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Appendix 9.9

Brown Hairstreak Survey Report

Client

Hallam Land

Project

**Hawkwell Village,
North-West Bicester**

Date

October 2025

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| Rev | Issue Status | Prepared/Date | Approved/Date |
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| | Final | SAM / 21.03.25 | JDH / 23.09.25 |
| A | Final | SAM / 24.10.25 | JDH / 24.10.25 |
| | | | |
| | | | |

1.0 NON-TECHNICAL SUMMARY

Report Scope and Methodology

This report has been prepared to communicate the results of a brown hairstreak (BH) survey carried out on land northwest of Bicester, on behalf of Hallam Land.

A walkover survey was carried out to determine which hedgerows were suitable for BH egg-laying, before a proportion of the suitable hedgerows were subjected to a thorough egg search. A desk study was also carried out, with results requested from the Thames Valley Environmental Records Centre.

Results

The desk study returned 27 records of BH from within 1km of the Site boundary.

A total of 50 BH eggs were recorded onsite, the majority concentrated along the railway corridor and along R2, suggesting this area of site has importance for BH as a breeding habitat.

Recommendations

The survey results suggest that the railway corridor and R2 corridor, as well as H19 act as valuable breeding habitat for BH due to the relaxed management of hedgerows in this area of site.

It is recommended that retained hedgerows which contain a high proportion of blackthorn are subjected to a reduced management regime going forward, particularly along the railway and R2 corridor.

Sections of hedgerows should be cut on a 3-year cycle, meaning that some suckering blackthorn is always present to allow BH to lay their eggs and to give the larvae the opportunity to develop.

2.0 INTRODUCTION

2.1 This report has been prepared by FPCR Environment and Design Ltd on behalf of Hallam Land and provides details on a brown hairstreak *Thecla betulae* (BH) survey carried out on land northwest of Bicester (Ordnance Survey Grid Reference SP 569 248), herein referred to as the 'Site'.

Site Context

2.2 The site is dominated by arable cropland with species poor semi-improved and improved grassland for grazing livestock, scattered scrub, hedgerows, and a small woodland block. Three small watercourses bisect the Site, one close to the Site's northern boundary, a second towards the southern end of the Site and the third running north-south from the existing development to join the River Bure at Lords Lane. Along these watercourse corridors there is a mix of dense and scattered scrub and standard trees.

2.3 The Site is bound by existing residential development to the north-east, the railway approaching Bicester North station to the south. The remaining perimeter of the Site is bound by existing agricultural boundaries.

Proposals

2.4 The site is proposed as a mixed use development, with an extensive network of green infrastructure and public open space including which provides opportunities for habitat mitigation and enhancements.

Aims and objectives

2.5 The scope and objectives of this report are to:

- Determine the distribution and size of any BH populations identified;
- Determine any likely impacts on BH populations as a result of the development; and to
- Make recommendations in terms of the development design to minimize the potential impacts of development to BH and to consider opportunities for mitigation, compensation and enhancement.

3.0 LEGISLATION, CONSERVATION STATUS & ECOLOGY

Legislation and Conservation Status

- 3.1 The BH is a species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act¹.
- 3.2 BH are protected under Schedule 5 the Wildlife and Countryside Act, 1981², meaning it is protected from sale.
- 3.3 Within the Red List for butterflies, the BH is listed as vulnerable to extinction. This is due to a 35% decline in its abundance between 2010 and 2019.³ It is also a species of high Butterfly Conservation priority.⁴

Ecology

- 3.4 BH breed on hedgerows, scrub and woodland edges which contain young blackthorn *Prunus spinosa*: its larval host-plant. Eggs are laid from August to October, with larvae emerging in spring of the following year.
- 3.5 The decline of BH is thought to be due to the loss of hedgerows, inappropriate hedgerow management and the loss of traditional woodland practices such as coppicing reducing access to young blackthorn plants which BH require to lay their eggs.

¹ List of habitats and species of principal importance in England. Available at:

<https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england>

² The Wildlife and Countryside Act, Schedule 5, 1981. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/schedule/5>

³ Fox, R., Dennis, E.B., Brown, A.F. and Curson, J. (2022). A revised Red List of British butterflies. *Insect Conservation and Diversity*, 15(5). doi:<https://doi.org/10.1111/icad.12582>.

⁴ Brown hairstreak, Butterfly Conservation. Available at: <https://butterfly-conservation.org/butterflies/brown-hairstreak>

4.0 METHODOLOGY

Desktop Study

- 4.1 A desk study has been undertaken to inform the survey effort and provide context regarding the BH population in the local area.
- 4.2 Species records from the previous 20 years (since 2004) within a 1km radius of the Site boundary were provided by Thames Valley Environmental Records Centre (TVERC).

Field Survey

- 4.3 The survey was carried out by on 26th February 2025 by Natalie Kay BSc (Hons) MSc MCIEEM, Rosie Murfitt BSc (Hons) MSc and Oly Sayers BSc (Hons).
- 4.4 A walkover survey was carried out to assess the onsite hedgerows for their suitability for BH. The habitat quality for each hedgerow surveyed was assessed using criteria set out for the UKBMS monitoring scheme (2016) and summarised in Table 1.

Table 1: Definitions of hedgerow habitat quality for brown hairstreaks

| | |
|------------------------|---|
| High quality habitat | 20% blackthorn in hedge or on suckers in front of hedge, of which frequent (> 25%) young (< 3 years old) growth, not flailed recently or not significantly damaged by flailing or stock browsing. |
| Medium quality habitat | > 20% blackthorn in hedge, of which only occasional, rare or no (< 25%) young (< 3 years old) growth, significantly damaged by recent flailing or stock browsing, or too old and leggy. Occasional, rare or no suckers in front of hedge, or suckers significantly damaged by flailing or stock browsing. |
| Low quality habitat | 5-20% blackthorn in hedge |
| Unsuitable habitat | < 5% blackthorn in hedge |

- 4.5 Since adult brown hairstreak butterflies are elusive and tend to remain in the canopy of trees, an egg search is considered to be a more reliable survey method. Eggs are usually laid singly in the fork of young blackthorn (*Prunus spinosa*) growth less than 1.5m above ground in sheltered positions with a west or south-facing aspect.
- 4.6 During the survey, only high and medium quality hedgerows were selected for egg-searching to maximise the chances of finding eggs within the survey period, as well as those that had not been recently flailed.
- 4.7 Each hedgerow was walked at a pace of roughly 1m a minute as per guidelines, inspecting as much of the blackthorn along each hedgerow as possible for a maximum period of 2 hours. The search focussed on the junctions between the new growth and the old wood on suckering blackthorn (shoots from the ground at edge of bushes) and young (1-2 years old) blackthorn twigs located 0.25-1.75m off the ground. Any BH eggs found, including those which had been parasitized, predated or damaged, were counted.

5.0 RESULTS

Desk Study

- 5.1 A total of 27 records of BH were returned from TVERC from within 1km of the Site boundary. Three of these records were returned from within the southern edge of the Site, along Bicester Road. The locations of these records are shown in Figure 1.

Field Survey

- 5.2 A total of 50 BH eggs were found across four of the surveyed hedgerows, the majority of which were along the vegetation bordering R2 and H19. An example of the eggs found is shown in Image 1 below.
- 5.3 The results of the survey are shown in Table 2 below, and both the location of both the BH eggs and the suitability of the hedgerows are shown in Figure 2.

Table 2: Hedgerows surveyed and the number of brown hairstreak eggs recorded.

| Hedgerow Number | Suitability | % Blackthorn | Habitat Quality | Number of eggs found (if surveyed) |
|---|-----------------------|--------------|-----------------|------------------------------------|
| Scrub along stream between H11 and H59 | Suitable and surveyed | 20 | High | 22 |
| Scrub along stream between railway and H9 | Suitable and surveyed | 40 | High | 5 |
| H13 | Suitable and surveyed | 50 | High | 1 |
| H19 | Suitable and surveyed | 80 | High | 22 |
| H20 | Suitable and surveyed | 30 | Medium | 0 |
| H31 | Suitable and surveyed | 40 | Medium | 0 |
| H35 | Suitable and surveyed | 80 | High | 0 |
| H36 | Suitable and surveyed | 30 | Medium | 0 |
| H52 | Suitable and surveyed | 25 | Medium | 0 |



Image 1: Brown hairstreak eggs found on young blackthorn onsite.

- 5.4 An indication of the population size is not possible from egg counts alone. However, it is known that brown hairstreak colonies breed over large areas of habitat with several square kilometres of hedges and woods. As such, the eggs found on site are likely to be part of a wider population in the local area. This is corroborated by the results of the desk study.

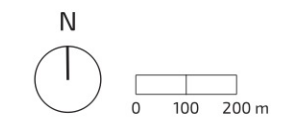
6.0 DISCUSSION AND RECOMMENDATIONS

- 6.1 The railway and R2 appear to act as a valuable corridor for BH due to the relaxed management of blackthorn in these areas resulting in there being some suckering blackthorn present year-round. H19 also provided particularly suitable habitat due to the density of blackthorn and the presence of a track for farm machinery along the eastern edge. blackthorn is again able to sucker and isn't entirely flailed back to make space for crops.
- 6.2 It is recommended that retained hedgerows which contain a high proportion of blackthorn are subjected to a reduced management regime going forward, particularly along the railway and R2 corridor.
- 6.3 Sections of hedgerows should be cut on a 3-year cycle, meaning that some suckering blackthorn is always present to allow BH to lay their eggs. This would also provide benefits for other wildlife.



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- Red Line Boundary
- 1km Buffer
- ★ Brown Hairstreak Records

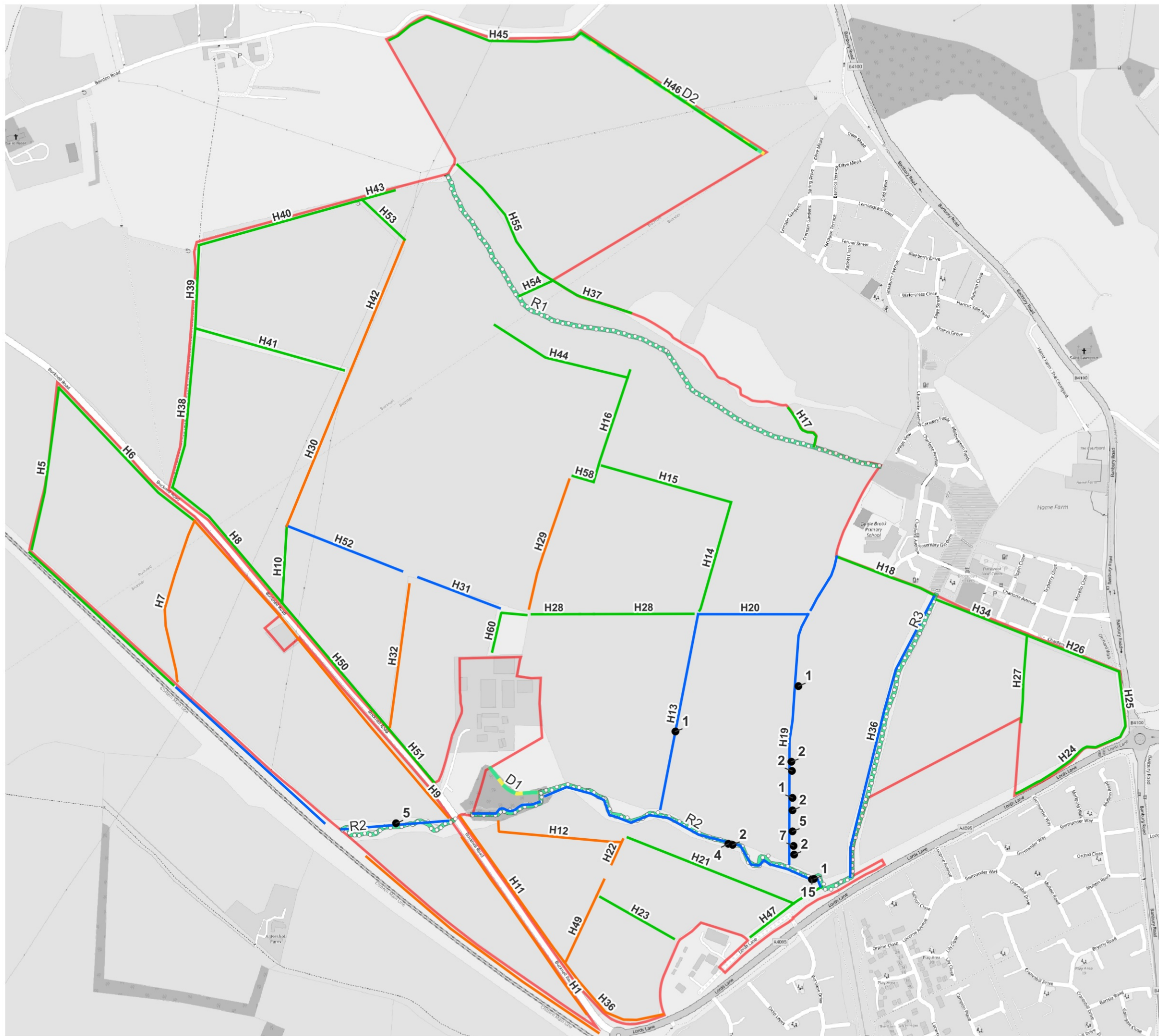
date 24/10/25 drwn/chkd
SAM / JDH

client **Hallam Land**
project **Hawkwell Village,
North-West Bicester**

title **BROWN HAIRSTREAK DESK STUDY** scale
1:15,000 @ A3

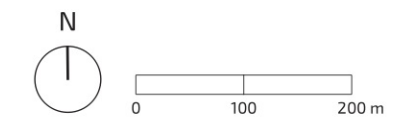
number **FIGURE 1** rev
Rev A

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- Red Line Boundary
- Brown Hairstreak Egg (and number recorded)
- Suitable for brown hairstreak
- Suitable for brown hairstreak (and surveyed)
- Habitat unsuitable for brown hairstreak
- Rivers and streams
- Ditches

date 24/10/25 drwn/chkd
SAM / JDH

client **Hallam Land**
project **Hawkwell Village,
North-West Bicester**

title **BROWN HAIRSTREAK SURVEY PLAN** scale
1:7,000 @ A3

number **FIGURE 2** rev
Rev A

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