

***Phyllonorycter messaniella* (Zeller, 1846),
new record for the Maltese Islands
(Lepidoptera: Gracillariidae)**

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ABSTRACT. *Phyllonorycter messaniella* is recorded for the first time from the Maltese Islands. Data about life history, ecology and distribution is included.

KEY WORDS. Lepidoptera, Gracillariidae, *Phyllonorycter messaniella*, new record, Malta.

INTRODUCTION

The family Gracillariidae, world wide, contains 1,809 recognised species in 98 genera (DE PRINS & DE PRINS, 2005). In Europe this group is represented by three subfamilies, the Gracillariinae with 91 species in 23 genera, the Lithocolletinae with two European genera, *Phyllonorycter* Hübner, 1822 (with 137 species) and *Cameraria* Chapman, 1902 which contains a single species, the Horse-chestnut leafminer, *Cameraria ohridella* Deschka & Dimic, 1986, and the Phyllocnistinae with 9 species in the genus *Phyllocnistis* Zeller, 1848. In total, the European representatives of this family number 237 species (BUZSKO, 2004).

Species belonging to Gracillariidae are generally small to very small moths. The main distinguishing feature is hypermetamorphosis or the successive appearance of two morphologically distinct types of larvae. The first, flattened and apodous form, mines its host plants, whereas the second, which is sub-cylindrical with developed thoracic legs, either continues with its endophytic activity (most of the Lithocolletinae), or emerges and either continues to feed, or becomes an aphagous stage preceding pupation (Phyllocnistinae). The transition from one form of larva to the other also involves changes in the head capsule and all of the mouth parts (PARENTI, 2000).

In the Maltese Islands, this family has been poorly studied and only three species have been recorded: *Dialectica sculariella* (Zeller, 1850) a fairly common species in Malta feeding on *Echium vulgare* L., *Caloptilia coruscans* (Walsingham, 1907) known only from a single specimen collected from Pembroke in 1992 (SAMMUT, 2000) and *Phyllocnistis citrella* (Stainton, 1856) an established alien species since the 1990s with *Citrus* spp. as host plants (MIFSUD, 1997).

***Phyllonorycter messaniella* (Zeller, 1846)**

Material examined: MALTA: Lija, near cemetery, 6 exs., larvae collected on 18.x.2005 from *Quercus robur* L., leaves and adults emerged in late December, leg. D. Mifsud & A. Porta-Puglia; same locality, 30 exs., bred from larvae collected from 20-30.iv.2007, leg. A. Seguna.

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Short description: Adult (Fig. 1) with a wing-span of 8-10 mm. Face white, head and thorax yellow. Forewings light golden ochreous; basal streak narrow, well defined pale, dark-edged above and reaching almost to the middle. Strigulae on forewings pale but well defined. Costal strigulae 4; first reaching the dorsal one at an acute angle. Dorsal strigulae 4. Forewings without transverse pale fasciae. Hindwing cilia fuscous.



Figure 1 – *Phyllonorycter messaniella* adult.

Distribution: The species is very common in most of central and southern Europe. It is known from Great Britain and Ireland, the Channel Islands, the Canary Islands, Madeira, the Azores, Spain, the Balearic Is., Portugal, France, Belgium, Austria, Switzerland, Italy, Corsica, Sicily, Bulgaria, Croatia, Germany, Hungary, Greece, Crete, Macedonia, Ukraine, Moldova and S. Russia (BUZSKO, 2004). Outside Europe it is also recorded from Morocco, Australia, New Zealand and Hawaii (NEW, 1981).

Ecology: Locally this species was only found on *Quercus robur* L. However, elsewhere the larvae are also known to feed on *Quercus ilex* L., *Castanea*, *Carpinea*, *Tilia* and *Fagus* (EMMET, 1979). Given the fact that most of the known host plants of this species are not present in Malta and locally, the species was always found (often large numbers of leaf mines present) on *Quercus robur* which is exotic, it is most likely that *P. messaniella* is a well established alien species in Malta. The species is known to be trivoltine but locally only two broods have been observed, although it is very probable that another brood occurs between the two recorded ones. The larva mines the underside of the leaf eating away the tissue leaving only the transparent cuticle, while the upper-side leaf tissue is left intact. The mine is in the form of an oval or circular blotch about a centimetre in diameter. A leaf may carry more than one mine. The larvae pupate inside the mine, usually surrounded by the black frass. Before hatching the pupa pushes itself half way out of the mine and the empty pupal case remains attached to the mine when the moth flies away.

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