Parnassius) apollo*, *Parnassius (Driopa) mnemosyne*, *Papilio (Papilio) alexanor*, *Archon apollinus*, *Zerynthia deyrollei*, *Anthocharis gruneri armeniaca*, *Pieris (Artogeia) bryoniae*, *Glaucopsyche (Iolana) lessei*.

PALABRAS CLAVE: Insecta, Lepidoptera, fauna, endémico, lista roja, Erzincan, Kemaliye, Turquía.

## Introduction

Kemaliye (= Eğin) district which is in the province of Erzincan, is located at the North West border of Eastern Anatolia region of Turkey. It lies between latitudes 39° 15' 00" N and longitudes 38° 30' 00" E. The town is 950 meters above sea level and occupies 1007 km<sup>2</sup> (ANONIM, 2005). Eastern Anatolia Region is divided into four parts called Erzurum-Kars, Upper Firat, Upper Murat and Van ve Hakkari. Kemaliye is located in Upper Firat part. The town is bordered by Çemişgezek and Ovacik

districts in Tunceli on the east; Arapgir district in Malatya and Ağın district in Elazığ on the south; Divriği district in Sivas on the west and İliç district in Erzincan on the North. Concerning the mountains running through the town, there is Munzur on the east with an altitude of 3188 m, Harmancık ve Sariçiçek on the west, Çal, Palandöken and Avaz on the north and Kırkgöz on the south. (Figs. 1a, 1b). Karasu, which is the biggest tributary of the Fırat river, passes through the east side of central town. Zoo-geographically, the town is located in Iran-Turan fito-geographic region. The Lepidoptera are represented by around 160.000 species world wide (PECHENIK, 2005). When it comes to Lepidoptera in Turkey, there are 5163 species in total, 408 of which consisting of butterflies. (KOÇAK & KEMAL, 2007A, KEMAL & KOÇAK, 2011). The first comprehensive study concerning the butterflies of Turkey was carried out by STAUDINGER (1878-1882). In the following years many researcher, foreigners in particular, collected and published butterfly samples.



Fig. 1.– 1a. Map of Türkiye-Erzincan. 1b. Map of Kemaliye (BOZKURT, 2009).

In his research, ZELLER (1847) listed the samples collected by Prof. Loew in Turkey and in Asia. WAGENER (1983) defined 2 new *Melanargia* forms in Anatolia. WAGNER faunistically and taxonomically assessed the samples collected from Central Anatolia (1929, 1930, 1931, 1932, 1933). WEHRLI (1934) published the Lepidoptera fauna of Maras. In the following years, the significant

publications which particularly address faunistic and taxonomic studies related to Turkey include: LEDERER, 1865; COURVOISIER, 1911; GRAVES, 1920; 1921; PFEIFFER, 1926-1927; ZUKOWSKY, 1937, 1938, 1941; SCHWINGENSCHUSS, 1939; LATTIN, 1941, 1950, 1951; WHEELER, 1943; HIGGINS, 1966; WAGENER, 1983; EITSCHBERGER, 1991; SCHURIAN & REIF, 1992, SCHURIAN *et al.*, 1992 KOÇAK, 1975a, 1975b, 1977, 1983, 1999. Erzincan province located in the north of Turkey is one of the important butterfly regions of Turkey (WAGENER, 2005). KOÇAK & KEMAL (2007b) listed 466 species in their study related to the list of Erzincan Lepidoptera, only 167 of which belonged to butterflies.

Kemaliye, located in the province of Erzincan is an important region with not only river Firat passing through the middle of the region and with geological formations from the past, but also it is an interesting region in terms of faunistics as it includes different habitat types. In spite of this interesting fact, the number of known is only five, *Chazara egina* (Staudinger, 1892), *Muschampia poggei* (Lederer, 1859), *Hipparchia parisatis* (Kollar, 1849), *Cigaritis acamas*, *Polyommatus aedon myrrhinus* (Staudinger, 1901) (HESSELBARTH *et al.*, 1995).

In this study, samples gathered from Kemaliye are assessed faunistically. In addition, the species risk of being endangered is assessed according to KOÇAK & SEVEN (1998) and KARAÇETİN & HILARY (2011) (Table I). Since different assessments are conducted with the same taxons in both publications, the possible reasons of these are discussed.

## Material and Methods

A land study was conducted from April to September in 2006-2007 in Kemaliye, Erzincan province. Samples were gathered by means of netting during the day. The samples gathered from land were conserved with ethyl acetate in vessels. The samples collected were placed in triangular insect envelopes with forceps and preserved with the name of the province, altitude and date of gathering written on the envelopes. Later, the samples were softened in humidifiers, pinned with proper insect pins and set on stretching boards. Some of the samples are still being preserved in the personal collection of the author in Kemaliye, Prof. Dr. Ali Demirsoy Natural History Museum First records for Erzincan province are indicated with (\*). Map of Kemaliye was modified from this web page "<http://www.arsivfotoritim.com>". Acronyms: E, endemic; EN, endangered; VU, vulnerable; RA, rare; DD, data deficient; IN, indeterminate; LC, least concern.

## Collecting Station

- |   |   |
|---|---|
| 1. Başbağlar village, Başpınar bridge, 750 m, 8-IV-2007 | 19. Kekikpınarı, 1270 m, 10-VI-2006                         |
| 2. Başpınaryolu, Konsar village, 1468 m, 4-VI-2007      | 20. Kekikpınarı, (Köprüyanı), 1264 m, 6-VII-2006            |
| 3. Çanakvillage, 1400 m, 2-VI-2007                      | 21. Kırkgöz, 1300 m, 8-VII-2006, 23-IX-2006                 |
| 4. Çitköyü, Öşneden river, 950 m, 8-IV-2007             | 22. Mazbanbaşı, 1635 m, 2-VI-2007                           |
| 5. Dilli deresi, 850 m, 18-VII-2007                     | 23. Mazbanbaşı road, 1041 m, 2-VI-2007                      |
| 6. Dolunay village, 1200 m, 9-IV-2007                   | 24. Munzur mountains, Doymuştepe, 2350 m, 4-VI-2007         |
| 7. Dutluca, 1182 m, 17-VII-2007                         | 25. Ocak village, 1457 m, 6-VII-2006                        |
| 8. Dutluca, Çakırtaş village, 1035 m, 8-IV-2007         | 26. Ocak village, 1450 m, 6-VII-2006                        |
| 9. Dutluca, 1155 m, 8-IV-2007                           | 27. Ocakköyü-Kekikpınarı, Öşneden river, 1393 m, 6-VII-2006 |
| 10. Dutluca, 1087 m 16-VII-2007                         | 27. Sarıççek, 1887 m, 11-VI-2006                            |
| 11. Dutluca, 1200 m 17-VII-2007, 1 ♂                    | 29. Sarıççek, 1875 m, 7-VII-2006                            |
| 12. Kabataş (Şerefiye), 1550 m, 3-VI-2007               | 30. Sarıççek, 1900 m, 2-VI-2007                             |
| 13. Kemaliye-Yayladamı, 1450 m, 9-IV-2007               | 31. Srakonak-Mazbanbaşı, 1640 m, 11-VI-2006                 |
| 14. Kemaliye-Arapgir, Yeşilyurt, 1 km, 10-VI-2006       | 32. Srakonak-Mazmançeşmesi, 1658 m                          |
| 15. Kemaliye-Arapgir, Keklikpınarı, 1000 m, 10-VI-2006  | 33. Subaşı village, 1500 m, 4-VI-2007, 2 ♂♂                 |
| 16. Kemaliye-Arapgir, 885 m, 10-VI-2006                 | 34. Subaşı (before Rabat river), 19-VII-2007                |
| 17. Kekikpınarı, 1050 m                                 | 35. Venkağ hill, 1370-1703 m, 9-VII-2006                    |
| 18. Kekikpınarı, 1264 m, 6-VII-2006                     | 36. Yeşilyayla, Hisarköyü, 1500 m, 4-VI-2007                |

- |   |  |
|---|--|
| 37. Yeşilyamaç, 1290 m, 8-VII-2006            | 43. Yuva village, 850-1000 m, 8-VII-2006           |
| 38. Yeşilyamaç-Geşo, 1320 m, 11-VI-2006       | 44. Yuva village (Karasu deresi), 800 m, 3-VI-2007 |
| 39. Yeşilyamaç-Geşo, 1300 m, 4-VI-2007        | 45. Yuva village, 750 m, 11-IV-2005                |
| 40. Yeşilyamaç (Geşobeli), 1670 m, 8-VII-2006 | 46. Yuva village, 930 m, 23-IX-2006                |
| 41. Yeşilyamaç, Geşobeli, 1680 m, 11-VI-2006  | 47. Yeşilyamaç (Geşo), 1300 m, 24-IX-2006          |
| 42. Yuva village, 850 m, 11-IV-2007           |  |

## Results and Discussion

At the end of this study, 141 species were found in Kemaliye. 136 taxa are new records to the Kemaliye region and *Papilio alexanor* Esper, [1800], *Pieris krueperi* Staudinger, 1860, *Anthocharis gruneri armeniaca* Christoph, 1893, *Nymphalis polychloros* (Linnaeus, 1758), *Argynnis adippe* ([Denis & Schiffermüller], 1775), *Melitaea fascelis* (Fabricius, 1787), *Euphydryas aurinia* (Rottemburg, 1775), *Libythea celtis* (Laicharting, [1782]), *Pararge aegeria* (Linnaeus, 1758), *Glaucopteryx astrea* (Freyer, [1851]), *Tarucus balkanicus* (Freyer, [1844]), *Muschampia proteides* (Wagner, 1929) are new records for the fauna of Erzincan province. The number of Erzincan butterflies has risen to 179 after this study.

*Polyommatus wagneri* (Forster, 1956), *Sublysandra cornelia* (Freyer, 1850), *Glaucopteryx astraee* (Freyer, 1851), *Polyommatus antidolus* (Rebel, 1901), *Polyommatus actis* (Herrich-Schäffer, 1851), *Polyommatus menalcas* (Freyer, 1837), *Polyommatus poseidon* (Herrich-Schäffer, 1851), *Polyommatus hopfferi* (Herrich-Schäffer, 1851), are endemic species which are recorded in Turkey in the study (Table 1).

*Parnassius apollo* species protected by CITES were caught in Sarıçiçek plateau which is 1870-1900 m high. Two subspecies are known in Turkey. This species, is known from the Munzur mountains in Erzincan province and was found for the first time in Kemaliye. In addition, larvae photographed from the same region were compared with photographs in HESSELBARTH *et al.* (1995) and they resemble *P. apollo tirabzonus* Sheljuzhko, 1924 more than *P. apollo graslini* Oberthür, 1891- spreading in Central Anatolia (Fig. 7). Many activities are carried out in the region and there is much camping especially in the area where the species was found, which poses a danger for its existence. As a result, this region should be put under protection and the density of the population determined.

Two subspecies of *Polyommatus daphnis* ([Denis & Schiffermüller], 1775) are known in Turkey. Although *P. daphnis versicolor* (Heyne, [1895]) found widely is present in many locations in the region, it was discovered in Iran and *P. daphnis elamita* (Le Cerf, 1913) was found in one location (SCHURIAN & HAÜSER, 1981). The fact that two subspecies belonging to the same species were collected in the same location the thought that this region is the common field for the species.

*Colias chlorocoma* Christoph, 1888 which lives in high steppes of the mountains and is a new record for Kemaliye was previously found in the Munzur mountains as the closest part to the area. In this study, it was observed at a height of 2350 m.

The result of the faunistical study in Kemaliye reveals that the Anatolian diagonal is a barrier for some species. For instance, all 3 species belonging to genus *Cigaritis* could only be found to the east of the Fırat river. *Cigaritis* is represented by three species in Turkey and its spread is limited to Eastern and South Eastern regions of Turkey. All three species of this genus were found in the region. Those species which are local and rare are among the most important species in the region that should be protected.

As a result of this study, we found that the butterfly fauna of Kemaliye Province is formed by the Papilionidae (6 species; 0.042), Pieridae (17 species; 0.12), Nymphalidae (22 species; 0.156), Libytheidae (1 species; 0.007), Satyridae (22 species; 0.156), Lycaenidae (54 species; 0.382) and Hesperidae (19 species; 0.134). In species richness the genus Lycaenidae is the richest with 54 species present in the Kemaliye provinces.

## Redlist status analysis of butterflies from Kemaliye Provinces

Many of species were excluded because of the lack of such data in the study. The first study

dealing with situations of danger of butterflies was carried out by KOÇAK & SEVEN (1998). The study is based on research data and the authors' field observations give important clues about endangered species in particular. According to KOÇAK & SEVEN (1998) the status is 1 species (RA), 7 species (VU), 73 species (IN) (Table 1). According to KARAÇETİN & HILARY (2011) the status is 2 species (EN), 1 species (VU), 5 species (DD) 133 species (LC) (Table 1). This last study (KARAÇETİN & HILARY, 2011) is a work that was originally prepared based on HESSELBARTH *et al.* (1995) data. This was stated by the author of the book (p 9- The arrangement of taxonomy and species lists- present lists and p 12-data sources and their formats). As seen, these include some important sources used in the arrangement of this kind of lists and in the assessment of the data related to their spread in Turkey. However, the density data numbers necessary in determining the categories of danger are especially given based on HESSELBARTH *et al.* (1995) data. Since the publication and data of the experts in Turkey could not be assessed, some deficiencies and faults are apparent even if the study fills in an important gap. Some species are seen to be below the danger limit because many samples have been gathered (according to HESSELBARTH *et al.*, 1995). Another reason of this faulty assessment is the deficiency of the data related to the numbers of species in the faunistic publications of local researchers in Turkey after 1995.

The studies and observations carried out in recent years have suggested that there is a major decrease in the populations of species, owing to certain threat factors including climate change, habitat destruction and unconscious collection. Therefore, a significant rise in the number of endangered butterfly species is anticipated in Turkey.

### Acknowledgement

This study was supported by Tubitak (Project number: TB-Çaydag 105Y016). The present work includes only the butterflies part of the project.

### BIBLIOGRAPHY

- ANONIM, 2005.– *Kemaliye İlçesi İklim Verileri (1984-1990)*.– Meteoroloji Genel Müdürlüğü, Araştırma ve Bilgi İşlem Daire Başkanlığı, Ankara.
- BOZKURT, A., 2009.– Available from <http://www.arsivfotoritim.com/bolum/temmuz-2009-sayisi-july-2009-issue/page/3/> (accessed 6th October 2013).
- COURVOISIER, L. G., 1911.– Eine neue oder wenig bekannte Lycaeniden formen.– *Deutsche Entomologische Zeitschrift, Iris*, **25**: 103-109, pl2.
- EITSCHBERGER, U., 1991. Die Taxa der *Pieris napi*-Gruppe in Südeuropa dem Balkan, der Türkei und Persien.– *Atalanta*, **21**(3/4): 269-271.
- GRAVES, P. P., 1920.– Collecting in Turkey in 1919.– *Entomologist's Record and Journal of Variation*, **32**: 105-107.
- GRAVES, P. P., 1921.– Collecting in Asia Minor in 1920.– *Entomologist's Record and Journal of Variation*, **33**: 41-48.
- HESSELBARTH, G., VAN OORSCHOT, H. & WAGENER, S., 1995.– *Die Tagfalter der Türkei unter Berücksichtigung Länder*, **1**: 1-754, **2**: 755-1354 + **3**: 1-846. Druckhaus Cramer, Greven.
- HIGGINS, L. G., 1966.– Check-List of Turkish Butterflies.– *Entomologist*, **99**: 209-222, 1 map.
- KARAÇETİN, E. & WELCH, H. J., 2011.– *Türkiye'deki Kelebeklerin Kırmızı Kitabı*: 125 pp. Ankara Doğa Koruma Merkezi
- KEMAL, M. & KOÇAK, A. Ö., 2011.– A synonymical and distributional checklist of the Papilionoidea and Hesperioidea of East Mediterranean countries, including Turkey (Lepidoptera).– *Centre for Entomological Studies, Priamus Suppl.*, **25**:1-162, 42 Pls.
- KOÇAK, A. Ö. & KEMAL, M., 2007a.– Revised and annotated checklist of the Lepidoptera of Turkey.– *Centre for Entomological Studies, Priamus Suppl.*, **8**: 1-150.
- KOÇAK, A. Ö. & KEMAL, M., 2002.– Faunistik taksonomik ve zoocoğrafik notlarla Çatak Kelebekleri (Papilionoidea, Hesperioidea, Lepidoptera).– *Centre for Entomological Studies Ankara. Miscellaneous Papers*, **82/85**: 1-32.

- KOÇAK, A. Ö. & KEMAL, M., 2007b.– Synonymical and distributional List of the species of Erzincan Province (North East Turkey) (Lepidoptera).– *Centre for Entomological Studies Ankara. Miscellaneous Papers*, **115/116**: 1-16.
- KOÇAK, A. Ö. & SEVEN, S., 1998. A Tentative List of the Threatened Butterflies in Turkey.– *Centre for Entomological Studies Ankara. Miscellaneous Papers*, **52**: 3-8.
- KOÇAK, A. Ö., 1975a.– A new species of genus *Lysandra* from Turkey (Lepidoptera, Lycaenidae).– *Atalanta*, **6**(1): 31-34.
- KOÇAK, A. Ö., 1975 b.– New Lepidoptera from Turkey-II.– *Atalanta*, **6**(1): 50-55.
- KOÇAK, A. Ö., 1977.– Studies on the family Lycaenidae (Lep.) I. New taxa and records from East Turkey.– *Atalanta*, **8**(1): 41-62.
- KOÇAK, A. Ö., 1983. On the nomenclature of the genus *Hipparchia* Fabricius, 1807 (Lepidoptera, Satyridae).– *Centre for Entomological Studies, Priamus*, **2**(4): 166-169.
- KOÇAK, A. Ö., 1999.– Orta Anadolu'da yeni bir *Agrodiaetus* Hbn. türünün tanımı (Lepidoptera, Lycaenidae).– *Centre for Entomological Studies Ankara. Miscellaneous Papers*, **59**: 3-7, 4 figs.
- LATTIN, G. DE, 1941.– Eine neue *Parnassius apollo* L. Rasse aus Anatolien.– *Zeitschrift der Wiener Entomologen-Vereins*, **26**: 145-148.
- LATTIN, G. DE, 1950.– Türkische Lepidopteren-I.– *Istanbul Üniversitesi Fen Fakültesi Mecmuası (Ser B)*, **15**(4): 301-328.
- LATTIN, G. DE, 1951.– Türkische Lepidopteren-II.– *Istanbul Üniversitesi Fen Fakültesi Mecmuası (Ser B)*, **16**(1): 45-73.
- LEDERER, J., 1865. Excursion lepidopterologique en Anatolie.– *Annales de la Société Entomologique de Belgique*, **9**: 49-81.
- PECHENIK, J. A., 2005.– *Biology of the Invertebrates*, **10**: V + 590 pp. McGraw-Hill Higher Education.
- PFEIFFER, E., 1926-1927.– Ein Beitrag zur Insektenfauna von Kleinasien (Anatolien).– *Mitteilungen der Münchener Entomologischen Gesellschaft*, **16**(9-12): 99-110 (1926); **17**(1): 35-55.
- SCHURIAN, K. & HAÜSER, C., 1981.– Zoogeographie und subspezifische Gliederung der zentral- und ostanatolischen, sowie der iranischen *Meleaeageria*-Formen (Lepidoptera: Lycaenidae).– *Atalanta*, **12**(2): 101-111.
- SCHURIAN, K. G. & REIF, A., 1992.– Beitrag zur Biologie von *Polyommatus (Aricia) isaurica* (Staudinger) (Lepidoptera: Lycaenidae).– *Nachrichten des Entomologischen Vereins Apollo, N. F.*, **12**(4): 255-261.
- SCHURIAN, K. G., OORSCHOT, H. V. & BRINK, H., 1992.– *Polyommatus (Agrodiaetus) poseidon* (HS) und *Polyommatus (Agrodiaetus) theresiae* sp. nov. aus der Türkei (Lepidoptera: Lycaenidae).– *Nachrichten des Entomologischen Vereins Apollo, N. F.*, **12**(4): 217-232.
- SCHWINGENSCHUSS, L., 1939.– Kleiner Beitrag zur fauna der Umgebung Erzerums in Kleinasien.– *Zeitschrift der Osterreichischen Entomologen-Vereins*, **24**(7): 97-100.
- STAUDINGER, O., 1878.– Lepidopteren-Fauna Kleinasien's.– *Horae Societatis Entomologicae Rossicae*, **14**: 176-482.
- STAUDINGER, O., 1882.– Beitrag zur Lepidopteren-Fauna Central-Asiens.– *Stettiner Entomologische Zeitung*, **43**: 35-78.
- WAGENER, S., 2005.– Butterfly Diversity in Turkey.– *Bonner zoologische Beiträge*, **54**(1): 3-23.
- WAGENER, S., 1983.– Zwei neue *Melanargia*-Formen aus Anatolien.– *Atalanta*, **14**: 247-299.
- WAGNER, F., 1929.– Weiterer Beitrag Lepidopteren-Fauna. Inner-Anatoliens.– *Mitteilungen der Münchener Entomologischen Gesellschaft*, **19**: 1-28
- WAGNER, F., 1930.– Zweiter (III), Beitrag zur Lepidopteren-Fauna, Inner-Anatoliens.– *Internationale Entomologische Zeitschrift*, **23**: 545-59 (1930).
- WAGNER, F., 1931.– Dritter (IV), Beitrag zur Lepidopteren-Fauna, Inner-Anatoliens.– *Internationale Entomologische Zeitschrift*, **24**: 475-485.
- WAGNER, F., 1932.– Vierter (V.), Beitrag zur Lepidopteren-Fauna, Inner-Anatoliens.– *Internationale Entomologische Zeitschrift*, **26**: 178-183, 185-191, 216.
- WAGNER, F., 1933.– Die erste Stände zweier kleinasiatischer Lepidopteren und Beschreibung einer neuen Form.– *Zeitschrift der Osterreichischen Entomologen-Vereins*, **18**: 88-91.
- WEHRLI, E., 1934.– Lepidopteren-Fauna von Marasch in Turkish Nordsyrien.– *Mitteilungen der Münchener Entomologischen Gesellschaft*, **24**1: 1-18.
- WHEELER, G., 1943.– Notes on a box of Turkish Butterflies sent by Dr. Burr.– *Entomologist's Record and Journal of Variation*, **55**: 38-40.

- WOLFGANG, TH. & SCHURIAN, K., 2009.– *Polyommatus (Aricia) crassipunctus varicolor* ssp. n., a new subspecies from Iran (Lepidoptera: Lycaenidae).– *Nachrichten des Entomologischen Vereins Apollo, N. F.*, **30**(1/2) 9-17.
- ZELLER, P. C., 1847.– Verzeichniss der vom Prof. Loew in der Turkey und in Asien gesammelten Lepidopteren.– *Isis von Oken*, **1**: 3-39.
- ZUKOWSKY, B., 1937.– Reisebericht über entomologische Aufsammlungen im nordöstlichen Anatolien (Westliches Armenien) 1934 (Lep.).– *Entomologische Rundschau*, **55**: 37-40.
- ZUKOWSKY, B., 1938.– Herbstreise nach Kleinasien, Nordost-Anatolien und zilizischer Taurus (Lep.).– *Entomologische Rundschau*, **55**: 657-659 (1938).
- ZUKOWSKY, B., 1941.– Sivas and Akşehir in 1937.– *Entomologische Zeitschrift, Frankfurt*, **54**: 266-272.

\*S. S.  
Gazi University  
Science Faculty  
Biology Department, Zoology Section  
TR-06500 Ankara  
TURQUÍA / TURKEY  
E-mail: selma@gazi.edu.tr  
E-mail: selmaseven@gmail.com

A. D.  
Hacettepe University  
Science Faculty  
Biology Department, Zoology Section  
TR-06500 Ankara  
TURQUÍA / TURKEY  
E-mail: demirsoy@hacettepe.edu.tr

\*Autor para la correspondencia / *Corresponding author*

(Recibido para publicación / *Received for publication* 8-XI-2013)  
(Revisado y aceptado / *Revised and accepted* 10-V-2014)  
(Publicado / *Published* 30-XII-2014)



**Table1.**– Numbers, locality information of butterfly types collected from Kemaliye in 2005-2007, and the end endemic species in the field and Red list statuses.

Taxon	Collecting station	Number of species	Altitude (m)	Endemic	The Redlist statuses of the species	
					(KOÇAK <i>et al.</i> , 1998)	(KARACETİN <i>et al.</i> , 2011)
<i>Parnassius apollo</i> (Linnaeus, 1758)	29, 30	1E 1L	1875-1900		VU	LC
<i>Parnassius mnemosyne</i> (Linnaeus, 1758)	3, 23, 33	4	1041-1500		VU	LC
<i>Papilio alexanor</i> Esper, [1800] *	38, 39	2	1300-1320		VU	LC
<i>Iphiclides podalirius</i> (Linnaeus, 1758)	5, 37, 43, 44	6	800-1290		IN	LC
<i>Archon apollinus</i> (Herbst, 1798)	6, 8, 9, 13	34	1035-1450		VU	LC
<i>Zerynthia deyrollei</i> (Oberthür, 1869)	6, 23	4	1041-1200		VU	LC
<i>Pieris brassicae</i> (Linnaeus, 1758)	prevalent		————		IN	LC
<i>Pieris ergane detersa</i> Verity, [1908]	23, 23, 27, 28, 29, 30, 31, 32	34	1041-1900		IN	LC
<i>Pieris rapae</i> (Linnaeus, 1758)	5, 10, 15, 23, 24 27, 41, 42, 43, 44	14	800-2350		IN	LC
<i>Pieris pseudorapae</i> Verity, [1908]	8, 13, 48	7	850-1450			LC
<i>Pieris bryoniae</i> (Hübner, [1805])	22	1	1635			LC
<i>Pieris krueperi</i> Staudinger, 1860 *	31	1	1640		IN	LC
<i>Leptidea duponcheli lorkovici</i> (Pfeiffer, 1932)	20, 27, 37, 45	5	750-1393			LC
<i>Leptidea sinapis</i> (Linnaeus, 1758)	6, 7, 15	4	1000-1200			LC
<i>Aporia crataegi</i> (Linnaeus, 1758)	14, 15, 16, 23, 27, 33, 41, 43	25	885-1680			LC
<i>Anthocharis cardamines</i> (Linnaeus, 1758)	1, 4	11	750-950		IN	LC
<i>Anthocharis gruneri armeniaca</i> Christoph, 1893*	6, 9, 13	8	1200-1450		VU	LC
<i>Euchloe ausonia taurica</i> Röber, [1907]	43	1	800		IN	LC
<i>Pontia edusa</i> (Fabricius, 1777)	7, 23, 30, 31, 34, 40	8	1041-1900			LC
<i>Colias crocea</i> (Fourcroy, 1785)	1, 3, 7, 13, 28, 29 30, 31, 34, 37, 39, 40, 44, 46	30	750-1900			LC
<i>Colias alfajariensis</i> Ribbe, 1905	7, 26, 29, 31, 34	2	1640-1875		IN	LC
<i>Colias chlorocoma</i> Christoph, 1888	24		235		RA	DD
<i>Gonepteryx rhamni</i> (Linnaeus, 1758)	44, 45	2	750-800			LC
<i>Vanessa cardui</i> (Linnaeus, 1758)	28, 33, 34, 37	3	1290-1887			LC
<i>Aglais urticae turcica</i> (Staudinger, 1871)	28, 39	2	1300-1887			LC
<i>Nymphalis polychloros</i> (Linnaeus, 1758)*	1, 13, 27, 39	7	750-1450			LC
<i>Argynnis paphia</i> (Linnaeus, 1758)	27	1	1393		IN	LC
<i>Argynnis pandora</i> ([Denis & Schiffmüller], 1775)	10, 15, 18, 19, 21, 27, 39, 44, 46	17	800-1393			LC
<i>Argynnis aglaja</i> (Linnaeus, 1758)	28, 21	3	1300-1887		IN	LC
<i>Issoria lathonia</i> (Linnaeus, 1758)	1, 3, 6, 13, 28, 31, 39, 46	11	750-1887			LC
<i>Thaleropsis ionia</i> (Eversmann, 1851)	10, 37, 44	4	800-1290			LC
<i>Limnitis reducta</i> Staudinger, 1901	7, 27, 37, 39, 44	15	800-1393		IN	LC
<i>Polygonia egea</i> (Cramer, [1775])	21, 23	2	1041-1300		IN	LC
<i>Vanessa atalanta</i> (Linnaeus, 1758)	15, 39	3	1000-1300			LC
<i>Argynnis adippe</i> ([Denis & Schiffmüller], 1775) *	44	1	800		IN	LC
<i>Argynnis niobe gigantea</i> Stainton, 1871	2, 3, 12, 14, 15, 27, 28, 31, 33, 37, 38, 39, 44	21	800-1887		IN	LC

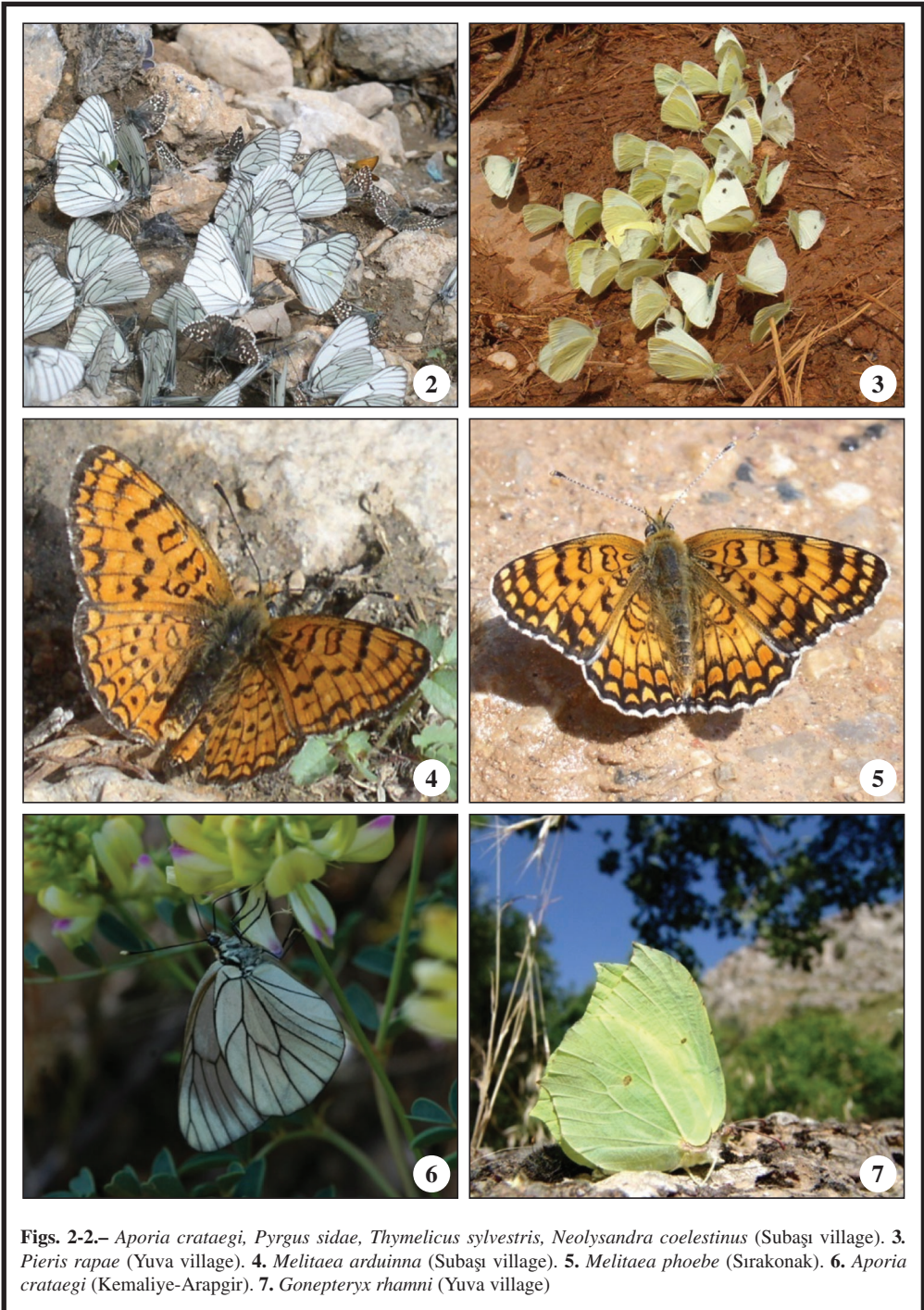
## CONTRIBUTION TO THE KNOWLEDGE OF THE BUTTERFLY FAUNA OF ERZINCAN PROVINCE (NORTH EAST TURKEY)

<i>Melitaea fascelis</i> (Fabricius, 1787)*	10, 31	2	1087-1640			LC
<i>Melitaea cinxia</i> (Linnaeus, 1758)	2, 3, 12, 23, 28, 31	6	1041-1640			LC
<i>Melitaea phoebe</i> (Denis & Schiffermüller, 1775)	22, 31, 39	5	1300-1640			LC
<i>Melitaea didyma</i> (Esper, [1778])	2, 10, 16, 23, 27, 36	9	885-1500			LC
<i>Melitaea collina</i> Lederer, 1861	31, 33	3	1500-1640			LC
<i>Melitaea arduinna</i> (Esper, [1778])	33	2	1500		IN	LC
<i>Euphydryas aurinia</i> (Rottemburg, 1775) *	12, 23, 39	7	1041-1550		IN	LC
<i>Brenthis daphne</i> (Bergstraesser, 1780)	2, 19, 27, 28	10	1270-1887		IN	LC
<i>Brenthis hecate transcaucasica</i> Wnukowsky, 1929	14, 16, 18, 19, 31	18	885-1640		IN	LC
<i>Libythea celtis</i> (Laicharting, [1782]) *	1, 6, 27, 39, 44	29	750-1393		IN	LC
<i>Pararge aegeria</i> (Linnaeus, 1758) *	43, 45, 46	7	850-1000		IN	LC
<i>Maniola jurtina</i> (Linnaeus, 1758)	10, 44, 46	11	800-1087			LC
<i>Melanargia larissa</i> (Geyer, [1828])	2, 7, 14, 16, 27, 29, 34, 37, 38, 40	20	885-1875			LC
<i>Brintesia circe</i> (Fabricius, 1775)	16, 18, 26, 27, 43	9	850-1450		IN	LC
<i>Hipparchia syriaca</i> (Staudinger, 1871)	10, 21, 27, 37, 43	8	850-1393		IN	LC
<i>Hipparchia statilinus</i> (Hufnagel, 1766)	37	1	1290			LC
<i>Lasiommata meara</i> (Linnaeus, 1758)	23, 28, 34, 43	6	850-1887		IN	LC
<i>Lasiommata megera</i> (Linnaeus, 1767)	10, 44	2	800-1087		IN	LC
<i>Pseudochazara pelopea persica</i> (Christoph, 1878)	15, 27, 38	13	1000-1393		IN	LC
<i>Hipparchia parisatis</i> (Kollar, 1849)	5	2	850			LC
<i>Pseudochazara anthelea</i> (Hübner, [1824])	37	2	1290			LC
<i>Esperarge clymene</i> (Esper, 1787)	18, 19, 21, 27, 29, 32, 40	16	1264-1875		IN	LC
<i>Chazara briseis</i> (Linnaeus, 1764)	10, 21, 24, 26, 29, 38, 40	10	1087-2300			LC
<i>Chazara bischoffi</i> (Herich-Schäffer, 1846)	29, 34	2	1875		IN	LC
<i>Coenonympha pamphilus</i> (Linnaeus, 1758)	23, 27, 44	4	800-1393			LC
<i>Coenonympha saadi</i> (Kollar, 1849)	11, 14, 21, 27, 38	12	950-1393			LC
<i>Hyponephele wagneri</i> (Herrich-Schäffer, 1846)	26	1	1450		IN	VU
<i>Hyponephele lycaon</i> (Rottemburg, 1775)	14, 21, 26, 27, 28, 34, 38, 40, 43	23	850-1875		IN	LC
<i>Hyponephele lupinus</i> (Costa, [1836])	2, 7, 10, 27, 34, 40	9	1087-1670			LC
<i>Kirinia roxelana</i> (Cramer, [1777])	16, 27, 38, 40	4	885-1670		IN	LC
<i>Satyrus amasinus</i> Staudinger, 1861	24, 29, 40	6	1670-2300		IN	LC
<i>Satyrus favonius</i> Stainton, [1892]	2	1	1468		IN	LC
<i>Chilades trochylus</i> (Freyer, [1843])	7, 27	2	1182-1393			LC
<i>Polyommatus pyrenaicus dardanus</i> Freyer, [1844]	28	1	1887		IN	LC
<i>Polyommatus thersites</i> (Canterer, [1835])	3, 10, 23, 25, 33, 37, 43, 44	10	800-1500			LC
<i>Lycaena tityrus</i> (Poda, 1761)	28, 30, 34, 37, 43, 44	15	800-1900		IN	LC
<i>Satyrium abdominalis</i> (Gerhard, [1850])	14, 16, 34, 37, 38	6	885-1530			LC
<i>Satyrium ilicis</i> (Esper, [1779])	38	1	1320		IN	LC
<i>Satyrium myrtale</i> (Klug, 1834)	44	1	800			LC
<i>Satyrium spini</i> (Fabricius, 1787)	34, 43	2	850-1530			LC
<i>Lycaena phlaeas</i> (Linnaeus, 1761)	21, 28, 30, 44, 47	7	800-1900		IN	LC
<i>Lycaena alciphron</i> (Rottemburg, 1775)	5, 21, 27, 28, 29, 34, 43, 44	20	800-1900		IN	LC
<i>Lycaena asabinus</i> (Herrich-Schäffer, 1851)	7, 22, 23, 30, 34, 44	10	800-1900		IN	LC
<i>Lycaena thersamon</i> (Esper, [1784])	22	1	1635		IN	LC

<i>Lycaena kefersteinii</i> (Gerhard, [1850])	23	2	1041			LC
<i>Plebejus pylaon sephirus</i> (Frivaldsky, 1835)	3, 5, 12, 28, 44	14	800-1887			LC
<i>Callophrys rubi</i> (Linnaeus, 1758)	2, 14	4	950-1468			LC
<i>Callophrys paulae</i> Pfeiffer, 1932	24	7	2350		IN	LC
<i>Pseudophilotes vicrama</i> (Moore, 1865)	22, 23, 27, 33, 43, 44	8	800-1635		IN	LC
<i>Rubrapterus bavius</i> (Eversmann, 1832)	44	1	800		IN	LC
<i>Glaucopsyche alexis</i> (Poda, 1761)	2, 22, 44	4	800-1635			LC
<i>Glaucopsyche astrea</i> (Freyer, [1851]) *	12, 22, 23, 33, 37, 44	25	800-1635	E	IN	LC
<i>Neolysandra coelestinus</i> (Eversmann, 1843)	22, 23, 28, 30, 31	20	1041-1900		IN	LC
<i>Celastrina argiolus</i> (Linnaeus, 1758)	15, 27, 34, 37, 39	12	1000-1530			LC
<i>Lampides boeticus</i> (Linnaeus, 1767)	15, 27, 29, 37	7	1000-1875			LC
<i>Tarucus balkanicus</i> (Freyer, [1844]) *	2, 12, 16, 17, 27, 37, 40, 43, 44	32	800-1670			LC
<i>Cigaritis cilissa</i> Lederer, 1861	40	1	1670		IN	EN
<i>Cigaritis acamas</i> (Klug, 1834)	37	1	1290		IN	LC
<i>Cigaritis uighurica</i> Koçak & Kemal, 2005	37	1	1290		IN	LC
<i>Lysandra bellargus</i> (Rottemburg, 1775)	7, 46	2	930-1182			LC
<i>Polyommatus loewii</i> (Zeller, 1847)	7, 27, 32, 34, 38, 39, 40	58	1182-1670		IN	LC
<i>Polyommatus amandus</i> (Schneider, 1792)	12, 14, 15, 22, 23, 27, 37, 38, 44	18	800-1635			LC
<i>Polyommatus icarus</i> (Rottemburg, 1775)	3, 7, 10, 15, 17, 21, 23, 25, 27, 30, 33, 37, 43, 44	49	800-1900			LC
<i>Sublysandra cornelia</i> (Freyer, 1850)	18, 25, 27, 34	6	1264-1550	E		LC
<i>Polyommatus aedon</i> (Christoph, 1877)	44	1	800			LC
<i>Polyommatus dorylas</i> ([Denis & Schiffmüller], 1775)	28	2	1887		IN	LC
<i>Polyommatus isauricus</i> (Staudinger, 1871)	32, 43	2	850-1658			LC
<i>Glaucopsyche lessei</i> (Bernardi, 1964)	39	2	1300		VU	LC
<i>Aricia agestis</i> ([Denis & Schiffmüller], 1775)	10, 14, 17, 23, 26, 27, 40, 44	23	800-1450			LC
<i>Ultraaricia anteros crassipunctus</i> (Christoph, 1893)	11	2	1200		IN	LC
<i>Turanana endymion</i> (Freyer, [1850])	15, 18, 28, 29, 33, 34, 37, 43	17	850-1900		IN	LC
<i>Polyommatus admetus</i> (Esper, [1783])	26	3	1450			LC
<i>Polyommatus menalcas</i> (Freyer, [1837])	37	14	1290	E	IN	LC
<i>Polyommatus hopfferi</i> (Gerhard, [1851])	26, 27, 33, 37, 43	1	850-1530	E	IN	LC
<i>Polyommatus poseidon</i> (Herrich-Schäffer, 1851)	26	5	1457	E	IN	LC
<i>Polyommatus iphigenia</i> (Herich-Schäffer, 1847)	32, 34, 37	3	1290-1658		IN	LC
<i>Polyommatus phyllis</i> (Christoph, 1877)	34, 37	7	1290-1530		IN	LC
<i>Polyommatus firdusii</i> (Forster, 1956)	31, 32, 34	1	1530-1658		IN	DD
<i>Polyommatus wagneri</i> (Forster, 1956)	32	1	1658	E	IN	DD
<i>Polyommatus antidotus</i> (Rebel, 1901)	7	1	1182	E	IN	DD
<i>Polyommatus actis</i> (Herich-Schäffer, 1851)	34	1	1530	E		DD
<i>Meleageria daphnis</i> ([Denis & Schiffmüller], 1775)	7, 10, 18, 21, 25, 27, 29, 32, 34, 37, 40, 43	58	850-1875			LC
<i>Cupido osiris</i> (Meigen, [1829])	2, 12, 22, 23, 33, 36	13	1041-1550			LC
<i>Cyaniris semiargus</i> (Rottemburg, 1775)	12, 23, 33, 36, 37, 44	9	800-1550			LC

CONTRIBUTION TO THE KNOWLEDGE OF THE BUTTERFLY FAUNA OF ERZINCAN PROVINCE (NORTH EAST TURKEY)

<i>Kretania eurypilos</i> (Freyer, [1851])	31, 39	16	1300-1640		IN	LC
<i>Plebejus argus</i> (Linnaeus, 1758)	29, 32	10	1658-1875		IN	LC
<i>Hesperia comma</i> (Linnaeus, 1758)	35	1	1370-1703		IN	LC
<i>Ochlodes venatus</i> (Bremer & Grey, 1853)	31	1	1640			LC
<i>Thymelicus acteon</i> (Rottemburg, 1775)	10, 25	1	1087-1457		IN	LC
<i>Thymelicus lineola</i> (Ochsenheimer, 1808)	14, 17, 18, 21, 22, 27, 29, 32, 33, 36, 37, 38, 43	25	850-1875			LC
<i>Thymelicus sylvestris syriacus</i> (Turati, [1905])	14, 15, 16, 17, 18, 25, 27, 37	26	885-1875			LC
<i>Carcharodus alcaea</i> (Esper, [1780])	13, 26, 30, 36	6	1450-1900			EN
<i>Carcharodus lavatherae</i> (Esper, [1783])	27, 28	2	1393-1875		IN	LC
<i>Carcharodus orientalis</i> Reverdin, 1913	1, 15	2	750-1000		IN	LC
<i>Muschampia poggei</i> (Lederer, 1858)	15, 27, 28, 31, 39	14	1000-1887		IN	LC
<i>Muschampia proteides</i> (Wagner, 1929)*	39	1	1300		IN	LC
<i>Muschampia tessellum</i> (Hübner, [1803])	23, 31	2	1041-1640		IN	LC
<i>Neospialia orbifer</i> (Hübner, [1823])	3, 14, 15, 21, 22, 27, 36, 39, 43, 46	22	930-1635			LC
<i>Pyrgus melotis ponticus</i> (Reverdin, 1914)	7, 17, 22, 27	4	1050-1635			LC
<i>Pyrgus serratulae major</i> (Staudinger, 1878)	28, 31, 33, 37, 46	7	930-1887		IN	LC
<i>Pyrgus cinarae</i> (Rambur, 1839)	32, 35	3	1370-1703		IN	LC
<i>Pyrgus armoricanus</i> (Oberthür, 1919)	27, 28	2	1393-1900		IN	LC
<i>Pyrgus sidae</i> (Esper, [1784])	33	7	1500		IN	LC
<i>Ernnis tages</i> (Linnaeus, 1758)	15, 30, 37	3	1000-1900			LC
<i>Erynnis marloyi</i> (Boisduval, [1834])	44	1	800m		IN	LC





8



9



10



11



12



13

**Figs. 8-13.**– 8. Larva of *Parnassius apollo* (Subatan). 9. *Libythea celtis* (Başbağlar village). 10. *Hyponephele wagneri* (Ocak village). 11. *Archon apollinus* (Dolunay village). 12. *Cigaritis cilissa* (Yeşilyamaç). 13. *Rubrapterus bavius* (Yuva village, Karasu river)

## REVISION DE PUBLICACIONES *BOOK REVIEWS*

**J. Dantart & J. Jubany**  
**Les Papallons diürnes d'Andorra**  
**329 p ginas**  
**Formato 21 x 15 cm**  
**CENMA, Andorra la Vella, 2012**  
**ISBN: 978-99920-2-061-6**

Siempre nos es muy grato el poder comprobar que se va aumentando el conocimiento lepidopterol gico de los tres pa ses que forman la Pen nsula Ib rica y en este caso concretamente de Andorra, que si bien es el m s peque o, tiene una interesante fauna de alta monta a muy bien conocida en estos momento gracias al trabajo de nuestros estimados colegas, en lo que respecta a los Rhopalocera que llegan a tratar 149 especies.

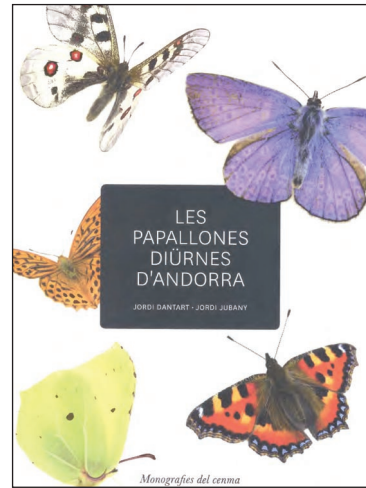
Despu s de los agradecimientos y la introducci n, nos presentan una serie de apartados entre los que destacamos el  mbito geogr fico y los antecedentes hist ricos sobre el conocimiento lepidopterol gico de Andorra, seguido de una extensa exposici n sobre las diferentes familias consideradas.

A continuaci n nos encontramos con la parte m s importante del libro, donde se tratan las especies consideradas y en cada una de ellas, nos dan su nombre cient fico, datos sobre su identificaci n, fenolog a, biolog a, h bitat y su distribuci n plasmada en un mapa, con muy buenas fotograf as de los adultos tomadas en vivo, finalizando con espec fica bibliograf a y de un  ndice.

No podemos terminar estas l neas, sin felicitar a los autores por este trabajo necesario y bien realizado, as  como a la Editorial que no ha escatimado medios para mantener la buena calidad de impresi n de este libro, por lo que recomendamos vivamente esta nueva publicaci n, que no puede faltar en ninguna biblioteca espec fica que se precie.

El precio de este libro es de 32 euros y los interesados lo pueden pedir a:

**La Pu a**  
**Carrer Joan Maragal, 14**  
**AD-500 Andorra la Vella**  
**ANDORRA / ANDORRA**  
**E-mail: lapuca@lapuca.com**



**A. Vives Moreno**  
**E-mail: avives@eresmas.net**