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Coleoptera from the Isola delle Femmine Nature Reserve (north-western Sicily, Italy)

Ignazio Sparacio[1,*], Roberto Viviano[2], Salvatore Surdo[3] & Antonino Dentici[4]

[1]Via Principe di Paternò 3, 90144 Palermo, Italy; e-mail: edizionidanaus@gmail.com
[2]Via Michele Cipolla 106, 90123 Palermo, Italy; e-mail: roberto.viviano3@outlook.com
[3]Dipartimento di Scienze agrarie, alimentari e forestali, Viale delle Scienze Edificio 4, 90128 Palermo, Italy; e-mail: salvatore.surdo@unipa.it Orcid: 0000-0002-0300-837X
[4]Via Enrico Cialdini 2, 90124 Palermo, Italy; e-mail: a.dentici@virgilio.it
*Corresponding author

ABSTRACT On the basis of specific entomological researches carried out on Isola delle Femmine Nature Reserve (north-western Sicily, Italy) in recent years, a first annotated check-list of the Coleoptera species is provided.

KEY WORDS Coleoptera; Isola delle Femmine; Sicily; check-list; biodiversity.

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INTRODUCTION

The present work is the result of a series of nature excursions carried out between 2021 and 2024 on the Isola delle Femmine Nature Reserve, a small island on the north-western coast of Sicily (Italy), to study the Coleoptera that live there.

Some previous works carried out by our group have involved the terrestrial malacofauna (Sparacio et al., 2021; 2022; Viviano et al., 2021) and reported the presence of *Calomera panormitana panormitana*, an endemic Sicilian beetle, on the island (Sparacio & Surdo, 2021).

On Lepidoptera, Araneae and Arthropoda (except Coleoptera) other specific contributions were dedicated to Isola delle Femmine (Dentici et al., 2024; Viviano et al., 2024; Morin et al., 2024) by reporting numerous new taxa and more detailed knowledge of the population of these groups.

An initial contribution to the knowledge of Coleoptera population is provided below with an annotated checklist of the sampled species and other faunal and biogeographical data.

MATERIAL AND METHODS

Study area

Isola delle Femmine Nature Reserve 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 was established a Geosite with decree D. Ass. R. Sicilia n° 106 of 15 April 2015. Isola delle Femmine was also declared to be a Special Area of Conservation under European Di-

rective 92/43/CEE (Riggio & Massa, 1974; Riggio & Raimondo, 1992; Di Dio, 2011).

Methods

The excursions carried out in the study area involved the main environments of the island: Mediterranean scrub with *Pistacia lentiscus* L., scrub with *Malva* spp., the coastal strip, the rocky cliffs and an underground environment (Island Cave).

Different sampling methods were used: 1) visual collection under boulders, between shrubs, on plants and in the soil, in the litter; 2) with entomological aspirator; 3) pitfall traps; 4) examination of plant debris and soil in situ or in the laboratory; 5) entomological umbrella; 6) mowing net; 7) light traps. All this allowed us to draw up a first list of Coleoptera present on the Isola delle Femmine and to observe their biology. The identifications were carried out directly in the field, limiting the sampling of living specimens to a minimum. The morphological study was carried out using an Optika stereomicroscope and with a Canon EOS 100D and Nikon D3100 camera. The specimens were preserved dry or in 80% alcohol in the respective authors' collections.

The systematic list follows the one adopted by Stoch (2003). The chorological categories are based on those adopted by La Greca (1962) and subsequently elaborated by Vigna Taglianti et al. (1993, 1999) and Parenzan (1994). Further bibliography consulted is cited in the text.

RESULTS

Systematics

Phylum ARTHROPODA Gravenhorst, 1843
Classis INSECTA Linnaeus, 1758
Ordo COLEOPTERA Linnaeus, 1758
Subordo ADEPHAGA Schellenberg, 1806
Familia CICINDELIDAE Latreille, 1802
Subfamilia CICINDELINAE Latreille, 1802
Tribus CICINDELINI Latreille, 1802

Genus *Calomera* Motschulsky, 1862
Calomera panormitana panormitana Ragusa, 1906

DISTRIBUTION AND BIOLOGY. *Calomera panormitana* (Ragusa, 1906) is a species with eastern Mediterranean range present with the nominal subspecies in Sicily, with the subspecies *cypricola* (Mandl, 1981) in Cyprus and Rhodes and with the subspecies *cretensis* Romano et Sparacio, 2018 in Crete (Romano & Sparacio, 2018).

This species lives in rocky coasts (Cassola, 1983) feeding, in the summer months, on small crustaceans (*Ligia* Fabricius, 1798) or gastropod molluscs (*Littorina* Férussac, 1822 and *Gibbula* Risso, 1826). Sparacio & Surdo (2021) have shown that vermetid trottoirs offer this tiger beetle an environment more sheltered from the sea.

REMARKS. Species recently recorded for Isola delle Femmine (Sparacio & Surdo, 2021; Sparacio et al., 2023) present in the summer months on the rocky coasts of the island (Fig. 1).

Familia CARABIDAE Latreille, 1802
Subfamilia CARABINAE Latreille, 1802
Tribus CARABINI Latreille, 1802

Genus *Carabus* Linnaeus, 1758
Subgenus *Macrothorax* Desmarest, 1850
Species *morbillosus* Fabricius, 1792
Carabus (Macrothorax) morbillosus alternans Palliardi, 1825

DISTRIBUTION AND BIOLOGY. *Carabus (M.) morbillosus* (as the subgenus *Macrothorax*) includes various taxa geographically well-isolated in the Western Mediterranean with the subspecies *alternans* widespread in southern Italy and Sicily (Casale et al., 2021). New molecular and taxonomic data are provided by Colomba et al. (2021).

It is a carnivorous species and lives under stones and debris; active especially in the more humid months.

REMARKS. No live specimen of this species has been found but numerous remains of elytra, pronotum and mandibles were found in the cave together with snails preyed upon by rats, now eradicated from the Isola delle Femmine; other remains are found in the debris and litter throughout the area examined. Presence not to be definitively ruled out but to be confirmed.

Subfamilia HARPALINAE Bonelli, 1810
Genus *Harpalus* Latreille, 1802

Subgenus *Cryptophonus* Brandmayr et Zetto Brandmayr, 1982
Harpalus (Cryptophonus) tenebrosus Dejean, 1829

Distribution and Biology. Central Asian-European-Mediterranean, extended to Macaronesia.

It is a winged and thermophilic species, with good dispersal and colonization capacity; it is recorded from almost all the smaller Italian islands (Vigna Taglianti, 1995).

Remarks. On Isola delle Femmine a specimen of this species was attracted by the light, in the evening hours, in the month of June (Fig. 2).

Subfamilia LEBIINAE Bonelli, 1810
Tribus LEBIINI Bonelli, 1810

Genus *Microlestes* Schmidt-Goebel, 1846
Microlestes luctuosus Holdhaus in Apfelbeck, 1904

Distribution and Biology. Species with Turanian-Mediterranean chorotype extended to Macaronesia, reported in almost all of Italy, including Sicily and Sardinia (Casale et al., 2021).

It lives in open areas, under stones.

Remarks. *Microlestes luctuosus* is one of the most widespread species on the smaller islands (Vigna Taglianti, 1995). Uncommon in Isola delle Femmine, it can be found under stones in the winter months.

Subordo POLYPHAGA Emery, 1886
Familia STAPHYLINIDAE Latreille, 1802
Subfamilia TACHIPORINAE W.S. Macleay, 1825
Tribus TACHIPORINI W.S. Macleay, 1825

Genus *Sepedophilus* Gistel, 1856
Sepedophilus sp.

Distribution and Biology. Tachyporinae are one of the most taxonomically problematic subfamilies in the family Staphylinidae with over 1600 species worldwide and a high diversity in forest micro-environments (Yamamoto, 2021). In Italy the genus *Sepedophilus* has around 16 taxa (Zanetti & Tagliapietra, 2021).

Remarks. This specie was found in April on the path near the coast under a stones.

Subfamilia ALEOCHARINAE Fleming, 1821

Figure 1. *Calomera panormitana panormitana* from Isola delle Femmine (Sicily, Italy).

Figure 2. *Harpalus (Cryptophonus) tenebrosus* from Isola delle Femmine (Sicily, Italy).

Aleocharinae sp.

Distribution and Biology. The Aleocharinae are one of the largest subfamilies of Staphylinidae, with over 12,000 species distributed throughout the world.

They are usually predators in soil and leaf litter, in ant and termite nests, in the mushrooms, in the dung and in almost all terrestrial habitats.

REMARKS. In the *Pistacia lentiscus* scrub, in the leaf litter.

Subfamilia OXYTELINAE Fleming, 1821
Tribus OXYTELINI Fleming, 1821

Genus *Anotylus* Thomson, 1859
Anotylus cfr. ***tetracarinatus*** (Block, 1799)

DISTRIBUTION AND BIOLOGY. Palearctic distribution, also reported in Canada and U.S.A. It is widespread all over Italy (Zanetti & Tagliapietra, 2021) and present in almost all the circum-Sicilian islands according to Bordoni (1973).

This species can be found in dung, mammal nests, and decomposing fungi (Herman 2001).

REMARKS. It was found in Isola delle Femmine in the *Pistacia lentiscus* scrub, in the leaf litter.

Familia GEOTRUPIDAE Latreille, 1802
Subfamilia GEOTRUPINAE Latreille, 1802

Genus *Jekelius* López-Colón, 1989
Subgenus *Jekelius* López-Colón, 1989
Jekelius (Jekelius) intermedius (O.G. Costa, 1839)

DISTRIBUTION AND BIOLOGY. Western Mediterranean, reported in continental Italy, Sicily and Sardinia (Carpaneto et al., 2021).

Coprophagous species. A very common species everywhere in Sicily, it is also found walking on the ground or under stones in the winter months (Sparacio, 1995).

REMARKS. Remains of this species were found in the cave of the island, together with fragments of shells of terrestrial molluscs and *Carabus morbillosus alternans* preyed upon by rats; rarely in the debris outside the cave. This population probably became extinct following the eradication of the rabbit.

Familia SCARABAEIDAE Latreille, 1802
Subfamilia CETONIINAE Leach, 1815
Tribus CETONIINI Leach, 1815

Genus *Tropinota* Mulsant, 1842
Subgenus *Tropinota* Mulsant, 1842
Tropinota (Tropinota) squalida squalida (Scopoli, 1763)

DISTRIBUTION AND BIOLOGY. European subspecies of a Turanian-European-Mediterranean species (with extension up to Pakistan and Macaronesia). *Tropinota (Tropinota) squalida squalida* is reported throughout Italy including Sicily and Sardinia (Carpaneto et al., 2021).

Saproxylophagous larva, flower-growing adult in spring-summer.

REMARKS. Common in Isola delle Femmine, in the spring months, on flowers (Fig. 3).

Familia BUPRESTIDAE Leach, 1815
Subfamilia POLYCESTINAE Lacordaire, 1857

Genus *Acmaeoderella* Cobos, 1955
Subgenus *Acmaeoderella* Cobos, 1955
Acmaeoderella (Acmaeoderella) discoida (Fabricius, 1787)

DISTRIBUTION AND BIOLOGY. Species widespread in the Mediterranean area, recorded in continental Italy, Sicily and Sardinia (Curletti, 2021).

Host plants: *Carduus* and *Cirsium*; Adult on flowers in the spring and summer months.

REMARKS. This species was found in Isola delle Femmine on flowers in the spring months.

Figure 3. *Tropinota (T.) squalida squalida* from Isola delle Femmine (Sicily, Italy).

Subgenus *Euacmaeoderella* Volkovitsh, 1979
Acmaeoderella (Euacmaeoderella) lanuginosa lanuginosa (Gyllenhal, 1817)

Distribution and Biology. Species widespread in the Western Mediterranean. In Italy it is widespread in Apulia, Basilicata, Calabria, Sicilia, with the subspecies *reducta* (Schaefer, 1938) in Sardinia and Corsica (Curletti, 2021).

Host plants: *Cynara*, *Ferula*, *Tapsia*, *Euphorbia*. Adult on flowers in the spring and summer months.

Remarks. This species was found in Isola delle Femmine on flowers in April-May.

Subfamilia AGRILINAE Lacordaire, 1857
Tribus TRACHYINI Gory et Laporte, 1839

Genus *Trachys* Fabricius, 1801
Trachys troglodytiformis Obenberger, 1918

Distribution and Biology. Chorotype Mediterranean extended to Caucasus: South Europe, North Africa to Caucasus. It is present throughout Italy (Curletti, 2021)

The larvae live in Malvaceae (*Alcea*, *Malva*, *Althaea*, *Lavatera*, *Hibiscus palustris* L.); adults on the same plants in spring-summer.

Remarks. *Trachys troglodytiformis* (= *T. corusca* Ponza, 1805) lives in Isola delle Femmine on *Malva* and *Lavatera*. The adults on the flowers of these plants from February to October.

Familia ELATERIDAE
Subfamilia DENDROMETRINAE Gistel, 1848
Tribus DENDROMETRINI Gistel, 1848

Genus *Harminius* Fairmaire, 1851
Harminius spiniger (Candèze, 1860)

Distribution and Biology. Mediterranean, widespread in various regions of Italy but more frequent in southern and island regions (Platia, 1994; Baviera & Platia, 2018; Pulvirenti & Platia, 2021).

Species of low and medium altitudes, adults are found in the summer months on grasses and shrubs, especially at dusk, often attracted by artificial light.

Remarks. On Isola delle Femmine a specimen of *Harminius spiniger* was attracted by the light, in the evening hours, in the month of June (Fig. 4).

Figure 4. *Harminius spiniger* from Isola delle Femmine (Sicily, Italy).

Subfamilia ELATERINAE Leach, 1815
Tribus AGRIOTINI Champion, 1894

Genus *Agriotes* Eschscholtz, 1829
Agriotes siciliensis Pic, 1912

Distribution and Biology. Uncommon Sicilian endemic species recorded until now only from Palermo province: Palermo, Capaci, Passo di Rigano and Parco della Favorita near Palermo (Platia 2005; Baviera & Platia, 2018; Pulvirenti & Platia, 2021; 2022).

Biology unknown.

Remarks. A male of this species was found in Isola delle Femmine in May on herbaceous plants. Very important species, known only in a few locations near Isola delle Femmine.

Subfamilia CARDIOPHORINAE Candèze, 1860
Tribus CARDIOPHORINI Candèze, 1860

Genus *Cardiophorus* Eschscholtz, 1829
Cardiophorus ulcerosus (Gené, 1836)

DISTRIBUTION AND BIOLOGY. Species widespread in the south-western Mediterranean, in Italy reported for Calabria, Sicily and Sardinia (Platia, 1994; Baviera & Platia, 2018; Liberto & Rattu, 2021; Pulvirenti & Platia, 2021).

This species lives on grasses and flowers in spring and under bark in the winter months.

REMARKS. Uncommon species in Isola delle Femmine, found on grasses in the spring months.

Subfamilia AGRYPNINAE Candèze, 1857

Genus *Drilus* G.A. Olivier, 1790
Drilus flavescens G.A. Olivier, 1790

DISTRIBUTION AND BIOLOGY. Species widespread in southern-western Europe; it is recorded in almost all of Italy, especially in the southern regions, Sicily and Sardinia (Poggi, 2021).

Drilus flavescens has sexual dimorphism, as larviform females lack wings. Adult males live on flowers and plants. Females live on the ground and in the shells of snails feeding on the inhabitants. Also, the larvae are predators of terrestrial snails and carry out the entire larval cycle inside the snails where they overwinter and turn into a pupa.

Figure 5. *Drilus flavescens* from Isola delle Femmine inside a shell of *Erctella mazzullii* (Sicily, Italy).

REMARKS. This species has been observed in Isola delle Femmine both with the males in flight or on plants and with the females on the ground or inside the shells of terrestrial snails (Fig. 5). A female was found at the base of a rock wall, inside a shell of *Erctella mazzullii* (De Cristofori & Jan, 1832) (Gastropoda Helicidae).

Famiglia CANTHARIDAE Imhoff, 1856
Subfamilia MALTHININAE Kiesenwetter, 1852

Genus *Malthinus* Latreille, 1806
Malthinus sp.

DISTRIBUTION AND BIOLOGY. *Malthinus* is a genus widespread in Europe, Japan and North America with around 140 described species. For Italy, 34 species have been recorded (Liberti, 2021) and many of these also in Sicily (Sparacio, 1999). They live on plants and flowers preying on small insects.

REMARKS. *Malthinus* sp. was found in Isola delle Femmine on flowers in April-May.

Familia DERMESTIDAE Latreille, 1804
Subfamilia DERMESTINAE Latreille, 1804
Tribus DERMESTINI Latreille, 1804

Genus *Dermestes* Linnaeus, 1758
Subgenus *Dermestinus* Zhantiev, 1967
Dermestes (Dermestinus) frischii Kugelann, 1792

DISTRIBUTION AND BIOLOGY. Cosmopolitan (Háva, 2015, 2022); it is distributed throughout Italy (Nardi, 2021).

REMARKS. Common in Isola delle Femmine, especially on dead and dried Yellow-legged gull, *Larus michahellis* Naumann, 1840, where it is also found in the pre-imaginal stages.

Subfamilia THORICTINAE

Genus *Thorictus* Germar, 1834
Thorictus grandicollis grandicollis Germar, 1842

DISTRIBUTION AND BIOLOGY. This genus lists about 170 taxa known from Palaeractic, Afrotropical and Oriental Regions (Háva, 2015, 2022). *Thorictus grandicollis*, with different populations, has Turanian-European-Mediterranean chorotype

Figure 6. *Ozognathus cornutus* male (photo by G. Cerasa).

(Háva, 2015, 2018). It is distributed throughout Italy (Nardi, 2021).

All species of this genus are myrmecophilous and live in ant nests.

Remarks. *Thorictus grandicollis grandicollis* was found in Isola delle Femmine by sifting the leaf litter in the *Pistacia lentiscus* scrub.

Familia PTINIDAE Latreille, 1802
Subfamilia ERNOBIINAE Pic, 1912

Genus *Ozognathus* LeConte, 1861
Ozognathus cornutus (LeConte, 1859)

Distribution and Biology. The genus *Ozognathus* has Nearctic and Neotropical distribution (White, 1974) with twelve species (Zahradnik & Mifsud, 2005). *Ozognathus cornutus* (LeConte, 1859) is of North American origin, described from specimens hatched from some galls collected in California (USA) (LeConte, 1859), but reported in almost the whole world and rapidly expanding also in Europe (see references in Zahradnik & Mifsud, 2005 and Bazzato et al., 2021). The first Italian records were reported from Sicily (Palermo) and Campania regions by Cusimano et al. (2014) and subsequently reconfirmed, without further details, for Sicily by Sidoti et al. (2016) (Fig. 6).

Ozognathus cornutus is polyphagous species living in dried fruit, in galls formed by Lepidoptera Gelechiidae belonging to the genus *Gnorimoschema* Busck, 1900, in galls of *Andricus quercuscalifornicus* Basset, 1881, herbaceous plants (in particular, Asteraceae family), as well as in the bark and wood of various deciduous and coniferous trees (Stenhouse, 2017; Viñolas, 2017; Cerasa & Lo Verde, 2021). In Switzerland some specimens have been found on a Sicilian garlic (*Allium sativum* L.) bought in a market in Zurich (Chittaro & Sanchez, 2019; Germann & Schmidt, 2017). In Spain this species was reared from plant material of *Ficus carica*, *Phoeniculum vulgare*, *Quercus suber*, *Retama monosperma*, *Scolymus hispanicus* and *Carduus* (Bercedo et al., 2005).

Remarks. *Ozognathus cornutus* was found in Isola delle Femmine in *Pistacia lentiscus* litter.

Subfamilia XYLETININAE Gistel, 1856

Genus *Metholcus* Jacquelin du Val, 1860

Metholcus phoenicis (Fairmaire, 1859)
= *cylindricus* (Germar, 1817)

DISTRIBUTION AND BIOLOGY. It is a Mediterranean species widespread in southern part of Europe, including Italy (Nardi, 2021), Israel and northern Africa (Borowski, 2007).

It was observed to feed on decay wood of several plants (*Juniperus*, *Pistacia lentiscus*, *Quercus*, *Prunus*, *Amygdalus*, etc.). Its larvae also live in date twigs.

REMARKS. On *Pistacia lentiscus* foliage, in May.

Genus *Lasioderma* Stephens, 1835
Lasioderma sp.

DISTRIBUTION AND BIOLOGY. *Lasioderma* listed over 50 species, 15 in Italy (Zahradník, 2007; Nardi, 2021), with many of them distributed all over the world through the dried goods trade they infest.

REMARKS. This species was collected on the ground, on the path near Torre di Fuori.

Familia CLERIDAE Latreille, 1802
Subfamilia CLERINAE Latreille, 1802

Genus *Trichodes* Herbst, 1792
Trichodes alvearius (Fabricius, 1792)

DISTRIBUTION AND BIOLOGY. Central-Southern Europe. North Africa.; all of Italy. At the larval stage they are parasites of the preimaginal stages of several species of bees and wasps; occasionally they also prey on the larvae of xylophagous beetles.

Adult on flowers, in spring-summer, feeding on pollen and other small insects.

REMARKS. Uncommon in Isola delle Femmine, it can be found in the spring months, on flowers.

Subfamilia KORYNETINAE Laporte, 1836

Genus *Necrobia* Latreille, 1797
Necrobia rufipes (De Geer, 1775)

DISTRIBUTION AND BIOLOGY. Cosmopolitan distribution included throughout Italy.

Necrobia rufipes is a pest, causing considerable damage to stored commodities.

In nature it lives on the carcasses of dead animals in contact with soil.

REMARKS. In Isola delle Femmine it is found mainly on the dried carcasses of the Yellow-legged gull.

Familia MELYRIDAE Leach, 1815
Subfamilia MALACHIINAE Leach, 1817

Genus *Attalus* Erichson, 1840
Subgenus *Attalus* Erichson, 1840
Attalus (Attalus) sicanus Erichson, 1840

DISTRIBUTION AND BIOLOGY. Sicilian endemic species also present in some circum-Sicilian islands such as Lampedusa and Pantelleria (Franzini, 1995). Sardinia (?) (Franzini, 2021).

Adult on flowers and plants in spring.

REMARKS. This species was found in Isola delle Femmine in the spring months on flowers and plants.

Subfamilia DASYTINAE Laporte, 1840

Genus *Psilothrix* Redtenbacher, 1858
Subgenus *Psilothrix* Redtenbacher, 1858
Psilothrix (Psilothrix) viridicoerulea (Geoffroy, 1785)

DISTRIBUTION AND BIOLOGY. European-Mediterranean and Macaronesian distribution, including all of Italy (Liberti & Plonski, 2019; Nardi, 2021).

Following the information on the biology of this species provided by Fiori (1971), the larvae initially feed on dead insects' integuments and, later, they become phytophagous digging galleries in the stems of herbaceous plants such as *Ferula*, *Magydaris*, *Carlina*, *Cirsium*, etc. The metamorphosis takes place late in winter and the adults leave the pupal cell in early spring by boring an oval hole in the stem walls; they are active in spring and summer on flowers.

REMARKS. *Psilothrix viridicoerulea* is a common species in Isola delle Femmine, on flowers, in the spring months.

Familia CRYPTOPHAGIDAE Kyrbi, 1837

Subfamilia CRYPTOPHAGINI Kyrbi, 1837

Genus *Micrambe* Thomson, 1863
Micrambe sp.

Distribution and Biology. *Micrambe* listed over 100 species (but this number rise significantly) widespread in distributed in the Palaearctic and Afrotropical Region with 8 species recorded also in Italy (Johnson et al., 2007; Angelini, 2021).

They are detriticolous and fungivores species, feeding on fungal spores and hyphae on the wood-decay and tree fungi.

Remarks. A specimen of *Micrambe* was found in March-April on the foliage of *Pistacia lentiscus* on the south-eastern side of Isola delle Femmine.

Familia PHALACRIDAE Leach, 1815

Genus *Olibrus* Erichson, 1845
Olibrus flavicornis (Sturm, 1907)

Distribution and Biology. Sibirian-European-Mediterranean distribution including all of Italy (Svec & Angelini, 1996).

The adults are found on the flowerheads and feed on the pollen. Biology of the larvae still unknown, some species feed on the maturing achenes. *Olibrus aeneus* (Fabricius, 1792), for example (Freese & Günther, 1991), feeds on the seeds and the receptacles of *Tripleurospermum perforatum* (Mérat) Wagenitz and some other Asteraceae. The oviposition and the development of the larvae occurs occurs on the flowerheads of plants, particularly the apical ones.

Remarks. A small population collected in April on the Isola delle Femmine on the flowers can be attributed to this species. It is morphologically characterized (following Svec & Angelini, 1996) by: length 2.5–3 mm, black in colour with paler elytral apex, antennae and legs yellowish, base of pronotum without any border, 2 distinct elytral striae, metasternum strongly and densely punctate, free spaces little.

Olibrus affinis (Sturm, 1807)

Distribution and Biology. Asian-European-Mediterranean chorotype. Present all over Italy (Svec & Angelini, 1996).

Remarks. It was found in the study area in March-April on the flowers and plants.

Familia COCCINELLIDAE Latreille, 1807
Subfamilia COCCIDULINAE Mulsant, 1846

Genus *Rhyzobius* Stephens, 1832
Rhizobius litura (Fabricius, 1787)

Distribution and Biology. Palearctic distribution including all of Italy.

It is found in grassland and wood, on trees and on various herbaceous plants where it searches for aphids on which it feeds.

Remarks. *Rhizobius litura* was found in the debris at the base of some rocks and near *Pistacia lentiscus* in June.

Subfamilia COCCINELLINAE Latreille, 1807

Genus *Coccinella* Linnaeus, 1758
Coccinella septempunctata septempunctata Linnaeus, 1758

Distribution and Biology. *Coccinella septempunctata* (the common ladybug or the seven-spotted ladybird), native to the Palearctic region, is widespread throughout almost the entire world.

The larvae and adults of *C. septempunctata* live in many habitats and feed mainly on aphids but also on mites, small arthropods, eggs and larvae of beetles and butterflies. Adults overwinter in small colonies under tree bark and other shelter.

Remarks. This species was found in Isola delle Femmine on various plants and shrubs.

Genus Adalia Mulsant, 1850
Adalia bipunctata (Linnaeus, 1758)

Distribution and Biology. Holarctic distribution but also in many other areas (e.g. South America, Australia, Hawaii) either through accidental introduction or through use as biocontrol agent.

Aphids are its main food.

Remarks. Found in Isola delle Femmine on various plants and shrubs.

Subfamilia EPILACHNINAE Mulsant, 1846

Genus *Chnootriba* Chevrolat, 1837
Chnootriba elaterii (Rossi, 1794)
(= *Henosepilachna elaterii*)

DISTRIBUTION AND BIOLOGY. This species is distributed in Africa, Madagascar, the Middle East, and South Europe.

Chnootriba elaterii (Melon Ladybird Beetle) is mainly a pest of several Cucurbitaceae species (melons, cucumber, cucurbits), and lettuce (CABI, 2020). It has also been reported on Indian Jujube (*Ziziphus mauritiana* Lam., Rhamnaceae) (Poorani & Jat, 2023).

REMARKS. Common species in Isola delle Femmine with larvae and adults exclusively on *Ecballium elaterium* (L.) A. Rich. (Cucurbitaceae) (Figs. 7, 8).

Familia CORYLOPHIDAE LeConte, 1852
Subfamilia CORYLOPHINAE LeConte, 1852
Tribus PARMULINI Poey, 1854

Arthrolips Wollaston, 1854
Arthrolips picea (Comolli, 1837)

DISTRIBUTION AND BIOLOGY. Central Asia-European-Mediterranean extended to the Macaronesian region. It is recorded for several Italian regions, including Sicily (Bowestead, 1999).

It is most frequently found in mouldy straw in barns and in bales of both straw and hay, also in leaf litter and other vegetable debris (Bowestead, 1999).

REMARKS. This species was found in Isola delle Femmine on the *Malva* leaf litter.

Familia LATRIDIIDAE Erichson, 1842

Genus *Dienerella* Reitter, 1911
Subgenus *Dienerella* Reitter, 1911
Dienerella (Dienerella) pilifera (Reitter, 1875)

DISTRIBUTION AND BIOLOGY. Europe: France, Greece, Italy, Austria and Spain; Asia: Japan; North Africa: Algeria, Canary Islands, Madeira Archipelago, Morocco and Tunisia (Rücker, 2018).

Latridiidae are mycetophagous and are usually found in plant debris. Many species are cosmopolitan, related to human food products.

REMARKS. A specimen of this species was found in Isola delle Femmine in the plant debris under a wooden board a few meters from the cliff.

Dienerella cf. ***siciliana*** Vincent, 1991

DISTRIBUTION AND BIOLOGY. Species endemic to southern Italy and Sicily (Angelini, 2020).

It is found in plant debris, leaf litter and under tree bark.

Figures 7, 8. *Chnootriba elaterii* from Isola delle Femmine (Sicily, Italy). Fig. 7: a small colony wintering under dead wood. Fig. 8: *Chnootriba elaterii* on host plant, *Ecballium elaterium*.

Remarks. Only one female specimen was found in the study area, in the soil at the base of plants and rocks, through sieving. Correct determination only with the study of the male's aedeagus.

Familia OEDEMERIDAE Latreille, 1810
Subfamilia OEDEMERINAE Latreille, 1810

Genus *Oedemera* Olivier, 1789
Subgenus *Oedemera* Olivier, 1789
Oedemera (Oedemera) lurida lurida Marsham, 1802

Distribution and Biology. European-Mediterranean including all of Italy (Bologna & Poloni, 2021).

It lives on plants and flowers.

Remarks. This species was found in Isola delle Femmine on various plants and shrubs.

Oedemera (Oedemera) nobilis (Scopoli, 1763)

Distribution and Biology. Central-southern Europe and the Maghreb region.

Common floricolous species throughout Italy (Bologna & Poloni, 2021).

Remarks. Uncommon in Isola delle Femmine, found in spring, on flowers.

Oedemera (Oedemera) simplex (Linnaeus, 1767)

Distribution and Biology. Western Mediterranean, in North Africa from Morocco to Libya (Löbl & Smetana, 2008). It is recorded in almost all of Italy, especially in the central-southern and island regions (Bologna & Poloni, 2021).

Xylophagous larva, in dead wood; adult on flowers in spring-summer.

Remarks. Uncommon in Isola delle Femmine, found in May, mowing on plants.

Oedemera (Oedemera) flavipes (Fabricius, 1792)

Distribution and Biology. Species with Euro-Anatolian distribution, spread all over Italy (Bologna & Poloni, 2021).

Remarks. *Oedemera (Oedemera) flavipes* lives in Isola delle Femmine with a large population. It is found on the most varied flowers, in spring, abundant in the month of May on the flowers (fig. 9).

Familia TENEBRIONIDAE Latreille, 1802
Subfamilia PIMELIINAE Latreille, 1802
Tribus ASIDINI Fleming, 1821

Genus *Alphasida* Escalera, 1905
Subgenus *Glabrasida* Escalera, 1910
Alphasida (Glabrasida) grossa (Solier, 1836)

Distribution and Biology. Southern Italy and Sicily. *Alphasida grossa grossa* is distributed in Sicily, almost everywhere, particularly in the southern half of the island and in the northwest, and southern continental Italy (Apulia and Calabria) (Aliquò & Soldati, 2010; Pérez-Vera & Ávila, 2017; Leo & Ruzzier, 2021).

It is found almost all year round, especially in spring and autumn, under stones and debris or wandering on the ground.

Remarks. It lives on Isola delle Femmine with a large population concentrated especially in the top

Figure 9. *Oedemera (O.) flavipes* from Isola delle Femmine (Sicily, Italy).

part of the island around the Torre di Fuori. It is found mainly in spring and autumn, wandering on the ground, where it searches for organic detritus of various kinds on which it feeds (Fig. 10).

This species was reported for Isola delle Femmine by Aliquò & Soldati (2010).

Tribus STENOSINI Lacordaire, 1859

Genus *Stenosis* Herbst, 1799
Subgenus *Stenosis* Herbst, 1799
Stenosis (Stenosis) sardoa sardoa (Küster, 1848)

DISTRIBUTION AND BIOLOGY. Western Mediterranean. In Italy, *Stenosis sardoa sardoa* is widespread in the continental Tyrrhenian regions, Sardinia and Sicily; the ssp. *ardoini* Canzoneri, 1970, Italian endemic, is present in continental Italy and some Tuscan islands (Leo & Ruzzier, 2021). Both subspecies are reported in Sicily (see Aliquò & Soldati, 2010).

It is found under stones or under tree bark. In Sicily it winters under *Eucalyptus* bark, often in numerous colonies.

REMARKS. This species is found in Isola delle Femmine in small colonies under stones (Fig. 11).

Tribus ELENOPHORINI Solier, 1837

Genus *Eleonophorus* Dejean, 1821
Eleonophorus aliquorum (J. Ferrer, 2015)

DISTRIBUTION AND BIOLOGY. *Eleonophorus aliquorum* is a species endemic to Sicily and Malta (Ferrer, 2015). The other Italian species recently separated by *E. collaris* (Linnaeus, 1767) are*: E. italicus* (J. Ferrer, 2015) from continental Italy, *E. zelmerloewae* (J. Ferrer, 2015) from Aeolian Islands, and *E. solieri* (J. Ferrer, 2015) from France, Spain and Sardinia.

It is found in caves, old houses, ruins. It seems to feed on various organic debris, even decomposing ones. The larvae are most likely necrophage.

REMARKS. Only one specimen of this species was observed in the evening on the walls of the Torre di Fuori.

Subfamilia TENEBRIONINAE Latreille, 1802

Tribus HELOPINI Latreille, 1802

Genus *Catomus* Allard, 1876
Subgenus *Catomus* Allard, 1876
Catomus (Catomus) rotundicollis (Guérin-Méneville, 1825)

DISTRIBUTION AND BIOLOGY. Western Mediterranea. In Italy it is recorded especially in the central-southern and island regions and in almost all circum-Sicilian islands (Aliquò & Soldati, 2010).

It lives in colonies under barks and plant debris.

REMARKS. A specimen of this species was found in galleries dug by the larvae of *Niphona picticornis* in the dry wood of *Pistacia lentiscus*.

Tribus TRIBOLINI Gistel, 1848

Genus *Tribolium* Macleay 1825
Subgenus *Tribolium* Macleay 1825
Tribolium (Tribolium) castaneum (Herbst, 1797)

DISTRIBUTION AND BIOLOGY. Cosmopolitan.

This species is a worldwide pest of stored products, particularly food grains. In the wild, it is found under tree bark, old logs or in bird droppings (see also Aliquò & Soldati, 2010).

REMARKS. Two specimens of this species were found in Isola delle Femmine inside the straws used for the bee hotels (see Basile et al., 2024) among pollen and small mites.

Subfamilia OPATRINAE Brullé, 1832
Tribus OPATRINI Brullé, 1832

Genus *Opatroides* Brullé, 1832
Opatroides punctulatus punctulatus Brullé, 1832

DISTRIBUTION AND BIOLOGY. Indian Afrotropical chorotype. Continental Italy, Sicily, and Sardinia (Leo & Ruzzier, 2021); the subspecies *subcylindricus* (Ménétriès, 1849) is reported for Turkey.

Xerophilous species, very common in Sicily, under stones, plant debris, dry animal dung (Sparacio, 1999; Aliquò & Soldati, 2010).

REMARKS. This species is found on Isola delle Femmine in small colonies under stones (Fig. 12). It was recorded for Isola delle Femmine by Aliquò & Soldati (2010).

Figures 10–13. Coleoptera Tenebrionidae from Isola delle Femmine (Sicily, Italy). Fig. 10: *Alphasida (G.) grossa*. Fig. 11: *Stenosis (S.) sardoa sardoa*. Fig. 12: *Opatroides punctulatus punctulatus*. Fig. 13: *Pryonichus lugens.*

Subfamilia ALLECULINAE Laporte, 1840
Tribus ALLECULINI Laporte, 1840

Genus *Prionychus* Solier, 1835
Pryonichus lugens Küster, 1850

Distribution and Biology. Sicilian-Maghrebian distribution (Aliquò & Soldati, 2010; Leo & Ruzzier, 2021).

The larvae live in rotting wood and decaying trees such as oaks, poplars, beeches, conifers; adult on various plants and under bark, often attracted by lights in the evening hours.

Remarks. A specimen of *Prionychus lugens* was attracted to Isola delle Femmine by artificial light on a white sheet (Fig. 13).

Familia CERAMBYCIDAE Latreille, 1802
Subfamilia LAMIINAE Latreille, 1825
Tribus PTEROPLIINI Thomson, 1860

Niphona Mulsant, 1839
Niphona picticornis (Mulsant, 1839)

Distribution and Biology. Mediterranean chorotype. In Italy it is widespread especially in the central-southern regions, Sicily and Sardinia; in the north it is found along the coasts (Rapuzzi, 2021). Reported in almost all circum-Sicilian

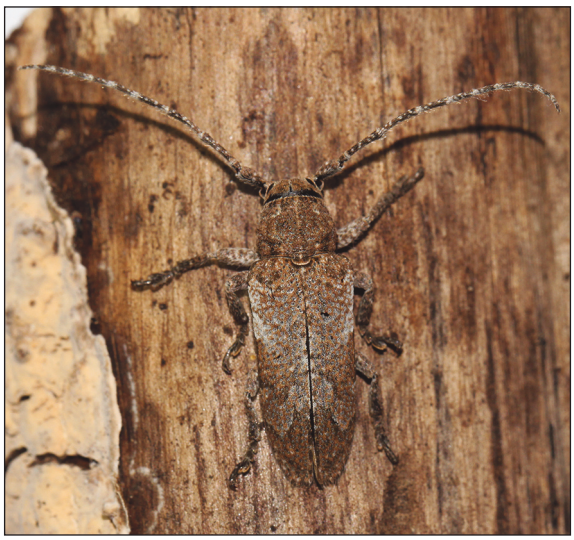

Figure 14. *Niphona picticornis* from Isola delle Femmine (Sicily, Italy).

islands (see Baviera et al., 2017 and cited references).

Polyphagous species, larva and adult live on various broad-leaved trees, including shrubs, rarely also on conifers: *Ficus*, *Morus*, *Spartium*, *Calycotome*, *Genista*, *Pistacia*, *Robinia*, *Quercus*, *Castanea*, *Prunus*, *Ulmus*, *Euphorbia*, etc. In Sicily it is also reported on *Zelkova sicula* (Sidoti et al. 2016) and *Eriobotrya japonica* (Bellavista et al., 2015).

REMARKS. *Niphona picticornis* was found in Isola delle Femmine on *Pistacia lentiscus* and reared from dry wood of the same plant (Fig. 14).

Tribus AGAPANTHIINI Mulsant, 1839

Genus *Agapanthia* Audinet-Serville, 1835
Subgenus *Agapanthia* Audinet-Serville, 1835
Agapanthia (Agapanthia) cardui (Linnaeus, 1767)

DISTRIBUTION AND BIOLOGY. Species with Turanian-Mediterranean chorotype extended to Macaronesia present throughout Italy and common in Sicily (Rapuzzi & Sama, 2006; Baviera et al., 2017; Rapuzzi, 2021).

Polyphagous species, larva and adult live on numerous herbaceous plants, Asteraceae in particular: *Urtica*, *Cirsium*, *Scolymus*, *Carduus*, *Galactites*, *Senecio*, *Eupatorium*, *Chrysanthemum*, *Melilotus*, *Heracleum*, *Dipsacus*, *Valeriana*, *Salvia*.

REMARKS. This species is found in Isola delle Femmine in March-May on the stems of *Galactites* and Poaceae.

Genus *Calamobius* Guérin, 1849
Subgenus *Calamobius* Guérin, 1849
Calamobius filum (Rossi, 1790)

DISTRIBUTION AND BIOLOGY. Mediterranean, including all of Italy. Common and widespread in Sicily, known also from several circum-Sicilian islands (see Baviera et al., 2017 and cited references)

Host plants: Poaceae (*Triticum*, *Avena*, *Hordeum*, *Secale*, *Dactylis*).

REMARKS. *Calamobius filum* was found in Isola delle Femmine on grasses (*Avena*).

Familia CHRYSOMELIDAE Latreille, 1802
Subfamilia BRUCHINAE Latreille, 1802
Tribus BRUCHINI Latreille, 1802

Bruchidius Schilsky, 1905
Bruchidius biguttatus (Olivier, 1795)

DISTRIBUTION AND BIOLOGY. Mediterranean; widespread in continental Italy, Sicily and Sardinia (Zampetti, 2012)

This species is known, at the larval stage, from different *Cistus* and *Halimium halimifolium* (L.) Willk. (Cistaceae); adult polyphagous.

REMARKS. This species was found in Isola delle Femmine on grasses and flowers in March-April.

Bruchidius murinus (Boheman, 1829)

DISTRIBUTION AND BIOLOGY. Mediterranean extended to the Canary Islands; widespread in continental Italy, Sicily and Sardinia (Zampetti, 2012).

Host plant: *Trifolium subterraneum* L., Fabaceae (Delobel & Delobel, 2005, 2009). Adult on flowers.

REMARKS. This species was found in Isola delle Femmine on grasses and flowers in March-April.

Subfamilia GALERUCINAE Latreille, 1802
Tribus ALTICINI Newman, 1834

Genus *Podagrica* Chevrolat, 1837
Podagrica malvae semirufa (Küster 1847)

Distribution and Biology. *Podagrica malvae* (Illiger, 1807) has Turanic-European-Mediterranean chorotype; the subspecies *semirufa* is very common and widespread in Italy.

Podagrica malvae feed on various Malvaceae.

Remarks. Common species in Isola delle Femmine on the leaves of *Malva* sp. in the spring and summer months.

Subfamilia CRYPTOCEPHALINAE Gyllenhal, 1813
Tribus CLYTRINI Kirby, 1837

Genus *Labidostomis* Germar, 1817
Subgenus *Labidostomis* Germar, 1817
Labidostomis (Labidostomis) taxicornis (Fabricius, 1792)

Distribution and Biology. Western Mediterranean. Reported throughout Italy but more common in the central-southern regions, Sicily and Sardinia (Regalin, 1980).

Polyphagous species, reported on Polygonaceae, Fagaceae, Tamaricaceae, Salicaceae. It is harmful to cultivated vines, even in Sicily.

Remarks. *Labidostomis taxicornis* has been observed in a few specimens in the spring months, on the flowers.

Genus *Macrolenes* Chevrolat, 1837
Macrolenes dentipes (Olivier, 1808)

Distribution and Biology. Mediterranean area; including almost all of Italy, Sardinia (?) (Regalin & Medvedev, 2010).

Macrolenes dentipes feeds on the leaves of *Pistacia* and *Rhus* (Anacardiaceae), *Quercus* (Fagaceae), *Fraxinus* (Oleaceae), *Paliurus* and *Ziziphus* (Rhamnaceae) (Petitpierre, 2000; Debreuil, 2010).

Remarks. Adults of this species were observed and photographed on Isola delle Femmine in the months of May while they fed on the leaves of *Pistacia lentiscus*. A specimen in the larval stage was collected in Isola delle Femmine on 23.III.2023 under a stone, together with *Tituboea biguttata*. The larva was enclosed inside a box which it uses for protection. Towards mid-June the adult emerged, which fragmented the back side of the box to get out (R. Viviano's observations).

Genus *Tituboea* Lacordaire, 1848
Tituboea biguttata (Olivier, 1791)

Distribution and Biology. Western Mediterranean: Portugal, Spain, Morocco, Algeria, Sardinia, Sicily, Southern Italy.

Adults in June-July, on Anacardiaceae, Fagaceae and Rosaceae, feeding on the leaves. Myrmecophilous and detritivorous larva; pupae in boxes on the ground and in ant nests.

Remarks. Three larvae of *Tituboea biguttata*

Figures 15–16. *Macrolenes dentipes* from Isola delle Femmine (Sicily, Italy). Fig. 15: Male. Fig. 16: female.

were collected in Isola delle Femmine under a stone near an anthill on 23.III.2023. They spend the larval stage inside a box built by themselves with soil and excrement. During the metamorphosis phase, the larvae plug the central hole of this box with soil from which they eject their bodies. The adult's escape occurred on the rear side of the box, from a special hole they made by pushing; in the laboratory, the adults emerged on 21.VI.2023 (R. Viviano observations).

Genus *Coptocephala* Chevrolat, 1837
Coptocephala unicolor (Lucas, 1845)

DISTRIBUTION AND BIOLOGY. Western Mediterranean: Portugal, Spain, Morocco, Algeria, Tunisia, Southern Italy, Sicily, Malta (Regalin & Medvedev, 2010).

Adults on flowers, in the spring and summer months.

REMARKS. *Coptocephala unicolor* was found in Isola delle Femmine on flowers, in May.

Subfamilia CRYPTOCEPHALINAE Gyllenhal, 1813
Tribus CRYPTOCEPHALINI Gyllenhal, 1813

Genus *Cryptocephalus* Geoffroy, 1762
Subgenus *Cryptocephalus* Geoffroy, 1762
Cryptocephalus (Cryptocephalus) rugicollis rugicollis Olivier, 1791

DISTRIBUTION AND BIOLOGY. Mediterranean chorotype including almost all of Italy.

Host plants: Asteraceae. Adults on flowers, in the spring and summer months.

REMARKS. This species was found in Isola delle Femmine on flowers, in April-May.

Subfamilia CASSIDINAE Gyllenhal, 1813
Tribus HISPINI Gyllenhal, 1813

Genus *Dicladispa* Gestro, 1897
Dicladispa testacea (Linnaeus, 1767)

DISTRIBUTION AND BIOLOGY. Mediterranean chorotype including almost all of Italy, especially in the central-southern regions, Sicily and Sardinia. A common and widespread species in Sicily (Baviera & Biondi, 2015).

Figure 17. Adult of *Macrolenes dentipes* emerged from the larval box. Figure 18. Larval box of *Tituboea biguttata*. Figure 19. Adult of *Tituboea biguttata* emerged from the larval box (for explanations see the text).

It lives on various species of *Cistus*, also reported on *Helianthemum* spp. Adults were found in May-July.

Remarks. It was found in Isola delle Femmine in April-May with the net on various plants.

Tribus CASSIDINI Gyllenhal, 1813

Genus *Cassida* Linnaeus, 1758
Cassida vittata Villers, 1789

Distribution and Biology. Palearctic. All Italy.
Host plants: Asteraceae, Chenopodiaceae, Urticaceae, Caryophyllaceae (*Chenopodium*, *Beta*, *Salicornia*, *Atriplex*, *Tanacetum vulgare*, *Urtica*, *Arenaria*, *Spergula*, *etc.*). Adults on the same plants in the spring and summer months.

Remarks. It was found in Isola delle Femmine in March-May on various plants (Fig. 20).

Familia APIONIDAE Schoenherr, 1823
Subfamilia APIONINAE Schoenherr, 1823
Genus *Pseudoprotapion* Ehret, 1990

Pseudoprotapion astragali astragali (Paykull, 1800)

Distribution and Biology. Siberian-European-Mediterranean including all regions of Italy (Alonso-Zarazaga, 2011).

Figure 20. *Cassida vittata* from Isola delle Femmine (Sicily, Italy).

Pseudoprotapion astragali lives in shrublands and xerothermic grasslands on Fabaceae of the genus *Astragalus* (Hoffmann 1958; Dieckmann 1977; Osella & Riti, 1995).

Remarks. It was found in Isola delle Femmine in April-May with the net on various plants.

Familia BRACHYCERIDAE Billberg, 1820
Subfamilia BRACHYCERINAE Billberg, 1820
Tribus BRACHYCERINI Billberg, 1820

Genus *Brachycerus* A.G.Olivier, 1789
Brachycerus albidentatus Gyllenhal, 1840

Distribution and Biology. Croatia, Corsica, central and southern Italy (Zumpt, 1937), Malta (Cameron & Caruana Gatto, 1907), and Tunisia (Osella & Riti, 1995).
It lives on Liliaceae, sometimes damaging garlic (Servadei, 1953; Espinosa et al., 1991).

Remarks. *Brachycerus albidentatus* was found in Isola delle Femmine wandering on the ground.

Familia CURCULIONIDAE Latreille, 1802
Subfamilia ENTIMINAE Schoenherr, 1823
Tribus OTIORHYNCHINI Schoenherr, 1826

Genus *Otiorhynchus* Germar, 1822
Otiorhynchus (Arammichnus) cfr. ***cribricollis*** Gyllenhal, 1834

Distribution and Biology. Western Mediterranean, introduced in North America and Australia (Beers et al., 2003).
It is polyphagous and harmful to crops, trees and garden plants (Beers et al., 2003).

Remarks. Few specimens attributable to this species have been found in the study area, awaiting further taxonomic confirmation.

Tribus SITONINI Gistel, 1848

Genus *Sitona* Germar, 1817
Sitona hispidulus (Fabricius, 1777)

Distribution and Biology. Siberian-European chorotype, introduced to Asia and North America: almost all of Italy (Abbazzi & Maggini, 2009; Colonnelli, 2003). The larva develops in the roots

of Fabaceae and hibernates in the imaginal stage; the adult is harmful to leaves and shoots of the same host plants (Dieckmann, 1980; Osella & Riti, 1995).

REMARKS. This species was found in Isola delle Femmine in May on plants.

Subfamilia LIXINAE Schönherr, 1823
Tribus LIXINI Schönherr, 1823

Genus *Lixus* Fabricius, 1801
Subgenus *Dilixellus* Reitter, 1916
Lixus (Dilixellus) pulverulentus (Scopoli, 1763)

DISTRIBUTION AND BIOLOGY. Palearctic (excluding North Asia) (Gültekin & Fremuth 2013).

This species is polyphagous on Asteraceae, Malvaceae, Fabaceae, Brassicaceae and Polygonaceae (Dieckmann 1983; Pavlyuk 2009; Arzanov, 2017).

REMARKS. This species was found in Isola delle Femmine in May while walking on soil.

Subgenus *Epimeces* Billberg, 1820
Lixus (Epimeces) filiformis (Fabricius, 1781)

DISTRIBUTION AND BIOLOGY. Palearctic, excluding north (Gültekin & Fremuth, 2013), in Italy it is more frequent in southern and island regions.

Lixus (Epimeces) filiformis lives in primary and secondary grasslands and ruderal habitats. Adults occur in April-September, on Asteraceae as *Carduus*, *Cirsium*, *Silybum*, *Cousinia* (Osella & Riti, 1995; Gültekin, 2004).

REMARKS. It was found in Isola delle Femmine in April on *Carduus*.

Genus *Larinus* Dejean, 1821
Subgenus *Phyllonomeus* Gistel, 1856
Larinus (Phyllonomeus) grisescens Gyllenhal, 1836

DISTRIBUTION AND BIOLOGY. Central Asia, Southern Europe, Turkey, Syria, Israel, North Africa, southern regions of Italy and Sicily

This species lives on *Carduus* spp. (Asteraceae).

REMARKS. It was found in Isola delle Femmine in April on Carduaceae.

Tribus RHINOCYLLINI Lacordaire, 1863

Genus *Rhinocyllus* Germar, 1817
Rhinocyllus conicus (Frölich, 1792)

DISTRIBUTION AND BIOLOGY. Palearctic (excluding north), Ethiopia; introduced to North America, South Africa, Australia and New Zealand. Reported for all regions of Italy but more frequent in central-southern and island regions (Osella & Riti, 1995; Gültekin & Fremuth, 2013).

Figure 21. *Lixus pulvurulentus* from Isola delle Femmine (Sicily, Italy).

Figure 22. *Malvaeovora timida* from Isola delle Femmine (Sicily, Italy).

The larvae and adults live on the Asteraceae (*Cirsium*, *Carduus*, *Centaurea*, *Galactites*) (Dieckmann, 1983; Zwölfer & Harris 1984; Volovnik 1994).

Remarks. *Rhinocyllus conicus* was found in Isola delle Femmine in March-May on *Galactites* and *Carduus*.

Subfamilia BARIDINAE Schönherr, 1836

Genus *Malvaeovora* V.A. Zaslavskij, 1956
Malvaeovora timida (Rossi, 1792***)***

Distribution and Biology. Western Palaearctic (excluding north). All of Italy.

Biology on Malvaceae as *Malva silvestris, M. pusilla, Althaea officinalis, Lavatera arborea.*

Remarks. It was found in Isola delle Femmine in April on *Malva*.

DISCUSSION

In this first annotated checklist of the Coleoptera found in Isola delle Femmine Nature Reserve we have listed 69 taxa of Coleoptera belonging to 23 different families. Approximately 30 species have not been included at the moment pending a better taxonomic determination. However, these preliminary data already represent a notable improvement in knowledge on the coleopterofauna of Isola delle Femmine in relation, above all, to the little existing bibliographic information (see for example Aliquò & Soldati, 2010; Sparacio & Surdo, 2021).

Analyzing this population, the Sicilian endemic species (or the immediate surroundings) present are 6 (equal to 8.7% of the total) and are of particular faunal and biogeographic interest such as *Calomera panormitana panormitana, Agriotes siciliensis, Eleonophorus aliquorum* and *Alphasida (Glabrasida) grossa*.

From an ecological point of view, the role of some plants such as the Malvaceae (*Malva* and *Lavatera*) and the *Pistacia lentiscus* is of particular importance. Above all, a group of specialized phytophagous beetles such as *Trachys troglodytiformis*, *Podagrica malvae semirufa* and *Malvaeovora timida* are found on the *Malva*, while the large *Lavatera* bushes attract above all generalist flower beetles and provide leaf litter for the phyto-saprophagous species.

In the *Pistacia lentiscus* scrub we have phyllophagous (*Macrolenes dentipes*) and xylophagous (*Niphona picticornis*) species but the fundamental role of these plants is represented by the formation and maintenance of a litter of leaves and decaying wood sheltered from the wind and sea salt. This environment hosts an important community of Invertebrates (Sparacio et al., 2021; Dentici et al., 2024; Viviano et al., 2024) including several species of detritivorous and saproxylic Coleoptera.

The necrophagous beetles are concentrated above all on the carcasses of the Yellow-legged gull while the sublapidicolous species are found everywhere, in particular along the path to the Torre di Fuori and in the vicinity of it (*Alphasida grossa*, *Opatroides punctulatus punctulatus*, *Eleonophorus aliquorum*, etc.). Most herbaceous plants host specialized phytophagous plants (for example: *Ecballium elaterium* host plant of *Chnootriba elaterii* or various Carduaceae for *Agapanthia cardui*, *Lixus*, etc.) floricolous or carnivorous species in search of small invertebrates are also found on their leaves and flowers.

Of note is the presence of *Drilus flavescens* which lives by feeding on terrestrial snails and the non-native *Ozognathus cornutus* recently reported in Italy and rapidly expanding.

CONCLUSIONS

In conclusion, these preliminary data, pending further studies, allow us to better understand the Coleoptera population of Isola delle Femmine Nature Reserve, to appreciate their ecological and faunal value and to document their diversity. The hope is that this particular territory (to be considered a refuge area for many species) will remain in the same conditions of protection and conservation in future years as a testimony to some faunal and landscape aspects of the Sicilian coasts, around Palermo in particular, which have now disappeared forever.

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