

Lepidoptera from the Isola delle Femmine Nature Reserve (Sicily, Italy)

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ABSTRACT

On the basis of specific entomological researches carried out on Isola delle Femmine Nature Reserve (Sicily, Italy) in recent years, a first check-list of the Lepidoptera with 46 species recorded is provided. Additional taxonomic, faunal and geonomic informations for four of these species are provided: *Idaea leipnitzii* Hausmann, 2004 (Geometridae), *Maradana fuscolimbalis* (Ragonot, 1887) and *M. viduialis* (Chrétien, 1911) (Pyralidae) and *Crassicornella crassicornella* (Zeller, 1847) (Tinaeidae).

KEY WORDS

Maradana fuscolimbalis; *M. viduialis*; checklist; *Idaea leipnitzii*; *Crassicornella crassicornella*.

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INTRODUCTION

Isola delle Femmine Nature Reserve (Sicily, Italy) was established under decree n° 584, 01/09/1997 (Suppl. Ord. G.U.R.S. n° 3 the 16/01/1998) by Sicilian regional Government (Catalano et al., 1979) and managed by LIPU/Birdlife Italia. This island is a part of the regional protected areas belonging to Nature 2000 network under European Directives 79/409/CEE (Birds Directive) and 92/43/CEE (“Habitat” Dir.) as Site of Community Importance with code ITA020005 (Isola delle Femmine). Afterwards, on the island a Geosite was established with decree D. Ass. R. Sicilia n° 106 15 April 2015. Lastly, Isola delle Femmine was declared to be a Special Area of Conservation under European Directive 92/43/CEE (Riggio & Massa, 1974; Riggio & Raimondo, 1992; Di Dio, 2011).

This study represents a first contribution to the knowledge of the population of diurnal and nocturnal butterflies on Isola delle Femmine. A check-list of the sampled species and more information on 4 of them of particular faunal interest are provided.

MATERIAL AND METHODS

Study area

Isola delle Femmine Nature Reserve ($38^{\circ}12'36''$ N - $13^{\circ}14'10''$ E) is located to the northwest of Sicily (Italy), near Palermo, along a stretch of coast between Capo Gallo and Punta Raisi, in the Gulf of Carini. A 2 meter deep and 400 meter long arm of sea separates the island from the mainland.

For a detailed description of this biotope see Caldarella et al. (2010), Sparacio et al. (2021) and Viviano et al. (2021).

Sampling

During 2021 we carried out 4 entomological trips (27 May, 14 June, 9 August and 27 September) to Isola delle Femmine Nature Reserve (north-western Sicily, Italy) to evaluate the biodiversity of this small island with particular attention to Insecta Lepidoptera. Other data were obtained from additional excursions carried out between 2022 and 2023.

The diurnal moth species were captured using a typical lepidopteran net. To attract the nocturnal moths, 3 light sources were used with 4 actinic lights and 2 warm lights placed on white sheets. The positioning and switching on of the lights took place one hour before sunset until midnight, always on days with weak winds and without rain. The samples were stored in the freezer and subsequently re-hydrated and prepared according to museum conservation techniques. To determine some species, examination of the genital systems was used following the indications of Robinson (1976); these genital systems were then preserved in glycerin microvials or mounted on standard Euparal slides.

For the determination of the specimens, the following works have been consulted: Bertaccini et al. (1994), Elsner et al. (1999), Leraut (2009; 2012), Parenti (2000), Slamka (2006; 2013) and Trematerra (2003).

All specimens are preserved in the collection of Lucio Morin (Gorizia, Italy) and in the collection of Museo Friulano di Storia Naturale Udine (Italy).

The chorotype is reported for each species. The chorological categories are based on La Greca (1962) subsequently elaborated by Vigna Taglianti et al. (1993, 1999) and Parenzan (1994): ASE (Asiatic-European), ASM (Asiatic-Mediterranean), AWP (Afrotropical-W-Palearctic), CAE (Centrasiatic-European), CEM (Centrasiatic-European-Mediterranean), CME (Central Mediterranean), COS (Cosmopolitan), EUM (European-Mediterranean), MED (Mediterranean), PAL (Palearctic), OLA (Holartic), SCOS (Subcosmopolitan), TEM (Turanic-European-Mediterranean), WME (W-Mediterranean).

RESULTS

The sampling carried out on the Isola delle Femmine Nature reserve allowed us to survey 46 species of Lepidoptera belonging to 41 genera and 18 families,

For all the species sampled, the corresponding chorotypes summarized in Table 1 are shown.

A specimen of *Udea* Guenée in Duponchel, 1845 without abdomen, necessary for the study of the genitals, was determined by comparison as *U. simplicella* (de La Harpe, 1861), given the presence of the species on the nearby mainland.

Among the species of particular interest we highlight *Idaea leipnitzi* Hausmann, 2004, *Crassicornella crassicornella* (Zeller, 1847), *Maradana fuscolimbalis* (Ragonot, 1887), and *M. vidualis* (Chrétien, 1911).

Systematics

Familia COSMOPTERIGIDAE Heinemann et Wocke, 1876

Pyroderces Herrich-Schäffer, 1853

Pyroderces argyrogrammos (Zeller, 1847) - CEM

Familia CRAMBIDAE Latreille, 1810

Aporodes Guenée, 1854

Aporodes floralis (Hübner, 1809) - CEM

Tegostoma Zeller, 1847

Tegostoma comparalis (Hübner, 1796) - ASM

Achyra Guenée, 1849

Achyra nudalis (Hübner, 1796) - CEM

Udea Guenée in Duponchel, 1845

Udea cfr. *simplicella* (de La Harpe, 1861) - MED

Familia EREBIDAE Leach, [1815]

Eilema Hübner, 1819

Eilema caniola (Hübner, 1808) - MED

Coscinia Hübner, 1819

Coscinia chrysocephala (Hubner, 1810) - MED

Utetheisa Hübner, 1819

Utetheisa pulchella (Linnaeus, 1758) - COS (Fig. 1)

Grammodes Guenée, 1852

Grammodes stolida (Fabricius, 1775) - SCOS

Familia GELECHIIDAE Stainton, 1854

Scrobipalpa Janse, 1951

Scrobipalpa ocellatella (Boyd, 1858) - TEM

Phthorimaea Meyrick, 1902

Phthorimaea operculella (Zeller, 1873) - COS

Platyedra Meyrick, 1895

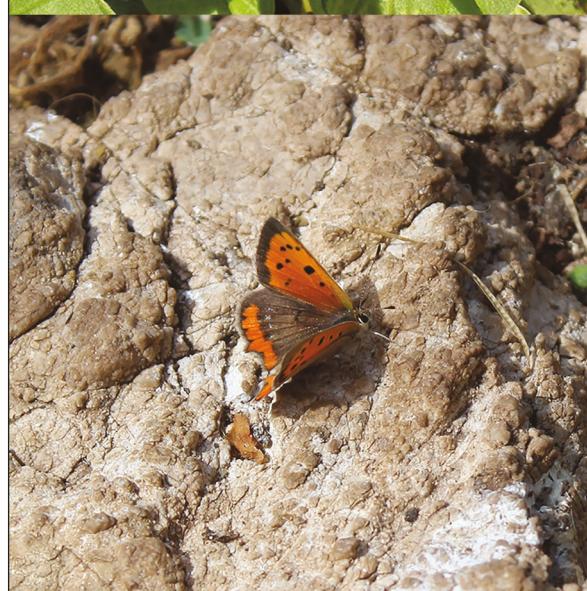
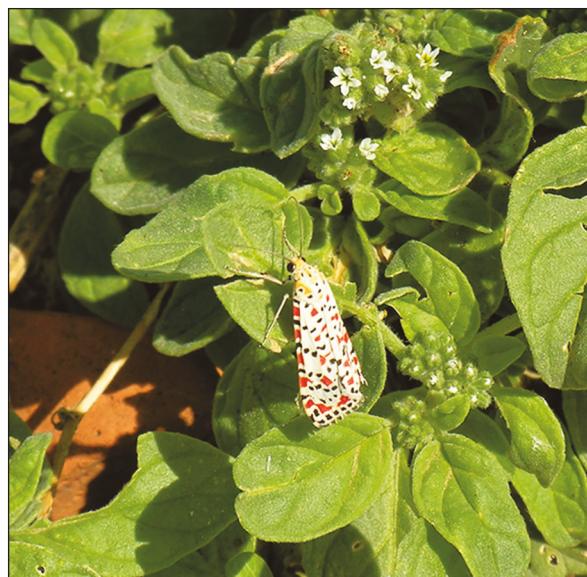
Platyedra subcinerea (Haworth, 1828) - CAE

Familia GEOMETRIDAE Leach, 1815

Scopula Schrank, 1802

Scopula imitaria (Hübner, 1799) - MED (Fig. 2)

Idaea Treitschke, 1825



Figures 1–4. Lepidoptera from the Isola delle Femmine Nature Reserve (north-western Sicily, Italy).
Fig. 1: *Utetheisa pulchella*. Fig. 2: *Scopula imitaria*. Fig. 3: *Lycaena phlaeas*. Fig. 4: *Eutelia adulatrix*.

Idaea leipnitzii Hausmann, 2004

Species described from Dalmatia but with paratypes also from Sicily (Bella et al., 2008–2009) distributed in various regions of southern Italy, Istria, Greece. The species is allopatric to the similar *Idaea mediaria* (Hübner, [1819]) with a western Mediterranean distribution.

Idaea leipnitzii flies preferably in xerophilous coastal areas (Hausmann, 2004). Chorotype: CME.

Idaea rusticata (Denis et Schiffermüller, 1775) - CAE

Idaea seriata canteneraria (Boisduval, 1840) - EUM

Idaea subsericeata (Haworth, 1809) - EUM

Gymnoscelis Mabille, 1868

Gymnoscelis rufifasciata (Haworth, 1809) - PAL

Familia HESPERIIDAE Latreille, 1809

Carcharodus Hübner, [1819]

Carcharodus alceae (Esper, 1780) - CAE

Familia LASIOCAMPIDAE Harris, 1841

Lasiocampa Schrank, 1802

Lasiocampa trifolii cocles (Geyer, 1831) - CEM

Familia LYCAENIDAE Leach, 1815

Lycaena Fabricius, 1807

Lycaena phlaeas (Linnaeus, 1761) - OLA (Fig. 3)

Polyommatus Latreille, 1804

Polyommatus celina (Austaut, 1879) - MED

Familia NOCTUIDAE Latreille, 1809

Eutelia Hübner, 1823

Eutelia adulatrix (Hübner, 1813) - AWP (Fig. 4)

Acontia Ochsenheimer, 1816

Acontia lucida (Hufnagel, 1766) - PAL (Fig. 5)

Pseudozarba Warren in Seitz, 1913

Pseudozarba bipartita (Herrich-Schäffer, 1850) - TEM

Heliothis Ochsenheimer, 1816

Heliothis nubigera Herrich-Schäffer, 1851 - AWP

Caradrina Ochsenheimer, 1816

Caradrina clavipalpis (Scopoli, 1763) - PAL

Mythimna Ochsenheimer, 1816

Mythimna ferrago (Fabricius, 1787) - CEM

Mythimna l-album (Linnaeus, 1767) - CEM

Noctua Linnaeus, 1758

Noctua pronuba Linnaeus, 1758 - PAL (Fig. 6)

Agrotis Ochsenheimer, 1816

Agrotis segetum (Denis et Schiffermüller, 1775) - SCOS

Familia NOLIDAE Bruand, 1847

Xanthodes Guenée, 1852

Xanthodes albago (Fabricius, 1794) - SCOS

Familia NYMPHALIDAE Rafinesque, 1815

Coenonympha Hübner, 1819

Coenonympha pamphilus (Linnaeus, 1758) - CEM (Fig. 7)

Familia PAPILIONIDAE Latreille, 1802

Papilio Linnaeus, 1758

Papilio machaon (Linnaeus, 1758) - OLA

Familia PIERIDAE Duponchel, 1832

Pontia Fabricius, 1807

Pontia edusa (Fabricius, 1777) - PAL

Colias Fabricius, 1807

Colias croceus (Geoffroy in Fourcroy, 1785) - CEM (Fig. 8)

Familia PTEROPHORIDAE Zeller, 1841

Agdistis Hübner, [1825]

Agdistis meridionalis (Zeller, 1847) - ASM

Familia PYRALIDAE Latreille, 1802

Lamoria Walker, 1863

Lamoria anella (Denis et Schiffermüller, 1775) - PAL

Hypotia Zeller, 1847



Figures 5–8. Lepidoptera from the Isola delle Femmine Nature Reserve (north-western Sicily, Italy). Fig. 5: *Acontia lucida*. Fig. 6: *Noctua pronuba*. Fig. 7: *Coenonimpha pamphilus*. Fig. 8: *Colias croceus*.

Hypotia corticalis (Denis et Schiffermüller, 1775) -
MED

Maradana Moore, 1884

Maradana fuscolimbalis (Ragonot, 1888)

Particularly rare species, known from arid and semi-desert areas of North Africa (Morocco, Algeria and Tunisia), Sardinia and Malta (from Leraut, 2014 sub *Stemmatophora fuscolimbalis*), also reported for Western Sahara (Rungs, 1992).

Chorotype: WME.

Other information on the species in Italy can be found on Lepiforum.de which reports it for Tuscany, Basilicata and Sicily (Gela).

Maradana vidualis (Chrétien, 1911)

Species described for Isola delle Femmine by Turati (1922) as *Pyralestes ragusai* subsequently placed in synonymy with *Maradana vidualis* of North Africa (notes in Lepiforum.de).

The species is found in arid areas of North Africa, Malta and Sicily. Chorotype: WME.

Familia SHINGIDAE Latreille, 1802

Hyles Hübner, 1819

Hyles euphorbiae (Linnaeus, 1758) - ASE

Familia TINEIDAE Latreille, 1810

Crassicornella Agenjo, 1952

Crassicornella crassicornella (Zeller, 1847)

Species with an eastern Mediterranean distribution (E-MED), present in Italy, the Balkan Peninsula, Greece, Albania, Turkey and Lebanon, where it replaces the similar *Crassicornella agenjoi* (Petersen, 1957) with a western Mediterranean distribution (WME: France, Spain and North Africa). There is no information on the feeding of the caterpillars (Gaedike, 2019).

Familia TORTRICIDAE Latreille, 1802

CHOROTYPE	species	%
ASE (Asiatic-European)	1	2.17%
ASM (Asiatic-Mediterranean)	2	4.37%
AWP (Afrotropical-W-Palearctic)	2	4.37%
CAE (Centrasiatic-European)	3	6.52%
CEM (Centrasiatic-European-Mediterranean)	8	17.37%
CME (Central Mediterranean)	1	2.17%
COS (Cosmopolitan)	4	8.68%
EUM (European-Mediterranean)	2	4.37%
MED (Mediterranean)	7	15.19%
PAL (Palearctic)	6	13.01%
OLA (Holarctic)	2	4.37%
SCOS (Subcosmopolitan)	3	6.52%
TEM (Turanic-European-Mediterranean)	2	4.37%
WME (W-Mediterranean)	3	6.52%
	46	100%

Table 1. Chorotypes of the Lepidoptera from the Isola delle Femmine Nature Reserve (north-western Sicily, Italy).

Cacoecimorpha Obraztsov, 1954

Cacoecimorpha pronubana (Hübner, 1799) - COS

Crocidosema Zeller, 1847

Crocidosema plebejana Zeller, 1847 - COS

Selania Stephens, 1834

Selania capparidana (Zeller, 1844) - MED

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Web-site

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