

JEWEL BEETLES (COLEOPTERA, BUPRESTIDAE) FROM THE MALTESE ISLANDS (CENTRAL MEDITERRANEAN)

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ABSTRACT

The jewel beetle fauna of the Maltese Islands is reviewed, based on literature records and where possible examination of earlier citations and of recently collected material. A total of seventeen species have been recorded of which seven species are new records for the Maltese Islands. These are *Acmaeoderella (Carininota) flavofasciata flavofasciata* (Piller & Mitterparcher, 1783), *Acmaeoderella (Euacmaeoderella) lanuginosa lanuginosa* (Gyllenhal, 1870), *Anthaxia (Anthaxia) thalassophila thalassophila* Abeille de Perrin, 1900, *Agrilus (Agrilus) derasofasciatus* Lacordaire, 1835, *Agrilus (Agrilus) roscidus* Kiesenwetter, 1857, *Aphanisticus pygmaeus* Lucas, 1849 and *Trachys corusca* (Ponza, 1805), two of which were previously based on misidentifications.

INTRODUCTION

The Buprestidae is a very large group of beetles comprising approximately 400 genera and over 15,000 described species. About 1,500 species are known from the Palaearctic Region and there are about 200 European species. Most species have a very characteristic form, being rigid and heavily sclerotized, often with a brilliant metallic colouration, hence their common name of jewel beetles or metallic wood-boring beetles.

Larvae of jewel beetles develop in living, dying or dead plants, under the bark or in the wood of trees and shrubs, in twigs or stems of herbaceous plants, in roots and basal parts of trunks of trees, shrubs or perennial herbs, or as leaf miners. Due to the dorso-ventrally flattened larvae, tunnels are always oval in cross section. Larvae usually pupate under the bark, less frequently in the sapwood of their host plants, leaf-miners pupate in a small pupal chambre in the leaf parenchyme. The food of adult buprestids is not usually related to the larval host plants. Many adults are flower visitors feeding on pollen, while other species feed on leaves, exceptionally on bark of young twigs. In spite of the large size of the family and their plant feeding habits, relatively few species are of economic importance. In general, buprestids tend to attack plants which are already damaged, injured, or physiologically stressed. In the Mediterranean and warm temperate zones of the Palaearctic, the larva of *Capnodis tenebrionis* (Linnaeus, 1761) can be a serious pest of stone fruit trees, where heavy infestations can kill the host plant. Some species, namely from the genus *Agrilus* Curtis, 1825, can serve as transmitters of tracheomycoses of oaks, elms and fruit trees.

Although, several attempts have been made in recent years to reassess the higher classification of buprestids, this is still in a state of flux. The number of subfamilies recognized vary from five to thirteen depending on the author, whereas Holyňski (1988; 1993) recognized only four main buprestid lineages.

HISTORICAL REVIEW

The first mention of buprestid beetles from the Maltese Islands was by Gulia, who in 1857 delivered a series of lectures on the insect fauna of the Maltese Islands. These lectures were published a year later (Gulia, 1858). Gulia (1858) recorded three species of buprestids, *Buprestis tenebricosa* Olivier, 1790, *B. discoidea* Fabricius, 1787 and *B. viridis* Linnaeus, 1758 of which only *Acmaeoderella discoidea* (Fabricius, 1787) forms part of the Maltese buprestid fauna. Due to the fact that most identifications cited by Gulia (1858) are now considered to be unreliable (e.g. Mifsud, 2000) the mentioned buprestid records will not be considered further. Besides, in this same work, Gulia mentioned three other buprestid species collected from the Maltese Islands. These buprestids were (fortunately) undetermined and the very brief descriptions furnished do not provide sufficient information to indicate which species Gulia was referring to. In 1907, Cameron & Caruana Gatto published an important work on the Coleoptera of the Maltese Islands, which is still the only faunistic work dealing with all beetle groups. In this work (Cameron & Caruana Gatto, 1907), only four species of buprestids were recorded. In 1916 Andres, published a list of Lepidoptera, Hemiptera and Coleoptera he had collected from these islands during the almost two year period he spent in Malta as a prisoner of war. In this work (Andres,

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1916), only one species of buprestid was included. Saliba (1963) published a list of insect pests of crop plants in the Maltese Islands in which he mentioned *Capnodis tenebrionis* (Linnaeus, 1761) as a very common pest on apricot and plum trees, and less common on almond, apple and pear trees. Levey (1985) revised the *Anthaxia umbellatarum* species group describing *Anthaxia scylla* Levey, 1985 from material collected in Italy and Malta. More recently, Cilia (1989), contributed an annotated list of endemic, rare, threatened and/or scientifically interesting beetles in the Red Data Book for the Maltese Islands. In this work, Cilia included information on six species of buprestid beetles, four of which were previously unrecorded. Curletti (1994), in his buprestid catalogue for Italy, included nine species from the Maltese Islands, four of which were new records.

MATERIAL AND METHODS

Material was examined or is cited from the following institutions and private collections:

BMNH The Natural History Museum, London, UK
 CEM private collection - Ebejer, Malta
 CMM private collection - Mifsud, Malta
 CMDM private collection - Magro, Malta
 NHMM Natural History Museum, Mdina, Malta
 NMGW National Museums & Galleries of Wales, Cardiff, UK
 NMPC National Museum, Prague, Czech Republic

The present work was undertaken to provide an overview of the buprestid fauna of the Maltese Islands. Where possible we have undertaken the examination of previously cited material. Additional collections were carried out throughout the Maltese Islands. The classification and species sequence follows the checklist of the Italian fauna (Gobbi & Platia, 1995). For each species earlier citations are provided, excluding those of Luigioni (1929) which were entirely based on the records of Cameron & Caruana Gatto (1907), a list of material examined, local and global distribution, host plants and additional notes where relevant.

CATALOGUE OF MALTESE BUPRESTIDAE

Acmaeoderella (Acmaeoderella) discoidea (Fabricius, 1787)
Acmaeoderella (Carininota) flavofasciata flavofasciata (Piller & Mitterpacher, 1783)
Acmaeoderella (Euacmaeoderella) lanuginosa lanuginosa (Gyllenhal, 1817)
Ptosima flavoguttata flavoguttata (Illiger, 1803)
Capnodis tenebrionis (Linnaeus, 1761)
Buprestis (Buprestis) novemmaculata novemmaculata Linnaeus, 1767
Melanophila cuspidata (Klug, 1829)
Anthaxia (Haplanthaxia) aprutiana Gerini, 1955
Anthaxia (Haplanthaxia) millefolii polychloros Abeille de Perrin, 1894
Anthaxia (Anthaxia) lucens lucens Küster, 1852
Anthaxia (Anthaxia) manca (Linnaeus, 1767)

Anthaxia (Anthaxia) thalassophila thalassophila Abeille de Perrin, 1900
Chrysobothris (Chrysobothris) solieri Gory & Laporte, 1839
Agrilus (Agrilus) derasofasciatus Lacordaire, 1835
Agrilus (Agrilus) roscidus Kiesenwetter, 1857
Aphanisticus pygmaeus Lucas, 1849
Trachys coruscus Ponza, 1805

ANNOTATED LIST OF SPECIES

Acmaeoderella (Acmaeoderella) discoidea (Fabricius, 1787)
Acmaeodera discoidea (Fabricius, 1787); Cameron & Caruana Gatto, 1907: 397.
Acmaeoderella discoidea (Fabricius, 1787); Curletti, 1994: 33-34.

Material examined - Malta: no additional data, 11 exs., G. C. Champion, BM1927-408 (BMNH); Gharghur, 7. iv.1962, 1 ex., De Lucca (NHMM); Mosta, 4. iv.1965, 2 exs., K. M. Guichard, BM 1965-273 (BMNH); Wied Sewda, 26. iv.1975, 1 ex., leg. J. Cilia (CMM); Tal-Munxar (St. Thomas Bay), 9. iv.1989, 2 exs., leg. D. Mifsud (CMM); towards tal-Munxar (St. Thomas Bay), 28. iv.2002, 2 exs., on flowers of *Pallenis spinosa*, leg. D. Mifsud (CMM).

Notes - Besides the localities mentioned above, the species has also been recorded from 'Bahar' (possibly referring to Bahrija), Buskett, 'Copay' (?) and Wied il-Ghasel (Curletti, 1994).

Host plants - The species is known to develop in *Cardus* sp. and *Cirsium eriophorum*. Adults are commonly found on flowers.

Distribution - Syria, Libya, Egypt, Italy (including Sardinia and Sicily), Malta, France (only in Corsica), Spain, Portugal, Tunisia, Algeria and Morocco.

Acmaeoderella (Carininota) flavofasciata flavofasciata (Piller & Mitterpacher, 1783)

Material examined - Malta: Floriana, 3. vii.1978, 1 ex., leg. J. Cilia (CMM).

Notes - New record for the Maltese Islands.

Host plants - The species develops in dead wood of *Castanea sativa*, *Fagus sylvatica*, *Juniperus communis*, *Prunus avium*, *Quercus ilex*, *Quercus pubescens*, *Quercus robur* and *Quercus suber*. Adults are usually found on flowers or on the mentioned host plants.

Distribution - South Russia; Ukraine, Armenia, Azerbaijan, Georgia, Moldova, Czech Republic, Slovakia, Bulgaria, Romania, Slovenia, Bosnia, Croatia, Turkey, Hungary, Austria, Yugoslavia, Greece, Germany, Spain, Switzerland, France (including Corsica), Italy (including Sardinia and Sicily) and Malta.

***Acmaeoderella (Euacmaeoderella) lanuginosa lanuginosa* (Gyllenhal, 1817)**

Material examined - Malta: Ghar Lapsi, 20.vi.1993, 1 ex., on flowers of *Cynara* sp., leg. D. Mifsud (CMM).

Notes - New record for the Maltese Islands. The subspecies *reducta* Schaefer occurs only in Corsica and Sardinia.

Host plants - The species is known to develop in *Cynara* sp., *Euphorbia beaumeriana*, *Ferula communis*, *Thapsia garganica* and *Thapsia villosa*. Adults are commonly found on flowers.

Distribution - Israel, Syria, Greece, Italy (including Sicily), Malta, Spain, Tunisia, Algeria and Morocco.

***Ptosima flavoguttata flavoguttata* (Illiger, 1803)**
Ptosima undecimmaculata (Herbst, 1784); Cilia, 1989: 116.

Material examined - Malta: Bingemma, ix.1981, 1 ex., leg. J. Cilia (CMM).

Notes - The correct identity Cilia's record (Cilia, 1989), is here confirmed.

Host plants - The species is known to develop in trunks and thick branches of *Ceratonia siliqua*, *Crataegus oxyacantha*, *Malus domestica*, *Prunus armeniaca*, *Prunus avium*, *Prunus domestica*, *Prunus dulcis*, *Prunus mahaleb*, *Prunus persica*, *Prunus spinosa*, *Prunus vulgaris* and *Pyrus communis*.

Distribution - Southern Russia, Iran, Syria, Turkey, Greece, Albania, Romania, Moldova, Bulgaria, Yugoslavia, Bosnia, Croatia, Slovenia, Czech Republic, Slovakia, Hungary, Germany, Switzerland, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Portugal, Egypt, Algeria and Morocco.

***Capnodis tenebrionis* (Linnaeus, 1761)**
Capnodis tenebrionis (Linnaeus, 1761); Cameron & Caruana Gatto, 1907: 397; Saliba, 1963: 12; Cilia, 1989: 116; Curletti, 1994: 55-56.

Material examined - Malta: Zejtun, 1.x.1990, 1 ex., leg. D. Mifsud (CMM); Rabat, 9.iv.1995, 2 exs., on stone-fruit trees, leg. D. Mifsud (CMM); Dingli, 5.i.1998, 1 ex., leg. D. Mifsud (CMM); Rabat, 23.x.2001, 1 ex., leg. P. M. Sammut (NHMM); St. Julians, 22.vii.1990, 1 ex., leg. A. Micallef (CMM); Ghajn Rihana, 26.ix.2002, 1 ex., leg. D. Mifsud (CMM).

Notes - Cameron & Caruana Gatto (1907) state that this species is rare in the Maltese Islands giving only Girgenti as locality where found. Saliba (1963) indicates that the species is a very common pest on apricot and plum trees and less common on almond, apple and pear trees. In the

Red Data Book for the Maltese Islands, Cilia (1989) assigned the status of this species as locally vulnerable, stating "Sometimes found on fruit trees but never common; persecuted because mistakenly considered a pest". Curletti (1994) recorded the species from Buskett. At present, the status of this species locally can be better defined as an infrequent pest of stone-fruit trees.

Host plants - The species is known to develop in roots and the basal parts of trunks of *Cotoneaster ramiflora*, *Cotoneaster* sp., *Crataegus monogyna*, *Crataegus oxyacantha*, *Cydonia oblonga*, *Malus domestica*, *Mespilus germanica*, *Prunus armeniaca*, *Prunus avium*, *Prunus cerasus*, *Prunus dulcis*, *Prunus domestica*, *Prunus mahaleb*, *Prunus mariana*, *Prunus padus*, *Prunus persica*, *Prunus spinosa* and *Pyrus communis*. Adults are commonly found on the mentioned host plants.

Distribution - Russia, Armenia, Azerbaijan, Georgia, Turkmenistan, Iran, Iraq, Israel, Lebanon, Jordania, Syria, Turkey, Cyprus, Greece, Albania, Yugoslavia, Croatia, Bosnia, Slovenia, Moldova, Bulgaria, Romania, Hungary, Czech Republic, Slovakia, Ukraine, Austria, Switzerland, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Portugal, Morocco, Algeria and Tunisia.

***Buprestis (Buprestis) novemmaculata novemmaculata* Linnaeus, 1767**
Buprestis novemmaculata Linnaeus, 1767; Curletti, 1994: 79-80.

Material examined - None.

Notes - This species was recorded by Curletti (1994) from Malta (Buskett).

Host plants - The species is known to develop in wood of dead or dying trunks of the following trees: *Larix decidua*, *Picea abies*, *Pinus halepensis*, *Pinus laricio*, *Pinus leucodermis*, *Pinus nigra*, *Pinus pinaster*, *Pinus pinea*, *Pinus salzmanni* and *Pinus sylvestris*. Adults are found on sawed wood of pine and on logs. Development lasts for at least two years.

Distribution - Russia (including Siberia), Sweden, Finland, Denmark, Poland, Germany, Czech Republic, Slovakia, Ukraine, Byalarus, Hungary, Romania, Moldova, Bulgaria, Yugoslavia, Bosnia, Croatia, Slovenia, Turkey, Greece, Albania, Austria, Switzerland, France (including Corsica), Italy (including Sardinia and Sicily), Malta, Spain, Portugal and Algeria. The species was also introduced to South America (Chile).

***Melanophila cuspidata* (Klug, 1829)**
Melanophila aequatus Marshal [sic]; Andres, 1916: 58.

Material examined - Malta: Girgenti, 25.vii.1997, 1 ex., on branches of *Ulmus* sp., leg. D. Mifsud (CMM).

Notes - This species was recorded for the first time from the Maltese Islands by Andres (1916), whose record was based on a single specimen collected during the month of October from the Verdala barracks (Cospicua) which at that time served as prisons.

Host plants - This species is known to develop in fire-damaged branches and stems of *Cupressus sempervirens*, *Ficus carica*, *Juniperus macrocarpa*, *Juniperus oxycedrus*, *Juniperus phoenicea*, *Phyllirea angustifolia*, *Pinus halepensis*, *Pinus pinea*, *Pistacia lentiscus*, *Quercus ilex*, *Quercus pubescens*, *Quercus suber*, *Salix alba*, *Spartium junceum* and *Ulmus minor*. Adults are usually found on the mentioned host plants.

Distribution - Southern Russia, Iran, Syria, Turkey, Greece, Albania, Yugoslavia, Croatia, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Egypt, Sudan, Algeria and Morocco.

***Anthaxia (Haplanthaxia) aprutiana* Gerini, 1955** (Fig. 1)
Anthaxia umbellatarum (Fabricius, 1787); Cameron & Caruana Gatto, 1907: 397; Curletti, 1994: 108-110.
Anthaxia scylla Levey, 1985; Levey, 1985: 301-302.
Anthaxia nitidula (Linnaeus, 1758); Cilia, 1989: 117.
Anthaxia aprutiana Gerini, 1955; Curletti, 1994: 110-111.

Material examined - Malta: Ghajn Rihana, 20.viii.1989, 1 ex., leg. D. Mifsud (CMM); Mtahleb, 1.viii.1996, 1 ex., leg. D. Mifsud (CMM); Wied id-Dis, 27.vi.1997, 2 exs., leg. D. Mifsud (CMM, NMPC); Wied Qannotta, 19.vii.1992, 1 ex., leg. D. Mifsud (CMM, NMPC); Wied Qannotta, 13.vii.1992, 1 ex., leg. L. F. Cassar (CMM); Buskett, 5.vi.1976, 1 ex., leg. J. Cilia (CMM); Wied Faham, 14.v.1979, 1 ex., on *Crataegus* sp., leg. J. Cilia (CMM).

Gozo: Ghasri, 25.vi.1995, 1 ex., leg. C. Farrugia (CMM); Victoria, 13.vii.1995, 1 ex., leg. C. Farrugia (NMGW).

Notes - This species was originally recorded as *A. umbellatarum* by Cameron & Caruana Gatto (1907). Through examination of this and additional material, Levey (1985), in his revision of the *A. umbellatarum* species group described this taxon as *Anthaxia scylla*. Levey (1985), perhaps overlooked the description of *A. aprutiana* provided by Gerini (1955). Cilia (1989) recorded *A. nitidula*, but examination of this material concluded that this has to refer to *A. aprutiana*. Curletti (1994) mentioned *A. umbellatarum* from Malta, but this citation is based on the original records of Cameron & Caruana Gatto (1907). Thus, even though, the possible presence of *A. umbellatarum* in the Maltese Islands is not excluded, the material so far collected is all attributed to *A. aprutiana*. Besides the localities listed above, the species has been also recorded from the following localities in Malta: Birzebbugia, Chadwick Lakes, Wied il-Ghasel and Wied Qirda (Levey, 1985; Curletti, 1994).

Host plants - The species is known to develop in branches of *Castanea sativa* (Curletti, 1994) and probably also in

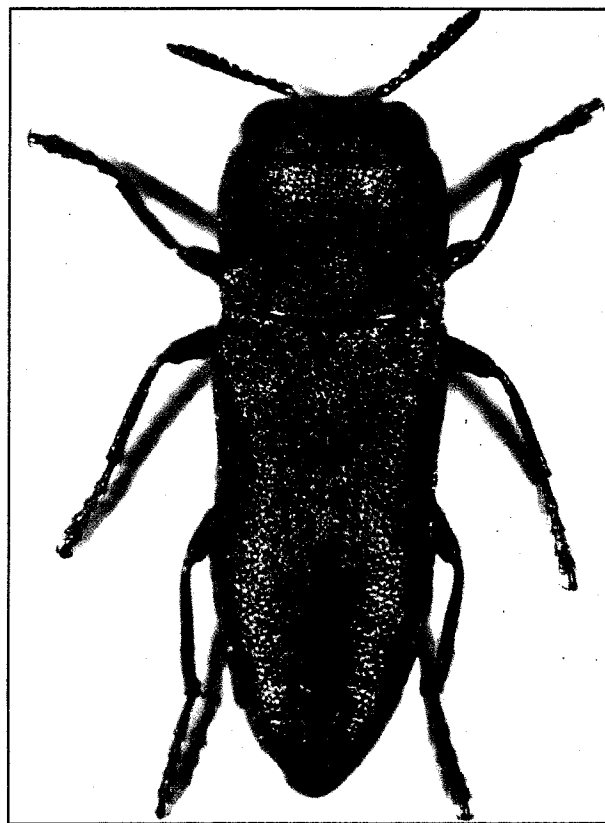


Fig. 1 *Anthaxia (Haplanthaxia) aprutiana* Gerini, 1955 (x 20)

Pistacia spp. Adults are found on flowers. *Castanea sativa* is lacking from the Maltese flora, and all attempts to grow this tree locally have invariably failed (Borg, 1922).

Distribution - So far, *A. aprutiana* is known to occur in Italy (Friuli-Venezia Giulia, Abruzzo, Molise, Basilicata and Sicily) and the Maltese Islands (Curletti, 1994).

***Anthaxia (Haplanthaxia) millefolii polychloros* Abeille de Perrin, 1894**

Anthaxia millefolii ssp. *polychloros* Abeille de Perrin, 1894; Curletti, 1994: 112-114.

Material examined - Malta: Fiddien, 27.vi.1989, 4 exs., leg. D. Mifsud (CMM).

Notes - This species was recorded from the Maltese Islands by Curletti (1994) from the following localities in Malta: Buskett, Chadwick Lakes and Wied Incita.

Host plants - The larva is known to develop in several unrelated host plants including *Acer obtusatum*, *Castanea sativa*, *Ceratonia siliqua*, *Nerium oleander*, *Pistacia lentiscus*, *Prunus avium*, *Prunus domestica*, *Prunus dulcis*, *Pyrus amygdaliformis*, *Quercus cerris*, *Quercus coccifera*, *Quercus ilex*, *Quercus pubescens*, *Quercus robur* and *Sorbus* sp. (Curletti, 1994). *A. millefolii* is probably the most polyphagous species within the genus *Anthaxia* Eschscholtz, 1829. Adults are commonly found on flowers.

Distribution - Germany, Switzerland, Italy (including

Sardinia and Sicily), Malta, France (including Corsica), Spain, Portugal, Morocco, Algeria and Tunisia.

***Anthaxia (Anthaxia) lucens lucens* Küster, 1852**

Anthaxia candens ssp. *lucens* Küster, 1852; Curletti, 1994: 93-94.

Material examined - Malta: Mosta, 4.iv.1965, 2 exs., K. M. Guichard, BM 1965-273 (BMNH); Wied il-Ghasel, 13. iv.1994, 1 ex., leg. M. J. Ebejer (CEM); Qrendi, Maqluba, 9.v.2002, 1 ex., leg. D. Magro (CMDM); 11.v.2000, 1 ex., leg. A. Seguna (CMM).

Notes - This species was recorded from the Maltese Islands by Curletti (1994) from the following localities on Malta: Hamrun and Wied il-Ghasel.

Host plants - This species is known to develop in branches of *Prunus dulcis* (Gobbi, 1986); other species of *Prunus*, *Cerasus* and *Amygdalus* are also used as host plants of this species. Adults are found on flowers.

Distribution - Turkey, Crete, Greece, Yugoslavia, Albania, Italy (including Sicily) and Malta.

***Anthaxia (Anthaxia) manca* (Linnaeus, 1767)**

Anthaxia manca Linnaeus, 1767; Cilia, 1989: 116.

Material examined - Malta: Buskett, 12.iii.1977, 2 exs., on *Rhamnus* sp., leg. J. Cilia (CMM).

Notes - The species was recorded from Malta by Cilia (1989) on the basis of the above mentioned material.

Host plants - The species is known to develop in branches of *Ulmus minor*, *Ulmus laevis*, *Ulmus carpinifolia*., *Castanea sativa*, *Populus tremula*, *Prunus mahaleb*, *Rhamnus alaternus*, *Robinia pseudoacacia* and *Tilia cordata* (Curletti, 1994) with a preference to *Ulmus* spp. Adults are usually seen on leaves of the host plants, quite exceptionally also on flowers (e.g. of *Crataegus*). The development lasts from two to three years.

Distribution - Iran, Turkey, Southern Russia, Turcmenia, Armenia, Georgia, Tadjikistan, Ukraine, Moldova, Poland, Germany, Czech Republic, Slovakia, Romania, Bulgaria, Yugoslavia, Greece, Bosnia, Croatia, Slovenia, Albania, Austria, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Portugal, Morocco and Algeria.

Table 1 Chorotype ranges of the species following Vigna Tagliani *et al.*, 1992.

Species list	Chorotype range
<i>Acmaeoderella (Acmaeoderella) discoidea</i> (Fabricius, 1787)	TEM
<i>Acmaeoderella (Carininota) flavofasciata flavofasciata</i> (Piller & Mitterpacher, 1783)	CAE
<i>Acmaeoderella (Euacmaeoderella) lanuginosa lanuginosa</i> (Gyllenhal, 1817)	WME
<i>Ptosima flavoguttata flavoguttata</i> (Illiger, 1803)	CEM
<i>Capnodis tenebrionis</i> (Linnaeus, 1788)	CEM
<i>Buprestis (Buprestis) novemmaculata novemmaculata</i> Linnaeus, 1767	PAL
<i>Melanophila cuspidata</i> (Klug, 1829)	TEM
<i>Anthaxia (Haplantaxia) millefolii polychloros</i> Abeille de Perrin, 1894	Sub-Endemic
<i>Anthaxia (Haplantaxia) millefolii polychloros</i> Abeille de Perrin, 1894	WME
<i>Anthaxia (Anthaxia) lucens lucens</i> Küster, 1852	TUE
<i>Anthaxia (Anthaxia) manca</i> (Linnaeus, 1767)	CEM
<i>Anthaxia (Anthaxia) thalassophila thalassophila</i> Abeille de Perrin, 1900	TUE
<i>Chrysobothris (Chrysobothris) solieri</i> Gory & Laporte, 1839	CEM
<i>Agrilus (Agrilus) derasofasciatus</i> Lacordaire, 1835	MED*
<i>Agrilus (Agrilus) roscidus</i> Kiesenwetter, 1857	CEM
<i>Aphanisticus pygmaeus</i> Lucas, 1846	CAM
<i>Trachys corusca</i> (Ponza, 1805)	WPA

Abbreviations: CAE: Central Asiatic-European; CAM: Central Asiatic Mediterranean; CEM: Central Asiatic-European-Mediterranean; MED: Mediterranean; MED*: originally Mediterranean but now widespread in Palaearctic and introduced in USA; PAL: Palaearctic; TEM: Turranic-European-Mediterranean; TUE: Turranic-European; WME: W-Mediterranean; WPA: W-Palaearctic.

***Anthaxia (Anthaxia) thalassophila thalassophila* Abeille de Perrin, 1900**

Anthaxia scutellaris Genè, 1839; Cilia, 1989: 116.

Material examined - Malta: Il-Ballut (limits of Wardija), 20.iv.1980, 1 ex., leg. J. Cilia (CMM); Buskett, 14.v.1985, 1 ex., leg. J. Cilia (CMM).

Notes - New record for the Maltese Islands. The record of *A. scutellaris* by Cilia (1989) should refer to this species.

Host plants - The species is known to develop in dying branches of *Castanea sativa*, *Fraxinus excelsior*, *Fraxinus ornus*, *Pistacia lentiscus*, *Pistacia terebinthus* and *Quercus pubescens* (Contarini, 1983). Adults are usually found on these host plants and on flowers.

Distribution - Albania, Croatia, Yugoslavia, France (including Corsica), Italy (including Sardinia and Sicily) and Malta.

***Chrysobothris (Chrysobothris) solieri* Gory & Laporte, 1839**

Chrysobothris solieri Gory & Laporte, 1839; Curletti, 1994: 131-132.

Material examined - None.

Notes - This species was recorded by Curletti (1994) from Malta (Buskett).

Host plants - This species is known to develop in *Pinus halepensis*, *Pinus laricio*, *Pinus nigra*, *Pinus pinaster*, *Pinus pinea*, *Pinus salzmanni* and *Pinus sylvestris*.

Distribution - Albania, Bosnia, Croatia, Slovenia, Yugoslavia, Romania, Bulgaria, Turkey, Greece, Austria, Switzerland, France (including Corsica), Italy (including Sardinia and Sicily), Malta, Spain, Portugal, Tunisia and Algeria.

***Agrilus (Agrilus) derasofasciatus* Lacordaire, 1835**

Agrilus obscuricollis Kiesenwetter, 1857; Cameron & Caruana Gatto, 1907: 397; Curletti, 1994: 154.

Material examined - Malta: (no other data), 3 exs., Dr. Cameron; 'Boschetto', v.1903, 3 exs., Dr. Cameron; Dingli, 13.vi.1994, 1 ex., leg. D. Mifsud (CMM).

Notes - New record for the Maltese Islands. The record of *Agrilus obscuricollis* by Cameron & Caruana Gatto (1907) should refer to this species. Curletti's record of *A. obscuricollis* (1994) was based on that of Cameron & Caruana Gatto (1907).

Host plants - This species is known to develop in branches of *Vitis sylvestris* and *Vitis vinifera*.

Distribution - Southern Russia, Armenia, Azerbaijan, Georgia, Turkey, Ukraine, Moldova, Poland, Germany,

Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Bosnia, Croatia, Slovenia, Yugoslavia, Albania, Greece, Austria, Switzerland, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Egypt, Tunisia, Algeria and Morocco. The species is nowadays widespread in Europe and was also introduced in USA, following vine cultivation.

***Agrilus (Agrilus) roscidus* Kiesenwetter, 1857**

Material examined - Malta: Dingli, 13.vi.1994, 7 exs., leg. D. Mifsud (BMNH, CMM); Mtahleb, 3.vii.1994, 2 exs., leg. D. Mifsud (CMM); Kalkara, 8.vii.1993, 1 ex., leg. D. Mifsud (CMM); Birzebbuga, 15.vi.1995, 2 exs., leg. D. Mifsud (CMM); Gozo: Ghasri, 16.v.1996, 1 ex., leg. D. Mifsud (CMM); Wied Lunzjata, 20.vii.1996, 1 ex., leg. C. Farrugia (CMM); Victoria, 20.vi.1995, 1 ex., leg. C. Farrugia (CMM).

Notes - New record for the Maltese Islands.

Host plants - An extremely polyphagous species developing in branches of *Ceratonia siliqua*, *Crataegus oxyacantha*, *Cydonia oblonga*, *Crataegus* spp., *Euonymus europaeus*, *Malus domestica*, *Mespilus germanica*, *Prunus armeniaca*, *Prunus avium*, *Prunus domestica*, *Prunus dulcis*, *Prunus mahaleb*, *Prunus persica*, *Prunus vulgaris*, *Populus* spp., *Pyrus amygdaliformis*, *Pyrus communis*, *Salix* spp., *Sorbus aria* and *Ulmus* spp. Adults are usually found on these host plants.

Distribution - Southern Russia, Moldova, Ukraine, Israel, Lebanon, Cyprus, Syria, Turkey, Germany, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Bosnia, Croatia, Slovenia, Yugoslavia, Greece, Austria, Switzerland, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Portugal, Egypt, Algeria and Morocco.

***Aphanisticus pygmaeus* Lucas, 1849**

Material examined - Malta: Ghajn Rihana, 28.vii.1999, 1 ex., leg. C. Farrugia (CMM).

Notes - New record for the Maltese Islands.

Host plants - Unknown.

Distribution - Southern Russia, Azerbaijan, Afghanistan, Israel, Kazakhstan, Tadjikistan, Turcmenistan, Uzbekistan, Mongolia, Turkey, Bulgaria, Moldova, Croatia, Yugoslavia, Greece, Italy (including Sardinia and Sicily), Malta, France (including Corsica), Spain, Algeria, Egypt, Tunisia and Morocco.

***Trachys corusca* Ponza, 1805**

Material examined - Malta: Marsa, Ghammieri, 8.v.1996, 1 ex., leg. D. Mifsud (CMM); Wied il-Ghasel, 14.iv.1999, 1 ex., leg. C. Farrugia (CMM); Qrendi, Maqluba, 25.vii.2002, 1 ex., leg. D. Magro (CMDM).

Notes - New record for the Maltese Islands.

Host plants - The species is known to develop in leaves of *Althea officinalis*, *Althea rosea*, *Hibiscus roseus*, *Lavatera olbia*, *Malva alcea*, *Malva narbonensis*, *Malva officinalis*, *Malva rotundifolia* and *Malva sylvestris*. Adults are usually found on the mentioned host plants.

Distribution - Albania, Algeria, Austria, Bosnia, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Malta, Libya, Morocco, the Netherlands, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tunisia, Turkey, Ukraine, Yugoslavia.

CONCLUSIONS

In general, buprestid beetles are rather infrequent in the Maltese Islands. This may be due to several reasons, among which the scarcity of trees and habitat destruction are worth mentioning. Thus, though species which develop on shrubs and leaf miners may eventually prove to be more common and widespread in the Maltese Islands, species which are directly associated with trees are rare. In fact, records in this latter category are often based on single captures.

Table 1 shows the chorotype ranges of each species following Vigna Tagliani *et al.*, 1992. Such chorotypes give an indication of the distributional range of a particular species, however, this is a dynamic process and such ranges may change accordingly to future studies.

As indicated in Table 1, most species have wide geographical ranges. The most interesting species from a biogeographical point of view are *Anthaxia lucens lucens* and *Anthaxia thalassophila thalassophila* both of which

represent eastern elements and *Anthaxia aprutiana* which is so far known only from Southern Italy and the Maltese Islands.

The buprestid fauna of the Maltese Islands, with 17 species recorded, is much more diverse than that of the other islands in the Sicilian channel (Lampedusa and Pelagic islands) with a total of 9 recorded species. From the Pelagic islands only 4 buprestid species are recorded, whereas 6 species are recorded from Pantelleria (Sparacio & Ratti, 1995). It is worth mentioning however, that only 3 species of buprestids are common to Pantelleria and the Maltese Islands, whereas no species are common to the Pelagic and the Maltese Islands. Also, there is a lack of North African affinities in the buprestid fauna of the Maltese Islands in comparison with the other islands, as indicated by the presence of *Julodis onopordi lampedusanus* Tassi, 1966 in Lampedusa and *Acmaeodera bipunctata romanoi* Sparacio, 1992 in Pantelleria (Sparacio & Ratti, 1995).

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REFERENCES

- Andres, A. (1916) Verzeichnis der während meiner Kriegsgefangenschaft von mir auf Malta gesammelten Lepidoptera, Hemiptera und Coleoptera. *Entomologische Rundschau*, 33(9): 43-54; (10): 48-49; (11): 50.
- Borg, J. (1922) *Cultivation and Diseases of Fruit Trees in the Maltese Islands*. Government Printing Office, Malta. vii + 622 pp.
- Cameron, M. & Caruana Gatto, A. (1907) A list of the Coleoptera of the Maltese Islands. *Transactions of the Entomological Society of London*, 59: 383-403.
- Cilia, J. L. (1989) *Coleoptera*. In Schembri, P. J. & Sultana, J. [eds.], *Red Data Book for the Maltese Islands*. Department of Information, Malta, viii + 142 pp.
- Contarini, E. (1983) Contributo alla conoscenza dei Buprestidi italiani con particolare riguardo alla fauna di Romagna. *Gior. Ital. Entom.*, Milano, 1: 205-210.
- Curletti, G. (1994) *I Buprestidi d'Italia. Catalogo Tassonomico, Sinonimico, Biologico, Geonemico* (Monografie di "Natura Bresciana" N. 19). Museo Civico di Scienze Naturali di Brescia, 318 pp.
- Gobbi, G. & Platia, G. (1995) *Coleoptera Polyphaga VII (Elateroidea, Buprestoidea)*. In: Minelli, A., Ruffo, S. & La Posta, S. [eds.], *Checklist delle specie della fauna italiana*, 52. Calderini, Bologna.
- Gulia, G. (1858) Corso elementare di Entomologia Maltese. Palazzo di San Antonio, Malta, 82 pp.
- Holyński, R. B. (1988) Remarks on the general classification of Buprestidae Leach as applied to Maoraxiina Hol. *Folia Entomologica Hungarica*, 49: 49-54.
- Holyński, R. B. (1993) A reassessment of the internal classification of the Buprestidae Leach (Coleoptera). *Crystal (Series Zoologica)*, 1: 1-42.

- Levey, B.** (1985) Revision of the *umbellatarum* species group of *Anthaxia* (Coleoptera: Buprestidae). *Systematic Entomology*, **10**: 299-306.
- Luigioni, P.** (1929) I Coleotteri d'Italia, Catalogo Sinonimico, Topografico, Bibliografico. *Mem. Pont. Accad. Sci., I Nuovi Licei* (serie II), **13**: 1-1160.
- Mifsud, D.** (2000) Present knowledge of the Entomofauna of the Maltese Islands. *Entomologica Basiliensia*, **22**: 75-86.
- Saliba, L. J.** (1963) Insect pests of crop plants in the Maltese Islands. Department of Information, Malta, 35 pp.
- Sparacio, I. & Ratti, E.** (1995) Coleoptera Buprestidae. In: Massa, B. [ed.], *Arthropoda di Lampedusa, Linosa e Pantelleria (Canale di Sicilia, Mar Mediterraneo)*. *Il Naturalista Siciliano*, **19** (suppl.),viii + 909 pp.
- Vignia Tagliani, A., Audisio, P. A., Belfiore, C., Biondi, M., Bologna, M. A., Carpaneto, G. M., De Biase, A., De Felici, S., Piatella, E., Racheli, T., Zapparoli, M. & Zoia, S.** (1992) Riflessioni di gruppo sui corotipi fondamentali della fauna W-paleartica ed in particolare italiana. *Biogeographia*, **16**: 159-179.
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