2219 (9232) Striped Lychnis *Shargacucullia lychnitis* (Rambur, 1833) — Nationally Scarce A
2220 (9229) Water Betony *Shargacucullia scrophulariae* ([Denis & Schiffermüller], 1775) — Immigrant
2221 (9233) Mullein Moth *Shargacucullia verbasci* (Linnaeus, 1758) — Common

Diagnostic external characters

Differences between *verbasci* and *lychnitis* are described by Waring *et al*. (2009) and Skinner (2009). The presence of a discal spot on the hindwing underside is a good indication of *verbasci* but some *lychnitis* have this, especially females. A grey tint to the costal streak is a good indication of *lychnitis*. If in doubt, the genitalia show clear differences.

S. scrophulariae is regarded as intermediate in outward appearance between *verbasci* and *lychnitis*. It is a rare immigrant, with two confirmed specimens from mainland Britain and three from the Channel Islands, the latter all on Guernsey in 2005 (Sterling and Costen, 2007). It has been widely recorded since the 18th century and was previously regarded as resident. However, all other specimens examined have proved to have been misidentified, usually being confused with *verbasci*. It is essential that any further records are confirmed by examination of genitalia, and subject to expert confirmation.

In Britain and Ireland, these species (other than *scrophulariae*) are most frequently encountered as larvae (described by Heath and Emmet, 1983 and Porter, 1997). That of *lychnitis* is usually restricted to the flowers of Dark Mullein *Verbascum nigrum*, but is recorded from other species of *Verbascum*, and feeds from July to September. It can usually be distinguished from *verbasci* (which feeds mainly on the leaves, May to early July) and *scrophulariae* by the absence of fine black lateral vertical lines between the larger black markings, but variants occur. The flight period of *scrophulariae* is May and June, earlier than *lychnitis*, which flies in June and July. Therefore, any *Shargacucullia* caught early in the season that seem slightly different to *verbasci* are worth retaining, especially near southern coasts.

Diagnostic morphological characters

The genitalia of *verbasci* are quite distinct, but those of *lychnitis* and *scrophulariae* are very similar and they are difficult to separate. The differences require experience and very careful preparation to be appreciated, especially those on the vesica of the males, and those used to separate the females. For any suspected *scrophulariae*, direct comparison should be made with a confirmed specimen of *lychnitis*.

Ronkay and Ronkay (1994) discuss the differences in the genitalia of both sexes between the European species in this problematical species complex in greater detail. They state that in *scrophulariae* the distal part of main tube of the vesica is directed upwards dorsally from the medial branch and recurved on the dorsal side, whereas in *lychnitis* it originates dorso-laterally from the medial branch. This is difficult to see and requires correct orientation of the vesica in three dimensions. Sterling and Costen (2007) suggest differences in the teeth on the carina of the aedeagus, but these are not consistent between populations (José Luis Yela, pers. comm.). In the females, in addition to the admittedly very slight and comparative character we give, Ronkay and Ronkay (1994) state that in *scrophulariae*, the ductus bursae has a broader lateral extension with a more or less triangular sclerotised extension across the corpus bursae.

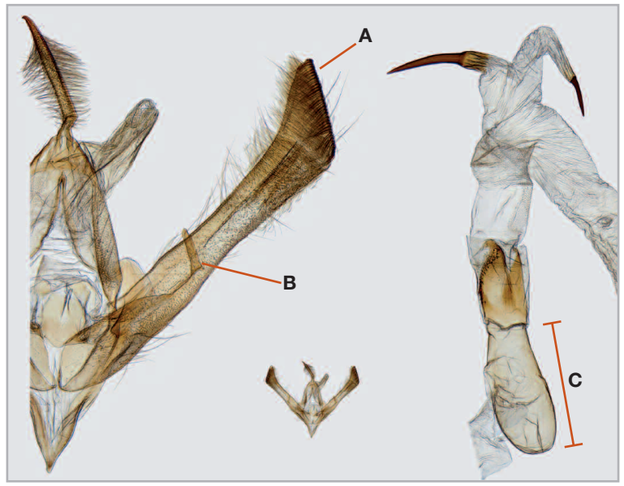
Key to the males (see comments above)

1. Valva tapers to a very short, pointed cucullus (Fig. 88, A)..... *verbasci*

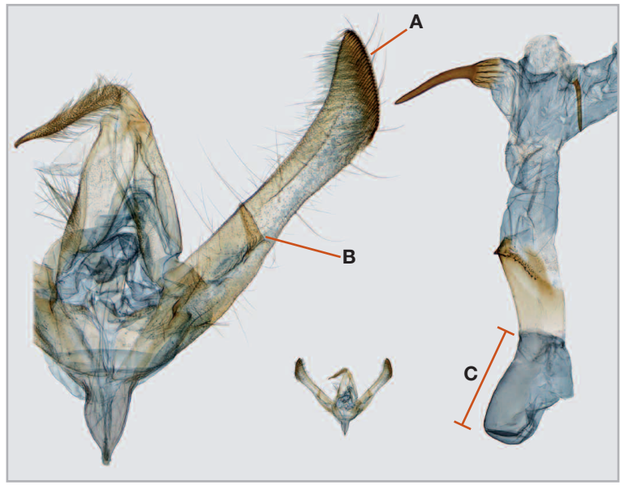
– Cucullus well developed..... 2

2. Outer margin of cucullus almost straight (Fig. 86, A). Base of harpe narrow, only slightly broader than median width (B). Coecum approximately 10% longer (C)..... *lychnitis*

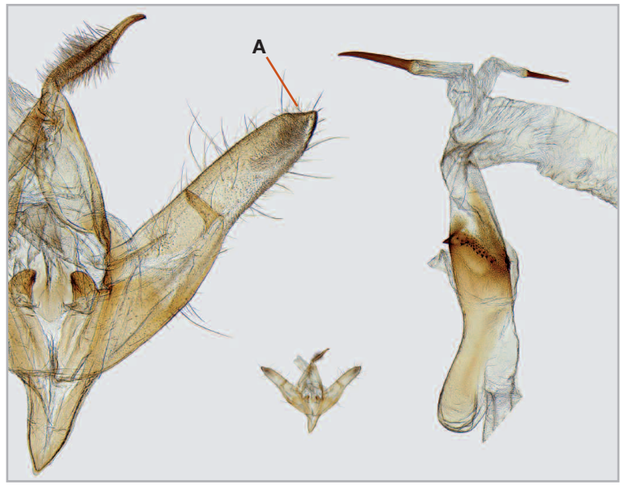
– Outer margin of cucullus curved (Fig. 87, A). Base of harpe appreciably broader than median width (B). Coecum approximately 10% shorter (C)..... *scrophulariae*



86. *Shargacullia lychnitis*



87. *Shargacullia scrophulariae*



88. *Shargacullia verbasci*

Plate 24. Genitalia of male *Shargacullia lychnitis, S. scrophulariae* and *S. verbasci*, including everted aedeagus.

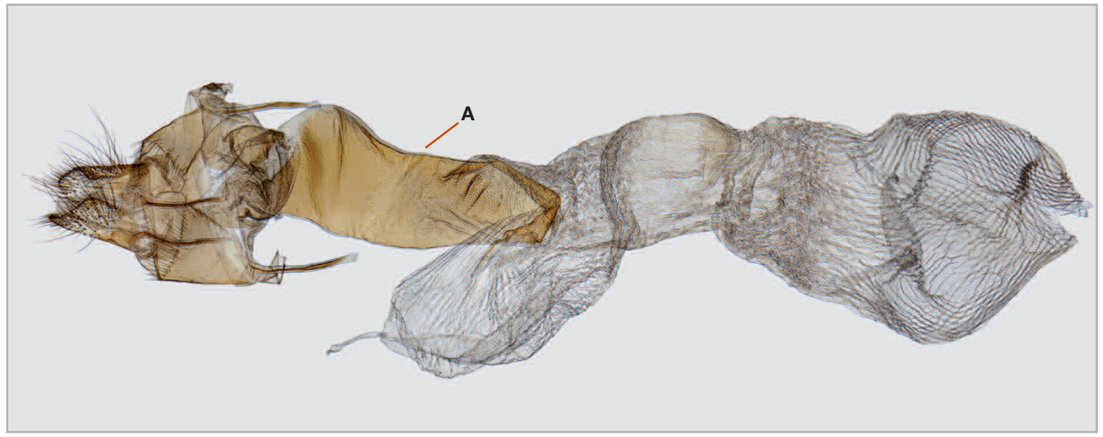
Key to the females (see also notes above)

1. Ductus bursae very short, and narrow (Fig. 91, A).....*verbasci*

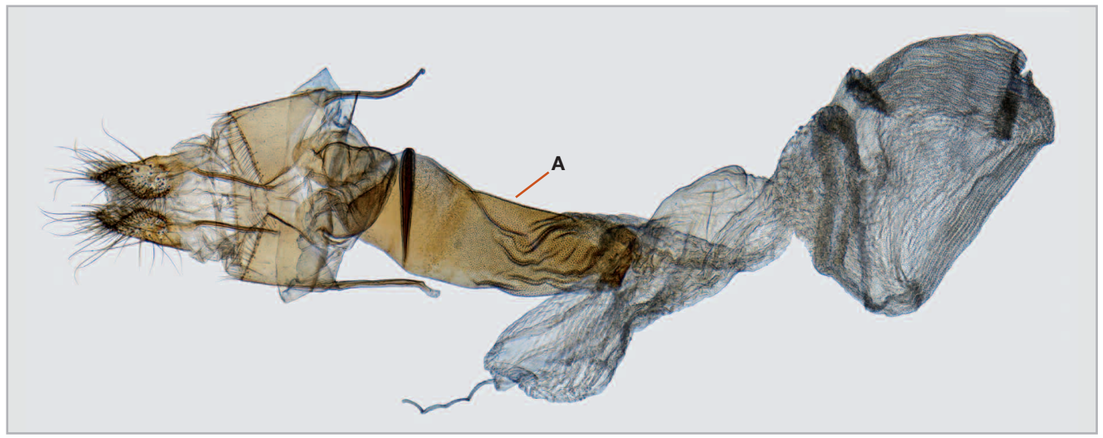
– Ductus bursae much longer.....2

2. Ductus bursae slightly longer and narrower than in *scrophulariae* (Fig. 89, A).....*lychnitis*

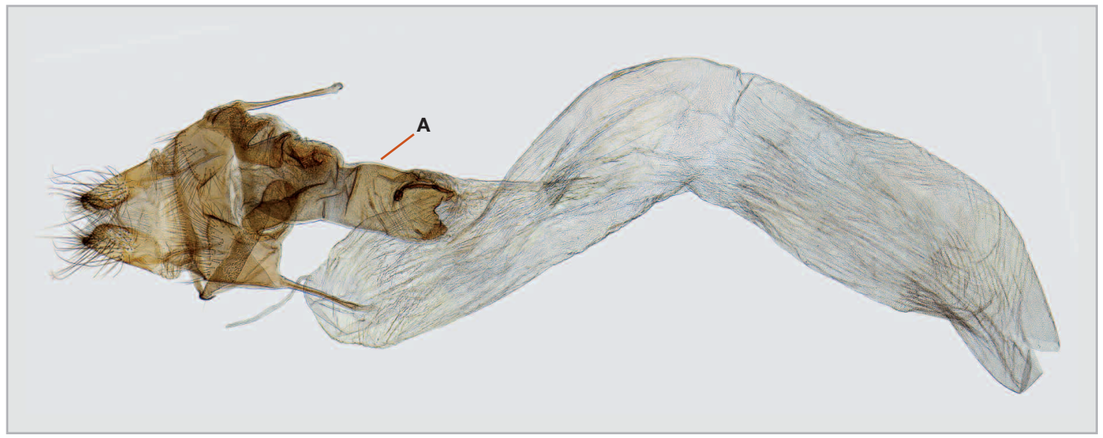
– Ductus bursae slightly shorter and broader than in *lychnitis* (Fig. 90, A).....*scrophulariae*



89. *Shargacucullia lychnitis*



90. *Shargacucullia scrophulariae*



91. *Shargacucullia verbasci*

Plate 25. Genitalia of female *Shargacullia lychnitis, S. scrophulariae* and *S. verbasci*.