

Altica ampelophaga Guérin-Ménéville, 1858 - new record of Flea Beetle for Malta (Coleoptera, Chrysomelidae)

David MIFSUD¹

The Chrysomelidae is a very large family of phytophagous beetles with some 40,000 described species. The majority of adults are leaf feeders, with some species specializing on a wide variety of seeds, and fewer species are associated with pollen. The feeding regime is diverse as they may feed externally on the leaf tissue or on the roots, within leaves, stems or roots often as miners, or within the seed itself. Very few species are myrmecophiles. Some species are considered as agricultural pests, causing direct damage to various parts of the plant; most noticeable is the reduction of leaf area or sometimes indirect damage via the transmission of plant viruses. However, several species have also been used successfully in biological control programmes for the control of invasive weeds.

The Chrysomelidae of Malta has not been revised recently. In the Coleoptera list of the Maltese Islands published by CAMERON & CARUANA GATTO (1907) some 60 species were reported under Chrysomelidae and about 25 species under Bruchidae. This latter group is now considered as a subfamily within Chrysomelidae (e.g. LAWRENCE & NEWTON, 1995). The Fauna Europaea data base recorded 134 species and subspecies of Chrysomelidae for Malta (AUDISIO, 2004). It is outside the scope of the present work to provide an updated checklist of species of this family for Malta but it was felt appropriate to give some information on a new record of flea beetle, *Altica ampelophaga* which seems to be particularly injurious to cultivated vines. The identification of this species was carried out with the work of WARCHAŁOWSKI (2003). Unless otherwise stated all material was collected by the author and is deposited in his private collection.

Altica ampelophaga Guérin-Ménéville, 1858

Material examined. MALTA: Tarxien, 23.v.2010, 12 exs., on cultivated vines DM; Zejtun, 18.v.2011, 34 exs., on cultivated vines; Gwardamangia, 29.v.2012, 56 exs., on cultivated vines; Birkirkara, 25.vi.2012, 5 exs., on cultivated vine; St. Lucia, 22.iv.2010, 13 exs., on cultivated vines; Sliema, 10.vii.2012, 73 exs., on cultivated vines and strawberry, leg. J. Doublet.

Notes. *Altica ampelophaga* is a typical Mediterranean species currently recorded from the following countries: Croatia (Dalmatia), central and southern France, south-western Germany, Greece, Italy (including Sicily), Montenegro, Portugal, Spain (including Balears and Canary Islands), Slovenia, Switzerland, Algeria, Morocco and Tunisia (GRUEV & DÖBERL, 1997; 2005). Prior to the use of pesticides, this beetle was very common throughout its distribution range. Most populations have been eradicated with the continuous use of chemicals for the control of vine pests but it is still common in the southern Mediterranean basin such as North African countries.

According to DOGUET (1994) *Altica ampelophaga* is strictly associated with vine (*Vitis vinifera* L.), but the larval stages may also feed on other plants, particularly from the families Onagraceae (*Epilobium*, *Oenanthera*, *Circaea*) and Lythraceae (*Lythrum salicaria* L.). Adults overwinter under various shelters and emerge in spring. Cluster of eggs are laid on the leaf surface and hatch after an incubation period which lasts between 4-19 days, depending on environmental conditions. Larval

¹ Department of Biology, Junior College, University of Malta, Msida MSD 1252, Malta. E-mail: david.a.mifsud@um.edu.mt

development last between 11-36 days. Pupation occurs in the soil and takes 7-22 days for the adult to emerge. In Central Europe the species goes through one generation per year but up to 5 overlapping generations per year have been recorded in the Mediterranean area.

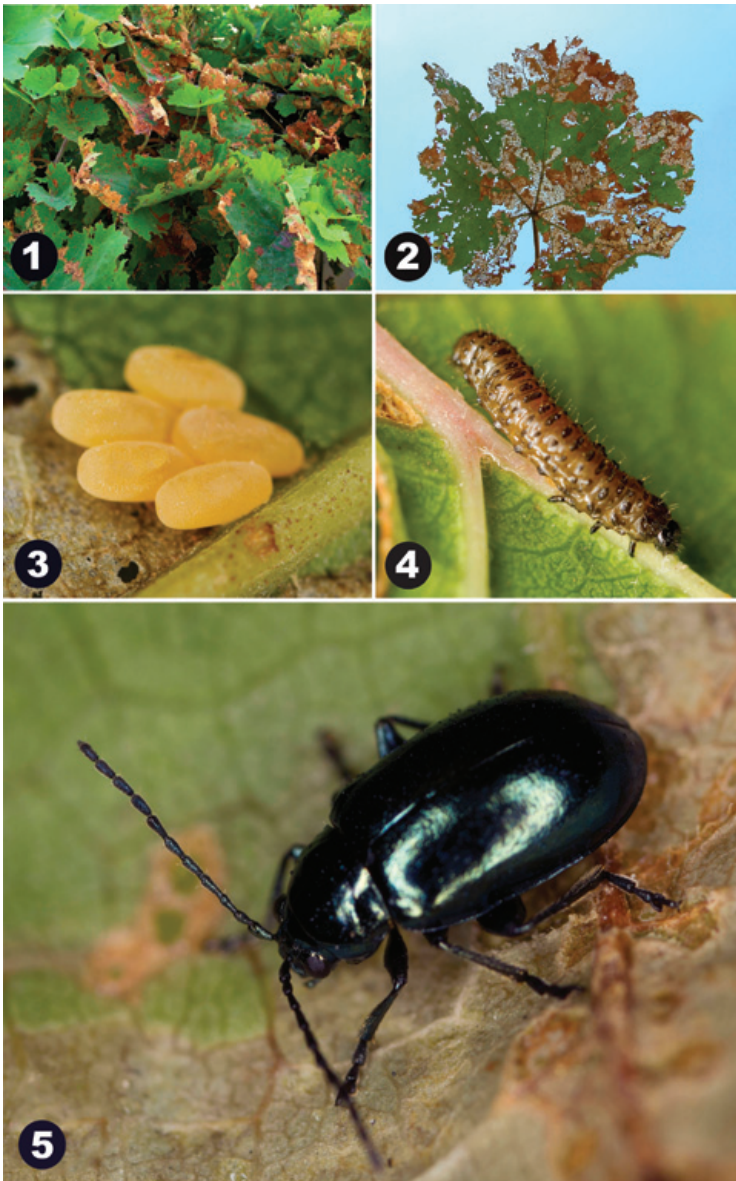


Figure 1: Cultivated vines heavily damaged by *Altica ampelophaga*; **Figure 2:** Detail of vine leaf eaten by *A. ampelophaga* showing characteristic lace-like areas; **Figure 3:** Cluster of eggs of *A. ampelophaga* laid on the leaf underside; **Figure 4:** Fully grown larva of *A. ampelophaga*; **Figure 5:** Adult of *A. ampelophaga*.

In Malta adults are active from May till the end of September and they actively attack both the new growth of grapevines but also older leaves. When plant protection products are not applied on vines, damage by this beetle can be considerable (Fig. 1). Larvae are particularly damaging to mature leaves especially during summer time where they produce lace-like areas (Fig. 2) on the leaf where the tissue has been eaten. Eggs (Fig. 3) are usually laid in clusters of 4-9 on the leaf underside and vary between 0.22-0.41 mm in length. Fully grown larvae (Fig. 2) can attain a length of between 8.2-9.4 mm. The adult beetle (Fig. 5) varies between 3.3-5.2 mm in length.

ACKNOWLEDGMENTS

I would like to thank Dr Alexander S. Konstantinov (Smithsonian Institution, Washington, USA) for confirming the identity of *Altica ampelophaga* and to Mr Manfred Döberl for providing required literature to identify this species. I also thank both Mr Manfred Döberl (Germany) and Dr Serge Doguet (France) for critically reviewing the present work. A special thanks goes to Guido Bonett for taking photographs represented in figures 3-5.

REFERENCES

- AUDISIO, P. (2004) Chrysomelidae. Fauna Europaea version 2.4. <http://www.faunaeur.org> [accessed 16th July 2012].
- CAMERON, M. & CARUANA GATTO, A. (1907) A list of the Coleoptera of the Maltese Islands. *Transactions of the Entomological Society of London*, **59** (3): 383-403.
- DOGUET, S. (1994) Coléoptères Chrysomelidae Vol. 2 Alticinae. *Faune de France, France et régions limitrophes*, **80**, Féd. Franc. Soc. Sci. nat., Paris, 694 pp.
- GRUEV, B. & DÖBERL, M. (1997) General distribution of the Flea Beetles in the Palaearctic subregion (Coleoptera, Chrysomelidae: Alticinae). *Scopolia*, **37**: 1-496.
- GRUEV, B. & DÖBERL, M. (2005) *General distribution of the Flea Beetles in the Palaearctic subregion (Coleoptera, Chrysomelidae: Alticinae). Supplement*. Pensoft Publishers. 239 pp.
- LAWRENCE, J.F. & NEWTON, A.F. (1995) Families and subfamilies of Coleoptera (with selected genera, notes, references and data on family-group names) (pp. 779-1006). In: PAKALUK, J. & ŚLIPIŃSKI, S.A. [eds.], *Biology, Phylogeny and Classification of Coleoptera. Papers celebrating the 80th Birthday of Roy A. Crowson*. Muzeum i Instytut Zoologii PAN, Warszawa. Vol 2: vi + 559-1092 pp.
- WARCHAŁOWSKI, A. (2003) *Chrysomelidae The leaf-beetles of Europe and the Mediterranean area*. Natura optima dux Foundation, Warszawa. 600 pp. + 56 plates.

Received: July 30, 2012

Accepted: September 5, 2012