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Land at Hornbrook Farm, Brighton Road, Horsham

Protected Species Report

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Land at Hornbrook Farm, Brighton Road, Horsham

Protected Species Report

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Abbreviations

ARS	Artificial Refuge Surveys
BCT	Bat Conservation Trust
BoCC	Birds of Conservation Concern
BPPH	Bat Passes per Hour
CBC	Common Bird Consensus
ECow	Ecological Clerk of Works
GCN	Great Crested Newt
GLTA	Ground-level Tree Assessment
NERC	Natural Environment and Rural Communities Act 2006
PCR	Polymerase Chain Reaction
PEA	Preliminary Ecological Appraisal
PRF	Potential Roost Features
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TN	Target Note
TP	Transect Point
WCA	Wildlife and Countryside Act 1981 (as amended)
VES	Visual Encounter Surveys

0 Executive Summary

0.1 Introduction

- 0.1.1 Protected species surveys for great crested newt, breeding birds, foraging and commuting bats, and hazel dormouse were undertaken for the survey area of a proposed residential development at Land at Hornbrook Farm, Brighton Road, Horsham. The study was undertaken to identify and evaluate the importance of protected species.

0.2 Results

- 0.2.1 Two ponds identified within 500m of the survey area boundary were subject to eDNA sampling for great crested newts. Both ponds P2 and P5 returned a negative survey result.
- 0.2.2 A total of 26 bird species were recorded, of which three are considered confirmed breeding species, 12 probable breeding species and nine possible breeding species. Two further bird species were considered unlikely to be breeding in the survey area. Of the 24 confirmed, probable and possible breeding species two are included on the Birds of Conservation Concern 5 Red List, and six are on the Amber List.
- 0.2.3 Species diversity recorded during the bat activity surveys included at least nine species. The data show that the majority (144.44 BPPH or 95.87%) of all bat calls recorded were from pipistrelle bats, with the sum of bat passes per hour registered at each location being 122.0 BPPH or 80.98% for common pipistrelle, 21.84 BPPH or 14.50% for soprano pipistrelle, and 0.58 BPPH or 0.39% for Nathusius' pipistrelle. Of the remaining bat passes, Myotis bats (2.90 BPPH or 1.93%) were the next most frequently recorded, followed by brown long-eared (1.10 BPPH or 0.73%), noctule (0.78 BPPH or 0.52%), serotine (0.77 BPPH or 0.51%), Leisler's bat (0.56 BPPH or 0.37%) and finally barbastelle (0.12 BPPH or 0.08%). These results are broadly consistent with those recorded during the transect surveys, with the majority of calls recorded from common pipistrelle and soprano pipistrelle.
- 0.2.4 The nest tube survey and nut searches recorded no signs of hazel dormouse during the survey period.

0.3 Evaluation

- 0.3.1 It is considered likely that great crested newts are absent from the survey area. This is due to the negative result for great crested newt eDNA in suitable ponds located within 500m of the survey area, and the lack of suitability, distance or isolation from the survey area of other ponds located within 500m. The survey area is considered to be of Negligible Importance for great crested newt and no impacts to this species are anticipated.

- 0.3.2 The survey area supported a moderately rich breeding bird assemblage, with eight species of conservation concern. The most important area was the woodland and scrub along the Horn Brook, and this is considered to be of Local Importance for its breeding bird species. Other habitats are considered to be of Negligible Importance. Both construction and operation phases are likely to increase levels of disturbance, particularly along the Horn Brook corridor. This may result in minor indirect impacts to breeding bird assemblages. Overall, no significant impacts to breeding birds are anticipated as a result of the development, provided recommended mitigation measures are carried out.
- 0.3.3 Due to the relatively low abundance of species including barbastelle, Leisler's bat and serotine, all which recorded less than 20 passes across the monitoring period, the overwhelming abundance of calls made by pipistrelle bats in comparison to other species, and uncertainty over the number of Myotis species which actually used the site, it is considered proportionate to classify the survey area as being of Local Importance.
- 0.3.4 The current design proposals suggest that the dwellings will be positioned within the central northern and western fields, which are currently dominated by low suitability grassland habitats. The majority of high value foraging and commuting habitat within the survey area including the woodland and majority of boundary hedgerows will be retained and protected. A short section of hedgerow H2 and H4 will be removed to create new vehicular accesses. These impacts are expected to be low at H2 but could sever important commuting route for bats using H4. Hedgerows H5, H5a and H6 will be removed. These hedges provide limited connectivity to higher quality habitats with the local landscape and new native species landscaping will be created through to mitigate any loss of habitat. Proposed new pedestrian entrances and cycle paths are expected to have a negligible impact on foraging and commuting bats provided the severance of hedgerows is less than 3m and artificial light at the severed points is reduced to a minimum.
- 0.3.5 The impact of light on foraging and commuting bats is classified as low for serotine, Leisler's bat, noctule and pipistrelles – which comprised c.97.26% of all bats recorded during remote monitoring at the survey area. These species are unlikely to be significantly affected by the Proposed Development. Light intolerant species recorded, including barbastelle, brown long-eared and Myotis bats, comprised c.2.74% of activity recorded during remote monitoring. Use of the survey area by these species may be reduced by the proposals, but it is likely that the development can be accommodated without adverse effects on the conservation status of local bat populations within their natural range. These species are often associated with woodland habitats. The woodland habitat at the northern and western boundaries will be retained and protected by a vegetated buffer of at least 10m as part of recommendations for breeding birds.
- 0.3.6 There were no observations of hazel dormouse, or signs of their presence, therefore the survey area is considered to be of Negligible Importance for this species.

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1 Introduction

1.1 Purpose of this Report

- 1.1.1 A Preliminary Ecological Appraisal (PEA) was carried out in November 2021 for the site of a proposed residential development at Land at Hornbrook Farm, Brighton Road, Horsham (Grid Reference: TQ 18906 29780). It was recommended that further surveys should be carried out for great crested newt (GCN) *Triturus cristatus*, breeding birds, foraging / commuting bats and hazel dormouse *Muscardinus avellanarius* due to the presence of favourable habitats.

1.2 Objectives and Approach of the Study

- 1.2.1 The study was commissioned to fulfil the following objectives:
- ▶ To determine the presence or likely absence of GCN and hazel dormouse, and if present record their distribution within the survey area;
 - ▶ To identify features of importance for breeding birds and foraging and commuting bats, record the species assemblage, their conservation status, and assess the relative abundance of these species within the survey area; and
 - ▶ To provide sufficient data to inform a European Protected Species Mitigation Licence applications for GCN and hazel dormouse, if required.
- 1.2.2 To meet these objectives the survey approach involved field surveys using standard techniques to record the presence, distribution and relative abundance of target species within the survey area, with reference to current industry guidelines.

1.3 Survey Area

- 1.3.1 The survey area is larger than the Application Site boundary, as a result of a change in the size of the Application Site after the surveys had been completed. The majority of the survey area contains the Application Site, barring a linear strip of habitat on the south-eastern boundary, within which a visibility splay will be created. The Application Site measures c.9.23ha and its extent is shown in blue on Figure 1.1.
- 1.3.2 The survey area lies to the south-east of the town of Horsham in the Horsham District of West Sussex. It comprises c.10.25ha of undeveloped agricultural land. The open grassland fields are interspersed by hedgerows, with strips of woodland and Horn Brook located along the site boundaries, and occasional patches of tall ruderal, bracken and scrub. The extent of the survey area is outlined in red on Figure 1.1.

- 1.3.3 The survey area is bound by Horn Brook and woodland to the north and west; Doomsday Lane to the east; and Brighton Road (A281) to the south. The wider landscape is dominated by farmland and housing associated with Horsham, with large blocks of woodland to the east. Six ponds lie within 500m of the survey area.

1.4 Proposed Construction Activities

- 1.4.1 Planning consent is being sought for a residential development. The proposals would include construction of up to 180 dwellings, together with open space, ancillary works and the detailed means of access with all other matters reserved. The Illustrative Masterplan is illustrated on Figure 1.2.

Hornbrook Farm, Horsham, West Sussex

-  Survey area
-  Application Site

Figure 1.1: Survey area



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Ordnance Survey AC0000808122

Scale (at A4): 1:5,000 Created by: EM

Date: Jan 2026 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook: Site location: 260119



Figure 1.2: Illustrative Masterplan

2 Survey Methodology

2.1 Great Crested Newt

eDNA survey

- 2.1.1 Access to suitable nearby ponds located within 500m of the survey area (P1-P6) was requested to carry out an eDNA survey. See Appendix II for pond locations.
- 2.1.2 The objective of the survey was to establish the presence or likely absence of GCN from potentially suitable breeding ponds. The eDNA water sampling followed the methodology set out in Natural England's '*Technical advice note for field and laboratory sampling of GCN environmental DNA*' (Biggs et al., 2014), which is provided as an appendix of the research report published by Defra into environmental DNA testing for GCN. This is the only methodology currently accepted by Natural England for this technique.
- 2.1.3 A single visit to each pond was made on 22 May 2023. At the time of the survey, the following information was collected for the pond:
- ▶ Site name;
 - ▶ Nearest settlement;
 - ▶ County;
 - ▶ Time between receipt of sampling kit and date of sampling;
 - ▶ Date of sampling;
 - ▶ Personnel collecting sample;
 - ▶ Ordnance Survey grid reference (12 figures);
 - ▶ Percentage of pond perimeter that is accessible for survey;
 - ▶ Data on inflows, and whether these were wet or dry at the time of survey;
 - ▶ Data on presence and number of GCNs recorded during the survey (if any); and
 - ▶ Information on any difficulties experienced during sample collection.
- 2.1.4 The following methodology for the sampling procedure for eDNA analysis was applied in the field in accordance with the survey protocol (Biggs et al., 2014):
- ▶ During the survey, 20 samples of 30ml each were taken from around the perimeter of the pond, as equally spaced as possible. The locations of the samples were chosen to sample the entire margin with specific effort made to target areas where there may be newt egg laying and / or displaying activities.

- ▶ The sample ladle was stirred gently in the pond before the sample was retrieved in order to mix the water column, with care being taken not to stir up the sediment.
- ▶ All 20 samples were emptied as they were collected into a Whirl-Pack bag, which was then sealed and shaken for 10 seconds to mix the samples.
- ▶ Upon mixing, and using a sterile pipette, exactly 15ml of the sample was transferred from the Whirl-Pack bag into each of the six sterile tubes, which contained 35ml of ethanol. The sample was stirred between filling each tube to homogenize the water.
- ▶ Once filled to 50ml, each tube was mixed for 10 seconds to mix the sample and preservative. Date of sampling.
- ▶ Samples were returned to the office and either dispatched at ambient temperature immediately for analysis or stored at 2-4°C in a refrigerator dedicated for this purpose.

2.1.5 The following precautions were adhered to, which ensured that no cross-contamination of samples occurred:

- ▶ Sterile gloves were worn by all surveyors at all times during the sampling process; and
- ▶ Samples were collected without the surveyor entering the water (i.e. the surveyors stood on the pond bank or edge).

2.1.6 The laboratory used for analysis of the samples was NatureMetrics, 1 Occam Court, Surrey Research Park, Guildford, GU2 7HJ, United Kingdom, which is participating in Natural England's proficiency testing scheme. Water samples were stored in refrigerated conditions and returned to the laboratory on 25 May 2023 via a 24hr courier service.

Evaluation criteria

2.1.7 A positive result means that GCNs are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

2.1.8 A negative result means that GCN DNA was not detected and GCN are likely to be absent from the waterbody.

2.1.9 On rare occasions an inconclusive result is issued. This occurs where GCN DNA has not been detected but the controls have indicated that the sample has been degraded or the polymerase chain reaction (PCR) inhibited in some way. This may be due to undefined components in the water chemistry or may be due to the presence of high levels of sediment or algae in the sample. A re-test could be performed but a fresh sample would need to be obtained, and if water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

2.1.10 Sediment content of each sample is visually recorded in the lab and reported on the results document. Inhibition and degradation results are also noted. If the result is recorded as evidence of decay (meaning that the degradation control was outside of accepted limits) or evidence of residual inhibition (meaning that the PCR reaction was inhibited) any negative result is recorded as indeterminate.

Limitations

- 2.1.11 There were no difficulties in gaining access to suitable ponds P2 and P5 to carry out the eDNA surveys. Ponds P1, P3, P4 and P6 were either scoped out from the assessment, as described in the PEA (UEEC, 2023a).

2.2 Breeding Birds

- 2.2.1 An adapted Common Bird Census (CBC; Gilbert et al., 1998) methodology was used, with reference to Natural England's standing advice on wild birds¹. Three survey visits were undertaken between April and June. Surveys began within 30mins of sunrise and continued for approximately 2hrs.
- 2.2.2 The entire survey area, as well as some immediately adjoining areas, were covered on each visit using a repeatable transect covering the whole survey area, as illustrated in Appendix VI. The direction walked was varied to limit early morning bias. The whole survey area lay within c.50m of the transect route or was clearly visible from it. During the surveys the transect was walked slowly and methodically and all bird activity observed by sight and sound, with a particular focus on behaviour indicative of breeding (nests, song, display, carrying food or nest material, recently fledged young, etc.) was recorded on maps using standard British Trust for Ornithology species codes and behavioural annotations. Weather conditions were noted during the survey (air temperature, wind speed, cloud cover and precipitation) and are reported in Table 2.1.

Table 2.1: Breeding bird survey dates and weather conditions

Date (2023)	Weather conditions
14 April	4-6°, 100% cloud cover; light air (Beaufort 1), intermittent light precipitation.
12 May	10-11°, 100% cloud cover; light breeze (Beaufort 2), no precipitation.
9 June	12-13°, 80% cloud cover, gentle breeze (Beaufort 3), no precipitation.

Evaluation criteria

- 2.2.3 At the end of the surveys, the field maps were analysed to assess the number of territories for each species present. Identification of territories was normally based on a minimum of two registrations for each territory, although for late flying migrants, such as spotted flycatcher *Muscicapa striata*, for which fewer potential contacts are possible, only one registration was required to confirm a territory, an approach which was also applied to inconspicuous species.
- 2.2.4 Full CBC surveys normally comprise ten survey visits. Consequently, using a modified CBC method comprising three survey visits the number of territories identified should be considered a minimum. Additional territories may have been present but not identified.

¹ Natural England (2015): *Wild birds: surveys and mitigation for development projects*. Accessed online at: <https://www.gov.uk/guidance/wild-birds-surveys-and-mitigation-for-development-projects>

2.2.5 The significance of the results was evaluated, with the importance of breeding bird populations and the assemblage considered in relation to:

- ▶ Annex I of EC Directive 2009/147/EC on the Conservation of Wild Birds (2009) ("Annex 1 species");
- ▶ Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) ("Schedule 1 species");
- ▶ Birds of Conservation Concern Red, Amber and Green lists (Stanbury et al., 2021) ("BoCC Red, Amber and Green List species");
- ▶ Species of Principal Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 ("Section 41 species"); and
- ▶ Guidelines for the selection of biological SSSIs in relation to birds (Drewitt et al., 2015)
- ▶ Sussex Local Wildlife Site Selection Criteria (Sussex Local Wildlife Sites Initiative, 2017); and
- ▶ Birds of Sussex 2014 (Sussex Ornithological Society and British Trust for Ornithology, 2014).

Limitations

2.2.6 The bird surveys were carried out during April to June 2023. The surveys were hence undertaken in accordance with the recommended timings for such surveys (Gilbert et al., 1998). Weather conditions were generally within acceptable parameters.

2.3 Foraging and Commuting Bats

2.3.1 Bat activity surveys were based on standard industry guidelines (Collins (ed.), 2016) and Natural England's standing advice² for bats, comprising:

- ▶ Transect surveys: walking through a representative sample of the survey area's habitats to a predetermined route, to listen for, observe and record bats in flight away from their roosts using handheld bat detectors, noting bat activity and behaviour; and
- ▶ Remote monitoring: installation of automated detectors for a five-night period per deployment to remotely monitor bat activity in fixed locations within the survey area, with locations changing over the course of the season.

2.3.2 Current guidelines (Collins (ed.), 2016) recommend reasonable levels of bat activity survey effort, based on overall habitat suitability; see Table 2.2. The PEA concluded that the mosaic of woodland, grassland, scrub, hedgerows and running water were of high and moderate suitability for foraging and commuting bats.

² Natural England (2015): *Bats: surveys and mitigation for development projects*. Accessed online at: <https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects>

Table 2.2: Recommended survey effort for bat activity surveys

Low suitability habitat	Moderate suitability habitat	High suitability habitat
One survey visit per season (spring/summer/autumn), and One static detector location per transect, monitored for five consecutive nights per season (30mins before sunset (SS) to 30mins after sunrise (SR) each night)	One survey visit per month (April to October), including at least one dusk & pre-dawn survey, and Two static detector locations per transect, each monitored for five consecutive nights per month (SS-30mins to SR+30mins)	Up to two survey visits per month (April to October), including at least one dusk and pre-dawn survey, and Three static detector locations per transect, each monitored for five consecutive nights per month (SS-30mins to SR+30mins)

Transect surveys

- 2.3.3 A transect route representative of the survey area's habitats and transitional zones was plotted and walked once during each survey. Start points were randomised and the direction of travel alternated to avoid crepuscular bias. One / two surveyors undertook each transect survey, and walked at a slow, consistent speed along the transect route, stopping for approximately 4-5 minutes at each transect point (TP) to listen for bats and record activity and behaviour (spot counts). Bat activity between TPs was also recorded where possible. The locations of TPs are shown in Appendix VI, and these are referred to within the results.
- 2.3.4 Dusk activity surveys commenced at sunset and continued for approximately two hours, while dawn activity surveys commenced two hours prior to sunrise. Two hours was considered to be a sufficient length of time in which to adequately cover the survey area and to account for the species likely to be present in these habitats in Sussex.
- 2.3.5 Anabat Scout and Batlogger M2 full spectrum detectors were used during the transect surveys. Bat recordings were analysed using Kaleidoscope Pro (v5.6.3) software which enables evaluation of a range of echolocation call parameters to identify bats to genus or species level. Weather conditions were noted during each survey (minimum/maximum air temperatures, wind speed/direction, precipitation and cloud cover) and are reported in Table 2.3 and alongside the results in Appendix VII.

Table 2.3: Bat activity survey dates and weather conditions

Date (2023)	Time	Weather conditions
19 April	Dusk	7-10°C, 0% cloud cover, light breeze (Beaufort 2), no precipitation.
24 May	Dusk	11-16°C, 0% cloud cover, light air (Beaufort 1), no precipitation.
14 June	Dusk	20°C, 10% cloud cover, light air (Beaufort 1), no precipitation.
5 July	Dusk	11-15°C, 10-80% cloud cover, light air (Beaufort 1) - light breeze (Beaufort 2), no precipitation.
14 August	Dusk	16-17°C, 70% cloud cover, light breeze (Beaufort 2), no precipitation.
6 September	Dusk	21-24°C, 20% cloud cover, light air (Beaufort 1), no precipitation.
7 September	Dawn	16-18°C, 0% cloud cover, calm (Beaufort 0), no precipitation.

Date (2023)	Time	Weather conditions
4 October	Dusk	13-14°C, 10-50% cloud cover, light breeze (Beaufort 2) – gentle breeze (Beaufort 3), no precipitation.

Remote monitoring

- 2.3.6 Two Wildlife Acoustics SongMeter MiniBat full spectrum bat detectors were used for the automated monitoring. These were sited at a height of around 3–5m above ground level and left *in-situ* for at least 5 nights during each month of survey. Deployment locations were chosen systematically to achieve an even distribution across the survey area representative of its habitats where possible and are shown in Appendix VII; these locations are referred to within the results.
- 2.3.7 The bat detector was set to record passes from 30 minutes before sunset to 30 minutes after sunrise to capture early emerging and late returning bats and this was standard for all surveys. Data from the recorder were analysed using Kaleidoscope Pro (v5.6.3) software.
- 2.3.8 Weather data for the survey period was obtained from the closest weather station using the timeanddate.com website (<https://www.timeanddate.com>) and is presented in Appendix VIII.

Evaluation criteria

- 2.3.9 The importance of commuting routes and foraging areas are evaluated as Negligible, Local, County, Regional or National, with reference to Table 3.3 in the *Bat Mitigation Guidelines* (Reason, P.F. and Wray, S. (2023)). This method takes into account relative levels of bat activity; landscape context of the survey area; the species assemblage using a feature, their conservation status³ and habitat preferences; and the importance of identified roosts. This process analyses the overall importance of the survey area, but also serves to identify which parts of the survey area are Important Ecological Features (IEF), and which may therefore be of importance to the conservation status of local bat populations. Interpretation of these terms and the accompanying data is, where appropriate, informed by professional judgement.
- 2.3.10 It should be noted that bat passes recorded during automated static monitoring were split to a maximum duration of 60 seconds and do not equate to numbers of individual bats. Bats will often repeatedly pass a detector when hunting along a linear feature such as a hedgerow or tree line, and there is no way to determine numbers of individuals from this data. The number of bat passes should instead be taken as an index of relative bat activity at a particular location within the survey area.

Limitations

- 2.3.11 All transect routes were completed within the anticipated two hours. Static detector SM9 stopped recording after three days and SM10 and SM11 stopped recording after two days, instead of the scheduled five nights. This may be due to several factors including the number of recordings exceeding the memory space available, battery life expiring, or internal malfunctions. To

³ With reference to Table 3.1: Rarity Category in *Bat Mitigation Guidelines* (Reason, P.F. and Wray, S. (2023)).

compensate for this, the data are also shown as bat passes per hour which provides an average number of bat passes across the nights of recording. Bat passes per hour did not significantly deviate from the total bat passes recorded at each location and therefore this potential limitation is not considered to be significant.

- 2.3.12 The surveys were undertaken in accordance with the Bat Conservation Trust's (BCT) recommended timings for activity surveys (Collins (ed.), 2016). There were no further difficulties in gaining access to the survey area to carry out the surveys. Weather conditions were generally good during the surveys and within acceptable parameters.
- 2.3.13 The surveys were completed with the assistance of bat detectors. All survey techniques are subject to bias, and bat detector surveys may under-record species with weak echolocation calls, such as long-eared bats *Plecotus spp.* However, these biases were considered when interpreting the results.
- 2.3.14 Any bats recorded were identified to species (where possible) and recorded on a field map. Many of the calls were heard without being seen due to the position of the bat and the lack of light. Some bat calls are variable and extremely similar between species. Where identification to species level was not possible (for example in the *Myotis* bat group), bats were identified to family level (e.g., *Myotis sp.*).

2.4 Hazel Dormouse

- 2.4.1 A presence / absence survey for hazel dormouse was carried out, based on standard industry guidelines (Bright et al., 2006) and Natural England's standing advice⁴ for dormouse, comprising:
- ▶ Nest tube surveys: installation of artificial nest tubes within areas of suitable habitat which were subsequently checked for occupancy.
 - ▶ Nut searches: ground searches for hazel nuts which have been opened / gnawed by dormice.

Nest tube survey

- 2.4.2 Nest tube surveys utilise a minimum of 50 tubes deployed at c.15-20m intervals in suitable habitat within and bordering the survey area, usually installed in spring and left *in situ* at least until September. Each tube is checked for dormice or their nests during the survey. The survey is required to achieve a minimum score of 20 against the index of detection probability outlined in Table 2.4.

Table 2.4: Index of detection probability for hazel dormice (if using 50 nest tubes)

Month	Index of probability
April	1

4 Natural England (2015): Hazel or common dormice: surveys and mitigation for development projects. Accessed online at: <https://www.gov.uk/guidance/hazel-or-common-dormice-surveys-and-mitigation-for-development-projects>

Month	Index of probability
May	4
June	2
July	2
August	5
September	7
October	2
November	2

2.4.3 The index is based on a deployment of 50 nest tubes as standard. Where a survey deploys nest tubes in lesser numbers the weighting score is amended accordingly, because this will affect the detectability of dormice. The present survey used 50 nest tubes, installed within scrub, hedgerow and woodland habitat on 26 April 2023. Nest tube checks were carried out monthly between May and September thereby achieving a total score of 20 (4+2+2+5+7) and gives a good degree of confidence in the survey findings.

2.4.4 Nest tubes were positioned in areas of suitable habitat within and adjacent to the survey area, as shown on the plan at Appendix IX. The location of each nest tube was marked with survey tape to ensure that all tubes could be re-located during subsequent survey visits. The location of occupied tubes containing hazel dormice, or their nests, was recorded using GPS coordinates, together with the number of individuals and sex, weight and maturity data. Weather conditions were noted during each survey (air temperature, wind speed, precipitation and cloud cover) and are reported in Table 2.5.

Table 2.5: Hazel dormouse survey dates and weather conditions

Date (2023)	Weather conditions
24 May	18-19°C, 5% cloud cover, light breeze (Beaufort 2), no precipitation
26 June	19-21°C, 35% cloud cover, gentle breeze (Beaufort 3), no precipitation
26 July	21-22°C, 40% cloud cover, gentle breeze (Beaufort 3), no precipitation
23 August	25-28°C, 10% cloud cover, light air (Beaufort 1), no precipitation
20 September	18-19°C, 100% cloud cover, moderate breeze (Beaufort 4), light precipitation

Nut searches

2.4.5 The simplest way to establish dormouse presence at a site is to look for gnawed hazel nuts. Dormice leave a smooth round hole with few toothmarks on the surface; mice and voles may also leave a round hole, but with transverse toothmarks on the cut edge. Hazelnut searches comprise systematic surveys of five 10x10m quadrats for gnawed nuts. Searching is carried out for 20 minutes within each quadrat before moving on to the next. There is an 80% probability that, if dormice are present, gnawed nuts will be found by the time three such squares have been searched (Bright *et al.*, 1994, cited in Bright *et al.*, 2006). Alternatively for smaller areas at least 100 nuts are checked. However, due to the nature of the habitats within the survey area i.e. linear

hedgerows and woodland with a limited hazel understorey, nut searching was limited to the areas surrounding the nest tube deployment. Where present, fallen hazel nuts were checked for hazel dormouse toothmarks. Nut searching can only be used as a supplementary technique, and between September and December in areas dominated by fruiting hazel *Corylus avellana* trees.

Evaluation criteria

- 2.4.6 Population size is very difficult to evaluate as dormice live at low densities, even in the best habitats. In early summer there are typically only 3 to 5 (but sometimes up to 10) adults per hectare in deciduous and conifer woodland habitats. Results from the National Dormouse Monitoring Programme suggests an average of between 1.75 and 2.5 adults per hectare based on 83 sites in various habitats, with the lowest densities in the north of England (1993 to 2000 inclusive; Bright & Sanderson, pers. Comm., cited in Bright *et al.*, 2006). Across the country, including sub-optimal habitats, the average population density is estimated to be around 2.2 adults per hectare.

Limitations

- 2.4.7 The surveys were hence undertaken in accordance with recommended survey timings (Bright *et al.*, 2006). There were no difficulties in gaining access to the survey area to carry out the surveys.
- 2.4.8 As stated above, the nut search methodology was adapted to suit the nature of the survey area. There were no other limitations of relevance to the methods applied.

2.5 General Limitations

- 2.5.1 See Appendix XI for General Legal and Technical Limitations which apply to this document.
- 2.5.2 The details of this report are valid until the dates shown in Table 2.6. Beyond these periods, if works have not yet been undertaken, the development proposals change or red line boundary changes, it is recommended that a review of the ecological conditions is undertaken.

Table 2.6: Validity of assessment

Survey Type	Validity period (CIEEM, 2019)	Date of final survey	Expiry date
GCN	18 months	22/05/2023	22/11/2024
Breeding birds	18 months	09/06/2023	09/12/2024
Foraging and commuting bats	18 months	04/10/2023	04/04/2025
Hazel dormouse	18 months	20/09/2023	20/03/2025

2.6 Personnel

- 2.6.1 The personnel deployed on the surveys are listed in Table 2.7.

Table 2.7: Survey personnel and qualifications

Feature / Task	Personnel
GCN	Dan Maude, Richard Emerson
Breeding birds survey	Richard Bickers
Foraging and commuting bats	Nick Pincombe, Becci Bond, Tim Lees, Christina Pullan, Dan Maude, Rich Emerson
Hazel dormouse	Becci Bond, Richard Emerson, Joe Dale
Personnel	Qualifications
Nick Pincombe BA(Hons) MSc Cenv MIEMA MCIEEM	Managing Director with nineteen years' experience leading survey and impact assessment teams for a wide range of ecology and environmental planning projects. Natural England Class Licences to survey for bats (WML-CL18) and GCN (WML-CL08).
Tim Lees BA (Hons) MSc MCIEEM	Associate Director with ten years' professional consultancy experience in ecological field survey for a wide range of sites and development projects. Natural England Class Licences to survey for great crested newt (WML-CL08) and bats (WML-CL17).
Dr Richard Bickers BSc (Hons) PhD MCIEEM	Principal Ecologist with sixteen years' professional consultancy experience. Botanical specialist in plant and vegetation surveys, including National Vegetation Classification, and keen birder with a licence to survey for GCN (WML-CL09).
Becci Bond BSc (Hons) MCIEEM	Principal Ecologist with twelve years' professional consultancy experience. Licences to survey for bats (WML-CL17), great crested newt (WML-CL09) and hazel dormouse (WML-CL10a).
Dan Maude BSc (Hons) MRes Qualifying member of CIEEM	Senior Ecologist with three years' survey experience.
Christina Pullan BSc (Hons) MSc Qualifying member of CIEEM	Consultant Ecologist with seven years' survey experience.
Rich Emerson BSc Qualifying member of CIEEM	Assistant with two seasons' survey experience.
Joe Dale BSc MSc	Assistant with two seasons' survey experience.

3 Results

3.1 Great Crested Newt

eDNA survey

- 3.1.1 The GCN eDNA analysis results letters are presented at Appendix IV and summarised in Table 3.1.

Table 3.1: Summary of eDNA analysis results

Pond	Result
P1	Unsuitable for GCN
P2	<u>Negative</u> for GCN DNA
P3	Unsuitable for GCN
P4	Scoped out due to distance
P5	<u>Negative</u> for GCN DNA
P6	Dry and unlikely to hold water

3.2 Breeding Birds

Common Bird Census survey

- 3.2.1 SxBRC returned records of 53 notable bird species from within the desk-study search zone (see PEA for more detail).
- 3.2.2 A total of 26 species were recorded, of which three are considered confirmed breeding species, 12 probable breeding species and nine possible breeding species. Two further species were considered unlikely to be breeding in the survey area.
- 3.2.3 Of the 24 confirmed, probable and possible breeding species two are included on the Birds of Conservation Concern 5 (2021) Red List (Red List species), and six are on the Amber List (Amber List species). Records of the species and their use of the survey area are discussed below, along with accounts of status nationally and within Sussex⁵ for Red and Amber species.
- 3.2.4 Plans showing the location of records for the three surveys are shown in Appendix V, together with the approximate location of territories of confirmed and probable breeding species. Table 3.2 provides a summary of the survey results.

⁵ Sussex Ornithological Society and British Trust for Ornithology, 2014. The Birds of Sussex

Table 3.2: Summary of breeding bird survey results

Species	BoCC list	Section 41	Minimum no. of territories
Confirmed breeding species			
Robin	Green	No	11
Blue tit	Green	No	5
Carrion crow	Green	No	1
Probable breeding species			
House sparrow	Red	Yes	>3
Song thrush	Amber	Yes	2
Wren	Amber	No	9
Duncock	Amber	Yes	1
Woodpigeon	Amber	No	2
Stock dove	Amber	No	3
Blackbird	Green	No	5
Great tit	Green	No	3
Chiffchaff	Green	No	4
Blackcap	Green	No	2
Great spotted woodpecker	Green	No	2
Nuthatch	Green	No	3
Possible breeding species			
Greenfinch	Red	No	?
Bullfinch	Amber	Yes	?
Coal tit	Green	No	?
Goldcrest	Green	No	?
Goldfinch	Green	No	?
Chaffinch	Green	No	?
Collared dove	Green	No	?
Magpie	Green	No	?
Green woodpecker	Green	No	?

Section 41 Natural Environment & Rural Communities Act 2006 Section 41 Species of Principal Importance
BoCC list Red/Amber/Green, Birds of Conservation Concern 4 (Eaton et al., 2015))

Confirmed breeding species

BoCC Green List species

- 3.2.5 Robin *Erithacus rubecula*: A minimum of 11 territories were located in the woodland along the Horn Brook, hedgerows, and the gardens at Hornbrook Farm. Breeding was confirmed by the presence of a juvenile bird in the north of the survey area during the June survey.

3.2.6 Blue tit *Cyanistes caeruleus*: A minimum of six territories were located in the woodland along the Horn Brook, as well as in the western hedgerow. Breeding was confirmed by the identification of two active nests during the June survey.

3.2.7 Carrion crow *Corvus corone*: A single territory was located in woodland in the west of the survey area. Breeding was confirmed by the presence of a juvenile bird during the June survey.

Probable breeding species

BoCC Red List species

3.2.8 House sparrow *Passer domesticus*: At least three pairs are considered to have been nesting at Hornbrook Farm in the south of the survey area.

3.2.9 House sparrow declined by 69% in England between 1977 and 2018, and by 12% between 1995 to 2018. In Sussex house sparrow appears to have been relatively stable between 1988-92 and 2008-11.

BoCC Amber List species

3.2.10 Song thrush *Turdus philomelos* (Section 41 species): A minimum of two territories were identified in woodland in the west and north of the survey area.

3.2.11 There was a significant decline of c.50% in the national song thrush population, mainly during the 1970s and 80s, but numbers have been relatively stable subsequently. Song thrush was moved from the red to the amber list in the most recent iteration of BoCC. A similar pattern was repeated within Sussex, where numbers appeared to have remained relatively stable between 1988-92 and 2008-11.

3.2.12 Wren *Troglodytes troglodytes*: A minimum of nine territories were identified, in the woodland along the Horn Brook.

3.2.13 Wren has increased steadily in recent decades. Amber listing of wren is based on the UK supporting >20% of the European breeding population.

3.2.14 Dunnock *Prunella modularis* (Section 41 species): One territory was identified in the south the survey area. However, birds were also recorded in the woodland along the Horn Brook.

3.2.15 Nationally dunnock experienced a significant population decline of c.40% during the 1970s and 80s. However, since the late 1990s numbers have increased slightly, though they have not recovered to their previous levels. In line with this, in Sussex there was a modest increase in the number of occupied tetrads between 1988-92 and 2008-11.

3.2.16 Woodpigeon *Columba palumbus*: Two territories were located in in the woodland along the Horn Brook, although birds were recorded widely across the survey area.

- 3.2.17 Woodpigeon increased steadily until the late 2000s, since which it has been relatively stable. Amber listing of woodpigeon is based on the UK supporting >20% of the European breeding population.
- 3.2.18 Stock dove *Columba oenas*: Three territories were identified in the woodland along the Horn Brook.
- 3.2.19 Stock dove has increased steadily in recent decades following a decline caused by pesticides in the late 50s and early 60s and, consistent with the national picture, in Sussex stock dove increased between 1988-92 and 2008-11. Amber listing of stock dove is based on the UK supporting c.20-30% of the European breeding population.

BoCC Green List species

- 3.2.20 Blackbird *Turdus merula*: A minimum of five territories were located in the woodland along the Horn Brook.
- 3.2.21 Great tit *Parus major*: A minimum of two territories were identified in the woodland along the Horn Brook.
- 3.2.22 Chiffchaff *Phylloscopus collybita*: A minimum of four territories were located in the woodland along the Horn Brook.
- 3.2.23 Blackcap *Sylvia atricapilla*: A minimum of two territories were identified in the woodland along the Horn Brook.
- 3.2.24 Great spotted woodpecker *Dendrocopos major*: Two probable territories appeared to be centred on Hornbrook Farm and woodland along the Horn Brook.
- 3.2.25 Nuthatch *Sitta europaea*: A minimum of three territories were identified in the woodland along the Horn Brook.

Possible breeding species

- 3.2.26 Suitable breeding habitat for all the following species is present within the survey area.

BoCC Red List species

- 3.2.27 Greenfinch *Chloris chloris*: A single bird was recorded in the west of the survey area during the April survey.

BoCC Amber List Species

- 3.2.28 Bullfinch *Pyrrhula pyrrhula*: A single male was recorded in the west of the survey area during the May survey.

Green List species

- 3.2.29 Coal tit *Periparus ater*: Two singing birds were recorded in the woodland along the Horn Brook during the June survey.
- 3.2.30 Goldcrest *Regulus regulus*: There were two records of singing males in the woodland along the Horn Brook in the north of the survey area during the April and June surveys.
- 3.2.31 Goldfinch *Carduelis carduelis*: Single birds, including a singing male, were recorded in the west of the survey area during the May and June surveys.
- 3.2.32 Chaffinch *Fringilla coelebs*: A single singing male was recorded on the eastern boundary of the survey area during the April survey.
- 3.2.33 Collared dove *Streptopelia decaocto*: Two singing males were recorded at Hornbrook farm and in the woodland beside the Horn Brook, both during the June survey.
- 3.2.34 Magpie *Pica pica*: There were scattered records of birds in trees and woodland across the survey area during the April and June surveys.
- 3.2.35 Green woodpecker *Picus viridis*: There was a single record of a calling bird in the woodland along the Horn Brook during the June survey.

Other species

- 3.2.36 Starling *Sturnus vulgaris* (BoCC Red List and Section 41 species) and jackdaw *Coloeus monedula* were recorded flying over the survey area. Although suitable breeding habitat for both species was present, due to the lack of other records it is considered unlikely that they were breeding within the survey area.

3.3 Foraging and Commuting Bats

- 3.3.1 There are ten SSSI and no SAC within 10km of the survey area. Bat populations are not listed amongst the notified features for any of these sites.

Transect surveys

- 3.3.2 Monthly bat activity surveys were carried out between April and October 2023; see Appendix VI for a plan showing the 17 transect point (TP) locations. These mostly consisted of dusk surveys, but in September a dusk and dawn survey were carried out in the same 24hr period. Full survey results are included at Appendix VII and summarised in the tables and graphs below.

Transect data

- 3.3.3 Table 3.3 presents a summary of all transect survey data collected during the 2023 bat active season.

Table 3.3: Monthly bat transect survey data

Date (2023)	Time	NYNO	MYsp	PIPI	PIPY	NYsp	Total
April	Dusk	0	0	99	13	0	112
May	Dusk	0	0	53	18	1	72
June	Dusk	0	0	50	4	0	54
July	Dusk	0	1	78	28	0	107
August	Dusk	0	0	70	0	0	70
September	Dusk	0	1	57	13	0	71
September	Dawn	3	16	27	12	0	58
October	Dusk	0	0	23	2	0	25
Total		3	18	457	90	1	569
%		1%	3%	80%	16%	<1%	100

- 3.3.4 The overall abundance of foraging and commuting bats collected by the transect surveys was moderate, with peak of 112 bat passes recorded during the April dusk transect. The lowest number of bat passes (25) was recorded during the October transect. Weather conditions across the surveys were generally good and were unlikely to discourage bat activity. The exception is potentially the April and May transect where air temperatures were between 7-10 °C and 11-16°C, although these were still within the recommended range for bat activity surveys. Furthermore, April still recorded the highest number of passes throughout the survey period. No precipitation was recorded throughout the survey period. Wind generally remained between calm and light breeze (Beaufort 0-2), except for October, where a gentle breeze was recorded (Beaufort 2-3), which is unlikely to have impacted activity levels. The variation in total bat passes for October may also be due to seasonal variations in bat activity.
- 3.3.5 During the survey period, a total of 569 bat passes were made across the eight transect surveys. Common pipistrelle bats were recorded significantly more frequently than any other species, with 457 passes in total (80%). Soprano pipistrelle made up a small proportion (90 passes; 16%), followed by Myotis bats (18 passes; 3%), noctule *Nyctalus noctule* (3 passes; 1%) and *Nyctalus sp.* (1 pass; <1%).
- 3.3.6 Bat activity was identified at all transect points, however the level of activity varied significantly. Higher activity (19-45 bat passes) was consistently recorded along the northern boundary near the broadleaved woodland (TP1, TP2, TP4, TP5, TP6 and TP12) and eastern boundary near to the native species-poor hedgerow with trees (H4) with trees (TP15 and TP16). These areas generally provided the highest quality habitat for bats within the survey area.
- 3.3.7 Regular but low levels of activity were recorded along the southern boundary near to the native species-rich hedgerow H3 (TP17), semi-improved grassland (TP18) and the native species-poor hedgerow H8 (TP9).
- 3.3.8 Inconsistent and low levels of activity were found in the south-eastern corner of the survey area (TP14), within the centre of the improved grassland field (TP3) and within the centre of the semi-improved grassland field (TP13, TP10, TP11). These areas are of lower suitability for foraging and commuting bats with a lack of, or less suitable, cover features.

3.3.9 Low levels of bat activity were also recorded at the south-western boundary near to the broadleaved woodland (TP7, TP8). This area represented relatively good foraging and commuting habitats for bats within the survey area. The lack of activity in these locations may result from variations in activity across the survey period.

Remote monitoring

3.3.10 Deployment of remote automated bat detectors coincided broadly with each transect survey; see Appendix VI for a plan showing the locations of remote detector deployments. Table 3.4 presents a summary of all bat passes recorded during remote monitoring.

Table 3.4: Total number of bat passes during remote monitoring, all species

Month (2023)	Detector	BABA	EPSE	MYsp	NYLE	NYNO	PINA	PIPI	PIPY	PLAU	Total
April	SM1	0	0	1	0	0	0	75	8	0	84
	SM2	0	0	5	0	0	0	46	1	1	53
May	SM3	0	2	1	3	5	1	149	8	0	169
	SM4	0	15	15	8	0	0	2222	483	4	2747
June	SM5	0	0	1	1	0	0	69	28	0	99
	SM6	0	1	1	2	2	0	187	54	0	247
July	SM7	0	6	7	3	0	1	238	45	3	303
	SM8	0	0	4	0	2	0	571	50	0	627
August	SM9	0	1	4	2	0	0	37	8	8	60
	SM10	1	1	4	1	1	7	44	11	4	74
September	SM11	0	1	4	0	3	1	70	12	7	98
	SM12	3	0	23	0	13	5	500	34	1	579
October	SM13	0	0	62	0	0	0	830	99	0	991
	SM14	1	2	13	0	9	2	340	85	5	457
Total		5	29	145	20	35	17	5378	926	33	6588
%		0.08	0.44	2.20	0.30	0.53	0.26	81.63	14.06	0.50	100

3.3.11 The overall abundance of foraging and commuting bats collected by the remote monitoring data varied across the monitoring period from high to low, with a peak of 2747 passes recorded at SM4. The lowest number of bat passes was (53) recorded across at SM2 in April. The variation in total number of bat passes recorded across the months was not considered to be impacted by the weather conditions.

3.3.12 During the survey period, a total of 6588 bat passes were made across the 14 monitoring locations. Common pipistrelle bats were significantly more common than any other species, with 5,378 passes or (81.63%). Soprano pipistrelle made up a small proportion (926 passes; 14.06%), followed by *Myotis* bats (145 passes; 2.20%). This data is broadly consistent with the transect surveys. Other bat species recorded by the remote monitoring surveys contributed <1% and

included noctule (35 passes), brown long-eared (33 passes), serotine (29 passes), Leisler's bat (20 passes), Nathusius' pipistrelle (17 passes), barbastelle (5 passes).

- 3.3.13 Bat activity was identified at all monitoring locations, however the total passes per detector and mean bat passes per hour (BPPH) varied significantly across the survey area. The highest proportion of all bat passes (2747 bat passes) and the highest BPPH (68.68) were recorded at SM4 along the eastern boundary near to hedgerow H4. The second highest level of bat passes (991) was recorded along the north-eastern boundary at SM13 near to the broadleaved woodland. These results were similar to the transect surveys where higher levels of activity were recorded at the northern and eastern boundary.
- 3.3.14 Moderate activity levels (579 passes) were recorded at SM12 along the southern boundary near to the native species-poor hedgerow H1 and at SM14 near to the native species rich hedgerow with trees H3 (457 passes). Despite the northern boundary representing the highest quality habitat for bats and recording higher levels of activity at SM13, additional detectors deployed in this location recorded moderate to lower activity levels. SM8 recorded 627 passes, SM7 recorded 303 passes, and SM6 recorded 167 passes.
- 3.3.15 Low levels of bat activity were recorded through the centre of the survey area, within the grassland habitats near to H5 (SM2 and SM3) and H6 (SM5 and SM11). Low levels were also recorded at the south-western corner of the survey area at SM1 and SM9. These results were similar to those recorded during the transect surveys, with lower activity recorded through the central portion and south-east of the survey area.
- 3.3.16 Figure 3.1 shows an index of relative bat activity recorded in the survey area, expressed as BPPH. The data are shown per detector deployment and by month. This again indicates that bat activity within the survey area varied from low to high across the survey period, with particularly high levels of activity recorded at SM4.

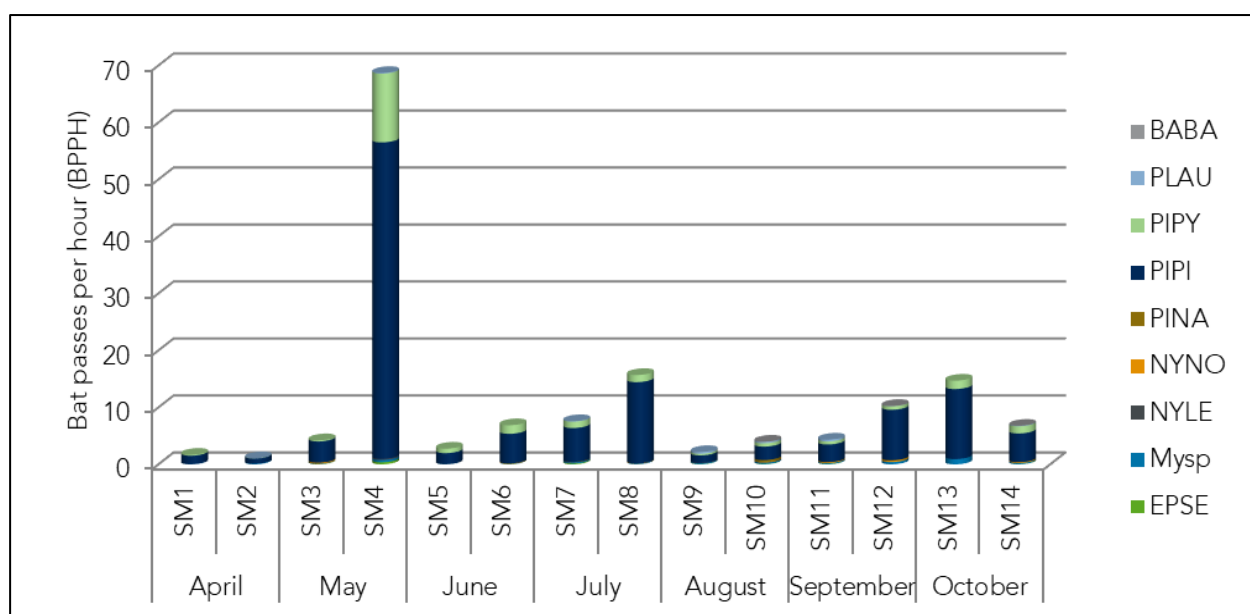


Figure 3.1: Bat passes per hour, by detector and month

3.4 Hazel Dormouse

Nest tube survey

3.4.1 The nest tube survey recorded no signs of hazel dormouse during the survey period. Signs of other species including wood mouse nests, unidentified mouse nests (not dormouse), and nut stashes were recorded occupying the nests between July and September. A summary of the survey results is displayed in Table 3.5 with locations of hazel dormouse and other species shown at Appendix IX.

Table 3.5: Summary of hazel dormouse survey results

Survey	1	2	3	4	5
Date 2023	24 May	26 June	27 July	23 August	20 September
Hazel dormouse	0	0	0	0	0
Other species	0	0	2 unidentified mouse nest; 2 nut stashes from an unidentified mouse	1 wood mouse nest; 1 wood mouse nut stash	2 wood mouse nest; 3 nut stashes from an unidentified mouse



Example of nut stash located at south-eastern corner and recorded 27 July 2023 – unidentified mouse species



Loose leaf recorded at northern boundary and recorded 20 September – unidentified mouse species

Nut searches

3.4.2 The nut search was carried out in October 2023 and returned no evidence of hazel dormouse.

4 Evaluation

4.1 Introduction

- 4.1.1 This section evaluates the survey area in terms of the protected species present or potentially present within the survey area or its immediate vicinity, in the context of relevant legislation and planning policy. See Appendix X for a review of the legislation and planning context.

4.2 Great Crested Newt

Presence or absence of GCN

- 4.2.1 Ponds considered suitable to support GCN (P2 and P5) within 500m of the survey area boundary, were subject to eDNA testing. Both P2 and P5 returned a negative result for GCN DNA. The surveys were carried out during the peak sampling season and are considered to provide a good level of confidence in the presence or likely absence of GCN within surveyed ponds.

Evaluation

- 4.2.2 Overall, habitats within the survey area provide a range of features which could support a population of GCN during the terrestrial phase of their lifecycle. The composition of coarse grassland, with a variable sward height and structure is suitable for foraging GCN. The boundary hedgerows and scrub provide shelter and dispersal habitat, while the woodlands on and adjacent to survey area offer hibernation potential.
- 4.2.3 There are no ponds within the survey area. An additional four ponds (P1, P3, P4, and P6) within 500m of survey area were scoped out for further assessment during the PEA (UEEC, 2023a). P6 consisted of a dry grassed depression, within a recreation ground; ponds P1 and P3 did not provide opportunities to breeding great crested. Pond P4, located c.400m south of survey area was considered highly unlikely that any newts present would commute to the survey area due to the suboptimal nature of adjoining habitats and the presence of large areas of comparable habitat in closer proximity to P4 than the survey area.
- 4.2.4 It is considered likely that GCN are absent from the survey area. This is due to the negative result for GCN eDNA in suitable ponds located within 500m of the survey area, and the lack of suitability, distance or isolation from the survey area of other ponds located within 500m. The survey area is considered to be of Negligible Importance for GCN.

4.3 Breeding Birds

Species assemblage

- 4.3.1 The breeding bird assemblage comprised 24 confirmed, probable or possible breeding species. The most notable species from a nature conservation perspective are considered to be the eight BoCC Red and Amber Listed probable breeding species. It should be noted that some of these species (wren, woodpigeon and stock dove) have stable or increasing populations in the UK and are listed due to the international importance of the UK's populations.

Evaluation

- 4.3.2 The survey area supported a moderately rich breeding bird assemblage, including at least eight species of conservation concern (though three of these are not of concern as a result of rarity or declines in a UK context). Most activity was focussed in the woodland and scrub along the Horn Brook (Horn Brook corridor), and this is considered to be of Local Importance for its breeding bird species.
- 4.3.3 Other habitats are considered to be of Negligible Importance. There were almost no records of birds within the grassland, but it is possible that some species may use this for foraging.

4.4 Foraging and Commuting Bats

Species assemblage

- 4.4.1 Species diversity recorded during the bat survey season comprised of at least nine species. Their national conservation status is listed in Table 4.1 in order of rarity (BCT, 2010; Mathews *et al.*, 2018; Sussex Bat Group⁶). Common pipistrelle, soprano pipistrelle, brown long-eared, noctule and serotine were also recorded within 2km of the survey area, as confirmed during the desk study stage (UEEC, 2021a).
- 4.4.2 *Plecotus* spp. and *Myotis* spp. call parameters overlap significantly within genus, and it is not normally possible to conclusively identify them to species level unless they are in the hand. Brown long-eared bats are widespread and relatively abundant both in Sussex and nationally. Grey long-eared bats are rare, and their restricted national distribution is focused on southern coastal areas. As such, the low numbers of long-eared bats recorded during the surveys are assumed to be brown long-eared.
- 4.4.3 The *Myotis* spp. calls recorded within the survey area were most closely matched to the call parameters of Brandt's *M. brandtii*, Daubenton's *M. daubentonii*, whiskered *M. mystacinus* bats and Natterer's *M. nattereri* bats. The survey area falls broadly within the known distribution of all four species. As *Myotis* spp. cannot be confidently identified they are not listed in Table 4.1.

⁶ Sussex Bat Group website: Bats in Sussex. Accessed online [25/10/23] at: <https://www.sussexbatgroup.org.uk/batsinsussex>

Table 4.1: Conservation status of recorded bat species (abundance and distribution)

Species	Sussex abundance/distribution	UK abundance/distribution	UK status
Barbastelle	Rarest, widespread	Very rare, widespread in England and Wales	Vulnerable Annex II
Serotine	Uncommon, widespread	Uncommon, widespread, southern England	Vulnerable
Leisler's bat	Rarely recorded	Scarce but widespread to southern Scotland	Near threatened
Nathusius' pipistrelle	Scarce, widespread	Scarce, widespread, includes migrants	Near threatened
Noctule	Uncommon, widespread	Uncommon, widespread, absent in Scotland	Least concern
Brown long-eared	Relatively abundant, widespread	Widespread, relatively abundant	Least concern
Soprano pipistrelle	Fairly common, widespread	Fairly common, widespread	Least concern
Common pipistrelle	Abundant, widespread	Widespread, abundant	Least concern

Species abundance

- 4.4.4 Figure 4.1 summarises species composition recorded during remote monitoring within the survey area over the course of the survey period to date. The data are expressed as BPPH and give an index of relative bat activity within the survey area. It is important to note that BPPH is not the same as total number of bats, as a single bat might pass the detector on multiple occasions when foraging up and down a feature. This shows that the majority (144.44 BPPH or 95.87%) of all bat calls recorded were from *Pipistrellus spp.* bats, with the sum of BPPH registered at each location being 122.0 BPPH or 80.98% for common pipistrelle, 21.84 BPPH or 14.50% for soprano pipistrelle, and 0.58 BPPH or 0.39% for Nathusius' pipistrelle.
- 4.4.5 Of the remaining bat passes, *Myotis spp.* (2.90 BPPH or 1.93%) were the next most frequently recorded, followed by brown long-eared (1.10 BPPH or 0.73%), noctule (0.78 BPPH or 0.52%), serotine (0.77 BPPH or 0.51%), Leisler's bat (0.56 BPPH or 0.37%) and finally barbastelle (0.12 BPPH or 0.08%). These results are broadly consistent with those recorded during the transect surveys, with the majority of calls recorded from common pipistrelle and soprano pipistrelle. The static data contained a greater number of species, albeit at low numbers.

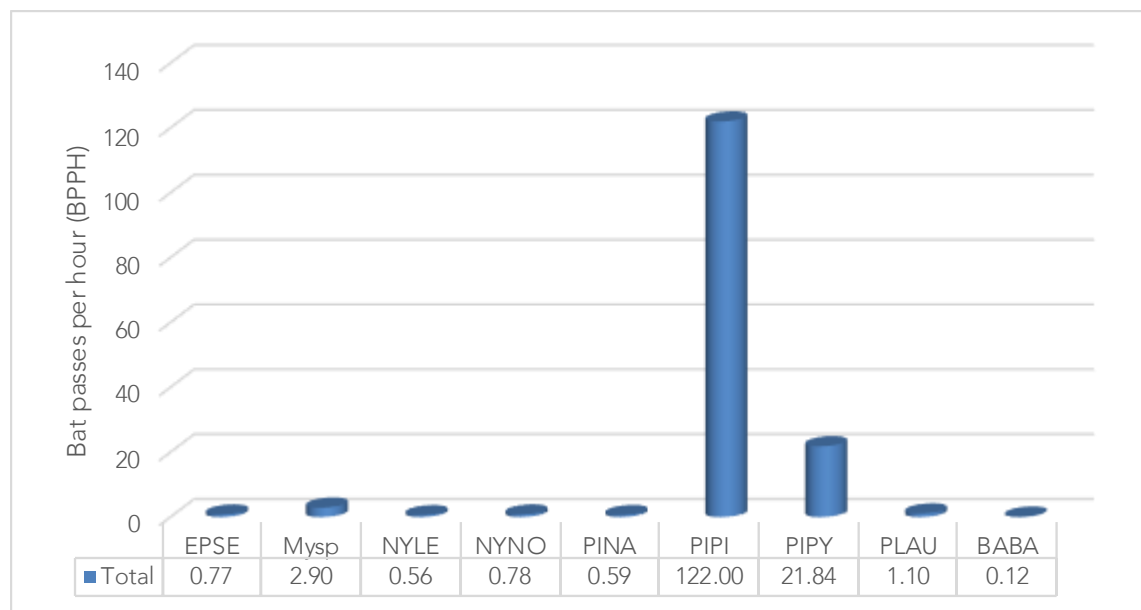


Figure 4.1: Bat pass species composition, all remote monitoring data

Evaluation

- 4.4.6 Due to the high proportion of common and widespread bat species and variable levels of activity recorded, the survey area is considered to be of Local Importance for its bat population.

Table 4.2: Importance of bat assemblage (Southern England)

Species	Importance of roosts	Importance of commuting and foraging habitat	Importance of assemblage
Widespread Common pipistrelle Soprano pipistrelle Brown long-eared	No roosting bat surveys were undertaken within the survey area. Two common pipistrelle day roosts within 2km. One maternity roost for common pipistrelle identified c.1.5km east and one maternity roost for brown long-eared identified c.1.93km north-east. It is anticipated that smaller roosts may exist within the survey area. Negligible (Site) importance	The habitats within the survey area are assessed as providing moderate suitability, comprising areas of woodland in combination with the semi-improved neutral grassland, scrub, mature trees and running water. ► The hedgerows along the site boundaries and woodland at the northern boundary may serve as	3 (of a maximum 3)

Species	Importance of roosts	Importance of commuting and foraging habitat	Importance of assemblage
Widespread but not as abundant in all geographies Noctule <i>Myotis</i> sp.	No roosting bat surveys were undertaken within the survey area. No roosting bat surveys were undertaken within the survey area. It is anticipated that smaller roosts may exist within the survey area. Negligible (Site) importance	navigation routes or foraging features. ▶ Low relative levels of bat activity in across the central areas of the survey area, including the grasslands and defunct hedge H5. Higher levels recorded along the northern and eastern boundaries, with lower levels of activity recorded at the southern and western boundaries.	10 (of a maximum 10)
Rare or restricted distribution Serotine Leisler's bat Nathusius pipistrelle	No roosting bat surveys were undertaken within the survey area. No records of roosts of these species within 2km. Negligible (Site) importance	▶ Bat activity dominated by common / soprano pipistrelle (143.84 BPPH or 95%). <i>Myotis</i> spp. registered 2.90 BPPH but all other species registered less than 1.10 BPPH.	9 (of a maximum 12)
Rarest Annex II species and very rare Barbastelle	No roosting bat surveys were undertaken within the survey area. No records of roosts of these species within 2km. Negligible (Site) importance.	▶ <i>Myotis</i> sp. calls resembled Brandt's bats, Daubenton's bats, whiskered and Natterer's bat. All four species are assumed as present.	4 (of a maximum 20)
Overall score 26 / 45 = 58%; meets threshold for Regional Importance. However, due to the relatively low abundance of species including barbastelle, Leisler's bat and serotine, all which recorded less than 20 passes across the monitoring period, the overwhelming abundance of calls made by pipistrelle bats in comparison to other species, and uncertainty over the number of species within the <i>Myotis</i> genus which actually used the site, it is considered proportionate to reduce the importance of assemblage to <u>Local Importance</u> .			

4.5 Hazel Dormouse

Presence or absence of hazel dormouse

- 4.5.1 There were no observations of hazel dormouse, or signs of their presence such as nests, gnawed nuts or droppings, during the course of the 2023 survey period. The survey findings provide a good level of confidence that hazel dormouse is likely to be absent from the survey area.

- 4.5.2 Surveys concluded in October 2023 and achieved a detection probability index score of 20 resulting in a good degree of confidence in the survey findings.
- 4.5.3 In conclusion the survey area is considered to be of Negligible Importance for hazel dormouse and no further surveys or mitigation are recommended.

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Appendix I: Phase 1 Habitat Plan

- Survey area
- Broadleaved woodland
- Dense scrub
- Neutral semi-improved grassland
- Improved grassland
- Poor semi-improved grassland
- Bracken
- Bracken/tall ruderal/scrub
- Tall ruderal
- Running water
- Native species-rich hedge
- Native species-poor hedge
- Species-poor defunct hedge
- Native species-rich hedge with trees
- Native species-poor hedge with trees
- Scattered tree
- Tree with bat roost potential
- Badger sett



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Scale: 1:3,000 Created by: AD

Date: Oct 2021 **Reviewed by:** NP

Drawing number:

UE0470ECO-Phase1_211021



Appendix II: Pond Plan

Hornbrook Farm Brighton Road, Horsham West Sussex

- Survey area
- ▲ Pond numbers
- 100m buffer
- 250m buffer
- 500m buffer



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Scale: 1:8,000 Created by: AD
Date: Oct 2021 Reviewed by: NP
Drawing number:
UE0470ECO-Ponds211021



Appendix III: Habitat Suitability Indices

HSI results for all accessible waterbodies potentially suitable for GCN within 500m of the survey area are shown below.

Variable	Field score	SI value	Field score	SI value
	Pond 2		Pond 5	
Location	Zone A	1	Zone A	1
Pond area (m2)	800	1	400	0.9
Pond permanence	Never dries	0.9	Never dries	0.9
Water quality	Poor	0.33	Good	1
% shaded 1m from bank	60	1	60	1
Fowl	Minor	0.67	Absent	1
Fish	Possible	0.67	Possible	0.67
Pond density (per km ²)	4	0.7	4	0.7
Terrestrial habitat	Poor	0.33	Moderate	0.67
Macrophyte cover %	5	0.3	20	0.5
HSI value		0.63		0.81
Suitability		Average		Excellent

Appendix IV: eDNA Results for Ponds



Thank you for choosing NatureMetrics

Welcome to your report. We are the leading provider of powerful, scalable biodiversity data delivered using environmental DNA.

Your sample(s) have been processed in accordance with the protocol set out in Appendix 5 of Biggs et al. (2014). Results are based on the samples as supplied by the client to the laboratory. Incorrect sampling methodology may affect the results. Note that a negative result does not preclude the presence of GCN at a level below the [limits of detection](#).

A results interpretation guide and a glossary of terms highlighted throughout this report can be found at the end of the report.

GCN Detection Results

Pond ID	Inhibition	Degradation	GCN Score	Result
UE0470-P2	No	No	0	Negative
UE0470-P5	No	No	0	Negative

Sample Information

Pond ID	Kit ID	Sampling Date	Received Date
UE0470-P2	GCN-23-00051	2023/05/22	2023/05/25
UE0470-P5	GCN-23-00067	2023/05/22	2023/05/25

Methods

eDNA was precipitated via centrifugation at 14,000 x g and then extracted using Qiagen DNeasy Blood and Tissue extraction kits. **qPCR** amplification was carried out in 12 replicates per sample, using GCN specific **primers** and **probe** (developed by Thomsen et al. (2012) and adopted by Biggs et al. (2014)), in the presence of **extraction negative controls**, **qPCR positive controls**, and **qPCR negative controls**. A score is given for the number of positive replicates out of 12.

The **qPCR** method follows the recommendations set out by NatureMetrics for Natural England in the qPCR validation project and helps improve the reliability of the interpretation of the data.

Results from the GCN assay are considered to have a **high** confidence rating according to our **Validation Scale** (Harper et al. 2021).

The quality control methods exceed the requirements outlined in Appendix 5 of Biggs et al. (2014). These consist of the use of **kit blanks**, additional **extraction negative controls**, **qPCR negative controls**,

Appendix V: Breeding Bird Survey Plans

Conservation status and British Trust for Ornithology code for birds recorded the surveys

Common name	Scientific name	BTO code	Status
House sparrow	<i>Passer domesticus</i>	HS	Red, s41
Starling	<i>Sturnus vulgaris</i>	SG	Red, s41
Greenfinch	<i>Chloris chloris</i>	GR	Red
Bullfinch	<i>Pyrrhula pyrrhula</i>	BF	Amber
Dunnock	<i>Prunella modularis</i>	D.	Amber, s41
Song thrush	<i>Turdus philomelos</i>	ST	Amber, s41
Stock dove	<i>Columba oenas</i>	SD	Amber
Woodpigeon	<i>Columba palumbus</i>	WP	Amber
Wren	<i>Troglodytes troglodytes</i>	WR	Amber
Blackcap	<i>Sylvia atricapilla</i>	BC	Green
Blackbird	<i>Turdus merula</i>	B.	Green
Blue tit	<i>Cyanistes caeruleus</i>	BT	Green
Carrion crow	<i>Corvus corone</i>	C.	Green
Chaffinch	<i>Fringilla coelebs</i>	CH	Green
Chiffchaff	<i>Phylloscopus collybita</i>	CC	Green
Coal tit	<i>Periparus ater</i>	CT	Green
Collared dove	<i>Streptopelia decaocto</i>	CD	Green
Goldcrest	<i>Regulus regulus</i>	GC	Green
Goldfinch	<i>Carduelis carduelis</i>	GO	Green
Great spotted woodpecker	<i>Dendrocopos major</i>	GS	Green
Great tit	<i>Parus major</i>	GT	Green
Green woodpecker	<i>Picus viridis</i>	G.	Green
Jackdaw	<i>Corvus monedula</i>	JD	Green
Magpie	<i>Pica pica</i>	MG	Green
Nuthatch	<i>Sitta europaea</i>	NH	Green
Robin	<i>Erithacus rubecula</i>	R.	Green

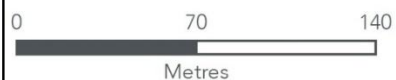
s41 Natural Environment & Rural Communities Act 2006 Section 41 Species of Principal Importance
Red/Amber/Green Birds of Conservation Concern 4 (Stanbury et al., 2021))

Hornbrook Farm, Horsham, West Sussex

 Survey area

 Transect

Transect route



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Ordnance Survey 0100031673

Scale (at A4): 1:2,953 Created by: EM

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_BBS_Transect_231220



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Web: www.ueec.co.uk



Hornbrook Farm, Horsham, West Sussex

- Survey area
- Sp. Sp. Species (red/amber/green list)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ?- Probable same bird

Breeding Bird Survey 1: 14/04/2023



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Scale (at A4): 1:2,000 Created by: EM

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_BBS

129800



518600

518800

	Survey area
	Species (red/amber/green list)
Sp.	Calling bird
<u>Sp.</u>	Bird repeatedly alarm calling
	Bird in song
*Sp.	Nest
*Sp. on	Nest with adult sitting
Sp. fam	Juvenile with parent(s) in attendance
Sp. mat	Sp. carrying nest material
Sp. food	Sp. carrying food
	Female
	Male
	Pair
	Bird movement
--	Different bird
-? -	Probable same bird

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	Survey area
	Species (red/amber/green list)
Sp.	Calling bird
<u>Sp.</u>	Bird repeatedly alarm calling
Sp. (circled)	Bird in song
*Sp.	Nest
*Sp. on	Nest with adult sitting
Sp. fam	Juvenile with parent(s) in attendance
Sp. mat	Sp. carrying nest material
Sp. food	Sp. carrying food
	Female
	Male
	Pair
	Bird movement
--	Different bird
-? -	Probable same bird

A horizontal number line is shown with tick marks at 0, 40, and 80. Below the line, the word "Metres" is written. A dark grey rectangular bar is drawn from the 0 mark to the 40 mark.

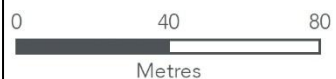
UE0470ECO-Hornbrook_BBS



Hornbrook Farm, Horsham, West Sussex

- Survey area
- Sp. Sp. Species (red/amber/green list)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♀♂ Pair
- Bird movement
- Different bird
- ?- Probable same bird

Breeding Bird Survey 2: 12/05/2023



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Ordnance Survey 0100031673

Scale (at A4): 1:2,000 Created by: EM

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_BBS

129800

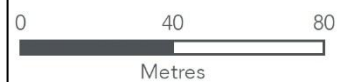


518800

519000

	Survey area
	Species (red/amber/green list)
Sp.	Calling bird
<u>Sp.</u>	Bird repeatedly alarm calling
Sp. (circled)	Bird in song
*Sp.	Nest
*Sp. on	Nest with adult sitting
Sp. fam	Juvenile with parent(s) in attendance
Sp. mat	Sp. carrying nest material
Sp. food	Sp. carrying food
	Female
	Male
	Pair
	Bird movement
--	Different bird
-? -	Probable same bird

Breeding Bird Survey 3: 09/06/2023



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Ordnance Survey 0100031673

Scale (at A4): 1:2,000 Created by: EM

Date: Dec 2023 **Reviewed by:** NP

Drawing number:

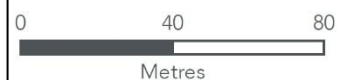
UE0470ECO-Hornbrook_BBS



Hornbrook Farm, Horsham, West Sussex

- Survey area
- Sp. Sp. Species (red/amber/green list)
- Sp. Calling bird
- Sp. Bird repeatedly alarm calling
- Sp. Bird in song
- *Sp. Nest
- *Sp. on Nest with adult sitting
- Sp. fam Juvenile with parent(s) in attendance
- Sp. mat Sp. carrying nest material
- Sp. food Sp. carrying food
- ♀ Female
- ♂ Male
- ♂♀ Pair
- Bird movement
- Different bird
- ?- Probable same bird

Breeding Bird Survey 3: 09/06/2023



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Scale (at A4): 1:2,000 Created by: EM

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_BBS



Hornbrook Farm, Horsham, West Sussex



Survey area



Species (red/amber/green list)

Breeding bird territories



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Ordnance Survey 0100031673

Scale (at A4): 1:3,000 Created by: EM

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_BBS_Territories_231220



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Appendix VI: Bat Activity Transect Points and Static Detector Locations

Hornbrook Farm, Horsham, West Sussex

-  Survey area
-  Transect point
-  Bat detector



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Ordnance Survey 0100031673

Scale (at A4): 1:3,000 Created by: MT
Date: Jan 2024 Reviewed by: NP

Drawing number:
UE0470ECO-Hornbrook_BatMap_240119



Appendix VII: Bat Activity Survey Results

Abbreviations:

NYNO	Noctule	MYsp	Myotis sp.	PIPI	Common pipistrelle
PIPY	Soprano pipistrelle	Plsp	Pipistrelle sp.	PLAU	Brown long-eared

Survey 1: Dusk, 19/04/2023, Surveyor: NP

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
20:03	20:03	22:15	None	Waxing crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
10°C	7°C	1B NE	3B NE	0%	0%
Equipment:					
Elekon Batlogger M2 full spectrum detector					
Transect Point (TP)	From	Time	Length (mins)		
1	20:03	20:08	5		
2	20:12	20:17	5		
3	20:19	20:24	5		
4	20:25	20:30	4		
5	20:34	20:39	5		
6	20:42	20:47	5		
7	20:50	20:55	7		
8	21:00	21:05	5		
9	21:07	21:12	5		
10	21:14	21:19	5		
11	21:20	21:25	5		
12	21:27	21:32	5		
13	21:33	21:38	5		
14	21:44	21:49	5		
15	21:51	21:56	5		
16	21:57	22:02	5		
17	22:07	22:12	5		

TP: Transect point Time: of recording and/or time at transect point No.(I): Number of bats
 No.(P): Number of passes E/R: emergence/re-entry F/C: Foraging/commuting Soc.: Social calls
 S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP1								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
1	-							No bats recorded
1-2	20:10	PIPI	1	1	C		S	Over field corner
2	-							No bats recorded
3	-							No bats recorded
4	20:25-20:30	PIPI	2	3	F		S	Up and down treeline
	20:25-20:30	PIPY	1	1	F		S	Up and down treeline
5	20:35	PIPI	1	2	F		NS	Distant
5-6	20:40	PIPI	2+	10	F		S	Field corner
12	21:27-21:32	PIPI	1	12	F		NS	Distant, possibly in fields to east

Survey 2: Dusk, 24/05/2023, Surveyor: NP					
Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
20:57	20:57	23:00	None	Waxing crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
16°C	11°C	0B	0B	0%	0%
Equipment: Elekon Batlogger M2 full spectrum detector					
TP	From	Time	Length (mins)		
18	20:57	21:00	3		
17	21:02	21:06	4		
14	21:10	21:14	4		
15	21:16	21:20	4		
16	21:21	21:25	4		
3	21:27	21:32	5		
13	21:34	21:39	5		
12	21:41	21:46	5		
11	21:48	21:53	5		
10	21:55	22:00	5		
9	22:01	22:06	5		
8	22:07	22:12	5		
7	22:15	22:20	5		
6	22:21	22:26	5		
5	22:31	22:36	5		

Survey 2: Dusk, 24/05/2023, Surveyor: NP

4	22:41	22:46	5
2	22:48	22:53	5
1	22:55	23:00	5

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP 12

TP	Time	Sp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
12	21:44-21:46	PIPY	1	6	F		S	Up and down hedge Map
8	22:10	PIPI	1	1	C		NS	Distant
	22:12	PIPY	1	1	C		NS	Distant
6	22:22	PIPI	1	2	C		NS	Distant
6-5	22:29	PIPY	1	2	F		NS	
5	22:31-22:36	PIPY	1+	9	F		NS	
	22:31-22:36	PIPI	1+	11	F		NS	
4	22:41-22:43	PIPY	1	3	F		NS	
	22:41-22:43	PIPI	1	3	F		NS	
	22:46	PIPY	1	4	F		NS	
2	22:50	PIPY	1	1	F		NS	
	22:52	PIPY	1	1	F		NS	
2-1	22:54	PIPI	1	2	F		NS	
1	22:55	PIPY	1	1	F		NS	
	22:57	PIPY	1	1	F		NS	
	22:58 – 23:00	PIPI	1	4			NS	
	22:58 – 23:00	PIPY	1	5			NS	

Survey 3: Dusk, 14/06/2023, Surveyor: NP

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
21:17	21:17	23:17	None	Waxing Crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
20°C	20°C	0B	0B	10%	10%

Survey 3: Dusk, 14/06/2023, Surveyor: NP

Equipment:

Elekon Batlogger M2 full spectrum detector

TP	From	Time	Length (mins)
1	21:17	21:21	4
2	21:24	21:28	4
3	21:32	21:36	4
4	21:38	21:42	4
5	21:48	21:52	4
6	21:56	22:00	4
7	22:04	22:08	4
8	22:11	22:15	4
9	22:17	22:21	4
10	22:23	22:27	4
11	22:28	22:32	4
12	22:35	22:39	4
13	22:40	22:44	4
17	22:47	22:51	4
14	22:55	22:59	4
15	23:03	23:07	4
16	23:09	23:13	4

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP1

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
4-5	21:44	PIPI	1+	3	F		NS	
	21:44	PIPY	1+	2	F		NS	
5	21:48	PIPI	1+	2	F		NS	
	21:49- 21:52	PIPI	2+	20+	F		NS	Still foraging when leaving transect point.
6	22:01	PIPY	1	1	F		NS	Distant
7	22:05	PIPI	1	1	C		NS	Distant
	22:08	PIPI	1	2	C		NS	Distant
9	22:17	PIPI	1	1	F		NS	
13	22:40	MYSP	1	1	C		NS	
	22:42	PIPI	1	1	C		NS	
	22:43	PIPI	1	1	C		NS	

Bat activity. Start at: TP1								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
	22:44	PIPI	1	1	C		NS	
17	22:47	PIPI	1	2	F		NS	
	22:51	PIPI	1	1	C		NS	
	22:52	PIPI	1	2	F		NS	

Survey 4: Dusk, 05/07/2023, Surveyor: NP					
Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
21:18	21:18	23:18	None	Waning gibbous	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
15°C	11°C	2B SW	1B SW	80%	10%
Equipment: Elkon Batlogger M2 full spectrum detector					
TP	From	Time	Length (mins)		
18	21:18	21:22	4		
17	21:25	21:29	4		
14	21:32	21:36	4		
15	21:38	21:42	4		
3	21:45	21:49	4		
16	21:51	21:55	4		
1	21:57	22:02	5		
2	22:05	22:09	4		
4	22:17	22:21	4		
13	22:26	22:30	4		
12	22:32	22:36	4		
11	22:39	22:43	4		
6	22:47	22:51	4		
7	22:54	22:58	4		
8	22:01	22:05	4		
9	22:07	22:11	4		
10	22:13	22:17	4		

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP 18								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
15	21:40	PIPI	1	1	C		NS	
16	21:53	PIPI	1	1	F		S	Up and down hedge

Bat activity. Start at: TP 18								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
1	21:57-21:02	PIPY	2+	Cont.	F		S	At least three constantly feeding in circles around field corner
	21:57-22:02	PIPI	1+	Cont.	F		S	At least three constantly feeding in circles around field corner
2	22:06	MYSP	1	3	F		NS	
2-4	22:15-22:16	PIPY	1	4	F		NS	-
4	22:19-22:20	PIPI	1	2	C		S	East-west along hedge
	22:20	PIPY	1	1	C		S	East-west along hedge
	22:22	MYSP	1	1	C		NS	East-west along hedge
	22:21-22:22	PIPI	1	2	F		S	East-west along hedge
4-13	22:24	PIPI	1	1	C		NS	
12	22:35	PIPI	1	1	C		NS	
11	22:40-22:42	PIPI	1	4	C		NS	
10	23:14-23:15	PIPI	1	2	C		NS	

Survey 5: Dusk, 14/08/2023, Surveyor: TL, BB					
Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
20:25	20:25	22:26?	None	Waning gibbous	
Air temp start:	Air temp end:	Wind Start:	Wind Finish:	Cloud start:	Cloud finish:
17°C	16°C	B2	B2	70%	50%
Equipment:					
Echo meter touch 2 pro full spectrum detector					
TP	From	Time	Length (mins)		
13	20:25	20:29	4		
12	20:31	20:35	4		
11	20:37	20:41	4		
10	20:43	20:47	4		
9	20:50	20:54	4		
8	20:57	21:01	4		
7	21:05	21:09	4		
6	21:09	21:13	4		
6	21:13	21:17	4		

Survey 5: Dusk, 14/08/2023, Surveyor: TL, BB			
5	21:17	21:23	6
5	21:23	21:27	4
4	21:31	21:35	4
3	21:35	21:40	5
3	21:40	21:44	4
1	21:44	21:50	6
1	21:50	21:54	4
4	21:55	21:59	4
5	21:59	22:02	3
15	22:02	22:06	4
16	22:08	22:12	4
17	22:16	22:20	4
18	22:20	22:22	2
18	22:22	22:26	4

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP13								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
9	20:50	PIPI	1	1	C		S	
2	20:58	PIPI	1	Cont	F		NS	Faint
7	21:08	PIPI	1	1	C		NS	
6	21:12	PIPI	1	1	C		S	
	21:13	PIPI	1	2	C		NS	
	21:16	PIPI	2	1	C		S	
5	21:20	PIPI	1	4	F		S	Up and down H6
4	21:31	PIPI	1	1	C		NS	
3	21:37	PIPI	1	3	C		S	East to west outer field
1	21:49	PIPI	1	1	C		NS	
	21:50	PIPI	1	1	C		NS	
	21:54	PIPI	1	1	C		NS	
4	21:55	PIPI	1	3	F		NS	
5	22:00	PIPY	1	1	C		NS	
15	22:02	PIPI	1	2	C		NS	
16	22:10	PIPI	1	1	C		NS	
17	22:16	PIPI	1	1	C		NS	
18	22:22	PIPI	1	1	C		NS	

Bat activity. Start at: TP13

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
	22:24	PIPI	1	1	C		NS	

Survey 6: Dusk, 06/09/2023, Surveyor: NP

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
19:37	19:37	21:38	None	Waxing crescent	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
24°C	21°C	1B SE	0B	20%	10%

Equipment:

Bat logger M2 full spectrum detector

TP	From	Time	Length (mins)
1	19:37	19:41	4
2	19:45	19:49	4
3	19:53	19:57	4
4	19:58	20:02	4
5	20:06	20:10	4
6	20:15	20:19	4
7	20:21	20:25	4
8	20:28	20:32	4
9	20:35	20:39	4
10	20:42	20:46	4
11	20:47	20:51	4
12	20:54	20:58	4
13	20:59	21:03	4
17	21:04	21:08	4
14	21:10	21:14	4
15	21:17	21:21	4
16	21:24	21:28	4
18	21:34	21:38	4

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP1

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
	19:56	NYNO	1	1	C		NS	
4	20:01	PIPI	1	1	F		S	Up and down hedge
4-5	20:02 – 20:0	PIPY	1+	5	F		S	Around corner of the field

Bat activity. Start at: TP1								
TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
	3							
5	20:08 – 20:09	PIPI	1+	3	F		NS	
5-6	20:13	PIPY	1	3	F		S	Along hedge
9	20:37	PIPI	1	1	F		NS	Distant
12	20:57	PLAU	1	1	C	Y	NS	Distant
17	21:05	PIPI	1	1	F		NS	
	21:07	MYSP	1	1	C		NS	
14	21:11	PIPI	1	1	C		NS	
	21:12	MYDA ?	1	1	F		NS	
	21:14	EPSE	1	1	F		NS	
15	21:20 – 21:21	MYSP	1	10+	C		NS	
15-16	21:22 – 21:23	PIPI	1	3	F		NS	
16	21:24 – 21:27	PIPI	1+	6	F		NS	
16-18	21:33	PIPY	1	1	F		NS	
	21:33	MYSP	1	1	F		NS	
18	21:34	PIPY	1	1	C		NS	
	21:38	PIPI	1	1	C		NS	

Survey 7: Dawn, 07/09/2023, Surveyor: CP, RE					
Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase:	
06:23	04:23	06:23	None	New moon	
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
18°C	16°C	0B	0B	0%	0%
Equipment: Anabat Scout full spectrum detector					
TP	From	Time	Length (mins)		
18	04:23	04:27	4		
17	04:30	04:34	4		
16	04:40	04:44	4		
15	04:49	04:53	4		
14	04:55	04:59	4		
13	05:05	05:09	4		

Survey 7: Dawn, 07/09/2023, Surveyor: CP, RE

12	05:11	05:15	4
11	05:18	05:22	4
10	05:24	05:28	4
9	05:31	05:35	4
8	05:37	05:41	4
7	05:52	05:56	4
6	05:58	06:03	4
5	06:05	06:09	4
4	06:12	06:16	4
3	06:18	06:22	4
2	06:23	06:27	4
1	06:28	06:34	6

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

Bat activity. Start at: TP18

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
18	04:25	PIPI	1	1	C		NS	Passing.
17	04:30	PIPI	1	1	C		NS	
16	04:40	PIPI	1	2			S	Along treeline
	04:42	PIPI	1				NS	Along treeline
	04:43	PIPI	2					Tawny owls heard
	04:44	PIPI						Very loud in trees
16-15	04:46	PIPI	1	C	F		NS	Barn owl in woodland
	04:47	PIPI	1	C	F		NS	Tawny onsite
15	04:49	PIPI	1	C				Tawny owl seen flying from hedgerow into tree. Noisy.
	04:52	PIPI	1	2	C			
15-14	04:54	PIPI	1	1	C		NS	
14	04:56	PIPI	1	2	C		NS	
	04:56	PIPY	1	7	F		NS	
	04:57	PIPI	1	2	C		NS	
	04:58	PIPY	1	1	C		NS	
	04:59	MYSp	1	1	C		NS	
12	05:13	PIPY	1	1	C		NS	
9	05:34	PIPI	1	2	C		NS	
8	05:38	PIPI	1	1	C		NS	

Bat activity. Start at: TP18

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
	05:39	PIPI	1	5	F		NS	
8-7	05:42	PIPI	1	7	F/C			
7	05:55	PIPI	1	5	F/C		NS	

Survey 8: Dusk, 04/10/2023, Surveyor: CP, DM

Sunset/sunrise:	Start time:	End time:	Precipitation:	Moon Phase: New moon	
18:33	18:33	20:34	None		
Air temp start:	Air temp end:	Wind Start:	Wind Finish	Cloud start:	Cloud finish:
14°C	13°C	B3	B2	50%	10%

Equipment:

Anabat Scout full spectrum detector

Transect Point (TP)	From	Time	Length (mins)
18	18:33	18:37	4
9	18:39	18:43	4
8	18:46	18:50	4
7	18:52	18:56	4
6	18:59	19:03	4
10	19:07	19:11	4
11	19:14	19:18	4
5	19:20	19:24	4
12	19:27	19:31	4
13	19:33	19:37	4
4	19:41	19:45	4
3	19:49	19:53	4
2	19:57	20:01	4
1	20:03	20:07	4
16	20:09	20:13	4
15	20:16	20:20	4
14	20:22	20:26	4
17	20:28	20:32	4

TP: Transect point

Time: of recording and/or time at transect point

No.(I): Number of bats

No.(P): Number of passes

E/R: emergence/re-entry

F/C: Foraging/commuting

Soc.: Social calls

S/NS/SNH: Seen / not seen / seen not heard Comment: e.g. location of roost, direction of flight, behaviour, frequency, call shape

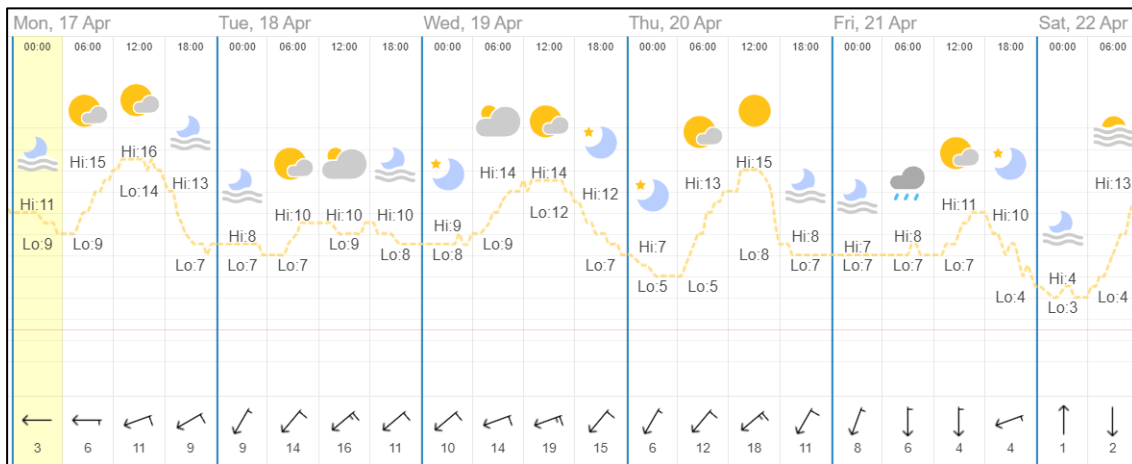
Bat activity. Start at: TP 18

TP	Time	Spp.	No.(I)	No.(P)	F/C	Soc.	S/NS	Comment
----	------	------	--------	--------	-----	------	------	---------

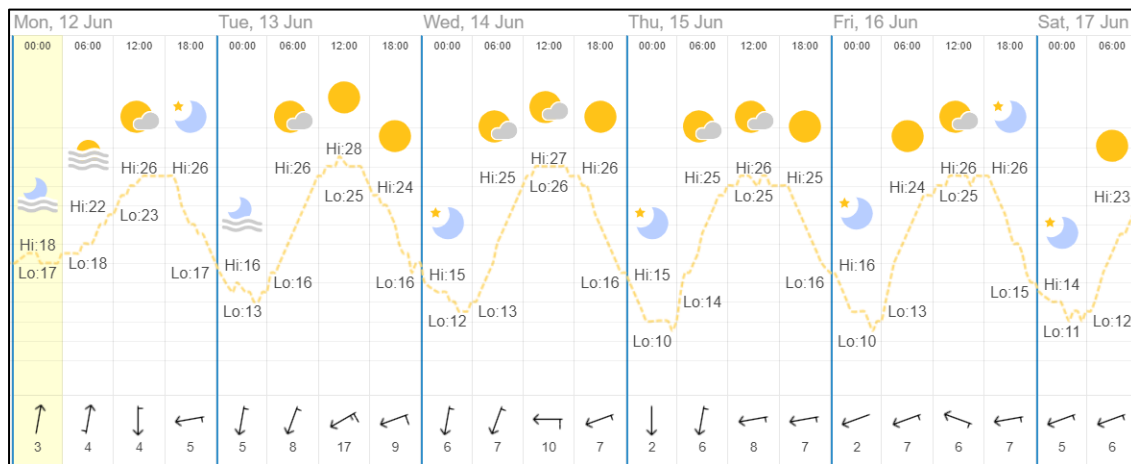
6	19:00	PIPI	1	2	F/C		NS	
13	19:33	PIPI	1	1	C		NS	
4	19:41	PIPI	1	4	F		NS	
4-3	19:46	PIPI	1	1	C		NS	
16	20:12	PIPI	1	1	C		NS	Brief

Appendix VIII: Bat Weather Data

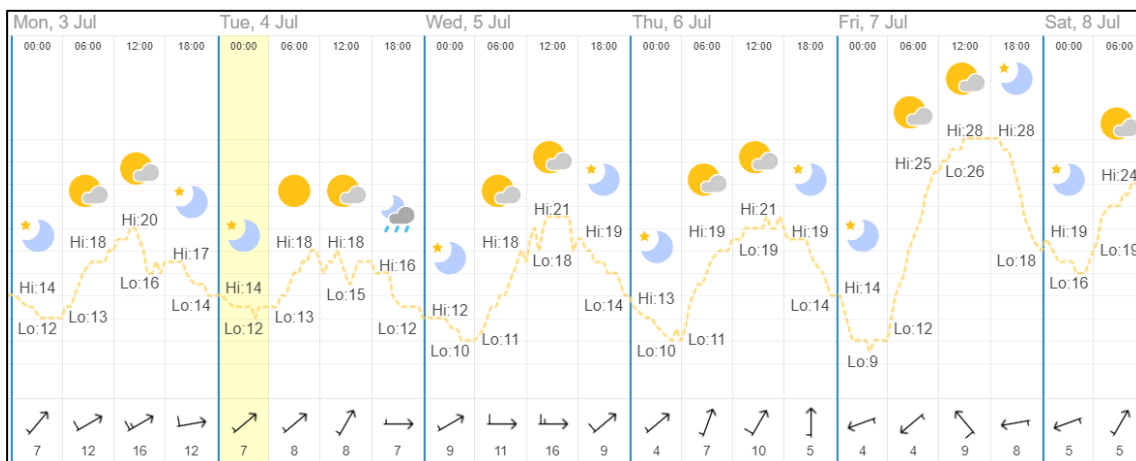
April



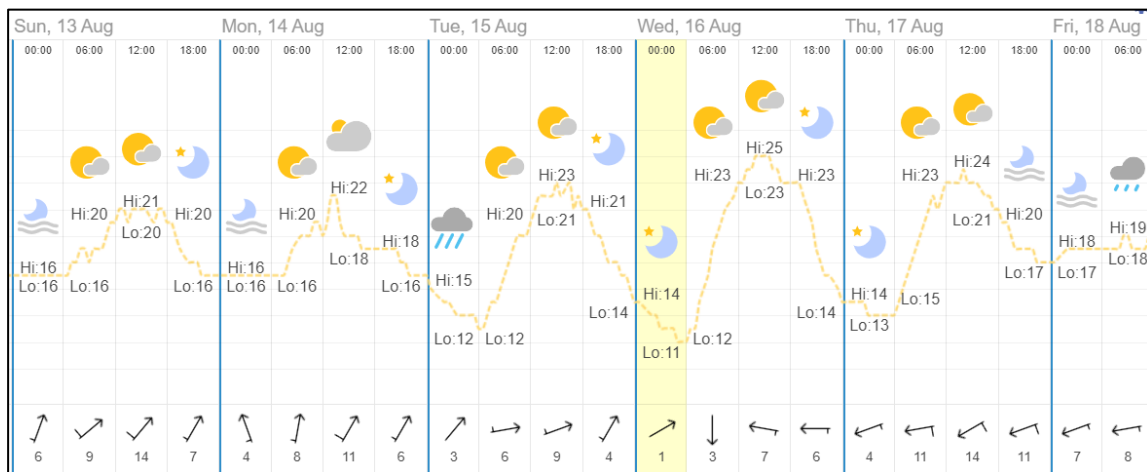
June



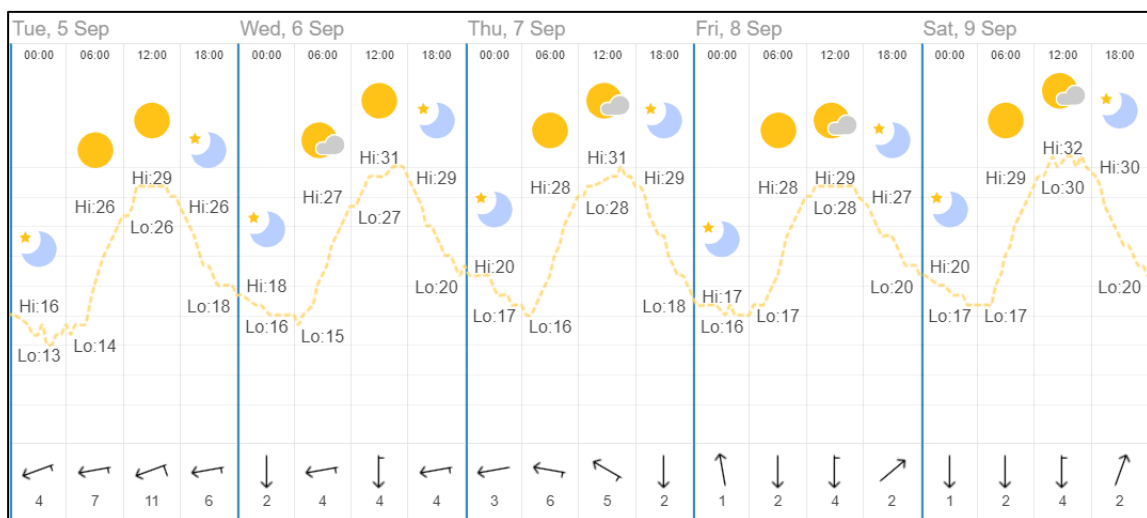
July



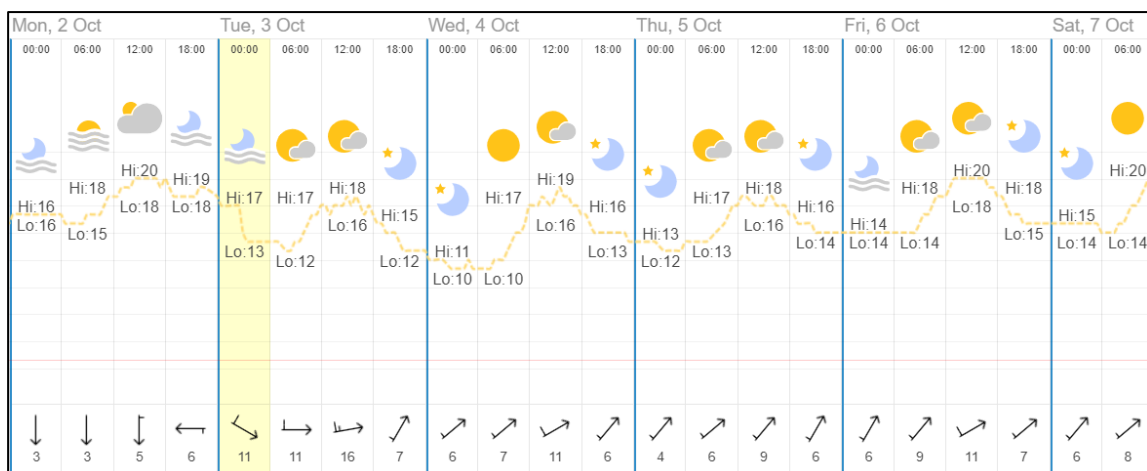
August



September



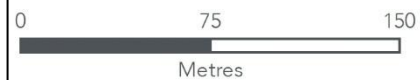
October



Appendix IX: Hazel Dormouse Survey Plan

Hornbrook Farm, Horsham, West Sussex

-  Survey area
-  Dormouse nest tube
-  Other mouse species



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Ordnance Survey 0100031673

Scale (at A4): 1:3,000 Created by: MT

Date: Dec 2023 Reviewed by: NP

Drawing number:

UE0470ECO-Hornbrook_DormouseMap_231220



Appendix X: Legislation and Planning Context

Legislation

General

The main legislative instruments for ecological protection in England and Wales are: the Wildlife and Countryside Act 1981 (WCA; as amended); Countryside and Rights of Way Act 2000 (CRoW; as amended); Natural Environment and Rural Communities Act 2006 (NERC; as amended); the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations; as amended); and the Environment Act 2021.

WCA 1981 consolidated and amended pre-existing national wildlife legislation in order to implement the Bern Convention and the European Union Wild Birds Directive (Council Directive 2009/147/EC). It complements the Habitats Regulations, offering protection to a wider range of species than the latter. The Act also provided for the designation and protection of nationally important conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSI). Schedules of the act list protected species of flora and fauna, as well as invasive species, and detail the possible offences that apply to these species.

The CROW Act 2000 amended and strengthened existing wildlife legislation detailed in the WCA. It placed a duty on government departments & the National Assembly for Wales to have regard for biodiversity, provided increased powers for the protection and maintenance of SSSI, and created a right of access to parts of the countryside. The Act contained lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The NERC Act 2006 consolidated and replaced aspects of earlier legislation. Section 40 of the Act places a duty upon all local authorities and public bodies in England and Wales to have regard to the purpose of conserving biodiversity in exercising all of their functions, including by restoring or enhancing habitats and species populations. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity (otherwise known as priority habitats/species as listed in the now superseded UK Biodiversity Action Plan). These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Habitats Regulations 2017 are the principal means by the European Union Habitats Directive (Council Directive 92/43/EEC) was transposed into English and Welsh law, and place a duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria in Europe are designated as Sites of Community Importance by the European Commission, and subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. Since the UK's departure from the European Union the European Commission no longer has a role in designating SACs in the UK. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 establish a single stage designation process, where the appropriate authority is the decision maker. The selection and designation of SACs is based on the criteria set out in Annex III of the Habitats Directive insofar as it applies to the UK, and having regard to the advice of the appropriate nature conservation body.

The 2019 Amendment Regulations have created a new national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing SACs, existing Special

Protection Areas (SPA) originally designated as a result of Council Directive 2009/147/EC on the Conservation of Wild Birds, and any new SACs and SPAs designated under the 2019 Regulations. SACs and SPAs in the UK therefore no longer form part of the EU's Natura 2000 ecological network.

The Habitats Regulations also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively (European Protected Species (EPS)). Schedule 2 includes species such as otter and GCN for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade in these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations. Under the Habitats Regulations disturbance includes any activity which is likely to: impair the ability of a EPS to survive, breed, reproduce, or rear/nurture its young; impair the ability of a EPS to migrate or hibernate; or significantly affect the local distribution or abundance of the species.

The Environment Act 2021, among other things: established an Office for Environmental Protection; introduced a mandatory requirement for all new development requiring planning permission to achieve a net gain for biodiversity of at least 10% (although implementation of this is transitional); amended the NERC Act duty to conserve biodiversity by explicitly adding a duty to enhance; and requires local authorities to produce local nature recovery strategies.

Birds

Birds are protected by the Wildlife and Countryside Act, 1981 (as amended). This legislation makes it an offence to intentionally kill, injure or take away any wild bird. It is also an offence to take, damage or destroy the nest of any wild bird while it is in use or being built or to take or destroy the egg of any wild bird. In addition, certain species are listed on Schedule 1 of the WCA (such as kingfisher *Alcedo atthis*). This makes it an additional offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young. Such species are considered to be in greater need of legal protection or of high nature conservation priority.

Birds of Conservation Concern ("BoCC5) are included on Red and Amber lists (Stanbury *et al.*, 2021). Birds on the Red list are those of highest conservation priority due significant and sustained population decreases and/or range contractions (e.g. house sparrow *Passer domesticus* and starling *Sturnus vulgaris*). Birds on the Amber list are the next most critical group and include species whose population/range have shown moderate declines, or which have recovered to some extent from historical decline, such as duncock *Prunella modularis*.

Bats (Chiroptera)

Bats and their roosts are fully protected by protected by the WCA and the Habitats Regulations, and seven species of bats are species of principal importance. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a bat.
- ▶ Possess or control a live or dead bat, any part of a bat, or anything derived from a bat.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection. This is taken to mean all bat roosts whether bats are present or not.
- ▶ Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- ▶ Make a false statement in order to obtain a licence for bat work.

Under the Habitats Regulations disturbance includes any activity which is likely to:

- ▶ Impair the ability of a bat to survive, breed, reproduce, or rear/nurture its young.
- ▶ Impair the ability of a bat to migrate or hibernate.
- ▶ Significantly affect the local distribution or abundance of the species.

Dormouse (*Muscardinus avellanarius*)

Dormouse is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*:

- ▶ Intentionally kill, injure or take a dormouse.
- ▶ Possess or control a live or dead dormouse, any part of, or anything derived from a dormouse.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a dormouse uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection.

GCN (*Triturus cristatus*; GCN) (and natterjack toad *Bufo calamita*)

GCN is fully protected by the WCA and the Habitats Regulations. The legislation makes it an offence, *inter alia*, to:

- ▶ Intentionally kill, injure or take a GCN (including its eggs).
- ▶ Possess or control a live or dead GCN, any part of, or anything derived from a GCN.
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a GCN uses for shelter or protection.
- ▶ Intentionally or recklessly disturb a GCN while it is occupying a structure or place that it uses for shelter or protection.

Planning context

National Planning Policy Framework (Section 15: Conserving and enhancing the natural environment)

The National Planning Policy Framework (NPPF), published in 2024, outlines the Government's commitment to the conservation of wildlife and natural features. It is concerned with:

- ▶ Protecting and enhancing valued landscapes, sites of biodiversity or geological conservation value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- ▶ Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- ▶ Maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- ▶ Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current & future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs;

- ▶ Preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- ▶ Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

The NPPF requires that local plans should “distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries”.

To protect and enhance biodiversity and geodiversity, the NPPF states that planning policies should:

- ▶ Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- ▶ Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should aim to protect and enhance biodiversity by applying the following principles:

- ▶ if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- ▶ development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- ▶ development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- ▶ development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

The following wildlife sites should be given the same protection as habitats sites:

- ▶ potential Special Protection Areas and possible Special Areas of Conservation;

- ▶ listed or proposed Ramsar sites; and
- ▶ sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site. The policies within the NPPF (and additional guidance contained within Circular 06/2005) are a material planning consideration.

UK/Local Biodiversity Action Plan Designations and Birds of Conservation Concern and Red Data Book Listings

Note that BAP designations and status as RSPB Birds of Conservation Concern or Red Data Book species does not offer any further legal protection, but planning authorities are required to prevent these species from being adversely affected by development in accordance with National Planning Policy and the CROW and NERC Acts. The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contained a list of priority habitats and species of conservation concern in the UK, and outlined biodiversity initiatives designed to enhance their conservation status.

However, as a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012. The UK lists of priority habitats and species nonetheless remain an important reference source and were used to draw up statutory lists of priority habitats and species in England, Northern Ireland, Scotland and Wales. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP required that conservation of biodiversity be addressed at a County level through the production of Local BAPs. These are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. Where they exist, Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Local Planning Policy

The following policies relating to wildlife and biodiversity are contained within the adopted Horsham District Planning Framework (Horsham District Council, 2015):

Green Infrastructure and Biodiversity

1. Development will be supported where it can demonstrate that it maintains or enhances the existing network of green infrastructure. Proposals that would result in the loss of existing green infrastructure will be resisted unless it can be demonstrated that new opportunities will be provided that mitigates or compensates for this loss, and ensures that the ecosystem services of the area are retained.

2. Development proposals will be required to contribute to the enhancement of existing biodiversity, and should create and manage new habitats where appropriate. The Council will support new development which retains and/or enhances significant features of nature conservation on development sites. The Council will also support development

which makes a positive contribution to biodiversity through the creation of green spaces, and linkages between habitats to create local and regional ecological networks.

3. Where felling of protected trees is necessary, replacement planting with a suitable species will be required.

4. a) Particular consideration will be given to the hierarchy of sites and habitats in the district as follows:

i. Special Protection Area (SPA) and Special Areas of Conservation (SAC)

ii. Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs)

iii. Sites of Nature Conservation Importance (SNCIs), Local Nature Reserves (LNRs) and any areas of Ancient woodland, local geodiversity or other irreplaceable habitats not already identified in i & ii above.

b) Where development is anticipated to have a direct or indirect adverse impact on sites or features for biodiversity, development will be refused unless it can be demonstrated that:

i. The reason for the development clearly outweighs the need to protect the value of the site; and,

ii. That appropriate mitigation and compensation measures are provided.

5. Any development with the potential to impact Arun Valley SPA or the Mens SAC will be subject to a HRA to determine the need for an Appropriate Assessment. In addition, development will be required to be in accordance with the necessary mitigation measures for development set out in the HRA of this plan.

Appendix XI: Legal and Technical Limitations

- This report has been prepared by Urban Edge Environmental Consulting Ltd (UEEC Ltd) with all reasonable skill, care and diligence within the terms of the contract made with the Client to undertake this work, and taking into account the information made available by the Client. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by us.
- UEEC Ltd disclaims any responsibility to the Client and others in respect of any matters outside the scope of this contract. This report is confidential to the Client and is not to be disclosed to third parties. If disclosed to third parties, UEEC Ltd accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any third party relies upon the contents of this report at their own risk and the report is not to be relied upon by any party, other than the Client without the prior and express written agreement of UEEC Ltd.
- The advice provided in this report does not constitute legal advice. As such, the services of lawyers may also be considered to be warranted.
- Unless otherwise stated in this report, the assessments made assume that the sites and facilities that have been considered in this report will continue to be used for their current planned purpose without significant change.
- All work carried out in preparing this report has utilised and is based upon UEEC Ltd's current professional knowledge and understanding of current relevant UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and may cause any conclusions to become inappropriate or incorrect. UEEC Ltd does not accept responsibility for advising the Client or other interested parties of the facts or implications of any such changes;
- Where this report presents or relies upon the findings of ecological field surveys (including habitat, botanical or protected/notable species surveys), its conclusions should not be relied upon for longer than a maximum period of two years from the date of the original field surveys. Ecological change (e.g. colonisation of a site by a protected species) can occur rapidly and this limitation is not intended to imply that a likely absence of, for instance, a protected species will persist for any period of time;
- This report has been prepared using factual information contained in maps and documents prepared by others. No responsibility can be accepted by UEEC Ltd for the accuracy of such information;
- Every effort has been made to accurately represent the location of mapped features, however, the precise locations of features should not be relied upon;
- Populations of animals and plants are often transient in nature and a single survey visit can only provide a general indication of species present on site. Time of year when the survey was carried out, weather conditions and other variables will influence the results of an ecological survey (e.g. it is possible that some flowering plant species which flower at other times of the year were not observed). Every effort has been made to accurately note indicators of presence of protected, rare and notable species within and adjacent to the site but the possibility nonetheless exists for other species to be present which were not recorded or otherwise indicated by the survey;
- Any works undertaken as a consequence of the recommendations provided within this report should be subjected to the necessary health & safety checks and full risk assessments.

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