

THE BROWN CHINA-MARK MOTH ON LUNDY

by

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Introduction

During a routine survey of Middle Park Pond (SS 13523 46172) on 1st July 2017, I noted what I thought were two moths that had accidentally landed on the water surface and were struggling to correct their error. On my return home to Morwenstow, I found the same species in my moth trap there on the morning of 8th July. After checking the specimen against my moth guide (Sterling & Parsons, 2012), I determined that all three were Brown China-mark Moths (Plate 1).



Plate 1. A Brown China-mark Moth from a moth trap.

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The finds at Lundy and at Morwenstow stimulated my interest in the species and led me to investigate further.

Brown China-mark Moth *Elophila nymphaeata* (Linnaeus, 1758) is a species of the Family Crambidae or grass-boring species of moths and in the Subfamily Pyraustidae which are leaf or stem miners. The adult moths (imagos) are slender-bodied insects with long fine legs bearing spurs with a forewing length of between 12 and 16mm. Their brown wings bear intricate white patterns that have been likened to marks on Chinese pottery. The *Elophila* genus is unique in that its larvae are entirely aquatic.

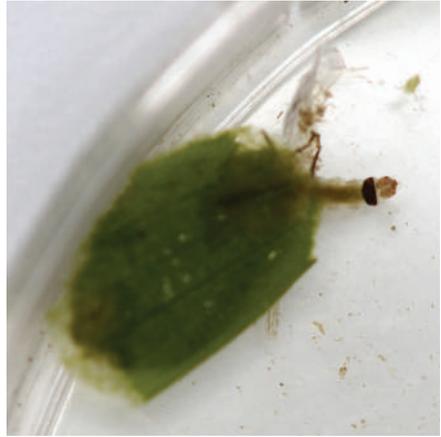


Plate 2. Two of the instars (developmental stages) of *Elophila nymphaeata*. An early instar in its case and a late instar showing case and caterpillar from Quarter Wall Pond.
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There are four instars. The first is small enough to mine between the epidermis of a leaf of its host plant. The three later instars construct a case from two oval pieces cut from the leaf and joined with silk. The larvae grow to about 7mm with a case of about 12mm. The species can be found throughout the United Kingdom near still or slow flowing water. Food plants include pondweeds, water plantains and reeds.

The species is single-brooded: Table 1 shows the typical annual life stages.

Table 1. Typical life stages of the Brown China-mark moth.

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ovum | | | | | | | | | | | | |
| Larva | | | | | | | | | | | | |
| Pupa | | | | | | | | | | | | |
| Imago | | | | | | | | | | | | |

Methods

Having sighted my first moths at Middle Park Pond, I determined to search there for more in the following year. In the meantime, I undertook a desk study into the moth's occurrence on Lundy. My first port of call was the LFS series of Annual Reports. I could find no mention of Brown China-mark Moth. I then discovered a list of Lundy Moths (Beavan & Heckford, 2014). Although titled as provisional, it is a thorough list of moths extracted from LFS Annual Reports as well as Chanter 1877, Parfitt 1878, Longstaff 1907 and Palmer 1946. Their species total stood at 349 species and did include Brown China-mark. Like me, they had found no mention of the species in the LFS Annual Reports.

In researching, and subsequent communication with one of the authors, (Heckford, pers. comm.) it appears that the only records they could find were attributed to Longstaff and to Palmer. I was able to confirm the references; Palmer (1946) quotes a record by Mr F. R. D. Onslow (Longstaff, 1907) under its earlier binomial of *Hydrocampa nymphaeata*. Onslow recorded a number of moths on a visit to Lundy which can only be assumed to be in 1907 as no date is quoted other than that of publication of the notes.

E. nymphaeata is common throughout the UK with almost 5,000 occurrences recorded on the National Biodiversity Network website although the nearest records they have are both around Torrington. However, Devon Moth records include sightings much nearer to Lundy: at Braunton Burrows, Bideford, Croyde and near Lynton (Heckford, pers. comm.)

Whilst the research described here does not identify the Brown China-mark Moth as a new species record for Lundy, it does confirm that it may be under-recorded and that no sightings have been reported for 111 years.

Results

Following the sighting at home and on my summer visit to Lundy in June 2018, I tried to find any larvae in Quarter Wall Pond which had begun to develop a mat of Floating Pennywort (*Hydrocotyle ranunculoides*) and Bog Pondweed (*Potamogeton polygonifolius*). I found what appeared to be an oval double case of leaves 3.5mm in length, but could see no obvious larva. Under the microscope I did see a tiny larva, but it did not resemble a caterpillar. On reflection it was a very early instar (Plate 2).



Plate 3. Brown China-mark Moth on *Potamogeton polygonifolius* in Quarter Wall Pond.
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Up to five adults were seen on four dates between 19th and 29th June 2018 at Quarter Wall Pond (Plate 3) and another in September at Quarry Pond. Richard Taylor also recorded a sighting at Brick Field Pond on the 29th and a further two at Pondsburry on the 30th August. On a subsequent visit in September of 2018, I was able to look for mature larvae in a more systematic way. I recovered two larval cases, both occupied on 30th September and was able to observe and photograph them (Plate 2). Larvae were very actively searching for food. The introduction of another piece of leaf stimulated the larvae to move to it and begin voraciously to devour it.

In order to ensure continuity of the Quarterwall Pond colony, the larvae were returned to the location from where they were taken.

I have yet to find a leaf mine or a larva.

A moth of the same Acentropinae sub-family, Ringed China-mark Moth (*Paroponyx stratiotata*) was recorded on 16th July 2018 by Sam Bosanquet near to Bramble Villas. The larvae of this species is totally different from the Brown China-mark. It is up to 30mm long with a distinctive set of up to eight branching gill filaments on each abdominal body section. It lives in a loose silken tube attached to the stem or leaves of *Potamogeton* and is yet another larval species to find.

Acknowledgment

I would like to thank Mr R. Heckford for his patience in walking me through the changes in entomological nomenclature.

References

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