

THE CENTRAL MEDITERRANEAN NATURALIST

PERIODICAL ISSUED BY THE

SOCIETY FOR THE STUDY AND CONSERVATION OF NATURE

(Formerly: THE NATURAL HISTORY SOCIETY OF MALTA)



Centaurea spathulata Zerafa 1827

THE CENTRAL MEDITERRANEAN NATURALIST

Volume 1 Part 3

Malta, September 1984

CONTENTS

	PAGE
SAVONA VENTURA, C. - A study of the genus <i>Myotis</i> Kaup in Malta (Mammalia: Chiroptera: Vespertil- ionidae)	51
LANFRANCO, E. & BRIFFA, M. - Notes on the Flora of Malta - 2: <i>Ammannia coccinea</i> Rottboel	55
BRIFFA, M. - Notes on the Flora of Malta - 3: <i>Crepis</i> <i>bursifolia</i> Linnaeus	56
SCHEMBRI, S.P. - Notes on the Orthoptera of the Maltese Islands: The genus <i>Myrmecophilus</i> (Orthoptera: Gryllidae)	57
SCHEMBRI, S.P. - Notes on the subspecies of <i>Ronisia</i> <i>barbara</i> (Hymenoptera: Mutillidae) in the Maltese Islands	60
THAKE, M.A. - New records of land snails inhabiting leaf litter from the Maltese Islands (Mollusca: Gastropoda: Pulmonata)	63
THAKE, M.A. - Land snails from Comino (mollusca: Gastr- opoda)	66

Issued by the SOCIETY FOR THE STUDY AND CONSERVATION OF NATURE,
P.O. BOX 459, VALLETTA, MALTA.

EDITOR: Edwin Lanfranco

Offset Printed by A & M Printers, QALA, GOZO, MALTA.

A STUDY OF THE GENUS *MYOTIS* KAUP (1829) IN MALTA

(MAMMALIA: CHIROPTERA: VESPERTILIONIDAE)

Charles SAVONA VENTURA

15, The Strand, Kalkara, MALTA

ABSTRACT

The literature records of *Myotis* species from the Maltese Islands are reviewed in the light of measurements of 30 specimens captured from various caves in Malta. The measurements confirm only the species *M. blythi* as being represented on the Maltese Islands

INTRODUCTION

Because of their nocturnal and retiring habits, it is difficult to make a full list of the Chiroptera occurring in a given region. Previous records of Chiroptera from the Maltese Islands have been reviewed by LANFRANCO (1969) who lists 13 species. Lanfranco notes that while the presence of some species on the Islands is doubtful, the list is far from exhaustive. Another species has since been added to the Maltese list by STORCH (1974). The genus *Myotis* is represented locally by four species: *M. myotis* (Borkhausen); *M. blythi* (Tomes); *M. daubentoni* (Leisler) and *M. capaccinii* (Bonaparte). The presence of the last two is doubtful and requires confirmation (LANZA, 1959; LANFRANCO, 1969). The others have been repeatedly listed as common, though LANZA (1959) queried the occurrence of *M. myotis* in the Maltese Islands.

M. blythi is only minimally different from *M. myotis*, so that its taxonomical status had been questioned for a long time. It is now accepted as a distinct species of smaller dimensions than *M. myotis*. Size alone however is not a reliable criterion for the identification of this species in view of the large individual variation. For example LANZA's study (1959) of variation in size in *Myotis* specimens collected from Europe revealed an intermediate group. These individuals may either be particularly large specimens of *M. blythi* or particularly small specimens of *M. myotis*. The present study attempts to fit the measurements of 30 *Myotis* specimens collected from three sites in Malta to the size ranges for the various species as defined by LANZA (1959).

RESULTS

The identification of the four European *Myotis* species may be partly based on size. Taxonomically useful measurements include forearm length, condylobasal length of the skull, and the superior dental file (c - m) length (LANZA, 1959 and Table 1). LANZA (1959) based his record of *M. blythi* from Malta on measurements of eight *Myotis* individuals collected from Ghar Hasan, Malta and deposited in the Museo di Storia Naturale, Firenze. The measurements of these eight individuals, together with similar measurements made during the present study of 22 other specimens from three caves in Malta, are listed in Table 2.

Using the size criteria defined by LANZA (1959) outlined in Table 1, it would appear that *M. daubentoni* and *M. capaccinii* are not represented in the sample examined. The measurements in Table 2 suggest that 19 specimens can be unambiguously ascribed to *M. blythi*, while the remaining eleven specimens are intermediate between *M. myotis* and *M. blythi*. One specimen (csv VH2/c) had a superior dental file length of 10.1 mm suggesting the species *M. myotis*. However, the other two measurements considered place this specimen in the intermediate group. There is no specimen in the sample which can be definitely attributed to *M. myotis*. The *Myotis* population from the Maltese islands appears to have the following range of measurements:-

Superior dental file length (c-m):	9.1 mm + 0.5 mm s.d. 8.0̄ - 10.1 mm
Condylobasal length of skull:	21.2 mm + 1.1 mm s.d. 19.0̄ - 23.5 mm
Forearm length:	59.7 mm + 2.0 mm s.d. 55.5̄ - 63.6 mm

DISCUSSION

In the first list of bats from the Maltese Islands (GULIA, 1890), the genus *Myotis* was represented by three species: *M. myotis* listed as common; *M. daubentoni* listed as not very rare; and *M. capaccinii* listed as very rare. These three records were repeated by GULIA fil. (1914) who listed *M. myotis* as very common, and *M. daubentoni* and *M. capaccinii* as rare. A further species *M. blythi* was added to the list by LANZA (1959) based on his examination of the collection of Giglioli. Lanza failed to confirm the other three species and doubted their occurrence in the Maltese Islands. VAN DER BRINK (1967) reported the presence of *M. myotis* and *M. blythi* on the Maltese Islands. In reviewing previous records, LANFRANCO (1969) cast doubt on the occurrence of *M. daubentoni* and *M. capaccinii*, but recorded *M. myotis* as frequent and *M. blythi* as quite common. STORCH (1974) compared *Myotis* remains from the prehistoric layer of Ghar Dalam cave, Malta with recent specimens of *M. blythi* from Malta and *M. myotis* from Sicily. While the prehistoric remains could be attributed to *M. blythi*, there was no evidence of *M. myotis* in these. *M. blythi* in prehistoric deposits had been previously reported by CATON THOMPSON (1925). From the bone breccia in association with hippopotamus and elephant remains, STORCH (1974) described four

Species	Forearm length (mm)	Condylobasal length (mm)	Superior Dental file length (mm)
<i>M. daubentonii</i>	33.0 - 41.0	13.0 - 14.2	5.0 - 5.7
<i>M. capaccinii</i>	37.5 - 43.2	13.9 - 15.0	5.4 - 6.0
<i>M. blythi</i>	53.6 - 63.5	19.6 - 21.4	8.5 - 9.4
intermediate group	57.0 - 63.6	21.2 - 22.3	9.2 - 10.0
<i>M. myotis</i>	58.2 - 65.7	22.0 - 23.5	9.8 - 10.5

Table 1. Measurements range of *Myotis* species (LANZA, 1959).

Sex	Collection no.	Locality	Superior Dental File length (mm)	Condylobasal length (mm)	Forearm length (mm)
S	csv VM2/m	Girgenti cave	8.0 ±	-	-
M	Sch M3/3	Għar il-Friefet	8.4	21.0	57.7
S	csv VM2/j	Girgenti cave	8.5	19.0 ±	-
S	csv VM2/k	Girgenti cave	8.5	19.0 ±	-
S	csv VM2/l	Girgenti cave	8.5	20.0 ±	-
S	csv VM2/i	Girgenti cave	8.5	22.0	-
M	csv VM2/h	Għar il-Friefet	8.5	22.7	58.5
F	csv VM2/d	Girgenti cave	8.7	20.4	61.5
F	csv VM2/g	Għar il-Friefet	8.7	22.0	60.5
M	csv VM2/e	Għar il-Friefet	8.9	21.2	59.0
S	Sch M3/5	Girgenti cave	9.0	19.5	-
M	MFG 513	Għar Hasan	9.0	-	57.2
M	MFG 513	Għar Hasan	9.0	-	57.7
F	MFG 513	Għar Hasan	9.0	20.9	60.3
?	rdg 1	Girgenti cave	9.0	21.0	58.0
M	MFG 513	Għar Hasan	9.3	21.4 ±	59.5
M	Sch M3/2	Għar Hasan	9.4	20.0	59.8
F	MFG 513	Għar Hasan	9.4	20.7 ±	58.0
M	R 280775	Għar il-Friefet	-	20.9	62.2
M	csv VM2/f	Għar il-Friefet	9.2	22.5	58.0
F	Sch M3/1	Għar Hasan	9.2	22.8	61.5
M	R 020375	Għar il-Friefet	9.5 ±	21.0	60.3
F	csv VM2/b	Girgenti cave	9.5	22.0	61.0
M	R 020375	Għar il-Friefet	9.5 ±	23.5	55.5
M	Sch M3/4	Għar il-Friefet	9.6	21.0	57.7
M	MFG 513	Għar Hasan	9.7	21.7	60.7
F	MFG 513	Għar Hasan	9.7	21.8	62.0
F	csv VM2/a	Għar Hasan	9.8	21.0	61.5
F	MFG 513	Għar Hasan	10.0	21.9	63.6
F	csv VM2/c	Girgenti cave	10.1	21.0	61.0

Table 2. Measurements of specimens of *Myotis* from the Maltese Islands. MFG: Museo di Storia Naturale, Firenze (LANZA, 1959); Sch M3: Schembri private collection; rdg: R. Degiorgio private collection; csv VM3: author's private collection; R: live specimens released after obtaining data. Specimens marked S are skull remains, some fragmentary.

Myotis species: *M. exilis* Heller, *M. bechsteini robustus* Topal, *M. ghardalamensis* Storch and *M. capaccinii* (Bonaparte). The first three named are extinct. *M. ghardalamensis* has features which suggest that it could be the ancestor of the recent *M. blythi* and/or *M. myotis*.

The present study reports the presence of *M. blythi* in Malta, thus confirming previous observations (LANZA, 1959; VAN DER BRINK, 1967; LANFRANCO, 1969; STORCH, 1974). This species appears to have been present on the Maltese Islands since prehistoric times as evidenced by remains from Ghar Dalam (CATON THOMPSON, 1925; STORCH, 1974). Its presence on the Island may date also to the Pleistocene by virtue of the similarities between it and *M. ghardalamensis* (STORCH, 1974).

The presence of *M. myotis* in Malta has not been confirmed by this study, although the species has been reported to be frequent (GULIA, 1890; GULIA fil., 1914; VAN DEN BRINK, 1967; LANFRANCO, 1969). The absence of *M. myotis* in the sample studied could be attributed to the number of specimens examined, or on the non-specificity of the characters used for identification. The other two *Myotis* species reported to occur rarely (GULIA, 1890; GULIA fil. 1914) have not been confirmed in this study. Some authors (LANZA, 1959; LANFRANCO, 1969) have doubted the presence of these two species in Malta. *M. capaccinii* has been confirmed only from Quaternary deposits from Malta (STORCH, 1974). It is possible that *M. daubentoni* and *M. capaccinii* are rare migrants to Malta. Both occur in Sicily, while *M. capaccinii* is found also in Morocco and Algeria.

ACKNOWLEDGEMENTS

Acknowledgements are due to Dr. P. J. Schembri for reading the manuscript and his useful criticisms.

REFERENCES

- CATON THOMPSON, G. in MURRAY, M.A. (1925). *Excavations in Malta - Percy Sladen mem. Fund Expedition*, p. II p. 1 - 16, B. Quaritch, London.
- GULIA, Gavino (1890). *Elenco dei Mammiferi Maltesi. Il Naturalista Maltese*, 1(2): 2 - 3, Malta.
- GULIA, Giovanni (1914). *Uno sguardo alla zoologia delle Isole Maltesi. IX Inter. Zoo. Congress Monaco 25 - 30 March 1913*: 545 - 555.
- LANFRANCO, G. (1969). *Maltese Mammals (Central Mediterranean)*, 28pp. 8 pl., Progress Press, Malta.
- LANZA, B. (1959) in TOSCHI, A. and LANZA, B. *Fauna d'Italia IV - Mammalia, Generalita - Insectivora - Chiroptera*, Grafiche Calderini, Bologna: 288-343.
- STORCH, G. (1974). *Quartare Fledermaus - Faunen von der Insel Malta. Senckenbergiana lethaea*, 55(1/5): 407 - 434.
- VAN DER BRINK, F. H. (1967). *A Field Guide to the Mammals of Britain and Europe*, Collins, London.

received February 1979
revised August 1984

NOTES ON THE FLORA OF MALTA - 2:

AMMANNIA COCCINEA ROTTBOELL

Edwin LANFRANCO, 3, New Street, Sliema, MALTA.

Michael BRIFFA, 20, Creche Street, Sliema, MALTA.

In June 1978 an unfamiliar Lythraceous plant was found growing at Marsa (east Malta) by one of the authors (MB). The plant was later identified as *Ammannia coccinea* Rottb., a native of the Americas (from U.S.A. to Brazil). It is known in Europe as an adventive weed of rice-fields in Spain and Portugal (WEBB, 1968; GUINEA LOPEZ and CEBALLOS JIMENES, 1974). More recently it was recorded, again in rice-fields, from Piedmont (provinces of Alessandria and Novara), Italy (ABBÀ, 1977).

The Maltese station is in a highly urbanized locality in the Grand Harbour area. There are a number of freshwater springs which give rise to relatively large pools. As is to be expected from this kind of habitat, the flora is rich in adventives. Within the pools, *Ammannia coccinea* formed the dominant element, being replaced by *Aster squamatus* (Sprengel) Hieron. and *Cynodon dactylon* (L.) Persoon in shallower water and around the margins. The dominant submerged plant was a species of *Rhizoclonium* (Chlorophyta). The remaining flora in the marshy area included *Atriplex prostrata* DC., *Parietaria diffusa* Mert. and Koch, *Dittrichia graveolens* (L.) Greuter, *Conyza bonariensis* (L.) Cronq., *Conyza floribunda* Kunth, *Chenopodium ambrosioides* L., *Cyperus alternifolius* L., *Polypogon monspeliensis* (L.) Desf., *Polypogon viridis* (Gouan) Breistr. and *Spergularia bocconeii* (Scheele) Asch. and Graebn.

In the plants examined the number of petals varied between four and six while the number of stamens varied between four and eight, this range of variation often occurring in the same plant. In view of its abundance in this locality, it is likely that *Ammannia coccinea* had been established for a considerable time.

Since the first writing of this note, the habitat of this plant has been destroyed due to alterations carried out in the harbour area.

The authors are indebted to Dr. Alfred Hansen (Copenhagen) for determining the plant.

REFERENCES

- ABBÀ, G. (1977). Una nuova avventizia per la flora Italiana. *Inform. Bot. Ital.*, 9(3): 286.
- GUINEA LOPEZ, E. and CEBALLOS JIMENEZ, A. (1974). *Elenco de la Flora Vascular Española (Península y Baleares)*: 152. Icona, Madrid.
- WEBB, D.A. (1968). *Ammannia* in TUTIN *et al.* (ed.) - *Flora Europaea*, 2: 302, Cambridge University Press.

received December 1978
revised August 1984

NOTES ON THE FLORA OF MALTA - 3:

CREPIS BURSIFOLIA LINNAEUS

Michael BRIFFA

20 Creche Street, Sliema, MALTA

The occurrence of *Crepis bursifolia* L. in the Maltese Islands is recorded here for the first time.

On the 20th June 1983, the writer found a single specimen of an unfamiliar chicoroid plant growing vigorously on an asphalted pavement, close to a main thoroughfare, in a sea-side residential area (Tower Road, Sliema, Malta). It was accompanied by *Taraxacum minimum* (Briganti ex Guss.)N. Terrac., *Setaria verticillata* (L.) Beauv., *Hyoscyamus albus* L., *Reichardia picroides* (L.) Roth., *Parietaria officinalis* L., and *Conyza bonariensis* (L.)Cronq. It was subsequently identified as *Crepis bursifolia* L. by Mr. G. Ll. Lucas of the Kew Herbarium (Ref. H633/83) who also stated that there is no other material of this species from Malta at Kew. Specimens have been deposited at the Kew Herbarium and at the private herbarium of Mr. E. Lanfranco in Malta.

This species is native in Central and Southern Italy and Sicily ; it also occurs as an alien in Spain, France and possibly Greece (SELL, 1976). It should be considered as an alien in the Maltese Islands. However, one cannot absolutely rule out the possibility that its rare occurrence in Malta could have been previously overlooked, owing to the presence of several other chicoroids with similar-looking flower-heads which are common and widespread in Malta, such as: *Hypochaeris achyrophorus* L., *Leontodon tuberosus* L., *Reichardia picroides* (L.)Roth., and especially *Taraxacum minimum* (Briganti ex Guss.)N. Terrac., *Hyoseris radiata* L. and some forms of *Hyoseris scabra* L., the leaves of which also resemble closely those of this species.

I am indebted to Mr. G. Ll. Lucas for identifying this species and to Mr. E. Lanfranco for looking up its distribution.

REFERENCES

- SELL, P.D. (1976). *Crepis* in TUTIN *et al.* (ed.) - *Flora Europaea*, 4:357, Cambridge University Press.

received December 1983

NOTES ON THE ORTHOPTERA OF THE MALTESE ISLANDS:

THE GENUS *MYRMECOPHILUS* (ORTHOPTERA: GRYLLIDAE)

Stephen P. SCHEMBRI

72, Brared Street, Birkirkara, MALTA.

ABSTRACT

Two species of *Myrmecophilus* have been recorded from the Maltese Islands: *M. ochraceus* and the endemic *M. baronii*. New distribution data for both species are given. This is the first time that *M. baronii* has been collected again after its original description by Baccetti in 1967. A key to the Malteses species is included.

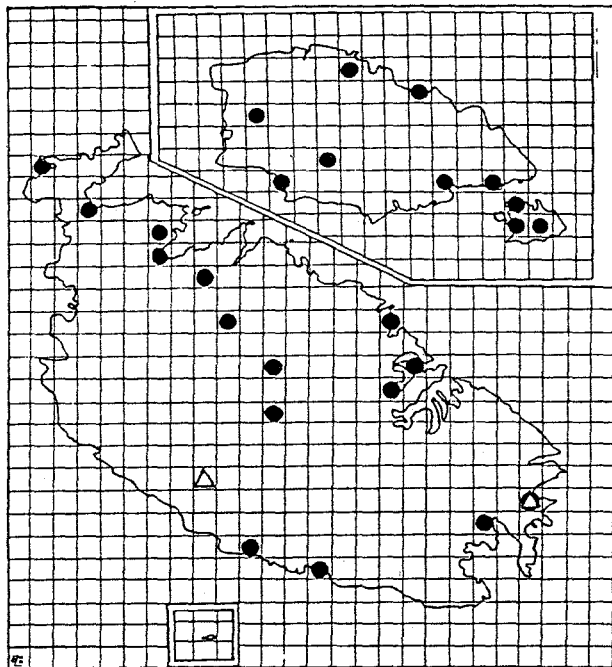


Fig. 1. Map showing distribution of *Myrmecophilus* species in the Maltese Islands: *Myrmecophilus ochraceus* (●); *Myrmecophilus baronii* (Δ).

The ant-associated genus *Myrmecophilus* Berthold is represented in the Maltese Islands (Central Mediterranean) by two species: *Myrmecophilus ochraceus* Fischer and *Myrmecophilus baronii* Baccetti. The only source of information on the Maltese species remains Baccetti's revision of Italian species of *Myrmecophilus* published over 17 years ago (BACCETTI, 1966). Since then new data have become available and it is the aim of this note to record these new findings. New distribution data for *M. ochraceus* is given, while the presence of *M. baronii* is confirmed; this latter being the second published record of the species.

MYRMECOPHILUS (*MYRMECOPHILINA*)
OCHRACEUS FISCHER, 1953

MALTA: Għajjn Riġana, Għar Lapsi, Gwardamangia, Lija, Manoel Island, Marsaxlokk, Mellieħa, Mistra, Paradise Bay, Spinola, St. Paul's Bay, St. Thomas Bay, Wied Babu, Wied Qannotta, Wied is-Sewda.

GOZO: Hondoq ir-Rummien, Mgarr, Ramla, Qbajjar, San Lawrenz, Victoria, Xlendi.

COMINO: Central area, near Tower, San Niklaw.

Associated with the ants: *Messor structor* (Latr.) 3%; *Messor capitatus* (Latr.) 60.6%; *Pheidole pallidula* (Nyl.) 3%; *Monomorium subopacum* (Smith) 15.2%; *Tetramorium caespitum* (L.) 18.2%. Figures are percent occurrence with each ant species (total sample = 33).

Myrmecophilus ochraceus is known from the three main islands of the Maltese archipelago where it appears to be widespread (see Fig. 1). The species occurs most frequently with the Harvester Ant *Messor capitatus* which is very abundant in the Maltese Islands (SCHEMBRI, 1981). The cricket is gregarious; 2 to 5 individuals have been observed in the superficial regions of the nests.

MYRMECOPHILUS (MYRMECOPHILUS) BARONII BACCETTI, 1966

This cricket was described from the Maltese Islands (type locality: St. Thomas Bay "Baia S. Tomaso", East Malta) from a nest of the ant *Camponotus barbaricus* Em. The type material, 1♂2♀♀, is deposited in Baccetti's collection.

Repeated intensive searches for this insect by the present author in the type locality and elsewhere proved futile in spite of the fact that the ant *Camponotus barbaricus* is common and widespread in all the islands of the Maltese group (SCHEMBRI, 1981). Recently, however, *M. baronii* was found at Buskett (near Wied il-Luq), South Malta.

MALTA: St. Thomas Bay 21.4.1965, 1♂2♀♀ (type material), leg. C. Baroni Urbani, coll. B. Baccetti (with *Camponotus barbaricus*); Buskett 30.4.1983, 2♀♀, leg. et coll. S. Schembri (with *Camponotus barbaricus*); Buskett 30.4.1984, 1♀, leg. et coll. S. Schembri (with *Messor structor*).

Myrmecophilus baronii is endemic to the Maltese Islands where it is very rare and very localized. The species associates mostly with the ant *Camponotus barbaricus* but also occurs with the Harvester Ant *Messor structor*.

KEY TO THE SPECIES OF *MYRMECOPHILUS* INHABITING THE MALTESE ISLANDS

Males and Females

1. Adult body length c. 3.2 mm; body dark brown; internal face of the apex of the posterior tibia with 5 large spines and 1 very small spine (Fig. 2A).....*Myrmecophilus ochraceus*
- 1a. Adult body length c. 4.0 mm; body pale brown; internal face of the apex of the posterior tibia with 6 large spines and 1 very small spine (Fig. 2B).....*Myrmecophilus baronii*

Myrmecophilus baronii can also be easily distinguished by its bulk, being about twice as large as *Myrmecophilus ochraceus*.

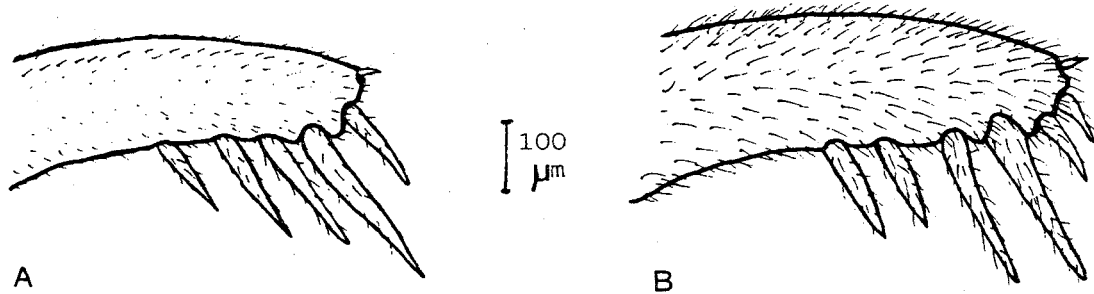


Fig. 2. Internal face of apex of the posterior tibia of Maltese *Myrmecophilus* species. A. *Myrmecophilus ochraceus*; B. *Myrmecophilus baronii*.

REFERENCES

- BACCETTI, B. (1966). . Notulae Orthopterologicae. XXII. Il genere *Myrmecophilus* Berth. in Italia. *Redia*, 50: 1 - 33.
- SCHEMBRI, S.P. & COLLINGWOOD, C.A. (1981). A revision of the myrmecofauna of the Maltese islands (Hymenoptera, Formicidae). *Ann. Mus. Civ. St. Nat. Genova*, 83: 417 - 442.

received August 1984

NOTES ON THE SUBSPECIES OF *RONISIA BARBARA*
(HYMENOPTERA: MUTILLIDAE) IN THE MALTESE ISLANDS

Stephen P. SCHEMBRI

72, Brared Street, Birkirkara, MALTA.

ABSTRACT

Ronisia barbara occurs as two distinct subspecies in the Maltese Islands. *R. b. barbara*, previously thought to occur only in Gozo and Comino, is here reported for the first time from Malta where it has been found at the northern tip of Marfa Ridge. The second subspecies, *R. b. brutia* occurs south of this locality. Males of *R. barbara* identical to the subspecies *R. b. torosa* were observed in close proximity with female *R. b. brutia* and possibly courting them. On this and other evidence it is suggested that *R. b. torosa* is actually the male of *R. b. brutia*. The latter name has precedence.

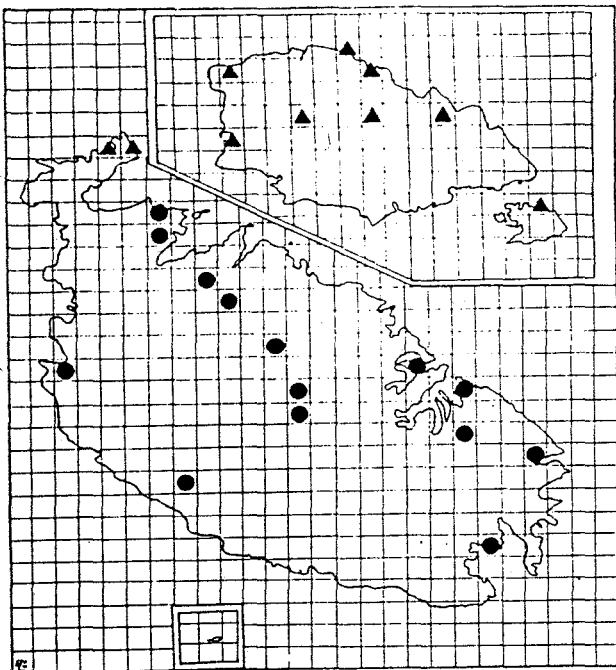


Fig. 1. Map showing distribution of *Ronisia barbara barbara* (▲) and *Ronisia barbara brutia* (●) in the Maltese Islands.

The Mutillidae of the Maltese Islands have recently been reviewed by SCHEMBRI (1983) who recorded 15 species including a species of *Smyceromyrme* new to science and as yet undescribed. Previous works on Maltese Mutillidae are few. INVREA (1966) mentioned four species and gave some taxonomic notes; other workers (VALLETTA, 1971 & 1978; BORDONI, 1980) only gave species lists with very little additional data.

This note reports some recent information on the interesting distribution of *Ronisia barbara* within the Maltese Islands and gives further taxonomic and ecological data for this species.

RONISIA BARBARA (Linnaeus, 1758)

Ronisia barbara (L.) is represented in the Maltese Archipelago by two morphologically distinct (in the female sex) subspecies: the nominal form *Ronisia barbara barbara* (L.)

and *Ronisia barbara brutia* (Petagna, 1787). The two subspecies can be easily separated on the basis of coloration. *R. b. barbara* is predominantly black with silvery-white bands and spots. *R. b. brutia* has the more typical mutillid coloration of ferruginous red with silvery-white ornamentation. Both forms are large and robust insects.

The presence of the nominal subspecies together with the subspecies *brutia* in the same region is very interesting. *R. b. barbara* has a South Palaearctic distribution and is known from the Iberian Peninsula, Lampedusa Island, Caucasus, Egypt, Libya, Tunisia, Algeria, Morocco, Spanish Sahara, and the Maltese Islands. The species is included in the Italian fauna on the basis of a few specimens collected from the island of Lampedusa (Missione Zavattari: INVREA, 1958) and from the females collected from the Maltese Islands.

Ronisia barbara brutia has a predominantly South European distribution and occurs along all the Mediterranean coasts of Asia and Africa. In Italy this subspecies is frequent in nearly all the regions.

In the Maltese Archipelago the two subspecies were previously thought to be geographically separated on the different islands: *R. b. barbara* on Gozo and Comino and *R. b. brutia* on Malta. More recent investigations have revealed this reported geographical isolation not to be so clear cut, as records of *R. b. barbara* now exist from mainland Malta. These records, from Rdum tal-Madonna and Ramla tat-Torri (see Table 1 and Fig. 1 for distribution), are both from the northern tip of Marfa Ridge, where the habitat types approach those of southern and south-eastern Gozo and Comino more closely than they do those south of Marfa ridge.

<i>Ronisia Barbara barbara</i> (L.)	
MALTA:	Ramla tat-Torri; Rdum tal-Madonna.
GOZO:	Dwejra; Għasri; Marsalforn; Qbajjar; Wied ir-Raġeb; Wied San Blas; Xagħira.
COMINO:	Santa Marija.
<i>Ronisia barbara brutia</i> (Pet.)	
MALTA:	Attard; Bañrija; Buskett; Dañlet il-Fekruna; Fort. St. Lucian (Marsaxlokk); Kalkara; Manoel Island; Mġiebañ; Marsascala; Naxxar; Wied il-Għasel; Wied is-Sewda; Wied Qannotta; Żabbar.

Table 1. Distribution of *Ronisia barbara* populations in the Maltese Islands.

MALES OF *RONISIA BARBARA BRUTIA* (Pet.)

The male of *Ronisia barbara brutia* is not known to science. All male specimens of *Ronisia barbara* (sensu lato) from Malta correspond well with the male of *R. barbara torosa* Costa, 1858 (SUAREZ, pers. comm.), the latter subspecies is only known from the male sex.

It has long been suspected that *R. b. torosa* is in fact the male of *R. b. brutia*, explaining why no males of *R. b. brutia* have been found. No definite proposal to this effect has however been put forward, most probably because the distributional range of female *R. b. brutia* is much more vast than that of male *R. b. torosa* (INVREA, 1964). The simultaneous presence of *R. b. brutia* (females) together with *R. b. torosa* (males) in the same region (Malta) supports the hypothesis that *R. b. torosa* and *R. b. brutia* are actually the same subspecies.

Further evidence for this hypothesis comes from observations carried out at Manoel Island (Malta). Here, *R. b. brutia* (females) together with *R. b. torosa* (males) were noted on various occasions in very close proximity. Males were seen flying inside a derelict room in which nested *Anthophora* bees and often alighted near a female *R. b. brutia*. At times, males followed the females on the ground, often touching them and crawling over them. Occasionally a male would follow another male but would abandon the chase after touching the other individual. Although actual copulation between male *R. b. torosa* and female *R. b. brutia* was not observed; given the observations reported above, it seems likely that *R. b. torosa* are *R. b. brutia* are but the two sexes of the same subspecies. It is therefore proposed that the taxon *torosa* Costa, 1858, be abandoned and all material referred to this now be included in *R. b. brutia* (Petagna, 1787).

REFERENCES

- BORDONI, A. (1980). Su alcuni mutillidi e mirmosidi Italiani (Hymenoptera). *Boll. Soc. ent. ital.*, 112 (9/10): 117 - 185, Genova.
- INVREA, F. (1958). Mutillidi nuovi o notevoli del bacino mediterraneo. VI nota. *Boll. Soc. ent. ital.*, 88: 143 - 147, Genova.
- INVREA, F. (1964). *Mutillidae - Myrmosidae, Fauna d' Italia*, 5: xii + 303 pp., Calderin ed., Bologna.
- INVREA, F. (1966). Mutillidi di Malta (Hymenoptera). *Boll. sedute Acc. Gioenia Sc. nat.*, ser. 4, 8 (9): 664 - 667, Catania.
- SCHEMBRI, S. (1983). The Mutillidae of the Maltese Islands: Remarks and additions (Hymenoptera Aculeata). *Boll. Soc. ent. ital.*, 115 (1-3): 25 - 30, Genova.
- VALLETTA, A. (1971). A preliminary list of the Hymenoptera Aculeata (excluding ants) of the Maltese Islands. *Ent. Mon. Mag.*, 107: 45 - 46.
- VALLETTA, A. (1978). Second contribution to the Hymenoptera Aculeata (excluding ants) of the Maltese Islands. *Ent. Mon. Mag.*, 114: 215.

received August 1984

NEW RECORDS OF LAND SNAILS INHABITING LEAF LITTER
FROM THE MALTESE ISLANDS (MOLLUSCA: GASTROPODA: PULMONATA)

Martin A. THAKE

169, Fleur de Lys Road, Birkirkara, MALTA.

ABSTRACT

Five species of land snails inhabiting leaf litter are recorded. Four of the five species are new records for the Maltese Islands while the fifth species has not previously been included in literature dealing with the Maltese malacofauna. Information about distribution and frequency is also given.

Leaf litter species are poorly represented in the Maltese terrestrial malacofauna. This microhabitat has hardly been investigated. Most past collectors having concentrated on the endemic Clausiliidae and Helicidae inhabiting more or less xeric habitats. A short study of the molluscan fauna of leaf litter revealed the occurrence of four previously unrecorded species. Their distribution and probable status form the subject matter of this contribution.

METHODS

Samples, consisting of approximately one kilogram quantities of leaf litter from maquis and/or garigue in each of the localities mentioned in Table 1, were dried and searched systematically for snails. The shells were washed clean of soil, dried and examined under various magnifications of a binocular microscope.

RESULTS

Truncatellina callicratis (Scacchi 1833): Frequent in leaf litter from both maquis and garigue. Its very small size makes it very easy to overlook. It is probably more widespread than my results indicate.

Lauria cylindracea (Da Costa 1778): Locally common in the more extensive tracts of maquis, especially in valley bottoms.

Discus rotundatus (Müller 1774): Only found in St. Anton Gardens where it is very common. This suggests that this species, as well as *Pomatias elegans* (Müller 1774), may have been introduced when the gardens were established (THAKE, 1973).

Vitrea subrimata (Reinhart 1871): The commonest *Vitrea* in Malta and and one of the commonest molluscs in maquis leaf litter.

Vitrea contracta (Westerlund 1876): Widespread but not as common as *V. subrimata*, and more difficult to find. This species occurs in both maquis and garigue leaf litter.

The relative frequency of these species in the collections is given in Table 1.

Locality	Number of leaf litter snails in the samples taken				
	A	B	C	D	E
Buskett	1	7		24	1
Mgarr ix-Xini (Gozo)		2		14	
Msida				2	
St. Anton Gardens		24	32		
Wied il-Għasel	4				
Wied Inċita	7	8		13	
Wied Qannotta	2			7	3
Wied Qirda				25	2
Wied ta' l-Isperanza				10	5
Xlendi (Gozo)		26		3	4

Table 1. Relative frequency of leaf litter snails in the samples investigated. A = *Truncatellina callicratis*, B = *Lauria cylindracea*, C = *Discus rotundatus*, D = *Vitrea subrimata*, E = *Vitrea contracta*.

DISCUSSION

There is no previous mention of any of the above species in the literature dealing with local malacofauna. The only species of *Vitrea* recorded for Malta are *V. crystallina* (Möller 1774) recorded by ISSEL (1868) and *V. hydatina* (Rossmäessler 1838) recorded by BECHER (1884). Specimens of *V. subrimata* collected in Malta are deposited in the Senckenberg Museum (PINTER, 1972).

The occurrence of species typical of moist habitats (*Lauria cylindracea* and *Vitrea subrimata*) suggests that Malta has always possessed patches of humid habitat. The absence of any endemics which are characteristic of maquis or woodland suggests that such habitats have not occupied extensive tracts of the Islands for any length of time in the past. This situation contrasts with that of the more xeric garigue/steppe habitats where many of the species are endemic.

REFERENCES

- BECHER, E.F. (1884). The land and freshwater Mollusca of the Maltese Islands. *J. Conch.*, 4: 229 - 237.
- ISSEL, A. (1868). Dei molluschi terrestri e d' acqua dolce raccolti nell' archipelago di Malta. *Bull. Malacol. Ital.*, 1(1): 1 - 6; (2): 17 - 24.
- PINTER, L. (1972). Die Gattung *Vitrea* Fitzinger 1833 in den Balkanländern (Gastropoda: Zonitidae). *Annales Zoologici (Warszawa)*, 29: 209 - 315.
- THAKE, M. (1973). On *Pomatias elegans* (Muller) in Malta. *The Maltese Naturalist*, 1(4): 7, 32, Natural history Society of Malta.

received December 1980

LAND SNAILS FROM COMINO (MOLLUSCA: GASTROPODA)

Martin A. THAKE

169, Fleur de Lys Road, Birkirkara. MALTA

ABSTRACT

A list of 23 species of land mollusca collected from the islet of Comino is given. Information about distribution and status is also given.

The results reported here were obtained during two visits to Comino in spring and summer 1975. Snails were searched for in suitable places, collected and later identified. Easy species were identified in the field and were not collected. A few specimens have not yet been identified. The sites where specimens were collected are indicated in Figure 1 while the status of the various species is indicated in Table 1.

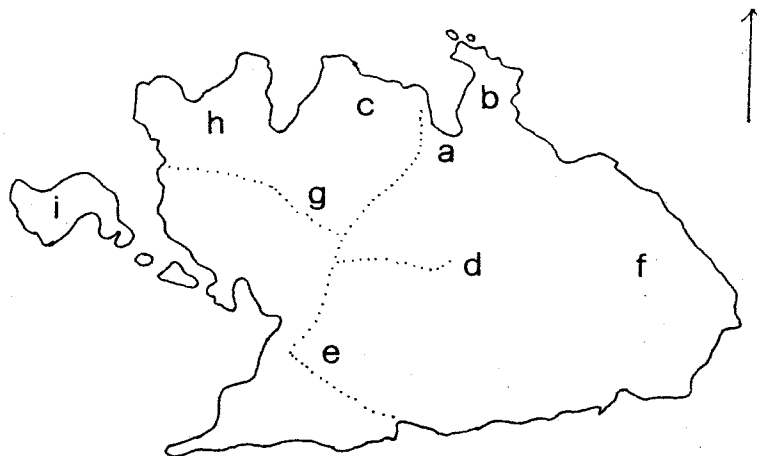


Fig. 1. Comino Island showing sites where specimens were collected.

SPECIES	LOCALITIES AND FREQUENCY								
	A	B	C	D	E	F	G	H	I
<i>Pomatias sulcatus melitense</i> Sowerby	c	c	c	c	c	c	c	c	c
<i>Granopupa granum</i> (Draparnaud)			a	a			a		a
<i>Pleurodiscus balmei</i> Potiez & Michaud							s		
<i>Mastus pupa</i> (L.)	c	c	c	c	c	c	c	c	c
<i>Lampedusa syracusana</i> (Philippi)	f	a	c	c	c	a	c	f	c
<i>Papillifera bidens</i> (L.)	c	c	c	a	c	c	c	c	c
<i>Caecilioides melitensis</i> Westerlund				s		s			
<i>Ferussacia vescoi</i> Bourguignat		f	s	f	s	s	s	s	f
<i>Rumina decollata</i> (L.)	f	f	f	f	f	f	f	f	f
<i>Oxychilus draparnaudi</i> (Beck)				f					
<i>Milax insularis</i> Lessona & Pollonera				f					
<i>Milax gagates</i> Draparnaud			s						
<i>Cerneuella caruanae</i> Kobelt	f	f	f	f	f	f	f	f	f
<i>Trochoidea spratti</i> (Pfeiffer)		a							
<i>Trochoidea schembrii</i> (Pfeiffer)	s		f	f	c	c	c	c	c
<i>Xerotricha conspurcata</i> Draparnaud				s					
<i>Cochlicella acuta</i> (Müller)					f				f
<i>Leucochroa candidissima</i> (Draparnaud)	c	a	c	c	c	a	c	c	c
<i>Caracollina lenticula</i> Ferrusac	f	f	f	f	f	f	f	f	f
<i>Euparypha pisana</i> (Müller)	a								
<i>Eobania vermiculata</i> (Müller)	c	a	c	c	c	c	c	c	c
<i>Helix aperta</i> Born	c								
<i>Helix aspersa</i> Müller	c	c	c	c	c	c	c	c	c

Table 1. Distribution of land molluscs on Comino. a = abundant, c = common, f = frequent, s = scarce. The localities are as shown in Figure 1.

DISCUSSION

At present Comino is mostly uncultivated but large areas show evidence of having been under cultivation in the past. Some fields have been fallow for only a few years while others have not been cultivated for several hundred years. Various seral communities may be found in the succession from steppe to garigue to maquis. In this respect, the communities on Comino resemble those on the Marfa peninsula (Malta) rather than those on the adjacent parts of Gozo. Considerable areas show no evidence of cultivation whatsoever (particularly "b" and parts of "f").

Faunistic evidence suggests that Comino lies closer to Gozo than to Malta. The presence of *Trochoidea spratti* suggests a relatively recent link to Gozo. *T. spratti* is absent from Malta. There is one record from St. Paul's Island (DESPOTT in SOOS, 1933) but a thorough search of the Island in summer 1975 failed to produce any specimens. Despott's record may be erroneous.

T. spratti and *T. schembrii* were not found together on Comino and searches in Gozo have produced similar results. This suggests that they mutually exclude one another by competition.

REFERENCES

- SOOS, L. (1933). A systematic and zoogeographical contribution to the mollusc fauna of the Maltese Islands and Lampedusa. *Arch. Naturg.* 2(3): 305 - 353.

received December 1980

Arnold Seibers

Jan 2004