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NEW RECORDS OF DIPTERA FOR LAMPEDUSA ISLAND

SUMMARY

Diptera of Lampedusa are poorly known, and the only published data are those of Venturi in 1960. Authors report new records of species discovered during field investigations carried out during a more extensive research project in the island. Data are updated to November 2007. Seven new species for Lampedusa have been found, belonging to the following families: Trixoscelididae, Scathophagidae, Muscidae, Anthomyiidae, Calliphoridae and Sarcophagidae.

RIASSUNTO

Nuove segnalazioni di Ditteri nell'isola di Lampedusa. La ditterofauna di Lampedusa è scarsamente conosciuta e gli unici dati pubblicati si riferiscono agli studi di Venturi nel 1960. Durante un più ampio progetto di ricerca condotto sull'isola gli Autori hanno rinvenuto sette specie in precedenza non segnalate, appartenenti alle seguenti famiglie: Trixoscelididae, Scathophagidae, Muscidae, Anthomyiidae, Calliphoridae e Sarcophagidae. I dati sono aggiornati al mese di novembre 2007.

INTRODUZIONE

Lampedusa Island (35°29'28" and 35°21'39" N - 12°30'54" and 12°37'55" E Greenwich) is the larger one of the Pelagie archipelago. It is an emergence of the African Continental platform and is 195 Km far from the Sicilian coast and 120 Km from Tunisia (AGNESI & FEDERICO, 1995), it is 20,2 Km² wide, 11 Km long (East-West) with a maximum broadness of 3,5 Km. The dipterofauna of Lampedusa is poorly know, and the unique records of

Diptera for Lampedusa have been provided by VENTURI (1960a) who reported 45 species. The same species are reported in the most recent checklist of Arthropoda (MASSA, 1995), with no further additions. The geographic position of Lampedusa may pose some problems as regard to its inclusion in the Sicilian or African biological community. VENTURI (1960a), on the basis of the few data on the dipterofauna noted that some species belongs to the North African region and others to the Italian one. A relevant aspect of the biological diversity of the Pelagie Archipelago is the presence of North African elements beside a high level of endemic species. For instance the herpetofauna of Lampedusa includes two North African species: *Macroprotodon cucullatus* (Geoffroy de St-Hilaire, 1827) and *Malpolon monspessulanus* (Hermann, 1804) (CORTI & LO CASCIO, 2002). Out of 820 taxa of arthropods known for Lampedusa, several species, genera, and also families (e.g. Hymenoptera Bradynobaenidae) and orders (Solifugae) find the only Italian or European locality in Lampedusa (LO CASCIO, 2002). The most abundant African chorological component is that of Coleoptera Tenebrionidae (ALIUÒ *et al.*, 2006).

In the present paper we refer to the checklist edited by MASSA (1995) as reference for the arthropodofauna of Lampedusa and we report new records of Diptera for Lampedusa island discovered during field investigations carried out during a more extensive research project in the island. The species list includes data from field investigations carried out during a research project on the ecology of *Caralluma europaea* (Guss.) N.E.Br. started in April 2006. Data are updated to November 2007. Seven new species for Lampedusa have been found. Captures were done with an entomological net and specimens were kept separately in plastic test-tube and successively dry mounted for identification. The new species belong to the following families: Trixoscelididae, Scathophagidae, Muscidae, Anthomyiidae, Calliphoridae and Sarcophagidae.

LIST OF SPECIES

TRIXOSCELIDIDAE

Trixoscelis frontalis (Fallén, 1823)

Lampedusa, loc. Albero Sole, 18.III.2007, 1 specimen, leg. P. Zito

Distribution: Europe, Asia, North Africa, Canary Islands (SOOS, 1984), Nearctic Region (WOZNICA, 2007). Italy: Italian mainland, Sicily (WOZNICA, 2007).

Notes: This family is found mainly in arid areas and is best represented in the Holarctic, Ethiopian and Neotropical regions although lacking in the

Oriental and Australian regions (CARLES-TOLRÀ, 2001). *Trixoscelis* Rondani, 1856 is a genus containing more than 30 species described for the Palaearctic region (PAPP, 1998). The immature stages and the biology of this family are unknown. Adults are thermophilous and prefer open habitats, like dunes, beaches, heather, sandy steppes and forest steppes (OOSTERBROEK, 2006).

SCATHOPHAGIDAE

Scathophaga stercoraria (Linnaeus, 1758)

Lampedusa, loc. Albero Sole, 17.II.2007, 1 specimen, leg. S. Pisciotta

Distribution: Afro-tropical region, East Palaearctic, Nearctic region, North Africa (not including Sinai Peninsula) (DE JONG, 2007); Italy: Italian mainland, Sicily, Sardinia (GORODKOV, 1995).

Notes: The genus *Scathophaga* Meigen, 1803 comprises approximately 40 species throughout the Palaearctic Region (GORODKOV, 1986). Most of the larvae of this genus live in excrements, particularly of ruminants (GORODKOV, 1995); *S. stercoraria* is one of the best-known species of the family Scathophagidae; adult males are bright yellow or golden, while females are usually grayer; both sexes are very hairy on body and legs, and gather on dung. The reproductive behavior of *S. stercoraria* is well documented. Males gather on and around fresh dung, where they search for and copulate with incoming gravid females. Following copulation the female oviposits in the dung and is guarded by the paired male from attempted 'takeovers', where attacking males try to displace him and copulate to fertilize the remaining eggs (PARKER, 1970).

ANTHOMYIIDAE

Anthomyia pluvialis (Linnaeus, 1758)

Lampedusa, loc. Isola dei Conigli, 19.I.2007, 1 male, leg. S. Pisciotta; loc. Capo Ponente, 16/II/2007, 1 female, leg. S. Pisciotta

Distribution: worldwide, absent in Afro-tropical and Neotropical Region (MICHELSEN, 2007); Italy: Italian mainland, Sicily, Sardinia (ROZKOSNY, 1995).

Notes: The genus *Anthomyia* Meigen, 1803 consists of medium-sized flies that are easily recognized by their characteristic body-pattern of whitish grey and black in combination with the presence of setulae on the propleura (MICHELSEN, 1980). *A. pluvialis* has the top of the thorax pale grey marked with large dark spots (SCUDDER & CANNINGS, 2006).

MUSCIDAE

Muscina levida (Harris, 1780)

Lampedusa, loc. Albero Sole, 14.IV.2007, 1 specimen, leg. S. Pisciotta

Distribution: East Palaearctic, Near East (Asian Turkey, Caucasian Russian republics, Georgia, Armenia, Azerbaidjan, Lebanon, Syria, Israel, Jordan, Sinai Peninsula (Egypt), Arabian peninsula, Iran, Iraq) and Nearctic region (PONT, 2007); Italy: Italian mainland (PONT, 1995).

Notes: this species is new for the Sicilian fauna. Flies of the genus *Muscina* Robineau-Desvoidy, 1830 are characterized by having slightly curved m_{1+2} vein, bare pteropleuron, and a long bristle on posterodorsal surface of hind tibia (PONT, 1986). The genus is small, containing only seven described Holarctic species (PONT, 1986). At least the last larval instar of *Muscina* is carnivorous (SEVCIK, 2001). Amongst the recorded larval pabula of *M. levida*, fungi figure most prominently (SKIDMORE, 1985).

Coenosia tigrina (Fabricius, 1775)

Lampedusa, loc. Capo Ponente, 16.II.2007, 1 specimen, leg. S. Pisciotta; loc. Casa Teresa, 13.IV.2007, 1 specimen, leg. S. Pisciotta

Distribution: East Palaearctic, Near East (Asian Turkey, Caucasian Russian republics, Georgia, Armenia, Azerbaidjan, Lebanon, Syria, Israel, Jordan, Sinai Peninsula (Egypt), Arabian peninsula, Iran, Iraq), Nearctic region and North Africa (PONT, 2007); Italy: Italian mainland, Sicily (PONT, 1995).

Notes: the adults visit flowers and foliage of Graminaceae (SÉGUY, 1923). Life-histories are poorly known for the tribe Coenosiini. Larvae of some genera are aquatic or subaquatic, some (a few *Lispocephala* Pokorny, 1893 and *Coenosia* Meigen, 1826) breed in decaying wood, but the majority of coenosiine larvae probably live in the soil. All Coenosiinae larvae are likely to be predaceous on tiny invertebrates in the substrate.

CALLIPHORIDAE

Calliphora vicina Robineau-Desvoidy, 1830

Lampedusa, loc. Isola dei Conigli, 19.I.2007, 1 specimen, leg. S. Pisciotta; loc. Casa Teresa, 16.II.2007, 1 specimen, leg. S. Pisciotta; loc. Capo Ponente, 16.II.2007, 1 specimen, leg. S. Pisciotta; loc. Cala Pulcino, 17.III.2007, 2 specimens, leg. S. Pisciotta; loc. Isola dei Conigli, 17.III.2007, 2 specimens, leg. S. Pisciotta; loc. Casa Teresa, 13.IV.2007, 2 specimens, leg. S. Pisciotta; loc. Isola dei Conigli, 15.IV.2007, 2 specimens, leg. S. Pisciotta

Distribution: worldwide (ROGNES, 2007), entire Europe, Asia, Canary

Islands, Nearctic Region, secondarily following man into other regions (SCHUMAN, 1986); Italy: Italian mainland, Sicily, Sardinia (ROGNES, 1995).

Notes: this species is widely distributed throughout the Palaearctic Region. It is the commonest fly in urban areas in Northern Europe. The adults visit flowers, feces and dead animal bodies to obtain nourishment. Species of *Calliphora* Robineau-Desvoidy, 1830 are among the first insects to arrive on dead bodies, including humans, and are therefore of great significance in forensic medicine. In Europe, *C. vicina* is a very common urban species of fly closely associated with man. Usually larvae develop on carrion (ROGNES, 1998). A *C. vicina* female can lay up to 300 eggs, either in small groups or as a single batch, in carrion or in wounds. First-instar larvae hatch within one day's time or less. Under warm and otherwise favorable conditions the larvae feed for 3–4 days. The puparium is formed approximately 2–3 days later and lasts at least one week. The time it takes to develop into an adult insect depends on temperature; at 27 °C it takes about 18 days. Adult Calliphoridae females lay eggs on fresh cadavers immediately after death under favorable conditions (DELHAES *et al.*, 2001).

SARCOPHAGIDAE

Blaesoxipha (Servaisia) erythrura (Meigen, 1826)

Lampedusa, loc. Isola dei Conigli, 16.II.2007, 1 specimen, leg. S. Pisciotta; loc. Isola dei Conigli, 13.III.2007, 3 specimens, leg. S. Pisciotta; loc. Albero Sole, 14.IV.2007, 1 specimen, leg. S. Pisciotta

Distribution: Europe, Asia (VERVES, 1986); Italy: N S (VENTURI, 1960b; PAPE, 1995)

Notes: Palearctic species of the genus *Blaesoxipha* are obligate insect parasitoids attacking grasshoppers and tenebrionid beetles (PAPE, 1998). The genus *Blaesoxipha* Loew, 1861 with *Ravinia* Robineau-Desvoidy, 1863 and *Sarcophaga* Meigen, 1826 are the Sarcophaginae lineages reaching farthest north into the cold temperate parts of the Nearctic Region, and they are also the only (non-introduced) Sarcophaginae lineages occurring in the old world (PAPE, 1998). The adults of *B. erythrura* visit flowers (PAPE, 1998).

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