Bat & Barn Owl**report**

including Preliminary Roost Assessment
and Dusk Emergence Survey

for

Nook Farm
Cleator
Cumbria
CA23 3EY

September 2025

bringing **e**cological **e**xcellence **t**o **l**ocal **e**nvironments

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1.0 Introduction

1.1 Whistling Beetle Ecological Consultants were commissioned in September 2025 to undertake a bat and barn owl survey at Nook Farm, Cleator Cumbria, CA23 3EY

1.2 An initial walkover assessment of the proposed development site which contains a farmhouse and associated agricultural buildings would determine what surveys would be necessary to confirm status of any European Protected Species or Species of Note resident within the area of the site where the proposed works will take place.

1.3 The objectives of the survey were to provide an assessment of the current status of any EPS (European Protected Species)or species of note and to assess any impact from the proposed development. If evidence of any EPS was recorded mitigation proposals would need to be developed for the protection of these species.
The ecological assessment results are presented in this report, together with the current ecological status of the site, and:

- Any potential significant ecological constraints that may affect any development proposal:
- Recommend further survey/ potential mitigation if needed.

1.4 All surveys were supervised by Principal Ecologist Graham Workman who has more than forty-five years' experience as a professional ecologist assisted by a suitably licensed Bat Consultant and an experienced ecological technician with many years' experience in carrying out surveys.

1.5 The proposal is to demolish the farmhouse and agricultural buildings and replace the farmhouse. The site will be used for horses with construction of stables, storerooms and other associated livery type buildings. There will also be paddocks and menage areas.

1.6 The species taken into consideration and surveyed at the site following the initial walkover were –

- Bats (within the two buildings, the farmhouse and a brick barn building which due to its current condition resulted in high level potential for bat occupation and potential barn owl breeding. The issue with this building was its current state which made it unsafe to enter to undertake a full PRA and Barn Owl Survey. It was agreed with the client that this building would require further survey effort in spring/summer 2026 to establish if either species were present in the building
- Barn Owls, all other buildings on site were surveyed for the opportunity for breeding or roosting barn owls in any of the modern construction animal sheds. The buildings, if suitable opportunities were present could provide suitable opportunities for Barn Owls, Tawny Owls, Little Owls and Kestrels and the wider environs have optimum barn owl habitat.
- Breeding Birds (the buildings and scattered trees provide significant opportunities for nesting birds)

2.0 Legislation regarding Bats

2.1 This legal information is a summary and intended for general guidance only. It is recommended that the original documentation be referred to for detailed and definitive information. Web addresses are located in the References and Bibliography section of this report.

2.2 In England and Wales, the Natural Environment and Rural Communities (NERC) Act, 2006 imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, *"to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"*[Section 40 (1)]. It notes that *"conserving biodiversity includes restoring or enhancing a population or habitat"* [Section 40 (3)].

2.3 All British bats and their roosts are afforded full protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). All bat species are also listed under Annex IV of the Conservation (Natural Habitats &c) Regulations 1994 which requires that they are given full protection. All bat species in the UK are therefore classed as European Protected Species and as such are a material consideration in the determination of any planning application which may affect them or their habitat.

2.4 Legal protection makes it an offence to:

- intentionally or deliberately kill, injure or capture (or take) bats;
- deliberately disturb bats (whether in a roost* or not);
- recklessly disturb roosting bats or obstruct access to their roosts;
- damage or destroy bat roosts
- possess or transport a bat or any part of a bat, unless acquired legally;
- sell (or offer for sale) or exchange bats, or parts of bats.

(Mitchell-Jones and McLeish, 2004)

*The term 'roost' has been used to simplify the phrasing within the legislation which refers to 'any structure or place which any wild animal…uses for shelter or protection'. As bats generally re-use the same roosts after periods of vacancy, legal opinion is that the roost is protected whether or not the bats are present at the time.

2.5 Circular 06/05: Biodiversity and Geological Conservation – Statutory obligations and their impact within the planning system "provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the expression of national planning policy in Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS9) and the accompanying Guide to Good Practice".

2.6 The Circular states that "It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision".

2.7 If a European protected species is recorded during the survey then a licence to derogate from the Habitats Regulations will be required from Natural England to implement any proposals. A licence application will require the preparation of a detailed mitigation package that will ensure the protection of

the species and maintenance of its 'favourable conservation status' within the area.

2.8 In the case of a building, tree or other feature not already known to be a bat roost, **if bats are found during the course of work contractors must stop work immediately and seek advice from the consultant involved with the project,** if one had been appointed, or Natural England, before proceeding. Assuming a good-quality bat survey had been carried-out before the commencement of work and its recommendations followed, it would be unlikely that the discovery of bats during the course of the work would be considered to be "reckless" interference.

2.9 **The National Planning Policy Framework**

The National Planning Policy Framework (NPPF) has replaced the existing Planning Policy Guidelines. (PPG's) In relation to wildlife PPG 9 was one of the documents to which Planning Authorities referred to, particularly where a specially protected species is or may be present and will be affected by a development for which a Planning application seeks consent. The aims of the NPPF in relation to species and habitats are that it places a clear responsibility on Local Planning Authorities to conserve and enhance biodiversity and to encourage on the consideration that should be given to Protected Species where they may be affected by development. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation.

This is supported by a guide to good practice entitled 'Planning for Biodiversity and Geological Conservation: Building in Biodiversity' in which paragraphs 5.34 and 5.35 identify that species such as bats are highly dependent upon built structures for survival and that roosts can be easily incorporated into existing and new developments/conversions to benefit these species. When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles. If significant harm 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.

Paragraph 180 of the National Policy Planning Framework (as revised in July 2021) states:

When determining planning applications, local planning authorities should apply the following principles:

a) 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;

b) 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.

c) 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,

d) 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.

2.10 **Biodiversity Action Plans**

The original objective of the UK Biodiversity Action Plan (UKBAP) was to fulfill the requirements of the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. A list of national priority species and habitats has been produced with specific action plans defining the measures consider necessary to ensure their conservation. Regional and local BAPs have also been developed for species/habitats of nature conservation importance both regionally and locally.

The UK BAP, which details conservation plans for the biological resources of the UK, lists seven bat species as conservation priorities, including soprano Pipistrelle, Pipistrellus pygmaeus , noctule, Nyctalus noctula and brown long-eared bat, Plecotus auritus . The Cheshire LBAP, which contributes to national targets wherever these are relevant to Cheshire but also sets local targets based upon local expertise, considers six species
(all listed in the UKBAP) to be of local conservation importance.

2.11 **Biodiversity Duty**

The Natural Environment and Rural Communities (NERC) Act 2006 Section 40 requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'Biodiversity duty'.

Section 40(1) imposes a duty to conserve biodiversity:
"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity."

Section 40(3) of the Act explains that:
"Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat".

The duty applies to all local authorities and extends beyond just conserving what is already there to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 56 habitats of principal importance and 943 species of principal importance (list updated 2010).

2.12 Seven bat species are species of principal importance (SPI) these are –

- Barbastrelle Bat
- Bechstein's Bat
- Brown Long-eared Bat
- Greater Horseshoe Bat
- Lesser Horseshoe Bat

- Noctule Bat
- Soprano Pipistrelle Bat

3.0 Bats and Buildings

3.1 Most bat species have been recorded using buildings as roost sites, both for breeding or hibernation, or for temporary shelter. Breeding roosts are typically used between early May and late August, with hibernation roosts occupied between October and April. The micro-climate and conditions within a building (e.g. temperature variations, humidity, air-flow, regular disturbance) will affect the likelihood of use by bats.
Roost selection is usually associated to suitable foraging habitat within a reasonable commuting distance from the roost and different sites are used depending upon insect densities and abundance, climatic conditions can also affect their ability to successfully forage. All British bats are insectivorous.

3.2 Species such as common pipistrelle (*Pipistrellus pipistrellus*) most commonly occur in houses and prefer confined roost sites, such as soffit boxes, eaves or under hanging tiles. The most common roosts are found between underfelt and boards or tiles, and inside cavity walls. Others such as the horseshoe bats (*Rhinolophus sp.*) and long-eared bats (*Plecotus sp.*) show a preference for open roof voids that allow for flight inside (Mitchell-Jones, 2004).

3.3 Factors affecting the probability of a building being used by bats are set out in Table 1 overleaf

Table 1: Factors affecting the probability of bats being present

Increase probability	Disused or little used; largely undisturbed Large roof void with unobstructed flying spaces Large dimension roof timbers with cracks, joints and holes Uneven roof covering with gaps, though not too draughty Entrances that bats can fly in through Hanging tiles or wood cladding, especially on south-facing walls Rural setting Close to woodland and/or water Pre-20th century or early 20th century construction Roof warmed by the sun Within the distribution area of horseshoe bats and serotine bats
Decrease probability	Urban setting or highly urbanised area with few feeding places Small or cluttered roof void (esp. for *Plecotus*) Heavily disturbed Modern construction with few gaps around soffits or eaves (but be aware these may be used by pipistrelles in particular) Prefabricated with steel and sheet materials Active industrial premises Roof shaded from the sun

(Mitchell-Jones, 2004)

3.4 The species of bats most likely to be encountered within a residential property or other building in this area are Pipistrelle (Common and Soprano) and Brown Long-eared bats. Examples of places used by these bat species for shelter and protection during the winter are:

- Pipistrelle – small crevices in buildings, trees, stone walls, bridges, barns and also in bat boxes. Often in fairly exposed locations to take advantage of warmer winter days for feeding. Rarely in caves and tunnels.

- Brown long-eared – Buildings, caves, mines, tunnels and ice houses. Will roost in crevices.

(Bat Conservation Trust, 2007)

3.5 The buildings on site were assessed for their suitability to provide opportunities for bats. The buildings were initially assessed for suitability to provide opportunities for bat roosting. Evidence of a roost is determined by the presence of live or dead bats, droppings, feeding remains, scratch marks and/or staining. When a roost is positively identified during an Internal and External Visual Assessment the building within which the roost is located is classified within the category Roost Present. Other buildings are classified as having High, Medium or Low Potential to contain bat roosts based upon the number and quality of features present, and the buildings position in relation to the surrounding environs. Table 2 gives the features considered when attributing a potential classification to a building.

3.6 A High Potential building would typically be an older building situated close to high quality bat foraging habitats such as woodland, water features or substantial hedgerows. Buildings falling within this class will usually offer a variety of roosting opportunities suitable for use by a range of bat species.

3.7 Conversely a Low Potential building will typically be well sealed and of modern construction, offering no or few clear access points or roosting opportunities. The risk of a building housing a bat roost is further reduced if located within an area of poor quality habitat such as hard standing or amenity grassland.

3.8 Features typical of buildings within the different potential categories are set out in table 2 overleaf

Table 2: Features typical of buildings within the different potential categories

Low Potential	Medium Potential	High Potential
No easily identifiable access points such as gaps within stonework or between tiles.	Some access points. Typically obscured by cobwebs or detritus.	Several possible access points. Some clean showing potential use.
No roof void	Small or cluttered roof void	Large roof void with Un obstructed flying spaces
No external cavities such as crevices within wall or behind fascia boards	Few external cavities with cavities present of low suitability	A variety of external features offering a range of roosting locations
Located within areas of poor quality habitat, away from bat foraging or commuting routes	Area offering some habitat features likely to be used by bats	Good connectivity to high quality habitats
Not part of a group of buildings	Part of a group of buildings, all offering similar roosting opportunities	Part of a group of buildings offering a range of different conditions and potential roost locations
Heavily disturbed	Potential roosting locations suffering little disturbance	Building disused or little used, largely undisturbed

3.9 The buildings at Nook Farm, Cleator, Cumbria, CA23 3EY were classified as

- The two-storey barn **– High Potential**
- The Farmhouse **– Low Potential**
- Animal sheds - **Negligible Potential**

3.10 The classifications of the buildings at Nook Farm would result in the following action being taken.

- **The Farmhouse would be subjected to a Preliminary Roost Assessment followed by full Dusk Emergence and Activity Survey.**

- **The two storey barn building would need further survey effort both for bats and Barn Owls during Spring/Summer 2026 to establish status of both species. This was due to the condition of the building which was unsafe to enter.**

- **Animal Sheds No further effort in regard to bats necessary**
  But the building will be subjected to a Barn Owl Survey for evidence of rebeding and roosting behaviour.

4.0 Bats and Trees

4.1 All bats rely upon woodland for either foraging or as roost sites, some species, such as *Noctule (*Nyctalus noctula*) are heavily dependent on woodlands for roosting places used by bats vary from small crevices, gaps behind loose bark, natural/woodpecker holes and cracked or rotted limbs.

4.2 The identification of tree roosts is generally more difficult to confirm by comparison with those in buildings, as evidence quickly degrades, and bats often will have more than one roost within woodland.

4.3 Where woodland or individual trees are affected by works, it is important to assess its value to local bat populations and how best to mitigate during and following those works.

4.4 No trees with suitable opportunities for bats will be affected by the proposed development

5.0 Site Description

5.1 Nook Farm Nook Farm is set in a quiet location on the fringe of the Lake District National Park and accessed down a track from the public road that heads east out of Egremont. The site covers approximately 5.68 acres (2.29ha) of agricultural land along with an array of both modern and traditional agricultural buildings.

The Farmhouse

The building is constructed of brick with a slate tiled roof. The building has been ‘pebble dashed’ in the past and is in a good condition.

The roof constructions is a typical hipped roof covered with slate tiles. The tiles are in very good condition with no obvious slipped, broken or missing tiles. The property has a single roof space which is easily accessed from a first-floor corridor. A detailed examination of all external elevations, roof tiles, chimney stacks, flashings, roof joins, soffits, doors and windows recorded no opportunities where bats could access interior spaces or potential roost features.

5.2 **Traditional Brick built buildings.**
Two storey barn. This building is in very poor condition with missing tiles where areas of the roof has collapsed. A detailed examination of all external elevations identified several PRF (Potential Roost Features) that could provide opportunities for bats and barn owls to access the interior of the building.

Work Shops/Log Store.
Three single storey workshops are located on the concrete yard adjacent to the barn buildings. There are corrugated sheeting which forms a roof over the buildings. The roof construction and room sizes make them unsuitable for bats or barn owls.

5.3 **Modern Construction Buildings**
External at the opposite side of the concrete yard from the Farmhose is a large range of modern steel frame buildings with a central feed passage of metal frame construction with tin sheet clad sides and roof and a concrete floor. Some of these buildings are in poor condition with areas where steel beams and ground supports have decayed causing collapse.

An aerial view of the Nook Farm site within the surrounding environs is located in Appendix 1 Drawing Number: NF/WB/SL/01

Five photo sheets of the buildings features are included in Appendix 2,
NF/WB/PS01, NF/WB/PS02 Farmhouse
NF/WB/PS03,Farmhouse roofspace
NF/WB/PS04, NF/WB/PS05, Buildings on site

5.4 The site is located in an area with good opportunities for roosting, commuting and foraging bats. The immediate area and its environs provide optimal bat habitat e.g. areas of mixed mature trees and open countryside.

6.0 Bat Survey

6.1 The Bat Conservation Trust Guidelines (BCTG) (Collins 2016) is widely accepted as providing a sound basis and rationale for conducting bat surveys. It is acknowledged that the guidelines offer an abundance of useful background data and provides a very useful tool in standardising methodologies for undertaking surveys, it is also considered that an over reliance on specific guidelines within this document can produce over complicated surveys which can have substantial consequences for the cost, or timescale of a large project, but do not in any way deliver positives for bat conservation.

the BCTG document has emphasised the point that it is within the remit of the consultant ecologist to make a decision on the necessity and scope of surveys - they will use the guidelines in doing so but are not in any way bound by them: this is reflected in Section 1.1 of the guidelines -
'The Guidelines do not aim to either override of replace knowledge and experience. It is accepted that departures from the guidelines (e.g. either decreasing or increasing the number of surveys carried out or using alternative methods) are often appropriate. However, in this scenario an ecologist should provide documentary evidence of (a) their expertise in making this judgement and (b) the ecological rationale behind the judgement.'

6.2 In accordance with Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016), it is specified that: "The bat active period is generally considered to be between April and October inclusive", though the period of May - August is the optimal most productive period that Natural England accept bat surveys and grant European Protected Species Mitigation licences (EPSML).

6.3 The Farmhouse was unoccupied at the time of survey. A Preliminary Roost Assessment which included an opportunity assessment, detailed evidence survey and a dusk emergence/activity survey was carried out on the 12th September 2025. The surveys were to assess the potential for bats to utilise the building and surrounding habitat and the results would determine if further surveys were necessary. The surveys were supervised by experienced Principal Ecologist Graham Workman accompanied by a suitably licensed Bat Consultant and a ecological technician with several years' experience in undertaking activity surveys.

6.4 Consideration was given to determining whether either of the buildings could be used for one or more of the following purposes:

- spring gathering roost that is used by breeding females before moving to a maternity roost;
- maternity or nursery roost where females give birth and raise their offspring;
- daytime summer roost used by males and/or non breeding females;
- mating roost (spring or autumn) occupied by males seeking to attract females for breeding;
- night roosts used by bats for short periods between phases of foraging activity, but rarely or not used during the day;
- feeding roost or perch where bats temporarily hangup to devour an item of prey once it has been caught;
- transitional roost used for short periods in the spring and autumn;
- pre-emergence flight and foraging area either within the same building as the roost or in adjacent buildings. Such areas are used for a range of purposes including warming up, light testing before emerging, social interaction and cover from predation; and/or
- a hibernaculum.

6.5 The following features of all buildings and/or structure on site were assessed:

- Type of building
- Age of building
- Aspect of building
- Wall construction, in particular the type of brick or stone used to build the wall and whether it has cavity or rubble filled walls
- Form of the roof, in particular the presence of gable ends, hipped roofs, etc. and the nature and condition of the roof covering
- Presence of hanging tiles, weather boarding or other forms of cladding
- Nature of the eaves, in particular if they are sealed by a soffit or boxed eave and the tightness of the fit to the exterior walls
- Presence and condition of lead flashing
- Gaps under eaves, around windows, under tiles, lead flashing etc.
- Presence and type of roof lining
- Presence of roof insulation
- Presence of water tanks in loft

- Structure of the roof including the truss type, age and nature of timber work
- Information or evidence of work having been undertaken that could affect use of the structure by bats

(Bat Conservation Trust, 2007)

6.6 The loft was visually searched by the Principal Ecologist and licensed bat consultant using LED lighting and specialist UV lighting to indicate any areas where bats had been active. The unlined roof and insulated floor areas allowed a detailed search of all spaces to be carried out. There is very heavy webbing in the apex of the roof – with long strands of webbing crossing the open planes within the roof space. Using specialist LED torches all loft spaces were subjected to detailed and through evidence searching to identify any signs of droppings, moth wings or other forms of evidence to show current or past occupation by bats. A handheld thermal imager was used to check any areas where bats could find narrow or confined spaces for roosting. The licensed bat consultant had an endoscope to be used if necessary, but the thermal imaging equipment was more useful in the roof space areas. All areas on the top surfaces of the 'rockwool' insulation and beam and spar surfaces were checked using specialist UV lighting which would indicate bat activity if present. There was no light ingress that could indicate any access opportunities that would allow bats to enter the roof space.

6.7 A close examination of the outside of the Farmhouse from ground level was undertaken, to establish if there were opportunities for bats to use any cavities or holes. An examination of all accessible external ledges, and the ground immediately around the property was made for evidence of bat droppings or feeding remains. Binoculars were used to check all roof areas and assess any potential cracks or crevices above ground level. External building inspections (using binoculars when necessary) focused particularly on roof areas, soffits, areas of wall with cladding or hanging tiles, window surrounds and the overall structure of the buildings including any features that may be suitable for bats to roost in. Evidence of roosting bats such as droppings or staining around potential roost entrances would be recorded if present.

The features that were given special attention included:

- holes in walls, pipes, gaps behind window frames, lintels and doorways;
- cracks and crevices in stonework and brickwork;
- gaps between ridge tiles and ridge and roof tiles, usually where the mortar has fallen out;
- gaps between lintels above doors and windows;
- broken or lifted roof tiles;
- lifted lead flashing around chimneys, dormer windows, roof valleys and ridges and hips or where lead flashing replaces tiles;
- gaps between the eaves, soffit board and outside walls;
- gaps behind weatherboarding, hanging tiles and fascia boarding;
- suitable entry and exit points around the eaves, soffits, fascia and barge boarding and under tiles;
- bat droppings on the ground, ledges, windows, sills or walls or urine on window sills (Bat Conservation Trust, 2007).

6.8 The windows and door glass on all elevations was inspected for any evidence of bat activity (it is quite usual to record bat faeces adhered to glass surfaces when bats are active in close proximity to buildings.

6.9 All three surveyors were equipped with heterodyne ultrasonic bat detectors and either Thermal Imaging or Infra-red handheld equipment. These were employed to confirm the presence of bats. A 'three-point survey' technique was used to record any bat activity externally. This technique involved the surveyors standing at fixed points and recording any bat movements, such as number of passes, time, species, and activity, i.e. commuting, feeding, as well as the direction of flight, when visible.

6.10 From dusk onwards the surveyors who were equipped with thermal imaging or Infra-red handheld monoculars surveyed the likely areas where bats would emerge from or re-enter if bats were present on the property

6.11 The surveys were carried out in line with the recommended methods contained in the following publications Bat Conservation Trust - Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd ed. (2016) edition

7.0 Limitations of the survey

7.1 There were no limitations with the external elevations of the Farmhouse.. Views of all elevations and angles of the walls, eaves and roof were accessible using binoculars.

7.2 There were no limitations in gaining access to the ground areas around the bottom of the building to check for droppings or other evidence of bats.

7.3 There were no limitations in gaining access to the loft space interior to check for droppings or other evidence of bats.

7.4 This was a single visit survey. As small cracks or crevices can often be used by bats for winter hibernation it can be difficult to provide definitive confirmation of this type of use during a survey. The potential for such use is assessed within the survey report.

7.5 Any droppings are often washed or blown away quickly, so evidence of use often doesn't last long once the bats have moved, but an assessment has been made of potential bat roosting places associated with the site.

7.6 As bats can utilise very small cracks and crevices it is not possible to completely discount their use of any suitable property or mature trees although the survey did not identify any evidence of use.

7.7 The recording of a two related species in/over the site during the dusk emergence and activity survey is unlikely to reflect the number of species using the wider area; this is because activity surveys can only provide an incomplete 'snapshot' of the bat community using the site at the time of the surveys.

7.8 As previously mentioned the brick built barn was excluded from both the Preliminary Roost Assessment and Dusk Emergence Survey as full access to the building was not possible due to its condition. Further survey effort on the interior of the building will be necessary during the 2026 Bat Activity Season

8.0 Results

Bat species often found in buildings.

8.1 Pipistrelle species

Common and Soprano pipistrelles are crevice dwellers. They use many features on and in a building but relatively rarely enter the roof void. Features used in summer include soffits, fascias, barge-boards, weather boarding, between roof felt/membrane and tiles/slates, around window frames, in cavity walls, under hanging tiles and lead flashing. In winter, pipistrelle species may use cavity walls or crevices deep in solid walls.

Long-eared bat species

During summer, long-eared bats will use crevices in the roof structure and under the ridge during the day - although they occasionally roost in the open within the roof void and frequently fly within the roof void. They can also be found in roofs during the winter. Long-eared bats tend to prefer older buildings.

Horseshoe bat species

Both species of horseshoe bat use buildings during the summer months. Usually they are found using roof spaces where they need flight access (due to their poor ability to crawl) but they can also use boiler rooms, often situated in cellars or in separate buildings. In the winter, horseshoe bats can make use of unheated cellars for periods of torpor.

Brandt's bat and whiskered bat

These species of bats are crevice dwellers. In the summer months they may use crevices formed by the structure within a roof space. They might also enter roof spaces to fly around. These bats also make use of external features such as hanging tiles soffits, cavity walls and ridge tiles.

Serotine

Serotine make use of crevices within buildings for summer use. They are not usually found in the roof void. Serotine are likely to use buildings during the winter, too, with the cavity wall likely to be an important feature.

Leisler's bat

Leisler's can be found using crevices within buildings during the summer. They are not usually evident within the roof void. In winter, Leisler's make use of cavity walls.

Natterer's bat

In summer, Natterer's bats are frequently found in the crevices of the substantial types of timbers often found in old barns and other buildings.

8.2 Building features used by bats

These are the key features of buildings and specific built structures along with the species of bats most likely to use them and the season/s during which they are most often used. This is an indicative guide to the most common associations only.

- Cavity walls: Serotine, Leisler's bat and pipistrelle species all year round. Natterer's, brown long-eared, Brandt's and whiskered in summer.

- Roof spaces: Long-eared bat species, greater and lesser horseshoe bats and Natterer's bat in summer.

- External features: Pipistrelle species, Leisler's bat, Brandt's bat and whiskered bat during summer.
- Cellars: Greater and lesser horseshoe bats (heated cellars in summer, unheated cellars in winter).
- Roof structure: Long-eared bat species, Brandt's bat, whiskered bat, pipistrelle species, Natterer's bat, serotine and Leisler's bat in summer. Long-eared bat species in winter.
- Solid wall with cracks and crevices: Pipistrelle species, especially in winter.
- Barns: Natterer's bat and long-eared bat species.
- Churches: Pipistrelle species, long-eared bat species, serotine.
- Bridges: Daubenton's bat in summer.

8.3 Farmhouse Survey

A detailed inspection of the exterior of the property including all external walls, extended eaves, soffits and fascia boards confirmed that there were no opportunities suitable for use by individuals or groups of bats for roosting.

8.4 A detailed search of the ground at the base of the property found no evidence of any current or historic use by bats. No staining was present on the walls.

8.5 The ridge and roof tiles were subjected to detailed evidence searching using close focusing binoculars to confirm if any gaps, or missing tiles provided suitable opportunities for bats. No opportunities were recorded. All tiles were in good condition with no opportunities for bats.

8.6 A detailed internal inspection of the roof space found no access opportunities suitable for bats. The floor of the roof space is partially boarded, and the roof underside is lined. All surfaces were checked for evidence of any bat activity eg feeding remains or droppings in areas where bats could roost. All surfaces were subjected to searching using UVA handheld lights. This would react to and evidence of bat use especially urine staining. Thermal imaging equipment was used to inspect any areas not accessible for traditional searching.

8.7 All external roof areas were systematically searched using binoculars. The roof is constructed of slate tiles that are very well fitting and in a very good condition. No evidence to show current or past occupation by bats was recorded.

8.8 All flashings on roof gullies and chimney joins were in very good condition with no gaps suitable for bat use.

8.9 No evidence of bat use in the form of staining, droppings, moth wings or insect parts were recorded in, on or on any of the external elevations of the building.

Dusk Emergence Survey Results 12th September 2025

8.10 The three surveyors were equipped with heterodyne ultrasonic bat detectors, and thermal imaging or Infra Red monoculars to use from dusk onwards. The

surveyors were positioned in selected locations that allowed full coverage on all elevations and aspects of the building during the emergence survey. (see Appendix 3, drawing number NF/SL/WB/01)

8.11 Weather Conditions
Weather conditions on the 12th September 2025 were scattered high cloud with no wind. There had been some occasional light showers during the afternoon, but these had finished completely by 14.00hrs. The temperature taken at the start of the survey was 17°C. The emergence survey was conducted during the evening, firstly in good light, and then at dusk and the post dusk period.

Sunset: 19:38hrs.
Dusk 20.14hrs
Moon phase: Waning Gibbous 75% illumination
Survey Start Time: 19.45hrs.
Survey Finish Time: 22.30hrs
Finish temperature: 13°C
Weather conditions were considered optimal for bat surveys from professional judgement and in reference to the Bat Mitigation Guidelines (Mitchell-Jones, 2004).

8.12 During the dusk survey, which confirmed no bats emerging from any part of the property some low-level bat activity was recorded of Common Pipistrelle, from trees behind the site. (see Table 3: Emergence Survey Results)

Table 3: Emergence Survey Results

Time	Species	Activity	Notes
20.17 hrs To 21.29hrs	Common Pipistrelle (Pipistrellus pipistrellus)	The first record of bat activity was of a single Common Pipistrelle entering the site from the north. It flew into the large animal shed and exited from there after a two minute foraging flight	See drawing number NF/BSL/01 For approx flight area marked 1.
20.36hrs To 22.07hrs	Soprano Pipistrelle (Pipistrellus pygmaeus)	Single Soprano Pipistrelle commuting over the site from the northwest. This bat flew regular foraging circuits over trees east of the site. These two bats flew foraging circuits over the buildings and then left site for several minutes then returning. The bats flew individual circuits leaving and returning separately to the site During the circuits all surveyors recorded feeding buzzes There was no bat activity recorded emerging from the buildings. Using thermal imaging equipment after dusk which confirmed no emergence or re-entry to any area of the building. The emergence survey finished at approx. 22.30hrs All three recorders confirmed the bat activity from the Common and	See drawing number N/BSL/01 For approx flight area marked 2 See drawing number N/BSL/01 For approx flight area marked 3 A clear sky prior to dusk allowed for visual recording to confirm movements within the site. Only low-level activity bat activity was recorded during the emergence and activity survey. No activity was recorded in or around the small barn area Marked B on drawing number NF/BSL/01

		Soprano Pipistrelle bat originated from outside the boundary of the site.	

8.13 The emergence survey commenced at 19.45 hours approx. 30 mins before dusk and ended at 22.30. This time was chosen to allow for species of bats to emerge from their roosts and commence foraging.

8.14 All bat activity recorded originated from outside the boundary of the site.

8.15 No bats were recorded emerging from the Farmhouse or the barn building.

8.16 The results of the survey indicate that bat activity occurs in the immediate area more than likely due to the optimum conditions present. There are good opportunities for foraging within the area.

8.17 The presence of two closely related bat species and very low bat activity recorded during the survey is unlikely to fully reflect the number of species using the general area; this is because activity surveys can only provide an incomplete 'snapshot' of the bat community using the site at the time of the surveys.

Species recorded

8.18 **Common and Soprano Pipistrelle** (Pipistrellus pipistrellus and Pipisrellus pygmaeus))
Pipistrelles are the commonest and most widespread of all British bat species. There are two very similar species, common pipistrelle and soprano pipistrelle. Pipistrelles are the most commonly recorded bat in the north-west (Cheshire Mammal Group 2008) and are present across the north west region (Richardson 2000). It is likely that both these species are common in the locality.

8.19 Of the 17 species of bat found in the British Isles, 9 have been recorded in Cumbria. (Cumberland Bat Group)

- Brandt's Bat: *Myotis Brandtii*
- Brown Long-Eared Bat: *Plecotus Auritus*
- Common Pipistrelle: *Pipistrellus Pipistrellus*
- Daubenton's Bat: *Myotis Daubentonii*
- Nathusius' Pipistrelle: *Pipistrellus Nathusii*
- Natterer's Bat: *Myotis Nattereri*
- Noctule: *Nyctalus Noctula*
- Soprano Pipistrelle: *Pipistrellus Pygmaeus*
- Whiskered Bat: *Myotis Mystacinus*

8.20 All of the nine bat species occurring in the region are listed in the U.K. Biodiversity Steering Group Report Volume 2 (Action Plans). Both common and soprano pipistrelles have been UK Priority Species since 1994 due to their unfavourable conservation status in Europe. The common Pipistrelle is considered widespread in the UK and was removed from the UK Priority List during the 2007 review. The soprano pipistrelle remains a UK priority and as

a result of the review has been joined by noctule and brown-long eared bats. New UK targets for soprano pipistrelle have been produced however details of the new action plans for the noctule and the brown-long eared bats are awaited. The remaining seven species are UK Species of Conservation Concern. There are no national action plans for these species as yet.

8.21 **The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.**

9.0 Conclusions

9.1 The survey results indicate that the Farmhouse at Nook Farm offers no roosting opportunity for bats and no evidence of any presence either current or historic was recorded during the surveys.

9.2 The stone built barn does offer significant opportunities for bats and more survey work is necessary to understand the status of bats using that building – if any.

9.2 There was no evidence to suggest that the Farmhouse roof space had been used as a maternity roost. The survey was undertaken within the optimal time for maternity roosts and due to the nature of the roof spaces any evidence of such use currently or in the past would have been obvious.

9.3 Taking into consideration the results and findings from the Preliminary Roost Assessment and evening activity/emergence survey conclusions were that no additional effort regarding bats is necessary in regard to the Farmhouse, Workshops and animal sheds.

10.0 Barn Owl Survey

10.1 A detailed evidence and opportunity survey was carried out on site on the 12th September 2025.
The buildings on site which were identified as providing some low level potential opportunities for Barn Owls were both the Traditional brick built barn which was not entered due to safety concerns and the modern construction animal sheds.

10.2 The modern construction agricultural buildings could provide roosting opportunities for Barn Owls but there were no suitable opportunities for nesting.

10.3 **Reason For The Survey**
The purpose of the Barn Owl survey is to determine the:

- distribution, abundance and breeding status of barn owls in the area of interest;
- extent to which barn owls are likely be affected by a proposed development; and where the presence of this bird has been confirmed to enable an appropriate mitigation strategy to be designed and implemented.

- In particular the survey is necessary for the purposes of: ensuring legal compliance; determining planning applications; avoiding the enforced cessation of development work should an active breeding site be discovered that would be damaged or disturbed through continuance of the work.

11.0 Legislation

11.1 Under UK and European law the Barn Owl (*Tyto alba*) is protected under Schedules 1 and 9 of *The Wildlife and Countryside Act 1981* (adults, their nests, eggs and young are fully protected at all times) and is included in Appendix II of the *EU Birds Directive 1979* and in *Red Data Birds* (Batten, 2002). It is also Amber Listed as a Bird of Conservation Concern in the UK, Channel Islands and Isle of Man (BTO, 2006).

11.2 Furthermore, under the provision of the Wildlife and Countryside Act 1981 (as amended) the Barn Owl (Tyto alba) is listed in Schedule 1 - Part 1 of the Act and is therefore protected by special penalties at all times. It is a criminal offence to -

- Intentionally kill, injure, or take (handle) any wild Barn Owl.
- Intentionally take or destroy a Barn Owl egg.
- Intentionally take, damage or destroy any wild Barn Owl nest while it is in use or is being built.
- Have in one's possession or control a wild Barn Owl (dead or alive, or any part of) or egg unless it has been legally taken.
- Intentionally or recklessly disturb a Barn Owl while it is nest building or is at or near a nest containing eggs or young or disturb dependent young.

11.3 Under the **Wildlife & Countryside Act 1981** (as amended) anyone found guilty of an offence is liable to a fine of up to £5,000 or an imprisonment not exceeding 6 months or both.

12.0 Action Plans and Conservation Targets

12.1 Specific conservation targets have been set by the RSPB/JNCC UK Action Plan for Barn Owls:

- To maintain the present range and numbers of barn owl throughout the UK over the short-term.
- To achieve a substantial increase in the breeding population by at least one half over the period 1995-2020.

12.2 The barn owl is included in the 'Long List' in the UK Biodiversity Action Plan *Biodiversity: the UK Steering Group Report* (HMSO, 1995) where it is classified as *having declined by between 25-49% in numbers over the last 25 years* with *unfavorable status in Europe*.

13.0 Habitat Needs and Field Signs

13.1 Barn owl optimum habitat is rough grassland on low-lying farmland field margins (including woodland edges) and linear grasslands, particularly alongside river and ditch banks. The continuity these microhabitats offer can lead to the establishment of new and viable communities of this bird within a region.

13.2 Nesting / Roosting habitat - Barn owls need large, dark, open cavities in buildings or trees to nest and roost in. Once they become established at a site they remain faithful to the area, and to the nest itself, for many generations.

13.3 Feeding - Barn owls hunt mainly at night but sometimes are active around dusk and dawn. Rodents, mostly short-tailed voles, comprise the major part of their diet.

13.4 Main indicators that barn owls are present within an area or site include the following field signs -

- Droppings. - These appear as large white splashes commonly referred to as 'wash' on hard surfaces or smaller white patches on vegetation.
- Pellets. - Due to the low acid content within an owls stomach pellets are comprised of prey items an owl cannot fully digest and are then regurgitated tightly wrapped in condensed mammal fur. When fresh, barn owl pellets are moist, black and glossy and vary in size from one inch to one and a half inches.

- Feathers. – Barn owl feathers are distinctive and very easy to identify. Males molt their primaries during July to November with females undergoing molt between May to October.

14.0 Survey

14.1 The site was visited during the day on 12th September 2025. The visit included surveys carried out to assess the quality of habitats present and the opportunities for barn owl to access and use any of the buildings for nesting.

Exterior Search

14.2 A detailed search of the exterior of all the buildings on site was undertaken and all holes over 75mm were checked for staining or the presence of pellets.

14.3 In some elevations of the traditional barb building there are potential opportunities where the roof has collapsed allowing access to the first floor of the barn that would provide some suitable opportunities within this space for nesting.

14.4 The metal and corrugated sheeting buildings have permanent access opportunities which could be used by owls and kestrels for roosting. No suitable shelf type opportunities were preset that could be used for nesting.

14.5 The ground at the bottom of the buildings was searched for the presence of droppings, feathers or pellets.

Interior Search

14.6 A detailed search of the modern construction buildings was undertaken for staining or evidence of nest debris.

14.7 The floors of all sections of each building were searched for droppings, pellets or feathers as an indication that the building was in use as a roost site or had been used previously as a nest site.

15.0 Results

15.1 The modern construction buildings provided low level opportunities for use by barn owls for day roosts and as mentioned other species for roosting. This was due to the large single spaces of the metal sheet buildings. A visual search using binoculars of these buildings recorded no evidence of barn owl activity either current or historic.

15.2 The traditional barn building which was too dangerous to access could have potential nesting opportunities for Barn Owls. This is due to the first-floor access where the roof had collapsed could have areas suitable for nesting. The external areas around the building were thoroughly searched for pellets or feathers. None were recorded. (*Some owls moult yearly, usually after the breeding season is over. Some owl species (barn owls, for instance) have a moult cycle of multiple years, where they'll replace feathers gradually over 3 or so years instead of replacing all in the same year.)*

16.0 Conclusions

16.1 As the survey was carried out outside the optimum period for breeding barn owls presence/absence surveys and encountered limitations in the barn building it is recommended that further survey effort in spring 2026 will be necessary to confirm status of breeding species using the buildings No evidence of breeding barn owls (or similar species) was recorded in or around the site or associated buildings.

16.2 The site could easily support breeding barn owls currently and in the future as the site sits in optimum feeding and foraging habitat. The inclusion of paddocks where margins outside the fencing could be left as suitable habitat for small rodents which would provide an easy food source for owls.

16.3 The expansion of local Barn Owl populations could be accommodated by some biodiversity measures focused on Barn Owl ecolofy.

17.0 Recommendations

17.1 It would be a significant uplift to the sites biodiversity value if two Barn Owl Boxes are positioned in suitable trees this winter. This would provide an opportunity for Barn Owls that prospect suitable nest opportunities in winter to consider the box.

17.2 This would also mitigate if Barn Owls were recorded breeding in the barn during spring summer 2026 to provide a suitable alternative site.

18.0 Nesting Birds

Within the derelict buildings on site several old nests were recorded. The trees on site provide significant opportunities for nesting birds during the nesting season.

18.1 As all wild birds, their nests, eggs and young are protected under the Wildlife and Countryside Act 1981 (and subsequent amendments) during the bird breeding season any vegetation removal works must be undertaken outside this period (April to September inclusive).

18.2 Please note that birds can nest outside the bird-breeding season and therefore should any nests be identified or suspected to be present on site at any time, then works should cease and an ecologist contacted to attend site and provide advice on appropriate working methods.

18.3 Should site works require being carried out during the bird-breeding season (April to September inclusive) it is recommended that an ecologist conducts a check for nesting birds across the site in advance of any works commencing. Once complete, should no active nests be identified, a five-day window will allow for site works to commence. Should works cease at any point for more than five days then further checks for nesting birds should be undertaken.

19.0. Hedgehog

Legislation

Hedgehogs are listed as a UK 'Priority Species' under S41 of the NERC Act (2006). They also have limited protection under Schedule 6 of the Wildlife and Countryside Act (1981) as amended, which means they cannot be caught or trapped without a licence. The Wild Mammals (Protection) Act (1996) prohibits cruel activities and mistreating of hedgehogs.

The timing and method of habitat clearance has an impact on hedgehogs but will need to be balanced with other biodiversity needs.

Bramble disturbance is least hazardous in autumn to avoid the bird breeding season, the bulk of hedgehog breeding, and hibernation. Hedgehogs are generally absent from long grass in winter, making this the least hazardous time for cutting, but this isn't necessarily the best time to cut wildlife meadows. Rotational cutting is recommended so that there's always an area left unstrimmed for insects to feed on and hedgehogs to nest in.

A high-cut, low-cut method allows nest checks in-between, and increasing the blade height of mowers will minimise risks. Ensure all machine users are trained to be hedgehog aware.

Areas of well-connected native hedging, scrub, bramble, shrubs, dead hedging and piles of dead wood become important nesting and foraging sites. Keeping fallen leaves on the ground or in accessible leaf stores is especially useful for breeding and winter nest building. Mosaic grass management provides the mix of long grass, short turf, open soil and tussocks needed for foraging and day nesting. Developing nectar sources and herbaceous vegetation provides the diverse microhabitats needed for the invertebrates hedgehogs rely upon. Edge habitat is especially important as hedgehogs often navigate landscapes by following linear features

Hedgehog Highways

Link parcels of land by ensuring boundaries are permeable to hedgehogs. Hedging or hedgehog-sized holes in fencing or walls help create Hedgehog Highways. Ground-level boundary holes should measure 13x13cm and should link as many neighbouring pieces of land as possible. These are easy to include for most fencing contractors, and both wooden and concrete hedgehog-friendly gravel boards can be purchased from some suppliers ready-made. Cinder blocks or piping can be used to deter use by pets.

In the interest of best ecological practice, between October and March, any piles of wood or suitable materials should be checked for hibernating hedgehogs before disturbance. Any hedgehogs found should ideally be left alone. If this is not possible, the hedgehog should be carefully and safely relocated to suitable habitat away from the development site.

20.0 Overall Recommendations

20.1 The survey results indicate that the Farmhouse at Nook Farm provides no opportunity for bats and no evidence of any presence either current or historic was recorded during the surveys. **The removal and replacement of the current building will have no impact upon the status of bats in this area.**

20.2 This also applies to the modern construction agricultural steel and sheeting buildings as they no opportunities for bats or nesting barn owls and their removal will nave no impact on the sites biodiversity.

20.3 Taking into consideration the results and findings from the evidence, opportunity surveys and evening activity/emergence survey conclusions were that no further surveys are necessary in respect of the farmhouse, workshops and modern agricultural buildings.

20.4 **The traditional stone barn building requires more survey effort in 2026 to confirm the status of bats and Barn Owls in the building.**

20.5 As an overall increase into the biodiversity value of the site features such as bat bricks or bat boxes should be incorporated into the replacement building See Appendix 4 for bat box examples

20.6 As all wild birds, their nests, eggs and young are protected during the bird breeding season any proposed removal or pruning of trees should be undertaken outside this period (April to August inclusive).

20.7 If there is an urgent requirement during the bird breeding season for any trees to be felled, then they should be checked for the presence of breeding birds prior to any works by a suitably experienced ecologist.

20.8 Mammal Ramps
During construction works any excavations that need to be left overnight should be covered or fitted with mammal ramps to ensure that any animals that enter can safely escape.

20.9 In the interest of best ecological practice, between October and March, any piles of wood or suitable materials should be checked for hibernating hedgehogs before disturbance. Any hedgehogs found should ideally be left alone. If this is not possible, the hedgehog should be carefully and safely relocated to suitable habitat away from the development site.
With the site adjoining woodland and open countryside it is important to consider hedgehogs and their welfare as part of the proposed works.

20.10 Although the presence of construction waste is unavoidable, it is recommended that waste is removed at the earliest opportunity to avoid contamination of ground and possible disturbance to wildlife. Contractors should also avoid leaving construction waste within the site.

21.0 Closure

This report has been prepared by Whistling Beetle Ecological Consultants Limited with all reasonable skill, care and diligence. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document.

22.0 References

Bat Conservation Trust (BCT), 2022. Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys.

Bat Conservation Trust (2007) *Bat Surveys - Good Practice Guidelines*, Bat Conservation Trust, London.

Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*, English Nature, Peterborough.

Mitchell-Jones, A.J. and McLeish, A.P. (Eds) (2004) *Bat Workers' Manual*, Joint Nature Conservation Committee, Peterborough.

Cheshire Mammal Group (2008). *The Mammals of* Cheshire. Liverpool University Press.

Richardson P (2000). *Distribution atlas of bats in Britain and Ireland 1980 – 1999*. Bat Conservation Trust, London.

Bat Conservation Trust (2012) *Bat Surveys - Good Practice Guidelines 2nd Edition*, Bat Conservation Trust, London.

BTO, (2006). Birds of Conservation Concern 2002-2007 [online]. British Trust for Ornithology.

Batten, L.A. (2002). *Red Data Birds in Britain: Action for Rare, Threatened and Important Bird Species*, Poyser.

Web addresses for access to full UK legislation and policy text:

Conservation of Habitats and Species Regulations 2010:
http://www.opsi.gov.uk/si/si2010/uksi_20100490_en_1

Wildlife and Countryside Act 1981:
www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810069_en_1

Countryside and Rights of Way Act 2000:
www.legislation.hmso.gov.uk/acts/acts2000/20000037.htm

Natural Environment and Rural Communities Act 2006:
http://www.opsi.gov.uk/acts/acts2006/ukpga_20060016_en_1

Planning Policy Statement 9:
www.communities.gov.uk/documents/planningandbuilding/pdf/147408

Appendix 1

NB The clearest satellite image of the site and surrounding landscape is from June 2018. Since that time some agricultural buildings have been removed.

Google Earth from June 2018

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Project

Bat Survey and Breeding Barn Owl Survey

Title

Nook Farm
Cleator
Cumbria
CA23 3EY

The Nook Farm site is set within an agricultural landscape where animal grazing, haylage production and cereal growing are the main land uses.

The proposed development will have no negative impact on the local biodiversity. The ecological uplifts included in the proposal will provide an increase to the sites overall biodiversity value.

Photo Sheet	NF/SL/WB/01
Date	September 2025
Scale	N/A

Appendix 2

2. Front elevation. Nook Farm, Farmhouse

1. Front elevation

3. Front elevation with ridge and roof tile detail

4. All eaves inspected for any access opportunities for bats – none were recorded.

5. All doors and window surrounds were inspected for any access opportunities for bats – none were recorded.

6. All glazing on ground floor and first floor were inspected for any evidence of bat activity

7. Rear and side elevation

8. Rear elevation first floor and roof tile detail

9. All roof and ridge tiles in very good condition with no opportunities for bat access

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Project

Bat and Barn Owl Surveys Including Preliminary Roost Assessment and Dusk Emergence Survey

Title

Nook Farm, Cleator
Cumbria, CA23 3EY

Farmhouse Photographs

Photo Sheet	NF/BS/WB/PS01
Date	12th Sep 2025
Scale	N/A

2. All roof and ridge tiles in very good condition with no opportunities for bat access

1. Rear elevation with ridge and roof tile detail

3. Side elevation with fascia and eaves detail

4. All eaves inspected for any access opportunities for bats – none were recorded.

5. All doors and window surrounds were inspected for any access opportunities for bats – none were recorded.

6. All rooms in Farmhouse were checked for any evidence of bat activity

7. All window glass was checked for any evidence of bat activity (droppings adhered to glass)

8. All window sills were inspected for any evidence of bat activity – feeding remains or droppings

9. Aerial view of Farmhouse and animal sheds

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Project

Bat and Barn Owl Surveys Including Preliminary Roost Assessment and Dusk Emergence Survey

Title

Nook Farm, Cleator
Cumbria, CA23 3EY

Farmhouse Photographs 2

Photo Sheet	NF/BS/WB/PS02
Date	12th Sep 2025
Scale	N/A

2. All areas of roof space were subjected to detailed hand searching for any evidence of bat activity

1. Roof is unlined making inspection findings of activity accurate

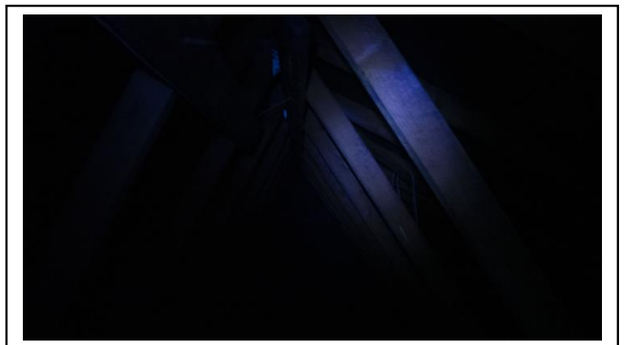
3. All beams and spars inspected for any evidence of bat activity – none recorded

4. All wall surfaces inspected for evidence of bat activity none were recorded.

5. Most floor areas in roof space have rockwool type insulation which makes evidence searching effective

6. Top of access hatch always a good area for evidence of bat activity.

7. Using specialist UV lighting to search all floor and vertical wall areas for evidence of bat activity droppings or feeding remains



8. Using specialist UV lighting to search all floor and vertical wall areas for evidence of bat activity droppings or feeding remains

9. Using handheld Thermal Imaging equipment to search all roof space areas. This allows all small cracks, areas behind boarding etc to be accurately inspected for any bats that could be roosting in areas otherwise inaccessible to searching.

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Project

Bat and Barn Owl Surveys Including Preliminary Roost Assessment and Dusk Emergence Survey

Title

Nook Farm, Cleator
Cumbria, CA23 3EY

Roof space photographs

Photo Sheet	NF/BS/WB/PS03
Date	12th Sep 2025
Scale	N/A

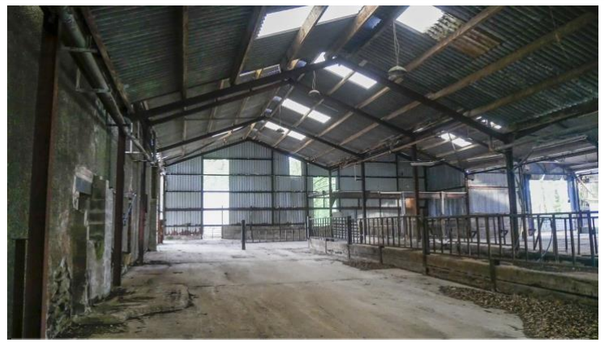
1.This building was excluded from the survey due to being in an unsafe condition. The building also had two floors which could provide opportunities for bats and barn owls. Further survey effort will be required in 2026 to establish status of bats and barn owl.

2. The three work rooms were single spaces with no opportunities for bats or barn owls

3. Example of work room roof with no opportunities for bat or barn owl roosting

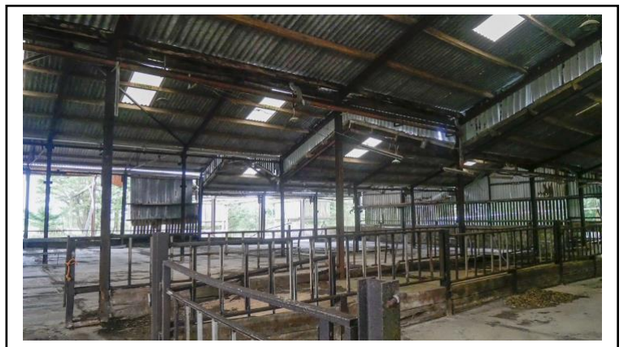
4. One room used as a log store

5. The wall between two of the rooms had been removed resulting in one space



6. The remaining buildings were all of a modern construction of steel and corrugated roofing with no opportunities for bats or barn owls

7. Animal sheds



8. Using specialist UV lighting to search all floor and vertical wall areas for evidence of bat activity droppings or feeding remains

9. All areas were carefully inspected for any evidence of barn owl activity – none was recorded

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Project

Bat and Barn Owl Surveys Including Preliminary Roost Assessment and Dusk Emergence Survey

Title

Nook Farm, Cleator
Cumbria, CA23 3EY

Buildings photographs

Photo Sheet	NF/BS/WB/PS04
Date	12th Sep 2025
Scale	N/A

1.Some of the buildings on the northern boundary were in a state of decay

2. Track around the northern building's boundary

3. Some of the buildings on the northern boundary were in a state of decay

4. Some of the buildings were in a state of collapse

5. Some of the buildings were in a state of collapse

6. Some of the buildings were in a state of collapse

7. Some of the buildings were in a state of collapse

8. Some of the buildings were in a state of collapse

9. Some of the buildings were in a state of collapse

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Project

Bat and Barn Owl Surveys Including Preliminary Roost Assessment and Dusk Emergence Survey

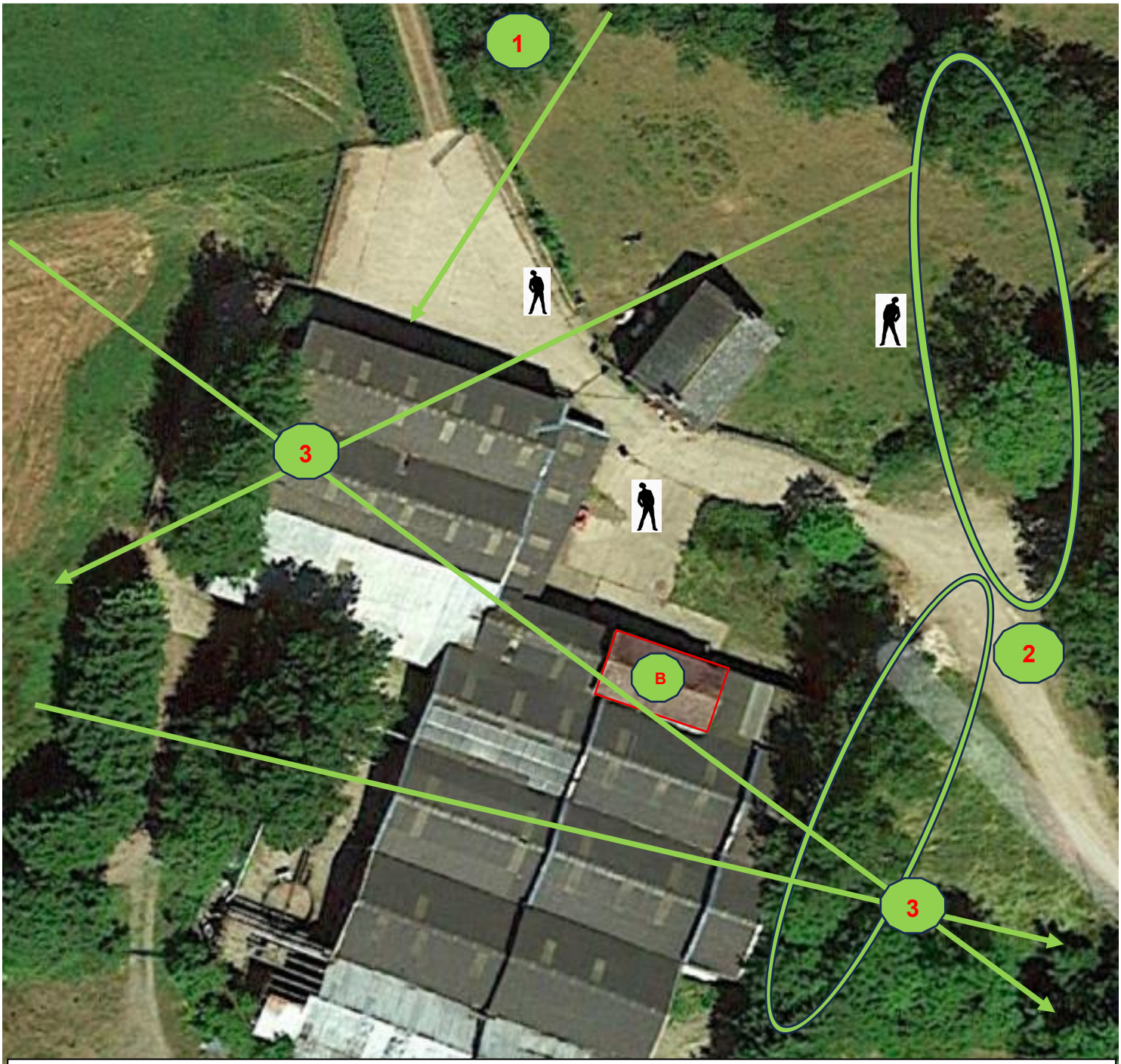
Title

Nook Farm, Cleator
Cumbria, CA23 3EY

Buildings photographs

Photo Sheet	NF/BS/WB/PS05
Date	12th Sep 2025
Scale	N/A

Appendix 3



Approximate locations of surveyors during 3 point Dusk Emergence Survey. These positions allowed all elevations of the building to be covered. All surveyors had bat recording equipment and night vision equipment (Infra-red and Thermal Imaging)

B

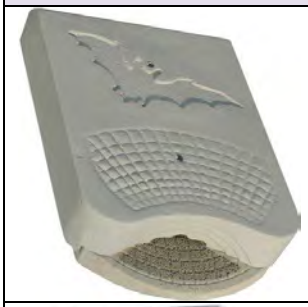
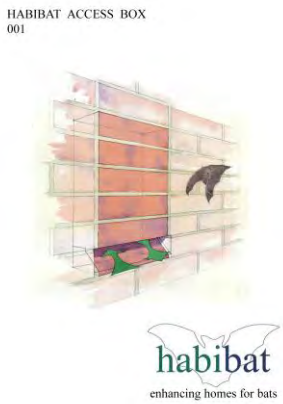
The initial PRA identified just two buildings to survey – the Farmhouse and the small barn.
The farmhouse was classed as low potential but the barn (Marked B) which was in an unsafe state to inspect all areas was classed as high potential and excluded from this survey and would need additional effort during spring and summer 2026. The former modern construction agricultural animal sheds provided no opportunities for bat occupation so were discounted from the dusk emergence surveys

Project: Nook Farm, Cleator, Cumbria, CA23 3EY	Drawing Number NF/BSL/WB/01	whistlingbeetle ecological consultants
Title: Surveyor locations and bat activity detail	Date: 12th Sept 2025	
	Scale N/A	

Appendix 4

Bat Conservation Trust

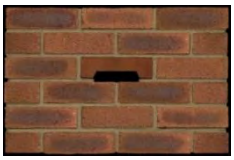
Below is a list of bat related products that may be used for bat enhancement. However, please be aware that BCT does not endorse any particular product or brand as very little evidence is available to demonstrate that they are successful.

Bat Boxes	**In situ**	**Description**	**Company**	**Estimated price**
For external surfaces of buildings:				
		**Schwegler 1 WQ Summer & Winter Roost** Dimensions: 580 H x 380 W x 120 D Weight: 22Kgs	Alana Ecology Jacobi Jayne The Code Store	£90 to £139
		**Schwegler 1 FQ Bat Roost** Dimensions: 600H x 350W x 90D mm Weight: 15.8 Kgs	Alana Ecology Jacobi Jayne NHBS The Code Store	£70 to £90
	Internal or external 	**1 Schwegler FE Bat Access Panel** with optional back plate External Dimensions: H 30 x W 30 x D 8 cm Weight: 7.8 kg	Alana Ecology Jacobi Jayne NHBS The Code Store	£38 to £49
To integrate into walls:				
	Can be built with timber, brick or stone facing to match walls. *BCT is using the Habibat as a research and monitoring tool.	**Habibat** Dimensions: 215 x 215 mm Or 215 x 290 mm	Habibat NHBS	£82.50 to £129

		**Schwegler 1FR Bat Tube** Dimensions: H 475 x W 200 x D 125 mm Entrance W 150 x D 20mm Weight: 9.5kg	Alana Ecology Jacobi Jayne NHBS	£72 to £75
		**Schwegler 2FR Bat Tube** The 2FR bat box is based on the same design as the 1FR, but with the addition of holes in the sides. This allows multiple tubes to be placed next to each other to form a much larger bat roost.	Alana Ecology Jacobi Jayne NHBS	£72 to £76
		**Ibstock enclosed bat box**	Ibstock	
For trees:				
	Trees or flat surfaces	**Schwegler 1FF Bat Box** Dimensions: 430H x 270W x 140D mm. Entrance hole: 120 x 240mm	Alana Ecology Jacobi Jayne NHBS	£56 to £60
	Trees	**Schwegler 2F Bat Box** (General Purpose) Woodcrete 33cm H x diameter 16cm Note: location of access hole means that box is not self-cleaning.	Alana Ecology NHBS	£27.95

	Trees	**Schwegler 2FN Bat Box** The 2FN Bat Box has two entrances - one at the front and one at the rear against the tree. It has a domed roof to form clusters and an increased internal height. 36cm H x diameter 16cm 4.3kg	NHBS Nature Counters	£34.95
	Trees	**Schwegler 1FD Bat Box** The 1FD is a large general purpose bat box. Effectively it is a larger version of the Schwegler 2F bat box, with the addition of two roughened wood panels inside the box which simulate crevices. Note: location of access hole means that box is not self-cleaning.	Alana Ecology NHBS	£49 to £55
Wooden bat boxes				
	Fitted to walls, other flat surfaces or trees	**Kent Bat Box** Materials to be made from untreated rough-sawn timbers. Timber should be 20mm thick. The box should be rainproof and draught-free. Crevices can be between 15 & 25mm wide	Self constructed. Instructions from BCT.	

Bat Conservation Trust

Access tiles or bricks	In situ	Description	Company	Estimated price
		**Tudor Bat access tile set**	**Tudor Clay Roof Tiles**	
		Ventilation tiles that can be adapted for bat access	Aspect Roofing	
		**Bat access brick**	Tamworth Property Services t) 01827 310475 chris@bat-survey.co.uk	
		**Ibstock bat roost entrance arch brick**	**Ibstock**	
		**Bat access slate**	JD Products **Owens Slate Service** Summit Slate	**£40-80**
		**Habibat Roof Access Tile**	Dreadnought Tiles Habibat	

Positioning considerations:

Aspect

Temperature is known to be the major factor influencing successful uptake of artificial roost by bats. In general, bats seek warm spaces to help them with rearing young. For this reason, bat boxes should be located where they will receive the maximum amount of sunlight. In the northern hemisphere this will be the southerly aspects/orientation (south, south-west and south-east). However, it is helpful to install bat boxes in more than one aspect to allow a choice of roosting conditions. Bat boxes located on a shady side will remain cooler and will be more suitable for use during the hibernation period (winter) or by male bats all year round.

Height

Position the bat boxes a minimum of 2 meters above ground. Avoid placement above windows, doors and wall climbing plants, thereby reducing the likelihood of predation by cats. A position near the eaves or gable apex of the property would be preferable.

Other considerations

To make the bat box a potential roost for a wider range of bat species, it is helpful to consider whether there is nearby linear vegetation features such as hedges. This is because some bat species use these features for navigation between their roosting site and feeding ground and to avoid flying in open and exposed areas.

Resources:

- Williams, C. 2010. *Biodiversity for low and zero carbon buildings: a technical guide for new build*. RIBA Publishing, UK
- Bat Conservation Trust, 2010. *Bats in Buildings*. Bats and the Built Environment Series: Volume 1. http://www.bats.org.uk/publications_download.php/247/Bats_and_Buildings_finalDec2010.pdf
- BCT webpages: http://www.bats.org.uk/pages/bats_and_buildings.html

Version 5: updated June 2012

Bat Box Information Pack

Bats are amazing animals that are important to ecosystems in the UK and worldwide. We have 18 species of bat in the UK, all of which are protected under European law. Bat populations in the UK have declined dramatically over the past century due to persecution and habitat loss. However, a number of UK bat species have recently shown signs of population increases so there is hope.


© Andrew Dumbleton

Bat boxes are artificial roosts designed to provide bats with alternative resting places or to encourage bats into areas where there are few existing suitable roost sites. There are various designs of bat box; wooden boxes that you can make yourself, ready-assembled external boxes for buildings and trees, and even integrated bat boxes that can be built into walls.

Providing bat boxes can increase opportunities for roosting bats but it can take a while for bat boxes to be used regularly, particularly where a number of suitable alternative roost sites exist. Bat boxes can have an important additional function in encouraging interest and educating members of the public about bat conservation. The correct design and placement of boxes will help increase the likelihood of their uptake by bats.

Bat roost preferences

Bat boxes are now available from many outlets, and in a range of shapes and sizes, so some knowledge of what bat species are in your local area and their preferences will help you choose the best possible box. For example, some species such as horseshoe bats and grey long-eared bats do not use bat boxes.

Microclimate within a new roost is a very important factor in terms of increasing the chance of successful uptake by bats. In general, they prefer warm, dry spaces in the summer for rearing young and cooler damper spaces in the winter for hibernation. The box should be draught proof and made from a thermally stable material such as untreated wood, ecostyrocrete, woodcrete, brick or stone. If possible, it's better to provide several internal chambers so that the bats can move to where the conditions suit them best.


©Hugh Clark

Orientation and location

Structures for summer roosting should be positioned where they are sheltered from the wind but unshaded for most of the day. Summer maternity roosts (in the northern hemisphere) should be on a south-easterly to south-westerly aspect. It is always best to provide a number of different options for bats so that they can choose the most appropriate temperature based on their needs. This can be achieved by grouping a number of bat boxes each with a different aspect; two or three boxes is preferable to one, although a single box still has a chance of being used depending on the bat species that use the local area. Three boxes can be arranged around the trunk of larger trees – see below for details about putting up bat boxes.


© Fern Alder

Bat boxes are more likely to succeed in areas where there is a good mixture of foraging habitat, including trees, and a source of water (most maternity roosts are located within a short distance of permanent fresh water such as a stream, pond, river or lake). Bat boxes in areas with few other roosting opportunities are also likely to be more successful.

Bat boxes should also be located close to unlit linear features, such as lines of trees or hedgerows and no lit should fall on the bat box itself or the adjacent habitat. Bat species use dark linear features for navigation between their roosting sites and feeding grounds and to avoid predation by flying in open and exposed areas. Ensure the bats approach to the box is not impeded, for example by branches – clear away underneath the box so the bats can land easily before crawling up into the box.

Size of the bat box

The most frequently used bat boxes are small, with narrow apertures to enter them and are only suitable for crevice-dwelling bat species.

Access

Crevice dwelling bats crawl into their roosts via small gaps around 15-20mm high. Roughened vertical surfaces or landing areas allow better access (by landing and crawling), horizontal landing perches should be avoided as these are not necessary, may even deter bats and encourage birds to nest within the bat box.


© John Altringham

Other considerations

Bats are nocturnal and adapted to low light conditions. Artificial light sources should not be directed onto bat boxes or flight paths as most bat species find artificial lighting very disturbing.

If possible, make or purchase bat boxes with an entrance slit along the bottom so that accumulated bat waste can drop out of the box or be pushed out as bats emerge. This will also help stop birds nesting in the box and blocking the entrance, which can happen with bat boxes that have entrance holes in the middle or entrances holes that are too large.

Boxes that may accumulate bat droppings will also need to be cleaned regularly by a licensed bat worker. It is important to remember that bat boxes must not be opened by anyone except a licensed bat worker (see 'monitoring bat boxes' below for more details on licences). In addition, nesting birds must not be disturbed so leave the area immediately upon finding an active nest in a box, and there is the potential for dormice to be found in some woodland boxes, in which case the box must only be checked by a licensed ecologist.

Types of bat boxes

Bat boxes come in many forms depending on their materials, function and location. Simple bat boxes are available commercially or can even be home-made. Bat boxes can be divided into the following categories: self-made external bat boxes, ready-made external bat boxes, integrated bat boxes and free standing bat boxes. Advanced forms of artificial roost creation include bat houses, bat barns and internal bat lofts (if you are interested in these please refer to the websites and publications listed at the end of this document).

Self-made external bat boxes

Self-made wooden bat boxes are usually located on trees or the outside walls of buildings. These boxes are usually cubic or rectangular, with a grooved 'bat ladder' and a narrow entrance slit at the bottom. These will last for approximately ten years and can either be bought in kit form, or you can make your own from scratch (there are instructions for the 'The Kent bat box' pictured below in the Appendix at the end of this document – these boxes are also available commercially).

They come in a variety of shapes but key requirements are:


Kent Bat Box

- While commercial wooden bat boxes may be made from a variety of materials, to make sure self-made bat boxes are suitable for bats we recommend the wood used should be rough sawn for grip and untreated.
- Bats do not like draughts; the entrance slit should be no more than 15-20mm wide and there should be no gaps where the sides and top join - the box should be well put together.
- A box that cannot be opened is best - it will lessen the chances of the bats being harmed through becoming trapped under the opened lid, or disturbed by people opening the top.
- To increase longevity of the box, use screws rather than nails.
- Any screws, hardware or staples used must be exterior grade (galvanized, coated, stainless, etc).

Ready-made external bat boxes

There are a number of ready made external bat boxes suitable for buildings and trees that can be purchased. These boxes can be made from wood, however there are an increasing number of more durable options, such as ecostyrocrete (pictured right). These types of boxes can come in a range of finishes to blend into the buildings façade or indeed to highlight their presence!

Integrated bat boxes

Integral or integrated bat boxes can be built into the walls or masonry of houses and other buildings.. The boxes can be embedded such that they do not impair the air-tightness of the building.

Many designs are available including some that have bespoke coverings that can match the building façade and / or highlight the boxes presence. The same principles for size, location and access apply.

©Green&Blue

Ready-made free standing boxes

American style bat houses (larger, multi-chambered boxes) have been successfully used for bat conservation in North America and elsewhere. These large multi-chambered boxes are increasingly being used in the UK for sites where there are few suitable features (such as trees or buildings) for boxes to be attached to, as they can be put up on poles:

http://www.batcon.org/files/RocketBoxPlans.pdf

The Roost Partnership scheme

The Roost Partnership is a unique conservation-lead built environment scheme involving BCT and bat box or access product manufacturers working together to provide bat conservation features that can be incorporated onto and into buildings and other structures that are designed with the latest best practice guidance and research in mind.

The Partnership doesn't endorse particular products but rather promotes the importance of our common goal of improving roosting opportunities for bats within our built environment. The Roost Partnership also acts as an information sharing hub used to gather feedback from industry professionals to constantly improve our understanding of bat roosting requirements. Details of companies and products within the Partnership scheme are found on the BCT website: https://www.bats.org.uk/our-work/buildings-planning-and-development/roost-replacement-and-enhancement/partnerships

Putting up bat boxes

Most bat species will use higher positioned boxes (around 4m up); assess the risk of working at height when undertaking the installation, then place the box as high as it is safe to do so. This will also help protect bats from vandalism and falling prey to cats. If working in the public realm, try to locate boxes so they are not above public walkways.

Ensure the boxes are appropriately fitted, to avoid the risk of them falling off. The boxes should be checked at least annually and after high winds to ensure they are still securely in place.


© Sue Burchett

On buildings

Place the boxes high up by the eaves on a building, which can also help shelter the box from the weather. As detailed above, the aspect of the box should capture sun for part of the day if the intention is to attract maternity colonies.

Gazebos, garden walls and sheds have been suggested as sites for bat boxes. However, the main danger is that the boxes are not high enough above the ground, the structures may not be robust enough to support the box in high winds and the boxes are too visible to predators or vandals.

On trees

Consideration should be given to tree growth and boxes may need rehanging over time, regularly check boxes to assess this. Use headless or domed nails not fully hammered home to allow the tree growth, again regular checks will ensure that this allowance can be made while still being securely fitted. Iron nails can be used on trees with no commercial value. Copper nails can be used on conifers, but aluminium alloy nails are less likely to damage saws and chipping machinery.

Monitoring bat boxes

Making and putting up bat boxes is a great conservation action but what is even more useful is to know whether they are being used, when and by which species.

How long before bats will use the box?

Sometimes it can take several years for bats to find a new box. Be patient! Slow (or no) uptake may be due to the availability of other roosts locally. Sometimes, however, bats move in within months or even weeks!

How will I know if the box has been successful?

To check if the box is being used, look out for droppings and urine-staining on the vertical 'bat ladder' below the box and listen for 'chattering' during the day, especially during the summer months. You can also watch the box for an hour either side of sunset to observe any bats leaving to feed, or around dawn to see any bats returning to their roost. Bats may be observed by looking up into the box from below, however no light should be used as this may disturb any bats that are present.

Licensing and the law

You can undertake the non-invasive checks above without needing a licence. However, if the box needs to be opened to check it then there must be a suitably licensed bat worker present. Anyone wishing to undertake bat box checks should obtain training in bat handling and identification before applying for a licence. You can find out more about licensing and bats on the Bat Conservation Trust website at: www.bats.org.uk/pages/licensing.html

All bats and their roosts are protected by law and it is an offence to deliberately disturb, handle or kill bats. The relevant legislation in England & Wales is the Wildlife and Countryside Act 1981 and Conservation of Habitats & Species Regulations 2017. In Scotland it is the Conservation (Natural Habitats, etc.) Regulations 1994 and in Northern Ireland the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995.

A bed without breakfast?

Bats often use features such as hedgerows, tree lines and watercourses as commuting pathways between roosts and foraging areas. This type of habitat also provides shelter, allowing insects to gather and therefore supports foraging bats. The highest densities of bats occur where insects are most plentiful.

Make sure you maintain or create good foraging habitats for bats by planting a wide range of plants such as flowers that vary not only in colour and fragrance, but also in shape. See BCT's 'Encouraging Bats' leaflet for more information (www.bats.org.uk\publications).

Useful websites

Bat Conservation Trust www.bats.org.uk
The Bat Conservation Trust (BCT) is working towards a world where bats and people thrive in harmony, to ensure they are around for future generations to enjoy. BCT is the only organisation solely devoted to bat conservation in the UK.

Bat Conservation International www.batcon.org
Bat Conservation International's mission is to conserve the world's bats and their ecosystems to ensure a healthy planet. Based in Austin, Texas, BCI is devoted to conservation, education and research initiatives involving bats and the ecosystems they serve.

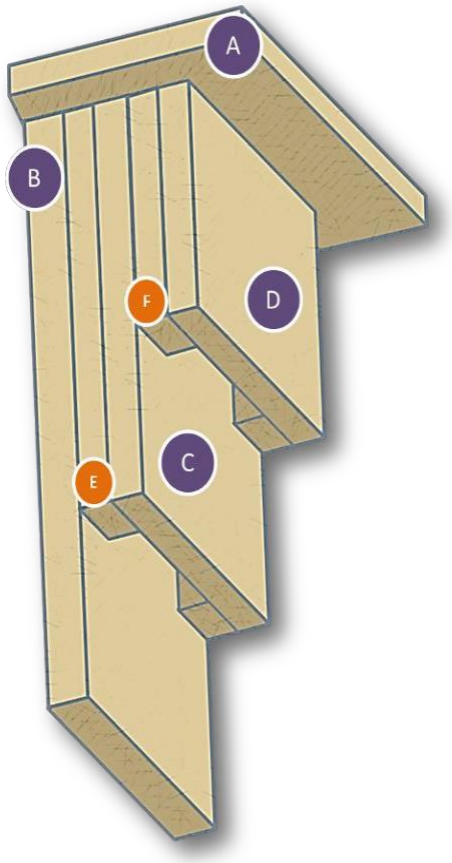
Vincent Wildlife Trust www.vwt.org.uk
The Vincent Wildlife Trust (VWT) is an independent charitable body founded by Vincent Weir in 1975 and has been supporting wildlife conservation ever since. They conserve a range of endangered mammals through management of their own reserves, undertake pioneering research and provide expert advice to others through practical demonstration.

Publications

- Gunnell, K., Murphy, B. and Williams, C. (2013) Designing for biodiversity: a technical guide for new and existing buildings (2nd ed.)
- Gunnell, K., Grant, G. and Williams C. (2012) Landscape and urban design for bats and biodiversity
- Mitchell-Jones, A.J (2004) Bat mitigation guidelines
- Mitchell-Jones, A.J. and McLeish, A.P. (2004) Bat workers' manual (3rd edition)
- Tuttle, M.D., Kiser M. and Kiser S (2004) The Bat House Builder's Handbook

Appendix: The Kent bat box (D.I.Y. instructions)

Design and measurements



Simple to construct, self-cleaning and low maintenance, the Kent bat box (designed by the Kent Bat Group) is a great way to encourage bats in your garden or your green space. The box should be rainproof and draught-free.

The only critical measurement is the width of the crevices: between 15-25mm. Other measurements are approximate. Timber should be approximately 20mm thick.

Measurements for one Kent bat box kit would be as follows:

Part	Quantity	Size (mm)
Roof (A)	1	x 160 x 20
Back (B)	1	x 200 x 20
Centre (C)	1	x 200 x 20
Front (D)	1	x 200 x 20
Centre Rails (E)	2	x 20 x 20
Front Rails (F)	2	x 15 x 15
Stand-offs (optional)	2	x 20 x 20

Material and Tools

This kit requires approximately 1.6m of rough wood and 25 screws (8 x 1 ½ inches) to assemble. You can rough it up by scraping with a suitable tool – possibly a saw blade or even a screwdriver but make sure you use untreated wood as some preservative chemicals can kill bats.

Pre-drill the holes to prevent the wood splitting. Alternatively you can assemble your bat box kit with nails although they tend to be less robust than boxes made with screws.

The hanging screws may either be at the edges of the front panel or in the side centre block (not in the rails!). Fixing may be by use of brackets, durable nylon cord or wires.

When installing the box, assess the risks of working at height, use the appropriate fittings and assess where the box will be located, in relation to any public access. Regular checks should be made to ensure the box remains securely fitted, especially after high winds.

Photos and illustrations in this document by the Bat Conservation Trust unless otherwise stated.

Barn Owl Nestboxes For Inside Buildings

Do you have a suitable building?

Ideal buildings for Barn Owl nestboxes are:

- At least 4 metres (13ft) high.
- Open fronted or with an opening or hole at least 3 metres (10ft) above ground level which overlooks open countryside.
- Where the nestbox can be positioned 3+ metres (10+ ft) above the ground.
- Where the nestbox access hole is visible to an owl from the most likely entrance point.
- Ideally within 1 km (1/2 mile) of areas or strips of rough grassland.

It's worth bearing in mind that:

- It doesn't matter what the building is made of, or used for.
- Barn Owls can learn to tolerate noise and activity as long as they have something to hide in – such as a nestbox.
- When choosing the building and the owl box position, remember that Barn Owls are interested in openings and holes rather than buildings or boxes.

Most old barns are good places for nestboxes – only some will have a suitable cavity space without one.

Modern barns are very often perfect for nestboxes but without one, nearly all lack a cavity space for nesting.

Why an indoor owl box is better than fixing one on the outside of a building

- Inside the building, the owls will benefit from the additional shelter. Outside they are too exposed to the weather.
- An indoor Barn Owl nestbox is not suitable for outdoor use, and an outdoor nestbox is much better placed in a tree – because trees usually afford more shelter and owlets can sometimes climb a tree to re-enter the box.
- Nestboxes designed for indoor use are cheaper, and are quicker and easier to build.

Is your landscape suitable?

- Barn Owl nestboxes in the UK should be placed inside rural buildings that overlook open habitat.
- Avoid urban, suburban, dense forest and high mountain areas.
- Avoid sites within 1 km of a motorway or other fast, unscreened, major roads, due to the risk of road-deaths.
- Nestboxes do not need to be placed directly on patches or strips of rough grassland as the birds are perfectly capable of 'commuting' across unsuitable habitats before starting to hunt and have very large home ranges.

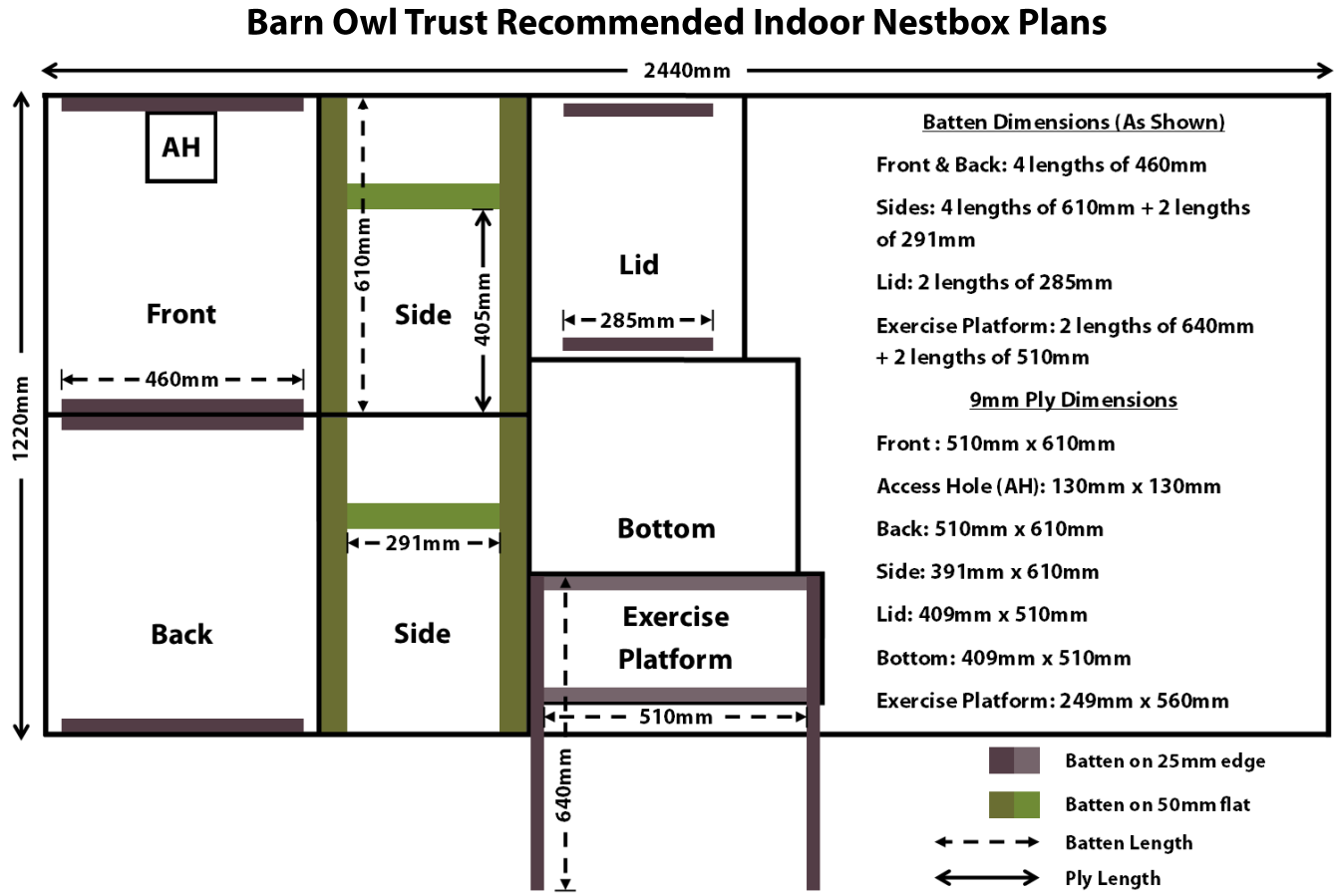


Figure 1. Diagram illustrating ply cutting plan, batten placement and corresponding dimensions.

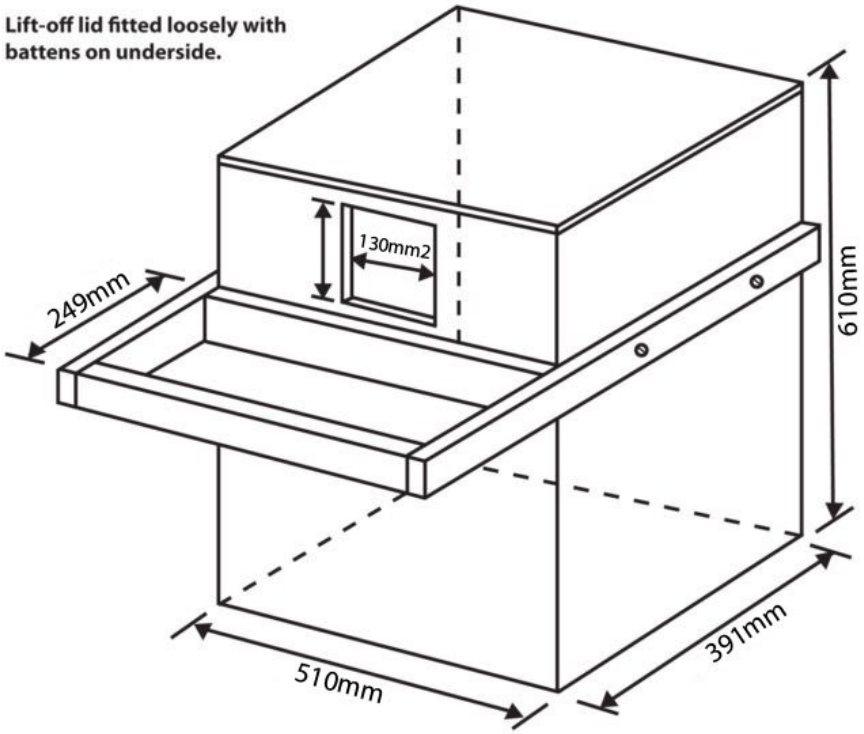


Figure 2. Completed indoor nestbox diagram

Materials to use

The basic box should be built using 9mm FSC approved plywood and 50 x 25mm batten. Softwood ply (usually Scandinavian or Canadian) is perfectly adequate, cheaper, and better for the environment than hardwood. Where the nestbox will be completely dry, then untreated wood is suitable. We use 30, 40 and 50mm screws but nailing and/or gluing is also acceptable.

Indoor Nestbox Construction Instructions

1) Cut ply and batten following dimensions and cutting plan shown in Figure 1.

2) We use 30mm screws for fixing into the 'flat' side of a batten

3) We use 40mm screws for fixing into the 'edge' of a batten.

4) Next screw through ply into batten, corresponding with the orientations shown in Figure 1. All battens should be flush with the edge of the ply. The only exception is the batten attached to the lid, where it should be inset by ~10mm to allow the lid to lift on and off easily.

5) For the exercise platform, first create a batten frame with 4, 50mm screws, then attach the ply with 30mm screws.

6) Screw the box front to one of the sides ensuring the side is the right way up (four or five screws along each edge should suffice).

7) Now fit the second side, checking that both sides are the right way up.

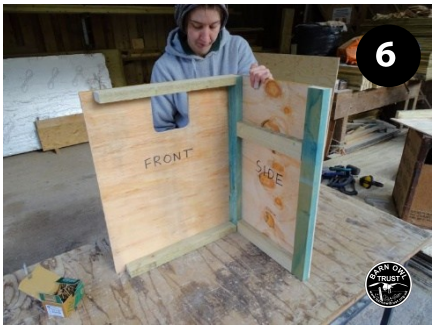
8) Now fit the back in the same way.

9) Now fit the bottom. Be careful not to miss the batten. We don't want any sharp ends sticking through. Screw on all 4 sides.

10) Now attach the exercise platform using 40mm screws into the sides. Make sure to line the platform up level with the base of the access hole (see figure 2).

11) Screw a few 30mm screws through the inside front of the box into the batten of the exercise platform to prevent any gap forming that could result in an owl getting its talon caught.

12) Now fit the lid. It does not need to be secured with screws unless it is in a location vulnerable to strong winds.



Your Safety

Before erecting a box, please ensure that you have properly assessed the risks involved, particularly with regard to working at height.

A nestbox is quite heavy to lift single-handed and using ladders is potentially dangerous.

Please do not work alone and consider using two ladders or safer methods., such as a pulley system.

Alternative design criteria for indoor nestboxes

Entrance hole: Optimum size 130 x 130mm; minimum 100 x 100mm; maximum 150 x 150mm.

Floor area of nest chamber: Good size range 0.2 to 0.4 m^2. Absolute minimum 0.16m^2. The floor of the box featured on our plans measures 409x510mm giving a floor area of 0.2m^2.

Depth: From bottom of entrance hole to nest floor must be not less than 450mm.

For any Barn Owl nestbox less than 700mm deep, an exercise/landing platform below the entrance hole is vital for the safety of young fledglings. Climbing/jumping young birds can then get from the platform onto the roof of the box and (ideally) onto other nearby perching places. The platform must have a generous raised edge suitable for Barn Owls to grip easily.

Weight: Should be substantially constructed yet light enough to permit safe erection using basic equipment. Normal indoor-box weight range is 10-15 kg. Total weight for erection by hand should not exceed 18 kg and an indoor-box under 8 kg is probably not substantial enough.

Materials: Should not be constructed from tropical hardwood unless the timber is certified as sustainably grown.

Ideal nestbox: The dimensions given on the owl box diagram are the **minimum** required size. An ideal nesting box would be much bigger: a full 1 metre from the bottom of the entrance hole to the bottom of the box and with a floor area of at least 1 x 1 metre. However, owl boxes that big would be very difficult to erect and more expensive to build.

Human access and clearing out

- Maintaining the internal depth of the nesting box reduces the chances of a nestling Barn Owl falling from the box and dying as a result of neglect or predation. Therefore it's important to clear it out if there's more than about 75mm of nest debris.
- **Always wear gloves and a mask when clearing out the nestbox.**
- Boxes only used by Barn Owls and/or Stock Doves will need clearing out every 2 or 3 years at most (unless the owls have very large broods of young or breed more than once a year in which case they should be cleaned out every 1 or 2 years). If Jackdaws use the box it must be cleaned out every year
- It's usually best to clean out nestboxes between November and January so as not to disturb breeding Barn Owls which is illegal.
- It's best to wait until the weather is dry with little wind, to avoid flushing any owls out into bad weather. (Barn Owl feathers are not waterproof and they can get waterlogged and chilled in wind and rain.)

Charity No: 1201419
www.barnowltrust.org.uk
Email: info@barnowltrust.org.uk
Tel: 01364255256
Ashburton, Devon

British Hedgehog Preservation Society

people's trust for endangered species

Hedgehog ecology and land management

Hedgehogs are declining

Hedgehogs are one of the few wild mammals we sometimes encounter up close and are a firm favourite of the British public. Sadly, we're seeing concerning population declines across the UK. Between 2000-14 hedgehog populations declined by over half in our countryside and nearly a third in our cities and suburbs.

Easy actions can have a big impact

But there's hope! Our recent analyses suggest the decline, at least in urban areas, may be slowing, possibly even turning around. The concerted efforts of communities could be working. Sympathetic green-space management and design by local authorities, businesses and private land managers whether it be schools, cemeteries or golf clubs, has the potential to really help bolster urban hedgehog populations. And, what's good for hedgehogs is good for many other species, including us.

This guide outlines several ways to better manage land to help hedgehogs:

- Reduce habitat loss and fragmentation by connecting up green spaces
- Remove hazards from the site
- Think about roads and controlling hedgehog access to busy or dangerous areas
- Consider limiting predator access to certain areas of the site where hedgehogs are most vulnerable
- Keep an eye out for disease or illness in local hedgehog populations

Ecology and behaviour of hedgehogs

There are three main habitat requirements to consider when managing green space for hedgehogs:

- A range of nesting opportunities
- High quality feeding areas
- Ensuring varied habitats are well-connected

Nesting

Hedgehogs nest year-round and produce different types of nest for day-time resting, breeding and hibernation. Day-time nests are a retreat during the active season, and are often temporary, flimsy and found in areas of rough grassland, loose leaf piles or garden vegetation.

Breeding nests are made by females and are used to raise young. They tend to be more robust, like hibernation nests. Winter nests can be used for several months to hibernate through periods of cold weather and low food availability.

The most sturdy nests rely on medium-sized deciduous leaves and a structure to hold the leaves in place. Bramble patches, log piles and open compost heaps are common locations for breeding nests and hibernacula.

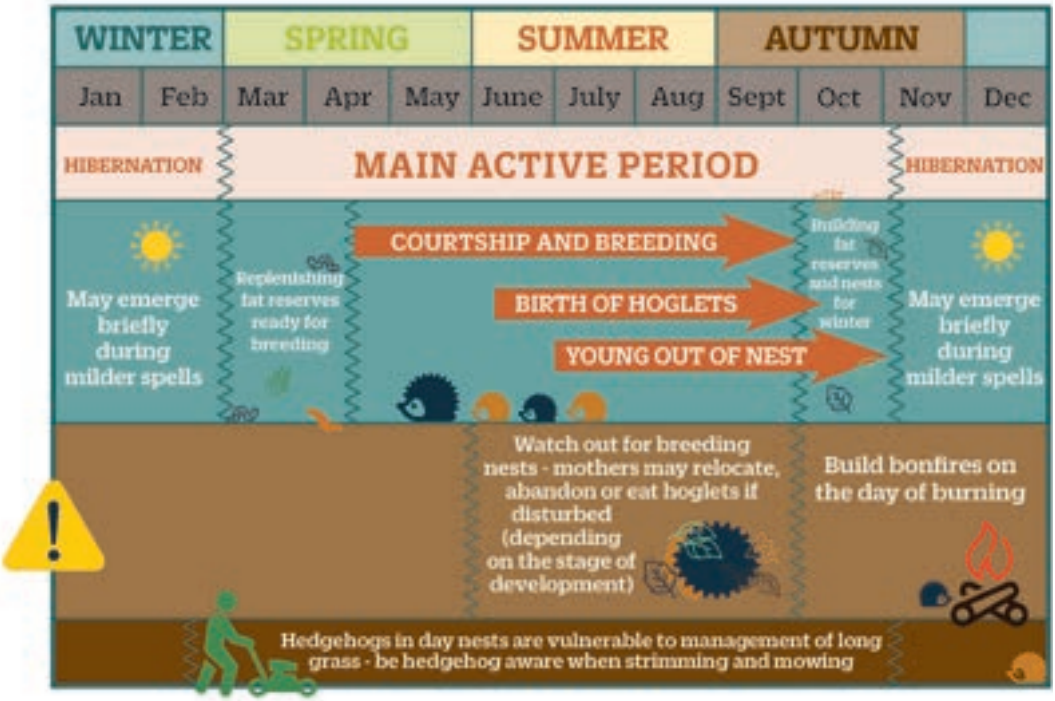
Feeding
Hedgehogs are omnivores, but the bulk of their diet consists of macro-invertebrates such as beetles, worms, slugs, earwigs, caterpillars and millipedes. In urban areas, supplementary food in the form of cat, dog or formulated hedgehog food can make up a significant part of their diet. Access to water is also very important.

Habitat
Hedgehogs are highly active and range widely. They need to be able to move freely through a well-connected range of habitats to find food, mates and areas to nest. Radio-tracking studies show that hedgehogs can travel around 2km in a night in urban areas, and up to 3km a night in rural landscapes, though distances differ between the sexes. A viable population of urban hedgehogs is thought to need around 0.9km^2 of well-connected habitat.

The hedgehog's year

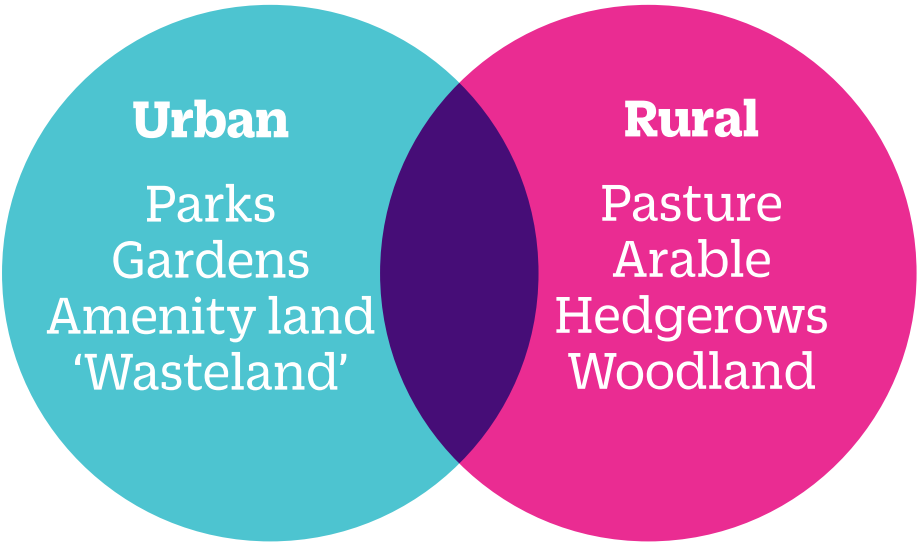
Hedgehogs are nocturnal animals, so despite their charismatic spiny appearance they are often difficult to find. They're solitary creatures, don't hold territories and rely mainly on their hearing and sense of smell. Hedgehogs are also generalists, meaning they have a varied diet and are widespread, but generally absent from moors, marshes and pine forest.

Timings of many hedgehog behaviours are dependent on temperature, gender and the body condition of the individual hedgehog. Actions at particular times of year will, however, help reduce hazards and help hedgehogs thrive.



Why are hedgehogs declining?

Hedgehogs face a multitude of natural and anthropogenic threats, many of which act together and some of which are still being understood. Whilst habitat loss and fragmentation are major issues across both urban and rural habitats, the reasons differ between the two landscapes. But many of the threats are man made and can be reduced through simple changes in land management, providing an opportunity for green-space managers to make a real difference for local hedgehogs.



Impermeable boundaries
Tidy gardening
Slug pellets
Bonfire burning
Dangerous ponds
Strimming

Habitat fragmentation
Fewer invertebrates
Road traffic
Refuse e.g. plastic
Climate change

Land use change
Pesticides (indirect)
More badgers
Flailing or tilling
Gamekeepers

Roads

Roads can act as barriers to hedgehog movement, may have genetic impacts on populations and are a large source of mortality. It has been estimated that between 167,000 – 335,000 are killed on our roads in Great Britain every year.

The solution

Road signs could alert drivers in areas of high hedgehog density, and green-space fencing could help channel hedgehog movement away from major roads. Well-connected green spaces, linked with surrounding gardens, will also reduce the need for hedgehogs to cross roads.

Road mitigation such as overbridges, underpasses and culverts are likely beneficial, as long as they are maintained and not permanently water logged or water filled.

Habitat loss & fragmentation in the countryside

Evidence shows that hedgehogs are fairing particularly poorly across agricultural landscapes. This is due to a range of factors, including; habitat fragmentation from loss of hedgerows, larger field sizes, increased pesticide use and limited areas of scrub, decaying wood or nectar rich planting. All these factors increase hedgehogs vulnerability to predation. Many farmers across the UK already do fantastic work for wildlife, but if hedgehogs are to thrive in our countryside they need a sustained effort from us all.

The solution

- Hedgerow planting and management
- Field margin management
- Reduced field sizes
- Reduced ploughing and tilling rates
- Keeping areas of scrub and decaying wood

Countryside Stewardship schemes can also help hedgehogs and other desirable wildlife.

More detailed information can be found in our farmers advice guide that can be obtained for free by contacting hedgehogs@ptes.org or by downloading it electronically from our website www.hedgehogstreet.org/farmersadvice

Habitat loss & fragmentation in our cities and suburbs

Despite covering just 6% of land, urban landscapes are increasingly important for hedgehogs. The matrix of gardens and green spaces in towns and cities can support the highest densities of hedgehogs and may act as a refuge from agricultural practices and high predator density.

Habitat loss from new developments, in-filling of gardens with housing, roads, impermeable boundaries and 'over-management' of green-spaces and gardens are all, however, threats.

The solution

Hedgehog Highways

Link parcels of land by ensuring boundaries are permeable to hedgehogs. Hedging or hedgehog-sized holes in fencing or walls help create Hedgehog Highways. Ground-level boundary holes should measure 13x13cm and should link as many neighbouring pieces of land as possible. These are easy to include for most fencing contractors, and both wooden and concrete hedgehog-friendly gravel boards can be purchased from some suppliers ready-made. Cinder blocks or piping can be used to deter use by pets. Hedgehog Highway plaques can be purchased from both People's Trust for Endangered Species (PTES) and British Hedgehog Preservation Society (BHPS) online stores to raise awareness and mark the purpose of these gaps to curious neighbours.

Wild areas for nesting and feeding

Areas of well-connected native hedging, scrub, bramble, shrubs, dead hedging and piles of dead wood become important nesting and foraging sites. Keeping fallen leaves on the ground or in accessible leaf stores is especially useful for breeding and winter nest building. Mosaic grass management provides the mix of long grass, short turf, open soil and tussocks needed for foraging and day nesting. Developing nectar sources and herbaceous vegetation provides the diverse microhabitats needed for the invertebrates hedgehogs rely upon. Edge habitat is especially important as hedgehogs often navigate landscapes by following linear features.

Hazards

Pesticides, herbicides and rodenticides

Pesticides, herbicides and rodenticides can be highly toxic, can impact non-target species, and can have both direct and indirect impacts on hedgehogs.

Herbicides can directly reduce earthworm density and reduce the varied ground cover needed for foraging. Slug pellets are potentially lethal if directly ingested and also reduce important prey sources.

The full impacts of many chemicals are still unknown but any product reducing the number of invertebrates also reduces the number of hedgehogs that can survive.

The solution

Avoid chemicals where possible and use organic alternatives where necessary. Wool pellets, nematode treatments, salt, seaweed, broken egg shells or coffee grounds are popular alternatives for slug control.

Encourage natural predators of pest invertebrate species, such as hedgehogs, frogs and toads, by installing Hedgehog Highways, wild areas and wildlife ponds.

Machinery

Hedgehogs have no flight reflex and nest year round, making them vulnerable to machine injury.

The solution

The timing and method of habitat clearance has an impact on hedgehogs, but will need to be balanced with other biodiversity needs.

Bramble disturbance is least hazardous in autumn to avoid the bird breeding season, the bulk of hedgehog breeding, and hibernation. Hedgehogs are generally absent from long grass in winter, making this the least hazardous time for cutting, but this isn't necessarily the best time to cut wildlife meadows. We recommend rotational cutting so that there's always an area left unstrimmed for insects to feed on and hedgehogs to nest in.

A high-cut, low-cut method allows nest checks in-between, and increasing the blade height of mowers will minimise risks. Ensure all machine users are trained to be hedgehog aware. BHPS offer free waterproof stickers for machines to remind operatives to check for hedgehogs.

Drowning

Ponds and lakes are excellent habitat and provide an important water source for hedgehogs in times of drought. Hedgehogs are good swimmers, but even small ponds are a hazard if they can't climb back out.

The solution

Ensure there are entry and exit points to water bodies by designing wildlife friendly ponds with shallow beaches. Reduce hazards to existing water bodies by creating ramps out of bricks, logs or sand bags. Ramps should ideally be 20cm wide and no steeper than 30 degrees.

Entanglement

Litter, wire fencing and loose or fine vegetable netting poses a risk to hedgehogs. Cricket nets and football goals are also common places for entrapment.

The solution

Information boards and adequate bins around sites will encourage responsible litter disposal. Tie up sports netting when not in use and keep fruit netting tight. Replace fine diameter thread with thicker netting or use a rigid structure instead.

Bonfires and compost heaps

Bonfires and compost heaps are attractive nesting sites for wildlife but can be particularly hazardous to hedgehogs who lack a flight mechanism.

The solution

Relocate the bonfire material from it's storage location to a new pile on the day of burning, so it's thoroughly checked before being lit. Where this isn't possible, fence the pile using steep plastic sheeting. Reptile fencing used by a local ecological consultant is suitable for this purpose.

Consider leaving an open compost heap for wildlife and maintaining an active compost heap in an enclosed container, inaccessible to hedgehogs.

Disease, injury and ailments

Thousands of hedgehogs are admitted to vets and rescue centres across the country every year. Hedgehogs are well known for their association with ticks and fleas, but can also carry and suffer from diseases such as salmonella, lungworm and ringworm. The population-level impact of these diseases on wild hedgehogs is still being researched.

Hedgehog fleas are species-specific, and the presence of ticks is normal unless they're carrying a particularly high burden, which can be indicative of ill-health. Hedgehogs seen out in the day exhibiting non-purposeful behaviour may require further assistance, but it's always best to obtain advice before removing a hedgehog from the wild.

The solution

Contact BHPS on 01584 890 801 for further information and advice about injured or ill hedgehogs.

Reports of hedgehogs that are thought to have died from disease can be submitted to Garden Wildlife Health - a collaborative project working to monitor the health and identify disease threats to British wildlife based at ZSL: www.gardenwildlifehealth.org. They can also conduct autopsies on preserved specimens, but please contact them before sending any samples.

GWH
Garden Wildlife Health

Predation

Foxes and dogs

Foxes and dogs can cause hedgehog mortality, but there's no indication that they impact hedgehog populations as a whole. Small populations may be more vulnerable.

Badgers

Badgers are the main natural predator of hedgehogs and also compete for similar prey. It's thought that the two species can coexist as they have for thousands of years, so long as there's enough feeding and nesting habitat for them both.

The solution

A good network of hedging, scrub and bramble provides nesting habitat for hedgehogs and cover from predators. Fence off prime natural nesting sites in public areas to reduce disturbance from dogs, ensuring the fencing is hedgehog permeable. Whilst not advised as a replacement for natural habitat, purpose-built hedgehog houses can provide additional protection from predators. Tunnels and small entrance holes (13x13cm) are best for these. See our hedgehog housing leaflet for tips www.hedgehogstreet.org/hedgehog-homes

Legislation

Hedgehogs are listed as a UK 'Priority Species' under S41 of the NERC Act (2006). They also have limited protection under Schedule 6 of the Wildlife and Countryside Act (1981) as amended, which means they cannot be caught or trapped without a licence. The Wild Mammals (Protection) Act (1996) prohibits cruel activities and mistreating of hedgehogs.

No legislation currently addresses the causes of decline in hedgehog populations.

How to detect hedgehogs

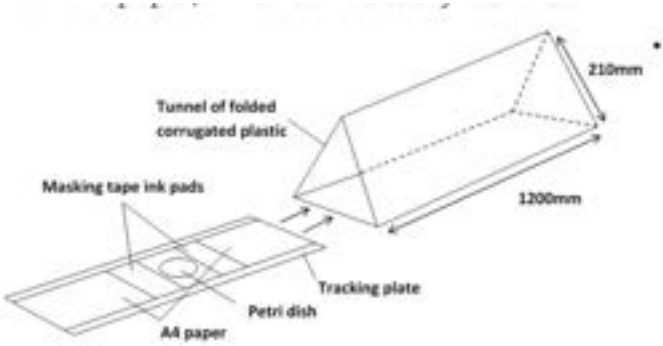
Check the Big Hedgehog Map for records local to you: www.bighedgehogmap.org, or add your own sighting. If hedgehogs have been recorded locally and suitable habitat is present, it's likely that the area will be used in some form due to their wide-ranging behaviour.

If you'd like to know whether hedgehogs are using your green-space, footprint tunnels or trail cameras are the easiest and most cost effective way of monitoring.

Footprint tunnels are cheap and easy to construct, and can be placed along linear features such as hedgerows, fences and walls. Pieces of A4 paper are attached to the inside of the tunnel, alongside two strips of non-toxic ink and a handful of meaty flavoured cat, dog or hedgehog food. The tunnels can be kept in place for up to five nights, with paper and bait being replenished daily.

If you manage to detect hedgehogs then a trail camera is a brilliant way of observing behaviour and sharing your successes with the local community. Place these around 20cm from the ground on a wooden stake, or lock them discretely to fencing or trees.

For more advice about conducting a hedgehog survey, please contact hedgehogs@ptes.org. We're giving away a free tunnel to the first 20 land managers who get in touch.



This handbook accompanies the more extensive *Hedgehog Ecology & Management Course for Practitioners*, run by PTES and BHPS. This is a one-day course aimed at land managers and consultants to inform green-space management.

For more information and to locate your nearest course leader, visit www.ptes.org/hedgehogtraining

HEDGEHOG STREET
CITY OF WILDLIFE

Hedgehog Street is a joint project run by People's Trust for Endangered Species and the British Hedgehog Preservation Society.

hedgehogs@ptes.org **www.hedgehogstreet.org**

We'd like to thank Ali North at Suffolk Wildlife Trust for her contribution to this guidance booklet.

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