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A REVIEW OF THE ANTHICIDAE OF THE MALTESE ISLANDS (CENTRAL MEDITERRANEAN) (Coleoptera)

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INTRODUCTION

Recent studies carried out on collections of Anthicidae from the Maltese Islands have resulted in new data, which is included in the present work. This study is mostly based on material collected between 1990 and 2003 (ca. 700 specimens) but also on collections (ca. 200 specimens) made at the beginning of last century. The latter collections formed the basis of the Anthicidae list published by Malcom Cameron and Alfredo Caruana Gatto in 1907 on Maltese beetles.

HISTORICAL REVIEW

The following review is provided due to the fact that previous authors have omitted some works (Caruana Gatto 1893; Cameron 1903; Andres 1916; Krekich-Strassoldo 1919; Koch 1931; Hille 1984; Schembri 1990) that mentioned Anthicidae collected from the Maltese Islands. Only the works that cite with certainty Maltese material are hereunder included; works (e.g. Luigioni 1929) which most probably repeated earlier references are not included.

The Maltese naturalist Alfredo Caruana Gatto (1893) in his work entitled "Common beetles of the Maltese Islands" published the first records of Anthicidae from the Maltese Islands. In this work, five species were mentioned.

Pic (1903a) described *Anthicus* (*Aulacoderus*) *melitensis* on the

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basis of material collected from Malta (without more detailed data) by Malcom Cameron and which was recorded as *Anthicus* (*Aulacoderus*) *sulcithorax* Desbrochers des Loges, 1875 by Cameron himself during that same year (Cameron 1903). This taxon, currently included under the name of *Aulacoderus sulcithorax melitensis*, was also studied by Bucciarelli (1980) and Hille (1984).

Cameron & Caruana Gatto (1907) published an important work on the Coleoptera of the Maltese Islands, which is still the only faunistic work dealing with all beetle families. In this work, thirteen species of Anthicidae were included.

Andres (1916), published a list of Lepidoptera, Hemiptera and Coleoptera which he had collected from Malta (at the Verdala Barracks in Cospicua) during his almost two year stay as a prisoner of war. He recorded two species of Anthicidae, of which one (*Anthicus tristis tristis* Schmidt, 1842) represented a new record for these islands.

Krekich-Strassoldo (1919) and Koch (1931) cited two species of Anthicidae from the Maltese Islands, both of which were already recorded by Cameron & Caruana Gatto (1907).

Cilia (1989) contributed an annotated list of beetles in the Red Data Book for the Maltese Islands. Cilia's records were based on earlier citations with the exception of one record, *A. tristis tristis* from Manoel Island.

In a short note, Schembri (1990) added *Cyclodinus debilis* (La Ferté-Sénectère, 1849) to the Maltese fauna. After a gap of over 80 years since Cameron & Caruana Gatto's catalogue (1907), the same author (Schembri 1991) published a work on the Anthicidae of the Maltese Islands. In this work, an annotated list of eighteen species was included, of which four represented new records for the Maltese Islands, eleven previously recorded species were confirmed as still occurring locally, whereas three previously recorded species were not collected again. According to Schembri (1991), information published in this work (Schembri 1991) was also submitted for inclusion in the Fauna d'Italia series (Bucciarelli 1980). However, with the exception of two species, no mention of the Maltese Islands was ever made by Bucciarelli (1980).

Uhmann (1992) recorded some species from "Malta". These records were based on material collected by G. Rachinsky and R. Grimm (D. Telnov & G. Uhmann, pers. comm., 1999). This material is included in the present work with complete collecting data.

Telnov (1998a) provided records of two species, *Omonadus floralis* (Linné, 1758) and *Cordicomus instabilis instabilis* (Schmidt, 1842), from Malta, whereas Degiovanni (1999) recorded *Hirticomus hispidus* (Rossi, 1792). These three species were already recorded by previous authors.

Material and methods

In this work, all recorded species of Anthicidae from the Maltese Islands are cited and for each, literature records are provided, some of which were previously overlooked. Citations which are definitely based on earlier records (e.g. Arnone & Nardi 1995) are followed by a "[-]", whereas citations which are very probably based on earlier records (e.g. Luigioni 1929 "Mal."; Pic 1934 "Malta") ([1]) are followed by a "[+]".

Where possible, historical specimens of Anthicidae recorded from the Maltese Islands by earlier authors were examined, such as material collected around the early 1900s, of which, much is still conserved at the Natural History Museum (London) and labelled as "Cameron Coll. B.M. 1936-555". This material formed the basis of a list of Coleoptera of the Maltese Islands published by Cameron & Caruana Gatto (1907). From this material, about 100 specimens of Anthicidae were examined, most of which were presumably collected by Malcom Cameron as indicated by the acronym "M.C." on most labels. Individual label numbers attached to this material or numbers written on the underside of the glue cards correspond to numbers in Cameron's private notes (conserved in the library of the Natural History Museum) and in which the following information may be (partially or fully) included: date of collection, name of the species, name of the person who identified this species, locality name and ecological data. In the present work, this information is added in square brackets after the mentioned label number. In some cases, the date of collection on the label and the date on Cameron's private notes do not correspond. In this work, we have written all the data as was found on both the specimen label and in Cameron's

([1]) No anthicid material from the Maltese Islands is deposited in the Luigioni collection (Museo Civico di Zoologia, Roma) and in the other collections housed in the same institution (Nardi, unpublished data).

private notes. Coleoptera material collected in Malta between 1874-6 by Commander James John Walker, is also conserved at the Natural History Museum and is labelled as "G.C. Champion Coll. B.M. 1927-409". From this material, about 100 specimens of Anthicidae were also examined. This material was almost exclusively collected between the months of October and March of the three mentioned years. In Cameron & Caruana Gatto's coleoptera list (1907), species names which where directly examined from this material are either indicated by an asterisk or especially noted as either Coll. J.J.W. or *teste* J.J.W. Except for the name Malta, there are no other precise locality names or habitats from which this material was collected in Malta. Additional material of Anthicidae was collected from the Maltese Islands between 1989 and 2003 (about 700 specimens) and examined for the present work.

Among the unidentified material of Cameron's collection, seven specimens of *Anthicus axillaris* Schmidt, 1842 glued together on one large card, on the underside of which "MALTA" was handwritten (different calligraphy than the other mentioned material), were also included. The specimens are badly mounted and a different type of card paper was used to fix this material. As we are of the opinion that this material (considering also the distribution of this species) was mislabelled, it will not be considered any further.

Under the section of "Material examined", anthicid material is included in alphabetical order with respect to localities from where collected. However, the material of the Champion and Cameron collections is cited at the very beginning.

In this work, new records or species of particular interest are discussed in detail. For additional information, the works of Schembri (1991), Bonadona (1991) and Arnone & Nardi (1995) should be consulted.

Some new records from Sicily and from the nearby Italian islands of Pantelleria and Lampedusa are also included and discussed.

Chorotype ranges follow Vigna Taglianti et al. (1993, 1999).

The classification and sequence of species follows that of the Fauna Europaea Project (Nardi in prep.).

ABBREVIATIONS (2)

AD = A. Deidun legit; BMNH = The Natural History Museum, London, United Kingdom; CDM = D. Mifsud collection, Zejtun, Malta; CGN = G. Nardi collection, Cisterna di Latina (LT), Italy; CGU = G. Uhmann collection, Pressath, Germany; CF = C. Farrugia legit; CPS = P. Sammut collection, Rabat, Malta; CSZ = S. Zoia collection, Genova, Italy; DM = D. Mifsud legit; ex, exs = specimen, specimens; GCBM = "G.C. Champion Coll. B.M. 1927-409"; GR = G. Rachinsky legit; MCBM = "M. Cameron Coll. B.M. 1936-555"; MCSB = Museo Civico di Scienze Naturali "E. Caffi", Bergamo, Italy; MCSG = Museo Civico di Storia Naturale "G. Doria", Genova, Italy; MCSM = Museo Civico di Storia Naturale, Milano, Italy; MP = M. Pavesi legit; PS = P. Sammut legit; RG = R. Grimm legit; SMNS = W. Liebmann collection c/o Staatliches Museum für Naturkunde, Stuttgart, Germany; SP = P. Sprick legit; WL = W. Liebmann legit; ZMUK = Zoological Museum of Ukraine, Kiev, Ukraine.

FAUNISTIC LIST

Endomia tenuicollis tenuicollis (Rossi, 1792)

Ochthenomus tenuicollis Rossi: Cameron & Caruana Gatto 1907: 399.
Endomia tenuicollis Rossi: Luigioni 1929: 675 [+]; Pic 1934: 33 [+].
Endomia tenuicollis (Rossi, 1792): Schembri 1991: 33.
Endomia tenuicollis tenuicollis (Rossi): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 20 exs (BMNH); Malta, X.1901, M.C., 5841 [= 5.X.1901, *Anthicus tenuicollis* (Rossi), Wied el Klia (Wied il-Qlejgha), E.A.N. (identified by E. A. Newbery)], MCBM, 3 exs (BMNH); Malta, XI.1901, M.C., 5841 [= same data as before], MCBM, 1 ex (BMNH); Bahrija Valley, 11.V.1990, DM, 1 ex (CDM); Bidnija, 23.II.1997, DM, 3 exs (CDM, CGN); Bingemma, 3 Km W Mdina, 236 m, 4.IV.1993, SP, 3 exs (CDM); Buskett, 12.II.2000, DM, 1 ex, in decaying hay and vegetation (CDM), 24.VI.2003, DM, 31 exs, attracted to light in mixed *Pinus/Cupressus* woodland (CDM); Fiddien, 27.VI.1989, DM, 1 ex (CDM); Rabat, Ta Koronja, 14.VI.2002, PS, 1 ex (CPS); St. Thomas Bay, Tal-Munxar, 16.III.2003, DM, 1 ex (CDM); Wied tal-Isqof, 16.VII.2002, DM, 9 exs (CDM), 2.VIII.2002, DM, 3 exs (CDM).

GOZO. Ramla, 20-21.VI.1997, Vratislov legit, 2 exs, on beach (ZMUK), 18.I.1999, DM, 3 exs (CDM, CGN), 8.XII.2002, DM, 1 ex (CDM).

NOTES. First record for the island of Gozo.

(2) Material conserved in CGU, MCSB and ZMUK was not directly examined by us but is here included on the basis of personal communications of D. Telnov and G. Uhmann, A. Degiovanni, and D. Telnov respectively.

Anthicus crinitus La Ferté-Sénectère, 1849 ([3]) (fig. 3)

= *Anthicus longipennis* Desbrochers des Loges, 1875: 45, not *A. longipennis* La Ferté-Sénectère, 1849. Type locality: Palestine, "Bethléem".

= *Anthicus flavisternus* Marseul, 1879: 149. Type locality: "Mésopotamie".

= *Anthicus laeviceps* Marseul, 1879: 105, not *A. laeviceps* Baudi, 1877. Type locality: "Mésopotamie".

= *Anthicus laevaticeps* Marseul, 1879: 245, new name for *A. laeviceps* Marseul.

= *Anthicus communimacula* Fairmaire, 1896: 47. Type locality: India, "Belgaum".

= *Anthicus manillanus* Pic, 1903b: 646. Type locality: The Philippines, "Manille" ([4]).

= *Anthicus crinitus* var. *uninotatus* Pic, 1903c: 350. Type locality: India, "Pondichéry".

Anthicus crinitus var. *reductesignatus* Pic, 1921: 30 [unavailable name]. Type locality: "Afrique orientale anglaise [= Kenya]: Tana River" ([5]).

MATERIAL EXAMINED. MALTA. Marfa, 17.IX.1995, DM, 1 ♀, attracted to light near an house (CDM).

DISTRIBUTION. This species, described from "Aegyptus et Senegalia" (cf. La Ferté-Sénectère 1849: 204), is becoming cosmopolitan (southern Europe, Macaronesia, Africa, Asia and America) in distribution most probably through human commerce. It is recorded from: Southern Russia (Heyden 1883, 1891; Reitter 1906) ([6]), Rhodes (Koch 1935), Greece, Turkey (Bonadona 1969a), Great Britain (intercepted, not established) (Aitken 1975), Cape Verde Isles, Canary Isles, Madeira Island, Morocco, Algeria, Tunisia, Libya, Egypt, Mauritania, Niger, Chad, Sudan, Eritrea, Ethiopia, Senegal, Gambia, Burkina Faso, Nigeria, Cameroon, Kenya, Tanzania, Zambia, Namibia, Botswana, South Africa, Swaziland, Turkey, Cyprus, Syria, Palestine, Israel, Jordan, Saudi Arabia, Yemen, Oman, Iraq, Kuwait, Iran, Uzbekistan, Afghanistan, Pakistan, Siberia (without more detailed data), India, Nepal, Bangladesh, Burma, Thailand, The Philippines, Taiwan, South Vietnam, Japan, Florida, Mexico, Antilles and Virgin Islands (cf. La Ferté-Sénectère 1849; Truqui 1855; Desbrochers des Loges 1875; Marseul 1879; Desbrochers des Loges 1881; Pic 1894, 1895; Fairmaire 1896; Pic 1897b, 1903b, 1903c, 1907, 1911; Krekich-Strassoldo 1929;

([3]) The synonyms were listed because this species has not been treated in the monographs on European Anthicidae.

([4]) Synonym established by Krekich-Strassoldo (1929, as *A. manilanus* [sic!]) but contested by Pic (1930).

([5]) This variety, known only from the original description which is based on one specimen, was overlooked by subsequent authors. It is an unavailable name (infrasubspecific rank), since it is in context with new subspecies (ICZN 1999, art. 45.6.4).

([6]) This record was ignored (or overlooked?) by Pic (1911).

Bodenheimer 1934; Schatzmayr & Koch 1934; Koch 1937; Pic 1939, 1953; Pic & Hawkins 1957; Bonadona 1960a; Hille 1961; Bonadona 1963, 1969a; Aitken 1975; Werner 1975; Bonadona 1978; Uhmann 1982; Werner 1983; Uhmann 1984; Hille 1985; Uhmann 1985a, 1985b, 1985c, 1987; Geisthardt 1988; Al-Houty 1989, as *A. crintus* [sic!]; Uhmann 1989, 1990a, 1990b, 1995, 1996; Uhmann & Rihane 1995; Pollok & Ivie 1996; Telnov 1998b, 1998c).

The generic citations for USSR, Asia, central Asia, northern Sahara, Africa, "all over Africa", central and eastern Africa (Pic 1911; Winkler 1927; Peyerimhoff 1931; Schatzmayr & Koch 1934; Pic 1939, 1951b; Bonadona 1959a, 1960a; Hille 1961; Bonadona 1969a; Hille 1985; Uhmann 1990a, 1990c, 1995, 1998; Uhmann & Rihane 1995) are probably to refer to the above mentioned countries.

NOTES. *A. crinitus* is a new record for the Maltese Islands and it was never recorded on any of the other islands of the Sicilian channel; whether it is autochthonous or has been accidentally introduced into Malta, might be open to debate. The fact that this species is a widespread element in North Africa may support the view of a natural occurrence in Malta.

Werner (1975: 475, as *A. cribatus* [sic!]) provided a drawing of the habitus and aedeagus of this species: figures 2 and 4 respectively. Nevertheless, in the text (Werner 1975: 472), figure 5 (aedeagus) was wrongly referred to this species, while the caption (Werner 1975: 475) was correctly attributed to *A. antiochensis* Werner, 1975. Also, later, Werner (1983: 232) wrongly referred the above figure 5 to *A. crinitus*. Due of this, Pollock & Ivie (1996: 233) wrongly wrote: "Figures 2 and 5 in Werner (1975) are mislabelled. These figures, labelled as the habitus of *A. cribratus* [sic!] and male genitalia of *A. antiochensis*, respectively, are actually of *A. crinitus* (Werner 1983b). Figure 4 of that paper is mislabelled as the male genitalia of *A. crinitus*."

This species is known from sea level up to 2000-2600 m (Uhmann 1987, 1988b, 1990b; Telnov 2002) and appears to be rather euryoecious, but in the southwestern Palaearctic Region it seems to be associated mainly with desert or arid environments. Regarding its ecology, excluding many records of specimens collected at light, the following information is available: "au vol le soir", "au sommet de la grande pyramide", under plants debris, under beach debris, in waste of tannery, under the dung of cattle and camels, under stones near

water (streams, brooks, ponds, water-holes), "roots", "on flowers of spurge", "on flowering bushes and small plants", "en mantillo bajo *Zygophyllum*", from Sudanese cargoes on "senna pods", "soil sample at Tigris", "extracted from grassclumps and from old rodent-nest [rodent's nest]", "petites galeries" (cf. Pic 1893, 1899, 1952; Pic & Hawkins 1957; Aitken 1975; Israelson et al. 1982; Uhmann 1985a; Erber & Hinterseher 1988; Uhmann & Rihane 1995), "in association with *M.* [= *Microlestes*] *discoidalis* [(Fairmaire, 1892) (Coleoptera, Carabidae)] feeding on injured cutworms (7) in pea fields" (Mathur et al. 1972, as *A. critus* [sic!] Laferté). The species was also collected by traps: "suction trap", "pitfall trap in soybean field", "Malaise trap" and "ground traps" (Werner 1975; Hille 1985; Finkel et al. 2002).

Anthicus fenestratus Schmidt, 1842 (fig. 4)

Anthicus fenestratus Schm.: Cameron & Caruana Gatto 1907: 399.
Anthicus fenestratus Schmd.: Luigioni 1929: 673 [+]; Pic 1934: 27 [+].
Anthicus fenestratus Schmidt: Cilia 1989: 123 [-]; Arnone & Nardi 1995: 536 [-].
Anthicus fenestratus Schmidt, 1842: Schembri 1991: 34; Uhmann 1992: 129.

MATERIAL EXAMINED. MALTA. Malta, 1901, M.C., 5400 [= 14.VIII.1901, *Anthicus fenestratus*, ER (identified by E. Reitter), Mellieha], MCBM, 1 ex (BMNH); Malta, [19]03, M.C., 7547 [= 6.VII.1902, *Anthicus fenestratus*, Mellieha], MCBM, 7 exs (BMNH); Ghadira, 21.IX.1993, DM, 1 ex (CDM); Ramla tat-Torri, 19.IV.1985, RG & GR, 2 exs (CGU), 23.V.1990, DM, 2 exs (CDM, CGN), 2.VI.2002, DM, 1 ex (CDM).

GOZO. Ramla, 25.IV.1985, RG & GR, 1 ex (CGU), 18.IV.1990, DM, 1 ex, under stone in sand dunes (CDM), 8.VI.1990, DM, 2 exs (CDM, CGN), 1.X.1995, DM, 1 ex, on sand dunes (CDM), 3.V.1997, DM, 2 exs (CDM, CGN), 23.VIII.1997, DM, 1 ex (CDM), 21.II.2000, DM, 17 exs, in sand dunes and associated vegetation (CDM, CGN), 13.VI.2002, AD, 1 ex (CGN), 8.XII.2002, DM, 2 exs (CDM, CGN), 29.XII.2002, DM, 1 ex (CDM), 25.IV.2003, DM, 16 exs (CDM, CGN).

COMINO. Santa Marija Bay, 13.VIII.2002, DM, 2 exs, at base of sand-dune plants (CDM).

NOTES. First record for Comino. This species is mainly associated with sandy coastal environments (Bucciarelli 1980; Bonadona 1991). In the Maltese Islands this species is vulnerable because these habitats are under high anthropic pressure (cf. Mifsud 1999).

(7) "*Euxoa segetum* " Walk. [sic!]"; very probably *Agrotis segetum* ([Denis & Schiffermüller], 1775) (Lepidoptera, Noctuidae) (A. Zilli, pers. comm., 2002).

Anthicus laeviceps Baudi, 1877

Anthicus laeviceps Baudi, 1877: Schembri 1991: 33; Arnone & Nardi 1995: 529 [-].

MATERIAL EXAMINED. MALTA. Bidnija, 23.II.1997, DM, 1 ex (CDM); Buskett, 24.VI.2003, DM, 2 exs, attracted to light in mixed *Pinus/Cupressus* woodland (CDM); Wied tal-Isqof, 16.VII.2002, attracted to light, DM, 5 exs (CDM), 2.VIII.2002, DM, 2 exs, attracted to light (CDM), 2.VIII.2002, PS, 3 exs, attracted to light (CGN, CPS).

NOTES. This species was previously recorded from the following localities in Malta: Ghajn Rihana, Fiddien and Wied il-Hemsija (Schembri 1991). The above material was mostly collected near a semi-permanent valley surrounded by agricultural fields.

Anthicus tristis tristis Schmidt, 1842 (fig. 5)

Anthicus tristis Schmidt: Andres 1916: 58; Cilia 1989: 123.
Anthicus tristis tristis Schmidt, 1842: Schembri 1991: 33.
Anthicus tristis tristis Schmidt: Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Ghadira, 26.VI.1989, DM, 6 exs (CDM, CGN), 23.V.1990, DM, 5 exs (CDM, CGN), 2.VI.2002, DM, 10 exs (CDM, CGN); Ghajn Rihana, 13.VIII.1965, Bornov legit, 3 exs, sandy dunes (ZMUK); Il-Marbat, 23.V.1990, DM, 2 exs (CDM, CGN); around White Tower, 23.V.1990, DM, 1 ex (CDM).
GOZO. Ramla, 8.VI.1990, DM, 1 ex (CDM), 29.XII.2002, DM, 1 ex (CDM).
COMINO. Santa Marija Bay, 5.IV.2003, DM, 1 ex (CDM).
PANTELLERIA. Pantelleria, 1.V.1961, WL, 1 ex (SMNS), 11.V.1961, WL, 1 ex (SMNS).
LAMPEDUSA. Guitgia, 7-10.VIII.1982, MP, 49 exs (MCSM).

NOTES. First record for Comino. This species was also recorded from Pantelleria by Gestro (1880: 415 footnote, 416), but Arnone & Nardi (1995) overlooked this work. Liebmann (1962: 5) recorded "*Anthicus tristis* Schmdt.?" from the same island. The examination of Liebmann's material allowed us to identify the taxon with certainty.

Hirticomus hispidus (Rossi, 1792)

Anthicus hispidus Rossi: Caruana Gatto 1893: 450; Cameron & Caruana Gatto 1907: 399; Luigioni 1929: 672 [+].
Anthicus (*Hirticomus*) *hispidus* Rossi: Pic 1934: 25 [+].
Hirticomus hispidus (Rossi, 1792): Schembri 1991: 34; Uhmann 1992: 118; Degiovanni 1999: 36.
Hirticomus hispidus (Rossi): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 8 exs (BMNH); Malta, MCBM, 9 exs (BMNH); Malta, X.1901, M.C., 6139 [= 26.X., *Anthicus hispidus* (Rossi), Gbir, E.R. (identified by E. Reitter)], MCBM, 4 exs (BMNH); Armier Bay, 27.IV-4.V.1985, GR, 1 ex (CGU); Bidnija, 13.I.1999, DM, 2 exs (CDM); Bingemma, 3 Km W Mdina, 236 m, 4.IV.1993, SP, 2 exs (CDM); Buskett, 12.II.2000, DM, 1 ex, in decaying hay and vegetation (CDM), 24.VI.2003, DM, 11 exs, attracted to light in mixed *Pinus/Cupressus* woodland (CDM); Ghajn Rihana, 20.VIII.1989, DM, 1 ex (CDM), 5.III.1990, DM, 1 ex (CDM); Gnejna, 9.V.1990, DM, 1 ex (CDM); Il-Marbat, 23.V.1990, DM, 2 exs (CDM, CGN); Marsa, Ghammieri, 26.XI.1993, DM, 1 ex (CDM); Marsaxlokk, 6.V.1990, DM, 1 ex (CDM); Rabat, 21.VI.2002, PS, 1 ex (CPS), 23.VI.2002, PS, 3 exs (CPS), 1.VII.2002, PS, 4 exs (CPS); Rabat, Ta Koronja, 6.VI.2002, PS, 1 ex (CPS); Ramla tal-Mixquqa, 27.VIII.2002, AD, 4 exs (CGN); St. Thomas Bay, Tal-Munxar, 19.VIII.1989, DM, 2 exs (CDM, CGN), 20.V.1990, DM, 3 exs (CDM, CGN), 25.V.2002, DM, 1 ex (CDM), 13.IV.2003, DM, 1 ex (CDM); Valletta, 30.IV-6.V.1985, GR, 1 ex (CGU); Wied Babu, 3.VII.2002, DM, 5 exs (CDM, CGN); Wied tal-Isqof, 16.VII.2002, DM, 9 exs (CDM), 2.VIII.2002, DM, 20 exs (CDM, CGN), 2.VIII.2002, PS, 4 exs (CPS); Zabbar, 28.XII.1968, 1 ex (MCSB); Zejtun, 6.VI.1989, DM, 1 ex (CDM), 22.VI.1989, DM, 1 ex (CDM), 20.VII.1989, DM, 1 ex, attracted to light (CDM), 27.IX.1989, DM, 1 ex (CDM).

GOZO. Ghasri, 25.VIII.1994, CF, 1 ex (CDM), 13.X.1994, CF, 1 ex (CDM), 6.I.1995, CF, 1 ex (CDM); Marsalforn Valley, 6.VI.1990, DM, 1 ex (CDM); Ramla, 21.II.2000, DM, 2 exs, in sand dunes and associated vegetation (CDM, CGN), 13.VI.2002, AD, 1 ex (CGN); Wied il-Lunzjata, 17.IV.1990, DM, 1 ex (CDM).

NOTES. Arnone & Nardi (1995) provided the global distribution of this species. However, the following distributional data should also be included: Ethiopia (Pic 1951c, as *Anthicus hispidus* var.), Saudi Arabia, Yemen, Tibet (Pic & Hawkins 1957), Afghanistan (Nakane 1966; Telnov 2002), Lettland, Kazakhstan, and south western Siberia (Tezcan et al. 2002).

The record for "Malta" by Degiovanni (1999) is based on the above specimen collected from Zabbar.

Hirticomus quadriguttatus (Rossi, 1792)

Anthicus 4-guttatus Rossi: Caruana Gatto 1893: 451; Cameron & Caruana Gatto 1907: 399; Andres 1916: 58.

Anthicus quadriguttatus Rossi: Luigioni 1929: 672 [+]; Koch 1931: 78.

Anthicus (*Hirticomus*) *quadriguttatus* Rossi: Pic 1934: 25 [+].

Hirticomus quadriguttatus (Rossi, 1792): Schembri 1991: 34; Uhmann 1992: 120.

Hirticomus quadriguttatus (Rossi): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 24 exs (BMNH); Malta, MCBM, 8 exs (BMNH); Malta, 1901, M.C., 5338 [= 14.VIII.1901, *Anthicus hispidus* (Rossi), Marsa, Id. Mr. Gatto (identified by A. Caruana Gatto)], MCBM, 1 ex (BMNH); Malta, X.1901, M.C., 5338 [= same data as before], MCBM, 1 ex (BMNH); Malta, VIII.1901, M.C., 5531 [= 20.VIII.1901, *Anthicus 4-guttatus* (Rossi), St. Paul's Bay, Id. E.R. (identified by E. Reitter)], MCBM, 1 ex (BMNH); Malta, IX.1901, M.C., 5531 [= same data as

before], MCBM, 2 exs (BMNH); Malta, X.1901, M.C., 5531 [= same data as before], MCBM, 1 ex (BMNH); Bingemma, 3 Km W Mdina, 236 m, 4.IV.1993, SP, 1 ex (CDM); Buskett, 12.II.2000, DM, 5 exs, in decaying hay and vegetation (CDM, CGN); Delimara, 28.VII.1989, DM, 1 ex (CDM); Ghadira, 23.V.1990, DM, 1 ex (CDM), 2.VI.2002, DM, 27 exs (CDM, CGN); Ghajn Rihana, 20.VIII.1989, DM, 1 ex (CDM); Gnejna, 9.V.1990, DM, 3 exs (CDM, CGN); Msida, 14.II.2000, DM, 1 ex, in bracket fungi on dead trunk (CDM); Ramla tal-Mixquqa, 27.VIII.2002, AD, 1 ex (CGN); Salina, 28.VII.1989, DM, 1 ex (CDM); St. Thomas Bay, Tal-Munxar, 20.V.1990, DM, 3 exs (CDM, CGN); Valletta, 30.IV-6.V.1985, GR, 1 ex (CGU); Wied tal-Isqof, 16.VII.2002, DM, 7 exs (CDM), 2.VIII.2002, DM, 2 ex (CGN).

GOZO. Ghasri, 15.X.1994, DM, 1 ex (CDM); Marsalforn Valley, 6.VI.1990, DM, 1 ex (CDM).

NOTES. Bonadona (1987: 75, 1991: 84) listed Malta as type locality for *Anthicus "4-guttatus* var. *Valettensis"* Pic, 1951, but this variety was described from "France M^{le}: La Valette" (Pic 1951a: 10), and probably comes from one of the following localities: Lavalette near Montréal (Aude département), Lavalette near Verfeuil (Haute-Garonne département) or Lavalette near Lodève (Hérault département) (F. Bamuel, pers. comm., 1999).

This species was also recorded from Pantelleria by Gestro (1880: 415, footnote as *A. 4-guttatus*), but this citation was overlooked by Arnone & Nardi (1995).

Omonadus bifasciatus (Rossi, 1792) (fig. 6)

MATERIAL EXAMINED. MALTA. St. Thomas Bay, 27.VI.1990, DM, 1 ♂ (CDM).

DISTRIBUTION. The chorotype of this species is Turano-Europeo-Mediterranean and not Europeo-Mediterranean (Arnone & Nardi 1995), since its distributional area extends eastward to reach Iran (Uhmann & Guéorguiev 2000), Uzbekistan (Uhmann 1985a), Kyrgyzstan (Ovtchinnikov 1996) and Afghanistan (Uhmann & Guéorguiev 2000; Telnov 2002). The generic citation for "Reg. pal." (Winkler 1927: 843) is an arbitrary generalization.

NOTES. This species is a new record for the Maltese Islands. It was also found on the nearby islands of Pantelleria and Linosa (cf. Arnone & Nardi 1995).

Omonadus floralis (Linné, 1758)

Omonadus floralis (Linnaeus, 1758): Schembri 1991: 35; Telnov 1998a: 167.
Omonadus floralis (Linné): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Bidnija, 8.IX.1996, DM, 1 ex (CDM); Buskett, 24.VI.2003, DM, 1 ex, attracted to light mixed woodland *Pinus/Cupressus* (CDM); St. Thomas Bay, 2.X.1997, DM, 1 ex (CDM); St. Thomas Bay, Tal-Munxar, 20.V.1990, DM, 2 exs (CDM, CGN); Wied Babu, 3.VII.2002, DM, 2 exs (CDM); Wied tal-Isqof, 16.VII.2002, DM, 1 ex (CDM), 2.VIII.2002, DM, 1 ex (CDM); Zejtun, 10.VI.2002, DM, 1 ex (CGN).

NOTES. Contrarily to the situation in Italy, *O. floralis* is relatively rare in the Maltese Islands, when compared with available records of *O. formicarius formicarius* (Goeze, 1777).

Omonadus formicarius formicarius (Goeze, 1777)

Anthicus formicarius Goeze: Caruana Gatto 1893: 450; Cameron & Caruana Gatto 1907: 399.
Anthicus (*Omonadus*) *formicarius* Goeze: Luigioni 1929: 671 [+].
Anthicus (*Omonadus*) *quisquilius* Thoms.: Pic 1934: 28 [+].
Omonadus formicarius (Goeze, 1777): Schembri 1991: 34.
Omonadus formicarius (Goeze): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 1 ex (BMNH); Malta, VI.1902, M.C., MCBM, 1 ex (BMNH as *floralis*); Buskett, 24.VI.2003, DM, 2 exs, attracted to light in mixed *Pinus/Cupressus* woodland (CDM, CGN); Marsa, Ghammieri, 19.XII.1995, CF, 1 ex (CDM); Marsaxlokk, Balluta, 28.IV.1990, DM, 1 ex (CDM); St. Thomas Bay, Tal-Munxar, 20.V.1990, DM, 1 ex (CGN); Valletta, Hotel, 25.V.1993, P. Kopszaky legit, 1 ex, at light (ZMUK); Wied Babu, 3.VII.2002, DM, 4 exs (CDM, CGN); Wied tal-Isqof, 16.VII.2002, DM, 1 ex (CDM), 2.VIII.2002, DM, 2 exs (CDM); Zejtun, 19.VI.1989, DM, 1 ex (CDM), 25.VI.1989, DM, 1 ex (CGN), 7.X.1989, DM, 1 ex (CDM), 7.XII.1989, DM, 2 exs (CDM).
MANOEL ISLAND. Malta, VI.1902, M.C., 6050 [= 19.X.1901, *Anthicus floralis* and corrected to *formicarius*, Ft. Manoel], MCBM, 1 ex (BMNH, as *floralis*); Malta, X.1902, M.C., 6050 [= same data as before], MCBM, 1 ex (BMNH, as *floralis*).
GOZO. Ghasri, 1.XII.1994, CF, 1 ex (CDM).

NOTES. First record for Gozo. The above material is ascribed to the nominal subspecies, since Nomura (1962) described *O. formicarius atropterus* from the Ryukyu Islands (Japan) (Nomura 1962, 1970, in both occasions as *Anthicus quisquilius atropterus*). This subspecies was overlooked by most western authors (e.g. Bucciarelli 1980; Bonadona 1991; Uhmann 1992; Angelini et al. 1995).

Cordicomus instabilis instabilis (Schmidt, 1842)

Anthicus instabilis Schm.: Cameron & Caruana Gatto 1907: 399.
Anthicus instabilis Schmd.: Luigioni 1929: 672 [+]; Pic 1934: 28 [+].
Anthicus instabilis Schmidt: Horion 1971: 100 [+].
Cordicomus instabilis (Schmidt, 1842): Schembri 1991: 36; Uhmann 1992: 115; Telnov 1998a: 167.
Cordicomus instabilis instabilis (Schmidt): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 15 exs (BMNH); Malta, Dr. Cameron, MCBM, 1 ex (BMNH); Malta, 1901, M.C., 5347 [= 14.VIII.1901, *Anthicus*, Marsa], MCBM, 1 ex (BMNH); Malta, VIII.1901, M.[C.], 5349 [= 14.VIII.1901, *Anthicus*, Marsa, Id. Gatto (identified by A. Caruana Gatto)], MCBM, 1 ex (BMNH); Malta, VIII.1901, M.C., 5523 [= 21.VIII.1901, *Anthicus opaculus* Woll., M. Pic det., Girgenti], 1 ex (BMNH, as *opaculus* Woll.); Malta, IX.1901, M.C., 5523 [= same data as before], MCBM, 1 ex (BMNH, as *opaculus* Woll.); Malta, VIII.1901, M.C., 5487 [= 17.VIII.1901, *Anthicus instabilis*, Marsaskala], MCBM, 4 exs (BMNH); Malta, IX.1901, M.C., 5487 [same data as before], MCBM, 4 exs (BMNH); Malta, X.1901, M.C., 5487 [= same data as before], MCBM, 3 exs (BMNH); Malta, XI.1901, M.C., 5487 [= same data as before], MCBM, 2 exs (BMNH); Malta, Dr. Cameron, 5487 [= same data as before], MCBM, 1 ex (BMNH); Bahrija, 16.VII.1997, DM, 5 exs (CDM, CGN); Bidnija, 23.II.1997, DM, 4 exs (CDM, CGN), 13.I.1999, DM, 2 exs (CDM), 1.IV.2002, DM, 2 exs (CDM, CGN); Bingemma, 3 Km W Mdina, 236 m, 4.IV.1993, SP, 3 exs (CDM); Birkirkara, 13.X.1989, DM, 1 ex (CDM); Buskett, 3.VII.1994, DM, 1 ex (CDM), VII.1997, DM, 1 ex (CDM), 12.II.2000, DM, 2 exs, in decaying hay and vegetation (CDM, CGN), 20.VII.2002, DM, 1 ex (CDM); Buskett area, Xaghri ta' Laroka, 14.II.2000, DM, 1 ex, in dead branches of *Euphorbia characias* (CGN); Chadwick Lakes, 24.II.1990, DM, 1 ex (CGN); Delimara, St. Peter's Pool, 15.VI.2002, DM, 1 ex, on *Darniella melitensis* (CDM); Ghadira, 2.VI.2002, DM, 3 exs (CDM); Ghajn Rihana, 20.VIII.1989, DM, 2 exs (CDM, CGN); Ghar Lapsi, 6.XI.1995, DM, 1 ex, (CDM); Maghtab, 26.I.1996, DM, 2 exs (CDM, CGN); Marsa, Ghammieri, 4.I.1994, DM, 1 ex (CDM); Marsaskala, 7.V.1990, DM, 3 exs (CDM, CGN); Migra Ferha, 25.I.1996, DM, 2 exs (CDM, CGN); Mistra, 4.II.1996, DM, 2 exs (CDM, CGN); Mosta, 4.VIII.1989, DM, 1 ex (CDM); Pretty Bay, 9.VI.1990, DM, 1 ex (CDM); Rabat, 1.VII.2002, PS, 1 ex (CPS); Ramla tal-Mixquqa, 24.IV-7.V.1985, GR, 1 ex (CGU); Siggiewi, 10.V.1998, DM, 3 exs (CDM); St. Thomas Bay, 25.VI.1989, DM, 1 ex (CDM), 12.V.1990, DM, 1 ex (CDM), 27.VI.1990, DM, 2 exs (CDM, CGN), 6.IX.1996, DM, 3 exs (CDM, CGN); St. Thomas Bay, Tal-Munxar, 31.I.1990, DM, 1 ex (CDM), 29.IV.2002, DM, 1 ex (CGN), 14.I.2003, DM, 1 ex (CDM); Ta' Qali, Ruderalft, 1.IV.1993, SP, 1 ex (CDM); Wied id-Dis, 27.VI.1997, DM, 1 ex (CDM); Wied tal-Isqof, 2.VIII.2002, DM, 1 ex (CDM); Zejtun, 4.XII.1989, DM, 1 ex (CDM), 18.III.2003, DM, 1 ex (CDM).

GOZO. Dwejra, 8.XII.2002, DM, 1 ex (CDM); Gharb, 9.VII.1989, DM, 2 exs (CDM, CGN); Ghasri, 15.X.1994, CF, 2 exs (CDM, CGN), 23.X.1994, CF, 1 ex (CDM), 30.VI.1995, CF, 1 ex, on almond tree (CDM); Ramla, 15.IV.1994, DM, 1 ex, sand dunes (CDM), 18.I.1999, DM, 1 ex (CDM), 21.II.2000, DM, 1 ex, in sand dunes and associated vegetation (CDM), 29.XII.2002, DM, 1 ex (CDM); Wied Ilma, 19.IV.1990, DM, 1 ex (CDM).

COMINO. Il-Hazina, 13.VIII.2002, DM, 1 ex, around an artificial freshwater pool (CDM).

DISTRIBUTION. An analysis of the global distribution of this species (Nardi, unpublished data) revealed that its chorotype is

fundamentally Mediterranean and not Western Palaearctic as has been previously indicated (Bucciarelli 1980; Bonadona 1989, 1991; Arnone & Nardi 1995).

NOTES. First record for Comino. This species is the commonest anthicid found in the Maltese Islands. The examined specimens have a very variable colouration, from testaceous to almost completely black.

Cordicomus opaculus opaculus (Wollaston, 1864) (fig. 7)

Anthicus opaculus Woll.: Cameron & Caruana Gatto 1907: 399; Luigioni 1929: 672 [+]; Pic 1934: 28 [+].
Anthicus opaculus Wollaston, 1864: Schembri 1991: 34 [-].
Anthicus opaculus: Schembri 1993: 552 [-].
Cordicomus semibrunneus semibrunneus (Pic, 1882): Arnone & Nardi 1995: 537 [-].
Cordicomus opaculus opaculus (Wollaston, 1864): Nardi 2000: 11 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 1 ♂ (BMNH); St. Thomas Bay, towards Tal-Munxar, 20.V.1990, DM, 1 ♂ (CDM).
MANOEL ISLAND. Malta., X.1901, M.C., 6050 [= 19.X.1901, *Anthicus opaculus* (Woll.), M. Pic det., Ft. Manoel], MCBM, 1 ♂ (BMNH, as *Anthicus opaculus* Wol)].

DISTRIBUTION. Canary Islands, Portugal, Spain, Malta, Morocco, Algeria, Tunisia, Libya and Egypt (cf. Nardi 2000).

NOTES. This species was in recent times misinterpreted (cf. Nardi 2000). It was recorded from Malta on the basis of Cameron & Caruana Gatto's records (1907: 399): "Ghirghenti [= Girgenti], 8 [= August], Fort Manoel, 10 [= October]". This citation was ignored by Pic (1911), Bucciarelli (1980), and other authors (cf. Nardi 2000). Two specimens of the Cameron collection standing under the name of "*opaculus* Woll." and collected from Girgenti were found to be females of *C. instabilis instabilis*. This indicates that the records of *C. opaculus opaculus* by Cameron & Caruana Gatto (1907) are partially incorrect and only the material collected from Fort Manoel (= Manoel Island) should be considered as correctly identified. The identification of the above specimens was also confirmed by comparison with the lectotype and two paralectotypes of *C. opaculus opaculus* (Nardi 2000). In Malta, this species seems to be very rare. The specimen collected from Tal-Munxar was found under a small stone near a coastal area.

Cyclodinus blandulus blandulus (Baudi, 1877) (fig. 8)

MATERIAL EXAMINED. MALTA. Malta, GCBM, 1 ex (BMNH); Malta, 1901, M.C., 5334 [= 14.VIII.1901, *Anthicus minutus* (Laf.), Id. Gatto (identified by A. Caruana Gatto), Marsa], MCBM, 3 exs (BMNH); Malta, XI.1901, M.C., 5334 [= same data as before], MCBM, 1 ex (BMNH); Bingemma, Falder, Mauern, 220 m, 4.IV.1993, SP, 1 ex (CDM); Bingemma, 3 Km W Mdina, 236 m, 4.IV.1993, SP, 6 exs (CDM, CGN).

DISTRIBUTION. The nominal subspecies is recorded from Spain, Gibraltar, Sicily, Greece, Morocco, Egypt and eastern Turkmenistan (cf. Champion 1891; Winkler 1927; Koch 1934; Bucciarelli 1980; Uhmann 1985a; Telnov 1998c, 1998d; Uhmann 1989, 1992). Uhmann (1985a) recorded an old specimen from "Kalocsa" (Hungary), but this record need to be confirmed, whereas the record for Sardinia (Angelini et al. 1995), listed also by Sparacio (1997), is erroneous and must be referred to a species new to Italy that is currently under study (Nardi, unpublished data). *C. blandulus zinrami* (Koch, 1934) is recorded from Andalusia (Spain) and Peloponnese (Greece) only (Koch 1934, as *Anthicus*), but as already stated by Bucciarelli (1980), further studies are needed in order to clarify the taxonomic status and the distribution of both subspecies.

NOTES. *C. blandulus blandulus* is a new record for the Maltese Islands and it was never recorded on any of the other islands of the Sicilian channel.

This species was described from "Sicilia, Spagna" (Baudi 1877: 677, as *Anthicus minutus* var. *blandulus*). Bucciarelli (1980) examined the type material from "Sicilia" (deposited in the Baudi collection); however, the lectotype for this taxon was never designated. The type locality encompasses both toponyms (Sicily and Spain) (ICZN 1999, art. 73.2.3, 76.1) neither of which can at present be considered as the type locality as erroneously indicated by Bucciarelli (1980) and Uhmann (1985a). This situation is of certain relevance due to the microsystematic problems centred around this taxon. The nominal subspecies is here considered according to Koch (1931, 1934) and Bucciarelli (1980).

For a long time, this taxon was only considered as a variety of *Cyclodinus minutus* (La Ferté-Sénectère, 1842) (cf. Champion 1891; Koch 1931). Thus, even though material of this species was available to Cameron and Caruana Gatto (see above records in BMNH) they

misinterpreted it with *C. minutus minutus* which they also recorded from Marsa (Caruana Gatto 1894; Cameron & Caruana Gatto 1907).

The ecology of this species is poorly known. In Sicily, the species was mainly collected in internal localities (Bucciarelli 1980), and this coincides with the recently collected material from Malta.

Cyclodinus coniceps (Marseul, 1879) sensu lato (fig. 9)

MATERIAL EXAMINED. MALTA. Salina, 11.VII.2002, DM, 6 ♀♀, 4 ♂♂(CDM, CGN).

DISTRIBUTION. Portugal, Spain, southern France, Sardinia, Italy, Sicily, Austria (surroundings of Wien), Slovenia (Istria), Croatia (Istria and Dalmatia), Albania, Greece, Crete, Rumania, Bulgaria, southern Russia (without further data), Turkey, Morocco, Algeria, Tunisia (cf. Krekich-Strassoldo 1919; Kocher 1956; Horion 1971; Bucciarelli 1980; Bonadona 1989, 1991; Uhmann 1992), and Libya (Tripolitania) (cf. Koch 1937).

NOTES. *C. coniceps* is a new record for the Maltese Islands and it was never recorded on any of the other islands of the Sicilian channel.

The microsystematics of this species is in need of revision, and this should be based on the examination of the type material and of numerous specimens from all over its geographical range. In this context, the species is here recorded in *sensu lato*. It is worth mentioning that the type locality of the nominal subspecies is "Algérie, Bône; Portugal" (Marseul 1879: 83), not Bône (Bonadona 1989, 1991) or Algeria (Bucciarelli 1980; Uhmann 1985a) because a lectotype was not designated yet (ICZN 1999, art. 73.2.3, 76.1). Bonadona (1989, 1991), following in part Krekich-Strassoldo's opinion (1919), tentatively distinguished five subspecies, but without indicating precise geographical distributions for each of them. Without further explanation, Bonadona (1954b, 1989, 1991) synonymized *C. coniceps* ssp. *sedjoumiensis* (Koch, 1931) from Tunisia with the nominal subspecies that he recorded from North Africa and which he characterised by the presence of 5-6 preapical setae on the aedeagus. However, that of *C. coniceps* ssp. *sedjoumiensis* has 9 preapical setae (Koch 1931: 68 fig. 2). Moreover, *C. coniceps* ssp. *sedjoumiensis* was

synonymized with *C. coniceps* ssp. *lagunarum* (Krekich-Strassoldo, 1919) by Koch (1934) himself. Bonadona (1989, 1991) considered this latter taxon as a valid subspecies. Uhmann (1992) treated *C. coniceps* as a monotypic species, and listed, all subspecies as "variationen" or as synonyms. He also included *C. caroli* (Pic, 1893) from southern Spain and *C. schatzmayri* (Koch, 1931) from Tunisia as synonyms. Nevertheless, *C. caroli* is a synonym of *C. desbrochersi* (Pic, 1893) (Bonadona 1988). According to Bucciarelli (1962), *C. schatzmayri*, which is known only from the holotype, is mainly characterised by the shape of the aedeagus (Koch 1931: 68 fig. 1, as *Anthicus*; Bucciarelli 1962: 116, figs 7-8 [lacking caption]) and is a valid species.

The specimens collected in Malta were found among large amounts of insect exoskeletons, mainly pupal exuviae of Culicidae (Diptera), on the edges of a degraded saltmarsh.

Cyclodinus constrictus (Curtis, 1838) sensu lato (fig. 10)

Anthicus humilis Germ. v. *lameyi* Marsh. [sic!, Marseul, 1879]: Cameron & Caruana Gatto 1907: 399.

Anthicus larvipennis marinus Krekich-Strassoldo 1919: 70-71.

Anthicus (*Cyclodinus*) *larvipennis* var. *marinus* Krek.: Luigioni 1929: 671 [+].

Anthicus (*Cyclodinus*) *larvipennis* v. *Lameyi* Mars.: Luigioni 1929: 671 [+]; Pic 1934: 24 [+].

Cyclodinus humilis Germ [sic!] v. *lameyi* Marsh. [sic!]: Cilia 1989: 123 [-].

Cyclodinus constrictus ruffoi Bucciarelli, 1959: Schembri 1991: 35.

Cyclodinus constrictus (Curtis) sensu lato: Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 5 exs (BMNH); Malta, GCBM, 1 ex (BMNH, as "*humilis* Germ., Laf. non Germ."); Malta, MCBM, 2 exs (BMNH); Malta, 1901, M.C., 5331 [= 14.VIII.1901, *Anthicus humilis* v. *lameyi* (Mars.), Marsa, Id. Mr. Gatto (identified by A. Caruana Gatto)], MCBM, 2 exs (BMNH); Malta, VIII.1901, M.C., 5331 [= same data as before], MCBM, 3 exs (BMNH); Malta, VIII.1901, M.C., 1 ex (BMNH); Marsaxlokk, Balluta, 28.IV.1990, DM, 5 exs (CDM, CGN), 11.VI.1993, DM, 7 exs (CDM, CGN), 4.V.1997, DM, 13 exs (CDM, CGN); Mellieha Bay, 3.III.2002, DM, 1 ex (CDM); Salina, 11.VII.2002, DM, 6 exs (CDM, CGN).

GOZO. Marsalforn Valley, 6.VI.1990, DM, 2 exs (CDM, CGN).

NOTES. First record for Gozo. The microsystematics of this species (cf. Bonadona 1991) is in need of revision (cf. Fancello 1993; Arnone & Nardi 1995). For this reason, this species is here recorded in *sensu lato*.

Cyclodinus croissandeaui croissandeaui (Pic, 1892) (fig. 11)

MATERIAL EXAMINED. MALTA. Zejtun, 13.IX.2001, DM, 1 ♂ (CDM).

DISTRIBUTION. Afrotropico-Mediterranean species; the nominal subspecies is known from a few localities in France (Maritime Alps and Corsica), Sardinia, Morocco, Algeria, Tunisia and Asiatic Turkey (cf. Bonadona 1954a, as *C. croissandeaui*; Bucciarelli 1980, as *C. mimodromius* [sic!] *croissandeaui*; De Giovanni & Fancello 1987, as *C. mimodromius* [sic!] *croissandeaui*; Bonadona 1989, 1991), whereas *C. croissandeaui mimodromius* (Fairmaire, 1898) is recorded from Guinea, Ivory Coast, Ghana, Congo, eastern Africa (without further data), Madagascar, Mascarene Islands, southern Africa (without further data) (cf. Bonadona 1958, 1969b; Uhmann 1982, 1990c, 1990d, all as *C. mimodromius*), and Kenya (Pic 1921, as *Anthicus mimodromius* n. var. *latetestaceus*) ([8]).

NOTES. *C. croissandeaui croissandeaui* is a new record for the Maltese Islands and it was never recorded on any of the other islands of the Sicilian channel.

In the Mediterranean area, this taxon is very localised and generally very sporadic (cf. Bonadona 1989, 1991). *C. croissandeaui* and *C. mimodromius* have been described as valid species, and the second taxon was downgraded to subspecies by Bucciarelli (1980, as *C. mimodromius* [sic!] *croissandeaui*), following a personal communication by Bonadona (see also Bonadona, 1958). This view was ignored by Uhmann (1982, 1990c, 1990d). The two subspecies can only be distinguished by the shape of the apex of the aedeagus (Bonadona 1954a, 1958, 1989, 1991). The differences in the number of preapical setae of the aedeagus, a character which is often cited in the relevant literature (cf. Bonadona 1958; Bucciarelli 1980), are not constant. In fact, in the nominal subspecies, the number of such setae varies from 2-5 pairs (cf. Bonadona 1954a fig. 7, 1989 fig. 24). The aedeagus of the Maltese specimens is similar to those figured by Bonadona (1954a, 1989) but at least three pairs of lateral setae are

([8]) This variety, known only from the original description which is based on one specimen, was overlooked by subsequent authors. It is an unavailable name (infrasubspecific rank) since it is in context with new subspecies (ICZN 1999, art. 45.6.4).

present, the apex is c-shaped with points which are more sharpened, elongated and directed towards the base.

This species seems to have arboreal habits (cf. Bucciarelli 1980; De Giovanni & Fancello 1987; Bonadona 1991). The Maltese specimen was collected during the day near a private house in a very urbanised area.

Cyclodinus debilis (La Ferté-Sénectère, 1849) (fig. 12)

Cyclodinus debilis (La Ferté, 1848 [sic!]): Schembri 1990: 233; 1991: 35 [-].
Cyclodinus debilis: Schembri 1993: 552 [-].
Cyclodinus debilis (La Ferté-Sénectère, 1848 [sic!]): Arnone & Nardi 1995: 533 [-].

MATERIAL EXAMINED. MALTA. Valletta, VI.1934, 1 ex (ZMUK).
PANTELLERIA. Pantelleria, 6.IX.1877, [cruise of the] Violante, "*A. dimidiatus* t. Mars", "*A. dimidiatus*", "*dimidiatus* det. S.A.deMarseul", "*debilis* v. *phoxus* ? det.v.Krekich.", 1 ex (MCSG).

DISTRIBUTION. Italy (Pantelleria), Malta (Islet of Filfla), Caucasus (without additional data), Azerbaijan, Turkey, Syria, Palestine, Jordan, Saudi Arabia, Arabs Emirates, Oman, Yemen, Iran, Kuwait, Iraq, Kazakhstan, Uzbekistan, Turkmenistan, Afghanistan, Sri Lanka, Cape Verde Isles, Morocco, Algeria, Tunisia, Libya, Egypt, Sinai, Mauritania, Senegal, Gambia, Mali, Burkina Faso, Ivory Coast, Ghana, Cameroon, Sudan, Ciad, Eritrea, Djibouti and Somalia (cf. Baudi 1877, 1878, both as *Anthicus debilis*; Schneider & Leder 1878, as *A. debilis* var. det. Baudi; Peyerimoff 1907, as *A. phoxus* Marseul, 1879; Sahlberg 1913, as *A. phoxus*; Bodenheimer 1934, as *A. debilis*; Pic & Hawkins 1957, as *A. debilis*; Al-Houty 1989, as *A. debilis*; Arnone & Nardi 1995; Uhmann & Rihane 1995; Uhmann 1998). The record for Cape Verde Islands (Gridelli 1930, as *A. debilis* var. *phoxus*) was not included by Geisthardt (1988).

NOTES. The above-mentioned Islands of the Sicilian channel are, excluding Caucasia, the only known European sites of this species.

Gestro (1880, as *Anthicus*) referred the above specimen from Pantelleria to *Cyclodinus dimidiatus* (Wollaston, 1864), while Gridelli (1930, as *Anthicus*) referred to it as *C. debilis* var. *phoxus* (see the above identification labels). Arnone & Nardi (1995) overlooked both records. *C. dimidiatus* (Wollaston, 1864) is known from the Canary

and Cape Verde Islands only (Pic 1911; Winkler 1927, both as *Anthicus (Cyclodinus) dimidiatus*; Geisthardt 1988; Machado & Oromí 2000). Kaszab (1959) recorded "*Anthicus dimidiatus* Desbr. [sic!]" from Egypt, but most probably this record refers to *A. dimidiatipennis* Desbrochers des Loges, 1875. *Cyclodinus dimidiatus* does not belong to the Italian fauna and the above record for Pantelleria was ignored by all subsequent authors since Ragusa (1898) and Bertolini (1904).

Information on the ecology of *C. debilis* has been provided by Uhmann & Rihane (1995); this species hosts *Dioicomyces anthici* Thaxter (Ascomycetes, Laboulbeniales) (Peyerimhoff 1948: 27, as *Anthicus debilis* var. *phoxus*), a fungus known also from other genera of Anthicini (Rossi 1993).

Cyclodinus humilis (Germar, 1824) (fig. 13)

Anthicus humilis Germ.: Caruana Gatto 1893: 451; Cameron & Caruana Gatto 1907: 399.

Cyclodinus humilis Germ [sic!]: Cilia 1989: 123 [-].

Cyclodinus humilis (Germar, 1824): Schembri 1991: 35; Arnone & Nardi 1995: 534 [-].

Notes. This species was not found during the present study. Probably part or all of the above mentioned literature records concern *C. larvipennis* and/or *C. constrictus* with which *C. humilis* was confused for a long time (cf. Krekich-Strassoldo 1919; Bonadona 1954b). In fact, both Luigioni (1929) and Pic (1934) listed from Malta only *C. constrictus*. Besides, the record for Pantelleria (Liebmann 1962, as "*Anthicus humilis* Germ (et var.)") needs confirmation and unfortunately this material is not conserved in the SMNS (W. Schawaller, pers. comm., 2000). Maltese records concern two localities: Marsa (Caruana Gatto 1893; Cameron & Caruana Gatto 1907) and Salina (Schembri 1991). The former site was completely destroyed whereas the latter is highly degraded.

Sicily, Pantelleria and Malta are on the south-western extreme of distribution of this Turano-European species (cf. Arnone & Nardi 1995).

Cyclodinus larvipennis (Marseul, 1879) (fig. 14)

MATERIAL EXAMINED. MALTA. Ghadira, 4.VI.1994, DM, 1 ♂ (CDM).

DISTRIBUTION. Algeria, Tunisia, southern France, Italy, Sicily, Greece, Egypt (Bonadona 1990, 1991), Libya (Gridelli 1930, as *Anthicus motschulskyi* var. *graecus* Pic, 1896; Koch, 1931, 1937 as *A. testaceipes* Pic, 1892), Cyprus (Uhmann 1985a, as *Cyclodinus humilis* var. *graecus* (Pic, 1896)), Crete (Uhmann 1985a, as *C. testacieps* [sic!] (Pic, 1894) [sic!]), and Sardinia (?) (Uhmann 1985a; Angelini et al. 1995).

The records for Libya were not confirmed in recent times and the records for Morocco are incorrect (cf. Kocher 1956). Bucciarelli (1980) recorded this species from the Mediterranean coasts: Tunisia, Italy, and from Egypt to Greece.

The record for Iran of Bonadona (1970) was later overlooked also by the same author (Bonadona 1990, 1991). The record for Afghanistan (Telnov 2002) is wrong and refers to *C. nitidior* (Pic, 1892) (Telnov's correction on a reprint of his work).

On the basis of the original description, *Anthicus larvipennis* ssp. *mongolensis* Medvedev, 1974 from Mongolia (Medvedev 1974, 1975), ignored by most authors (e.g. Bucciarelli 1980; Bonadona 1990a, 1991), is definitely not related to *Cyclodinus larvipennis*. Thus, provisionally, *Cyclodinus mongolensis* (Medvedev, 1974) (**new rank**) is here proposed.

NOTES. *C. larvipennis* is a new record for the Maltese Islands and it was never recorded on any of the other islands of the Sicilian channel. As stated by Bonadona (1954b, 1990, 1991) this species is variable in colour and has four synonyms. This view was apparently ignored by Uhmann (1985a, 1996) and Telnov (1998c). The examined specimen belongs to the typical form. This species occurs on the edges of salty and brackish waters in coastal or subcoastal regions, and, in northern Africa, also in those of chots and sebkas (Bucciarelli 1980; Bonadona 1991). The above specimen was collected under a small stone in sandy conditions and close to a saltmarsh.

Cyclodinus minutus minutus (La Ferté-Sénectère, 1842) (fig. 15)

Anthicus minutus Lat. [sic!]: Caruana Gatto 1893: 451.

Anthicus minutus Laf.: Cameron & Caruana Gatto 1907: 399.
Anthicus (Cyclodinus) minutus Laf.: Luigioni 1929: 671 [+]; Pic 1934: 24 [+].
Cyclodinus minutus (La Ferte): Cilia 1989: 123 [-].
Cyclodinus minutus (La Ferté, 1842): Schembri 1991: 36.
Cyclodinus minutus (La Ferté-Sénectère, 1842): Uhmann 1992: 105.
Cyclodinus minutus minutus (La Ferté-Sénectère): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Malta, GCBM, 19 exs (BMNH); Malta, MCBM, 3 exs (BMNH); Malta, 1901, M.C., 5334 [= 14.VIII.1901, *Anthicus minutus* (Laf.), Id. Gatto (identified by A. Caruana Gatto), Marsa], MCBM, 4 exs (BMNH); Malta, VIII.1901, M.C., 5334 [= same data as before], MCBM, 1 ex (BMNH); Malta, IX.1901, M.C., 5334 [= same data as before], MCBM, 4 exs (BMNH); Chadwick Lakes, 24.II.1990, DM, 1 ex (CDM); Gnejna, 9.V.1990, DM, 1 ex (CDM); Marsaskala, 7.V.1990, DM, 3 exs (CDM, CGN); Marsaskala, Il-Maghluq, 1.VI.1990, DM, 2 exs (CDM); Marsaxlokk, 28.IV.1990, DM, 1 ex (CDM), 6.V.1990, DM, 2 exs (CDM); Marsaxlokk, Balluta, 26.I.1990, DM, 1 ex (CDM), 14.IX.1993, DM, 7 exs (CDM, CGN), 26.X.1996, DM, 5 exs (CDM, CGN), 9.VII.2002, DM, 1 ex (CDM); Ghadira, 23.V.1990, DM, 3 exs (CDM, CGN), 21.IX.1993, DM, 1 ex (CDM); Ramla tat-Torri, 19.IV.1985, RG, 1 ex (CGU); St. Thomas Bay, 11.XI.1996, DM, 3 exs (CDM, CGN); St. Thomas Bay, towards Tal-Munxar, 20.V.1990, DM, 2 exs (CDM, CGN); St. Thomas Bay, Tal-Munxar, 13.IV.2003, DM, 1 ex (CDM); Wied Has-Sabtan, 24.XI.1989, DM, 1 ex (CGN); Xatt l-Ahmar, 1.III.2002, AD, 1 ex (CGN).

MANOEL ISLAND. Malta, X.1901, M.C., 6051 [= 19.X.1901, *Anthicus minutus* (Laf.), ER (identified by E. Reitter), Ft. Manoel], MCBM, 1 ex (BMNH); Manoel Island, 2.V.1990, DM, 1 ex (CDM).

GOZO. Marsalforn Valley, 6.VI.1990, DM, 3 exs (CDM, CGN); Qbajjar, around Qolla I-Bajda, 18.I.1999, DM, 1 ex (CDM).

PANTELLERIA. Pantelleria, 6.X.1877, [cruise of the] Violante, 3 exs (MCSG).

NOTES. First records for Gozo and Manoel Island. The above-mentioned specimens from Pantelleria were recorded by Gestro (1880: 415 footnote, as *Anthicus minutus*), a record that was overlooked by Arnone & Nardi (1995).

Stricticomus tobias (Marseul, 1879)

Stricticomus tobias (De Marseul, 1879): Schembri 1991: 36.
Stricticomus tobias (Marseul): Arnone & Nardi 1995: 536 [-].

MATERIAL EXAMINED. MALTA. Rabat, 21.VI.2002, PS, 2 ♀♀, attracted to light (CPS), 23.VI.2002, PS, 1 ♂, attracted to light (CGN); Zejtun, 11.XI.1989, DM, 1 ♀ (CDM).

NOTES. *S. tobias* is a tramp species probably native of the Middle East but is now sub-cosmopolitan in distribution. In Sicily, the species was collected from 1944 onwards (Arnone 1992) and it was recently recorded also from Malta: Birkirkara and San Pawl tat-Targa (Schembri 1991).

Stricticomus transversalis meridionalis (Pic, 1896) (fig. 16)

MATERIAL EXAMINED. MALTA. Wied Babu, 2.VII.2002, DM, 1 ♀, attracted to light (CDM).

DISTRIBUTION. Turano-Mediterranean species (cf. Bonadona 1991; Arnone & Nardi 1995), but probably the records from the easternmost parts of its distribution need verification (cf. Koch 1934; Uhmann 1992). The nominal subspecies is widespread, whereas *S. transversalis meridionalis* is known only from Maghreb (Morocco, Algeria, Tunisia), Libya (Tripolitania) and Lampedusa (cf. Bonadona 1991; Arnone & Nardi 1995; Telnov 1998a; Degiovanni 1999). *S. transversalis transversalis* is recorded from Maghreb too, but it does not live in syntopy with *S. transversalis meridionalis* which mainly occurs in sub-desert regions (Bonadona 1990, 1991).

NOTES. First record for the Maltese Islands. The record of *S. transversalis transversalis* from Lampedusa (Arnone & Nardi 1995) was later referred to *S. transversalis meridionalis* (Degiovanni 1999). This taxon was described from Algeria ("Sétafa et Ghardaïa") as a variety of *Anthicus goebelii* La Ferté-Sénectère, 1849 (Pic 1896), and on the basis of chromatic characters, it was later recognized as a subspecies of *Stricticomus transversalis* (Bonadona 1954a, as *Anthicus*). This opinion was followed by most authors (e.g. Bonadona 1965; Bucciarelli 1980; Bonadona 1990, 1991; Uhmann 1992; Degiovanni 1999). Koch (1931: 77-78) described *Anthicus modestus* ssp. *erichi* from Tripolitania ("Tagiura ... Tripoli") (9) that he later considered as a subspecies of *S. transversalis* (Koch 1934, as *Anthicus*). This taxon was correctly placed in synonymy with *S. transversalis meridionalis* by Bonadona (1954a, as *Anthicus*), but Uhmann (1985a, 1992) overlooked this opinion and recorded *S. transversalis* var. *erichi* from Algeria (Uhmann 1985a), and erroneously from Egypt and Arabia (Uhmann 1992).

Bonadona (1965) provided drawings of the dorsal habitus (p. 863, fig. 3, as *Mecynotarsus bison* var. *algericus* [sic!]) and of the aedeagus in dorsal view of *S. transversalis meridionalis* (p. 864, fig. 4). Degiovanni (1999: 37 figs 1-2) drew the aedeagus in lateral view of a specimen

(9) Bonadona (1990, 1991) incorrectly listed the type locality as "Sud-Tunisien".

of this subspecies from Morocco (without further data), and pointed out certain morphological differences from the nominal subspecies. During this study, such differences were also observed in specimens from Tunisia. However, the consistency of these characters needs further study based on examination of abundant material which will also better define the distributional ranges of the two subspecies.

The Maltese specimen was collected at UV light (hours 21.30) in a dry valley where some high trees of *Ceratonia siliqua* L. (Leguminosae) are present. Its identification was confirmed also by comparison with material from southern Tunisia: Oasis of Kebili, 4.VI.1993, E. & G. Dellacasa legit, 1 ♂, 1 ♀ (CGN, CSZ); (Medenine), Tataouine, Dourat, 28.IV.1993, S. Zoia legit, 1 ♂, 1 ♀ (CGN, CSZ).

Leptaleus rodriguesi (Latreille, 1804) (fig. 17)

Anthicus rodriguesi Latr.: Cameron & Caruana Gatto 1907: 399.
Leptaleus Rodriguesi Latr.: Luigioni 1929: 670 [+]; Pic 1934: 22 [+].
Leptaleus rodriguesi (Latreille, 1802) [sic!]): Bucciarelli 1980: 165 [-]; Bonadona 1990: 18 [+]; 1991: 121 [+]; Schembri 1991: 36 [-].
Leptaleus rodriguesi Latr.: Cilia 1989: 123 [-].
Leptaleus rodriguesi (Latreille): Arnone & Nardi 1995: 536 [-].

NOTES. Cameron & Caruana Gatto (1907) recorded this species from "Melleha" and Cilia (1989) listed this taxon as probably extinct; it was neither found by Schembri (1991), nor during the present study. *L. rodriguesi* was recently cited for Malta without additional data by Bonadona (1990, 1991), but most probably this record was based on previous literature.

This species is the only Anthicidae that was not collected again since the work of Cameron & Caruana Gatto (1907). Besides, no material attributed to this species was found in the Cameron and Champion collections at the BMNH.

Tenuicomus velox velox (La Ferté-Sénectère, 1849) (fig. 18)

Anthicus velox Laf.: Cameron & Caruana Gatto 1907: 399; Luigioni 1929: 672 [+]; Pic 1934: 26 [+].
Tenuicomus velox velox (La Ferté, 1848 [sic!]): Schembri 1991: 33.
Tenuicomus velox velox: Schembri 1993: 552 [-]
Tenuicomus velox velox (La Ferté-Sénectère, 1848 [sic!]): Angelini et al. 1995: 28 [-]; Arnone & Nardi 1995: 537 [-]; Sparacio 1997:189 [-].

MATERIAL EXAMINED. MALTA. Malta, [19]03, M.C., MCBM, 6 exs (BMNH); Malta, VI.1902, M.C., 7421 [= VI.1902, *Anthicus velox* (Laf.) var. not known, ER (identified by E. Reitter)], MCBM, 1 ex (BMNH); Fomm ir-Rih, 11.V.1990, DM, 1 ex (CDM); Migra Ferha, 3.VI.1990, DM, 26 exs (CDM, CGN); St. Thomas Bay, Tal-Munxar, 24.IV.2002, DM, 126 exs (CDM, CGN).

NOTES. In Malta, the presence of this subendemic Italian species (cf. Bucciarelli 1980; Schembri 1991; Nardi 1995) was confirmed only recently. Bucciarelli (1980) ignored the above records for Malta. The specimens from Migra Ferha were collected on *Foeniculum vulgare* Miller (Umbrelliferae) in a coastal environment, along a semi-permanent valley system, whereas the large number of specimens from Tal-Munxar (St. Thomas Bay) were collected on low whitish man-made walls used to separate cultivated fields (mainly wheat) from a very narrow road. Specimens were capable of flight (Mifsud, personal observation). The specimens were collected early in the afternoon. Observations of such a large number of specimens of this species (and concentrated in one area) have never been published.

Aulacoderus sulcithorax melitensis (Pic, 1903) (figs 1, 19)

Anthicus (*Aulacoderus*) *sulcithorax* Desbr.: Cameron 1903: 41.
Anthicus (*Aulacoderus*) *melitensis* Pic 1903a: 139; Reitter 1906: 445 [+]; Pic 1911: 61 [+]; Winkler 1927: 850 [+]; Luigioni 1929: 675 [+]; Pic 1934: 32 [+].
Aulacoderus melitensis Pic: Cameron & Caruana Gatto 1907: 399.
Aulacodemus [sic!] *melitensis*: Gulia 1914: 554 [-].
Anthicus (*Aulacoderus*) *sulcithorax* Desbr.: Luigioni 1929: 675 [+]; Pic 1934: 32 [+].
Aulocoderus [sic!] (*Anthicus*) [sic!] *melitensis* Pic 1903: Tonna-Barthet 1931: 7 [+].
Aulacoderus melitensis (Pic, 1903): Bucciarelli 1980: 219; Schembri 1991: 33 [-].
Anthicus (*Aulacoderus*) *sulcithorax* subsp. nov. [sic!, lapse for status novus] *melitensis* (Pic) [sic!]: Hille 1984: 145.
Aulocoderus [sic!] *melitensis* Pic: Cilia 1989: 123 [-].
Aulacoderus melitensis: Schembri 1993: 552 [-].
Aulacoderus sulcithorax melitensis (Pic, 1903): Arnone & Nardi 1995: 537 [-].
Anthicus (*Aulacoderus*) *sulcithorax melitensis*: Mifsud 2000: 78 [-].

MATERIAL EXAMINED. MALTA. Malta, VI.[19]03. M.C., *Anthicus sulcithorax* [handwritten], 1 ♂, 1 ♀ (BMNH); Buskett, 2.VII.1996, DM, 1 ♀ (CDM); Wied Babu, 24.VI.1989, DM, 1 ♀ (CDM); Wied Has-Sabtan, 26.V.1990, DM, 1 ♀ (CDM); Wied id-Dis, 27.VI.1997, DM, 1 ♂, 11 ♀♀ (CDM, CGN), 13.VI.2002, DM, 9 ♂♂, 11 ♀♀ (CDM, CGN).
SICILY. Palazzolo Acreide (Siracusa), 10.VII.1971, G. Liberti legit, 1 ♀ (MCSM).

DISTRIBUTION. *A. sulcithorax melitensis* is known from Malta (Bucciarelli 1980; Hille 1984); the nominal subspecies is recorded

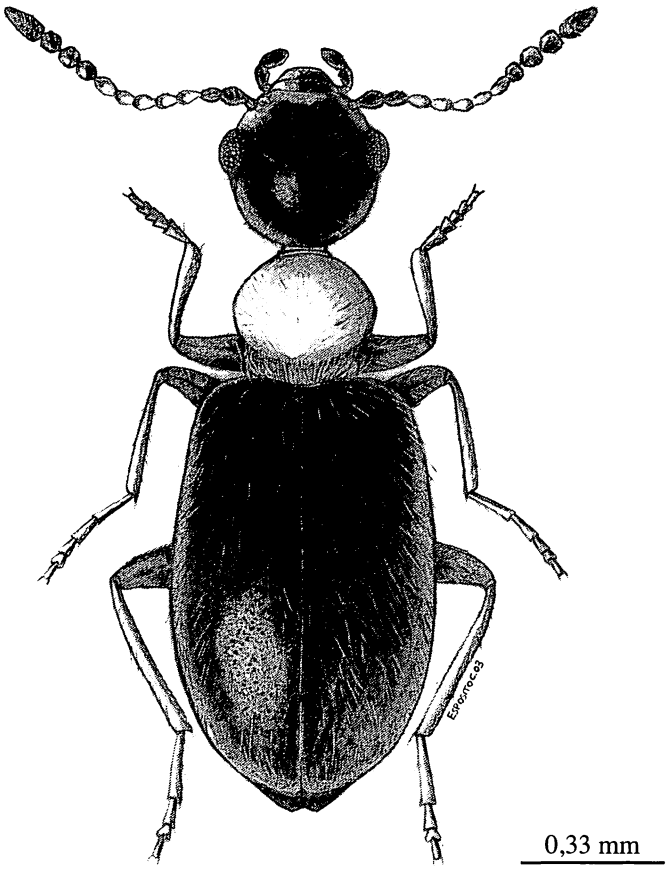


Fig. 1 – Habitus of *Aulacoderus sulcithorax melitensis* ♀ from Wied id-Dis (drawing by C. Esposito).

from Crete, Lebanon, Israel, Palestine and Jordan (Desbrochers des Loges 1875; Bodenheimer 1934; Hille 1984; Uhmann 1985a, 1988a). The citation for Syria (Desbrochers des Loges 1881; Cameron 1903; Pic 1911; Winkler 1927; Pic 1934; Hariri 1968) refers to the above mentioned regions, whereas the citation for Algeria (Marseul 1879) is wrong (cf. Desbrochers des Loges 1881). The record from Malta of the nominal subspecies by Cameron (1903) refers to *A. sulcithorax melitensis*, which was described during that same year on the basis of material collected by Cameron himself (Pic 1903a). This opinion was followed by all subsequent authors, with the exception of Luigioni (1929) who listed both taxa for Malta.

Aulacoderus friwaldszkyi (La Ferté-Sénectère, 1849) was described on the basis of two specimens from Hungary (La Ferté-Sénectère collection) and Austria (Dejean collection) (cf. La Ferté-Sénectère 1849: 267-268), and is an enigmatic species known only on the basis of these types; it was recently recorded also from Israel (Finkel et al. 2002) but most probably on the basis of misidentifications. Ragusa (1898: 233, as *Anthicus* (*Aulacoderus*) *Frivaldeskyi* [sic!] Laf.) recorded a specimen of this species which he collected in Sicily (without more detailed data), but his record was considered doubtful (Pic 1911; Luigioni 1929; Pic 1934, all as *Anthicus*), and this species was later excluded from the Italian fauna (Bucciarelli 1980; Angelini et al. 1995). According to Bucciarelli (1980), who studied the "olotipo" ([10]) (an immature female of the La Ferté-Sénectère collection), this species is probably identical with *Aulacoderus funebris* (Reitter, 1884) from the Balkan Peninsula (cf. Hille 1984) but, lacking a male, he did not synonymize the species. Hille (1984: 164, as *Anthicus*) overlooked Bucciarelli's (1980) work and listed *Aulacoderus friwaldszkyi* among "Species of which no material was available". Baudi (1878: 9, as *Anthicus Frivaldszkyi* [sic!] Laf.), wrote that the syntype from Austria was kept in the "R. Taurinensi Musaeo", currently Museo Regionale di Scienze Naturali (Torino), where unfortunately it is no longer present (M. Daccordi, pers. comm., 1999). Thus, the uncertainty about the identity of *A. friwaldszkyi* persists. Considering the presence of *A. sulcithorax melitensis* in Sicily, it is most probable that Ragusa's record (1898) belongs to this taxon.

NOTES. First record for Italy. Subspecies so far known only on the basis of two male syntypes (Bucciarelli 1980) and two specimens (male and female) preserved in the BMNH (Hille 1984).

The examination of material of the nominal subspecies (Nardi, unpublished data) confirmed the status of subspecies for *melitensis* as proposed by Hille (1984).

Male genitalia of both subspecies are indistinguishable, and the differences in the aedeagus figure of *A. sulcithorax sulcithorax* (Hille 1984: 145, fig. 440) and of *A. sulcithorax melitensis* (Bucciarelli 1980: 222, fig. 282) are only due to different methods of preparation of the said organ. The females of both subspecies have the last exposed

([10]) In reality this specimen is only a syntype (ICZN 1999, art. 73.2).

tergum with a short shallow apical indentation (fig. 1). Up to now, this feature was never noted, in spite of its visibility in dorsal view. The wings of examined specimens of *A. sulcithorax melitensis* are fully developed, and specimens were able to fly (Mifsud, personal observation). The two taxa are distinguished on the basis of colouration of pronotum and antennae (cf. Hille 1984), but the variability of this character is greater than that reported in literature. The pronotum of all specimens of *A. sulcithorax melitensis* is red, excluding those examined by Hille (1984: 145) in which he interpreted this colouration as "brightly reddish testaceous". Most of the examined specimens have the first two and the last four antennomeres darker than the testaceous middle segments; in some specimens the above mentioned colour differences are less marked but still evident. The two male syntypes examined by Bucciarelli (1980: 219) have only the first two and the last segments darker; the specimens examined by Hille (1984) have the "basal two segments and apical 3-4 segments" darker. Some specimens from Wied id-Dis are relatively variable in this character: the first two and the last five antennomeres darker (3 ♂♂, 1 ♀), first two segments and the last three segments darker (1 ♀), the first two segments and the terminal part of the last segment darker (1 ♀), the first four segments and the last two segments darker (1 ♀), the first segment and the last four segments darker (1 ♂).

The two subspecies can be distinguished using the following key:

Head dark testaceous to black; pronotum testaceous to black, usually with a lighter base; antennae testaceous to very dark; apical segments somewhat broader and darker only in light-coloured specimens..... *A. sulcithorax sulcithorax*

Head black; pronotum red or brightly reddish testaceous; antennae with the first two and the last four antennomeres darker than the testaceous middle segments or at least with the first segment and the terminal part of last segment darker than the testaceous middle segments..... *A. sulcithorax melitensis*

The only data hitherto known on the ecology of *A. sulcithorax melitensis* was: "I found not uncommonly by sweeping last June in Malta" (Cameron 1903), "flowers, 5, 6 [= May, June]" (Cameron & Caruana Gatto 1907), and "generally found on flowers" (Cilia 1989). The material collected during this study was found by general sweeping. However, specimens found in 2002 were mainly collected by sweeping mature flowering shrubs of *Lonicera implexa* Aiton (Caprifoliaceae). Material recorded from Wied id-Dis was mainly collected in the early afternoon.

Hille (1984), in his review of the genus, overlooked two varieties of this species: *Anthicus* (*Aulacoderus*) *sulcithorax* var. *nigrithorax* Pic, 1897 from "Jéricho" and "Liban" (Pic 1897a: 27), and *Anthicus* (*Aulacoderus*) *sulcithorax* var. *pallidior* Pic, 1941 from "Jéricho" (Pic 1941: 5). The first one was also subsequently listed by a few authors (Pic 1901: 256, as *Anthicus sulcithorax* var. *nigrithorax*; 1911: 75, as *A.* (*Aulacoderus*) *sulcithorax* var. *nigrithorax*; Winkler 1927: 850, as *A.* (*Aulacoderus*) *sulcithorax* a. *nigrithorax*; Hariri 1968: 207, as *A.* (*Aulacoderus*) *sulcithorax* var. *nigrithorax*). It was inadvertently synonymized with the typical subspecies by Winkler (1927) who treated it as an infrasubspecific entity. This variety is based on two specimens having "les antennes claires ou obscurcies à la base" (Pic 1897a: 27), and no specimens of *Aulacoderus sulcithorax sulcithorax* showing the second character has so far been examined (see above key). Thus the study of type material will be needed to clarify the status of this variety. *Anthicus* (*Aulacoderus*) *sulcithorax* var. *pallidior* Pic, 1941 has a subspecies rank (ICNZ 1999, art. 45.6.4). Its description, of just one line ("Rufescens aut testaceus"), was probably based on immature specimens of *Aulacoderus sulcithorax sulcithorax*. However, lacking the study of type material, no decisions on the status of this subspecies will be put forward. Besides, *Anthicus robustissimus* var. *pallidior* Pic, 1948 from South Africa (Pic 1948: 14) is a junior homonym of *Anthicus* (*Aulacoderus*) *sulcithorax* var. *pallidior* Pic, 1941 but luckily the first is a synonym of *Aulacoderus rotundipennis* (Pic, 1895) (Hille 1984: 38).

Discussion

Table 1 summarises the knowledge of the Anthicidae of the islands of the Sicilian channel and provides the chorotype (Vigna Taglianti et al. 1993, 1999) for each species. The anthicids known from the islands of the Sicilian channel are 27, whereas 58 species are recorded with certainty from Sicily (excluding circumsicilian islands) (Angelini et al. 1995; Degiovanni 1999, 2000; Nardi & Mifsud, present work; Nardi, unpublished data) and about 95 species are known from Tunisia (D. Chandler, pers. comm., 2003). A total of 25 species is recorded from the Maltese Islands (25 Malta, 10 Gozo, 4 Manoel Island, 3 Comino, 1 Filfla), 9 from the Pelagic Islands (8 Lampedusa, 4 Linosa) and 8 from Pantelleria. The greatest species diversity was

Tab. 1 – Anthicidae of the islands of the Sicilian channel and of neighbouring lands with respective chorotypes. Abbreviations: A = Arnone & Nardi 1995; B = Bucciarelli 1980; C = Angelini et al. 1995; D = Degiovanni 1999; N = Normand 1939; S = Schembri 1991; T = Telnov 1998a; U = Uhmann 1992; ! = Nardi & Mifsud, present work; + = other literature records (cf. Arnone & Nardi 1995; Nardi & Mifsud, present work); chorotype codes as in table 2.

	SPECIES	SICILY	PANTELLERIA	GOZO	MALTA	MANOEL ISLAND	FILFLA	COMINO	LINOSA	LAMPEDUSA	TUNISIA	CHOROTYPES
1.	*Endomia tenuicollis tenuicollis*	C		!	+SU!						N	AFM
2.	*Anthicus crinitus*				!						N	SCO
3.	*Anthicus fenestratus*	C		S!	+U!			!			N	MED
4.	*Anthicus genei*	C							+	A	B	MED
5.	*Anthicus laeviceps*	C			S!				A	A	N	MED
6.	*Anthicus tristis tristis*	C	+A!	S!	+S!	+		!	+A	+A!	N	TUM
7.	*Hirticomus hispidus*	C	+	S!	+SUD!					+A	N	TEM
8.	*Hirticomus quadriguttatus*	C	+	S!	+SU!					+A	N	TUM
9.	*Omonadus bifasciatus*	C	+A		!				+		N	TEM
10.	*Omonadus floralis*	C		S	ST!						N	COS
11.	*Omonadus formicarius formicarius*	C		!	+S!	+!					N	COS
12.	*Cordicomus instabilis instabilis*	C		S!	+SUT!			!			N	MED
13.	*Cordicomus opaculus opaculus*				!	+!					N	NAF
14.	*Cyclodinus blandulus blandulus*	C			!							TUM
15.	*Cyclodinus coniceps* s.l.	C			!						N	MED
16.	*Cyclodinus constrictus* s.l.	C	A	!	+S!						N	MED
17.	*Cyclodinus croissandeaui croissandeaui*				!						N	AFM
18.	*Cyclodinus debilis*		+A!		!		+S				N	STS
19.	*Cyclodinus humilis*	C	+		+S							TUE
20.	*Cyclodinus larvipennis*	C			!						N	MED
21.	*Cyclodinus minutus minutus*	C	+A!	!	+ SU!	!				+A	N	MED
22.	*Stricticomus tobias*	C			S!							SCO
23.	*Stricticomus transversalis meridionalis*				!					AD	N	TUM
24.	*Leptaleus rodriguesi*	C			+						N	WME
25.	*Tenuicomus velox velox*	C			+S!							MED.ITAL
26.	*Microhoria chobauti*									A	N	WME
27.	*Aulacoderus sulcithorax melitensis*	!			+!							EME
	Total number of species	**21**	**8**	**10**	**25**	**4**	**1**	**3**	**4**	**8**	**22**	

found in Malta (25 species) and Gozo (10 species); this is in agreement with the principles of the theory of insular zoogeography (MacArthur & Wilson 1967). Pantelleria and Lampedusa have instead the same

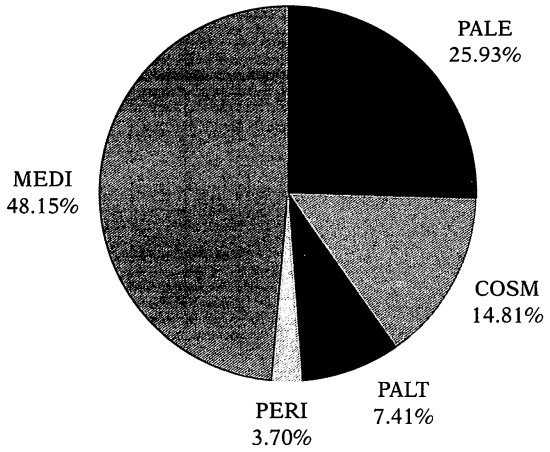


Fig. 2 – Percentages of major groups of chorotypes of Anthicidae species occurring on the islands of the Sicilian channel. Abbreviations: COSM = Cosmopolitan and Subcosmopolitan; MEDI = Mediterranean; PALE = widespread in the Palaearctic Region; PALT = widespread in the Paleotropics; PERI = peripheral in the Western Palaearctic Region.

number of species (8), in spite of the larger surface area of Pantelleria (83 Km^2 and 20.2 Km^2 respectively), its closer proximity to the coasts of Sicily and Tunisia and its greater environmental complexity. In part, this situation could be explained by limited field investigations. This (in combination with particular environmental conditions) could also explain the few species recorded from Linosa and from the other islands around Malta.

As expected (fig. 2), the Mediterranean component in the Anthicidae fauna of the islands of the Sicilian channel, is the highest (48.15%). Almost 26% is represented by species having widespread distributions in the Palaearctic Region, whereas the Cosmopolitan and Subcosmopolitan component amounts to 14.81%, the Afrotropico-Mediterranean to 7.41% and the Saharo-Turano-Sindian to 3.70%. From a zoogeographical point of view (tabs 1-2), the most interesting species occurring on the islands of the Sicilian channel are the following: *Anthicus crinitus* of probable North African origin; *Cordicomus opaculus opaculus* and *Stricticomus transversalis meridionalis* both on the north-eastern extreme of their distributions; *Cyclodinus debilis* a Saharo-Turano-Sindian species that in Europe (excluding Caucasia) is known only from some of

Tab. 2 – Chorotypes of the Anthicidae of the Islands of the Sicilian channel, their distribution and percentages.

CHOROTYPES	CODE	% (SPECIES)	PANTELLERIA	MALTESE ISL.	PELAGIC ISL.
COSMOPOLITAN and SUBCOSMOPOLITAN	**COSM**	**14.81% (4)**		**16% (4)**	
Cosmopolitan	COS	7.40% (2)		8% (2)	
Subcosmopolitam	SCO	7.40% (2)		8% (2)	
PALAEARCTIC	**PALE**	**25.92% (7)**	**62.5% (5)**	**28% (8)**	**55.55% (5)**
Turano-Europeo-Mediterranean	TEM	7.40% (2)	25% (2)	8% (2)	22.22% (2)
Turano-European	TUE	7.40% (2)	12.5% (1)	4% (1)	
Turano-Mediterranean	TUM	14.81% (4)	25% (2)	16% (4)	33.33% (3)
MEDITERRANEAN	**MEDI**	**48.14% (13)**	**25% (2)**	**44% (11)**	**44.44% (4)**
Mediterranean	MED	29.62% (8)		32% (8)	33.33% (3)
W-Mediterranean	WME	7.40% (2)		4% (1)	11.11% (1)
E-Mediterranean	EME	3.70% (1)		4% (1)	
Italian endemic	ITAL	3.70% (1)			
N-African	NAF	3.70% (1)		4% (1)	
PALEOTROPIC	**PALT**	**7.40% (2)**		**8% (2)**	
Afrotropico-Mediterranean	AFM	7.40% (2)		8% (2)	
PERIPHERAL IN THE W-PALAEARCTIC REG.	**PERI**	**3.70% (1)**	**12.5% (1)**	**4% (1)**	
Saharo-Turano-Sindian	STS	3.70% (1)	12.5% (1)	4% (1)	
Total number of species		**27**	**8**	**25**	**9**

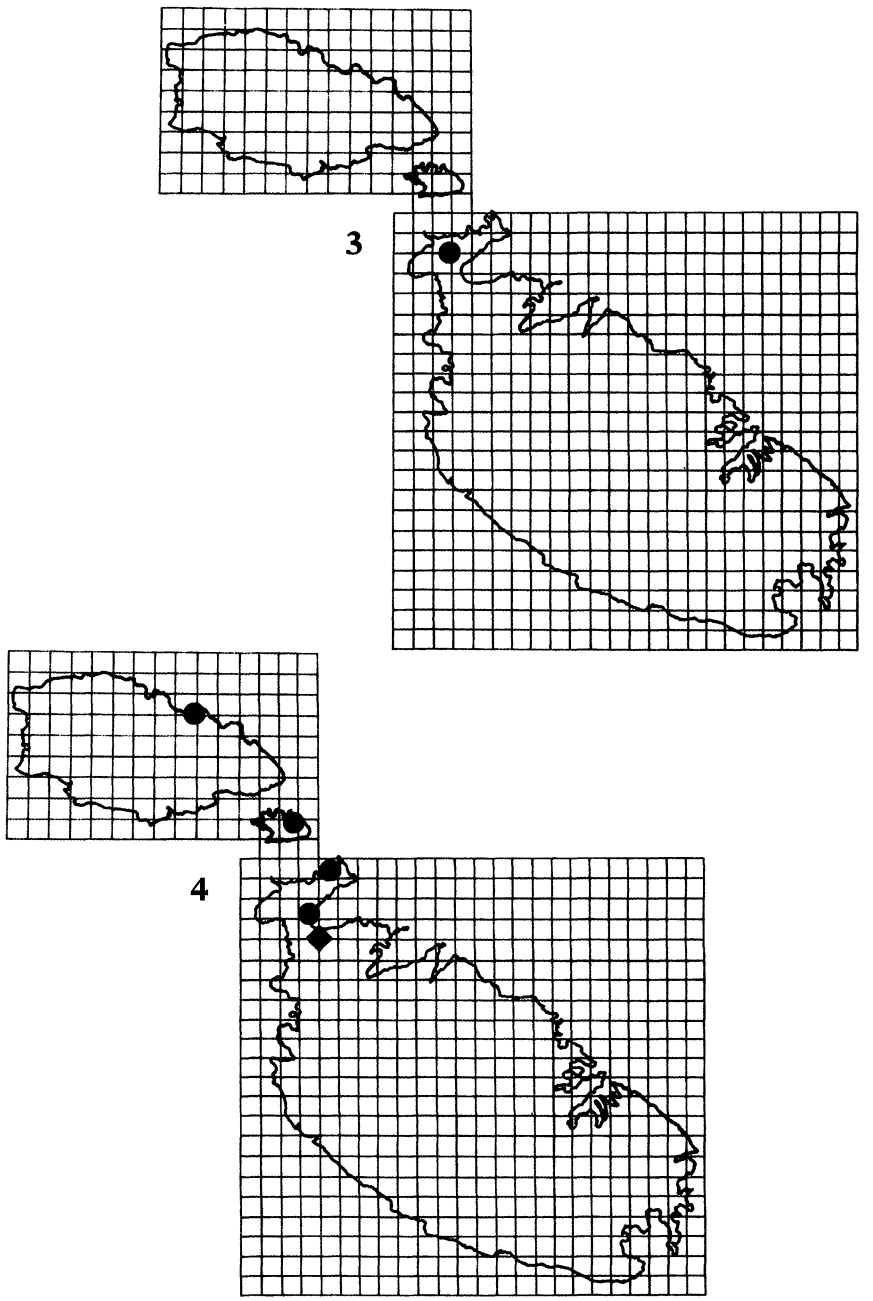
the above islands; *C. humilis* on the south-western extreme of its distribution; *Tenuicomus velox velox*, endemic to southern Italy and Malta; *Microhoria chobauti* (Pic, 1892) which has been recorded only from Morocco, Tunisia, Lampedusa (cf. Arnone & Nardi 1995) and Sierra Nevada in southern Spain (Mateu 1954) ([11]) and *Aulacoderus sulcithorax melitensis* endemic to Malta and Sicily.

The species which are recorded (tab. 1) from at least four islands of the Sicilian channel are only four: *Anthicus tristis tristis*, *Cyclodinus minutus minutus*, *Hirticomus hispidus* and *H. quadriguttatus*. All are

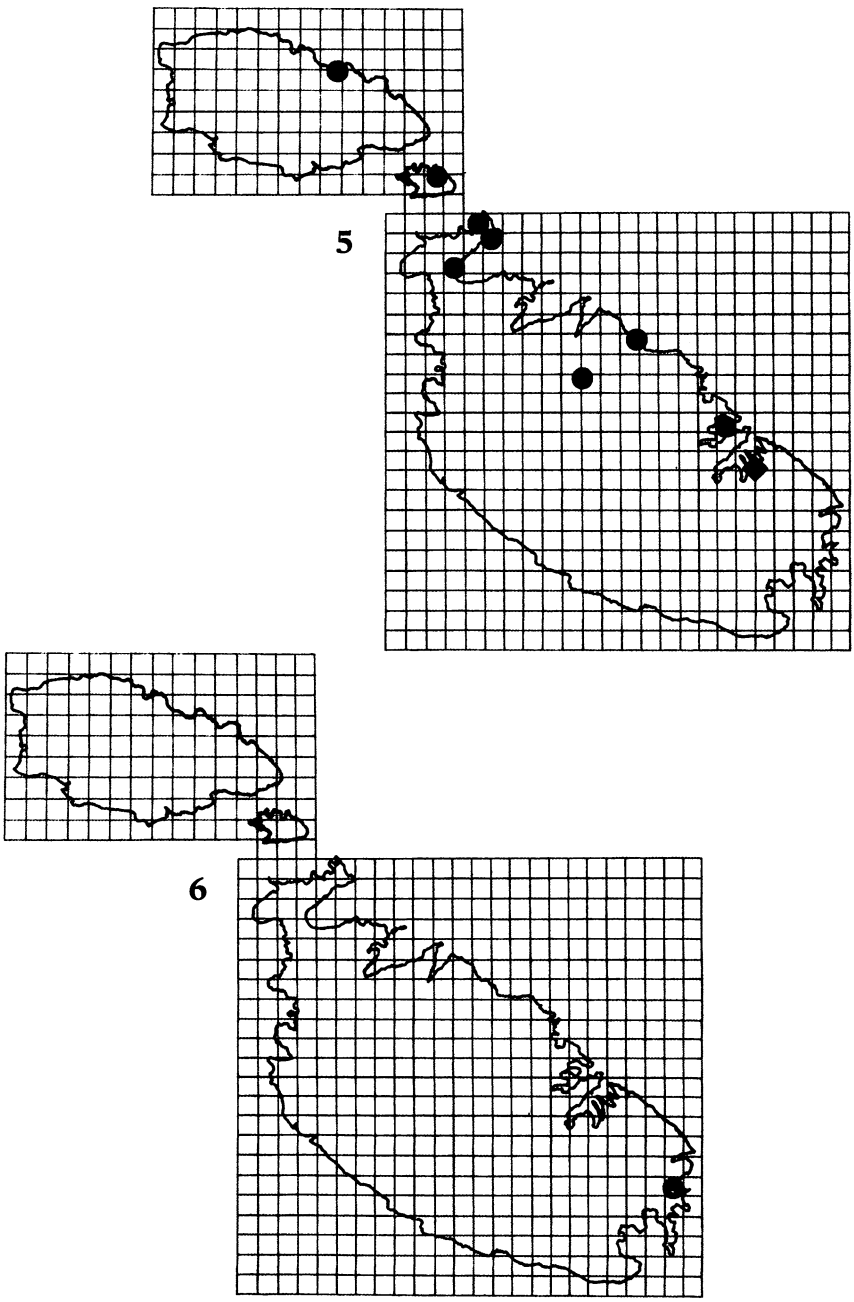
([11]) This record is reliable because it seems to be based on material identified by Bonadona (Mateu 1954: 99, footnote). *M. bleusei* (Pic, 1893) was described from the same mountain chain, and was listed, without any explanation, as *M. chobauti* var. *bleusei* by Uhmann (1992), which most probably represents a good species (cf. Arnone & Nardi 1995).

known also from Sicily and Tunisia, and from a number of small Italian islands (Fancello 1983; Nardi, unpublished data). The absence of *Anthelephila pedestris* (Rossi, 1790) and of some species of the genus *Notoxus* Geoffroy, 1762 in these islands is worth mentioning because they are relatively common on the facing coasts of Sicily and Tunisia. This absence is probably real and not due to lack of field investigations since this was also observed in many small Italian islands (Fancello 1983; Nardi, unpublished data).

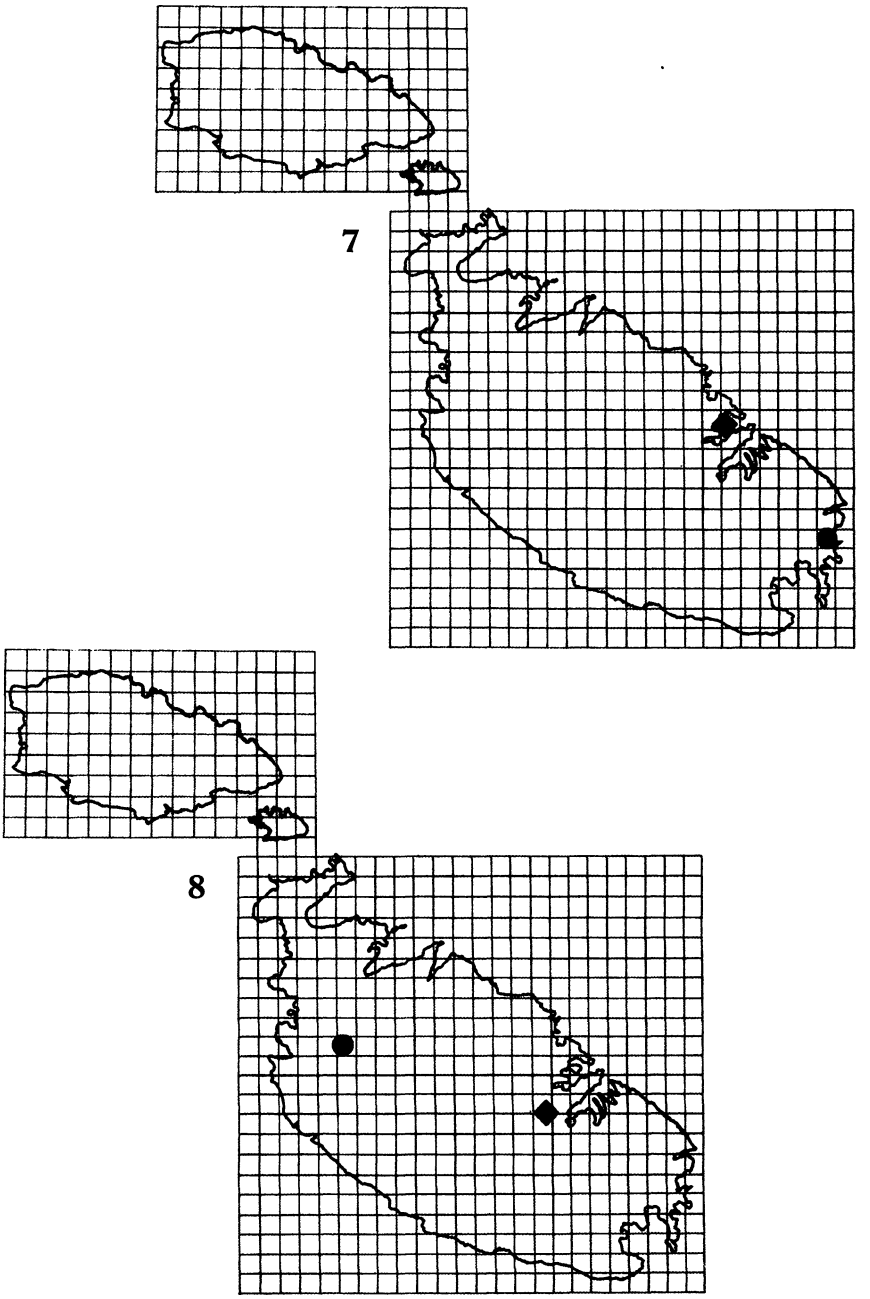
At present, the Maltese anthicid fauna comprises 25 species, of which 7 are recorded as new in this study. Two species (*Cordicomus opaculus opaculus* and *Aulacoderus sulcithorax melitensis*) recorded only at the beginning of last century were found again, whereas *Leptaleus rodriguesi* was not. Anthicid species that are directly associated with sand dunes or saltmarshes (e.g. *Anthicus fenestratus*, *A. tristis tristis*, *Cyclodinus coniceps* s.l., *C. constrictus* s.l., *C. larvipennis* and *C. minutus minutus*) are locally threatened. The first habitat type constitutes only 2.4% of the Maltese islands' coastline. Such observations were also highlighted for Tenebrionidae having a similar ecological requirement (Mifsud 1999). Similar considerations should be taken for anthicids associated with saltmarshes. All anthicids known from Pantelleria are also recorded from the Maltese Islands; however, two species collected in the Pelagic Islands, *Anthicus genei* and *Microhoria chobauti*, were not found in the Maltese Islands. *A. genei* may eventually be found in Malta, but, if this will be the case, it would be very localised due to its particular ecological requirements, well preserved sandy beaches (cf. Arnone & Nardi 1995), a very rare habitat in the Maltese Islands (cf. Mifsud 1999). The other species is of North African origin and its presence in Lampedusa is probably attributed to ancient terrestrial connections. In fact, the final isolation of Lampedusa from Africa dates back to only 18,000 years ago (cf. Massa 1995).



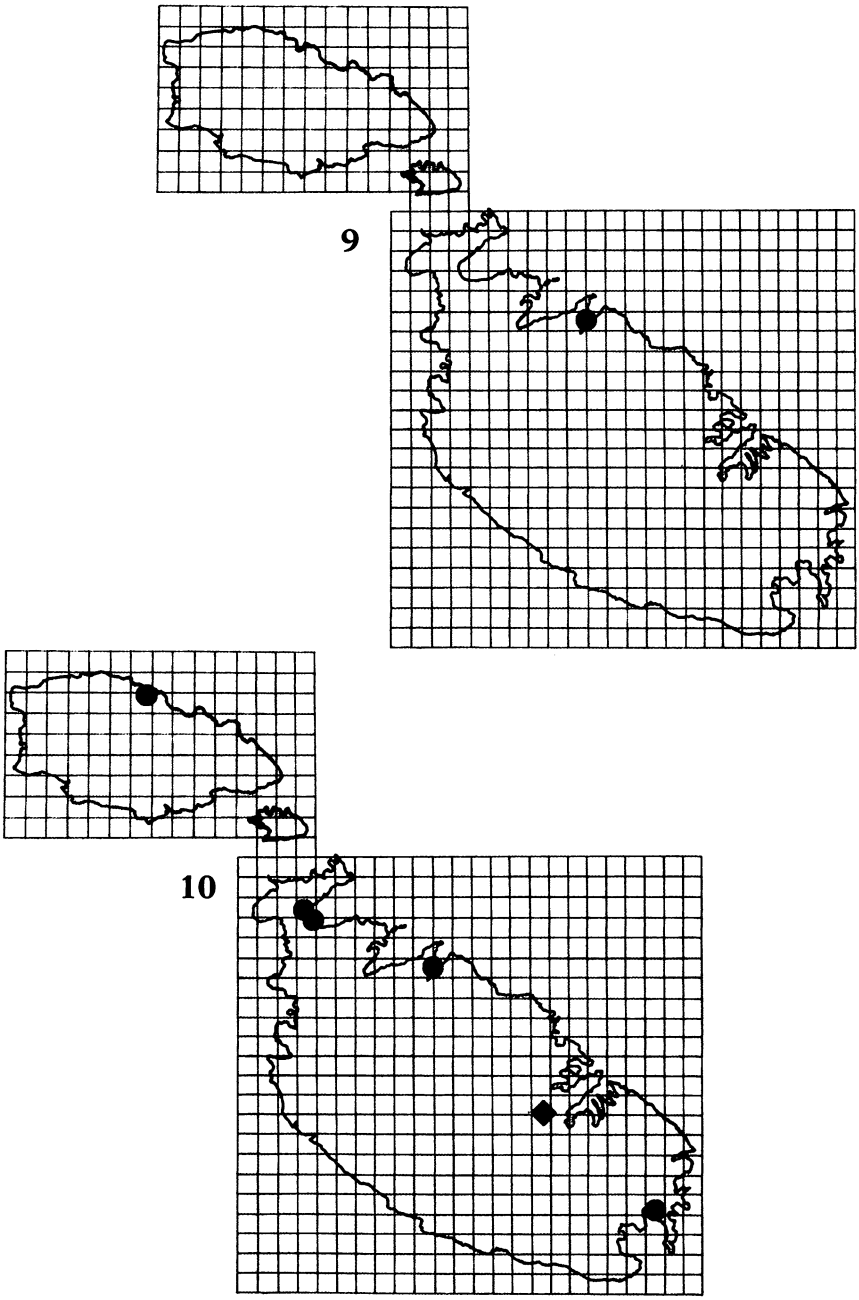
Figs 3-4 – Distribution of *Anthicus crinitus* (3) and *A. fenestratus* (4).
● material collected after 1978; ◆ material collected prior to 1908.



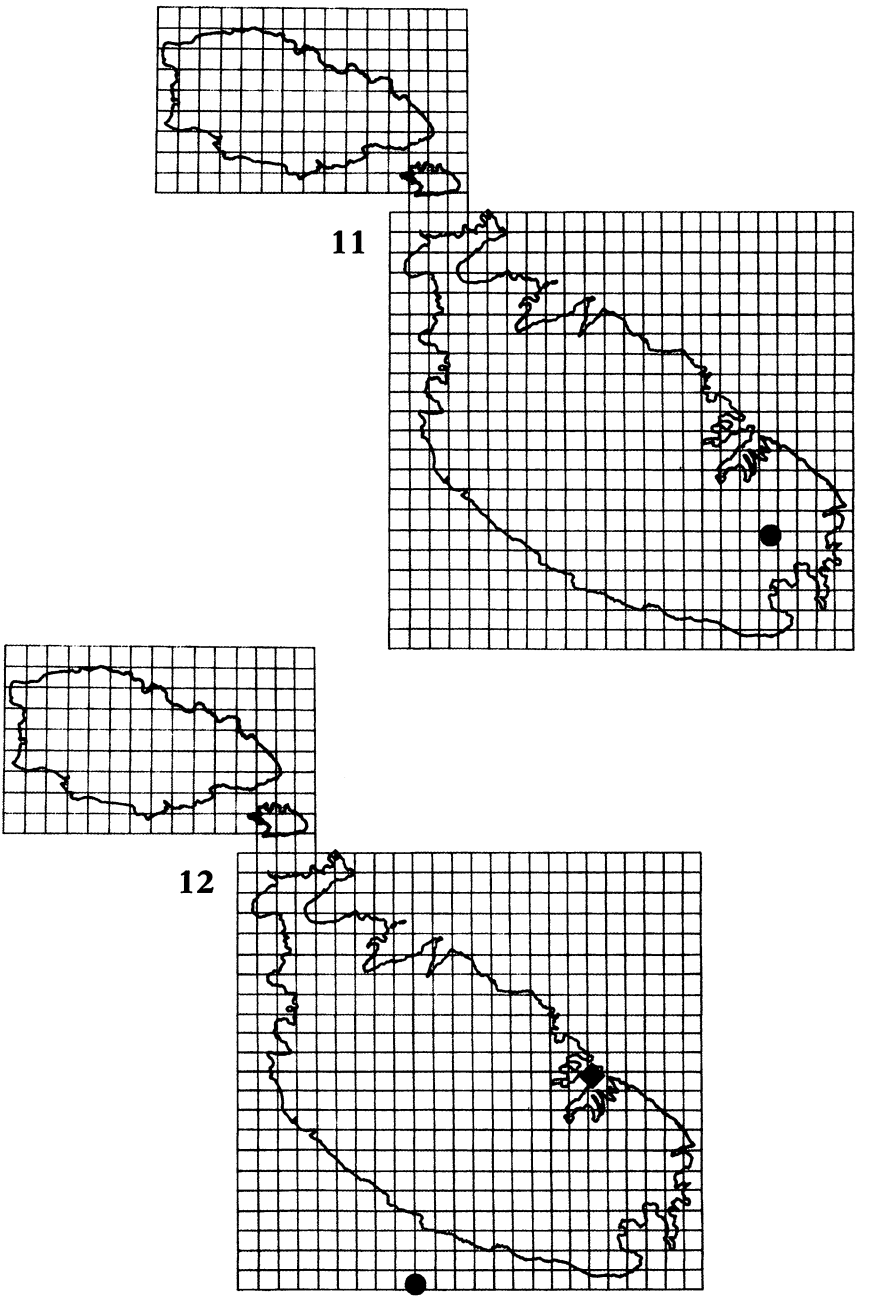
Figs 5-6 – Distribution of *Anthicus tristis tristis* (5) and *Omonadus bifasciatus* (6).
● material collected after 1965; ◆ material collected prior to 1917.



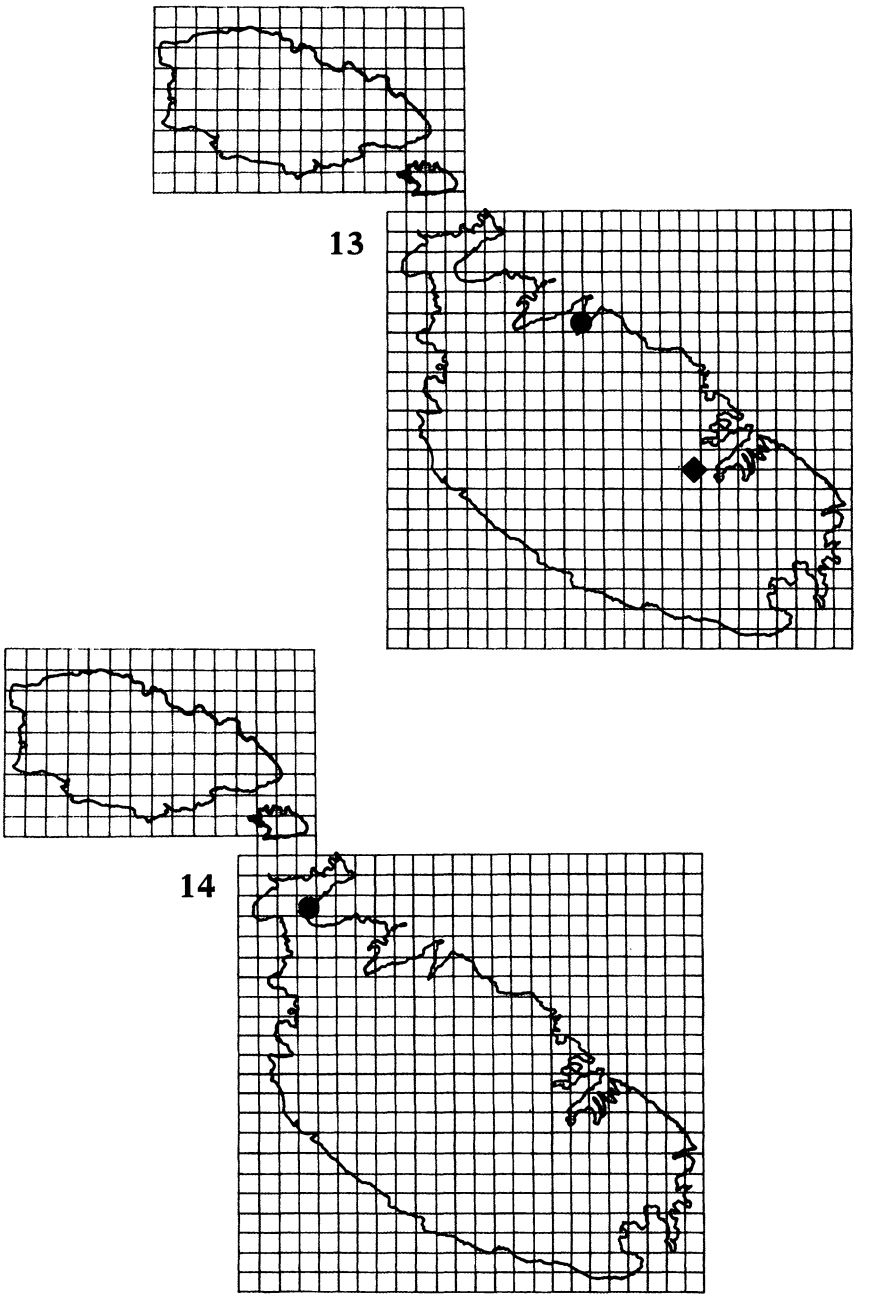
Figs 7-8 – Distribution of *Cordicomus opaculus opaculus* (7) and *Cyclodinus blandulus blandulus* (8). ● material collected after 1989; ◆ material collected prior to 1908.



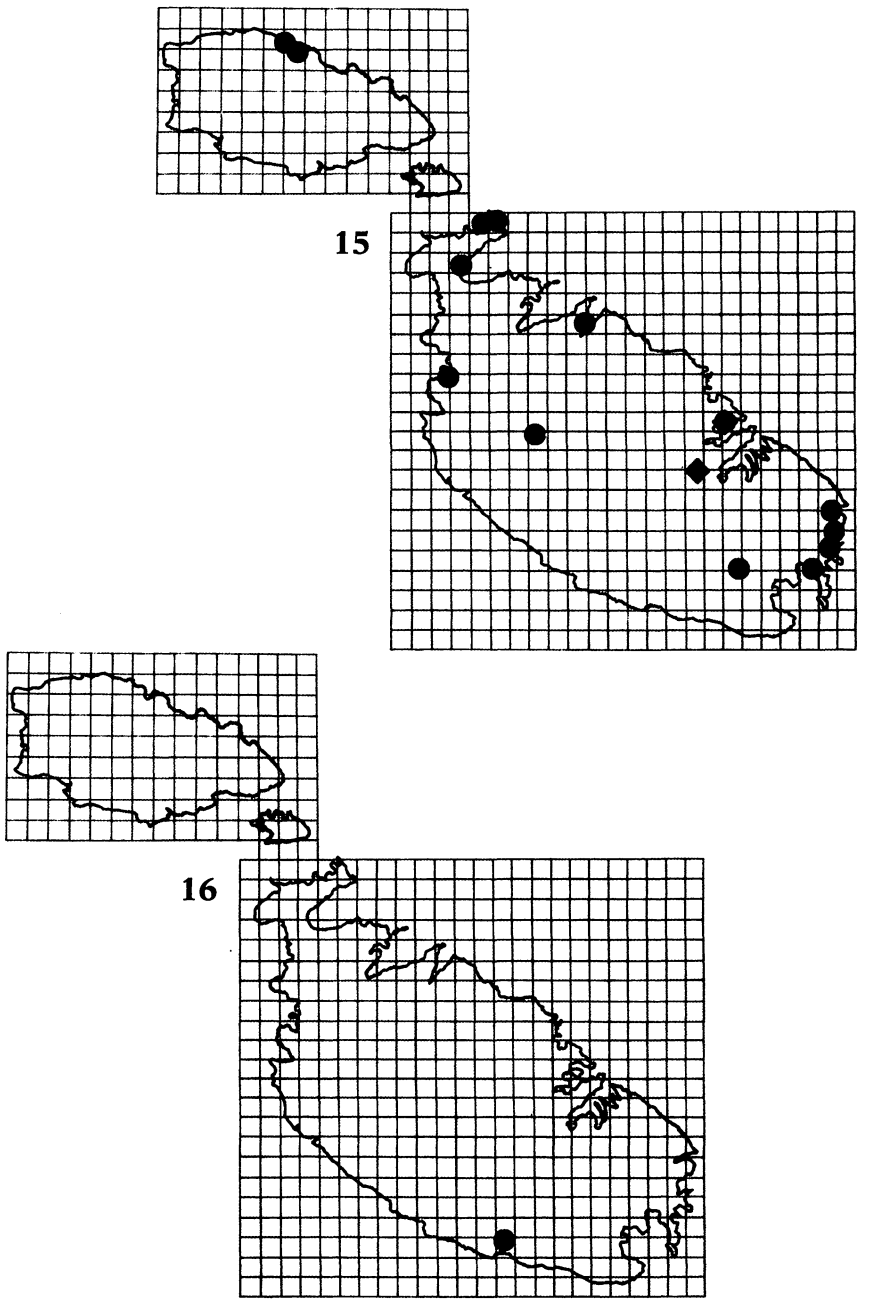
Figs 9-10 – Distribution of *Cyclodinus coniceps* (s.l.) (9) and *C. constrictus* (s.l.) (10).
● material collected after 1975; ◆ material collected prior to 1908.



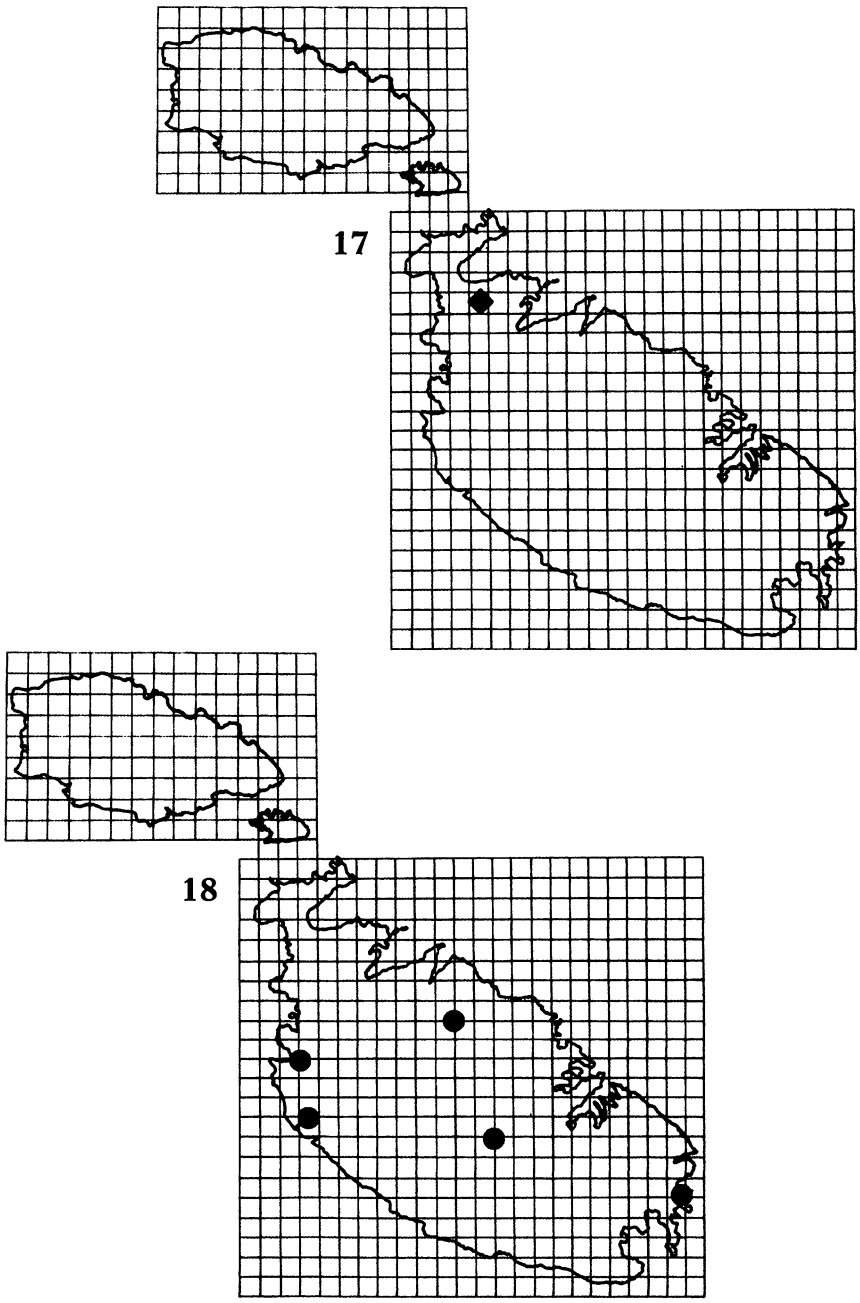
Figs 11-12 – Distribution of *Cyclodinus croissandeaui croissandeaui* (11) and *C. debilis* (12). ● material collected after 1985; ◆ material collected in 1934.



Figs 13-14 – Distribution of *Cyclodinus humilis* (13) and *C. larvipennis* (14).
● material collected after 1977; ◆ material collected prior to 1908.



Figs 15-16 – Distribution of *Cyclodinus minutus minutus* (15) and *Stricticomus transversalis meridionalis* (16). ● material collected after 1974; ◆ material collected prior to 1908.



Figs 17-18 – Distribution of *Leptaleus rodriguesi* (17) and *Tenuicomus velox velox* (18).
● material collected after 1977; ◆ material collected prior to 1908.

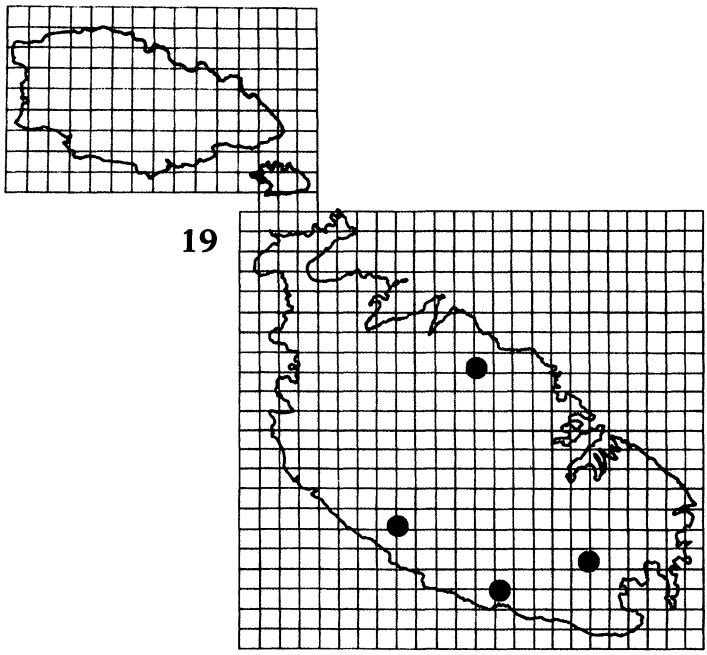


Fig. 19 – Distribution of *Aulacoderus sulcithorax melitensis*. ● material collected after 1988.

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RIASSUNTO

Rassegna degli Anthicidae delle Isole Maltesi (Mediterraneo centrale) (Coleoptera).

In base allo studio di circa 900 esemplari raccolti recentemente e nei primi anni del Novecento sono aggiornate le conoscenze sui Coleotteri Anticidi delle Isole Maltesi. *Anthicus crinitus* La Ferté-Sénectère, 1849, *Cyclodinus blandulus blandulus* (Baudi, 1877), *C. coniceps* (Marseul, 1879) s.l., *C. croissandeaui croissandeaui* (Pic, 1892), e *C. larvipennis* (Marseul, 1879) raccolte a Malta sono nuove per le Isole del Canale di Sicilia; *Omonadus bifasciatus* (Rossi, 1792) e *Stricticomus transversalis meridionalis* (Pic, 1896) raccolte a Malta sono nuove per la fauna maltese. Viene confermata la presenza a Malta di *Cordicomus opaculus opaculus* (Pic, 1892) e di *Aulacoderus sulcithorax melitensis* (Pic, 1903) sinora basata solo su reperti dell'inizio del secolo scorso. Quest'ultima specie è inoltre nuova per la fauna italiana (Sicilia). *Endomia tenuicollis tenuicollis* (Rossi, 1792), *Omonadus formicarius formicarius* (Goeze, 1777), *Cyclodinus constrictus* (Curtis, 1838) s.l. sono segnalate per la prima volta dell'Isola di Gozo; *C. minutus minutus* (La Ferté-Sénectère, 1842) per la prima volta di Gozo e per Manoel Island; *C. debilis* (La Ferté-Sénectère, 1849) per la prima volta di Malta; *Anthicus fenestratus* Schmidt, 1842, *Anthicus tristis tristis* Schmidt, 1842 e *Cordicomus instabilis instabilis* (Schmidt, 1842) per la prima volta dell'Isola di Comino. Sono inoltre segnalati alcuni reperti per le isole di Pantelleria e Lampedusa (Italia). Viene fornita una tabella che sintetizza la distribuzione delle 27 specie di Anticidi delle Isole del Canale di Sicilia (Pantelleria, Arcipelago Maltese e Isole Pelagie) e un'analisi zoogeografica.

Anthicus larvipennis ssp. *mongolensis* Medvedev, 1974 della Mongolia è elevato a livello di specie e formalmente trasferito nel genere *Cyclodinus* Mulsant & Rey, 1866: *C. mongolensis* (Medvedev, 1974) (**nuovo rango**). Infine viene evidenziata una omonimia primaria: *Anthicus robustissimus* var. *pallidior* Pic, 1948 nec *Anthicus* (*Aulacoderus*) *sulcithorax* var. *pallidior* Pic, 1941; quest'ultimo in base al vigente Codice di Nomenclatura Zoologica è considerato come sottospecie.

SUMMARY

Based on the study of about 900 specimens collected recently and at the beginning of the last century, information on the Anthicidae fauna of the Maltese Islands is updated. *Anthicus crinitus* La Ferté-Sénectère, 1849, *Cyclodinus blandulus blandulus* (Baudi, 1877), *C. coniceps* (Marseul, 1879) s.l., *C. croissandeaui croissandeaui* (Pic, 1892) and *C. larvipennis* (Marseul, 1879) all collected in Malta are new for the fauna of the islands of the Sicilian channel, whereas *Omonadus bifasciatus* (Rossi, 1792) and *Stricticomus transversalis meridionalis* (Pic, 1896) collected in Malta are new for the Maltese fauna. The presence of *Cordicomus opaculus opaculus* (Pic, 1892) and of *Aulacoderus sulcithorax melitensis* (Pic, 1903) in Malta is confirmed. Both records were based only on specimens collected at the beginning of last century. Moreover, *A. sulcithorax melitensis* is new to Italy. *Endomia tenuicollis tenuicollis* (Rossi, 1792), *Omonadus formicarius formicarius* (Goeze, 1777) and *Cyclodinus constrictus* (Curtis, 1838) s.l. are recorded for the first time for the Island of Gozo; *C. minutus minutus* (La Ferté-Sénectère, 1842) is recorded for the first time for the Island of Gozo and from Manoel Island; *C. debilis* (La Ferté-Sénectère, 1849) is new to the Island of Malta, whereas *Anthicus fenestratus* Schmidt, 1842, *Anthicus tristis tristis* Schmidt, 1842 and *Cordicomus istanbilis instabilis* (Schmidt, 1842) are new to the Island of Comino. Some new records of Anthicidae from Pantelleria and Lampedusa (Italy) are included. A zoogeographical analysis and an updated checklist of the 27 species of Anthicidae currently known from the islands of the Sicilian channel (Pantelleria, Maltese and Pelagic Islands) are provided.

Anthicus larvipennis ssp. *mongolensis* Medvedev, 1974 from Mongolia is raised to species level and formally transferred to the genus *Cyclodinus* Mulsant & Rey, 1866: *C. mongolensis* (Medvedev, 1974) (**new rank**). Finally, a primary homonomy is indicated for *Anthicus robustissimus* var. *pallidior* Pic, 1948 not *Anthicus* (*Aulacoderus*) *sulcithorax* var. *pallidior* Pic, 1941. The second one, according to the Code, is placed as a subspecies.

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([12]) The reprints of this paper have a different cover title and pagination: Coleotteri Eteromeri esistenti nelle collezioni del R. Museo Zoologico di Torino ed in altre italiane esaminati da Flaminio Baudi. Estratto dagli Atti della Reale Accademia delle Scienze di Torino, 12: 1-163. Most authors (e.g. Pic 1911) wrongly referred to the above mentioned reference, which does not have priority having been published in August 1877, whereas the paper was published on 24th July 1877.

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