



STAPLE HOUSE
THE STREET
STAPLE
CT3 1LN

Bat Emergence/Re-entry surveys

Stonehouse Farm, Frindsbury ME3 8EN

Clients Name: St Sepulchre (Finsbury) United Charities

Date of Completion: 24/08/20 (Revised version 02/09/21)

Version: 1.2

Principal Author: Edward Clark

Reference Number Cuculus: 375

V1.2 – one revision has been made: correction of a typo in the 'Results' section which read: B2 large barn has been amended to read: B3 large barn.

Name	Company	Position	Telephone Number
Edward Clark	Cuculus Ecology	Ecological Consultant	07894 539553
Mike Bridges	ECOassistance	Operations Manager	01227 840454

1 Executive Summary

Cuculus Ecology were commissioned to undertake bat emergence and re entry surveys of three agricultural buildings at Stonehouse Farm, Frindsbury ME3 8EN

The objective of the surveys was to ascertain whether bats of any species were roosting in the buildings. The report will also provide detailed information on bat activity at the property. The client has applied to convert the disused building to residential units.

A total of seven different species of bat were recorded during over the course of eight surveys at the site. A single common pipistrelle bat was observed returning to roost in the oast house on site on two occasions. A single brown long eared bat was observed emerging from the large barn on site on one occasion.

In order to carry out the proposed works as outlined a Natural England licence will need to be granted to impact the roosts identified as avoiding any impact will not be possible. Mitigation and compensation proposals for the habitat to be lost must result in a net gain for the species that are present for a licence application to be successful.

Disclaimer

This bat survey and report considers the instructions and requirements of the client and is not intended for and should not be relied upon by any third party.

The results contained within this report can be relied on for decision-making purposes without the need to be updated for twenty-four months providing there is no significant change in land use or land management in that time.

Interpretations and recommendations contained in this report represent the author's professional opinions. They are based on currently accepted industry practices and personal experience. This is a working document and must be updated if development proposals change, or new information become available.

Table of Contents

<u>1</u>	<u>EXECUTIVE SUMMARY</u>	<u>2</u>
<u>2</u>	<u>INTRODUCTION</u>	<u>4</u>
<u>3</u>	<u>METHODOLOGY</u>	<u>5</u>
<u>4</u>	<u>CONSTRAINTS AND LIMITATIONS</u>	<u>6</u>
<u>5</u>	<u>RESULTS</u>	<u>7</u>
<u>6</u>	<u>CONCLUSION AND RECOMMENDATIONS</u>	<u>9</u>
<u>7</u>	<u>REFERENCES</u>	<u>10</u>
	<u>APPENDIX 1: REVIEW OF PROTECTED SPECIES UK LEGISLATION AND POLICY</u>	<u>10</u>
	<u>APPENDIX 2: SURVEY RESULTS FORMS</u>	<u>12</u>
	<u>APPENDIX 3: SITE PHOTOS</u>	<u>17</u>

2 Introduction

Cuculus Ecology was instructed by Simon Calcutt on behalf of St. Sepulchre (Finsbury) United Charities (The Client) to undertake bat emergence and re entry surveys (BERS) in relation to the following planning application proposal at Stone house Farm, Rochester (hereafter: The Site):

Change of use and conversions of redundant agricultural buildings to residential dwellings with garaging a new access road.
LOCATION: Stone House Farm, Dillywood Lane, Wainscott, Rochester, Medway, ME3 8EN.

The grid reference for the approximate centre of the development area as a whole is: TQ73200 71300

All native species of bat are protected under the Conservation of Habitats and Species Regulations 2017 and the 1981 Wildlife & Countryside Act as amended. More detailed information on the relevant protected species legislation can be found in the appendix of this document. The BERS follows on from a bat scoping report produced by the Ecology Co-op in March 2020 in which three of the buildings on site were assessed as having bat roost potential (BRP). Buildings or structures assessed as having a level of BRP above negligible require further survey effort to establish presence or likely absence of bats to inform determination of a planning application.

According to the Bat Conservation Trust (BCT): Good Practice Guidelines, one BERS is required to establish probable absence of roosting bats from a low potential structure, two BERS are required to establish probable absence from a structure of moderate potential and three are required to determine probable absence from a structure with high potential.

The structures on The Site identified as having bat roost potential were:

- B1 Oast - High Potential
- B2 Small Barn - Moderate Potential
- B3 Large Barn - Moderate Potential

The key objectives of this survey are as follows:

- assess the presence or likely absence of bat roosts within the three buildings on site with BRP.
- characterise the roost size and type if bats are found to be present.

This report describes the findings of the BERS survey.

Figure 1: red line boundary of the three buildings with bat roost potential which are to be redeveloped



3 Methodology

The surveys were led by Edward Clark. Edward has more than 10 years professional and voluntary experience surveying for bats and has extensive experience in site assessment including ground-based and aerial tree surveys, cave and bridge inspections and is registered to use a Level 2 Class licence (2018-33670-CLS-CLS). Edward was assisted by experienced surveyors: Steve Stanley, Victoria May and Jack Clark who have a combined 18 years of bat survey experience between them.

The bat emergence and re entry surveys were undertaken in accordance with the Bat Conservation Trust: Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins, 2016). All dusk emergence surveys were carried out from 15 minutes before sunset until 90 minutes after sunset in favourable weather conditions. All dawn re entry surveys were carried out from 90 minutes before sunrise until 15 minutes after sunrise. The survey dates for each building are shown in Table 1 below.

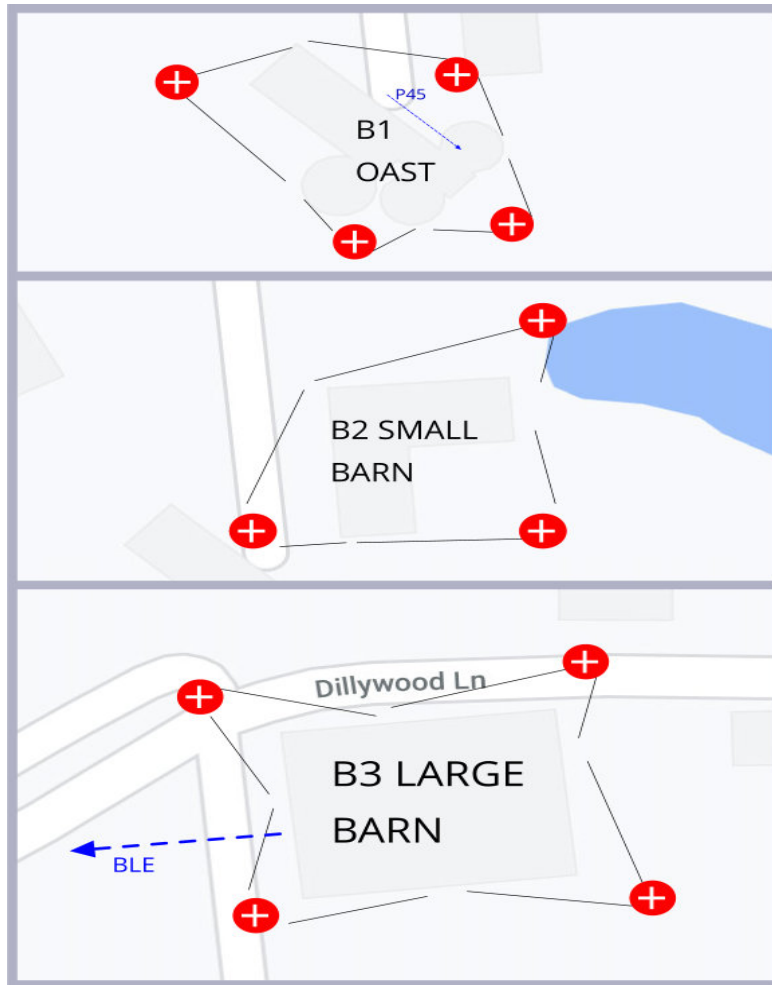
Table 1: Survey details

	Date of Survey	Survey Type	Surveyors
B1 Oast	16/06/2020	Emergence	Edward Clark, Steve Stanley, Victoria May, Jack Clark
	11/07/2020	Re entry	Edward Clark, Steve Stanley, Victoria May, Jack Clark
	08/08/2020	Emergence	Edward Clark, Victoria May, Jack Clark
B2 Small Barn	17/06/2020	Emergence	Edward Clark, Victoria May, Jack Clark
	09/07/2020	Re entry	Edward Clark, Victoria May, Jack Clark
B3 Big Barn	15/06/2020	Emergence	Edward Clark, Steve Stanley, Victoria May, Jack Clark
	10/07/2020	Emergence	Edward Clark, Darren Hood, Victoria May, Jack Clark
	09/08/2020	Re entry	Edward Clark, Victoria May, Jack Clark

A brief scoping survey of the internal space within the structures was carried out prior to the initial round of surveys to inform survey design such as surveyor positions and focal points of the survey. This was in addition to considering the findings of the bat scoping survey report from the Ecology co-op.

The surveys were carried out using a Batlogger M, EM touch pro and EM touch 2 with android tablets and an EM touch with ipad bat detectors.. Surveyors were positioned to ensure all aspects of the building could be seen and that bats entering or exiting the structure would also be easily observed: the surveyor positions are shown in figure 2 below.

Figure 2: Indication of survey positions and bat entrance/exit points (drawing not to scale)



Each surveyor had a Motorola Talkabout walkie talkie and activity was discussed throughout with the surveyors working as a team to ensure any emergencies or any returns to the structure were not missed. A Flir ONE pro thermal image intensifier was used to aid surveyors where visibility was limited by reduced light levels and vegetation cover.

The location, appearance, flight characteristics and time of sightings of bats were recorded on standardised Cuculus Ecology BERS results forms to gain a better understanding of how all bats were using the site. The survey results forms are shown in Appendix 2.

Bat calls were automatically recorded by the detectors to enable sound analysis where needed and post-operative sound analysis was carried out by Edward Clark using Bat explorer software.

4 Constraints and Limitations

Surveys such as this provide a snapshot of activity and are designed to follow best practice guidelines to determine presence or likely absence of bats to inform the planning process.

Long eared bats of the Plecotinae often do not echolocate, instead making use of their relatively good eyesight to navigate. As a result, long eared bats are likely to be under recorded during activity or emergence and re entry surveys.

It is difficult to identify some species of bats from recordings alone. This is particularly true when trying to differentiate between the two UK resident long eared bats of the plecotinae and between some of the smaller myotis species.

- The long eared bats observed during this survey are presumed to be brown long eared bat *Plecotus auritus* due to the location of The Site and the known distribution of both grey and brown long eared bats. Grey long eared bats *Plecotus austriacus* are not known to occur in Kent.

The proximity of B1 oast to the trees and hedgerow immediately south east of the structure made visibility of the parts of the structure closest to the tree line very limited. A small area which included significant PRF could be seen from a survey position west of the structure and this was a focal point for surveys. It is possible that emergence or re entry of long eared bats was missed during the surveys due to this limitation, however the timing of the sightings were consistently at least 10 minutes later than would have been expected for this species from a roost with such good vegetative shelter. The results are consistent with a brown long eared bat roosting somewhere near to B1 oast.

5 Results

- Over the course of eight emergence and re entry surveys a total of six different species of bat were recorded. These included: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long eared bat *Plecotus auritus*, noctule *Nyctalus noctula*, Leisler's *Nyctalus leisleri* and natterers bat *Myotis natterii*.
- An individual common pipistrelle bat was observed returning to the easternmost roundel of B1 oast during the dawn survey of the building on 11/07/20. A second incidental observation of one individual common pipistrelle returning to the same access point in B1 oast was made during the dawn survey of B2 small barn on 17/06/20.
- A single brown long eared bat was observed emerging from B3 large barn at 21:47 during the second survey of the building on 10/07/20.
- At no other time were bats observed emerging from or returning to the structures. All results data can be viewed in full in the survey results forms appended to this document.

The roost access points are indicated in the surveyors' photos shown below in Figures 3 & 4.

Figure 3: surveyors' photos indicating roost access point for common pipistrelle in B1 oast roundel



Figure 4: Surveyor's photo of brown long eared bat exit point in B3 large barn



6 Conclusion and Recommendations

- The survey undertaken shows a small number of common pipistrelle bats (one individual) were using the easternmost roundel of B1 oast as a place of rest or shelter.
- An internal inspection of B1 oast found feeding remains and droppings consistent with those of brown long eared bat in multiple locations on the ground floor of B1 the oast. The evidence indicates that the building is used for the purpose of feeding by this species.
- The survey undertaken shows a small number of brown long eared bats (one individual) were using B3 large barn for roosting. Some sporadic feeding remains of the prey species of brown long eared bat were found internally. The evidence indicates the building offers both a place of rest or shelter and feeding perches for this species.

The classification for the types of roost as detailed above are shown in table 2 below.

Table 2: Classification of roost types discovered at Stonehouse Farm

Roost Type	Description
Day Roost	A place where individual bats' or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
Feeding Roost	A place where individual bats or a few individuals rest or feed during the night but are rarely present by day

Disturbance of these roosts is considered to be unavoidable within the current scope of works because:

- The development proposal is understood to include removal of the tiles hanging on the oast roundels to insulate the roof. Cows are also to be reinstated to the roundels.
- The internal areas used by the long eared bat(s) are to be redeveloped to provide accommodation.

The species present in B1 oast and B3 large barn are considered widespread and the roosts are of 'low' conservation significance according to the English Nature: Bat Mitigation guidelines. For roosts of this status, mitigation must include: the provision of new roost facilities where possible and these facilities need not be exactly like-for-like, but should be suitable, based on species' requirements.

A European protected species licence (EPSL) to impact or destroy the bat roosts must be granted by Natural England (NE) prior to any works which might affect them taking place. An EPSL application can only be made once planning permission has been granted and the extent of the impacts known so that suitable mitigation, compensation and enhancements can be installed.

A detailed method statement will be required stipulating the mitigation measures preventing harm to bats and ensuring their conservation status is maintained during the works.

Minimal timing constraints and/or monitoring requirements are likely to be conditions of the NE licence. Carrying out works under the supervision of a suitably licenced bat worker is a pre requisite as a bat licence holder is needed to move any bats by hand into the mitigation already provided.

On this site the mitigation is likely to include:

- species appropriate bat boxes in trees.
- Destruction of the areas containing bats carried out by hand (soft strip) under supervision by a licensed bat worker.
- mitigation woven into the structural design of the new structure ie bat bricks, bat access tiles to parts of the roof that will not suffer human interference/disturbance.

Some light averse species were recorded during the survey including brown long eared bat and natterer's bat. New lighting at The Site should avoid lighting any key habitats and features. This includes the tree lines and hedgerows, mature trees and any mitigation such as bat access bricks, tiles and bat boxes which are installed under licence. It is recommended that external lighting should be restricted to low level downlights such as downward facing bollard lighting activated by motion sensors to keep non-essential lighting to a minimum.

Please note, the only suitable roofing membrane materials currently available for buildings where bat roosts are known to be present is bitumen 1F felt of a non-woven short fibred construction (BCT April 2019). Roofing material of any other type including those claiming to be 'bat safe' **must not** be used.

The works must also be demonstrated to result in a net gain for the bat species present. As well as the above installing further habitat enhancements to promote invertebrates such as log piles and compost heaps is recommended post-construction. These can be installed in the margins of the field to the south of B1 oast and B2 small barn.

7 References

- Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. The Bat Conservation Trust, London.
- Bat Mitigation Guidelines Natural England (2004) A. J. Mitchell-Jones
- Bat Conservation Trust website www.bats.org.uk
- Google, (2019) Google Earth https://www.google.co.uk/intl/en_uk/earth/. United Kingdom.
- Bat Conservation Trust (2009) Bats and Lighting in the UK: Bats and the Built Environment Series Collins, J. (ed.) (2016). www.communities.gov.uk/publications/planningandbuilding/nppf United Kingdom
- Shepherd, P. and Green, J. (2002). Planning and implementing ecological surveys. In Practice, Bulletin of the Institute of Ecology and Environmental Management.
- CIEEM (2015) Guidelines for Ecological Report Writing. CIEEM, Winchester.
- Bat Conservation Trust (2009) Bats and Lighting in the UK: Bats and the Built Environment Series Collins, J. (ed.) (2016).
- Mitigation for roosts in buildings Workshop National Bat Conference 2009. Peter Shepherd (Baker, Shepherd, Gillespie) and Judy Stroud (Natural England)
- Reviewing the evidence on mitigation strategies for bats in buildings: informing best practice for policy makers and practitioners. Lintott & Mathews (May 2018)

Appendix 1: Review of Protected Species UK Legislation and Policy

The level of protection afforded to protected species varies dependent on the associated legislation. A full list of protected species and their specific legal protection is provided within the Schedules and/or Sections of the associated legislation. Case law may further clarify the nature of the legal protection afforded to species.

The legal protection afforded to protected species overrides all planning decisions. European Protected Species (EPS) - and the Conservation of Habitats and Species Regulations 2010 (as amended)

European Protected Species (EPS) are afforded the highest level of protection through the Conservation of Habitats and Species Regulations 2017. EPS are also afforded legal protection by parts of the Wildlife and Countryside Act 1981 (as amended).

In general, any person and/or activity that:

- Damages or destroys a breeding or resting place of an EPS. (This is sometimes referred to as the strict liability or absolute offence);

Deliberately captures, injures or kills an EPS (including their eggs);

Deliberately disturbs an EPS, and in particular disturbance likely to impair animals' ability to survive, breed or nurture young, their ability to hibernate and migrate and disturbance likely to have a significant effect on local distribution and abundance; intentionally or recklessly disturbs an EPS while occupying a structure or place used for shelter and/or protection (Wildlife and Countryside Act 1981) (as amended); and

Intentionally or recklessly obstructs access to any structure or place that an EPS uses for shelter or protection (Wildlife and Countryside Act 1981) (as amended). may be guilty of an offence.

The legislation applies to the egg, larval and adult life stages of great crested newts and to bat roosts even when they are not occupied.

Actions affecting multiple animals can be construed as separate offences and therefore penalties can be applied per animal impacted.

Under certain circumstances licences can be granted by the Statutory Nature Conservation Organisation (Natural England in England) to permit actions that would otherwise be unlawful.

There are some very specific defences associated with the Conservation of Habitats and Species Regulations 2017. However, these are unlikely to apply to construction related projects. The Sections of the Regulations provide further details of these defences.

The Wildlife and Countryside Act (1981) includes defence for those aspects of the legislation that apply to an EPS. These defences are unlikely to apply to construction related projects and do not apply to those acts included in the Conservation of Habitats and Species Regulations 2010 (as amended). The Schedules of the Act provide further details of defences.

Local authorities have obligations under sections 40 and 41 of the Natural Environment and Rural Communities Act (NERC) 2006 to have regard to the purpose of conserving biodiversity in carrying out their duties. The majority of EPS are listed on Section 41 the NERC Act.

The Natural Environment and Rural Communities Act 2006 (as amended)

Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006) requires the Secretary of State to publish a list 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, 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 functions. S41 lists 56 habitats and 943 species of principal importance. Section 42 of the NERC Act relates to Wales.

Wildlife and Countryside Act 1981 (as amended)

The level of protection afforded to species listed on the Wildlife and Countryside Act 1981 (as amended) varies considerably. 'Fully protected species', such as water vole, are afforded the highest level of protection. Any person who intentionally kills, injures, or takes 'fully protected species', or who intentionally or recklessly damages or destroys a structure or place used for shelter and/or protection, disturbs the animal whilst occupying a structure and/or place used for shelter and protection, or obstructs access to any structure and/or place used for shelter or protection is likely to have committed an offence.

Other species, such as common reptiles, are afforded less protection and for these species it may only be an offence to intentionally or recklessly kill or injure animals.

All active bird nests, eggs and young are protected from intentional destruction. Schedule 1 listed birds are also protected from intentional and reckless disturbance whilst breeding.

Schedule 9 of The Wildlife and Countryside Act lists plant species for which it is an offence for a person to plant, or otherwise cause to grow in the wild. Schedule 9 also lists animals for which it is an offence to release into the wild.

The National Planning Policy Framework

Planning policy requires new developments to take into consideration our local and national wildlife. With the objective to maintain or increase the viability of the site for wildlife. The existing proposals are considered to determine whether Habitat enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional, county and borough policies are considered.

The National Planning Policy Framework states that the planning system should contribute to and enhance the natural and local environment by minimizing impacts on biodiversity and delivering net gains in biodiversity where possible.

Ecological habitat enhancements measures need to be over and above any mitigation measures.

Appendix 2: Survey results forms

B1 oast forms 16/06/20

Site Name	Stonehouse B1 Oast House	Date	16/06/2020
Start Time	21.02	Surveyor	Victoria
Finish Time	22.47	Sunset/ Sunrise Time	21.17
Air Temperature Start	20	Air Temperature end	17
Position (relevant to structure)	south	Equipment Used	EM Touch
Weather Conditions	wind 2, cloud 40%, rain 0	Detector number	

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
21.39	noctule	HNS	
21.44	45 pip	f	from field south of building towards building 8x passes active for 5 mins
21.51	noctule	HNS	
21.53	45 pip	f	x6 bats active for 7 mins west to east past building
22.01	noctule	HNS	
22.04	leislars	HNS	
22.12	45 pip	f	west to east around building 7 passes activity for 3 mins
22.30	45 pip	c	south to north
22.34	45 pip	c	south to east over building
			stag beetle flying 21.41
			stag beetle flying 22.02. Tawny owl 22:18

Site Name	Stonehouse B1 Oast building 1	Date	16/06/2020
Start Time	21.02	Surveyor	Jack Clark,
Finish Time	22.47	Sunset/ Sunrise Time	21.17
Air Temperature Start	20	Air Temperature end	14
Position (relevant to structure)	North-East side	Equipment Used	EM Touch and Ipad
Weather Conditions	40% cloud, Wind 2, Rain 0	Detector number	1841

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
21:37	noctule	?	HNS
21:42	45pip	?	HNS
21:42	natters	?	HNS
21:43	45pip	?	HNS
21:45	natters	c	HNS 1 pass
21:46	45pip	c	1 pass S-N
21:47	natters	c	HNS 2 pass
21:46	45pip	f	10 passes SE-NW
21:59	natters	f	1 pass NW-SE
22:00	45pip	f	3 passes SE-NW
22:01	noctule	?	HNS 1 pass
22:03	ser noct	?	HNS 1 pass
22:07	ser noct	?	HNS 2 pass
22:09	45pip	f	SE-NW 2 Passes
22:16	45pip	f	SE-NW 5 Passes
22:33	45pip	f	HNS 3 passes

Site Name	Stonehouse B1 Oasts 1	Date	16/06/2020
Start Time	21.02	Surveyor	Steve Stanley
Finish Time	22.47	Sunset/ Sunrise	21:17
Air Temperature Start	20	Air Temperature end	17
Position (relevant to structure)	West	Equipment Used	EM Touch 2 Pro with iPad Pro
Weather Conditions	Cloud 40%, Wind 2, Rain 0	Detector number	

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
21:38	Noctule	C	Distant pass, not seen.
21:44	Pip 45	F	Distant F, not seen. Single pass.
21:47	Pip 45	F	Distant F, not seen. Single pass.
21:50	Pip 45	F	Distant F around Ed, NW side of building, in garden. Constant activity for 35 mins.
21:50	Noctule	F	Brief F in distance, not seen. 2 passes.
21:55	Pip 45x2	F	Second pip joins first briefly. Single pass. All very distant though and obscured by tree cover.
22:01	Noctule	F	Distant F, not seen. Single pass.
22:28	Pip 45	F	Brief and distant F, not seen. Single pass.
22:33	Pip 45	F	Distant F for 3 mins, not seen.
22:39	Pip 45	F	Distant F for 2 mins, not seen.

Site Name	Stonehouse B1 oast 1	Date	16/06/2020
Start Time	21.02	Surveyor	Edward Clark
Finish Time	22.47	Sunset/ Sunrise	21.17
Air Temperature Start	20	Air Temperature end	14
Position (relevant to structure)	northwest in farmhouse garden	Equipment Used	Batlogger M
Weather Conditions	40% cloud, Wind 2, Rain 0	Detector number	1818-3290

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
21:37	noc	C	hns 1 pass
21:42	p45	c	hns distant activity for 2 mins
21:46	p45	c	ns 1 pass
21:46	p45	f	ns. intermittent activity 3 mins
22:00	p45	f	3 passes in garden
22:01	noc	?	HNS 1 pass
22:04	Leis	C	HNS 1 pass
22:07	Leis	F	2 passes

B1 oast forms 11/07/2020

Site Name	Stonehouse, B1 oast house 2	Date	11/07/2020
Start Time	03:24	Surveyor	Jack Clark
Finish Time	05:09	Sunset/ Sunrise Time	04:54
Air Temperature Start	12	Air Temperature end	11
Position (relevant to structure)	South Side	Equipment Used	EM Touch Ipad
Weather Conditions	cloud 0%, wind 1, rain 0	Detector number	1841

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
03:35	pip 45	c	HNS 1 pass
03:43	pip 45	c	2 passes N-S and back again following tree line
03:51	Noctule	c	HNS 1 pass
03:58	Noctule	c	HNS 1 pass
04:01	pip 45	c	S-N 1 pass following tree line
04:07	pip 45	R	N-S 1 pass doubling back to probable re-entry into Eastern Oast (as shown in pic)

Site Name	Stonehouse, B1 oast house 2	Date	11/07/2020
Start Time	03:24	Surveyor	Victoria
Finish Time	05:09	Sunset/ Sunrise Time	04:54
Air Temperature Start	10	Air Temperature end	10
Position (relevant to structure)	north	Equipment Used	EM Touch
Weather Conditions	cloud 0%, wind 1, rain 0	Detector number	Q1558

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
3:36	pip 45	C	north to south over building
3:38	BLE	C	west to east over car park forecourt
3:43	pip 45	C	South to north past building
3:46	BLE	C	not echolocating west to east 1 pass
3:56	pip 45	C	west to east
3:57	noctule	C	HNS
4:01	pip 45	F	south to north 2 passes
4:08	pip 45	R	top of eastern oast

Site Name	Stonehouse, B1 oast house 2	Date	11/07/2020
Start Time	03:24	Surveyor	Steve Stanley
Finish Time	05:09	Sunset/ Sunrise	04:54
Air Temperature Start	12C	Air Temperature end	11C
Position (relevant to structure)	East	Equipment Used	EM Touch 2 Pro with iPad Pro
Weather Conditions	cloud 5%, wind 1, rain 0	Detector number	

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
03:35	Pip 45	C	Distant pass, not seen
03:43	Pip 45	C	From SW, around last anti clockwise to north.
03:51	Noctule	C	Distant pass, not seen
03:58	Noctule	C	Distant pass, not seen
04:01	Pip 45	F	Brief F south and east of oasts, then C NE
04:07	Pip 45	F	Brief F south and east of oasts, then C west.

Site Name	Stonehouse2, Oast	Date	11/07/2020
Start Time	03:24	Surveyor	Edward Clark
Finish Time	05:09	Sunset/ Sunrise	04:54
Air Temperature Start	17	Air Temperature end	11
Position (relevant to structure)	south east corner of structure	Equipment Used	Batlogger M
Weather Conditions	30 cloud, wind 0, rain 0	Detector number	1818-3290

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
03:40	p55	c	n to south along tree line in garden
03:47	le?		inh. flying around trees near westernmost roundel.
03:57	p45	f	in garden North of structure. 5 passes
04:01	p45	f	from oast nw into garden followed by 7 passes
04:06	p45	f	around garden 3 passes

B1 oast forms 08/08/20

Site Name	Stonehouse Oast 3	Date	08/08/2020
Start Time	20:18	Surveyor	Edward Clark
Finish Time	22:03	Sunset/ Sunrise Time	20:33
Air Temperature Start	23	Air Temperature end	22c
Position (relevant to structure)	south east corner of structure	Equipment Used	Batlogger M
Weather Conditions	40 cloud, wind 2, rain 0	Detector number	1818-3290

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
20:54	p45 x 2	F	8 mins between tree lines sw of oast
21:09	p45	f	3 passes southeast of past
21:12	p45	f	1 pass
21:31	le?	C	briefly spotted between 2 roundels south side
21:42	myo?	c	ns. 1 pass

Site Name	Stonehouse, oast house 3	Date	08/08/2020
Start Time	20:18	Surveyor	Jack Clark
Finish Time	22:03	Sunset/ Sunrise Time	20:33
Air Temperature Start	23	Air Temperature end	22
Position (relevant to structure)	NW of NW Oast	Equipment Used	EM Touch and Tablet
Weather Conditions	cloud 40%, 1 wind, rain 0	Detector number	E2D02546

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
21:04	pip 45	f	SE-NW From building/bushes then back
21:06	pip 45	f	HNS 2 passes
21:06	pip 55	f	HNS 2 passes
21:07	pip 55	f	N-S towards building then SE-NW away from building 2 passes
21:10	pip 45	f	S-N 1 pass
21:11	pip 45	c	HNS 1 pass
21:12	pip 45	f	SE-NW From building/bushes to tree NW of position persistent foraging route
21:17	pip 45	f	E-W over building to NW of position
21:29	myo	?	probably failed detection
21:31	pip 45	f	HNS 2 passes
21:41	pip 45	f	HNS 1 pass very distant
21:46	pip 45	f	HNS 1 pass very distant

Site Name	stonehouse oast 3	Date	08/08/2020
Start Time	20:18	Surveyor	Victoria May
Finish Time	22:03	Sunset/ Sunrise	20:33
Air Temperature Start	23	Air Temperature end	22
Position (relevant to structure)	North East	Equipment Used	EM touch
Weather Conditions	cloud 40%, wind 2, rain 0	Detector number	Q1558

*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;

Time	Species	Activity*	Comments including flight direction (if seen)
20:53	pip 45	F	in field south of building
21:04	pip 45	C	south to north following perimeter of building
21:06	pip 45	F	over head of forecourt 3 passes to east of building
21:10	pip 45	F	6x passes over forecourt east of building
21:18	pip 45	C	east to west over building
21:40	pip 45	HNS	?
21:44	pip 45	HNS	?

B2 small barn 17/06/20

Site Name	Stonehouse B2 little barn 1st	Date	17/06/2020	Site Name	Stonehouse B2 small barn 1st	Date	17/06/2020
Start Time	03:11	Surveyor	Victoria	Start Time	03:11	Surveyor	Edward Clark
Finish Time	04:56	Sunset/Sunrise Time	04:41	Finish Time	04:56	Sunset/Sunrise	04:41
Air Temperature Start	13	Air Temperature end	13	Air Temperature	13	Air Temperature end	
Position (relevant to structure)	north	Equipment Used	EM Touch	Position (relevant to)	SE of survey building	Equipment Used	Batlogger M
Weather Conditions	cloud 80%, wind 1, rain 0	Detector number		Weather Conditions	60% cloud, Wind 1, Rain 0	Detector number	1818 3290
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;				*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)	Time	Species	Activity*	Comments including flight direction (if seen)
03:22	noctule	HNS	distant	03:20	p45	F	rs approx 4 passes
03:30	leisler	HNS		03:21	Noc	C	Ns. very brief
03:49	45 pip	C	East to west past building	03:21	p55	F	Ns
03:53	45 pip	C	East to west	03:24	BLE	c	Ns. 1 pass
				03:30	Leisler	c	Ns. 1 pass
				03:43	557	c	Ns. 1 pass
				03:48	p45	c	Nw - se between buildings
				03:49	p45	F	Ns.
				04:01	p45	re ent?	Entering NW elevation if S. Eastern roundel
							birds nesting in structure
Site Name	Stonehouse 3 dawn, little barn	Date	17/06/2020				
Start Time	03:11	Surveyor	Jack Clark,				
Finish Time	04:56	Sunset/Sunrise Time	04:41				
Air Temperature Start	14	Air Temperature end	13				
Position (relevant to structure)	South West Corner	Equipment Used	EM Touch and Ipad				
Weather Conditions	70% cloud, Wind 2, Rain 0	Detector number	1841				
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;							
Time	Species	Activity*	Comments including flight direction (if seen)				
03:21	45pip	f	HNS 4 passes				
03:25	45pip	?	HNS 1 pass				
03:30	Leisler	?	HNS 1 pass				
03:37	45pip	?	HNS 1 pass				
03:39	45pip	?	HNS 1 pass				
03:44	45pip	f	1 pass N-S				
03:46	natterer	c	HNS 1 pass				
03:49	natterer	f	1 pass N-S				
03:53	45pip	f	2 passes N-S				
04:01	45pip	f	3 passes SE-NW				

B2 small barn 09/07/20

Site Name	Stonehouse B2 Little barn	Date	09/07/2020	Site Name	Stonehouse B2 small barn	Date	09/07/2020
Start Time	20:58	Surveyor	Victoria	Start Time	20:58	Surveyor	Edward Clark
Finish Time	22:43	Sunset/Sunrise Time	21:13	Finish Time	22:43	Sunset/Sunrise	21:13
Air Temperature Start	17	Air Temperature end	17	Air Temperature	17	Air Temperature end	17
Position (relevant to structure)	South west	Equipment Used	EM Touch	Position (relevant to)	SE of structure	Equipment Used	Batlogger M
Weather Conditions	cloud 90% wind 3 rain 0	Detector number	O1558	Weather Conditions	90 cloud, wind 3, rain 0	Detector number	1818-3290
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;				*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)	Time	Species	Activity*	Comments including flight direction (if seen)
21:36	pip 45	C	HNS	21:28	p45		ns distant
21:37	pip 45	C	south to west past building	21:30	p45		ns distant
21:38	pip 45	F	south to north 5 passes circling forecourt between oast and little barn	21:35	p45	c	ne to sw
21:44	pip 45	C	west to south past building	21:51	p45 x 2	c	flying between oast and small barn
21:50	pip 45	C	north to south 5 passes	21:54	p45	c	flying between oast and small barn
21:52	pip 45	C	2x bats south east to west around building 2x passes	21:59	p45	c	from tree line east of building across to oast and tree line
21:54	Leisler	?	? Ns	22:00	LE x 2	c	from N between oast and survey building. 1 pass
21:55	pip 45	F	active for 5 mins south to north west	22:02	p45	c	flying between oast and small barn s to north
22:00	LE	C	North to South	22:05	p45	c	flying between oast and small barn s to north
22:01	pip 45	C	1 pass	22:07	45	c	n to s between oast and little bar
22:04	pip 45	C	west to south	22:18	p45		ns distant
22:07	pip 45	F	over head of building x2 bats	22:24	p45	ns	distant 1 pass
22:09	pip 45	F	south to north active for 6 mins 8 passes				
22:23	pip 45	C	North to south around building 4 passes				
Site Name	Stonehouse, little barn 2	Date	09/07/2020				
Start Time	20:58	Surveyor	Jack Clark				
Finish Time	22:43	Sunset/Sunrise Time	21:13				
Air Temperature Start	18	Air Temperature end					
Position (relevant to structure)	North corner	Equipment Used	EM Touch Ipad				
Weather Conditions	cloud 90%, wind 3, rain 0	Detector number	1841				
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;							
Time	Species	Activity*	Comments including flight direction (if seen)				
21:28	pip 45	c	HNS 5 passes				
21:31	pip 45	f	SW-NE to treeline NE of building from long barn NW of position. 6 mins of activity.				
21:50	pip 45	c	HNS 3 passes				
21:54	pip 45	c	HNS 3 passes				
21:58	pip 45	c	HNS 4 passes				
22:02	pip 45	c	HNS 4 passes				
22:07	pip 45	c	HNS 3 passes				
22:15	pip 45	c	HNS 1 pass				
22:23	pip 45	c	HNS 1 pass				

B3 large barn 15/06/2020

Site Name	Stonehouse 1 - Large Barn	Date	15/06/2020
Start Time	21.02	Surveyor	Steve Stanley
Finish Time	22:47	Sunset/ Sunrise Time	21:17
Air Temperature Start	19	Air Temperature end	17
Position (relevant to structure)	South west corner	Equipment Used	EM Touch 2 Pro with iPad Pro
Weather Conditions	Cloud 5%, Wind 1, Rain 0	Detector number	
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21:34			Stag beetle!
21:41			Stag beetle!
21:44	Pip 45	F	South west of building briefly, from Victoria's position (SE).
21:47	Pip 45	F	Distant F for 1 minute. Not seen.
21:49	Pip 45	F	From east to west along south side of building, then back again.
21:51	Pip 45	F	Anti clockwise around building, from NW corner towards SE corner.
21:54	Pip 45	F	constant F around building & farmhouse, along s side of building for first 20 mins, then mostly w side, until survey end.
22:00	Pip 45x2	F	F with above bat for 2 minutes.
22:06	Pip 45x2	F	Second bat rejoins again for 1 minute.
22:17	Pip 45x2	F	2nd bat rejoins again for 5 minutes of constant F until below entry. Lots of F w side of building between me and Jack.
22:22	Pip 45x2	F	three pips total. Mostly F around south and west of building, but also directly over roof. F for 6 minutes to below entry.
22:28	Pip 45x2	F	Back down to 2 pips constant F, for 8 mins then back to single pip. Mostly s and w sides of building.
Site Name	Stonehouse 1, large barn	Date	15/06/2020
Start Time	21.02	Surveyor	Jack Clark,
Finish Time	11:16	Sunset/ Sunrise Time	04:04
Air Temperature Start	19	Air Temperature end	
Position (relevant to structure)	N/NW corner	Equipment Used	EM Touch and Ipad
Weather Conditions	5% cloud, Wind 1, Rain 0	Detector number	1841
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21-34	stag beetle	c	S to N, 1 pass
21-37	car	?	as car went past?
21-45	45pip	c	1 pass HNS
21-46	natters?	?	
21-47	45pip	f	2 pass, S-N then N-S
21-49	45pip	f	1 pass N-S
21-51	natters?	c	2 pass N-S then S-N
21-53	45pip	c	2 pips E-W
21-54	natters?	c	1 pass S-W
21-56	45pip	c	HNS 1 pass
21-58	45pip	c	2 passes W-E
22-00	45pip	f	8 passes HNS
22-04	45pip	c	2 passes NE-SW
22-09	45pip	f	3 passes S-N
22-13	45pip	f	3 passes HNS
22-18	55pip	f	1 pass HNS
22-20	natters?	f	3 passes NE-SW
22-22	45pip	f	2 pass HNS
22-24	55pip	f	18 passes N-SW
22-31	45pip	f	2 passes HNS
22-33	55pip	f	2 pass HNS

Site Name	Stonehouse 2 Big Barn	Date	15/06/2020
Start Time	20:57	Surveyor	Victoria
Finish Time	22:42	Sunset/ Sunrise Time	21:12
Air Temperature Start	17	Air Temperature end	15
Position (relevant to structure)	south west	Equipment Used	EM Touch
Weather Conditions	cloud 30% wind 1 rain 0	Detector number	01558
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21.39	pip 45	C	East to west along back of building
21.42	pip 45	F	south to east
21.47	n long e	E	not echolocating out of building flying north
21.49	pip 45	c	north to east around building
21.51	pip 45	C	north to west 2x passes
21.54	pip 45	C	south to east
21.58	leslers	C	towards west over building
21.59	leslers	F	3 passes active for 7 mins over building.
22.01	pip 45	F	west to east
22.07	leslers	F	south to east over building
21.09	pip 45	C	2x bats north to west
22.11	pip 45	G	8 passes south to north
22.15	leslers	F	HNS
22.16	pip 55	C	south to west
20.20.	pip 45	F	very active

B3 large barn 10/07/2020

Site Name	Stonehouse B3 large barn 2	Date	10/07/2020
Start Time	20:58	Surveyor	Darren Hood
Finish Time	22:42	Sunset/Sunrise Time	21:12
Air Temperature Start	17	Air Temperature end	
Position (relevant to structure)	south east corner of structure	Equipment Used	Emtouch with ipad
Weather Conditions	30 cloud, wind 0, rain 0	Detector number	
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21:35	pip45	HNS	
21:41	pip45	F	E-W along road under beech tree
21:47	pip45	F	E-W along road under beech tree
21:50	pip45	F	Along road and over barn
21:58	noct	C	E-W over barn
22:00	pip45	F	Over farm yard
22:01-02	noct	F	HNS
22:03	pip45	F	Over farm yard
22:04	noct	F	HNS
22:06-08	pip45	F	Over farm yard
22:11	noct	F	HNS
22:12	pip45	F	Over road
22:15	noct	F	HNS
22:15	pip45	F	Over road
22:17	noct	F	HNS
22:17-22	pip45	F	Over road

Site Name	stonehouse b3 large barn 2	Date	10/07/2020
Start Time	20:58	Surveyor	Edward Clark
Finish Time	22:42	Sunset/Sunrise	21:12
Air Temperature	17	Air Temperature end	
Position (relevant to structure)	south east corner of structure	Equipment Used	Batlogger M
Weather Conditions	30 cloud, wind 0, rain 0	Detector number	1818-3290
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21:39	p45	c	e to w along building
21:43	p45	F	5 passes South of building
21:49	p45	f	2 passes south of building
21:51	p45 x2	f	3 passes south of building
21:57	p45	f	nrHJ 22 17
21:57	leider	f	passes 22 17 up and down site mainly south to north until 2

Site Name	Stonehouse, B3 big barn 2	Date	10/07/2020
Start Time	20:58	Surveyor	Jack Clark
Finish Time	22:43	Sunset/Sunrise	21:12
Air Temperature	17	Air Temperature end	16
Position (relevant to structure)	North East Corner	Equipment Used	EM Touch and tablet
Weather Conditions	cloud 30%, wind 2, rain 0	Detector number	1841
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
21:46	?	c	E-W 1 pass over building
21:47	pip 45	f	2 bats E-W up and down road approx 3 mins
21:52	pip 45	f	HNS 3 passes
21:53	pip 45	f	N-S 5 passes
21:56	pip 45	f	HNS 3 passes
21:58	noctule	f	HNS 5 passes
22:00	pip 45	f	HNS 2 passes
22:01	noctule	f	HNS 2 passes
22:03	pip 45	f	HNS 2 passes
22:03	noctule	f	HNS 3 passes
22:05	pip 45	f	E-W 4 passes between trees
22:09	noctule	f	HNS 2 passes
22:10	pip 45	f	E-W between trees 10 mins of activities

B3 large barn 09/08/2020

Site Name+A1-S20	stonehouse B3 large barn 3	Date	09/08/2020
Start Time	4:05	Surveyor	Victoria May
Finish Time	05:50	Sunset/Sunrise Time	5:35
Air Temperature Start	19	Air Temperature end	19
Position (relevant to structure)	South West	Equipment Used	EM touch
Weather Conditions	cloud 40%, wind 2, rain 0	Detector number	03558
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
04:10	leislars	C	HNS
4:12	pip 55	C	HNS
4:34	pip 45	C	north to south
4:38	pip 45	C	east to west through garden behind building
4:43	pip 45	F	in garden south of building
4:51	pip 45	F	in garden south of building
4:58	pip 45	C	west to east
4:59	pip 45	F	between trees in neighbours garden west of target building
5:03	pip 45	C	east to west through garden behind building

Site Name	Stonehouse B3 large barn 3	Date	09/08/2020
Start Time	04:05	Surveyor	Edward Clark
Finish Time	05:50	Sunset/Sunrise Time	05:35
Air Temperature Start	19	Air Temperature end	19
Position (relevant to structure)	northwest of structure	Equipment Used	Batlogger M
Weather Conditions	40 cloud, wind 2, rain 0	Detector number	1818-3290
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
04:05	p55	c	ns brief pass
04:09	leisler	c	ns. 1 pass
04:18	p45	f	ns 1 pass with buzz
04:30	p45	c	ns brief pass
04:34	p45	c	ns 2 passes
04:35	myo?	c	s - n over centre of barn
04:42	p45	c	s - n over centre of barn
04:54	p45	c	along road e - w
04:58	le	c	snh north - south over building
04:58	p45	c	n - s one pass

Site Name	Stonehouse, B3 long barn 3 dawn	Date	09/08/2020
Start Time	04:05	Surveyor	Jack Clark
Finish Time	05:50	Sunset/Sunrise	05:35
Air Temperature	19	Air Temperature end	19
Position (relevant to structure)	East South East Corner	Equipment Used	EM Touch and tablet
Weather Conditions	cloud 40%, wind 2, rain 0	Detector number	E2D02546
*Activity - 'HNS' = heard not seen; 'E' = emergence; 'R' = return; 'F' = foraging; 'C' = commuting;			
Time	Species	Activity*	Comments including flight direction (if seen)
04:09	myc lei	c	HNS 1 passes
04:12	pip 45	c	HNS 1 passes
04:39	pip 45	f	N-S 5 passes
04:40	noctule	f	HNS 1 passes? not sure if was bat
04:43	pip 45	f	constant foraging SSW side then flew over roof NNE
04:48	pip 55	f	foraging around the SSE Corner heading North
04:51	pip 45	c	HNS 1 passes
04:52	pip 45	f	foraging around the SSE Corner heading North
04:53	pip 45	f	foraging between barn and tree SSW of Long barn
04:55	pip 45	f	foraging around the SSE Corner heading North
04:59	pip 45	f	foraging SSE Corner heading West
05:01	pip 45	f	HNS 3 passes
05:04	pip 45	f	flying along the ENE side of the long barb

Appendix 3: Site Photos



