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TENEBRIONIDS ASSOCIATED WITH SANDY SHORES IN THE MALTESE ISLANDS (COLEOPTERA, TENEBRIONIDAE)

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ABSTRACT

The tenebrionids associated with sand dune beaches in the Maltese Islands are reviewed. Eleven species are included of which *Xanthomus pallidus* (Curtis) and *Nalassus aemulus* (Küster) are here recorded for the first time. For each species local and global distribution data are provided.

INTRODUCTION

Sandy shores and dunes in most parts of the world support characteristic specialised faunas in several insect groups. Some of the beetle species are herbivores living on plants specific to this type of habitat, but many are carnivores, saprophages, or fungivores (Crowson, 1981). Burrowing is a characteristic habitat of many of the species, both as adults and larvae. Some of the sand dune beetles, notably among the Tenebrionidae, show affinities to species of sandy semi-desert areas inland. For a general overview of coastal sand dunes the work edited by Gimingham *et al.* (1989) should be consulted.

Sandy shores constitute only 2.4% of the Maltese Islands' coastline and are under high pressure from recreational and touristic development. Due to this, most of the entomofauna associated with this type of habitat has almost disappeared. This remarkable decrease in the insect fauna associated with such habitats was already noted during the earlier part of this century (Caruana Gatto, 1925), when a number of previously common beetles were reported as decreasing in number, or even as completely absent. Perhaps the only locality in the Maltese Islands which currently still supports a relatively good assemblage of faunistic and floristic species associated with sand dunes is found at Ramla in Gozo.

The tenebrionid fauna of the Maltese Islands has been recently studied by Mifsud & Scupola (1998) who reported a total of 56 species. Since then, two previously unrecorded tenebrionids were collected from sand dunes at Ramla in Gozo. A complete account of the tenebrionid beetles associated with sand dune beaches in the Maltese Islands is here provided, including ecological, local and general distributional data. Local distributions are mainly reported from Grimm (1986) and Mifsud & Scupola (1998). Some of the tenebrionid species recorded here were included in the Red Data Book for the Maltese Islands (Schembri & Sultana, 1989) and it would probably be appropriate to include the remaining species in future updates.

Material has been deposited in the following institutions and private collections:

DDM David Mifsud private collection, Malta

SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany

MCSN Museo Civico di Storia Natural 'Giacomo Doria', Genova, Italy

NHMB Naturhistorisches Museum Basel, Switzerland

SPECIES LIST

Erodius siculus melitensis Reitter, 1914
[DDM; MCSN; NHMB]

Local distribution. MALTA: Armier Bay, Mellieha Bay, Ghadira, White Tower Bay, Golden Bay. GOZO: Ramla.

E. siculus melitensis is a frequent species in the Maltese Islands. It is often found at the base of sand dune plants. The nominate form occurs on Egadi and Lipari Islands, Central and Southern Italy, Sicily, Dalmatia, Albania, Corfù and Greece.

Cheirodes brevicollis (Wollaston, 1864)

Local distribution. MALTA: Armier Bay.

Only one specimen of *C. brevicollis* has so far been collected from the Maltese Islands (Grimm, 1986). It is a widely distributed species known from the Canary Islands up to Western Pakistan.

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Ammobius rufus Lucas, 1849 [Fig.1]
[DDM; MCSN; NHMB]

Local distribution. MALTA: Armier Bay, Ghajn Tuffieha Bay, Ghadira, White Tower Bay, Golden Bay. GOZO: Ramla. COMINO: Santa Marija Bay.

A. rufus is a frequent species in the Maltese Islands. It is often found under stones embedded in sand or associated with roots of sand dune plants. In Italy it was collected at the base of *Tamarix* and *Ammophila* (Bonometto & Canzoneri, 1970). It is distributed throughout the Mediterranean Basin (Morocco, Corsica, Italy, Sardinia, Sicily and circumsicilian Islands, Santorini Islands and Cyprus) extending to the Black Sea.

Clitobius ovatus (Erichson, 1843)
[DMM; MCSN; NHMB; SMNS]

Local distribution. MALTA: Armier Bay, Ghajn Tuffieha Bay, Mellieha Bay, Marsaskala, M'Xlokk (Balluta). GOZO: Qbajjar (around Qolla l-Bajda).

C. ovatus is a frequent species in the Maltese Islands. It is often found associated with halophytic plants in coastal marshlands especially where such marshes interact with sandy beaches. *Phtora crenata* (Germar) was observed in this same type of habitat, but it is restricted to marshes and never found on sandy beaches. Recently (18.I.1999), in Gozo, hundreds of specimens of *C. ovatus* were observed at the base of *Inula crithmoides* growing in a sandy substratum (coastal). *C. ovatus* is a widely distributed species known from Senegal, Angola, Sahara, throughout North Africa, Turkey, Sicily, Lampedusa, Tchad and Cape Verde Islands.

Trachyscelis aphodioides Latreille, 1809
[DDM; MCSN; NHMB]

Local distribution. MALTA: White Tower Bay, Armier Bay, Paradise Bay, Mellieha Bay, Golden Bay, Ghajn Tuffieha Bay, Gnejna Bay. GOZO: Ramla. COMINO: Santa Marija Bay.

T. aphodioides is a frequent species in the Maltese Islands. It is often found under stones embedded in sand or associated with roots of sand dune plants. It is distributed throughout the Mediterranean Basin, Black Sea, North Africa, Canary Islands and Cape Verde Islands. *T. aphodioides lopadusae* is known from Lampedusa (Koch, 1935).

Phaleria acuminata Küster, 1852
[DDM; MCSN]

Local distribution. MALTA: Ghajn Tuffieha Bay, White Tower Bay, Mellieha Bay. GOZO: Ramla.

P. acuminata is a frequent species in the Maltese Islands. It is distributed in Southern Spain, Balearic Islands, Corsica, Sardinia, Italy, Sicily, Dalmatia, Turkey, Lebanon, Palestine, Egypt, Tripolitania, Tunisia, Algeria and Morocco.

Phaleria bimaculata (Linnaeus, 1767)
[DDM; MCSN; NHMB]

Local distribution. MALTA: Armier Bay, Paradise Bay, Mellieha Bay, Ghadira, Mgiebah Bay, Gnejna Bay, Dragonara, M'Xlokk Bay, Manoel Island. GOZO: Ramla. COMINO: Santa Marija Bay, Blue Lagoon. COMINOTTO: Blue Lagoon.

P. bimaculata is a common species in the Maltese Islands widely distributed in Southern Spain, France, Italy, Elba, Sardinia, Sicily, Lampedusa, Yugoslavia, Albania, Greece, Bulgaria, Rumania, Crimea, Rhodes, Crete, Egypt, Tripolitania, Tunisia, Tangier and Alboran.

Pseudoseriscius cameroni (Reitter, 1902) [Fig. 2]
[DDM; MCSN; SMNS; NHMB]

Local distribution. GOZO: Ramla.

P. cameroni is a rare species endemic to the Maltese Islands, often associated with roots of sand dune plants such as *Pancratium maritimum*. It was previously reported from Mellieha Bay in Malta (Cameron & Caruana Gatto, 1907), where it now seems to be extinct.

Gunarus parvulus (Lucas, 1849)

Local distribution. MALTA: Mellieha Bay.

Only one specimen of *G. parvulus* was so far collected (on *Acacia*) from the Maltese Islands (Grimm, 1986). *G. parvulus* is known from Morocco, Tunisia, Balearic Islands, Spain (Andalusia), Sardinia, Adriatic Italy, Sicily and Ionian Islands.

Xanthomus pallidus (Curtis, 1830)

Local distribution. GOZO: Ramla.

Material examined. GOZO, Ramla, 18.I.1999, 2 exs., Leg. D. Mifsud (DMM).

X. pallidus is a new record for the Maltese Islands and could be a rare species. The two specimens were found under sand, possibly associated with roots of *Ammophila arenaria*. The ecology of *X. pallidus* and the closely related *X. pellucidus* (Mulsant) was discussed in detail by Binaghi & Ghidini (1957). Future work could also reveal the presence of *X. pellucidus* and *Halammobia pellucida* (Herbst), since all the above mentioned species often occur together. In Italy these two latter species are found in more protected sand dune systems where colonisation by *Euphorbia paralis* begins (Binaghi & Ghidini, 1957). *X. pallidus* is known from Holland, United Kingdom, France, Spain, Madeira, Italy, Sicily, Lampedusa, Corsica, Algeria and Morocco. Canzoneri (1959) described *X. pallidus residuus* from Northern Italy (Venezia) and *X. pallidius ghidinii* from coasts along Southern Italy.

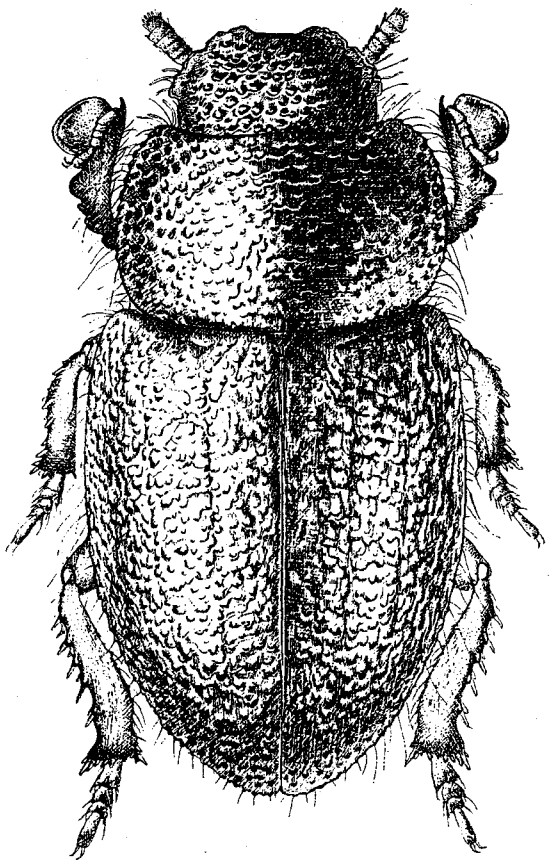

Fig. 1 *Ammobius rufus* Lucas (after Bonometto & Canzoneri, 1970).

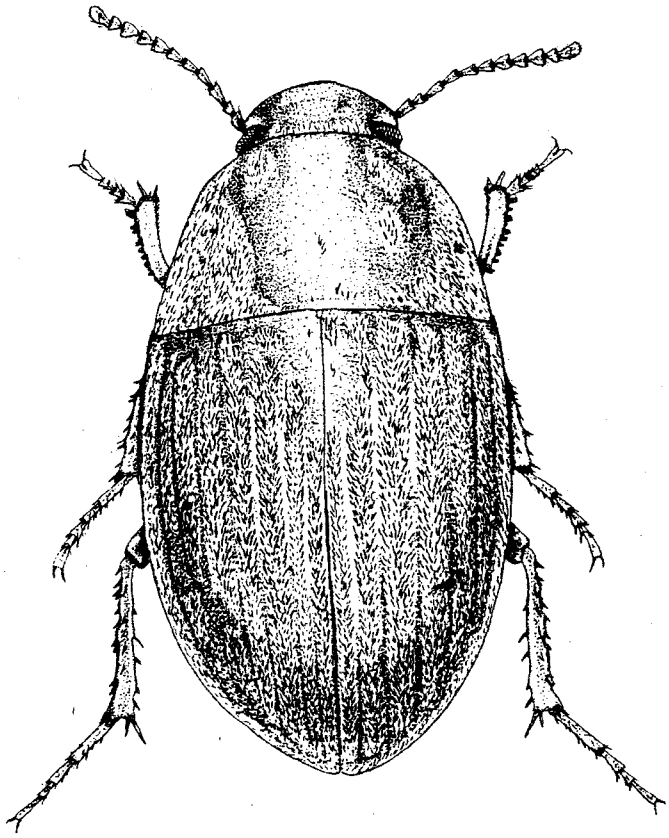

Fig. 2 *Pseudoseriscius cameroni* (Reitter) (after Mifsud & Scupola, 1998).

Nalassus aemulus (Küster, 1850)

Local distribution. GOZO: Ramla.

Material examined. GOZO, Ramla, 18.I.1999, 10 exs., Leg. D. Mifsud (DMM; NHMB; SMNS).

N. aemulus is a new record for the Maltese Islands and like the preceding species could be locally rare. The population found in Gozo was in close association with the basal parts of *Ononis natrix ramosissima*. *N. aemulus* is known from Central Italy, Sicily, Tripoli, Tunisia, Pelagic Islands, Linosa, Algeria, Southern Spain and Balearic Islands. *N. aemulus calaritanus* was recently described from Sardinia (Leo, 1985).

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