

Luffia lapidella (Goeze, 1783), a new bagworm moth for the Maltese Islands (Lepidoptera: Psychidae)

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ABSTRACT. *Luffia lapidella* is recorded for the first time from the Maltese Islands. Additional notes on the biology and ecology of this species and a list of psychid species known from the Maltese archipelago are included.

KEY WORDS. Lepidoptera, Psychidae, *Luffia lapidella*, Malta, new record.

INTRODUCTION

The genus *Luffia* Tutt, 1899 is represented in Europe by four species. *Luffia lapidella* (Goeze, 1783), the type species, is bisexual and widely distributed in Europe, being found on the Channel Islands, Madeira, Portugal, Spain, France, Corsica, Italy, Sicily, Greece, ex-Yugoslavia and Switzerland (ARNSCHEID, 2004). The form *ferchaultella* (Stephens, 1850) consisting of only parthenogenetic females is found with the typical form on the Channel Islands, France and Italy. It is also known from the Canary Islands, the Azores, Great Britain and Ireland, Belgium, Germany, Luxemburg and the Netherlands, while the form *maggiella* Chapman, 1901 (only 1 to 5% of the population being males) is known from Switzerland only. The three other described species are endemic to the Canary Islands. *L. rebeli* Walsingham, 1908 is confined to Tenerife, *L. gomerensis* Hendericks, 1996 (HENDERICKS, 1996) occurs in Gomera and *L. palmensis* Sobczyk, 2001 is known from La Palma (SOBCZYK, 2001).

Luffia lapidella (Goeze, 1783)

Material examined: MALTA: Buskett, Wied il-Luq, 5.viii.2006, 1 ♀, reared from pupa; 1 ♀, same data but 8.viii.2006; 1 ♀, same data but 19.viii.2006; 1 ♂, same data but 20.viii.2006; 1 ♂, same data but 22.viii.2006; 1 ♂, same data but 30.viii.2006; 1 ♂, same data but collected from the wild; 16 ♀♀, same data but larvae collected 9.vii.2007, emerged 14-22.ix.2007; 1 ♀, same data but emerged 4.x.2007; 7 ♂♂, same data but 13-30.viii.2007; 7 ♀♀, same data but 20-31.viii.2007; 11 ♀♀, same data but 1-15.ix.2007; Gharghur, Tal-Fanal, 18-30.viii.2007, 3 ♂♂. All material was collected by Sammut and Zerafa.

OBSERVATIONS

In captivity, copulation was noticed to last between 45 to 60 minutes and about 40 minutes after mating, the female locates the opening of the bag and starts laying eggs. Females deposit eggs inside the bag, the latter still having the exuvia inside, and each will lay from 30 - 40 eggs.

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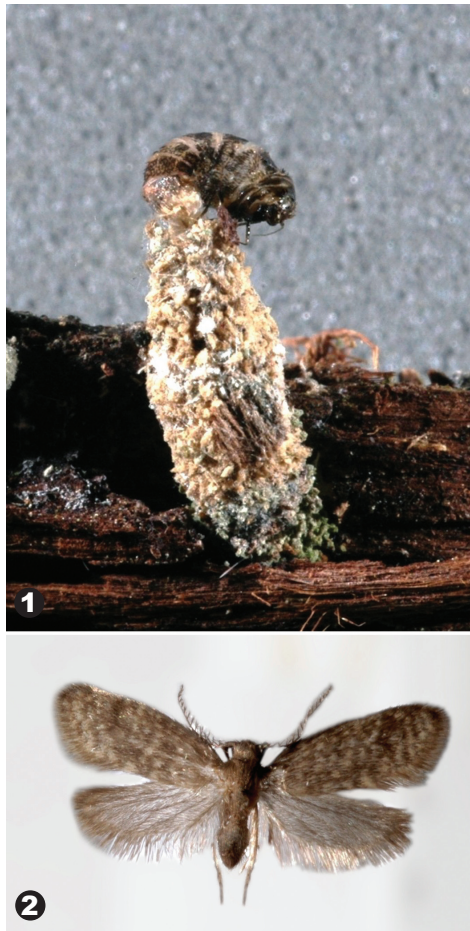
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Under artificial conditions eggs hatch in as short as 10 days and as long as 24 days. On hatching the larvae spin a bag with the female's hairs. These hairs are left near the mouth of the bag. Initially the bag is 0.8-1.0 mm long. Afterwards debris and organic matter is added to the bag which grows in the shape of an oblique cone. Larvae are grey with black heads. The duration of the larval stage has not been observed. In Central Europe one generation per year is the norm.

Bag size (Fig. 1): male: 3.8 mm to 5.0 mm long and 1.9 mm wide; female: 5.3 mm to 5.8 mm long and 2.5 mm wide. The male bag is constructed of only fine particles whilst that of the female carries larger plant debris.

Both sexes pupate inside the bag, after attaching it firmly to bark or stone. The pupal stage duration has not been observed but it appears that emergence can be prolonged at will. On hatching, the exuviae of the female remain completely inside the bag and appear to be rigid, filling all the bag. In the male, the empty pupal case emerges half way out of the bag.



Figures 1 – 2: *Luffia lapidella*. 1 – Female laying inside bag;
2 – Adult male.

DISCUSSION

The bags, containing live larvae or pupae from Wied il-Luq in Buskett, were collected either from the trunks of cypress trees (*Cupressus sempervirens* L.) or from adjacent walls. Both tree trunks and walls were covered with green algae and small lichens. The micro-climate from where the bags were collected can be described as very humid, cool and of low light intensity. The bags from Gharghur were collected from a bare rock face. The micro-climate is warm, with high light intensity. The rock face is in direct sunlight for a couple of hours daily. Similarly algae and lichens were present on parts of the rock.

It appears that the population of Wied il-Luq belongs to the form *ferchaultella*. From the 30 bags collected by one of the authors (PS) on July 9, 2007, 17 females emerged and not a single male. The other bags failed to produce adults. In captivity the bags were kept indoors in clear plastic containers and regularly sprayed with water to increase the humidity and to keep the larvae in a micro-climate more or less similar to that in the wild. From the 44 bags collected by one of us (MZ) on July 9 and 29, 2007, also from Wied il-Luq, 18 females and 7 males emerged. Although these were also raised in captivity, they were not kept indoors and the micro-climate approached more that of Gharghur than that at Wied il-Luq. Additionally, the microclimate at Wied il-Luq is very similar to that described for the form *ferchaultella* from other countries (BOURGOGNE, 1954; NARBEL-HOFSTETTER, 1964).

From the 3 bags collected from Gharghur on July 22, 2007, only males emerged. It seems that this population belongs to the typical form *lapidella lapidella* due to the different micro-climate conditions. However, for the time being, too few larvae were collected to support this assertion.

CHECK-LIST OF MALTESE PSYCHIDAE

Taleporiinae Tutt, 1900

Sciopetris melitensis Rebel, 1919

Typhoniinae Lederer, 1853

Penestoglossa dardoinella (Millière, 1865)

Psychinae Boisduval, 1829

Luffia lapidella (Goeze, 1783)

Oiketicinae Herrich-Schäffer, 1850

Oiketicoides tedaldii (Heylaerts, 1881)

Pachythelia villosella (Ochsenheimer, 1810)

Phalacropterix apiformis (Rossi, 1790)

Apterona helicinella (Herrich-Schäffer, 1845)

ADDITIONAL NOTES

Sciopetris melitensis was first discovered by Adolf Andres in 1916 (ANDRES, 1916) and later it was also found by Anthony Valletta (AMSEL, 1955). The species has been recently re-discovered and fully described by HÄTTENSCHWILER *et al.* (2007). *Pachythelia villosella* has been recorded from Birkirkara by VALLETTA (1950a, 1950b) who stated it is “not a rare moth at light”. However, the species was not listed in Valletta’s later work entitled ‘*The Moths of the Maltese Islands*’ (VALLETTA, 1973). Most probably the author himself was not sure of the correct determination of the species and preferred not to include it. SAMMUT (2000) included this species on the authority

of Valletta but stated that this record is a misidentification for *Oikecitoides tedaldii*. Numerous males of *Apterona helicinella* have been found dead floating on sea water in salt pans at il-Qbajjar in Marsalforn (Gozo) on May 25, 2006 and on the same day and month of 2007.

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