NOTA / NOTE
First record of the family Malcidae
(Heteroptera: Lygaeoidea: Malcidae) in Western Palaearctic:
invasive species or casual record?

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Abstract: Malcus elongatus Štys, 1967 (Heteroptera: Lygaeoidea: Malcidae) was collected in Crete (Greece), resulting in the first Western Palaearctic record for the family Malcidae. A short discussion about whereas this is a casual record or a new invasive species to take into consideration is made.

Key words: Heteroptera, Malcidae, Malcus elongatus, first record, allochthonous species, Europe, Greece, Crete.

Resumen: Primera cita de la familia Malcidae (Heteroptera: Lygaeoidea: Malcidae) en la región Paleártica occidental: especie invasora o registro casual? La especie Malcus elongatus Štys, 1967 (Heteroptera: Lygaeoidea: Malcidae) fue capturada en Creta (Grecia), lo que supone la primera cita de la familia Malcidae en la región Paleártica occidental. Se discute brevemente si se trata de un registro casual o si es una nueva especie invasora a tener en consideración.

Palabras clave: Heteroptera, Malcidae, Malcus elongatus, primera cita, especie alóctona, Europa, Grecia, Creta.

Introduction

The family Malcidae Stål, 1865 has been included traditionally as subfamily within the family Lygaeidae (Slater, 1964). However, it is now accepted that it is an independent family closely related with Lygaeidae (Kondorosy, 2000). Malcidae is composed by two subfamilies, Chauliopinae Breddin, 1907, with a few Oriental and Ethiopian species belonging to the genus, Chauliops Scott, 1874, and Malcinae Stål, 1865, with genus Malcus Stål, 1859 as the only representative of the subfamily (Štys, 1967). This family is near to the family Colobathristidae, and to the subfamily Cyminae of the polyphyletic Lygaeidae (Kondorosy, 2000).

The genus Malcus was erected by Stål (1859) and until the 1960s only three species belonging to the genus Malcus had been described (Slater, 1964). Štys (1967) published a large monograph with sixteen new species. Later, Zheng et al. (1979) described seven new species from China and published a paper on their Chinese distribution (Zheng, 1999). Kondorosy (2000) contributed with three new species from South East Asia. The distribution in Asia of Malcus species was recorded by the papers of Zheng & Zou (1981) and Zheng (1998).

In current times, introductions and translocations of species in Europe are quite a common phenomenon. However, the phenomenon has grown faster in the last century mainly propitiated by the increasing globalization, climate change, the worldwide exchange of goods, and tourism. This affects the abundance and dispersion of allochthonous species and the vulnerability of ecosystems to invasions (Genovesi & Shine, 2004).
In this paper, we report the family Malcidae from Western Palaeartic for the first time, and discussion on the scenario of an invasive species or a casual record is included.

Material and methods

The specimen was obtained in a sampling that took place during a collecting trip by MG in the frame of a study on natural enemies of horticultural pests. Prospections took place in agroecosystems (cultivated lands and their surroundings). Plants were sampled by means of a sweeping net of 30 cm diameter, thus the host plants were often not individualized. All specimens where kept in 70º ethanol, and when back in the laboratory, dry prepared.

Material studied: 1 Male. Iraklion, Creete, Greece. 23.05.1996. M. Goula leg. Deposited at M. Goula’s Collection. (Fig. 1)

Results and discussion

Our specimen keys to the species Malcus elongatus Štys, 1967. In addition, main biometric characters (antennal segments, maximum hemelytral length, minimum hemelytral width, pronotal width and maximum length of the specimen) fit into the interval values given in the tables in the monograph about Malcus (Štys, 1967).

It was stated by Zheng (1999) that Malcus species are usually found in forest margins, clearings and roadsides in their original area of distribution. They have never been found inside the thick subtropical forests and usually they are collected from herbaceous vegetation. Malcus spp. have been observed feeding on plants of the families Araceae, Convulvulaceae, Fabaceae, Moraceae, Sterculiaceae, and Urticaceae (Zheng, 1999). In addition, some of the species of the genus Malcus are considered to be minor plant pests of mulberries in Japan (Malcus japonicus Ishira & Hasegawa, 1941 on Morus bombycis, Moraceae) or in India (M. flavidipes Stål, 1859 on cucurbits) (Sweet II, 2000).

The species Malcus elongatus Štys, 1967 was described from Burma, and occurs in central and south Chinese provinces (Zheng, 1999; Kerzhner, 2011).

Unfortunately, the exact habitat where the male of M. elongatus from Crete was collected is not known. However, many of Malcus host plant families include species of ornamental and/or horticultural interest (i.e. the Fabaceae Bahuinia variegata, Cassia didymohotrya or Sophora japonica; the Araceae Raphis excelsa; or the Moraceae Ficus spp., Maclura spp. or Morus spp.) (http://www.arbolesornamentales.es/Moraceae.htm), thus being traded all over the world. The crossroad of polyphagy of Malcus with the import of plants for horticultural and ornamental purposes in Crete give the ideal conditions for the arrival of unexpected, allochthonous species. The collection in Heraklion, the capital of the island, equipped with an international port and airport, do support the hypothesis.

Conclusions

The authors do not have enough information to classify this new record of M. elongatus as a casual report or an invasive pest species. The sample was obtained more than 20 years ago, with one single specimen, and has not been reported again. This could lead to assume that the presence of the species in the Island of Crete is a mere casualty. However, the reduviid Polytoxus siculus (A. Costa, 1842) (Heteroptera: Reduviidae) was reported for the first time for the Iberian Peninsula in 1960 next to Barcelona port and airport (Ribes, 1961). The second record happened to be 40 years later (Goula et
al., 2011), confirming the establishment of the initial population. From 2011 onwards, \textit{P. siculus} has been regularly collected in the same Iberian location, enlarging the original distribution area from south Asia, through Ethiopian Africa and Egypt to the West Mediterranean.

Thus, we strongly recommend other authors working in the region to assess the presence of the species in the island and adjacent regions, in order to confirm the establishment of the population. Conditions of collection of \textit{M. elongatus} in Heraklion area mimic these in Barcelona city area; as a consequence, similar results in the future would not be unexpected.

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**References**


Fig. 1. - Malcus elongatus Štys, 1967. a. - Photograph of the habitus. Total length: 4.5 mm. b. - Drawing of the habitus. c. - Drawing of the lateral tergites.