ISSN: 1989-6581

www.aegaweb.com/arquivos_entomoloxicos

Roca-Cusachs & Goula (2017)
ARQUIVOS ENTOMOLÓXICOS, **17**: 289-292

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

Marcos Roca-Cusachs & Marta Goula

Departament de Biologia Animal and IRBIo, Facultat de Biologia, Universitat de Barcelona, Avda. Diagonal, 643. E-08028 Barcelona (SPAIN). e-mails: marcosrocacusachs@gmail.com, mgoula@ub.edu

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.

Recibido: *21 de marzo de 2017*
Aceptado: *31 de marzo de 2017*
Publicado on-line: *10 de abril de 2017*

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 70° 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 he 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 estabilishment of the initial population. From 2011 onwards, *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 *M. elongatus* in Heraklion area mimic these in Barcelona city area; as a consequence, similar results in the future would not be unexpected.

Acknowledgements

The authors would like to thank Pavel Štys for the bibliography provided and Előd Kondorosy and Pétér Kobor for providing bibliography and advice in the identification of the sample. In addition, the authors would like to thank the editors for their helpful comments that improved the final version.

References

Genovesi, P. & Shine, C. 2004. *European strategy on invasive alien species (Stratégie européennerelative aux espèces exotiques envahissantes).* Council of Europe Publishing. Strasbourg. 67 pp.

Goula, M.; Ribes, J. & Baena, M. 2011. *Polytoxus siculus* (A. Costa, 1842), pp: 1244-1247. In: Verdú, J.R.; Numa, C. & Galante, E. (eds.). *Atlas y Libro Rojo de los Invertebrados Amenazados de España: Especies Vulnerables.* Dirección General de Medio Natural y Política Forestal. Ministerio de Medio Ambiente, y Medio Rural y Marino, Madrid. Available online at: http://www.magrama.gob.es/es/biodiversidad/temas/inventarios-nacionales/Polytoxus_siculus_tcm7-187616.pdf

Kerzhner, I.M. 2011. Family Malcidae Stål, 1865, pp. 227-229. In: Aukema, B. & Rieger, Chr. (eds.). *Catalogue of the Heteroptera of the Palaearctic Region. Pentatomorpha I.* The Netherlands Entomological Society. 346 pp.

Kondorosy, E. 2000. Three new species of *Malcus* Stål, 1859 (Heteroptera, Malcidae) from Vietnam. *Acta Zoologica Academiae Scientiarum Hungaricae*, **46**(3): 231-238.

Ribes, J. 1961. Contribución al estudio de los Reduviidae de Cataluña I. *Miscelánea Zoológica*, **1**(4): 57-73.

Slater, J.A. 1964. *A Catalogue of Lygaeidae of World I-II.* University of Connecticut, Storrs. 1668 pp.

Stål, C. 1859. *Hemiptera species novas descripsit*, pp. 219-298. In: *Konglika Svenska Fregatten Eugenies resa omkring jorden under befäl af C.A. Virgin åren 1851-1853. II. Zoologi. I. Insecta.* Stockholm, 617 pp, 9 pl.

Štys, P. 1967. Monograph of Malcinae, with reconsideration of morphology and phylogeny of related groups (Heteroptera, Malcidae). *Acta Entomologica Musei Nationalis Pragae*, **37**: 351-516.

Sweet II, M.H. 2000. *Seed and ching bugs (Lygaeoidea)*, pp. 143-164. In: Panizzi, A.R. & Schaefer, C.W. (eds.). Heteroptera of economic importance. Boca Raton. CRC Press. 828 pp.

Zheng, L.-Y. 1998. A study on the phylogeny and biogeography of the genus *Malcus* Stål (Hemiptera: Malcidae). *Acta Zootaxonomica Sinica*, **23**(Suppl.): 167-178. [in Chinese].

Zheng, L.-Y. 1999. Genus *Malcus* in China, with description of phallic structures (Hemiptera-Heteroptera: Malcidae). *Acta Societatis Zoologicae Bohemicae*, **63**: 267-278.

Zheng, L.-Y. & Zou, H.-G. 1981. *Lygaeidae*, pp. 1-215. In: Hsiao, T.-Y. (ed.). *A Handbook for the determination of the Chinese Hemiptera-Heteroptera II*. Science Press, Beijing. [in Chinese].

Zheng, L.-Y.; Zou, H.-G. & Hsiao, T.-Y. 1979. New species of Chinese Lygaeidae (I) Malcinae (Hemipt.-Heteropt.). *Acta Zootaxonomica Sinica*, **4**(3): 273-280. [in Chinese].

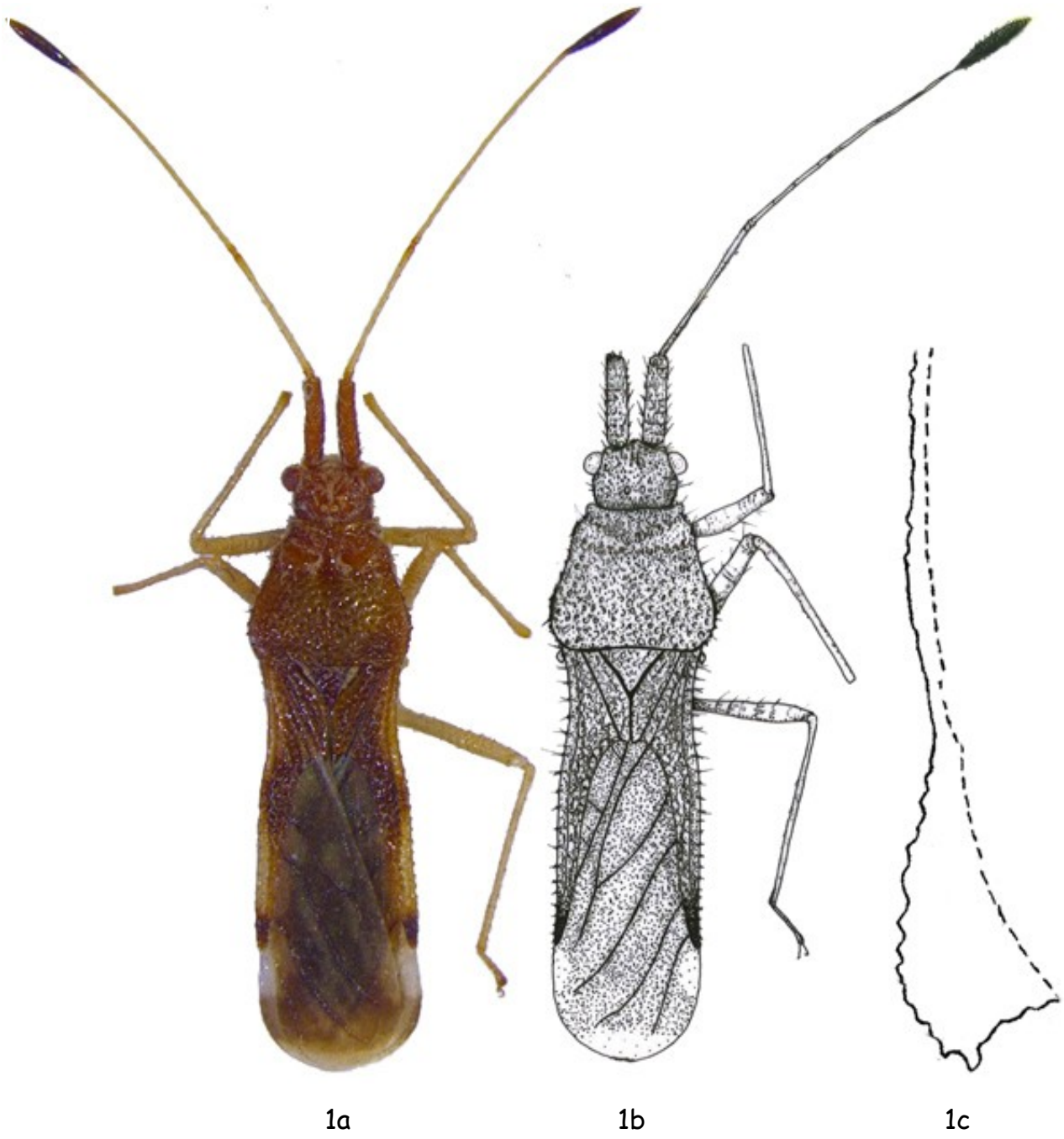

Fig. 1.- *Malcus elongatus* Štys, 1967. **a.-** Photograph of the habitus. Total length: 4.5 mm. **b.-** Drawing of the habitus. **c.-** Drawing of the lateral tergites.