

The Broad-bordered Bee Hawkmoth (*Hemaris fuciformis*) in the Bardney Limewoods

Recent history and current status



A confidential report to Forest Enterprise.

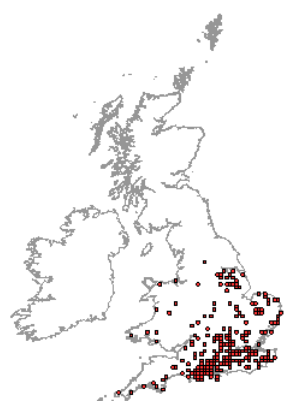
Pete Smith, Lincs. Branch Butterfly Conservation
September 2006

1. Background

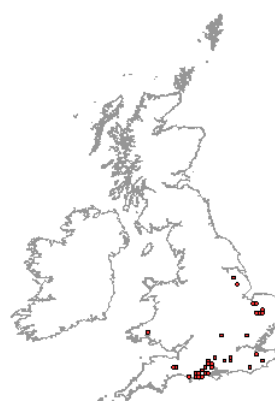
The Broad-bordered Bee Hawkmoth is a “*Nationally Scarce B*” category moth, associated with woodland rides, clearings, and heathland habitats, and is locally distributed in southern, central and eastern counties of England, and Wales. It has declined significantly in the past 50 years, probably largely due to changes in woodland management and the decline of coppicing.

The Bardney Limewoods are recognised as a national stronghold for the species, and it has been recorded regularly at Chambers Farm Wood for a number of years. Its status elsewhere in the Limewoods is less well known. This survey aims to determine the current status of the moth in the Limewoods area.

Maps below show the national distribution based on records for the period 1800-1990, and 1990 onwards.



1800-1990



1990-2006

*NBN Gateway datasets

2. Recent History

Records from the Lincolnshire moth database (LNU *et al.*) mention the occurrence of Broad-bordered Bee Hawkmoth at three Limewood sites, namely Southrey Wood (1920- 1929), Newball Wood (1920-1990), and the Chambers complex (1970 onwards). NBN Gateway records also show the species at Hardy Gang Wood. There are additional records to the north of the Limewoods area at Linwood Warren and Willingham Woods, and to the south at Kirkby Moor.

3. Behaviour and Habitat Requirements

Broad-bordered Bee Hawkmoths fly by day in warm sunny conditions, and are on the wing from late May to early July. The adult moths are highly active, fast fliers, and are frequent visitors to nectar sources, particularly tubular flowers such as Bugle and Ragged Robin, Red Campion, Vipers Bugloss and Rhododendron. The presence of such nectar sources is a key habitat requirement, as is the presence of the larval food-plant, Honeysuckle, growing in sunny or partially shaded conditions. Breeding and nectaring areas need not necessarily be adjacent; the species is quite capable of travelling between the two, as indicated by anecdotal accounts of adults seen at nectar some distance from suitable breeding territories.

When feeding at nectar, the adult moth does not alight, but rather it hovers at flowers, feeding with its extended proboscis, appearing like a miniature humming-bird. This habit separates it from bee species with which it may be confused, as these alight when feeding. It may however be confused with the migrant Humming-bird Hawkmoth, which feeds in a similar hovering manner. Bee Fly species (*Bombylius spp.*) also hover whilst nectaring, but are much smaller than Bee Hawkmoths. Most sightings of Beehawk are of adults at nectar. The moth is often seen as a blur of wings, feeding for a while before moving on to another flower head, then disappearing at speed to another part of the wood.

The photograph below shows a typical blurred-wing view of the species at nectar.



4. Survey Work

Despite being a conspicuous moth when seen at close quarters, this species can be surprisingly elusive, and can be difficult to find, even in areas where it is known to occur. For this reason, survey work for this species took the form of a two-stage approach. Firstly, sites were visited to search for the adult moth during late May and June. This was followed up by searches for larvae during June and early July. Eggs are laid on the underside of Honeysuckle leaves, with female moths selecting plants growing along ride edges, in clearings, and where Honeysuckle grows in a scrambling form across ditches and recently cleared ground. The young larvae have the habit of sitting along the midrib of the leaf, and eating holes either side of the midrib, leaving characteristic feeding damage. An example is shown below.



The 2006 survey covered the following areas:

06/06/06 - Newball Wood - Pete Smith - BBBHawk survey (adult searches) - 2hours
06/06/06 - Hardy Gang Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
06/06/06 - Great West Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
06/06/06 - College Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
07/06/06 - New Park Wood - Pete Smith - BBBHawk survey (adult searches) - 2hours
07/06/06 - Southrey Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
07/06/06 - Camshaws Wood - Pete Smith - BBBHawk survey (adult searches) - 2hours
08/06/06 - Horsington Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
08/06/06 - Hatton Meadows - Pete Smith - BBBHawk survey (adult searches) - 1hour
09/06/06 - Wickenby Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour

09/06/06 - Bustlingthorpe Wood - Pete Smith - BBBHawk survey (adult searches) - 30mins
 09/06/06 - Stainfield Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
 09/06/06 - Sotby Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
 10/06/06 - Sotby Wood - Pete Smith - BBBHawk survey (adult searches) - 1hour
 17/06/06 - Chambers Farm Wood - Pete Smith - BBBHawk survey (adult searches) - 2hours
 17/06/06 - Southrey Wood - Pete Smith - BBBHawk survey (adult searches) - 2hours
 23/06/06 - Sotby Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 23/06/06 - Rand Wood - Pete Smith - BBBHawk survey (adult/larval searches) - 1hour
 23/06/06 - College Wood - Pete Smith - BBBHawk survey (adult/larval searches) - 2hours
 28/06/06 - Sotby Wood - Pete Smith, Steve Green - BBBHawk survey (larval searches) - 2 x 1hour
 28/06/06 - Stainfield Wood - Pete Smith, Steve Green - BBBHawk survey (larval searches) - 2 x 1hour
 29/06/06 - Potterhanworth Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 07/07/06 - Scotgrove Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 08/07/06 - Camshaws Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 08/07/06 - Hardy Gang Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 08/07/06 - Eleanor Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 08/07/06 - Wickenby Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 11/07/06 - Scotgrove Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 11/07/06 - Linwood Warren - Pete Smith - BBBHawk survey (larval searches) - 2hours
 11/07/06 - Fiskerton Long Wood - Pete Smith - BBBHawk survey (larval searches) - 30minutes
 11/07/06 - Austacre Wood - Pete Smith - BBBHawk survey (larval searches) - 1hour
 11/07/06 - Horsington Wood - Pete Smith - BBBHawk survey (larval searches) - 30 minutes
 11/07/06 - Stixwould Wood - Pete Smith - BBBHawk survey (larval searches) - 30minutes
 11/07/06 - Bustlingthorpe Wood - Pete Smith - BBBHawk survey (larval searches) - 30minutes

5. Survey Results

It is encouraging to report that during the 2006 survey, Broad-bordered Bee Hawkmoth was still found to be present at the four Limewood sites mentioned in the historical records (Newball, Southrey, Chambers and Hardy Gang). The species was found at a further three new Limewood sites (College, Stainfield, and Scotgrove). It was also confirmed at Eleanor Wood and Linwood Warren, just outside the Limewood area. Adult moths were seen at Newball, Southrey and Chambers, with larvae found at the other sites.

Numbers were low at all sites, with just an occasional adult sighting or larval find, suggesting that this species occurs at low density in the Limewoods.

However, one new and previously unrecorded colony was discovered at Sotby Wood, where the species currently occurs in very strong numbers, vastly greater than elsewhere in the area. The main breeding area at Sotby is a large clearing where conifers were clear-felled about 3 years ago. The resultant re-growth is an area where Honeysuckle grows over bare ground and dead stumps in a sprawling fashion in sunny and partially shady conditions amongst young scrub regrowth. This appears to provide optimal breeding conditions for this species, and the adults are numerous here, as are the larvae.

The main nectar sources at Sotby are Red Campion and Rhododendron.



Red Campion at Sotby Wood

Elsewhere in the Limewoods the main nectar sources are Ragged Robin and Bugle, with Vipers Bugloss and Sweet Rocket also being utilised at Chambers.

Ragged Robin at
Southrey Wood



The presence of the species at sites such as Scotgrove and Stainfield Woods, where limited suitable breeding habitat occurs, is further evidence of the mobility of the species and suggests that adults frequently move between woods in the Limewoods area. This gives some hope that currently unoccupied sites such as Rand Wood, where suitable habitat exists, may be colonised naturally in the near future.

Positive results from the 2006 survey are as follows:

CHAMBERS FARM WOOD	TF148739	02/06/2006	BROAD-BORDERED BEE HAWKMOTH	1
NEWBALL WOOD	TF088764	06/06/2006	BROAD-BORDERED BEE HAWKMOTH	1
SOTBY WOOD	TF188775	09/06/2006	BROAD-BORDERED BEE HAWKMOTH	2
SOTBY WOOD	TF188775	10/06/2006	BROAD-BORDERED BEE HAWKMOTH	30+
CHAMBERS WOOD - FIVEWAYS	TF154743	17/06/2006	BROAD-BORDERED BEE HAWKMOTH	1
SOUTHREY WOOD	TF133683	17/06/2006	BROAD-BORDERED BEE HAWKMOTH	1
SOTBY WOOD	TF188775	23/06/2006	BROAD-BORDERED BEE HAWKMOTH	12 LARVAE
COLLEGE WOOD	TF123754	23/06/2006	BROAD-BORDERED BEE HAWKMOTH	1 OVA
COLLEGE WOOD	TF123754	23/06/2006	BROAD-BORDERED BEE HAWKMOTH	1 LARVA
STAINFIELD WOOD	TF122728	28/06/2006	BROAD-BORDERED BEE HAWKMOTH	2 LARVAE
HARDY GANG WOOD	TF094749	08/07/2006	BROAD-BORDERED BEE HAWKMOTH	1 LARVA
ELEANOR WOOD	TF113853	08/07/2006	BROAD-BORDERED BEE HAWKMOTH	1 LARVA
SCOTGROVE WOOD	TF132703	11/07/2006	BROAD-BORDERED BEE HAWKMOTH	1 LARVA
LINWOOD WARREN	TF133875	11/07/2006	BROAD-BORDERED BEE HAWKMOTH	1 LARVA

**Chambers Farm Wood 2.6.06 record courtesy of John Spring



Larva at Hardy Gang Wood 08.07.2006

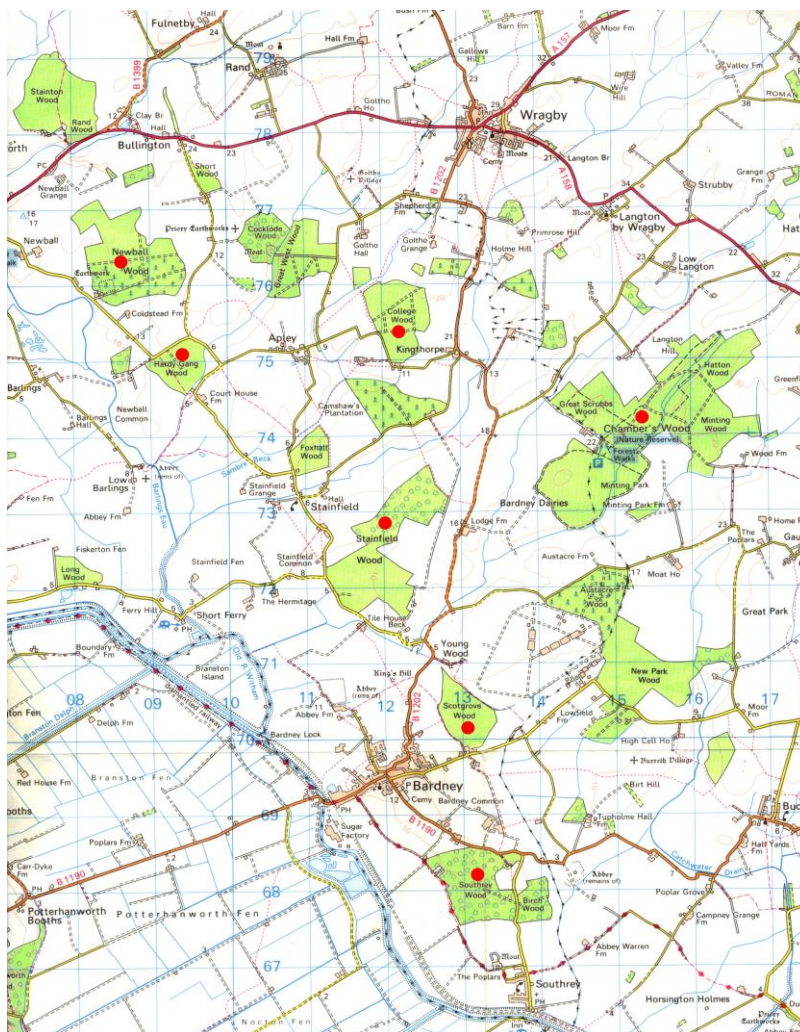


Larva at Eleanor Wood 08.07.2006



Ova and young larva at College Wood 23.06.2006

Map showing currently occupied Limewood sites, marked by a red dot;



6. Future Management and Discussion

The continued presence of the Broad-bordered Bee Hawkmoth in the Limewoods is dependant on active woodland management in the form of ongoing coppicing, clearance and ride edge management to maintain suitable breeding conditions and nectar sources. This is compatible with current management aims and objectives for other butterfly and invertebrate groups within the Limewoods, and the species requires little in the way of additional management prescription.

However, given the importance of the Sotby Wood colony, it is highly desirable that this site be maintained in near-optimal condition for this important species. It is suggested that it should be of high priority to maintain the current Sotby colony by means of regular clearance work to ensure a continuity of early successional vegetation structure with plentiful Honeysuckle growth in and adjacent to the existing clearings where the species currently thrives. This colony may act as a reservoir for further dispersal and re-colonisation of nearby woodlands.

6. References and Acknowledgements

References:

Waring, Townsend Lewington, Field Guide to the Moths of Great Britain and Ireland.
BWP.

NBN Gateway (data providers English Nature, Joint Nature Conservation Committee,
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Acknowledgements:

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