

The Current Status and Distribution of Psychidae Moths in Nottinghamshire



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1.0 Introduction

There has been a substantial increase among lepidopterists regarding the UK's Psychidae in recent years. Whilst much of this renewed interest may be due to the fact that their larval cases can be looked for during the Winter months, the life history of many Psychidae means they make interesting study. Some species are parthenogenetic, meaning that they have no males, as the females of these species are both self-fertile and wingless. Psychidae larvae also construct mobile cases within which they live throughout their larval stage, often enlarging the case or even constructing new ones as they mature. Cases are then covered with particles of sand, bark, dead plant material and even insect remains.

As a direct consequence of this recent interest, many counties have since increased the number of species on their respective lists and a more accurate distribution of the UK's Psychidae has been achieved. At the beginning of 2006 however, Nottinghamshire was not one of those counties, having a much smaller Psychidae list than the neighbouring counties of Leicestershire or Derbyshire.

1.1 Aims and objectives of this report

Our own personal interest in Nottinghamshire Psychidae began back in 2005 and we have pretty much looked for them ever since. Living in the heart of the Sherwood Forest area has certainly helped with our searches and subsequent mapping. But we also found that some species of this unusual group, even inhabit the trees and walls within the city of Nottingham and the towns of Mansfield and Worksop. Further searching over the coming years will undoubtedly fill in many of the blank areas which still exist in the species maps produced further on in this initial survey report.

Like most micro-moths, there seems to have been little effort to record them in Nottinghamshire previously and many known county records have probably been a result of casual sightings/records, rather than a deliberate attempt to survey them.

There is then, still a great deal to learn about the distribution of Psychidae moths within Nottinghamshire and this first report on Nottinghamshire Psychidae, serves as an introduction to their present status within the county for the first time ever.

1.2 Sources of information and references

Our thanks go to the following people who have provided their assistance with information concerning county records or who have helped with identification requests at the start of this survey.

Mark Skevington for information relating to the status of Leicestershire Psychidae records.

Dave Budworth (Nottinghamshire county micro-moth recorder) for the Derbyshire Psychidae records.

Sheila Wright (Nottinghamshire county macro-moth recorder) Nottinghamshire Psychidae records.

Henk ten Holt for his invaluable ID help in the past and for his suggestions/corrections and assistance in writing the Psychidae nomenclature section.



2.0 UK Psychidae

The Psychidae certainly represent some of the strangest of moths and are sometimes more commonly known as "Bagworms". The term Bagworm is derived from the case which the larva constructs around itself as it grows. The case is based on a silk tube, to which the larva attaches various items of plant, lichens, algae, sand, insects and debris. Although many species produce cases which are readily identifiable in the field through a combination of shape, size and material used, this cannot always be guaranteed with 100% certainty between species that construct very similar cases of around the same size. The commonest of the three *Dahlica* species are examples of this, but then these can be further confused with the similar looking cases of *Narycia duplicella*.

Entomologists have found that correct identification of the *Dahlicas* can come from the discarded pupal head-plate after emergence, rather than genitalia dissection. Examination under a microscope is quite easy to determine the species, by carefully checking the antennal length on the head-plate. The head-plate usually remains attached to the pupa after emergence. *Dahlica* larvae are difficult to separate on physical characteristics.



Pupal head-plates

Comparison of the pupal head-plates of *Dahlica inconspicuellae* and *Dahlica lichenella* (near right) The images are not to scale, with both pupal head-plates measuring about 1mm in length.

The pictures do however, show the differences in the antennal lengths between the two species. These are presently the only two *Dahlicas* known in Nottinghamshire. *D. triquetrella* almost certainly occurs, but has not yet been discovered.

When in the field, a fairly accurate practice that we used to help separate *Narycia duplicella* cases from either *Dahlica lichenella* or *Dahlica inconspicuellae*, was by counting the number of larval cases on a single particular tree or wall. As the *Dahlicas* are apterous (wingless) then large numbers of cases found within relatively small areas or per tree trunk, often turned out to be one of these species. *Narycia duplicella* cases were often found singly per tree, or in very low numbers, but cases found on some trees in Sherwood Forest, could contain two or even three species. To make certain of some identifications for which we had doubts, larval cases were brought home and then reared in captivity to adult.

Of all the UK's Psychidae, only *Narycia duplicella* and *Diplodoma laichartingella* have fully winged females, with all other species having apterous females. These tend to be sluggish, rarely move far after emergence and have a short life-span. One female *Dahlica lichenella* we reared in 2006, successfully emerged during the morning, but died within 6-8 hours of emergence. Eggs were laid directly into the old larval case and the case later returned to the site of collection.



2.1 UK Psychidae species list

The current UK Psychidae species list totals 21 species, two of which (*Canephora hirsuta* and *Thyridopteryx ephemeriformis*) have only occurred as either accidentals or vagrants.

- 0175 *Narycia duplicella*
- 0176 *Dahlica triquetrella*
- 0177 *Dahlica inconspicua*
- 0178 *Dahlica douglasii*
- 0179 *Dahlica lichenella*
- 0180 *Diplodoma laichartingella*
- 0181 *Taleporia tubulosa*
- 0182 *Bankesia conspurcatella*
- 0183 *Bacotia sepium*
- 0184 *Luffia lapidella*
- 0185 *Luffia ferchaultella*
- 0186 *Psyche casta*
- 0187 *Psyche crassiorella*
- 0188 *Proutia betulina*
- 0189 *Epichnopteryx plumella*
- 0190 *Epichnopteryx retiella*
- 0191 *Acanthopsyche atra*
- 0192 *Pachythelia villosella*
- 0193 *Canephora hirsuta*
- 0194 *Thyridopteryx ephemeriformis*
- 0195 *Sterrhopteryx fusca*

2.2 Changes/confusion within Psychidae nomenclature

There are several UK Psychidae that are currently named differently by European entomologists. These are not yet fully accepted by the authorities here in the UK, but are in daily use by many entomologists. An explanation of these has been kindly produced by the Dutch Psychidae specialist Henk ten Holt. With the possibility that these names will be adopted in the UK, they have been used throughout this survey. Below is an explanation of the species names, currently in general use by European and most UK entomologists.

In Britain two *Luffia* species were thought to occur, the parthenogenetic *Luffia ferchaultella*, with self-fertile wingless females widespread in the southern part of Britain, and the bisexual *Luffia lapidella*, with winged males and wingless females; in Britain occurring only in Cornwall. Larvae and cases of these species are identical. In recent DNA tests the two species could not be separated, so technically they are two forms of one species, the bisexual form being *Luffia lapidella* f. *lapidella* and the parthenogenetic form being *Luffia lapidella* f. *ferchaultella*. Other name changes currently in use include *Diplodoma herminata* - now *D. laichartingella*, *Narycia monilifera* - now *N. duplicella* and *Bacotia sepium* - now *B. claustrilla*.

2.3 Psychidae in Nottinghamshire

Ken Cooper's 1993 listing for the county showed just five species recorded from Nottinghamshire. At the start of the survey, the status and distribution of all Psychidae in Nottinghamshire was unknown, but there seems little interest and possibly a great deal of under-recording of micro-lepidoptera by the county's lepidopterists. Prior to the onset of our survey, Nottinghamshire's Psychidae list consisted of *Narycia duplicella*, *Dahlica inconspicua*, *Taleporia tubulosa* and *Psyche casta*. There was just one record of *Diplodoma laichartingella*.



2.4 Psychidae in Derbyshire and Leicestershire

In 2006, Derbyshire and Leicestershire figured much better for their number of recorded Psychidae than Nottinghamshire, but both these counties had people who were willing to look for them. The three counties all listed *Narycia duplicella*, *Taleporia tubulosa*, *Diplodoma laichartingella* and *Psyche casta*. Leicestershire is still waiting to record *Dahlica inconspicuella*, the commonest of the British Dahlicas. Many of Leicestershire's records have come from Swithland Reservoir, which has good numbers of *Luffia lapidella f.ferchaultella*, and which has recently produced first county records of *Dahlica triquetrella*, *Dahlica lichenella* (both in 2005) and *Narycia duplicella* (2004)

Derbyshire's records date back earlier, but there seems to be fewer follow-up records after initial first county records. Psychidae here are presently represented by *Narycia duplicella* (Chatsworth 1981) *Dahlica inconspicuella* (Dovedale 1974, Beeley Moor 1986 and Middleton Top 1987) *Diplodoma laichartingella* (Wirksworth c1892) and *Taleporia tubulosa* (Caulke Est 1980's and Clough Wood 1980's) The 2006 Derbyshire list, still considered the records of *Epichnopterix plumella* (Repton Shrubs 1920's) and *Acanthopsyche atra* doubtful. However, there have been records of *Acanthopsyche atra* since.

Psyche casta appears to be generally common throughout all three counties.

2.5 Pre-2006 Nottinghamshire, Derbyshire and Leicestershire species' lists

Nottinghamshire Psychidae

Narycia duplicella
Dahlica inconspicuella
Diplodoma laichartingella
Taleporia tubulosa
Psyche casta

Leicestershire Psychidae

Narycia duplicella
Dahlica triquetrella
Dahlica lichenella
Diplodoma laichartingella
Taleporia tubulosa
Luffia lapidella f.ferchaultella
Psyche casta

Derbyshire Psychidae

Narycia duplicella
Dahlica inconspicuella
Diplodoma laichartingella
Taleporia tubulosa
Psyche casta
Acanthopsyche atra

Species presently on the Derbyshire list but record (s) considered to be doubtful.

Epichnopterix plumella

Above are the relevant county lists in 2006.

It was always fairly obvious from the onset of this survey, that there was the potential to add at least two or three new species to the Nottinghamshire list. This did eventually turn out to be the case. *Dahlica lichenella* was an early discovery, and in the most unlikely location of a cemetery wall at Market Warsop. The second and third county records of *Diplodoma laichartingella*, were soon followed by many more records and we were eventually able to identify favoured locations and over-wintering sites for this species and in the process, completely changing the status of this moth in Nottinghamshire.

A second new species for the county was *Luffia lapidella f.ferchaultella*, found accidentally in the grounds of Nottingham City Hospital. Other records followed, but possible young larval cases found in Sherwood Forest, were never successfully identified and at present still remains a relatively urban species.



3.0 Survey sites

3.1 Survey sites, habitat and recorded Psychidae

Bilsthorpe

SK648621 **Cutt's Wood** *Mixed woodland with coniferous plantation*

0175 *Narycia duplicella*

SK637610 **Lime's Café Car Park** *Car park with mature trees*

0175 *Narycia duplicella*

Blidworth

SK607545 **Haywood Oaks** *Mixed woodland with coniferous plantation*

0175 *Narycia duplicella*

0186 *Psyche casta*

Clipstone

SK590630 **Clipstone** *Urban area with street tree planting*

0184 *Luffia lapidella f. ferchaultella*

SK575632 **Newlands** *Mixed woodland edging urban area*

0175 *Narycia duplicella*

Clumber Park

SK626746 **Clumber Park** *Parkland, heathland, mixed woodland*

0175 *Narycia duplicella*

0186 *Psyche casta*

SK637749 **Tank Wood** *Deciduous woodland with Bramble undergrowth*

0175 *Narycia duplicella*

0186 *Psyche casta*

SK618718 **Clumber Park** *Deciduous woodland*

0175 *Narycia duplicella*

0186 *Psyche casta*



SK628738 Thorney Hill *Heathland, mixed woodland*

0175 *Narycia duplicella*

0186 *Psyche casta*

Eakring

SK678624 Church Hill *Small copse within agricultural land*

0175 *Narycia duplicella*

SK677602 Dukes Wood *Deciduous woodland*

None recorded

SK665608 Eakring Brail Wood *Mixed woodland with coniferous plantation*

0175 *Narycia duplicella*

SK676622 Eakring Churchyard *Maintained cemetery in village*

None recorded

SK701620 Eakring Meadows NR *Grass/meadowland and marsh*

0175 *Narycia duplicella*

SK677636 Lound Wood *Mixed woodland*

0175 *Narycia duplicella*

0177 *Dahlica inconspicua*

0180 *Diplodoma laichartingella*

0181 *Taleporia tubulosa*

0186 *Psyche casta*

Gleadthorpe

SK595708 Gleadthorpe Breck Plantation *Deciduous woodland*

0175 *Narycia duplicella*

0186 *Psyche casta*

SK592701 Gleadthorpe Farm *Roadside stone wall*

None recorded

Kersall

SK713619 Kersall *Hedgerows with trees bordering meadowland*

0175 *Narycia duplicella*



Kneesall

SK708625 Hare Hill Wood *Deciduous woodland*

None recorded

SK723646 Kneesall Wood *Deciduous woodland*

None recorded

Mansfield

SK546595 Berry Hill *Urban area with street tree planting*

0175 *Narycia duplicella*

0184 *Luffia lapidella* f. *ferchaultella*

SK516596 King's Mill Reservoir *Urban reservoir with surrounding scrub and mature trees*

0175 *Narycia duplicella*

Mansfield Woodhouse

SK540632 Mansfield Woodhouse *Urban area with street tree planting*

0175 *Narycia duplicella*

SK550657 Nettleworth Manor *Parkland/agricultural*

0175 *Narycia duplicella*

Market Warsop

SK586663 Bradmer Hill *Mixed woodland, areas of coniferous plantation with light Bramble undergrowth*

0186 *Psyche casta*

0180 *Diplodoma laichartingella*

SK571684 Burns Lane *Urban area with street tree planting*

0175 *Narycia duplicella*

SK567699 Cuckney Hay Wood *Mixed woodland with coniferous plantation*

0175 *Narycia duplicella*

0181 *Taleporia tubulosa*

0186 *Psyche casta*



SK575706 Hatfield Plantation *Deciduous woodland*

0186 *Psyche casta*

SK556680 Hills and Holes *Scrub/grassland*

0175 *Narycia duplicella*

SK563675 Mansfield Road *Urban area with street tree planting*

0175 *Narycia duplicella*

SK569691 Market Warsop Cemetery *Maintained cemetery/semi-urban*

0175 *Narycia duplicella*

0179 *Dahlica lichenella*

SK585689 Market Warsop STW *Agricultural land with hedgerows and occasional trees*

0175 *Narycia duplicella*

SK565655 Redbrick House *Deciduous woodland*

0186 *Psyche casta*

SK554694 Warsop Wood *Broadleaved woodland with Bracken undergrowth*

0186 *Psyche casta*

Norton

SK574720 Norton *Stone road bridge*

None recorded

Nottingham

SK591434 Gretton Road *Urban area with street tree planting*

0175 *Narycia duplicella*

SK565440 Nottingham City Hospital *Urban hospital with some mature trees/parkland*

0184 *Luffia lapidella*

SK593433 Sandford Road *Urban area with street tree planting*

0175 *Narycia duplicella*

0184 *Luffia lapidella f.ferchaultella*



Oxton

SK634537 Loatt Hill *Agricultural land with small wooded area*

None recorded

Pleasley

SK526645 North Lodge Farm *Farmland with some stone, boundary walls*

0175 *Narycia duplicella*

Retford

SK728766 Bevercotes Wood *Former Pit Top adjacent to mixed woodland*

0175 *Narycia duplicella*

SK728775 Eaton Wood *Deciduous woodland*

None recorded

Rufford

SK642646 Rufford CP *Parkland/deciduous woodland*

0175 *Narycia duplicella*

Sherwood Forest

SK610715 Budby Carr *Heathland and scrub*

0175 *Narycia duplicella*

SK620695 Budby Common *Heathland*

0175 *Narycia duplicella*

0177 *Dahlica inconspicua*

0180 *Diplodoma laichartingella*

0181 *Taleporia tubulosa*

0186 *Psyche casta*

SK645675 Burstheart Hill *Deciduous woodland with Bracken undergrowth*

0175 *Narycia duplicella*

0181 *Taleporia tubulosa*

0186 *Psyche casta*



SK615635 Clipstone Forest *Largely coniferous woodland/plantation*

0186 *Psyche casta*

SK605670 Clipstone Old Quarter *Woodland; coniferous and semi-natural*

0175 *Narycia duplicella*
0177 *Dahlica inconspicuellla*
0186 *Psyche casta*

SK605723 Gibraltar Plantation *Largely coniferous plantation*

0180 *Diplodoma laichartingella*
0181 *Taleporia tubulosa*
0186 *Psyche casta*

SK559690 Hanger Hill Plantation *Deciduous Beech woodland with thin ground-cover*

0179 *Dahlica lichenella*
0180 *Diplodoma laichartingella*
0181 *Taleporia tubulosa*
0186 *Psyche casta*

SK600698 Holborn Hill Plantation *Deciduous Beech woodland with thin ground-cover*

0175 *Narycia duplicella*
0179 *Dahlica lichenella*
0180 *Diplodoma laichartingella*
0181 *Taleporia tubulosa*
0186 *Psyche casta*

SK607658 New Lodge Plantation *Deciduous woodland*

0175 *Narycia duplicella*
0186 *Psyche casta*

SK613716 Scotland Farm *Coniferous plantation*

0175 *Narycia duplicella*
0186 *Psyche casta*

SK627678 Sherwood Forest CP *Ancient deciduous woodland*

0175 *Narycia duplicella*
0180 *Diplodoma laichartingella*
0186 *Psyche casta*

Thoresby

SK613716 Duncan Wood *Mixed woodland with coniferous plantation with light Bramble undergrowth*

0175 *Narycia duplicella*
0180 *Diplodoma laichartingella*
0186 *Psyche casta*



Walesby

SK665718 Blackcliffe Hill Plantation *Deciduous woodland and large coniferous plantation with light Bramble undergrowth, adjacent to open heathland*

0175 *Narycia duplicella*
0186 *Psyche casta*

SK669695 Boughton Brake *Mixed woodland and areas of coniferous plantation with partial, light Bramble undergrowth*

0175 *Narycia duplicella*
0186 *Psyche casta*
0180 *Diplodoma laichartingella*

Wellow

SK669662 Wellow School *Parkland/large garden*

0175 *Narycia duplicella*

Worksop

SK591773 Hannah Park *Deciduous woodland*

None recorded

SK612825 Hundred Acre Wood *Deciduous woodland*

0175 *Narycia duplicella*
0181 *Taleporia tubulosa*
0186 *Psyche casta*

SK595799 Kilton Road *Urban area with street tree planting*

0175 *Narycia duplicella*

SK597810 Theivesdale Lane *Urban area with street tree planting*

None recorded



4.0 Species accounts

The species accounts detail the occurrences in Nottinghamshire, of the following Psychidae moths that were recorded during the survey.

- 4.1 *Narycia duplicella*
- 4.2 *Dahlica inconspicuella*
- 4.3 *Dahlica lichenella*
- 4.4 *Diplodoma laichartingella*
- 4.5 *Taleporia tubulosa*
- 4.6 *Luffia lapidella f.ferchaultella*
- 4.7 *Psyche casta*

All the pages follow the same form and provide details on the following criteria.

Nottinghamshire status: Given as either common, rare or very rare etc. This is only a present guide based solely on our survey findings at the end of 2007. Many sites have yet to be surveyed, so the species status could possibly change.

Number of locations: For example 34/62 means that the moth (in any stage) was recorded at 34 locations out of a total of 62 currently surveyed by the end of 2007.

Case length: For example 6 - 8mm. Self explanatory.

The species accounts provide a general account of each species, detail the above criteria and provide notes of preferred habitat, details on notable sites and numbers (including where populations are fragile and worthy of greater awareness and protection) and available notes on success when reared in captivity.



4.1 *Narycia duplicella*

Nottinghamshire status: Common

Number of locations: 42/62

Case length: 5 - 7.5mm, covered with algae and lichen particles and sometimes with a distinctive lateral flange, less often seen on cases of *Dahlica lichenella* or *Dahlica inconspicua*.



Narycia duplicella larval case

Sherwood Forest March 2006

Narycia duplicella represents the most widespread species of all Nottinghamshire Psychidae, occurring at most of the locations visited and surveyed. Although the larval cases of this moth were found commonly in the Sherwood Forest area, there were suitable looking locations where it was found to be absent.

Active larval cases were generally found in small numbers (usually less than five per tree) but cases can remain in-situ, certainly for several years where they are protected from the elements. Old cases are often the most easily found during the Winter months, generally remaining higher off the ground at the pupation site. Active cases tended to be much lower at this time, occasionally being found in bark crevices at ground-level, although finding these was often completely by chance.

During March and sometimes even in February if the weather was mild, larvae became more active and could be found moving up trees and (more rarely) stone walls to begin feeding prior to pupation. Trees and walls covered in the lichen *Lepraria incana* were particularly favoured larval feeding sites, but cases were also found regularly on trees with virtually no lichen on them at all. We found that *Narycia duplicella* favoured no particular species of tree for feeding.





Narycia duplicella (adult male)

Reared ex-larva, Sherwood Forest March 2006

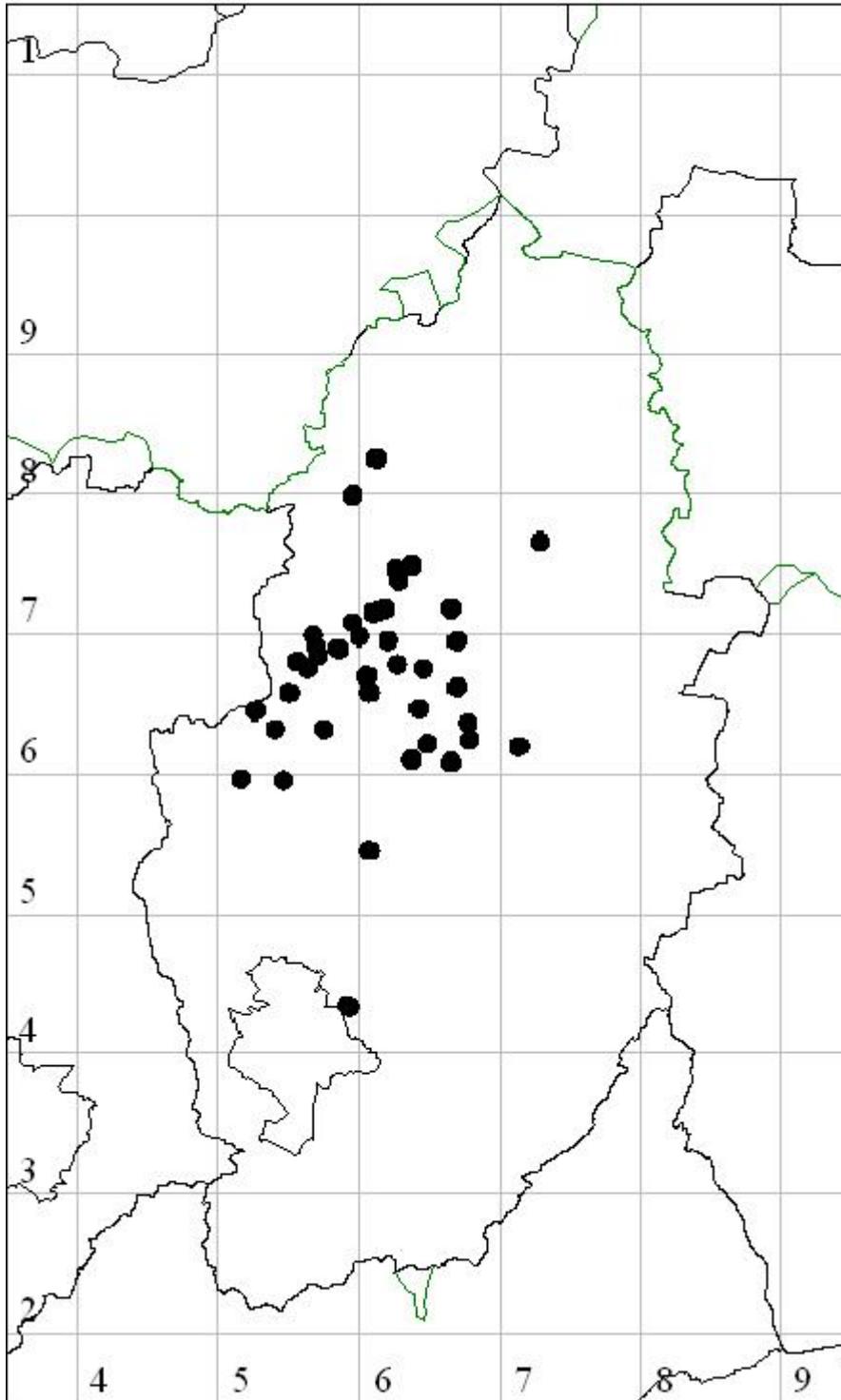
Although *Narycia duplicella* was most frequently found in wooded areas, there were several urban locations where cases were found. Odd larval cases were found on roadside trees at King's Mill Reservoir, Mansfield Woodhouse, Newlands and Berry Hill areas of Mansfield, at Mapperley in Nottingham and along Kilton Road in central Worksop. *Narycia duplicella* cases were also found alongside those of other species, including *Dahlica lichenella* at Market Warsop Cemetery, *Luffia lapidella* f. *ferchaultella* at Clipstone, Mapperley and Kilton Road, Worksop.

Rearing of larvae was relatively easy in captivity. Active cases were collected early in the year and then transferred to an algae or lichen covered piece of wood or bark, which was then placed into a large clear plastic container and kept indoors. The wood or bark was very occasionally, lightly sprayed with water and kept as free from mould as possible. Continued feeding took place over the following few weeks, until the larva attached the case securely and pupated. Adults hatched within about three weeks, were photographed and then released.



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Narycia duplicella



4.2 *Dahlica inconspicuella*

Nottinghamshire status: Very rare

Number of locations: 3/62

Case length: 5 - 6mm and obviously triangular in cross-section. Cases less covered with algae and lichen particles than those of *Dahlica lichenella* and *Narycia duplicella*.



Dahlica inconspicuella larval case

Sherwood Forest March 2006

From the evidence of this survey, *Dahlica inconspicuella* is a very rare Nottinghamshire moth and largely confined to the Sherwood Forest area. The moth was found to be present at just three sites. These were at Clipstone Old Quarter and Budby Common in Sherwood Forest, with another single old case at Lound Wood, Eakring, from where the moth is likely to be extinct as no definite cases have been found since. The moth is almost certainly more widespread than the results of our searches show. The case found on Budby Common, still contained both the pupal exuviae and (more importantly) the head-plate, which enabled identification.

The larval cases of *Dahlica inconspicuella* were almost impossible to find and cases on mature trees within three areas of the forest where the moth occurred, were largely well concealed within deep bark crevices. The case pictured above was actually found underneath loose bark. Such locations were often drier and less prone to lichen growth. Most of the cases we found, were often quite bare, with little coverage of lichen particles. This was by no means a guarantee of identification though and almost all of the cases we found, appeared to be those from previous years. Case lengths were always around 5 - 6mm and were obviously triangular in cross-section.





Dahlica inconspicuella (adult male)

Clipstone Old Quarter, Sherwood Forest April 2006

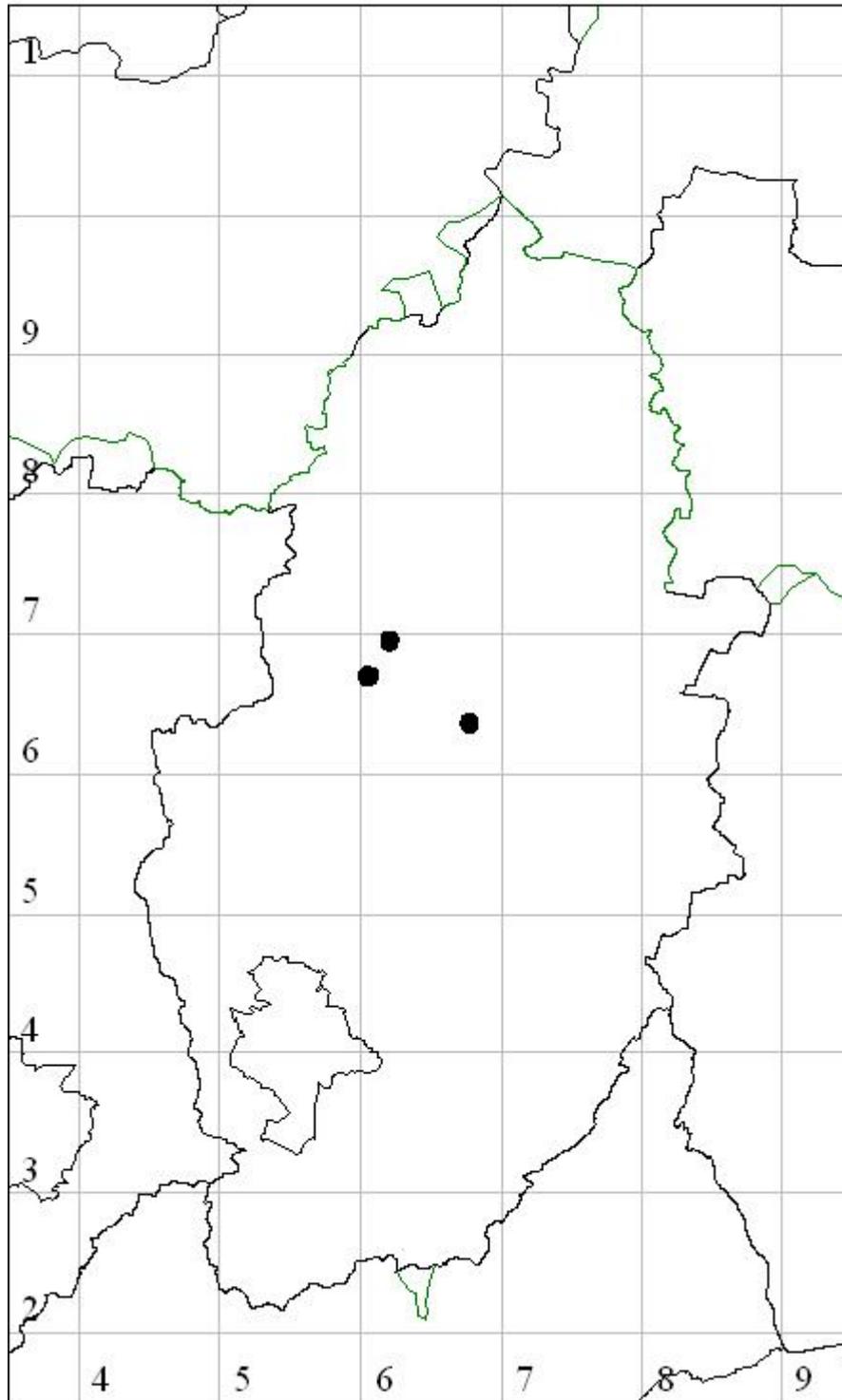
The apterous females of *Dahlica inconspicuella* were never found during the survey. However, we did have some chance success in finding the adults, when the fully-winged males were found by day on two occasions, resting on the trunks of Oaks at Clipstone Old Quarter, Sherwood Forest at the end of April 2006.

This moth was known from Nottinghamshire previously. Presumably it's stronghold has always been in and around the Sherwood Forest area, but yet it could still turn up at sites in the south of the county, possibly even in urban areas.



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Dahlica inconspicuell (Lesser Lichen Case-bearer)



4.3 *Dahlica lichenella*

Nottinghamshire status: Very rare

Number of locations: 2/62

Case length: 6.5 - 7.5mm, generally covered with particles of sand, algae and lichen. Mature larval cases often obviously larger than those of *Dahlica inconspicuell*a or *Narycia duplicella*.



Dahlica lichenella larval case

Market Warsop Cemetery March 2006

The first Nottinghamshire record of *Dahlica lichenella* surprisingly came from the roadside wall of Market Warsop Cemetery in 2006, where there were a total of 40 cases found. This total contained both active cases and older ones from previous years. All the cases were on the more shaded, east-facing side of the wall and facing away from the road. Although there were odd *Narycia duplicella* cases in with those of *Dahlica lichenella*, only the cases of *Narycia duplicella* were found on adjacent trees at this site. Despite much continued searching of the many stone walls in this general area over the next few weeks, no further sites or colonies of *Dahlica lichenella* could be located.

The only other location where this moth was recorded from was Holborn Hill Plantation, between the villages of Meden Vale and Budby. This small section of woodland is one of the few areas of mature Beech woodland in Sherwood Forest, with little undergrowth and no under-storey vegetation. It certainly proved to be one of the best sites for Psychidae during the survey.



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We found several occupied larval cases at Holborn Hill Plantation, but rarely more than one case per tree. The cases were distinctively larger than those of *Dahlica inconspicuell*a or *Narycia duplicella*, and the only real confusion species considered at the time was *Dahlica triquetrella*, a species not yet found in Nottinghamshire. However, the larvae of that species generally add some insect material to their cases and these typically had just algae and lichen particles.

One of two parthenogenetic Psychidae presently found in Nottinghamshire, *Dahlica lichenella* has apterous, self-fertile females, which are very short-lived. The two that we hatched in captivity, both died within about eight hours after emergence, after laying their eggs inside the larval cases. Neither of the females were seen to move off the larval case at all during that time.



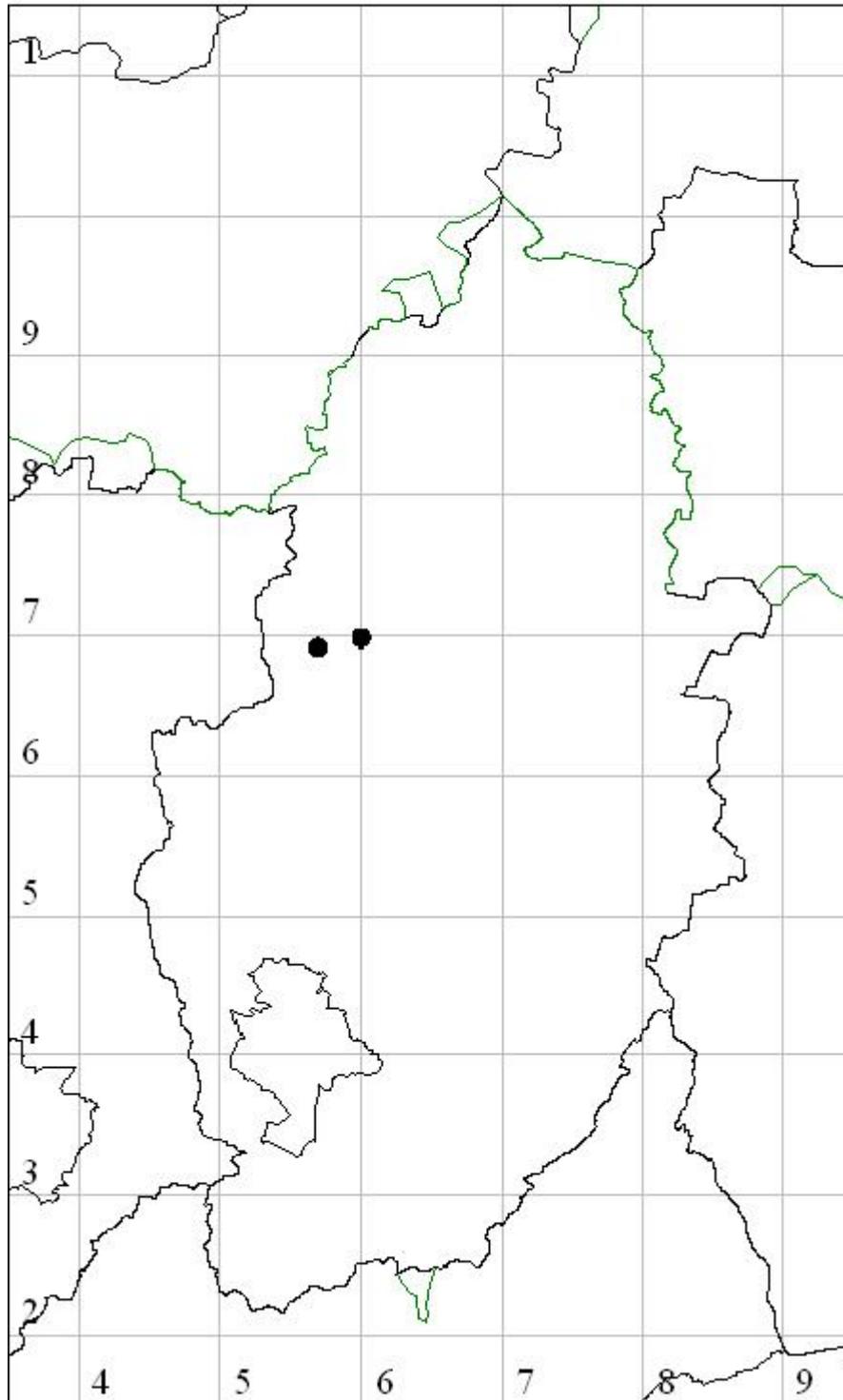
Dahlica lichenella (adult female)

Reared ex-larva Holborn Hill Plantation April 2006

This extremely rare moth could potentially be eradicated from one of its two known sites in the county, as the wall on which it occurs at Market Warsop Cemetery, is severely affected by herbicidal spray-drift during grounds maintenance there. Any chemical cleaning of the wall, is also a likely threat to its current status.



Dahlica lichenella (Lichen Case-bearer)



4.4 *Diplodoma laichartingella*

Nottinghamshire status: Largely restricted to the Sherwood Forest area.

Number of locations: 6/62

Case length: Mature cases 9 - 11.5mm, being much smaller during the first year. Cases covered with particles of sand, bark and insect fragments.



Diplodoma laichartingella (adult)

Reared ex-larva, Holborn Hill Plantation early 2007

Appears to be a fairly widespread moth where it occurs, but in small numbers and it appears to be quite selective in habitat. *Diplodoma laichartingella* current range extends away from its undoubted stronghold of Sherwood Forest. The cases of this species remained difficult to find during the Winter months, but once the larva's choice of over-wintering site was discovered, finding cases became considerably easier. Over-wintering cases were usually located in the hollows which are often formed at the base of Beech trees, but usually tucked well inside and difficult to spot.

This species was easiest to find during the Winter in Beech woodland such as Holborn Hill Plantation and Hanger Hill Plantation where the underlying vegetation is sparse, a key factor in most habitats where *Diplodoma laichartingella* occurred. Although this habitat produced the largest numbers of larval cases, it was by no means entirely restricted to this habitat, but larvae did seem to prefer smooth-barked trees. Other Sherwood Forest sites containing areas of Beech (and from where the moth was recorded) were Gibraltar Plantation and Duncan Wood, whilst there were records away from the traditional Sherwood Forest area, at both Boughton Brake near Walesby and Lound Wood at Eakring.



The current status and distribution of Psychidae Moths in Nottinghamshire

Records away from Beech woodland came from Clipstone Old Quarter, Bradmer Hill, Sherwood Forest CP, and Budby Common, from where there was just one case found.

In April 2006, the larval cases of seven *Diplodoma laichartingella* were found climbing the trunk of one Oak remnant, deep in woodland at Bradmer Hill, indicating that *Diplodoma laichartingella* is probably extremely selective in its choice of egg laying site and takes full advantage of any suitable location. Cases were even found on some old Oaks that were situated deep within coniferous plantations, but all these Oaks had long since lost their bark and the ground-cover in the immediate area was sparse.



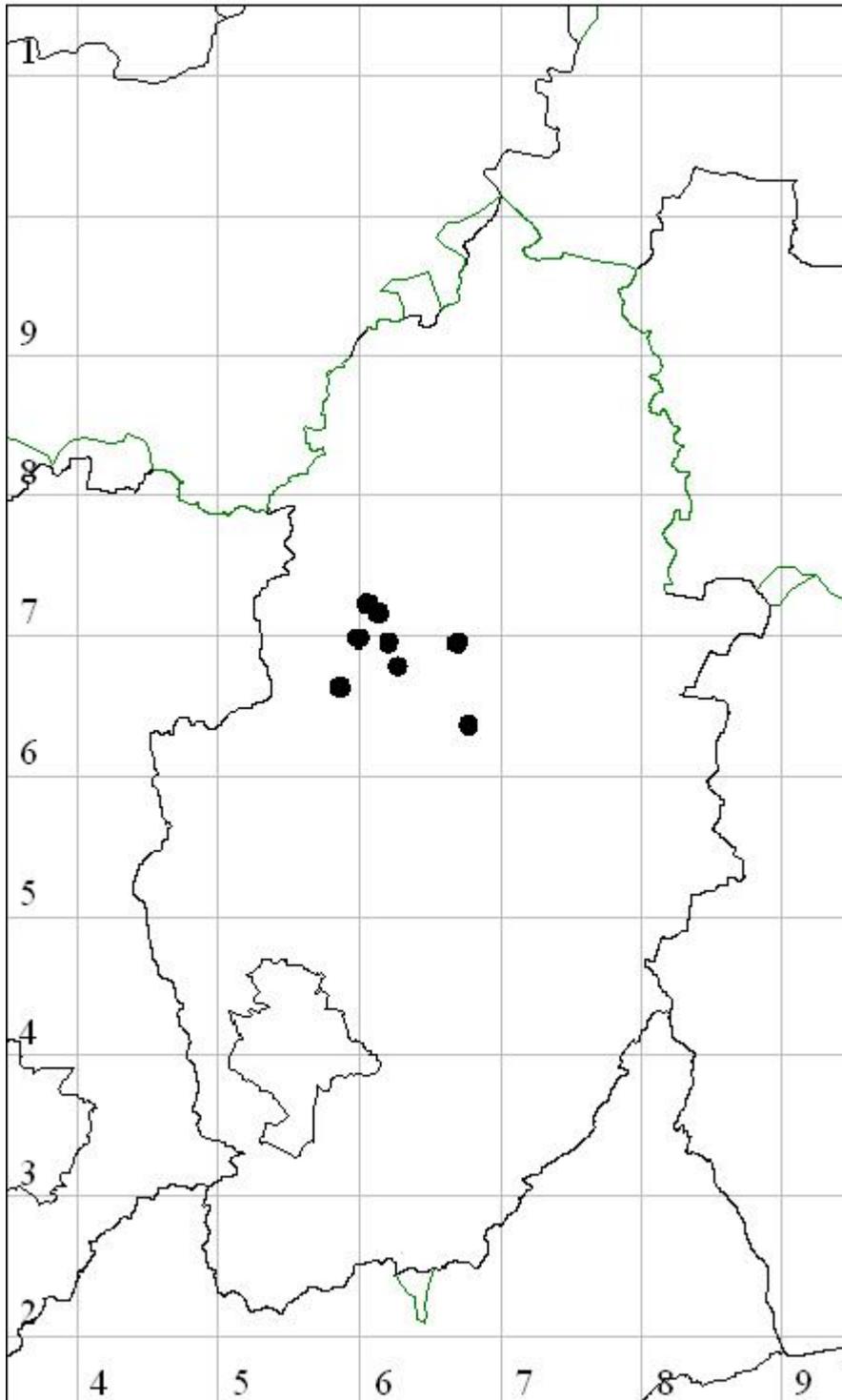
Diplodoma laichartingella larval case

Holborn Hill Plantation March 2006

Few 1st year larval cases were ever found during the survey and the range of material that some larvae incorporated into their cases was considerable. Of all the examples we found, the one shown in the above photograph, was by far the most extreme. This case was also the largest we found, measuring approximately 11.5mm in length. On close examination, the case was found to contain at least one spider moult, pieces of bark and sand, a larval head moult (probably one of its own) numerous sections of different beetles and one complete Earwig moult.



Diplo doma lai chartingella



4.5 *Taleporia tubulosa*

Nottinghamshire status: Largely restricted to the Sherwood Forest area.

Number of locations: 10/62

Case length: 15-20mm.



Taleporia tubulosa larval case

Budby Common March 2006

Apart from two isolated occurrences of a single old larval case at Lound Wood near Eakring (believed extinct there now) and of a healthy population just north of Worksop at Hundred Acre Wood, *Taleporia tubulosa* was more regularly found in the Sherwood Forest area.

In its favoured habitat of Beech woodland, this moth was often found to be locally abundant. Most frequently found as either old cases during the Winter months, or ascending trees in the Spring prior to pupation, *Taleporia tubulosa* was commonest at two locations. Holborn Hill and Hanger Hill Plantations, both held good numbers of this species.

The larval cases are perhaps the most distinctive of all the Psychidae presently found in the county, being up to 20mm in length and tube-like in appearance. Old cases from previous years were often covered in algae through age, as active larval cases are clean looking. Only in the latter weeks of the larval stage, is the case covered with some particles of sand and insect, but it is never to the degree of that achieved by *Diplodoma laichartingella*.





Taleporia tubulosa (adult male)

Reared ex larva, Holborn Hill Plantation, May 2006

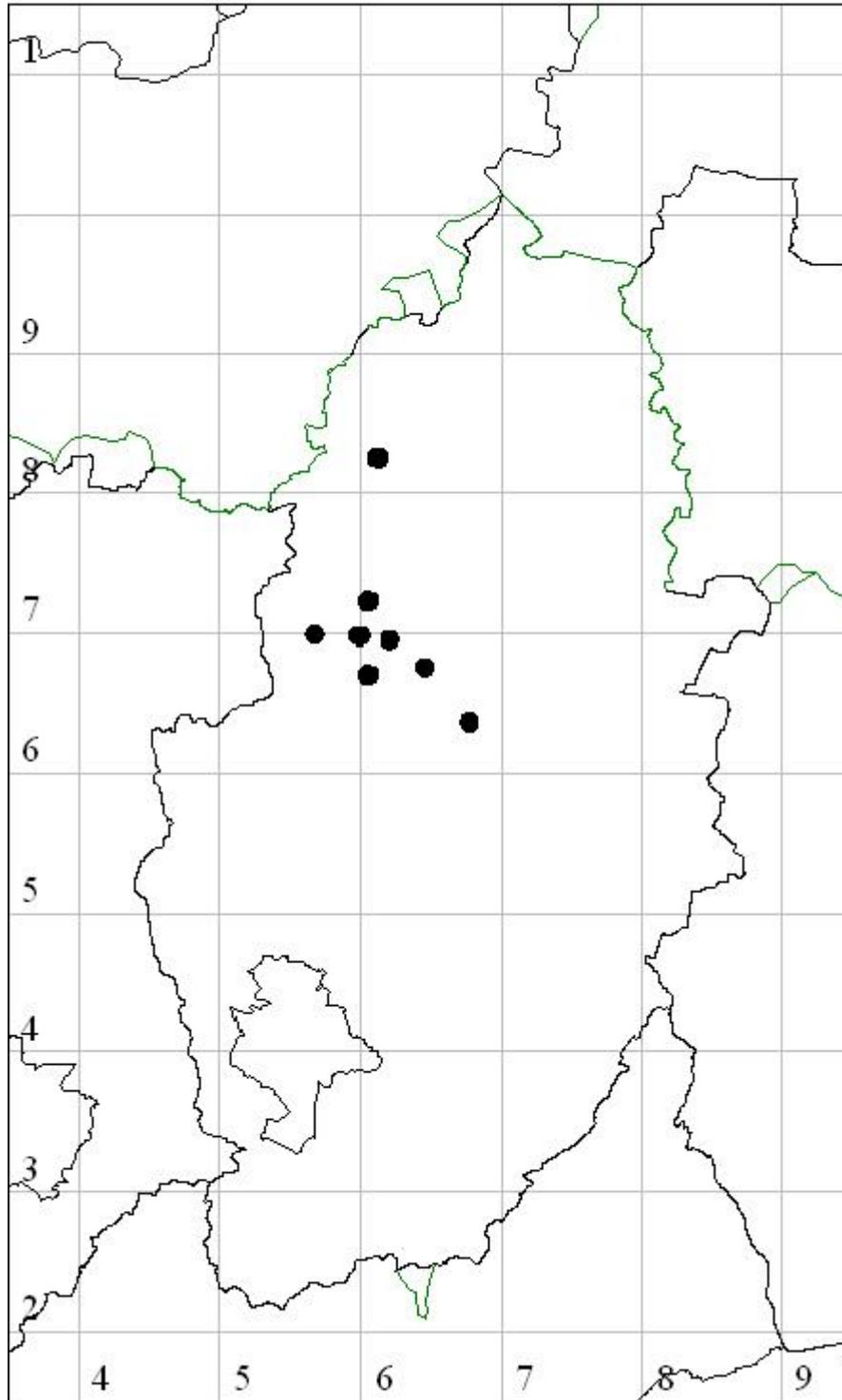
Taleporia tubulosa larvae live on the ground and only ascend trees to pupate in the Spring. At Holborn Hill Plantation on one day in the second week of May 2006, we counted well over 100 larval cases searching for pupation sites.

Odd cases were found at a number of sites. On the heathland of Budby Common, *Taleporia tubulosa* seemed limited to two small areas and wooden fence posts were often utilised as pupation sites. Other sites where small numbers of cases were found included Burstheart Hill, Gibraltar Plantation, Clipstone Old Quarter and Cuckney Hay Wood. Although it is very likely that this moth will be found at other suitable sites in the county, its distribution may be limited.



The current status and distribution of Psychidae Moths in Nottinghamshire

Taleporia tubulosa



4.6 *Luffia lapidella f.ferchaultella*

Nottinghamshire status: Currently very rare, but is likely to eventually prove to be common.

Number of locations: 4/62

Case length: 6 - 8mm.



Luffia lapidella f.ferchaultella (full-grown larva)

Nottingham City Hospital , July 2006

The present status of *Luffia lapidella f.ferchaultella* in Nottinghamshire is probably misleading, as it is likely to prove to be a common species in urban areas with further surveying.

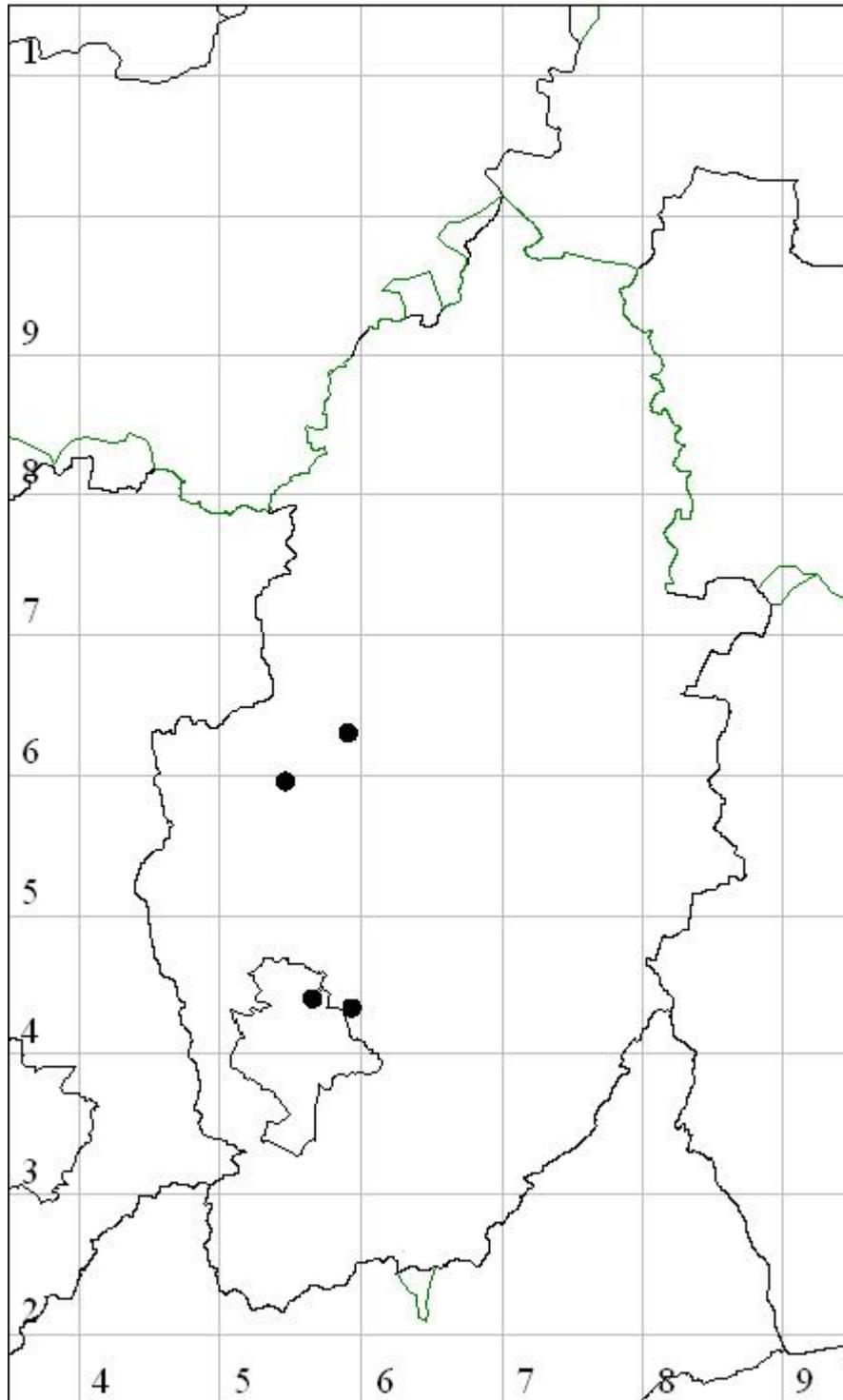
Although it was consistently looked for at every site visited, especially within the heart of Sherwood Forest, it was never found. In the end, the first record of this moth for Nottinghamshire, came from the grounds of Nottingham City Hospital.

We immediately conducted a random search of other trees at the site, which proved that most held at least one larval case of this moth. Small numbers of larval cases were also found on Lime trees along Sandford Road in Mapperley, before numerous (both old and occupied cases) were discovered on roadside trees at Clipstone near Mansfield. Small numbers of cases were also found at Berry Hill, Mansfield.

In Europe, this moth is common in many towns and cities.



Luffia lapidella f. *ferchaultella*



4.7 *Psyche casta*

Nottinghamshire status: Common.

Number of locations: 25/62

Case length: Mature cases range from 10 - 15mm.



Psyche casta (adult male)

Reared ex-larva, Sherwood Forest June 2006

A common species around Sherwood Forest, occasionally even turning up within areas of forestry plantations. *Psyche casta* was noted from a total of 25 survey sites. The larval case is one of the most conspicuous. It is most often found on tree trunks, but we found that it will also utilise fence posts, gates and virtually any upright surface for pupation. Full grown larvae were regularly found during the Spring and Summer months, on young Bramble growth, found along pathways throughout Sherwood Forest.

The moth seems quick to move into new areas, as on the former Warsop Main Pit Top, we found three full-grown larvae feeding near the top of Sallow *Salix cuprea* bushes that were some considerable distance from the nearest woodland.

Although Sherwood Forest contains by far the highest concentration of *Psyche casta* in Nottinghamshire, what seem to be isolated populations do occur elsewhere. Hundred Acre Wood near Worksop, Lound Wood at Eakring and Haywood Oaks all produced records, although only two larval cases have been recorded at Lound Wood in ten years recording there. The number of cases found in open Beech woodland was considerably lower than expected and we found that this species prefers woodland containing more undergrowth than most Psychidae, although well shaded sections produced fewer cases.



The current status and distribution of Psychidae Moths in Nottinghamshire

Larval cases are adorned with dead plant material, including sections of grass stems, umbellifers and Pine or Larch needles. Larvae that eventually produced adult females, created cases at the larger range of the scale and typically had the largest plant fragments attached. Male larval cases were usually noticeably smaller and with much finer fragments stuck to them.



Psyche casta (full-grown larva)

Clipstone Old Quarter, Sherwood Forest June 2006



The only adult moth noted in the field was a single male, netted one evening at Clipstone Old Quarter.

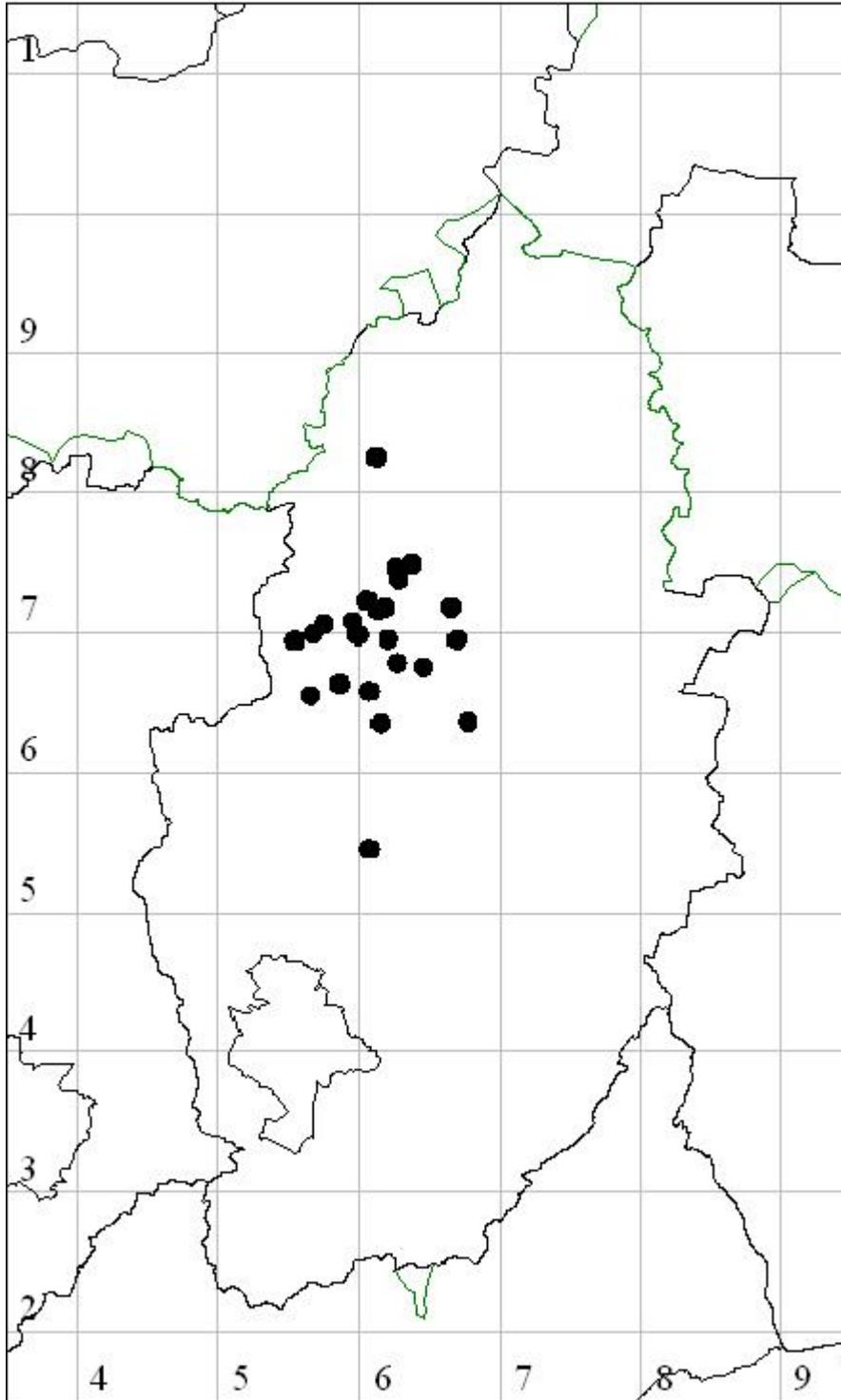
Mature larvae collected from the wild and then reared in captivity, would produce moths fairly quickly. Like most members of this group, they were short-lived.

Left: Psyche casta (adult female) Reared ex-larva, Bradmer Hill, Sherwood Forest June 2004



The current status and distribution of Psychidae Moths in Nottinghamshire

Psyche casta



5.0 Key sites and areas for Psychidae in Nottinghamshire

5.1 Sherwood Forest

Currently holds populations of *Narycia duplicella*, *Dahlica inconspicuella*, *Dahlica lichenella*, *Diplodoma laichartingella*, *Taleporia tubulosa* and *Psyche casta*.



The Sherwood Forest area is notable within Nottinghamshire for its variety of Psychidae. Such species variety was not throughout the forest however, with different sections/plantations often suiting one or two particular species.

The most favoured woodland habitat for finding larval cases, were often the forest's few areas of mature Beech woodland, which held notable numbers of both *Taleporia tubulosa* and *Diplodoma laichartingella*. Although cases could be found on literally any upright surface, what remains of the old Oak remnants and their associated lichen and algae growth, were particularly good places to search.

Even Oak remnants set deep in the middle of coniferous plantations, could often hold cases of *Diplodoma laichartingella*, as frequently as those found within more open sections of the forest, such as the example at Clipstone Old Quarter shown in the above photograph. *Diplodoma laichartingella* certainly has a considerable advantage over other species, through having winged adults of both sexes, enabling them to move to new sites much quicker than species with wingless females.

5.2 Market Warsop Cemetery



An unusual location, but this wall at the entrance to Market Warsop Cemetery is notable for its colony of *Dahlica lichenella*.

On discovery, this was the first ever occurrence of this moth in Nottinghamshire and the site also has numbers of *Narycia duplicella*.

Although most of the larval cases found on the wall were of *Dahlica lichenella*, there were also cases of *Narycia duplicella* both with them and on adjacent trees.

With the modern day trend towards increasing cleanliness, it is possible that *Dahlica lichenella* could be accidentally wiped out here by the continued use of herbicidal spraying and there is currently only one other known locality for this species in Nottinghamshire.



5.3 Holborn Hill Plantation

The fine Beech woodland of Holborn Hill Plantation (together with the nearby Hanger Hill Plantation) both provided an excellent habitat for Psychidae.



Holborn Hill Plantation was the most favoured area of the two with *Narycia duplicella*, *Dahlica lichenella*, *Diplodoma laichartingella*, *Taleporia tubulosa* and *Psyche casta* all present at this site.

This was a regularly visited site and the smooth trunks of Beech, made the finding of larval cases relatively easy. Holborn Hill Plantation is the most notable site for *Taleporia tubulosa* with over 100 larva noted on one occasion during the second week of May.

The rarest species found here was *Dahlica lichenella*, with cases only being recorded from Beech. Holborn Hill Plantation represented only the second Nottinghamshire site for this moth and it proved a good site for *Diplodoma laichartingella*. Perhaps surprisingly, the cases of *Psyche casta* were hard to find, being generally commoner in areas of the plantation where Bramble grew and the ground cover was much thicker.

5.4 Lound Wood

Situated well outside the area, traditionally thought of as Sherwood Forest, Lound Wood proved extremely surprising in it's range of Psychidae. This is a mixed wood with areas of both deciduous and coniferous trees of a mature age, but there is some evidence of felling having taken place many years ago.



The present species list includes *Narycia duplicella*, *Dahlica inconspicuella*, *Diplodoma laichartingella* and *Psyche casta*, but there is a record of an old larval case of *Taleporia tubulosa*, which was found in 2005. However, this moth is now believed to be extinct at this site as no recent cases were ever been found, despite continuous searches.

Lound Wood is privately owned and there is no regular pattern of woodland management. The amount of tree shading and ground cover here, probably renders it unsuitable for moths like *Taleporia tubulosa* and *Psyche casta* to thrive.

The wood is isolated within acres of agricultural farmland, much of which is on a clay-based soil and prone to holding water. It is however, situated on a south-facing hillside but the amount of moisture the soil holds during the Winter, may still be detrimental to Psychidae like *Taleporia tubulosa*, which spend most of their larval stage on (or near) the ground.



5.5 Budby Common

This heathland habitat provided generally small numbers of *Narycia duplicella*, *Dahlica inconspicuella*, *Diplodoma laichartingella*, *Taleporia tubulosa* and *Psyche casta*.



Looking for larval cases here was difficult, with few likely looking trees suitable for larval feeding.

We recorded just single cases of three species, namely *Narycia duplicella*, *Dahlica inconspicuella* and *Diplodoma laichartingella*.

A number of *Taleporia tubulosa* cases were found in a small area in the middle of the common, where fence posts were often utilised as pupation sites and occasional cases of both this species and *Psyche casta*, came from the

6.0 Summary

Nottinghamshire, Derbyshire and Leicestershire all share a similar range of Psychidae, although Derbyshire probably has a wider range through having expanses of moorland habitat. Despite the fact that two new species have been added to the Nottinghamshire list, it was rather surprising that *Dahlica triquetrella* had not been found two years into the survey. With continued coverage and searching, several other members of this group may yet be found and it is quite possible that *Bankesia conspurcatella*, *Proutia betulina* and *Sterrhopteryx fusca* could all occur somewhere in Nottinghamshire.

The survey has shown that Sherwood Forest contains the widest range of species as a whole, but that there are some considerable variations in either species variety or species population, at many of the forest's survey sites. A significant contributing factor in this, is the variation in forestry use and/or forestry management.

Coniferous plantations have no doubt aided the decline of some species here, but at least the present phase of reverting certain areas of some plantations, back to a more traditional Sherwood habitat of Oak/Birch woodland or heathland, may eventually contribute towards an increase in Psychidae and other lepidoptera. Fortunately the old Oak remnants were left intact when the forestry plantations were originally planted and this has been a vital aid to the forest's Psychidae species. Psychidae larvae seem to prefer to feed on lichens growing in light shade, rather than lichens growing in areas exposed to full sun. Remnant Oaks situated deep within dense Pine plantations were often so well shaded and continuously too damp, that they were rendered unsuitable for some species to use annually. Such Oaks though, were often good places to search for the cases of *Diplodoma laichartingella* in the Spring, but this is probably due to the Pines found in plantations, rarely being old enough to have any lichen growth on them at all.

Pine plantations were extremely poor sites to survey and the only other species that regularly turned up was *Psyche casta*, which in such habitat was invariably to be found as late-instar larvae feeding on Bramble.





Psyche casta and *Narycia duplicella* were both found to be fairly widespread within the confines of the Sherwood Forest area, but with both sexes being fully-winged, *Narycia duplicella* has the ability to colonise new areas much more easily.

Because of this, it was not totally dependent on (or confined to) large forested areas and was the most regularly found species across all the survey sites. *Narycia duplicella* was recorded from isolated woodlands, single trees within areas of farmland and even on urban street trees at Nottingham and Kilton Road Worksop.

In isolated woodlands such as Lound Wood near Eakring, *Psyche casta* is existing in extremely fragile numbers, often because dense planting and competing young tree growth has produced very shady conditions. Light woodland invariably produces better species variety. It was either around the edges, or along open rides of many of the woodland sites away from Sherwood Forest, that we found most larval cases. For Psychidae to do well at these sites, it seemed that the woodland had to have been maintained openly for many years. Although *Psyche casta* probably has a patchy distribution throughout the county, the most southerly record we have to date, came from Haywood Oaks near Blidworth. Several woodlands in the Retford area were surveyed with but produced negative results. It is of course possible, that populations of this moth have become increasingly isolated through urbanisation over past decades.

Psychidae found in urban areas, consisted of both *Narycia duplicella* and *Luffia lapidella f.ferchaultella*, which is a new species to Nottinghamshire.

Odd larval cases of *Narycia duplicella* were found on roadside trees at King's Mill Reservoir, two sites in Mansfield Woodhouse, the Newlands and Berry Hill areas of Mansfield, at Mapperley in Nottingham and along Kilton Road in central Worksop. Trees in the grounds of Nottingham City Hospital produced the first records of *Luffia lapidella f.ferchaultella*, but larval cases were also found on Lime trees along Sandford Road in Mapperley, before numerous (both old and occupied cases) were discovered on roadside trees at Clipstone near Mansfield. Small numbers of cases were also found at Berry Hill, Mansfield.

This species can occur in very large numbers and with most of the urban areas of Nottingham and the county's other large towns still to be thoroughly surveyed, this moth is very likely to turn up at such sites.

Having apterous and (in some cases) parthenogenetic females, has both advantages and disadvantages. One significant advantage is a species being able to exist as colonies for many years within very small areas - tree trunks, fence posts and walls being examples. However, these can all disappear naturally over time, through construction, development of a site or by poor site management/improvement. The two Nottinghamshire *Dahlicas* are prime examples of species at such risk. Both rare and probably under-recorded. The *Dahlica lichenella* colony on the wall at Market Warsop Cemetery could be lost through herbicidal or pesticidal spray-drift. Other similar sites such as this must surely occur elsewhere and these will be identified wherever possible through future surveying.

Despite their small size, Psychidae moths are just as important to the Nottinghamshire fauna as any other species and it would be a shame to lose them, so recently after being discovered. Hopefully this survey report has gone some way to increasing awareness of these moths in Nottinghamshire, their status and their distribution.

