

- 2110a (10102) Langmaid's Yellow Underwing *Noctua janthina* ([Denis & Schiffmüller], 1775)**  
 Immigrant and possible recent colonist
- 2111 (10103) Lesser Broad-bordered Yellow Underwing *Noctua janthe* (Borkhausen, 1792)** Common

**History and status** (see also overleaf)

Von Mentzer *et al.* (1991) presented evidence that the species known in Europe up to that time as *Noctua janthina* consisted of a complex of three species, designated as *janthe*, *janthina* and *tertia*. At the time, all '*janthina*' from Britain and Ireland examined conformed to only one of the new species, designated as *Noctua janthe*. This is widespread in continental Europe, as is the 'new' *janthina*, but the latter has a more easterly distribution (although it extends to the Atlantic coast).

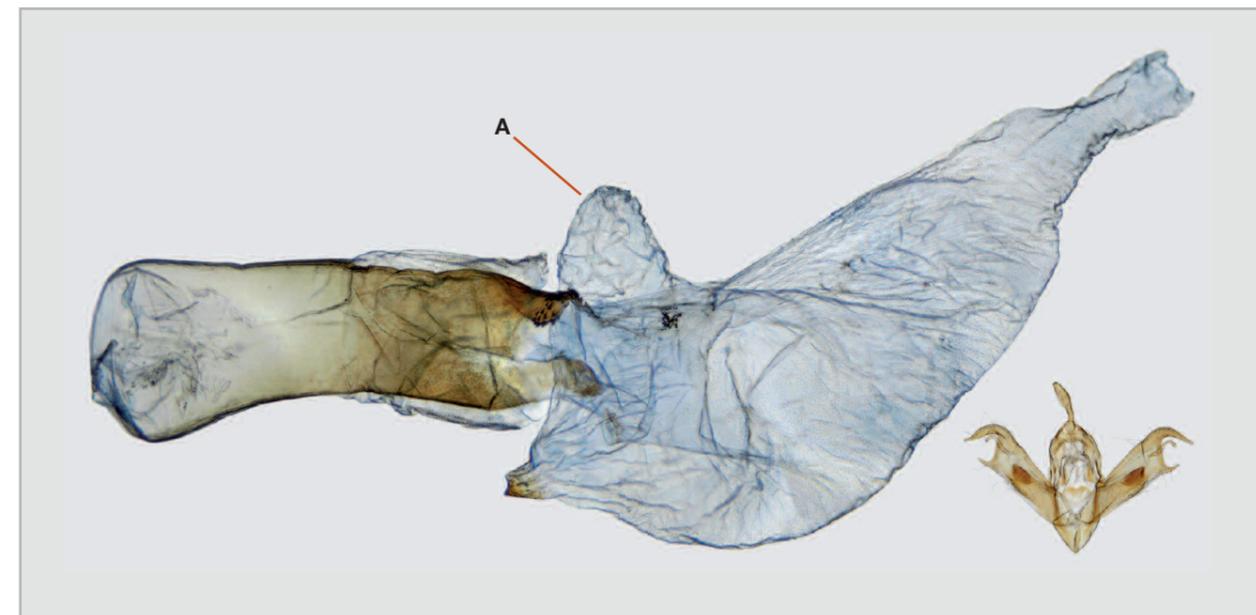
In 2001, an example of the 'new' *janthina* was caught in Hampshire (Langmaid, 2002). Since then many more have been recorded in southern England (Waring *et al.*, 2009; Skinner, 2009) mainly in southern coastal counties, where it is presently regarded as locally established. Moths conforming to *tertia* have been recorded from the Balkans, Greece and Turkey, and it seems unlikely that it will be recorded in Britain. However, the evidence presented by von Mentzer *et al.* (1991) has since been questioned. Plontke *et al.*, (2005) consider that the three taxa are in fact one species. The genitalia are somewhat variable, but G. Haggett (unpublished data) suggests that *janthe* and *janthina* are very closely allied sibling species.

**Differences in the male genitalia**

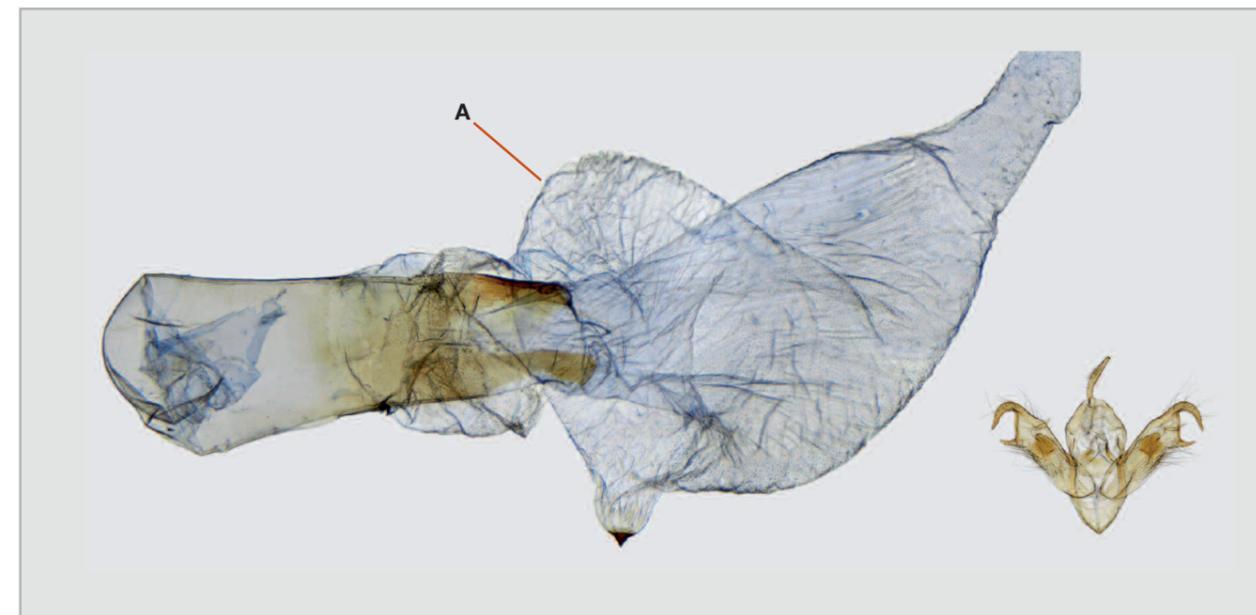
In the male, the difference in the vesica is variable. Dissection of a large number of individuals has shown that a spectrum exists, and it is not uncommon to find examples that are intermediate to some degree. The following is provided as a guide.

Vesica (when everted) shows narrower ventral basal diverticulum (that which is upturned and lacks cornuti) (figure 64, A).....*janthina*

Vesica (when everted) shows broader ventral basal diverticulum (that which is upturned and lacks cornuti) (Fig. 65, A).....*janthe*



64. *Noctua janthina* male everted aedeagus (remainder of genitalia inset)



65. *Noctua janthe* male - everted aedeagus (remainder of genitalia inset)

### Differences in the female genitalia

As in the males, a spectrum exists and some individuals will be intermediate so the following is a guide.

Appendix bursae (shoulder) larger (Fig. 66, A). Corpus bursae shorter relative to ostium area (B).....*janthina*

Appendix bursae (shoulder) smaller (Fig. 67, A). Corpus bursae longer relative to ostium area (B).....*janthe*

### Diagnostic external characters

Various authors including Waring *et al.* (2009) and Hall (2003), describe and discuss the differences, which are variable. Attention has been focussed on the hindwing upperside and the forewing underside. On the hindwing upperside, in *janthe* there is almost always a gap along the costa between the black terminal band and the black basal smear. Often, the band stops more or less abruptly at roughly two-thirds leaving a clear wide yellow gap, less often a dark wedge extends inwards from the band. In *janthina*, the band is generally broader and extends along the costa to the base (f. *flavomaculata*) or at the very least the two black areas usually meet and the M1 vein (the second radial vein from the costa) is black, so the hindwing often appears black with a yellow spot. Plant (2003) and others note that this is especially evident in flight, whereas the hindwing of *janthe* appears yellow with a black border.

On the forewing underside, in *janthe*, the distal edge of the large black blotch extending from the base usually has short finger-like projections, and stops at the sub-terminal line. In *janthina*, the underside of the forewing is generally duskier orange-brown, and the distal edge of the dark blotch is usually smooth and bowed out towards the termen. However, some *janthina* are as pale as *janthe* with 'fingers' suggested, and in some *janthe* the 'fingers' are absent or only suggested. Wild caught adults from an area of the UK where only *janthe* has been found, showed a significant proportion with the black blotch lacking fingers distally (G. Haggett, unpublished data). The ground colour was consistent with *janthe*. Note that Skinner (2009) incorrectly states that finger-like projections are only present in *janthina*, but illustrates them correctly.

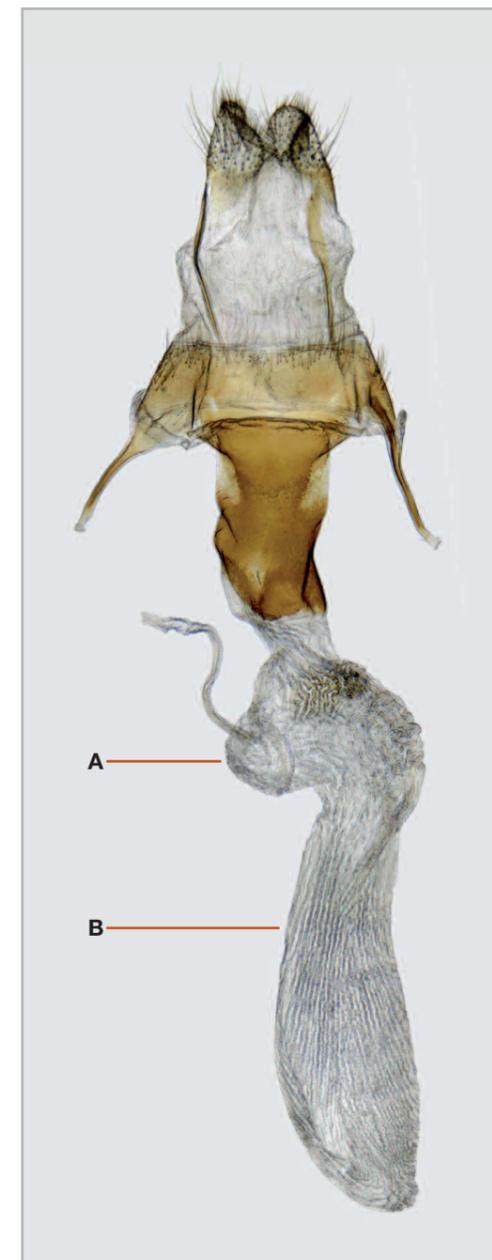
Breeding experiments (G. Haggett, unpublished data) allied to genitalia examination, wherein results from different batches of progeny were consistent, have provided evidence that *janthe* and *janthina* are distinct species, and have shown that *janthina* is sexually dimorphic, especially on the hindwing upperside characters. Males are generally darkest (also with a patch of dark cilia at the apex – yellow in *janthe* and female *janthina*) whereas females tend to have less pronounced darkening along the costa, so that some resemble *janthe*. Most *janthina* recorded in England have been males, and it is possible that some females have been overlooked as *janthe*. No sexual dimorphism has been found in *janthe*. Other alleged differences on the forewing upperside have been examined and found to be inconsistent, including coloration and how strongly the reniform and orbicular stigmata are outlined in white.

Flight period is also a useful guide. Skinner (2009) gives the flight period of *janthina* as late June to mid-August, and that of *janthe* as late July to early September, based on observations in southern England. It is possible that hybridisation occurs in the wild making identification even trickier. They will hybridise in captivity, but the offspring show very little fertility. It appears likely therefore, that the two will remain separate entities in Britain.

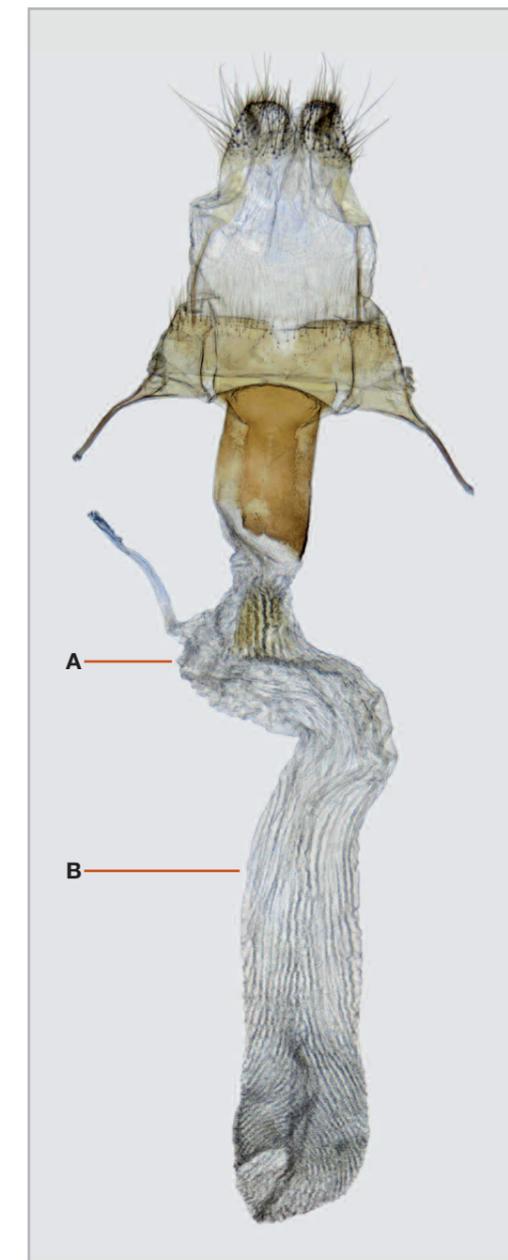
### Summary

It is clear that determination of this pair is not straightforward, and that a number of factors in combination must be taken into consideration when recording and selecting individuals for closer scrutiny including genitalic examination, namely hindwing upperside markings, forewing underside markings, sex of the individual(s), time of year and pattern of occurrence (where known).

In particular, at any given locality, the presence of f. *flavomaculata* (most easily detected in the males) indicates *janthina*, and this can also be tested by obtaining eggs from local females and rearing adults. At the very least, specimens should be retained. For some individuals certain determination will not be possible, but it should be possible to establish which species are present in a locality.



66. *Noctua janthina*



67. *Noctua janthe*