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Crocidura sicula Miller, 1900 (Mammalia, Soricidae): a possible new record from Comino island (Maltese Islands)

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ABSTRACT The presence of *Crocidura sicula* Miller, 1900 is reported for the first time from the Comino island. Two specimens were obtained from the analysis of Long-eared Owl *Asio otus* (Linnaeus, 1758) pellets.

KEY WORDS *Crocidura sicula;* Comino; Maltese islands.

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INTRODUCTION

The Sicilian shrew *Crocidura sicula* Miller, 1900 is a Mediterranean species, endemic to the Siculo-Maltese archipelago. This species is widely distributed in the island of Sicily and it also occurs in the neighbouring Egadi islands (Marettimo, Favignana and Levanzo) and in Ustica island. In the Maltese archipelago this species is recorded only from the island of Gozo. Though fossilized bones have been discovered on the island of Malta, confirming its past presence, it seems that it has now become extinct from the main island for unknown reasons (Hutterer, 2005).

Taxonomy and distribution of shrews of Maltese islands have been debated for a long time. In the past *Suncus etruscus* (Savi, 1822) was known as the only species occurring in Malta and Gozo, while *Crocidura suaveolens* (Pallas, 1811) and *C. russula* (Hermann, 1780) were recorded only in Gozo. On the basis of current knowledge *S. etruscus* occurs in Malta and *Crocidura* in Gozo (Schembri & Schembri, 1979). During the last decades a number of authors agreed to classify the Gozo populations as *C. suaveolens* (Schembri & Schembri, 1979; Hutterer, 1991). During the same time, the *Crocidura* spp. populations of Sicily were debated, often controversially, on their taxonomic status and also on the number of species occurring in the island (Sarà, 2008). Currently all the populations occurring in the Siculo-Maltese archipelago belong to the endemic species *C. sicula* (Vogel, 1988; Vogel et al*.,* 1990; Contoli et al*.,* 1989; Sarà et al*.,* 1990).

Hutterer (1991) identified a distinct taxon for Gozo: *C. sicula calypso*, which is different from those of Egadi Islands (*C. sicula aegatensis* Hutterer, 1991) and from those of Sicily (*C. sicula sicula*). Such subspecific subdivision has not been recognized by Sarà (1995) and Sarà & Vitturi (1996).

RESULTS

Some pellets (n = 3) and other pellet fragments have been collected during April 2005 on the small island of Comino from beneath the nest of a Long-eared Owl *Asio otus* (Linnaeus, 1758), (J. Azzopardi and M. Sammut leg.), although the nest was occupied and used the previous year (Baldacchino & Azzopardi, 2007).

The species identified from the analysis of this material were *Oryctolagus cuniculus* (Linnaeus, 1758) (n = 2), *Mus musculus* Linnaeus, 1758 (n =3) and *Rattus rattus* (Linnaeus, 1758) (n =1), already known from the island, and also

two specimens of *C. sicula*. The record of *C. sicula* is the first record of the occurrence of this species from Comino.

Table 1 gives some cranial measurements of two specimens from Comino. The two specimens from Comino showed values similar to those reported in Sarà (2008) from Gozo.

DISCUSSION AND CONCLUSIONS

The Maltese islands are located in the centre of the Mediterranean, just 96 km south of Sicily, 290 km from North Africa, 1836 km from Gibraltar, and 1519 km from Alexandria Egypt, making them Europe's southernmost outpost (Schembri, P.J., 1993). The Maltese archipelago is made up of three major inhabited islands: Malta, the largest; Gozo (Għawdex) and Comino, the smallest (Kemmuna). Besides, around these, there are other scattered uninhabited islets and rocks. The total surface area of the Maltese islands is 316 km^2. This geographical location of the Maltese islands gives them unique ecological characteristics (Fig. 1).

Comino has a smaller islet adjacent to it: Cominotto (Kemmunett). The surface area of Comino is 2.8 km^2, while that of Cominotto is only 9.9 ha. These two islands are entirely made up of upper coralline limestone, one of the five sedimentary layers which form the archipelago. This layer reaches its maximum thickness at Comino.

Like most of the northern and north-eastern coastline of the island of Malta and that of the east coast of Gozo, the north and the south facing

	ZW	PL	M_1-M_3	E	COH
Comino, specimen 1	5.82	7.37	3.65	0.92	4.27
Comino, specimen 2	--	7.23	3.68	--	4.26
Gozo (Sarà, 2008)	5.71 ± 0.11	7.36 ± 0.24	3.73 ± 0.12	0.90 ± 0.05	4.36 ± 0.11

Table 1. Some cranial measurements expressed in cm of *Crocidura sicula* from the Maltese islands.
ZW = zygomatic width, PL = palate length, M_1-M_3 = mandibular molar row length, E = width of articular condylum, COH = Coronoid height.

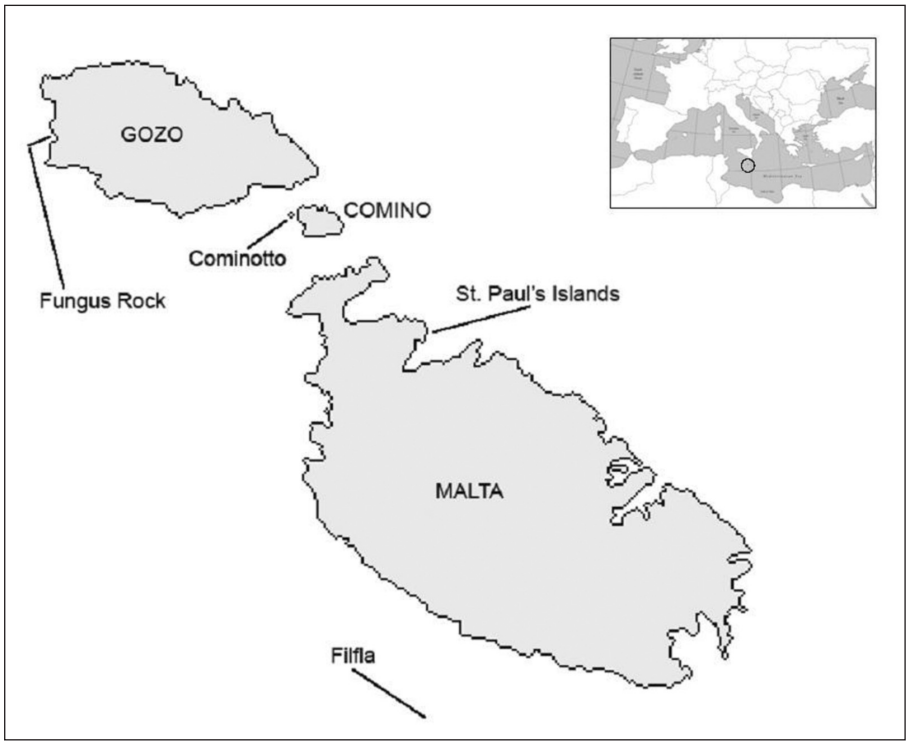

Figure 1. Map of Maltese Archipelago (latitude 35º 48' 28" – 36º 05' 00" North, longitude 14º 11' 04" - 14º 34' 37" East). Surface area of each island: Malta 245.7 km^2, Gozo 67.1 km^2, Comino 2.8 km^2, St. Paul's Islands 10.1 ha, Cominotto 9.9 ha, Filfla 2.0 ha, Fungus Rock 0.7 ha, Maltese islands 316 km^2.

coasts of Comino are gently sloping rock. About a century ago, there were approximately 100 inhabitants cultivating small-scale scattered patches, even on the smaller island of Cominotto. Today there are only two inhabitants living on Comino, but there is also a hotel which is very active during the peak touristic season, and a pig farm which is slowly being phased out.

The vegetation of the island of Comino consists predominantly of coastal steppes and garigue. The latter is the most common, characterized by such species as *Thymbra capitata* (L.) Cavanilles, *Anthyllis hermanniae* L., *Teucrium fructicans* L., and the endemic *Euphorbia melitens* Parlatore. Despite the smallness of the island, in one of the small bays on Comino, there is a sand dune which has been almost obliterated by mismanagement, including a very degraded saline marshland. There are also two very small tree reserves, one at the area known as Il-Ħażina which is c. 5,000 m^2, and the other at Il-Qala ta' Santa Marija c. 11,000 m^2 (Ministry for the Environment, 1999).

The terrestrial mammals occurring in the Maltese islands, and also recorded from Comino are: *Rattus norvegicus* (Berkenhout, 1769), *R. rattus*, *M. musculus, Apodemus sylvaticus* (Linnaeus, 1758), *O. cuniculus* and the bat *Pipistrellus kuhlii* (Kuhl, 1817) though not excluding other migratory bat species.

Terrestrial mammals occurring in the Maltese islands but not yet recorded from Comino are: *Atelerix algirus fallax* (Dobson, 1882), *C. sicula*, *S. etruscus* and Chiroptera which are not considered to be migratory such as *Rhinolophus hipposideros minimus* (Bechstein, 1800), *R. ferrumequinum* (Schreber, 1774), *Myotis blythi punicus* (Tomes, 1857), *Plecotus austriacus* (J.B. Fischer, 1829) and *Pipistrellus pygmaeus* (Leach, 1825). The *Mustela nivalis* (Linnaeus, 1766) is not recorded on Comino either (Baldacchino & Schembri, 2002).

Comino is also rich in endemics or subendemics of both flora and fauna. Amongst these is the subendemic (Malta, Comino and Lampedusa) flora *Daucus lopadusanus* Tineo, the Pelago-Maltese endemic *Linaria pseudolaxiflora* Lojac. in Lojac., a still undescribed *Limonium* Miller, 1754 species, the rare *Darniella melitensis* (Botschantzev) Brullo, two Hybleo-Maltese endemics: *Senecio pygmaeus* DC. and the grass *Desmazeria pignattii* Brullo & Pavone and the last population of *Althea hirsuta* L. Furthermore, Comino supports a population of two species of land snails endemic to the Maltese islands, namely *Trochoidea spratti perplanata* Pilsbry 1893 and *Trochoidea schembrii* (L. Pfeiffer, 1846). The Maltese Wall Lizard *Podarcis filfolensis maltensis* Mertens, 1921, is also recorded on Comino (Ministry for the Environment, 1999).

Because of its ecological importance, Comino is a legally protected Bird Sanctuary, a Special Area of Conservation, and an EU Natura 2000 site.

The size of Comino (2.8 km^2), is smaller than the territory of *Asio otus* in non-insular habitat (Galeotti et al., 1997; Henrioux, 2000), but the hunting area of the Long-eared Owl can vary substantially depending on food supply. Birds with young can hunt up to 2.5 km from nest. However, when food is abundant, territory can be as small as 50 to 100 ha (Oxford CD-Rom, 1998).

Thus the short distance from the island of Gozo (approximately 840 meters) does not exclude the possibility that *C. sicula* were preyed upon in the latter island. The easy availability of prey on Comino could reduce the territory of *A. otus* (Henrioux, 2000). During the nesting season these owls use the territory in the vicinity of the nest (Craig et al., 1988). The abundance of prey, even of large mammals like rabbit *O. cuniculus*, and rats *M. musculus* and *R. rattus* on Comino, species identified from pellets collected from the immediate surroundings of the nest, could support the hypothesis that the Sicilian Shrew (*C. sicula*) has been caught on the island itself.

Further investigations on the presence and abundance of the population of *C. sicula* on Comino island are required also for the conservation of the species in the Maltese Archipelago.

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