



LINDSAY CARRINGTON
ECOLOGICAL SERVICES

PHASE 2 REPORT
LAND OFF CUCKOO LANE
EYNHAM
WITNEY
OX29 4EE

NOVEMBER 2018

ON BEHALF OF GROSVENOR GROUP LIMITED





LINDSAY CARRINGTON ECOLOGICAL SERVICES

The Old Squash Court,
Rempstone Hall
Rempstone,
Corfe Castle,
Wareham, Dorset,
BH20 5JQ

Tel: 01929 477115

E-mail: Louisa@ecological-services.co.uk

Authorisation

	Name	Date	Signature
Report prepared by:	Louisa Jones	19.11.2018	
Report checked and authorised by:	Jenny Sutch	20.11.2018	

The contents of this report were correct at the time of the last survey visit. The report is provided for the sole use of the named client and is confidential.

All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature, without our written permission. Its content and format are for the exclusive use of the addressee in dealing with this. It may not be sold, lent, hired out or divulged to any third party not directly involved in this situation without our written consent.

It is company policy to share species records collected during our surveys with local biological records centres unless instructed otherwise by the client

CONTENTS

SUMMARY	1
1.0 INTRODUCTION	2
2.0 METHODOLOGY	4
2.1 Bats	4
2.1.1 Activity transects	4
2.1.2 Static monitoring.....	4
2.1.3 Assessment of foraging and commuting habitat importance	5
2.2 Breeding Birds	6
2.3 Dormice.....	7
2.4 Great crested newts	8
2.4.1 Habitat Suitability Index	8
2.4.2 eDNA	8
2.4.3 Presence/absence survey	8
3.0 RESULTS	10
3.1 Bats	10
3.1.1 Activity Surveys.....	10
3.1.2 Static monitoring.....	15
3.1.3 Value of the habitat for foraging and commuting bats	17
3.2 Breeding birds	18
3.3 Dormice.....	21
3.4 Great crested newt.....	22
3.4.1 Habitat suitability index (HSI).....	22
3.4.2 eDNA	25
3.4.3 Aquatic Surveys	26
4.0 CONCLUSIONS AND RECOMMENDATIONS	27
4.1 Bats	27
4.1.1 Summary of findings.....	27
4.1.1 Recommendations for further mitigation and surveys.....	27
4.2 Breeding Birds	29
4.2.1 Summary of findings.....	29
4.2.1 Recommendations for further mitigation.....	29
4.3 Great crested newts	30
4.3.1 Summary of findings.....	30
4.3.2 Recommendations for further mitigation.....	30
4.4 Ecological enhancement	32
5.0 REFERENCES	32
APPENDIX I: Location map	34
APPENDIX II: Bat activity transect routes and static monitors locations.....	35
APPENDIX III: Transect results	36
APPENDIX IV: Notable breeding bird territory map	68
APPENDIX V: Dormice nest tube location	69
APPENDIX VI: Pond location map.....	70
APPENDIX VII: Great crested newts aquatic survey results.....	71

SUMMARY

1. Lindsay Carrington Ecological Services Ltd were appointed by Grosvenor Group Ltd to conduct phase 2 surveys for breeding birds, bats, dormice and great crested newts on land at Cuckoo Lane, Eynsham, Witney, OX29 4EE. Surveys were conducted in relation to plans for a large residential development on the site.
2. The site at Cuckoo Lane, Eynsham is considered to provide moderate quality habitat for bats with mature hedgerows, stream corridor and arable and pasture fields. The bat activity and static monitoring surveys recorded nine species using the site including the annex II species barbastelle. The site is considered to be of county importance for bats and further recommendations have been provided in section 4.1.
3. During the breeding bird surveys fifty-nine species were recorded on the site, eleven of which are listed as red list species, and thirteen of which are listed as UKBAP priority species. Twenty-four species were confirmed as breeding on site with an additional five as probable breeding. This includes the arable species skylark and yellowhammer. The site is of local importance for the local bird populations and recommendations for enhancement are provided in section 4.2.
4. The mature hedgerows and small areas of woodland on the site provide potential habitat for dormice. The hedgerows connect into a wider network across the surrounding landscape. Full dormice surveys were conducted between May and September 2018 with no dormice recorded on the site. This species is therefore considered absent.
5. The mixture of grassland, scrub and hedgerows provide potential terrestrial habitat for great crested newts with a number of waterbodies in close proximity to the site. Surveys were conducted on all ponds where access was available within 500 metres of the site boundary with thirty-three ponds surveyed. Great crested newts were recorded as present within a collection of ponds within the south west corner of the site. Full aquatic surveys were conducted on these ponds.
6. The aquatic surveys recorded a medium population of great crested newts within these waterbodies with all other ponds surveyed recording great crested newts as absent. Any works to the ponds or within 500 metres of these ponds will require mitigation and further advice in regards to the masterplan for the development are provided in section 4.3.
7. Recommendations for ecological enhancements that can be included within the masterplan have been provided in section 4.4 including the creation of ponds and the provision of habitat for birds and bats.

1.0 INTRODUCTION

Lindsay Carrington Ecological Services Ltd were appointed by Grosvenor Group Ltd to conduct ecological surveys on land at Cuckoo Lane, Eynsham, Witney, OX29 4EE. (grid ordnance reference: SP 42361 10092). A plan showing the location of the site has been included as appendix I.

The following targeted protected species surveys were conducted due to the presence of suitable habitat on the site:

- Bat activity transects including static monitoring.
- Breeding bird surveys
- Dormouse (*Muscardinus avellanarius*) survey.
- Great crested newt (*Triturus cristatus*), HSI, eDNA and aquatic surveys.

All bat, dormice and great crested newts are legally protected under Annex IV of the EC Habitats and Species Directive which is transposed into UK law via the Conservation of Habitats and Species Regulations 2017. All species of bat, dormice and great crested newts are also protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to:

- Deliberately kill, injure or capture these species;
- Deliberately disturb bats, dormice or great crested newts in such a way as to be likely to significantly affect: (i) the ability of any significant group to survive, breed or rear or nurture their young; or (ii) the local distribution or abundance of these species¹;
- Intentionally or recklessly disturb any bat, dormice, or great crested newt whilst it is occupying a roost, nest, waterbody, or terrestrial habitat¹;
- Damage or destroy their roost, nest, habitats; and
- Intentionally or recklessly obstruct access to their roost, nest, and habitats.

This legal protection means that where activities have the potential to impact on bats, dormice and great crested newts, the results of targeted surveys and an appropriate mitigation strategy must be submitted to Natural England.

In addition, species of birds, bats, dormice, and great crested newts are UK Biodiversity Action Plan (BAP) species. BAPs set out policy for protecting and restoring priority species and habitats as part of the UK's response as signatories to the Convention on Biological Diversity. BAPs operate at both a national and local level with priority species and habitats identified at a national level and a series of Local BAPs that identify ecological features of particular importance to a particular area of the country. The requirement to consider and contribute towards BAP targets was strengthened through the Countryside and Rights of Way Act 2000 and policy in the National Planning Policy Framework (NPPF).

¹ The *Conservation of Habitats and Species Regulations 2017* consolidates the numerous amendments that were made to the *Conservation (Natural Habitats, &c.) Regulations 1994*. Of particular relevance are amendments made in August 2007 and January 2009 which increased the threshold of illegal levels of disturbance to European Protected Species (EPS). An offence is only committed if the deliberate disturbance would result in significant impacts to the EPS population. However, it should be noted that activities that cause low levels of disturbance to these species continue to constitute an offence under *Section 9* of the *Wildlife and Countryside Act (1981)*.

The NPPF sets out the Government’s vision for biodiversity in England with the broad aim that planning, construction, development and regeneration should maintain and enhance, restore or add to biodiversity and geological conservation interests. NPPF includes sections on legally protected species and sites in section 15(2).

Section 2 of the report provides details of the methodologies adopted and section 3 provides an account of the survey results. Section 4 provides information on the relevance of the results to the proposed development and presents appropriate measures of best practice.

2.0 METHODOLOGY

2.1 Bats

2.1.1 Activity transects

A suite of bat activity surveys were undertaken in accordance with guidelines established by the Bat Conservation Trust (BCT) in their publication *Good Practice Guidelines* (Collins, 2016).

In general, bats are most active in the months March to September with the optimal months for undertaking transects being June to August. Activity transects were undertaken on the 26th April, 22nd May, 26th June, 17th July, 18th July, 21st August, 24th September and 10th October 2018. The dusk transect surveys began at or just before sunset and continued for approximately two hours afterwards in order to detect bats commuting from roost sites to foraging sites. The dawn surveys commenced two hours before sunrise and continued until sunrise.

Bat transect surveys involve walking pre-defined routes which incorporate key areas that are likely to be important for foraging and/or commuting bats. Such areas include scrub and grassland and linear features such as hedgerows and woodland / scrub edge. In this case the transect routes were walked by four pairs of surveyors. The routes were walked up to twice during any one survey at a steady speed and incorporated a number of listening station stops interspersed along the route. The surveyors paused at each listening stop for durations of three to five minutes. The transect routes for each survey are provided on the map in appendix II.

Bat activity was recorded by each pair of surveyors using a combination of EM3, Echometer touch and a heterodyne (Magenta MKII) bat detector. Visual observations were also used to record flight patterns and feeding behaviour. Notes on times, species and behaviour were also recorded to aid identification to species level. The recordings, which were analysed with Kaleidoscope software, were used to confirm where possible the species of bat observed during the survey.

Limitations and constraints

The site is an active cattle farm and the transect routes were altered depending on the location of young bullocks and the bull. The majority of the site was still covered during each activity survey and a good understanding of bat activity was still obtained.

2.1.2 Static monitoring

Static monitoring devices were left on site monthly for a minimum period of five nights between April and October 2018 following the guidelines by the BCT (Collins, 2016). The recording devices consisted of SM2, SM4 and Anabat expresses. The recording devices were set up at the same strategically selected locations around the site on each occasion. Two static detectors were placed on each transect route. The location of the statics are shown in table 1 and shown in appendix II. All analysis of the static recording devices was conducted using Kaleidoscope pro software.

Table 1: Location of the statics

Transect	Static number	Grid reference	Location description
Black	1	SP 4171 1026	On a fence post
	2	SP 4205 1070	On a mature oak within the hedgerow
Green	3	SP 4230 1090	On a hawthorn tree within the hedgerow
	4	SP 4253 1079	On an immature tree trunk
Purple	5	SP 4280 1136	On an ivy clad tree
	6	SP 4316 1073	On a mature tree near woodland
Red	7	SP 4267 1017	On a fence post within the hedge line
	8	SP 4318 1032	On a mature tree

Limitations

On some occasions, the static monitor did not record for the necessary five nights per session, this was generally due to battery failure or failure of the static monitor. On a few occasions, the static monitors recorded more than five nights data. Table 2 below identifies the number of nights that recorded bat activity for each monitor per month.

Table 2: Static Monitoring days

	April	May	June	July	August	September	October
SM-1	6	5	7	5	5	3	6
SM-2	3	5	7	6	7	6	-
SM-3	7	5	7	6	7	6	5
SM-4	6	5	-	6	7	6	5
SM-5	6	4	7	-	7	6	5
SM-6	6	5	7	6	7	6	-
SM-7	5	5	7	6	7	6	5
SM-8	6	5	7	6	7	-	5

In October one of the statics was stolen from the site and it was not possible to recover the data. There were a low number of technical faults which caused the statics to either not record for the full survey period or not at all. The majority of the statics recorded for the required amount of time. Recordings from these transects were considered sufficient to gauge local bat activity levels.

Long-eared (*Plecotus sp.*) bat species have very quiet calls and are likely underestimated through static monitoring with not all calls recorded. The *Myotis* species are difficult to separate to species level with static analysis alone and therefore these have been analysed to genus only.

2.1.3 Assessment of foraging and commuting habitat importance

A methodology for the ecological impact assessment of bats has been developed by Wray et al (2010). This uses a number of factors such as the species and number of bats involved, presence of roosts nearby and characteristics for foraging and commuting habitat to produce a score indicating level of importance. This scoring system has been applied to the foraging area and commuting routes for the site to assess their level of importance.

The value of the habitat can be assessed for each of the bat species recorded during the survey, but the highest score (normally obtained for the rarest species) is used when defining the value of the habitat. The scores relate to the following levels of importance:

- 0 – 10 = not valuable
- 11 - 20 = locally important
- 21 - 30 = important at county level
- 31 - 40 = important at regional level
- 41 - 50 = nationally important
- >50 = internationally important.

2.2 Breeding Birds

The standard Common Bird Census methodology as developed by Marchant (1983) for the British Trust for Ornithology (BTO) was adopted. A set route was followed on five occasions during May and June 2018. Visits to the site were made by experienced ornithologists Louisa Jones, Andrew Joyce and Alex Coggins on the 1st May, 16th May, 25th May, 14th June and 21st June 2018. Any birds encountered were identified either visually or from their vocalisations. Birds were noted with standard BTO codes and behaviour was mapped. Following the surveys territory mapping was conducted following the methodology set out in Bibby *et al.* (1992). Territories were determined using the criteria set out in table 3 below.

Table 3: Criteria for determining bird territories

Breeding status	Registration description
Confirmed breeding territory	Two registrations of a particular species displaying breeding behaviour within a territory range over the total survey period
	A single record of a nest containing eggs or young
	Two registrations of a difficult species (e.g. nocturnal species such as owls or woodcocks) within a territory range over the total survey period
Probable breeding territory	Present in suitable habitat in the same location (within normal territory range) on two occasions
	Displaying breeding behaviour ² on one occasion only
Possible breeding territory	Present in suitable habitat on one occasion only
Non-breeding	Present in habitat not suitable for breeding
	Immature birds (e.g. herring gull first breeds at 4 years of age)

Weather conditions for the breeding bird surveys have been provided in table 4 below:

Table 4: Weather conditions during the breeding bird surveys

Date	Visit number	Weather conditions
01/05/2018	1	1.5°C, cloud cover 0/8, wind 0/12, still, dry.
16/05/2018	2	11°C, cloud cover 8/8, wind 2-3/12, good visibility.
25/05/2018	3	12°C, cloud cover 8/8, wind 0/12, rain

² Breeding behaviour includes displaying, singing, territorial activity, agitated or defensive behaviour, pair of adults together

Date	Visit number	Weather conditions
14/06/2018	4	14°C, cloud cover 8/8, wind 2-3/12, dry
21/06/2018	5	12°C, cloud cover 0/8, wind 0/12, dry

The breeding bird assemblage on the site was assessed using the criteria set out by Fuller (1980). The adapted scale outlined in the IEEM guidelines (2006) was used which reflects the decline in arable species since Fullers guidelines were originally published.

- Up to 24 breeding species = Local Importance
- 25 – 49 breeding species = District Importance
- 50 – 69 breeding species = County Importance
- 70 – 84 breeding species = Regional Importance
- 85+ breeding species = National Importance

2.3 Dormice

The habitat on the site was assessed for the potential to support dormice, which are found in habitats such as woodlands, scrub and hedgerows with good connectivity and suitable food plants. Satellite images were used to assess the connectivity of any suitable habitat present on the site to other areas of woodland and hedgerow networks.

A total of 275 tubes were installed in April 2018. The nest tubes were spaced at intervals of approximately 10-20 metres and positioned on trees or shrubs between 1 to 2 metres from the ground. Nest tubes were suspended by wire underneath horizontal branches or wedged into crevices between branches/ branches and the tree trunk so that the entrance to the tubes pointed slightly downwards (and therefore water would drain away from the nest chamber area).

The nest tubes were inspected on a monthly basis between May and September 2018. Each nest tube was inspected for characteristic signs of dormice, including the following:

- Presence of dormice themselves
- Presence of dormouse nests. Typically, these are grapefruit-sized and woven from strips of honeysuckle bark or similar material with whole fresh green leaves incorporated into the outer layers. The nests are spherical and lack an obvious entrance hole.
- Presence of droppings. Typically, these are larger and more crinkly compared to droppings of other small rodents. However, identification of faecal pellets is not fully reliable and should not be used to confirm presence of absence of dormice.
- Presence of characteristically gnawed nuts or other hard fruit. Dormice leave a smooth round hole with few tooth marks on the surface.

Any nests or dormice found within the tubes were recorded. Where possible dormice encountered were sexed and age, activity and breeding condition were recorded.

Limitations

During the 2018 dormouse surveys general farm management was carried out and livestock were allowed to roam free on site. Several tubes were destroyed, either by being flailed or were chewed by cows. However due to the low number of tubes destroyed, it is unlikely that this affected the survey results in any way.

2.4 Great crested newts

Suitable breeding ponds are essential to support populations of great crested newt although they actually only spend a relatively short period of the year in the ponds during the spring for breeding. The remainder of the year is spent in suitable ‘foraging’ habitat such as tall grassland and woodland. During the winter great crested newts hibernate, often amongst the roots of trees and scrub or in places such as piles of rubble, amongst foundations of buildings or under fallen trees and logs.

Great crested newts are known to forage up to at least 500 metres from their breeding sites and suitable habitats that fall within 500 metres must be considered even in situations where the breeding site itself will not be affected. Suitable breeding habitat, and the presence of suitable terrestrial habitat within the development site were assessed during this survey.

2.4.1 Habitat Suitability Index

A Habitat Suitability Index (HSI) assessment was carried out to determine the suitability of the ponds within 500 metres of the site to support great crested newts. The assessment uses criteria and values as provided by Oldham et al. (2000, 2008). HSI cannot be used to predict the presence of great crested newts.

2.4.2 eDNA

A technique for surveying great crested newts known as environmental DNA testing (eDNA) was undertaken on the 6th June 2018 by Pete Duffy (Natural England Class Licence number: 2016-22153-CLS-CLS), Alex Hannam (Natural England Class Licence number: 2018-33236-CLS-CLS) and Matt Tennent and on the 26th June 2018 by Louisa Jones (Natural England Class Licence number: 2015-19216-CLS-CLS) and Elen Lesourd. This involved taking water samples from ponds for DNA analysis which can confirm presence or absence of great crested newt. Water samples were sent to SureScreen Scientific for analysis.

2.4.3 Presence/absence survey

Great crested newt surveys were conducted in accordance with the Great Crested Newt Mitigation Guidelines (English Nature 2001) on ponds where presence was established which recommends that a minimum of three survey techniques are employed, ideally bottle trapping, torch survey and egg search. A description of the survey techniques adopted is provided below:

- Bottle trapping: Bottle traps were set approximately one metre apart around the margins of the pond in the early evening and were collected the following morning. The contents of the traps were recorded.
- Torch counts: The water bodies were visited approximately one hour after dark and a torch shone into the water. All species of fauna observed were recorded.
- Egg search: Newts lay their eggs in marginal or pond-side vegetation. Where present such vegetation was thoroughly searched. Once great crested newt eggs are found searching will cease.

Presence/absence surveys were carried out on site on the 3rd April, 8th May, 9th May, 23rd May, 5th June and 6th June 2018 by licenced ecologists: Jenny Sutch (Natural England Class Licence number: 2015-19218-CLS-CLS), Louisa Jones (Natural England Class Licence number: 2015-

19216-CLS-CLS), Katie Ford (Natural England Class Licence number: 2015-13027-CLS-CLS), Pete Duffy (Natural England Class Licence number: 2016-22153-CLS-CLS) and Alex Hannam (Natural England Class Licence number: 2018-33236-CLS-CLS). Licenced ecologists were assisted by Matt Tennent, Chris Jackson, Stuart Woodley and Joe Marcroft.

3.0 RESULTS

3.1 Bats

Foraging habitat

The site predominantly comprises arable and pasture fields, with areas of broad-leaved woodland, scrub, hedges and a small stream running along the northern boundary of the site. The area is considered to be of at least moderate quality, according to the BCT Guidelines (Collins *et al.*, 2016).

3.1.1 Activity Surveys

A series of monthly bat transect surveys were started in April 2018 alongside static monitoring. The survey results for all transects undertaken and a map of the transect route has been provided in appendices II and III whilst a summary has been provided below in table 5.

The majority of activity was of common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) with low numbers of passes of serotine (*Eptesicus serotinus*), *Myotis species*, long-eared, barbastelle (*Barbastella barbastellus*) and noctule (*Nyctalus noctula*) bats. The bats were recorded mainly along the northern edge along the stream corridor and also along mature hedge lines.

The barbastelle was only recorded on a single occasion commuting along a hedge line which is not typical habitat for this species. This species is wide ranging and was therefore likely a single individual travelling between sites rather than using the site itself for foraging. The site is not considered important for this species or linked to an important roost in the area.

Table 5: Summary of transect activity

Transect	Date	Activity levels	Most frequent species	Peak areas	Species recorded
1	26.04.18	Low	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	Northern boundary	Common pipistrelle Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)
	22.05.18	High	Common pipistrelle	Northwest and north east boundaries	Common pipistrelle Soprano pipistrelle Myotis sp. Noctule (<i>Nyctalus noctule</i>)
	25.06.18	Medium	Common pipistrelle	Northwest boundary, northern boundary	Common pipistrelle Soprano pipistrelle Myotis sp. Long eared sp. (<i>Plecotus sp</i>) Noctule
	17.07.18	High	Common pipistrelle	All hedge boundaries	Common pipistrelle Soprano pipistrelle Myotis sp. Noctule
	18.07.18	Medium	Common pipistrelle and soprano pipistrelle	North eastern boundary	Common pipistrelle Soprano pipistrelle Noctule
	21.08.18	Medium	Common pipistrelle and soprano pipistrelle	Primarily northeast boundary	Common pipistrelle Soprano pipistrelle Long eared sp. Noctule
	24.09.18	Medium	Noctule	Western, eastern and southwest boundaries of the transect	Common pipistrelle Soprano pipistrelle Myotis sp. Noctule Barbastelle (<i>Barbastella barbastellus</i>)
	10.10.18	High	Common pipistrelle	Northwest section	Common pipistrelle Soprano pipistrelle Noctule

Transect	Date	Activity levels	Most frequent species	Peak areas	Species recorded
2	26.04.18	Low	Soprano pipistrelle	Northern and southeast boundaries	Common pipistrelle Soprano pipistrelle
	24.05.18	Low	Common pipistrelle	Northern, eastern and southern boundaries	Common pipistrelle Soprano pipistrelle
	25.06.18	Medium	Common pipistrelle	Northern, eastern and southern boundaries	Common pipistrelle Soprano pipistrelle Long-eared sp. Noctule
	17.07.18	Medium	Common pipistrelle	Northern, eastern and southern boundaries	Common pipistrelle Soprano pipistrelle Myotis sp.
	18.07.18	Low	Common pipistrelle	Western boundary	Common pipistrelle
	21.08.18	Medium	Common pipistrelle	Northern boundary and southwest corner	Common pipistrelle Myotis sp. Noctule
	24.09.18	Medium	Soprano pipistrelle	Northern, eastern and western boundaries	Common pipistrelle Soprano pipistrelle Long-eared sp. Myotis sp.
	10.10.18	High	Common & soprano pipistrelle	Northern, eastern, southern and western boundaries	Common pipistrelle Soprano pipistrelle Myotis sp. Noctule Serotine (<i>Eptesicus serotinus</i>)
3	26.04.18	Medium	Common pipistrelle	Northern boundary	Common pipistrelle Soprano pipistrelle Long-eared sp Serotine
	24.05.18	High	Common pipistrelle	Eastern boundary	Common pipistrelle Soprano pipistrelle Serotine Myotis sp. Noctule

Transect	Date	Activity levels	Most frequent species	Peak areas	Species recorded
	25.06.18	High	Common pipistrelle	Northwest and southern boundaries	Common pipistrelle Soprano pipistrelle Nathusius pipistrelle Myotis sp. Noctule
	17.07.18	Medium	Common & soprano pipistrelle	Along northern stream corridor	Common pipistrelle Soprano pipistrelle
	18.07.18	Medium	Soprano pipistrelle	Northern boundary	Common pipistrelle Soprano pipistrelle Long-eared sp.
	21.08.18	Medium	Soprano pipistrelle	Along the northern boundary	Common pipistrelle Soprano pipistrelle Serotine Myotis sp. Long-eared sp.
	24.09.18	Low	Soprano pipistrelle	Northern boundary	Common pipistrelle Soprano pipistrelle Myotis sp.
	10.10.18	High	Common pipistrelle	Northeast corner	Common pipistrelle Soprano pipistrelle Long-eared sp. Myotis sp. Noctule Serotine
4	26.04.18	Medium	Common pipistrelle	Along the northern boundary	Common pipistrelle Soprano pipistrelle
	22.05.18	Medium	Common pipistrelle	Eastern boundaries	Common pipistrelle Soprano pipistrelle Serotine Noctule Myotis sp.
	25.06.18	Medium	Common pipistrelle	Along western boundary	Common pipistrelle Soprano pipistrelle

Transect	Date	Activity levels	Most frequent species	Peak areas	Species recorded
					Long-eared sp. Noctule
	17.07.18	Medium	Common pipistrelle	Western boundary	Common pipistrelle Soprano pipistrelle Long-eared sp.
	18.07.18	Medium	Common pipistrelle	Centre of site	Common pipistrelle Soprano pipistrelle
	21.08.18	Medium	Common pipistrelle	Eastern, western and southern boundaries	Common pipistrelle Soprano pipistrelle Long-eared sp. Noctule
	24.09.18	Low	Noctule	Northern boundary	Common pipistrelle Soprano pipistrelle Noctule Myotis sp.
	10.10.18	Medium	Common and soprano pipistrelles	Eastern, southern and middle boundary	Common pipistrelle Soprano pipistrelle Serotine Noctule

3.1.2 Static monitoring

A total of seven species of bat were recorded during the static monitoring survey including Leisler's (*Nyctalus leisleri*), common pipistrelle, soprano pipistrelle, noctule, serotine, long-eared and Myotis sp. The full results of the static monitoring are presented in tables 6 – 13 below.

Table 6: Static monitoring device 1 – Average passes per night recorded

Row Labels	Apr	May	Jun	Jul	Aug	Sep	Oct
Common pipistrelle	2.43	40.00	5.50	2.00	2.14	4.33	554.50
Leisler's	0.00	0.00	0.17	0.20	0.93	0.33	22.50
Long-eared	0.00	0.50	0.00	0.00	0.00	0.00	13.75
Myotis sp.	0.00	1.75	0.00	0.00	0.14	0.00	236.75
Noctule	0.00	0.00	0.17	0.20	1.93	1.00	25.75
Pipistrelle sp.	0.00	5.75	0.00	0.00	0.00	0.33	0.75
Serotine	0.00	0.50	0.00	0.00	0.14	0.33	0.75
Soprano pipistrelle	0.00	16.25	0.17	0.00	0.00	0.00	42.75

Table 7: Static monitoring device 2 – Average passes per night recorded

Row Labels	April	May	Jun	Jul	Aug	Sep	Oct
Common pipistrelle	0.00	309.50	284.43	257.50	2.20	14.60	0.00
Leisler's	0.00	0.17	0.00	0.83	0.40	0.00	0.00
Long-eared	0.00	0.00	0.00	1.33	0.20	2.00	0.00
Myotis sp.	0.00	0.50	3.29	8.67	1.00	9.00	0.00
Noctule	0.00	0.33	0.14	0.50	0.20	1.00	0.00
Pipistrelle sp.	0.00	0.33	0.71	1.33	0.00	0.00	0.00
Serotine	0.00	0.00	0.00	0.00	0.20	0.40	0.00
Soprano pipistrelle	0.00	3.50	12.14	7.17	3.80	5.60	0.00

Table 8: Static monitoring device 3 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	2.00	28.17	72.43	36.67	0.29	12.83	0.00
Leisler's	0.00	0.00	1.71	0.67	0.00	28.17	0.00
Long-eared	0.00	0.00	0.57	0.17	0.14	0.33	0.00
Myotis sp.	0.33	0.17	2.71	1.00	0.00	2.00	0.00
Noctule	0.17	0.00	1.43	2.00	0.14	90.33	0.00
Pipistrelle sp.	0.17	0.33	0.00	0.00	0.00	0.00	0.00
Serotine	0.00	0.00	0.14	0.00	0.14	12.33	0.00
Soprano pipistrelle	3.50	1.33	39.14	3.33	0.00	2.67	0.00

Table 9: Static monitoring device 4 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	3.00	363.33	0.00	104.50	22.71	0.00	209.25
Leisler's	0.00	0.50	0.00	0.33	0.00	0.00	1.75
Long-eared	0.17	10.83	0.00	0.17	0.00	0.00	1.00
Myotis sp.	0.67	3.17	0.00	0.00	0.00	0.00	1.25
Noctule	0.00	0.67	0.00	2.00	0.00	0.00	6.50
Pipistrelle sp.	0.00	1.67	0.00	0.00	0.00	0.00	1.00
Serotine	0.00	1.33	0.00	0.00	0.14	0.00	0.75
Soprano pipistrelle	0.33	12.83	0.00	0.00	0.71	0.00	4.50

Table 10: Static monitoring device 5 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	6.40	7.25	65.57	-	0.86	1.33	6.20
Leisler's	0.00	0.00	0.00	-	0.00	0.00	0.00
Long-eared	0.00	0.00	0.143	-	0.00	0.00	0.00
Myotis sp.	0.00	0.00	4.86	-	0.00	1.50	8.20
Noctule	0.00	0.75	75.86	-	0.57	6.83	0.00
Pipistrelle sp.	0.00	0.25	26.14	-	0.00	0.00	1.00
Serotine	0.00	0.00	0.86	-	0.00	0.00	0.00
Soprano pipistrelle	2.20	24.00	301.00	-	4.14	4.00	8.80

Table 11: Static monitoring device 6 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	0.67	6.80	89.14	69.8	7.71	5.67	-
Leisler's	0.00	0.00	0.00	0.00	0.00	0.67	-
Long-eared	0.00	0.00	0.00	0.00	0.00	0.17	-
Myotis sp.	0.00	0.80	0.42	0.17	0.29	2.50	-
Noctule	0.50	2.80	1.14	1.33	11.57	155.00	-
Pipistrelle sp.	0.00	0.00	0.29	0.17	0.00	1.17	-
Serotine	0.00	0.00	0.14	0.00	0.00	0.33	-
Soprano pipistrelle	1.33	2.80	5.86	2.00	0.14	13.83	-

Table 12: Static monitoring device 7 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	0.40	5.40	11.29	77.30	1.14	22.67	55.80
Leisler's	0.00	0.00	0.00	0.00	0.00	0.167	0.00
Long-eared	0.00	0.00	0.00	0.00	0.00	0.167	0.00
Myotis sp.	0.00	0.20	0.14	3.00	0.00	1.50	0.40
Noctule	0.00	0.00	0.71	2.00	0.14	10.17	2.00
Pipistrelle sp.	0.00	0.00	0.00	0.50	0.00	0.00	0.00
Serotine	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Soprano pipistrelle	0.00	0.20	0.00	6.67	0.00	2.17	11.20
---------------------	------	------	------	------	------	------	-------

Table 13: Static monitoring device 8 – Average passes per night recorded

Row Labels	April	May	June	July	Aug	Sept	Oct
Common pipistrelle	0.33	39.6	43.57	34.70	6.14	13.20	-
Leisler's	0.00	0.00	0.00	0.00	0.00	0.00	-
Long-eared	0.00	0.00	0.00	0.00	0.00	0.00	-
Myotis sp.	0.00	0.20	0.00	0.67	0.43	0.40	-
Noctule	0.00	0.60	0.29	3.00	3.14	1.80	-
Pipistrelle sp.	0.00	0.00	0.43	0.17	0.00	0.00	-
Serotine	0.00	0.00	0.00	0.17	0.14	0.20	-
Soprano pipistrelle	1.67	1.40	7.29	6.83	3.29	20.80	-

The majority of the activity recorded was from common and soprano pipistrelle which were recorded at every static monitor location on every month.

Noctule were also recorded across the site on a regular basis with calls detected on the majority of months and across the site. The peak average pass for this species was at static monitor 6 in September with an average pass of 155 calls.

Leisler's are considered to be a "rarer" bat with a population between 10,000 and 100,000 nationally. These bats were recorded at low activity levels through the western half of the site with activity predominantly in the summer and autumn months. The peak average count was recorded at static monitor 3 in September with an average of 28.17.

All other bats were recorded with low levels of activity throughout the site.

3.1.3 Value of the habitat for foraging and commuting bats

The value of the habitat for foraging and commuting bats was assessed. The scores in table 14 and 15 assume small numbers of Leisler's bats as found by the static monitoring survey.

Table 14: Scores for Eynsham foraging habitat (bold indicates the relevant criteria)

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)

Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)
5	10	3	3
Total score			21

Table 15: Score for Eynsham commuting habitat (bold indicates relevant criteria)

Species	Number of bats	Roosts/potential roosts nearby	Commuting habitat characteristics
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well-grown hedgerows, and moderate field sizes (3)
-	-	Large number of roosts, or close to a SSSI for the species (5)	Well-grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and river/streams (5)
5	10	3	5
Total score			23

Using the scoring system above, the foraging and commuting routes across the site are considered to be of county importance for bats. This is largely due to the size and complexity of the habitats on site and the presence of small numbers of the rarer Leisler's bat species.

Further recommendations have been made in section 4.1.

3.2 Breeding birds

The results of the breeding bird surveys are provided below in table 16 with territories shown in appendix IV. Fifty-nine species were recorded on site, eleven of which are listed as red list species, and thirteen of which are listed as UKBAP priority species. Twenty-four species were confirmed as breeding on site with an additional five as probable breeding. The areas with the highest density of breeding birds were predominantly around the residential buildings and the small area of woodland along the south eastern boundary. The hedgerows along the northern boundary were also more frequently used. The boundary along the southern boundary adjacent to the A40 was sparse in bird activity, presumably due to the presence of the busy A road.

A total of five confirmed skylark (*Alauda arvensis*) territories and two probable territories are located within the site boundary. This species was breeding within the areas of rough grassland and open arable fields on the site. This species is closely associated with arable landscapes and is a red list bird of conservation concern and a UKBAP.

Another arable species breeding on the site was the yellowhammer (*Emberiza citrinella*) with two confirmed territories and six probable territories. This species nests at the bases of hedgerows and the majority of territories were located in the central area of the site. This species is also a red list bird of conservation concern and a UKBAP.

Other arable species recorded on the site include linnet (*Carduelis cannabina*) and grey partridge (*Perdix perdix*), however these species are not considered to be breeding on the site. The site likely provides foraging habitat for these species.

The other notable species recorded on site, dunnoek (*Prunella modularis*), house sparrow (*Passer domesticus*), song thrush (*Turdus philomelos*) and bullfinch (*Pyrrhula pyrrhula*), are relatively common and widespread and are also associated with residential landscapes as well as arable. These species were associated with the hedgerow networks and small areas of woodland and are widespread across the site.

Table 16: Birds recorded on site during the breeding bird season

Species	Latin name	Notable status	Number of visits recorded	Max count	Breeding status
Sparrowhawk	<i>Accipiter nisus</i>		3	1	Non breeding
Sedge warbler	<i>Acrocephalus schoenobaenus</i>		2	1	Non breeding, on passage
Long-tailed tit	<i>Aegithalos caudatus</i>		4	6	Breeding on site
Skylark	<i>Alauda arvensis</i>	Red List BoCC, UK BAP	5	20	Breeding on site within arable fields
Red-legged partridge	<i>Alectoris rufa</i>		4	4	Breeding on site
Mallard	<i>Anas platyrhynchos</i>	Amber List BoCC	2	2	Non breeding
Swift	<i>Apus apus</i>	Amber List BoCC	1	14	Non breeding
Grey heron	<i>Ardea cinerea</i>		1	1	Non breeding
Tufted duck	<i>Aythya fuligula</i>		2	2	Non breeding
Buzzard	<i>Buteo buteo</i>		5	13	Probable breeding on site
Linnet	<i>Carduelis cannabina</i>	Red List BoCC, UK BAP	2	10	Breeding nearby, foraging on site
Goldfinch	<i>Carduelis carduelis</i>		5	31	Breeding on site
Greenfinch	<i>Carduelis chloris</i>		2	3	Non breeding
Wood pigeon	<i>Columba palumbus</i>		5	77	Breeding on site
Carrion crow	<i>Corvus corone corone</i>		5	35	Breeding on site
Rook	<i>Corvus frugilegus</i>		5	17	Breeding on site
Jackdaw	<i>Corvus monedula</i>		5	41	Breeding on site

Species	Latin name	Notable status	Number of visits recorded	Max count	Breeding status
Cuckoo	<i>Cuculus canorus</i>	Red List BoCC, UK BAP	1	2	Breeding nearby
Blue tit	<i>Cyanistes caeruleus</i>		5	55	Breeding on site
House martin	<i>Delichon urbica</i>	Amber List BoCC	3	2	Breeding nearby
Great spotted woodpecker	<i>Dendrocopos major</i>		2	1	Non breeding
Little egret	<i>Egretta garzetta</i>	Annex 1,	1	1	Non breeding
Yellowhammer	<i>Emberiza citrinella</i>	Red List BoCC, UK BAP	5	7	Breeding on site within hedgerows
Reed bunting	<i>Emberiza schoeniclus</i>	Amber List BoCC, UK BAP	2	1	Non breeding
Robin	<i>Erithacus rubecula</i>		5	24	Breeding on site
Hobby	<i>Falco subbuteo</i>	Schedule 1	1	2	Non breeding
Kestrel	<i>Falco tinnunculus</i>	Amber List BoCC	3	1	Breeding nearby
Chaffinch	<i>Fringilla coelebs</i>		5	30	Breeding on site
Moorhen	<i>Gallinula chloropus</i>		1	1	Non breeding
Swallow	<i>Hirundo rustica</i>		5	15	Breeding on site
Herring gull	<i>Larus argentatus</i>	Red List BoCC, UK BAP	1	2	Non breeding
Black-headed gull	<i>Larus ridibundus</i>	Amber List BoCC	5	26	Non breeding, records of birds flying over
Red kite	<i>Milvus milvus</i>	Schedule 1, Annex 1, Amber List BoCC	4	6	Non- breeding, foraging on the site
Pied wagtail	<i>Motacilla alba</i>		1	1	Non breeding
Great tit	<i>Parus major</i>		5	34	Breeding on site
House sparrow	<i>Passer domesticus</i>	Red List BoCC, UK BAP	5	22	Breeding on site
Grey partridge	<i>Perdix perdix</i>	Red List BoCC, UK BAP	2	4	Not breeding on site
Pheasant	<i>Phasianus colchicus</i>		5	6	Breeding on site
Chiffchaff	<i>Phylloscopus collybita</i>		5	19	Breeding on site
Willow warbler	<i>Phylloscopus trochilus</i>	Amber List BoCC	4	3	Probable breeding on site
Magpie	<i>Pica pica</i>		5	16	Breeding on site
Green woodpecker	<i>Picus viridis</i>	Amber List BoCC	1	1	Non breeding

Species	Latin name	Notable status	Number of visits recorded	Max count	Breeding status
Dunnock	<i>Prunella modularis</i>	Amber List BoCC, UK BAP	5	18	Breeding on site
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber List BoCC, UK BAP	2	5	Probable breeding on site
Goldcrest	<i>Regulus regulus</i>		2	1	Non-breeding
Sand martin	<i>Riparia riparia</i>		1	2	Non breeding
Collared dove	<i>Streptopelia decaocto</i>		1	1	Non breeding
Starling	<i>Sturnus vulgaris</i>	Red List BoCC, UK BAP	4	27	Breeding nearby and foraging on site
Blackcap	<i>Sylvia atricapilla</i>		5	13	Breeding on site
Garden warbler	<i>Sylvia borin</i>		1	2	Probable breeding adjacent to site
Common whitethroat	<i>Sylvia communis</i>		5	16	Breeding on site
Lesser whitethroat	<i>Sylvia curruca</i>		2	2	Probable breeding on site
Little grebe	<i>Tachybaptus ruficollis</i>	Amber List BoCC	1	1	Non breeding
Wren	<i>Troglodytes troglodytes</i>		5	45	Breeding on site
Blackbird	<i>Turdus merula</i>		5	30	Breeding on site
Song thrush	<i>Turdus philomelos</i>	Red List BoCC, UK BAP	5	5	Breeding on site
Mistle thrush	<i>Turdus viscivorus</i>	Red List BoCC	2	1	Non breeding
Lapwing	<i>Vanellus vanellus</i>	Red List BoCC, UK BAP	2	3	Non breeding

A total of twenty-four species were confirmed as breeding on the site. The site is therefore considered to be of local importance for birds in the area.

Further recommendations have been made in section 4.2.

3.3 Dormice

The hedgerows and woodland patches across the site provide suitable foraging opportunities for dormice with the presence of hazel (*Corylus avellana*), a favoured food source. The hedgerows are maintained and form a network across working dairy farms. The hedgerows connect into surrounding areas of woodland and therefore dormice may be present within the site.

The full results of the dormice survey have been provided below in table 17. The locations of the tubes are shown in appendix V. To summarise, no dormice or evidence of dormice has been

recorded on site. Wood mice (*Apodemus sylvaticus*) nests were present within a number of the tubes.

Table 17: Dormice survey results

Date	Time	Temp (°C)	Weather	Results	Additional information
23/05/2018	10:00	15	Sunny, C/C 3/8, wind 1/12	None	Wood mouse nest in A6, N8 and T1. Birds nest in I4. Several tubes missing, or flailed.
26/06/2018	10:00	24	Clear and sunny C/C 0/8 wind 0/12	None	Several tubes missing, or flailed. Birds nest in I4.
25/07/2018	11:30	23	Hot, dry C/C 5/8 wind 1/12	None	Several tubes missing, or flailed. Birds nest in I4. Wood mouse nest in M3.
22/08/2018	10:00	23	Light rain, c/c 8/8, wind 1/12	None	Several tubes missing
25/09/2018	09:30	15	Cloudy with sunny spells C/C 3/8, wind 1/12	None	Several tubes missing

No evidence of dormice was recorded on site and this species is considered absent. No further action is required.

3.4 Great crested newt

A total of twenty-one ponds were identified during the initial walkover survey, with a further twelve ponds identified within 500 metres of the site. The locations of these ponds are indicated on the plan provided as appendix VI.

3.4.1 Habitat suitability index (HSI)

HSI assessment was conducted on the twenty-one waterbodies, and the twelve additional ponds within 500 metres where access was available. The results of the HSI are provided in table 18 below.

Table 18: Descriptions and HSI results for ponds

Pond number	Description	HSI score
Pond 1	Large triangular shaped pond in scramble track area. 35 x 20 metres. Never dries. Good water quality. Shade: 20%, Minor fish, minor waterfowl. Numerous ponds in vicinity. Moderate terrestrial habitat. 50% macrophytes	0.77 - Good
Pond 2	Rectangular shaped pond with steep sides. Man made. Fairly deep. Duckweed present. 3 metres x 6 metres. Never dries. Moderate water quality. 10% shade. No fowl, possible fish. Numerous ponds (over 16). Moderate terrestrial habitat. 40% macrophyte coverage	0.63 - Average

Pond number	Description	HSI score
Pond 3	Crescent shaped pond. Reeds present within pond. Never dries. Good water quality. 5% shaded. Minor fish. Minor fowl. Numerous ponds. 50% macrophyte coverage. Moderate terrestrial habitat.	0.77 - Good
Pond 4	Shallow ditch – unlikely to fit bottle traps. 1 metre x 60 metres. Poor water quality. 80% shade. No fish. Minor fowl. Numerous ponds. 70% macrophyte coverage. Moderate terrestrial habitat.	0.59 – Below average
Pond 5	Irregular shaped pond. 25 x 25 metres. Never dries. 30% shade. Minor fish. Minor fowl. Good water quality. Numerous ponds. Moderate terrestrial habitat. 15% macrophyte coverage.	0.80 - Excellent
Pond 6	Kidney shaped surrounded by grassland. 10 x 7 metres. Never dries. 5% shade. Numerous ponds. 50% macrophyte. Good water quality. Possible fish. Absent fowl. GCN eggs present. Moderate terrestrial habitat.	N/A - Eggs confirm presence of GCN
Pond 7	Long thin pond with murky water. 70 metres x 1 metre. Never dries. Poor water quality. 5% shade. Minor fish. Minor fowl. Moderate terrestrial habitat. 5% macrophyte coverage. Numerous ponds. GCN eggs present.	N/A - Eggs confirm presence of GCN
Pond 8	Ditch with some dry sections. 1 metre x 50 metres. Dries often. Shallow – may not be able to trap. Poor water quality. 40% shade. Minor fish. No fowl. Numerous ponds. Moderate terrestrial habitat. 30% macrophyte. GCN eggs present	N/A - Eggs confirm presence of GCN
Pond 9	Irregular shaped pond. 35 x 12 metres. Never dries. Moderate terrestrial habitat. Good water quality. Numerous ponds. 30% macrophyte coverage. 2% shade. No waterfowl. Minor fish. GCN eggs present.	N/A - Eggs confirm presence of GCN
Pond 10	Access limited due to presence of pigs in field. 40 x 10 metres. Poor water quality. 2% macrophyte. Dries annually. 50% shade. Minor fowl. No fish. Moderate terrestrial habitat.	0.57 – Below average
Pond 11	Dry – could not be found	N/A
Pond 12	Mainly dry. In area of woodland between two fields. Area with water measuring approximately 10 x 20 metres. Lots of leaf litter in pond. Poor water quality. Dries annually. No fish or waterfowl. 1% macrophyte coverage. 98% shade. Numerous ponds within 1 kilometre. Moderate terrestrial habitat.	0.48 – Poor
Pond 13	DRY	N/A
Pond 14	Irregular shaped pond between two field boundaries. Some scrub present. Connects to drainage ditch. 8 x 18 metres. Fish absent. Minor waterfowl impact. Never dries. 30% macrophyte. Water quality moderate. Terrestrial habitat good. 15% shade.	0.75 – Good
Pond 15	Man made scrape. 15 metres x 7 metres. Never dries. Good terrestrial habitat. Moderate water	0.66 – Average

Pond number	Description	HSI score
	quality. 2% macrophyte coverage. 2% shade. Waterfowl minor impact. Fish possible. 6 ponds within 1 kilometre.	
Pond 16	Very large pond measuring 100 metres x 40 metres. Pond is designed for birds. Frog spawn present. Fish possible. Minor waterfowl impact. 1% shade. 5% macrophyte. Good terrestrial habitat. 6 ponds within 1 kilometre. Moderate water quality. Never dries.	0.72 – Good
Pond 17	Large kidney shaped pond. Measuring approximately 35 x 20 metres. Flowing streams surround pond on three sides. Fish possible. Minor waterfowl impact. 10% shade. Moderate water quality. Never dries. 5% macrophyte coverage. Moderate terrestrial habitat.	0.74 - Good
Pond 18	Newly created scrape on field boundary. Main pond is kidney shaped with some overflow. Stony bottom, may be hard to put traps in. Water quality is moderate. No shade. 0% macrophyte coverage. Never dries. Poor terrestrial habitat. 6 ponds within 1 kilometre.	0.66 - Average
Pond 19	Rectangular pond in back garden surrounded by trees with amenity grassland to the north. No macrophyte coverage. Fish absent. Water quality moderate. Moderate terrestrial habitat. 6 ponds within 1 kilometre.	0.65 - Average
Pond 20	Large rectangle ornamental garden pond with fountain and supplementary duck feeding.	N/A – unsuitable due to fountain.
Pond 21	Large irregular shaped pond surrounded by short amenity grassland, close to driveway with woodland approximately 30 metres to the south. Never dries, 2% macrophyte coverage. Possible fish. Major impact by waterfowl including duck houses and feeding.	0.46 – Poor
Pond 22	Overflowing ditch with frog spawn present. 5 x 15 metres. Dries frequently. Poor water quality. 2% shade. 15% macrophyte coverage. No fish or waterfowl. Moderate terrestrial habitat. Numerous ponds present.	0.52 – Below Average
Pond 23	Tadpole shaped pond. 4 x 25 metres at widest. Good water quality. 15% shade. 30% macrophyte. No fish or waterfowl. Moderate terrestrial habitat. Never dries. Numerous ponds within 1 kilometre.	0.75 – Good
Pond 24	Fairly shallow ditch. Dries occasionally. 25 x 2 metres. Good water quality. No shade. 10% macrophytes. No fish or waterfowl. Lots of ponds. Moderate terrestrial habitat. GCN eggs present	N/A - Eggs confirm presence of GCN
Pond 25	15 x 10 metres. Good water quality. No shade. Dries very rarely. 40% macrophytes. No fish or waterfowl. Moderate terrestrial habitat. Lots of ponds within 1 kilometre. GCN eggs present.	N/A - Eggs confirm presence of GCN
Pond 26	Tadpole shaped pond with duckweed. 3 x 30 metres. Good water quality. No fish or waterfowl.	0.77 – Good

Pond number	Description	HSI score
	Moderate terrestrial habitat. 5% shade. 60% macrophyte. Numerous ponds within 1 kilometre.	
Pond 27	Small oval pond. 3 x 9 metres. Good water quality. No shade. 20% macrophyte. No fish or waterfowl. Numerous ponds. Moderate terrestrial habitat. Sometimes dries.	0.63 - Average
Pond 28	Irregular shaped pond surrounded by bramble scrub. Rubbish has been dumped in pond. 25 x 8 metres. Poor water quality. No fish or waterfowl. 40% shade. 3% macrophyte. Numerous ponds within 1 kilometre. Never dries. Moderate terrestrial habitat.	0.49 – Poor
Pond 29	Scrape in middle of field. 15 metres x 30 metres. No shade. 2% macrophyte coverage. Minor waterfowl. No fish. Never dries. Poor terrestrial habitat. 6 ponds within 1 kilometre. Poor water quality.	0.70 - Good
Pond 30	Large pond. Loads of leaf litter. 100% shaded. Dries annually. 20 x 15 metres. Poor water quality. 0% macrophyte coverage. Moderate terrestrial habitat. No fish. No waterfowl. Numerous ponds within 1 kilometre.	0.48 – Poor
Pond 31	Smaller pond. 100% shaded. Dries annually. 10 metres x 7 metres. 1% macrophyte. Moderate terrestrial habitat. No fish or waterfowl. Numerous ponds within 1 kilometre. Poor water quality.	0.42 – Poor
Pond 32	Pond present within front garden. 1 metre x 3 metres. 0% shade, 90% emergent vegetation, good water quality, moderate terrestrial habitat. No fish or fowl present.	0.58 – Below average
Pond 33	Circular rear garden wildlife pond, 50% shaded. Fish present, 50% macrophyte coverage. No waterfowl. Good terrestrial habitat. Good water quality.	0.60 – Average

Ponds 6, 7, 8, 9, 24 and 25 are considered to be confirmed for great crested newts due to the presence of eggs recorded during the HSI survey. Pond 5 is considered to have excellent suitability to support great crested newts. Ponds 1, 3, 14, 16, 17, 23, 26 and 29 are considered to have good suitability to support great crested newts. Ponds 2, 15, 18, 19, 27 and 33 are considered to hold average suitability to support great crested newts. Ponds 4, 10, 22 and 32 are considered to hold below average suitability to support great crested newts. Ponds 12, 21, 28 and 31 are considered to hold poor suitability to support great crested newts.

3.4.2 eDNA

The eDNA surveys were undertaken on ponds 12, 14, 15, 16, 17, 18, 19, 29, 32, and 33. Although pond 32 was considered to hold below average suitability to support great crested newts, due to the claims of great crested newt presence by the home owners an eDNA survey

was considered prudent. The eDNA results from all the ponds surveyed came back as negative and therefore great crested newts are not considered to be present in these waterbodies.

3.4.3 Aquatic Surveys

Full aquatic surveys were conducted on ponds 1 to 9 and 22 to 27 due to the proximity of the ponds and the presence of great crested newt eggs within some of the ponds. These ponds are all located in the south west corner of the site within a field which appears to be used intermittently as a trackway. The results of these surveys can be seen in appendix VII and summarised in table 19 below. However, to summarise the area holds a medium metapopulation of great crested newts with a maximum total count of 34 great crested newts recorded on 8th May 2018. The area also supports a medium metapopulation of smooth newts and a low population of palmate newts.

Table 19: Peak counts of great crested newts with one survey method on each survey

Pond	Date and maximum great crested newt count					
	03/04/18	08/05/18	09/05/18	23/05/18	05/06/18	06/06/18
1	0	1 female	1 male	0	0	0
2	1 female	1 juvenile	1 male	0	1 female	1 female
3	0	1 male	0	0	1 female	1 female
4	0	1 juvenile	0	0	0	0
5	0	0	0	0	0	0
6	1 female	0	1 male 1 female	1 female 1 male	1 female	1 male
7	0	1 male	1 male	0	2 males	1 male 2 females
8	0	0	1 female	2 males 4 females	0	0
9	5 males	7 males 3 females	1 male	2 males	1 male	1 male 1 female
22	2 males	3 females 1 male	1 female	0	1 male	0
23	0	1 female	3 females 1 male	3 males 1 female	1 male 1 female	0
24	5 males 2 females	6 females 3 males	1 male	7 males	1 male	2 females
25	1 male	1 male 1 female	0	0	0	0
26	1 female	2 males 1 juvenile	1 male 3 females	1 female	2 females 1 juvenile	3 males 2 females
27	0	0	0	1 female	1 female	
Total	18	34	17	23	14	15

A medium population of great crested newts has been confirmed within the track area in the south western corner of the site. Therefore, a licence from Natural England will be required before any works can be undertaken that may impact upon this population of great crested newts. This area would incorporate the ponds themselves and an area of 500 metres around the ponds. Further recommendations have been made in section 4.3.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The site at Eynsham is considered to hold moderate ecological value from the initial protected species survey work. The site has a confirmed medium population of great crested newts with populations of local importance for breeding birds and county importance for bats. Recommendations for further survey work and recommendations for mitigation have been provided below. Mitigation measures have been provided based on the absence of plans and detailed strategies will be required once full plans are available.

4.1 Bats

4.1.1 Summary of findings

During the activity surveys and static monitoring, a total of eight species of bat were recorded on the site. Species included common and soprano pipistrelle, noctule, Leisler's, serotine, long-eared sp, Myotis sp and barbastelle. The annex II species barbastelle was recorded on a single activity survey and the site is not considered to be regularly used with none detected during the static monitoring.

The site was assessed as being of county importance for the local bat populations with the key areas in the site being the area along the northern stream corridor and areas of mature hedgerows. These surveys only covered the activity levels on the site and none of the buildings or trees were assessed for any potential roost locations on the site.

Recommendations have been provided below to incorporate into any masterplan for the site. Further survey work will be required for any buildings or trees which may be impacted by the proposed development to identify if any roosts are present on site.

4.1.1 Recommendations for further mitigation and surveys

Foraging and commuting

Development of the site could have a significant negative effect on bats using the area in terms of loss of foraging habitat, reduced landscape connectivity and disturbance from light pollution.

The magnitude and significance of any impact would depend on the nature and extent of the development proposals. Site and landscape design should seek to minimise impacts and provide mitigation where impacts are unavoidable. Some general principles for impact avoidance and mitigation are outlined below.

The development footprint should seek to minimise the amount of good quality habitat lost, particularly the connecting species rich hedgerows.

A suitably large area with connectivity to retained good-quality habitats should be set aside for habitat enhancement to offset any loss of hedgerows and lower quality foraging habitat. Habitat enhancement measures could include:

- Reversion of arable land to species rich grassland.

- Gapping up and strengthening existing hedgerows.
- Planting additional hedgerows and new areas of woodland and scrub.
- Provision of additional habitat features such as ponds (as well as providing a good source of invertebrate prey, ponds can also form part of Sustainable Urban Drainage design (SUDS)).

Site design should ensure that connectivity across and around the site is maintained so that foraging or commuting bats are able to cross the site. ‘Dark corridors’ of woodland or scrub planting where no lighting is permitted would provide suitable foraging and commuting routes for bats. Connectivity to retained woodland habitat should be maintained and where possible enhanced through planting additional hedgerows.

Land around the development should be screened from light pollution by a mixture of landscape planting (e.g. tree belts or dense hedgerow planting) or other screening options such as bunds and fencing. Landscape planting such as tree belts would also provide additional foraging habitat for bats.

Light pollution should also be minimised by the use of modern lighting schemes and restrictions on private security lighting on properties adjacent to hedgerows or other bat foraging / commuting habitat (e.g. through planning measures such as covenants or similar enforceable restrictions).

Lighting of residential roads should only be installed where it is explicitly needed for road or pedestrian safety or security reasons, such as at road junctions or pedestrian crossings. Lighting should comprise low UV lighting fitted with baffles and short column heights to reduce light overspill when in use. Timers or sensors could also be used to reduce the amount of time the lights are in use during quiet periods.

Further enhancement opportunities for bats could include installation of bat boxes to suitable mature retained trees and installation of bat tubes and bat boxes in new housing.

Trees

The mature trees across the site should be retained as these may contain bat roosts. If areas of potential development incorporate trees which will require felling the following will be required:

- **Ground inspection:** Features such as old woodpecker holes, splits, cavities and rot holes, loose or flaking bark and ivy creepers will be exploited by bats to roost. Any trees present on site are assessed for their potential to support roosting bats by searching for such features. The presence of roosting bats can be spotted through signs such as accumulations of moth or butterfly wings, staining, bat droppings, or bats themselves
- **Tree climbing surveys:** This survey will involve a licensed bat worker and tree climber to undertake a more thorough inspection of any trees with bat potential using an endoscope to identify any evidence of bats, if present.

- **Phase 2 emergence/re-entry surveys:** Any trees identified as holding evidence of bats or unsafe for climbing will require dusk and/or dawn surveys to identify the type of bat roost, numbers and species. The number of visits varies depending on the potential of the tree (Confirmed roosts and high potential trees require three dusk/dawn surveys, moderate potential trees require two dusk/dawn surveys). Where bat roosts are confirmed a European Protected Species (EPS) licence will be required, along with mitigation which will include replacement roosting opportunities and a clerk of works for felling.

Buildings

If any of the buildings across the site are impacted by the development further surveys will be required to establish if roosts are present. An initial phase 1 survey should be conducted looking for evidence of any bats on the interior and exterior of the building and assessing the potential to support roosting bats. If buildings have evidence or potential for bats then further emergence and re-entry surveys will be required with the peak season falling between May and August.

4.2 Breeding Birds

4.2.1 Summary of findings

Fifty-nine species were recorded on site, eleven of which are listed as red list species, and thirteen of which are listed as UKBAP priority species. Twenty-four species were confirmed as breeding on site with additional five as probable breeding. The areas with the highest density of breeding birds were predominantly around the residential buildings and the small area of woodland along the south eastern boundary. The hedgerows along the northern boundary were also more frequently used.

4.2.1 Recommendations for further mitigation

Features which have been identified as important habitat features for birds will likely be lost to the proposals. The proposed development will not only result in a direct impact to these birds' habitat from land-take but indirect effects on the breeding success of these species are also likely from increased disturbance. The following will be implemented:

- Initial ground clearance, tree or scrub removal and site preparation works will take place strictly outside of the bird nesting season which is considered to run between 1st March and 31st August.
- Woodland on the site should be retained as far as possible and managed to ensure the areas maintain an understorey to support breeding woodland species that preferentially breed in scrub.
- Rotational hedge management will provide dense cover for nesting and abundant fruit production for foraging, with the cutting of hedges in January and February, after most of the berries have been eaten by birds. This will maintain the hedgerow habitat favoured by the breeding birds present on site including the yellowhammer.
- If possible, long sward grass buffer strips should be created along the length of the hedgerows to encourage important species such as butterflies and invertebrates, which

provide food for birds that may be nesting within the hedgerows including house sparrow and song thrush.

- A series of bird boxes should be erected within any new SANG areas. Suitable designs include 1B, 2M and 1S Schwegler bird boxes.
- Integral bird boxes should be incorporated in the housing within the new development. This will provide additional nesting habitat for species such as house sparrow and starlings.
- Arable areas should incorporate skylark plots or wildflower meadows should be sown within public open spaces which can also be used by breeding skylark. Where possible these should be spread across the site to allow the current spread of skylark territories to persist. No ground clearance during breeding season should take place.

4.3 Great crested newts

4.3.1 Summary of findings

A medium metapopulation of great crested newts is present within the trackway area of the site. Should plans impact upon this area and the surrounding 500 metres, a licence from Natural England will be required prior to any works taking place on site. Mitigation and enhancement will depend on site plans; however, it is likely that an exclusion/translocation exercise will be required.

4.3.2 Recommendations for further mitigation

The design of the masterplan should avoid impacts to great crested newts where possible by retaining the ponds within the south west corner and habitats within 500 metres of these breeding ponds. The area around these ponds should incorporate the area of public open space for the masterplan to minimise the impacts to this area and retain the ponds within the scheme design. Where it is not possible to avoid impacts the following mitigation will be required and a licence from Natural England will need to be obtained. The general mitigation strategy below is based on ponds being retained within the final design, additional mitigation measures will be required if the ponds are to be directly impacted.

Exclusion / translocation exercise

An exclusion exercise will be adopted with the use of specialist drift fencing, whereby specialist drift fencing will be erected to form a barrier between the retained great crested newt habitat and the main construction site. The fence will be left in place throughout the construction period. The construction area will be trapped and cleared of newts (see below), and translocated to the newly created habitat features. Once the translocation is finished, the fencing will be removed to allow newts to recolonise.

Pitfall traps will be placed within the area from which the great crested newts are to be excluded (i.e. the construction site). Pitfall traps will comprise plastic buckets installed flush with the barrier fence with their tops just below ground level, with a minimum of 80 traps per hectare. Pitfall traps will be spaced every five metres along the fence and will be interspersed with rubber-backed carpet tiles (measuring fifty centimetres by fifty centimetres) in order to increase the capture rate.

Pitfall trapping will be a continuous process with the traps left open overnight unless the weather is unsuitable and will be undertaken during the period March to October. The pitfall traps will be visited by a licensed newt ecologist daily before 11:00 during suitable weather conditions and any amphibians encountered will be caught and placed within the receptor site. Visits to the exclusion area need to be repeated until it can be demonstrated that no further individuals can be caught. A minimum of sixty trapping visits will be required and if great crested newts are still being caught following this period, visits must be continued until there are five trapping visits where no great crested newts are caught before works can begin.

Ecological Watching Brief

Once the translocation exercise is complete an ecological watching brief will be maintained during any site clearance. A licensed great crested newt handler will work alongside a mechanical digger, stripping any tree roots, log and rubble piles, burrows and other habitat favoured by the great crested newts, searching each bucket for any individuals and safely relocating any animals encountered.

Receptor site and ecological enhancements

Any newts encountered will be relocated to a wildlife dedicated area within the site boundary. This area will be enhanced for great crested newt prior to the translocation exercise commencing and will include at least two hibernacula, seeding with an Emorsgate grassland seed mix and native scrub mosaic and the construction of additional suitable breeding ponds.

A review of newt numbers will be undertaken during the translocation process by the licensed ecologist, should it be deemed necessary to enhance the habitat used as a receptor site.

Pond creation

In the event that any ponds are lost as part of the development these will require replacement ponds ideally at a 1:2 ratio. The replacement ponds will need to have good connectivity to surrounding habitat and have the following dynamics –

- Surface area between 100-300 m²
- Ponds can be shallow or up to 4metres deep, with at least one side shallow sloping.
- Substantial cover of submerged and marginal vegetation and can be seeded with an EP1 seed mix.
- Good populations of invertebrates and an absence of fish and waterfowl.

These ponds will need to be constructed in advance of the translocation so they are established once the translocation begins. The ponds will need to be constructed at least 6 months prior to the start of the translocation to allow the establishment of plant species and invertebrate populations required to support great crested newt breeding. SuDs could potentially be designed to provide newt breeding habitat within the development area.

4.4 Ecological enhancement

A few suggestions for ecological enhancements across the site have been made:

- Provision of bat boxes and nest boxes for bird species such as swift (*Apus apus*), house martin (*Delichon urbica*) and house sparrow (*Passer domesticus*) on trees. Bird boxes can be purchased from websites such as Jacobi Jayne www.jacobijayne.co.uk, and their provision on site would enhance the habitat for the local bird population.
- Use of native shrubs and trees for landscaping schemes provides foraging habitat for a range of bird species. Suitable species include hazel, ash (*Fraxinus excelsior*), dog-rose (*Rosa canina*), elder (*Sambucus nigra*), blackthorn (*Prunus spinosa*), hawthorn and field maple (*Acer campestre*).
- Flowering grassland seed mixes from a supplier of seeds of local provenance can be used to seed the new lawn within the design of the development (such as Emorsgate EL1). Such grassland provides better nectar sources for invertebrates and hence is of greater value for foraging birds, reptiles and amphibians.
- Provision of hedgehog houses will provide potential hibernation sites for hedgehogs. Hedgehog houses can be bought from <http://www.wildcareshop.com>. Small holes will be left in any fences separating the gardens of the development to allow hedgehogs to move freely throughout the site.
- The inclusion of wildlife ponds within the design of any proposals would enhance the area for local amphibians and invertebrate populations. The pond should be kept free of fish and planted with native British plant species such as water-plantain (*Alisma plantago-aquatica*), reed sweet-grass (*Glyceria maxima*) and yellow flag (*Iris pseudacorus*).

5.0 REFERENCES

Bright, P., Morris, P and Mitchell-Jones, T. (2006) *The dormice conservation handbook*, second edition. English Nature.

Bibby, C.J, Burgess, N.D, Hill, D.A and Mustoe, S.H (2000). *Bird Census Technique*. 2nd ed. Academic Press, London

Collins, J., Charleston, P., Davidson-Watts, I., Markham, S. and Kerslake, L. (2016). *Bat Surveys for Professional Ecologists Good Practice Guidelines*. Bat Conservation Trust, London.

Department for Communities and Local Government (2005). *Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*.

English Nature (2001). Great crested newt mitigation guidelines.

IEEM (2006) Guidelines for Ecological Impact Assessment. IEEM, Winchester

Mitchell-Jones A.J. & McLeish A.P. (2004). *The Bat Workers' Manual (3rd Edition)* Joint Nature Conservation Committee

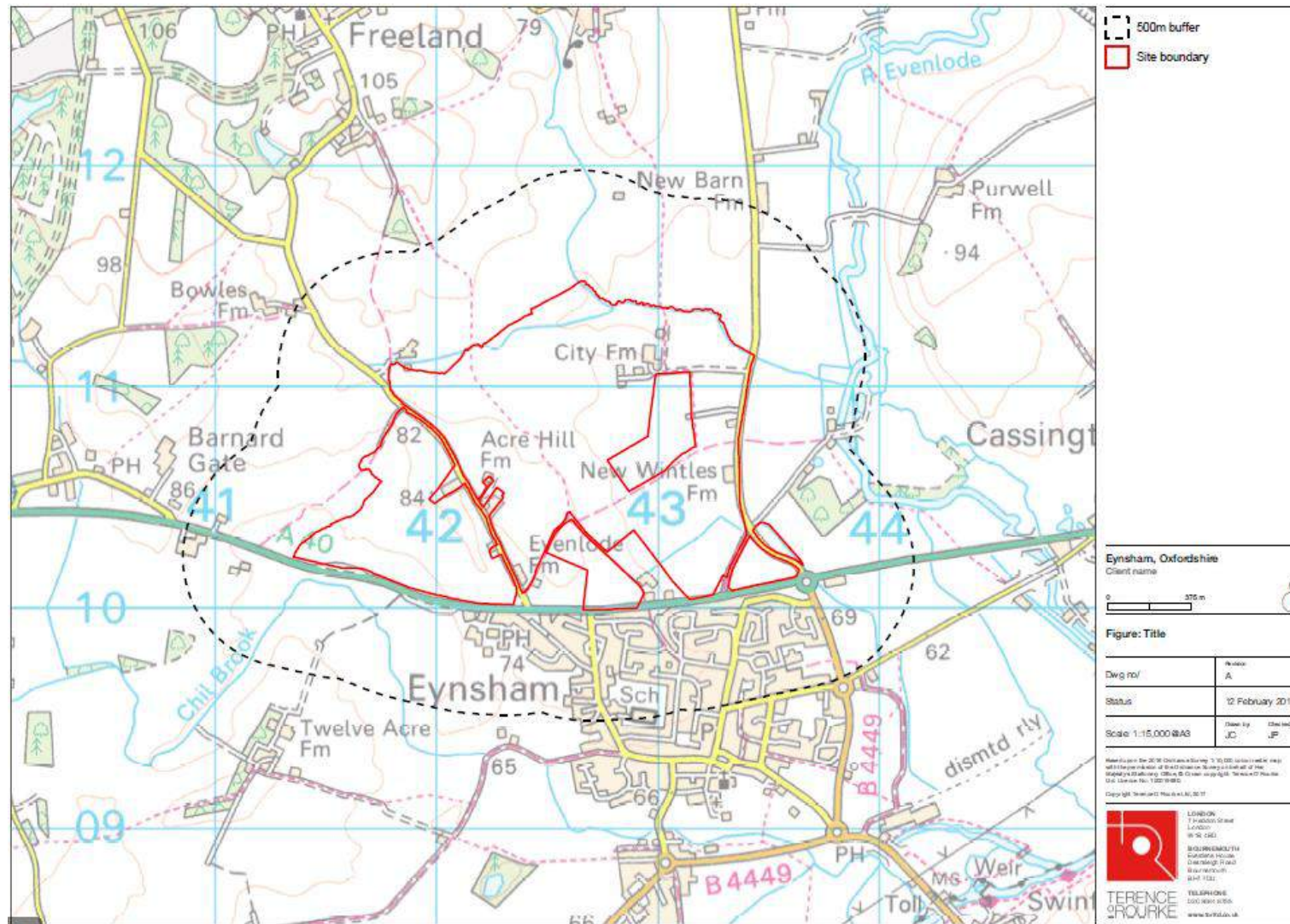
Ministry of Housing, Communities and Local Government (2018). National Planning Policy Framework.

Oldham, R.S., Brady, L.D., Sewell, D.L. & Baker J.M.R. (2008). *ARG UK Advice Note 4: Great Crested Newt Habitat Suitability Index*. Amphibian and Reptile Groups of the United Kingdom.

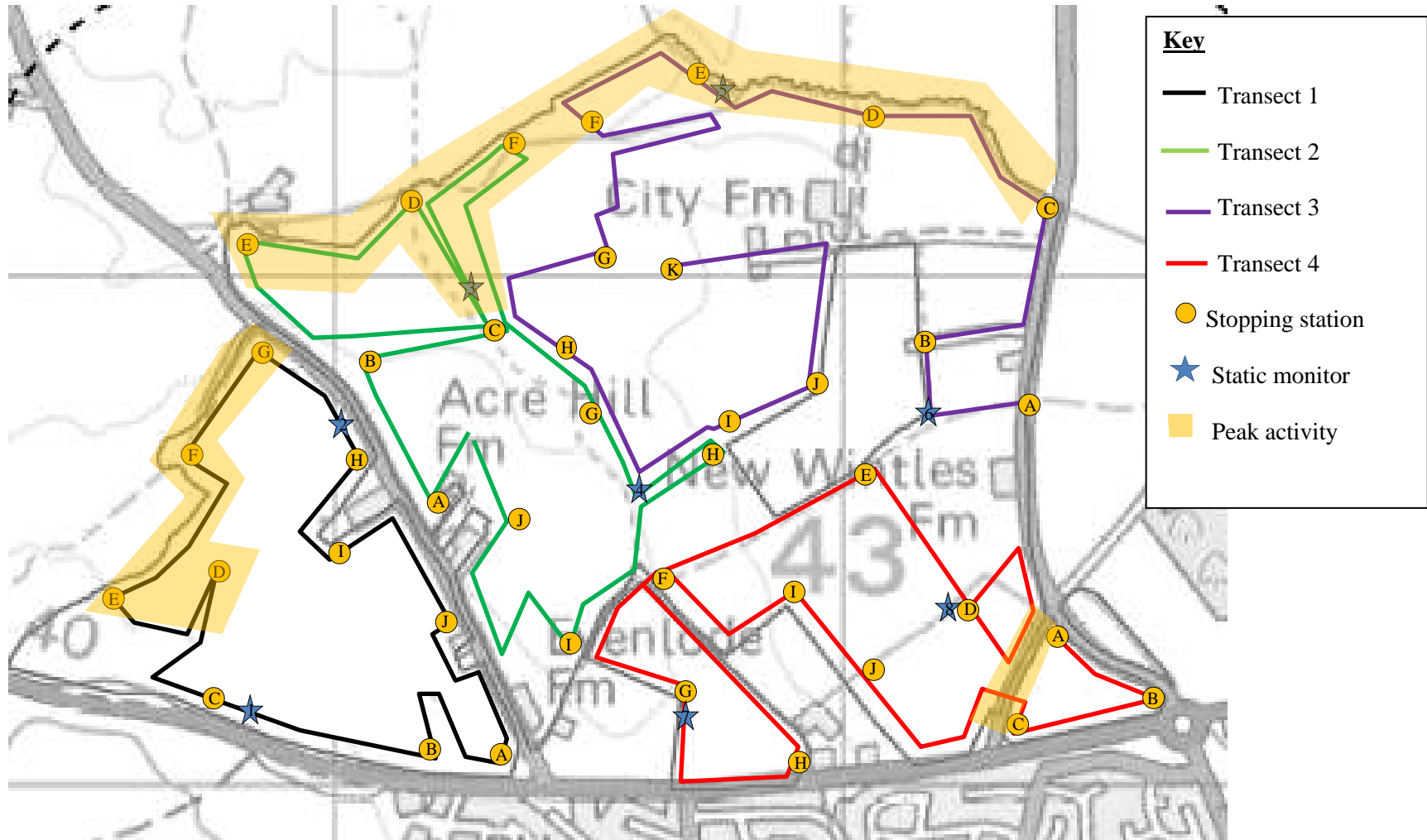
Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155.

Stone L, Jones G and Harris S (2009) Street Lighting Disturbs Commuting Bats, *current biology*, Vol 19, Issue 13, p1123-1127

APPENDIX I: Location map



APPENDIX II: Bat activity transect routes and static monitors locations



APPENDIX III: Transect results

Transect 1

April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy & Andrew Joyce		DATE:	26.4.2018
TEMP AT START:	11.5 °C	SUNSET:	20:18	START TIME:	20:18
TEMP AT END:	10 °C	CLOUD COVER (oktas):	2/8	END TIME:	22:20
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Dry & mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:15	E-F	Common pipistrelle	1	Heard but not seen, brief call.	
21:22	E-F	Common pipistrelle	1	Heard but not seen, brief call.	
22:10	J-A	Soprano pipistrelle	1	Heard but not seen, brief call.	

May 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy and Chris Jackson		DATE:	22.5.18
TEMP AT START:	17°C	SUNSET:	21:02	START TIME:	21:02
TEMP AT END:	13°C	CLOUD COVER (oktas):	0/8	END TIME:	23:02
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Warm & Dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:30	D	Pipistrelle sp.	1	Brief call heard but not seen (not recorded).	

21:32	D-E	Pipistrelle sp.	1	Brief call heard but not seen (not recorded).
21:41	E	Noctule	1	Brief call heard but not seen.
21:43	E	Common pipistrelle	1	Brief call heard but not seen.
21:49	E-F	Common pipistrelle	1	Commuting call heard but not seen.
21:53-21:57	F	Common pipistrelle	1	Constant foraging and faint calls heard but not seen.
21:57	F	Soprano pipistrelle	1	Foraging and faint calls heard but not seen.
21:59	F-G	Common pipistrelle	1	Commuting and faint call heard but not seen.
22:02	F-G	Pipistrelle sp.	1	Commuting and faint call heard but not seen.
22:06-22:10	F-G	Common pipistrelle	1	Seen foraging up and down a hedgerow.
22:29-22:31	H-I	Soprano pipistrelle	1	Constant foraging calls and feeding buzzes heard.
22:30	H-I	Noctule	1	Brief call heard but not seen.
22:32-22:35	H-I	Common pipistrelle	2	Constant foraging around tree line along the road. Heard but not seen.
22:34	H-I	Myotis sp.	1	Brief call, heard but not seen.
22:40	I	Noctule	1	Brief call, heard but not seen.
22:45	J	Common pipistrelle	1	Brief call, heard but not seen.
22:46	J-K	Common pipistrelle	1	Brief call, heard but not seen.
22:48	J-K	Common pipistrelle	1	Quiet foraging calls heard but not seen.
22:55	J-K	Common pipistrelle	1	Foraging calls heard but not seen.
23:02	J-K	Common pipistrelle	1	Commuting calls heard but not seen.

June 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Joe Marcroft + Alex Sinclair		DATE:	25/06/2018
TEMP AT START:	21°C	SUNSET:	21:28	START TIME:	21:28
TEMP AT END:	20°C	CLOUD COVER (oktas):	0/8	END TIME:	23:28
WIND (bft):	1/12	RAINFALL:	none	WEATHER:	Warm, calm

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc).
22:20	C-D	Common pipistrelle	1	Foraging by trees.
22:32	E	Common pipistrelle	1	Heard but not seen.
22:36-22:37	E-F	Myotis sp.	1	Heard but not seen.
22:41	F	Common pipistrelle	1	Heard but not seen.
22:43	F	Common pipistrelle	1	Heard but not seen (continuous).
22:46	F-G	Noctule	1	Heard but not seen.
22:58	G	Long-eared sp.	1	Seen commuting north to south.
22:59	G	Common pipistrelle	1	Heard but not seen.
23:03	G-H	Common pipistrelle	1	Heard but not seen (continuous).
23:10	G-H	Common pipistrelle	1	Heard but not seen foraging around an oak.
23:11	G-H	Soprano pipistrelle	1	Heard but not seen foraging around an oak.
23:17	I-J	Soprano pipistrelle	1	Heard but not seen.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy and Stuart Woodley		DATE:	17.07.2018
TEMP AT START:	18°C	SUNSET:	21:16	START TIME:	21:16
TEMP AT END:	17°C	CLOUD COVER (oktas):	5/8	END TIME:	23:16
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Warm/Dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:51	C-D	Soprano pipistrelle	1	Commuting calls heard but not seen.	
21:52	C-D	Common pipistrelle	1	Commuting calls heard but not seen.	
21:56	C-D	Common and soprano pipistrelle	2	Foraging calls heard but not seen.	

Cows, changed route through hedgerow				
22:04-22:08	E	Common and soprano pipistrelle	2	Continuous foraging and feeding (feeding buzzes heard) around stop station.
22:10-22:11	E-D	Common pipistrelle	1	Foraging heard but not seen.
22:12-22:13	E-D	Common and soprano pipistrelle	2	Foraging heard but not seen.
22:14-22:16	E-D	Common and soprano pipistrelle	2	Foraging heard but not seen.
22:21	D	Noctule	1	Brief call heard but not seen.
22:19-22:20	D	Common pipistrelle	1	Foraging calls heard not seen.
22:21	D	Soprano pipistrelle	1	Brief commuting calls heard but not seen.
22:23	D-F	Common pipistrelle	1	Commuting calls heard but not seen.
22:26	F	Common pipistrelle	1	Brief call heard but not seen.
22:28	F	Common pipistrelle	1	Brief call heard but not seen.
22:35	G	Common pipistrelle	1	Brief call heard but not seen.
22:36	G	Soprano pipistrelle	1	Commuting call heard but not seen.
22:37	G	Common and soprano pipistrelle	2	Commuting call heard but not seen.
22:38	G	Common pipistrelle	1	Commuting call heard but not seen.
22:39	G-H	Soprano pipistrelle	1	Foraging seen along hedgerow.
22:41-22:44	G-H	Common pipistrelle	2	Constant foraging along hedgerow.
22:45	G-H	Myotis	1	Brief call heard but not seen.
22:54	G-H	Noctule	1	Brief call heard but not seen.
22:56-22:57	G-H	Common pipistrelle	1	Constant foraging heard but not seen.
22:58	H	Common pipistrelle	1	Constant foraging.
22:59	H	Common and soprano pipistrelle and noctule	3	Quiet brief calls heard but not seen.
23:02	H-I	Common pipistrelle	1	Commuting seen.
23:05-23:07	I	Common and soprano pipistrelle	2	Foraging along a hedgerow next to road, heard but not seen.

23:11	J	Common pipistrelle	1	Foraging call heard but not seen.
23:14-23:15	J	Common pipistrelle	1	Commuting call heard but not seen.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy and Stuart Woodley		DATE:	18.07.2018
TEMP AT START:	14°C	SUNRISE:	05:08	START TIME:	03:08
TEMP AT END:	11.5°C	CLOUD COVER (oktas):	3/8	END TIME:	05:08
WIND (bft):	0/12	RAINFALL:	0	WEATHER:	Mild/dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
03:10	J	Common and soprano pipistrelle	2	Brief calls heard.	
03:21-03:22	J-I	Common pipistrelle	1	Foraging heard but not seen.	
03:25	I	Common pipistrelle	1	Brief calls heard.	
03:32-03:33	I-H	Common pipistrelle	1	Seen foraging along the hedgerow.	
03:35	I-H	Common pipistrelle	1	Heard but not seen foraging.	
03:47	G	Soprano pipistrelle	1	Lots of brief calls heard but not seen.	
03:52	G	Soprano pipistrelle	1	Brief calls heard but not seen.	
03:53	G-F	Soprano pipistrelle	1	Brief calls heard but not seen.	
03:56	G-F	Soprano pipistrelle	1	Brief calls heard but not seen.	
04:10	E-F	Soprano and common pipistrelle	2	Heard but not seen foraging.	
04:11-04:12	E-F	Soprano and common pipistrelle	2	Heard but not seen foraging.	

04:18	E	Noctule	1	Commuting calls heard but not seen.
04:20	E	Common pipistrelle	1	Brief calls heard but not seen.

August 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Joe Marcroft & Chris Jackson		DATE:	21.08.2018
TEMP AT START:	21°C	SUNSET:	20:17	START TIME:	20:17
TEMP AT END:	19°C	CLOUD COVER (oktas):	0/8	END TIME:	22:17
WIND (bft):	2/12	RAINFALL:	none	WEATHER:	Clear
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:02	D-E	Common pipistrelle	1	Heard but not seen.	
21:04	E	Soprano pipistrelle	1	Heard but not seen, continuous foraging calls.	
21:04	E	Common pipistrelle	1	Heard but not seen, continuous foraging calls.	
21:09	E-F	Common pipistrelle	1	Heard but not seen.	
21:13	F	Soprano pipistrelle	1	Heard but not seen.	
21:27	G	Common pipistrelle	1	Heard but not seen.	
21:29	G-H	Brown Long-eared	1	Heard but not seen.	
21:30	G-H	Common pipistrelle	1	Heard but not seen.	
21:35	G-H	Noctule	1	Heard but not seen.	
21:35	G-H	Soprano pipistrelle	1	Heard but not seen.	
21:38	H	Noctule	1	Heard but not seen.	
21:39	H	Common pipistrelle	1	Heard but not seen.	
21:41	H-I	Noctule	1	Heard but not seen.	
21:42	H-I	Soprano pipistrelle	1	Heard but not seen.	
21:50	I	Soprano pipistrelle	1	Heard but not seen.	

21:54	I-J	Common pipistrelle	1	Heard but not seen, foraging calls.
21:58	J	Soprano pipistrelle	1	Heard but not seen.
22:00	J	Common pipistrelle	1	Heard but not seen.
22:05	A	Soprano pipistrelle	1	Heard but not seen.

September 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy, Hannah Smith		DATE:	24/09/2018
TEMP AT START:	12°C	SUNSET:	19:00	START TIME:	19:00
TEMP AT END:	8°C	CLOUD COVER (oktas):	2/8	END TIME:	21:00
WIND (bft):	1/12	RAINFALL:	0	WEATHER:	Dry, mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:41	C-E	Soprano pipistrelle	1	Heard but not seen, commuting.	
20:17	H	Noctule	1	Heard but not seen.	
20:19	H-I	Noctule	1	Heard but not seen, brief call.	
20:33	J	Common pipistrelle	1	Heard but not seen, brief call.	
20:39	J-I	Common pipistrelle	1	Heard but not seen, brief call.	
20:45	I-H	Noctule	1	Heard but not seen.	
20:46	I-H	Myotis sp.	1	Heard but not seen.	
20:49	I-H	Noctule	1	Heard but not seen.	
20:52	I-J	Barbastelle	1	Heard but not seen, brief call.	

October 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 1	SURVEYORS: Pete Duffy and Hannah Smith		DATE:	10.10.2018
TEMP AT START:	19°C	SUNSET:	18:24	START TIME:	18:20

TEMP AT END:	16.5°C	CLOUD COVER (oktas):	1/8	END TIME:	20:21
WIND (bft):	0	RAINFALL:	0	WEATHER:	Warm/Dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
18:47-18:50	8	Noctule	2	Commuting and foraging south to north over the field.	
18:49	8	Serotine	1	Heard but not seen commuting.	
18:50	8	Common pipistrelle	1	Brief call heard but not seen.	
18:54	8-7	Common pipistrelle	1	Brief call heard but not seen.	
18:57	7	Soprano pipistrelle	1	Two brief calls heard but not seen on the western side of the site.	
18:58	7	Common pipistrelle	1	Commuting heard but not seen.	
18:59-19:01	7	Common pipistrelle	1	Two brief calls heard but not seen.	
19:00	7	Soprano pipistrelle	1	Commuting along hedgerow between stops 7 and 6.	
19:04	6	Noctule	1	Brief call heard but not seen.	
19:08	6-5	Common pipistrelle	1	Social calls heard but not seen.	
19:09	6-5	Noctule and common pipistrelle	2	Commuting heard but not seen.	
19:11-19:12	6-5	Common pipistrelle and serotine	2	Foraging heard but not seen.	
19:15-19:17	5	Common and soprano pipistrelle	2	Seen foraging and social calls heard around stop 5.	
19:17-20:22	5	Serotine	1	Seen foraging around stop 5.	
19:20-19:22	5-4	Common pipistrelle	1	Foraging along hedgerow between stops 4 and 5.	
19:23-19:27	5-4	Common and soprano pipistrelle	2	Foraging along hedgerow between stops 4 and 5.	
19:27-19:29	4	Common and soprano pipistrelle	2	Foraging along hedgerow.	
19:29-19:32	4-3	Common pipistrelle	1	Foraging along hedgerow between stops 3 and 4.	

19:34	4-3	Common pipistrelle	1	Brief call heard but not seen.
19:36	Off transect in newt area re cows	Common pipistrelle	1	Brief call heard but not seen.
19:42	3	Common pipistrelle	1	Brief call heard but not seen.
19:51	3-2	Common pipistrelle	1	Commuting heard but not seen between stops 3 and 2.
19:57	2	Common pipistrelle	1	Commuting heard but not seen.
19:59	2	Soprano pipistrelle	1	Brief call heard but not seen.
20:10	1-10	Common pipistrelle	1	Seen foraging along the hedgerow along the road.
20:12	1-10	Soprano pipistrelle	1	Seen foraging along the hedgerow along the road.

Transect 2

April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams & Alex Coggins		DATE:	26.04.2018
TEMP AT START:	11.5 °c	SUNSET:	20:21	START TIME:	20:21
TEMP AT END:	8 °c	CLOUD COVER (oktas):	2/8	END TIME:	22:21
WIND (bft):	2/12	RAINFALL:	Nil	WEATHER:	Dry, clear
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:00	D-E	Soprano pipistrelle	1	Seen foraging by a large oak	
21:13	E-F	Soprano pipistrelle	1	Heard but not seen, foraging. Near wooden bridge over the stream.	
21:21	E-F	Soprano pipistrelle	1	Heard but not seen, foraging.	
21:56	H-I	Common pipistrelle	1	Heard but not seen. Foraging near Cuckoo Lane.	

May 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams and Alex Hannam		DATE:	22.05.2018
TEMP AT START:	17°C	SUNSET:	21:02	START TIME:	21:02
TEMP AT END:	13°C	CLOUD COVER (oktas):	0/8	END TIME:	23:02
WIND (bft):	2/12	RAINFALL:	Nil	WEATHER:	Clear & dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:28-21:32	D	Soprano pipistrelle	1	Foraging in corner of field.	
22:00	E-C	Common pipistrelle	1	Foraging. Heard but not seen.	
22:01	C	Myotis sp.	1	Foraging. Heard but not seen.	
22:02	C	Common pipistrelle	1	Foraging. Heard but not seen.	
22:05	C-G	Common pipistrelle	1	Foraging northwest to southeast along hedgerow.	
22:07	C-G	Soprano pipistrelle	1	Foraging northwest to southeast along hedgerow.	
22:11	G-H	Soprano pipistrelle	1	Foraging northeast to southwest along hedgerow.	
22:21	G-H	Common pipistrelle	2-3	Foraging around a large tree northeast of a farm yard.	
22:29-22:32	H-I	Common pipistrelle	1	Foraging around a large oak.	
22:32	H-I	Common pipistrelle	1	Heard but not seen foraging along hedgerow.	
22:32	H-I	Soprano pipistrelle	1	Heard but not seen foraging along hedgerow.	
22:43	I-J	Common pipistrelle	1	Heard but not seen foraging along hedgerow.	

June 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams & Elen Lesourd		DATE:	25.06.2018
TEMP AT START:	21°C	SUNSET:	21:28	START TIME:	21:28

TEMP AT END:	18°C	CLOUD COVER (oktas):	0/8	END TIME:	23:28
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Clear, calm
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
22:06	D	Common pipistrelle	1	Social calls. Heard but not seen.	
22:30	B-C	Soprano pipistrelle	1	Foraging east to west along hedgerow.	
22:33	B-C	Soprano pipistrelle	1	Heard but not seen.	
22:46-22:48	C	Common pipistrelle	1	Seen foraging and feeding buzz heard.	
22:51	C-D	Long-eared sp.	1	Heard but not seen in south of field.	
22:54-22:55	D	Long-eared sp.	1	Heard but not seen north of field, close to stream.	
22:59	F-G	Common pipistrelle	1	Heard but not seen in field.	
23:04	C-B	Soprano pipistrelle	1	Heard but not seen foraging and social calls.	
23:12	A	Common pipistrelle	1	Heard but not seen.	
23:21-24	J	Common pipistrelle	1	Heard but not seen.	
23:25	H-I	Common pipistrelle and soprano pipistrelle	1	Heard but not seen foraging continuously near hedgerow.	
23:26-23:27	I	Noctule	1	Heard but not seen.	
23:27	J	Soprano pipistrelle	1	Heard but not seen near a hedgerow.	

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams, George Hunt		DATE:	17.07.2018
TEMP AT START:	22°C	SUNSET:	21:16	START TIME:	21:16
TEMP AT END:	22°C	CLOUD COVER (oktas):	6/8	END TIME:	23:16
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:58-22:00	D-E	Common pipistrelle	1	Foraging east to west along hedgerow bordering farm.
21:59-22:04	D-E	Soprano pipistrelle	1	Foraging east to west along hedgerow bordering farm.
22:17	C	Common pipistrelle	1	Heard but not seen foraging.
22:23	G	Soprano pipistrelle	1	Foraging west to east along tree line.
22:29-22:31	G-H	Myotis sp.	1	Heard but not seen.
22:31-34	G-H	Common pipistrelle	1	Heard but not seen.
22:35	J	Common pipistrelle	1	Foraging over middle of field.
22:41-22:49	H	Common pipistrelle	1	Heard but not seen intermittently foraging.
22:51	H-I	Myotis sp.	1	Heard but not seen in centre of site.
22:55-22:58	I	Common pipistrelle	1	Heard but not seen intermittently foraging.
23:04	I	Soprano pipistrelle	1	Heard but not seen foraging.
23:04	I	Common pipistrelle	1	Heard but not seen foraging.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams, George Hunt		DATE:	18.07.2018
TEMP AT START:	14°C	SUNRISE:	05:08	START TIME:	03:08
TEMP AT END:	13°C	CLOUD COVER (oktas):	2/8	END TIME:	05:08
WIND (bft):	0/12	RAINFALL:	Nil	WEATHER:	
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
03:08	A	Common pipistrelle	1	Heard but not seen foraging.	
03:15-03:18	A-B	Common pipistrelle	1	Heard but not seen foraging, intermittent.	

03:21	B	Common pipistrelle	1	Heard not seen foraging.
-------	---	--------------------	---	--------------------------

August 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams, Sam Fletcher		DATE:	21.08.2018
TEMP AT START:	21°C	SUNSET:	20:17	START TIME:	20:17
TEMP AT END:	19°C	CLOUD COVER (oktas):	0/8	END TIME:	22:17
WIND (bft):	0/12	RAINFALL:	Nil	WEATHER:	
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:33	B-C	Myotis sp.	1	Heard but not seen.	
20:34	B-C	Common pipistrelle	1	Heard but not seen.	
20:37	B-C	Common pipistrelle	1	Heard but not seen.	
20:38	B-C	Myotis sp.	1	Heard but not seen.	
21:04	C-D	Common pipistrelle	1	Heard but not seen.	
21:12-21:15	E	-	-	-	
21:15	E	Common pipistrelle	1	Heard but not seen, very brief.	
21:30-21:33	G	-	-	-	
21:33	G	Common pipistrelle	1	Heard but not seen, very brief.	
21:35	G-H	Common pipistrelle	1	Heard but not seen, very brief.	
21:41-21:44	H	Common pipistrelle	1	Seen foraging along treeline.	
21:48	H-G	Common pipistrelle	1	Seen foraging along treeline.	
21:53	H-G	Common pipistrelle	1	Heard but not seen foraging.	
22:03-22:06	I	-	-	-	
22:03	I	Common pipistrelle	1	Brief pass, heard but not seen.	
22:04	I	Common pipistrelle	1	Seen foraging around an oak tree.	
22:13-22:16	J	-	-	-	
22:12	J	Noctule	1	Heard but not seen foraging.	

September 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Sam Williams, Sam Fletcher	DATE:	24/09/2018	
TEMP AT START:	12°C	SUNSET:	19:00	START TIME:	19:00
TEMP AT END:	8°C	CLOUD COVER (oktas):	2/8	END TIME:	
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Dry, mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:30	D-E	Soprano pipistrelle	1	Heard but not seen, brief call.	
19:36	D-E	Soprano pipistrelle	1	Heard but not seen, brief call.	
19:46	E-F	Soprano pipistrelle	1	Heard but not seen, brief call.	
19:59	E-F	Noctule	1	Heard but not seen.	
20:10	F-G	Myotis sp.	1	Heard but not seen, foraging.	
20:14	F-G	Barbastelle	1	Heard but not seen.	
20:14	F-G	Long-eared sp.	1	Heard but not seen.	
20:31	H-I	Common pipistrelle	1	Heard but not seen.	
20:50	J	Long-eared sp.	1	Heard but not seen, brief call.	

October 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 2	SURVEYORS: Stuart Woodley Mallory Warrington	DATE:	10/10/2018	
TEMP AT START:	19°C	SUNSET:	18:24	START TIME:	18:24
TEMP AT END:	16°C	CLOUD COVER (oktas):	0/8	END TIME:	20:24
WIND (bft):	2/12	RAINFALL:	None	WEATHER:	Clear, dry

TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
18:34	A – B	Noctule	1	Heard but not seen between stops A and B.
18:48	C	Noctule	1	Seen commuting east to west.
18:54	C – F	Noctule	2	Seen commuting north to south to north and one being chased by a sparrow hawk.
18:54	C – F	Serotine	1	Seen commuting southwest.
18:56	C – F	Common pipistrelle	2	Seen foraging along hedgerow, flying north to south to north.
18:57	C – F	Noctule	1	Seen commuting southwest.
19:04	C – F	Serotine	1	Seen foraging around field.
19:08	F – C	Common pipistrelle	1	Heard but not seen.
19:14	F – C	Myotis sp.	1	Heard but not seen.
19:14	F – C	Soprano pipistrelle	1	Heard but not seen.
19:16	F – C	Common pipistrelle	1	Heard but not seen. Foraging and feeding buzzes heard.
19:16	F – C	Noctule	1	Heard but not seen.
19:18	C – D	Soprano pipistrelle	1	Heard but not seen, near to static position.
19:25	D	Soprano pipistrelle	1	Heard but not seen.
19:29	D	Soprano pipistrelle	1	Heard but not seen.
19:31	D	Myotis sp.	1	Heard but not seen.
19:46	C – G	Common pipistrelle	1	Heard but not seen.
19:50	G	Common pipistrelle	1	Heard but not seen, foraging.
19:50	G	Soprano pipistrelle	1	Heard but not seen, foraging.
19:56	G	Myotis sp.	1	Heard but not seen.
20:08	H	Soprano pipistrelle	1	Heard but not seen.
20:09	H	Common pipistrelle	1	Heard but not seen.
20:10	H	Myotis sp.	1	Heard but not seen.
20:17	I	Myotis sp.	1	Heard but not seen.
20:18	I	Common pipistrelle	1	Heard but not seen.

Transect 3

April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS:	Matthew Tennent & Mallory Warrington	DATE:	26.4.2018
TEMP AT START:	11°C	SUNSET:	20:21	START TIME:	20:21
TEMP AT END:	10°C	CLOUD COVER (oktas):	3/8	END TIME:	22:21
WIND (bft):	1/12	RAINFALL:	0	WEATHER:	Dry/mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:53-20:55	C-D	Common pipistrelle	1	Seen commuting south to north.	
20:56	C-D	Common pipistrelle	1	Seen commuting south to north.	
21:01	D	Common pipistrelle	1	Heard but not seen.	
21:01	D	Serotine	1	Foraging around a hedgerow.	
21:02	D	Soprano pipistrelle	1-2	Heard but not seen.	
21:05	D-E	Soprano pipistrelle	1	Heard but not seen.	
21:08-21:18	D-E	Common pipistrelle	3-7	Foraging over a pond in the centre of the field.	
21:10	D-E	Long – eared	2-5	Foraging over a pond in the centre of the field.	
21:18	E	Soprano pipistrelle	1	Heard but not seen.	
21:27	E-F	Soprano pipistrelle	1	Heard but not seen.	
21:43	E-F	Common pipistrelle	1	Heard but not seen.	
21:55	F	Common pipistrelle	1	Heard but not seen.	

May 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS: Alex Hannam and Chris Jackson		DATE:	24.05.2018
TEMP AT START:	14°c	SUNSET:	21:04	START TIME:	21:04
TEMP AT END:	14°c	CLOUD COVER (oktas):	4/8	END TIME:	23:04
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Breezy
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:31	B-C	Noctule	1	Heard but not seen near eastern end of driveway.	
21:31	B-C	Serotine	1	Heard but not seen.	
21:36	C	Noctule	1	Heard but not seen.	
21:38	C-D	Soprano pipistrelle	1	Heard but not seen along a track north of main driveway.	
21:40	C-D	Soprano pipistrelle	2	Foraging west to east and east to west along a track north of main driveway.	
21:42	C-D	Common pipistrelle	1	Foraging calls and feeding buzz heard along a track north of main driveway.	
21:55	D-E	Soprano pipistrelle	1	Heard but not seen.	
22:01	E	Noctule	1	Heard but not seen.	
22:04	E	Soprano pipistrelle	1	Foraging along hedgerow.	
22:08	E-F	Myotis sp.	1	Heard but not seen.	
22:08	E-F	Soprano pipistrelle	1	Heard but not seen.	
22:10	E-F	Common pipistrelle	1	Heard but not seen.	
22:13	F	Common pipistrelle	1	Foraging west to east to west along hedgerow.	
22:16	F-G	Soprano pipistrelle	1	Heard but not seen.	
22:19	F-G	Myotis sp.	1	Heard but not seen.	
22:20	F-G	Common pipistrelle	1	Heard but not seen.	
22:24	G	Soprano pipistrelle	1	Heard but not seen.	
22:29	G-H	Soprano pipistrelle	1	Heard but not seen.	

22:45	I	Noctule	1	Heard but not seen.
22:50	J	Common pipistrelle	1	Heard but not seen.
22:54	J	Common pipistrelle	1	Heard but not seen.
22:57	J	Common pipistrelle	1	Heard but not seen.
22:58	K	Common pipistrelle	1	Heard but not seen.
22:59	K	Common pipistrelle	1	Heard but not seen.

June 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS: Mallory Warrington Chris Jackson		DATE:	25.06.2018
TEMP AT START:	22°C	SUNSET:	21:28	START TIME:	21:31
TEMP AT END:	14.5°C	CLOUD COVER (oktas):	1/8	END TIME:	23:31
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Warm and dry.
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:41	C-D	Noctule	1	Heard but not seen.	
21:54-21:55	D-E	Soprano pipistrelle	1	Heard but not seen.	
21:56	D-E	Noctule	1	Heard but not seen.	
22:00	E	Noctule	1	Heard but not seen.	
22:04	E	Soprano pipistrelle	1	Heard but not seen.	
22:07	E-F	Soprano pipistrelle	1	Heard but not seen.	
22:12-22:14	F	Myotis sp.	1	Foraging North to South.	
22:14	F	Soprano pipistrelle	1	Heard but not seen.	
22:18-22:19	F-G	Soprano pipistrelle	1	Heard but not seen.	
22:27	G	Soprano pipistrelle	1	Heard but not seen.	
22:29	G	Soprano pipistrelle	1	Heard but not seen.	
22:30-22:31	G	Common pipistrelle	2	Seen foraging continuously, west to east.	

22:30-22:34	G	Soprano pipistrelle	1	Foraging continuously.
22:39	G-H	Common pipistrelle	1	Heard but not seen.
22:46	H	Common pipistrelle	1	Heard but not seen, faint call.
22:49	H-I	Nathusius pipistrelle	1	Heard but not seen.
22:50	H-I	Noctule	1	Heard but not seen.
22:55	H-I	Noctule	1	Heard but not seen.
22:57	I	Common pipistrelle	1	Heard but not seen.
23:00	I	Soprano pipistrelle	1	Foraging Southwest to Northeast.
23:01	I	Common pipistrelle	1	Heard but not seen.
23:01	I	Common pipistrelle	1	Seen foraging.
23:02	I	Common pipistrelle	1	Heard but not seen.
23:02	I	Nathusius pipistrelle	1	Heard but not seen.
23:06	I-J	Common pipistrelle	1	Commuting Northeast to Southwest.
23:08	J	Common pipistrelle	1	Heard but not seen.
23:18-23:19	K-C	Common pipistrelle	1	Heard but not seen.
23:24	A	Soprano pipistrelle	1	Heard but not seen.
23:25	A	Noctule	1	Heard but not seen.
23:25-23:26	A	Common pipistrelle	1	Heard but not seen, faint call.
23:28	A-B	Noctule	1	Heard but not seen.
23:28-23:29	A-B	Common pipistrelle	1	Heard but not seen.
23:30	A-B	Noctule	1	Heard but not seen.
23:31-23:32	A-B	Common pipistrelle	1	Heard but not seen.
23:34	B	Common pipistrelle	1	Heard but not seen.
23:34	B	Nathusius pipistrelle	1	Heard but not seen.
23:35	B	Common pipistrelle	1	Heard but not seen.
23:35	B	Noctule	1	Heard but not seen.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS: Matt Tennent + Chris Jackson		DATE:	17.07.2018
TEMP AT START:	19°C	SUNSET:	21:16	START TIME:	21:16
TEMP AT END:	17°C	CLOUD COVER (oktas):	3/8	END TIME:	23:16
WIND (bft):	1/12	RAINFALL:	-	WEATHER:	Warm, still
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:38	B-C	Common pipistrelle	1	Heard but not seen.	
21:52	D-E	Soprano pipistrelle	1	Heard but not seen.	
21:54	D-E	Soprano pipistrelle	1	Seen commuting and foraging south to north.	
21:55-22:02	E	Common pipistrelle & Soprano pipistrelle	2-4	Continuous foraging seen around a large pond.	
22:05	E-F	Soprano pipistrelle	2-4	Seen foraging over pond and to the west along the hedge line.	
22:10	F	Soprano pipistrelle & Common pipistrelle	2	Heard but not seen.	
22:26	F-G	Soprano pipistrelle	1	Heard but not seen.	
22:31-22:36	G	Common pipistrelle	1	Heard but not seen.	
22:49	H-I	Common pipistrelle	1	Heard but not seen.	
23:13	J	Common pipistrelle & Noctule	1	Heard but not seen.	
23:15	J- end	Common pipistrelle	1	Heard but not seen.	
23:16	J – end	Soprano pipistrelle	1	Heard but not seen.	

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS: Matthew Tennent + Chris Jackson		DATE:	18/7/18
TEMP AT START:	14°C	SUNRISE:	05:08	START TIME:	03:08
TEMP AT END:	13°C	CLOUD COVER (oktas):	5/8	END TIME:	05:08
WIND (bft):	2/12	RAINFALL:	-	WEATHER:	Cleared up, mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
03:06 – 03:11	A	Common pipistrelle	1	Heard but not seen.	
03:14 – 03:19	B	Common pipistrelle	1	Heard but not seen.	
03:21	B-C	Common pipistrelle	1	Heard but not seen.	
03:28	C-D	Soprano pipistrelle	1	Seen commuting north to south.	
03:38	D-E	Bat	1	Seen but not heard, commuting south.	
03:40 – 03:45	E	Brown long-eared	1	Heard but not seen.	
03:46	E-F	Soprano pipistrelle	1	Heard but not seen.	
03:48	E-F	Brown long-eared	1	Heard but not seen.	
03:58	F	Soprano pipistrelle	1	Heard but not seen.	
04:03	F-G	Soprano pipistrelle	1	Heard but not seen.	
04:05	F-G	Soprano pipistrelle & Common pipistrelle	1	Heard but not seen.	
04:18	G	Soprano pipistrelle	1	Heard but not seen.	

August 2018

BAT DETECTOR ACTIVITY SURVEY				
SURVEY LOCATION:	Transect 3	SURVEYORS:	DATE:	21.08.2018

		Matt Tennent, Hannah Stebbings			
TEMP AT START:	21°C	SUNSET:	20:17	START TIME:	20:17
TEMP AT END:	19°C	CLOUD COVER (oktas):	2/8	END TIME:	22:17
WIND (bft):	1-2/12	RAINFALL:	-	WEATHER:	Humid
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:50	C	Noctule	1	Heard but not seen.	
20:53 – 20:58	C-D	Soprano pipistrelle	2-3	Seen foraging along hedgerow on path north of the farm house and south of stop D.	
21:00 – 21:03	D	Soprano pipistrelle	2	Seen foraging between stops D and E.	
21:00 – 21:03		Serotine	1-2	Seen foraging between stops D and E.	
21:04	D-E	Common pipistrelle	1	Heard but not seen.	
21:06	E	Common pipistrelle	1-2	Seen foraging over pond south of stop E.	
21:08	E	Long-eared	1	Heard but not seen.	
21:11 – 21:15	E-F	Soprano pipistrelle	2	Seen foraging along treeline and over pond south of stop E, continuous.	
21:11 – 21:15	E-F	Myotis sp.	2	Heard but not seen.	
21:20	F	Serotine	1	Seen commuting north.	
21:56	H-I	Common pipistrelle	1	Heard but not seen.	
22:17	K	Soprano pipistrelle	1	Heard but not seen.	
22:22	-	Soprano pipistrelle	1	Heard but not seen.	
22:27	-	Long eared	1	Heard but not seen.	

September 2018

BAT DETECTOR ACTIVITY SURVEY				
SURVEY LOCATION:	Transect 3	SURVEYORS: William Davis / Chris Jackson	DATE:	24.09.2018

TEMP AT START:	12°C	SUNSET:	19:00	START TIME:	19:00
TEMP AT END:	9°C	CLOUD COVER (oktas):	1/8	END TIME:	21:07
WIND (bft):	1/12	RAINFALL:	none	WEATHER:	Clear, cool
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:15	B	Soprano pipistrelle	1	Heard not seen	
19:26	C	Common pipistrelle	1	Heard not seen	
19:32	C-D	Soprano pipistrelle	1	Heard not seen	
19:35	C-D	Soprano pipistrelle	1	Intermittent passes	
19:36	C-D	Common pipistrelle	1	Intermittent passes, heard not seen	
19:38	D	Soprano pipistrelle	1	Heard not seen	
19:46	D-E	Myotis sp.	1	Heard not seen	
19:48	D-E	Myotis sp.	1	Heard not seen	
		Soprano pipistrelle	1	Heard not seen	
19:52	E	Soprano pipistrelle	1	Heard not seen	
		Myotis sp.	1	Heard not seen	
20:30	H	Common pipistrelle	1	Heard not seen	
20:47	J	Common pipistrelle	1	Heard not seen	
20:56	J-K	Common pipistrelle	1	Heard not seen	

October 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 3	SURVEYORS:	Matt Tennent and William Davis		DATE: 10.10.18
TEMP AT START:	19°C	SUNSET:	18:24	START TIME:	18:20
TEMP AT END:	16.5°C	CLOUD COVER (oktas):	1/8	END TIME:	20:24

WIND (bft):	1/12	RAINFALL:	none	WEATHER:	Warm/dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
18:26	A	Noctule	1	Heard but not seen.	
18:41	B	Noctule		Heard but not seen.	
18:45	C	Noctule	1	Heard but not seen.	
18:49	C	Soprano pipistrelle	1	Heard but not seen.	
18:51	C-D	Common pipistrelle	2	Commuting along hedgerow and foraging around housing.	
18:58	E	Noctule	1	Heard but not seen.	
18:59 – 19:16	E	Soprano pipistrelle and common pipistrelle	5	Foraging over pond, continuous.	
19:05	E-F	Brown long-eared	1	Foraging over pond.	
19:06	E-F	Myotis sp.	1	Foraging over pond.	
19:11	E-F	Common pipistrelle	1-2	Heard but not seen along a hedgerow.	
19:12	E-F	Myotis sp.	1	Heard but not seen.	
19:13	E-F	Serotine	2	Commuting west briefly.	
19:16-19:18	F	Serotine	1	Heard but not seen.	
19:20	F	Common pipistrelle	1	Heard but not seen.	
19:27	F-G	Common pipistrelle	1	Heard but not seen.	
19:32	G	Common pipistrelle	1	Heard but not seen.	
		Soprano pipistrelle	1	Heard but not seen.	
19:41	G-H	Serotine	1	Heard but not seen.	
19:51	H-I	Soprano pipistrelle	1	Heard but not seen.	
19:58	I	Common pipistrelle	1-2	Heard but not seen.	
20:06	I-J	Common pipistrelle	1	Heard but not seen.	
20:09	I-J	Common pipistrelle	1	Heard but not seen.	
20:14	J	Soprano pipistrelle	1	Heard but not seen.	
20:14-20:16	J	Serotine	1	Heard but not seen.	
20:22	J	Common pipistrelle	1	Heard but not seen.	

Transect 4

April 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Aimee Cokayne & Joe Marcroft		DATE:	26.04.2018
TEMP AT START:	10°C	SUNSET:	20:21	START TIME:	20:21
TEMP AT END:	8°C	CLOUD COVER (oktas):	3/8	END TIME:	22:21
WIND (bft):	1/12	RAINFALL:	0	WEATHER:	Dry & cool
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:48	C	Common pipistrelle	1	Seen commuting south to north along a hedgerow.	
20:49	C	Common pipistrelle	1	Seen foraging around the corner of the field.	
20:54	C-D	Soprano pipistrelle	1	Heard but not seen.	
21:02	D	Soprano pipistrelle	1	Seen foraging around the tree and hedge line.	
21:13	E	Common pipistrelle	1	Heard but not seen.	
21:17	E-F	Common pipistrelle	1	Heard but not seen.	
21:23- 21:28	F	Common pipistrelle	1	Heard but not seen.	
21:30	G	Common pipistrelle	1	Heard but not seen.	
21:38	H	Common pipistrelle	1	Heard but not seen.	
22:04	J-K	Soprano pipistrelle	1	Heard but not seen.	
22:07	K	Common pipistrelle	1	Heard but not seen.	
22:09	K-L	Common pipistrelle	1	Heard but not seen.	
22:14	L	Common pipistrelle	1	Heard but not seen.	

May 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Pete Duffy & Sam Williams		DATE:	24.05.2018
TEMP AT START:	15°C	SUNSET:	21:05	START TIME:	21:05
TEMP AT END:	14°C	CLOUD COVER (oktas):	6/8	END TIME:	23:05
WIND (bft):	2/12	RAINFALL:	0	WEATHER:	Overcast/Dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
21:29-21:31	D	Soprano pipistrelle	1	Brief calls heard but not seen.	
21:31	D	Noctule	1	Brief call heard but not seen.	
21:34	D-E	Noctule	1	Heard but not seen, commuting.	
21:40	D-E	Common pipistrelle	1	Heard but not seen, commuting.	
21:46	D-E	Common pipistrelle	1	Heard but not seen, commuting.	
21:47	D-E	Common pipistrelle	1	Commuting along the hedgerow.	
21:49	D-E	Common and Soprano pipistrelle	2	Foraging along the hedgerow.	
21:53	D-E	Common pipistrelle	1	Foraging along the hedgerow.	
21:54-21:57	E	Common and Soprano pipistrelle	2-3	Constant foraging in corner of field.	
21:57-22:01	E	Common and Soprano pipistrelle	2	Constant foraging in corner of field.	
22:04-22:06	F	Common pipistrelle	1	Heard but not seen foraging around stopping station.	
22:07-22:10	F-G	Common and Soprano pipistrelle	2	Foraging along path between hedges.	
22:14	G	Noctule	1	Brief call heard but not seen.	
22:18-22:19	G-H	Common pipistrelle	1	Foraging near large oak and along hedgerow. Feeding buzzes heard.	

22:29-22:31	H-I	Common and Soprano pipistrelle	2	Heard but not seen foraging along a hedgerow.
22:32	H-I	Serotine	1	Heard but not seen, commuting.
22:32-22:34	H-I	Common and Soprano pipistrelle	2	Heard but not seen, foraging and social calls.
22:42	H-I	Common pipistrelle and Myotis sp.	2	Heard but not seen, foraging.
22:46-22:47	H-I	Common and Soprano pipistrelle		Heard but not seen foraging and feeding along the hedgerow.
22:57	J	Noctule	1	Commuting. Heard but not seen.
22:59	J	Soprano pipistrelle	1	Brief call. Heard but not seen.
23:03	J-A	Soprano pipistrelle	1	Brief call. Heard but not seen.
23:07	J-A	Soprano pipistrelle	1	Foraging and feeding up and down disused road.

June 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Louisa Jones, Sam Fletcher		DATE:	26.06.2018
TEMP AT START:	26°C	SUNSET:	21:28	START TIME:	21:28
TEMP AT END:	18.5°C	CLOUD COVER (oktas):	0/8	END TIME:	23:30
WIND (bft):	0/12	RAINFALL:	None	WEATHER:	Warm
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
22:04	F	Common pipistrelle	1	Heard but not seen.	
22:05	G	Common pipistrelle	1	Seen foraging along woodland track.	
22:07	F-G	Common pipistrelle	1	Seen foraging along woodland track.	
22:13	F-G	Common pipistrelle	1	Seen flying south east to north west along hedgerow.	

22:19	G	Common pipistrelle	1	Heard but not seen foraging along hedgerow.
22:27	G-H	Common pipistrelle	1	Heard but not seen foraging north to south.
22:31	H	Common pipistrelle	1	Heard but not seen foraging near a large oak.
22:37	H-G	Common pipistrelle	1	Seen foraging south east to northwest along hedgerow.
22:46		Long-eared sp.	1	Heard but not seen.
22:51	I	Common pipistrelle	1	Heard but not seen briefly.
22:52		Soprano pipistrelle	1	Heard but not seen briefly.
22:55	I-J	Common pipistrelle	1	Seen flying south east to north west along hedgerow.
23:05		Noctule	1	Heard but not seen.
23:25	A	Common pipistrelle	1	Heard but not seen.
23:29	A-C	Common pipistrelle	1	Seen foraging along track.
23:37		Soprano pipistrelle	1	Heard but not seen.

July 2018

BAT DETECTOR ACTIVITY SURVEY				
SURVEY LOCATION:	Transect 4	SURVEYORS: Aimee Cokayne and Joe Marcroft		DATE: 17.07.2018
TEMP AT START:	19°C	SUNSET:	21:16	START TIME: 21:16
TEMP AT END:	17°C	CLOUD COVER (oktas):	6/8	END TIME: 23:16
WIND (bft):	2/12	RAINFALL:	-	WEATHER: Warm and still
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.
21:43	B-C	Common pipistrelle	1	Heard but not seen foraging.
21:48	C	Common pipistrelle	1	Heard but not seen.
22:07	D	Common pipistrelle	1	Heard but not seen foraging.
22:15	E	Common pipistrelle	1	Seen foraging along a hedgerow moving east.

22:23	E-F	Common pipistrelle	1	Heard but not seen foraging.
22:26		Soprano pipistrelle	1	Heard but not seen.
22:34-22:35	F	Long-eared sp.	1	Heard but not seen.
22:37	F	Common pipistrelle	1	Heard but not seen foraging.
22:47	G-H	Common pipistrelle	1	Heard not seen foraging.
22:50	G-H	Common pipistrelle	1	Heard but not seen foraging.
22:56	G-H	Common pipistrelle	1	Heard but not seen foraging.
23:04	G-H	Common pipistrelle	1	Heard but not seen foraging.
23:05-23:08	G-H	Common pipistrelle	1	Heard but not seen. Foraging, feeding buzzes and social calls.

July 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Aimee Cokayne and Joe Marcroft	DATE:	18.07.2018	
TEMP AT START:	18°C	SUNRISE:	05:08	START TIME:	03:08
TEMP AT END:	16°C	CLOUD COVER (oktas):	3/8	END TIME:	05:08
WIND (bft):	0/12	RAINFALL:	0	WEATHER:	Mild & dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
03:10	A-J	Common pipistrelle	1	Heard but not seen.	
03:13		Soprano pipistrelle	1	Heard but not seen.	
03:31 -03:35	I	Common pipistrelle	1	Heard but not seen foraging.	
03:34	I	Common pipistrelle	1	Heard but not seen foraging.	
03:36	I	Common pipistrelle	1	Heard but not seen foraging.	
03:55	H	Common pipistrelle	1	Heard but not seen, foraging calls and feeding buzzes heard.	
03:55	H	Soprano pipistrelle	1	Heard but not seen foraging.	

03:56	H	Common pipistrelle	1	Heard but not seen foraging.
03:59	H	Common pipistrelle	1	Heard but not seen foraging.
04:02	H-G	Common pipistrelle	1	Heard but not seen, brief call.
04:04	G	Common pipistrelle	1	Heard but not seen, foraging calls and feeding buzzes.
04:06	G	Common pipistrelle	1	Heard but not seen, foraging calls and feeding buzzes.
04:07-04:11	G	Common pipistrelle	1	Heard but not seen, foraging calls and feeding buzzes.
04:12	G-F	Common pipistrelle	1	Heard but not seen foraging o.
04:19	G-F	Common pipistrelle	1	Heard but not seen, brief call.
04:27-04:29		Soprano pipistrelle	1	Heard but not seen, brief call.

August 2018

BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Alex Sinclair & William Davis		DATE:	21/08/18
TEMP AT START:	21°C	SUNSET:	20:17	START TIME:	20:17
TEMP AT END:	19°C	CLOUD COVER (oktas):	0/8	END TIME:	22:30
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Cool & clear
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
20:39	To A	Common pipistrelle	1	Heard but not seen.	
20:45	A	Common pipistrelle	1	Seen commuting across the hedgerow and foraging around stop A, continuous.	
20:52	B	Common pipistrelle	1	Heard but not seen.	
21:04	C	Noctule	1	Heard but not seen.	
21:19	D-E	Brown long-eared	1	Heard but not seen.	
21:20	D-E	Common pipistrelle	1	Heard but not seen.	
21:25	D-E	Soprano pipistrelle	1	Heard but not seen.	

22:03	G	Brown long-eared	1	Heard but not seen.
22:05	G	Common pipistrelle	1	Heard but not seen.
22:20	I	Common pipistrelle	1	Heard but not seen.

September 2018

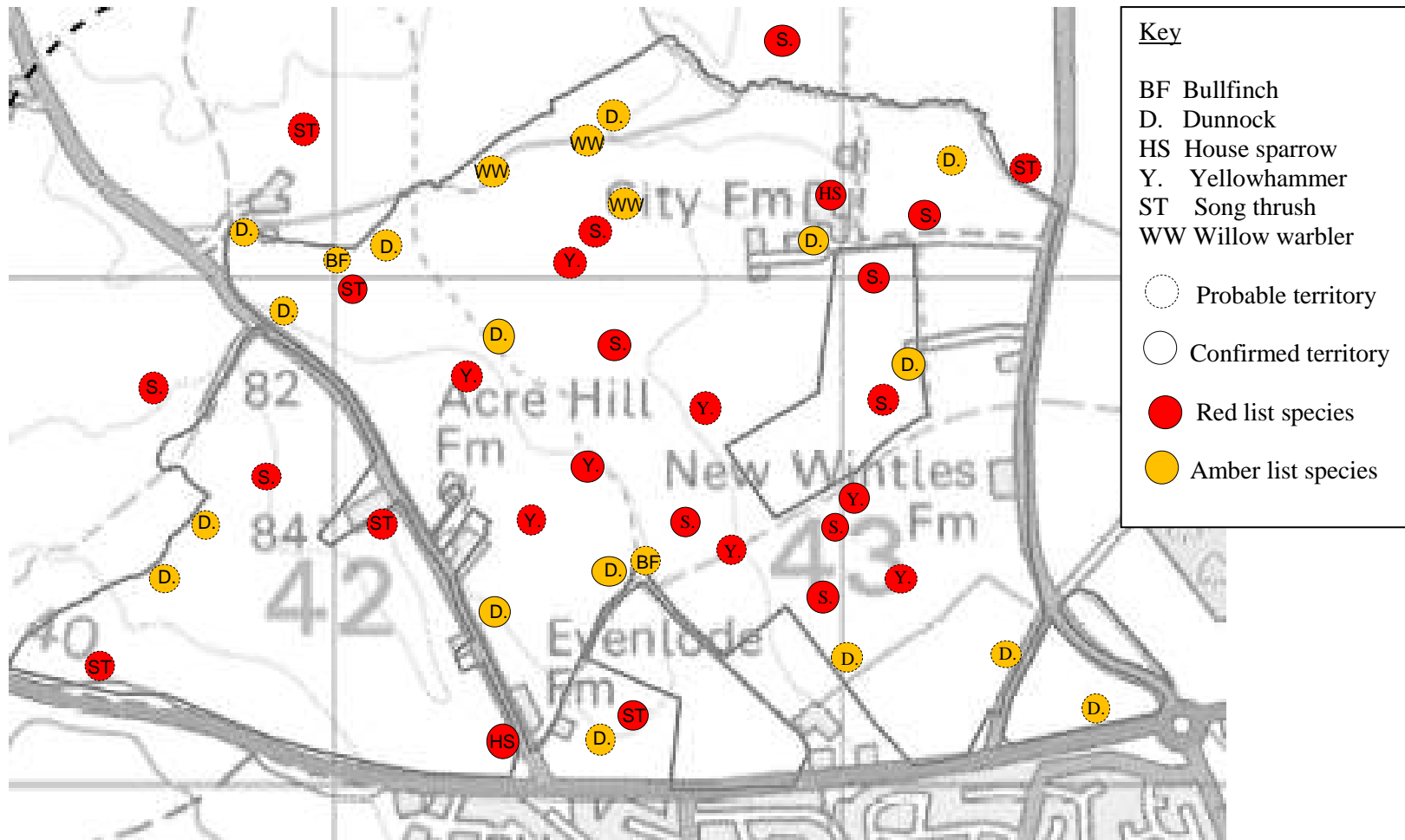
BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Aimee Cokayne and Joe Marcroft	DATE:	24/09/2018	
TEMP AT START:	12°C	SUNSET:	19:00	START TIME:	19:00
TEMP AT END:	8°C	CLOUD COVER (oktas):	2/8	END TIME:	21:00
WIND (bft):	1/12	RAINFALL:	Nil	WEATHER:	Dry, mild
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
19:26	C	Common pipistrelle	1	Heard but not seen, foraging.	
19:31	C-D	Noctule	1	Heard but not seen.	
19:38	D	Soprano pipistrelle	1	Heard but not seen, foraging.	
19:48	E	Common pipistrelle	1	Heard but not seen, foraging.	
19:56	G-H	Noctule	1	Heard but not seen.	
20:09	H	Soprano pipistrelle	1	Heard but not seen, foraging.	
20:24		Myotis Sp.	1	Heard but not seen.	
20:47-20:48		Noctule	1	Heard but not seen.	

October 2018

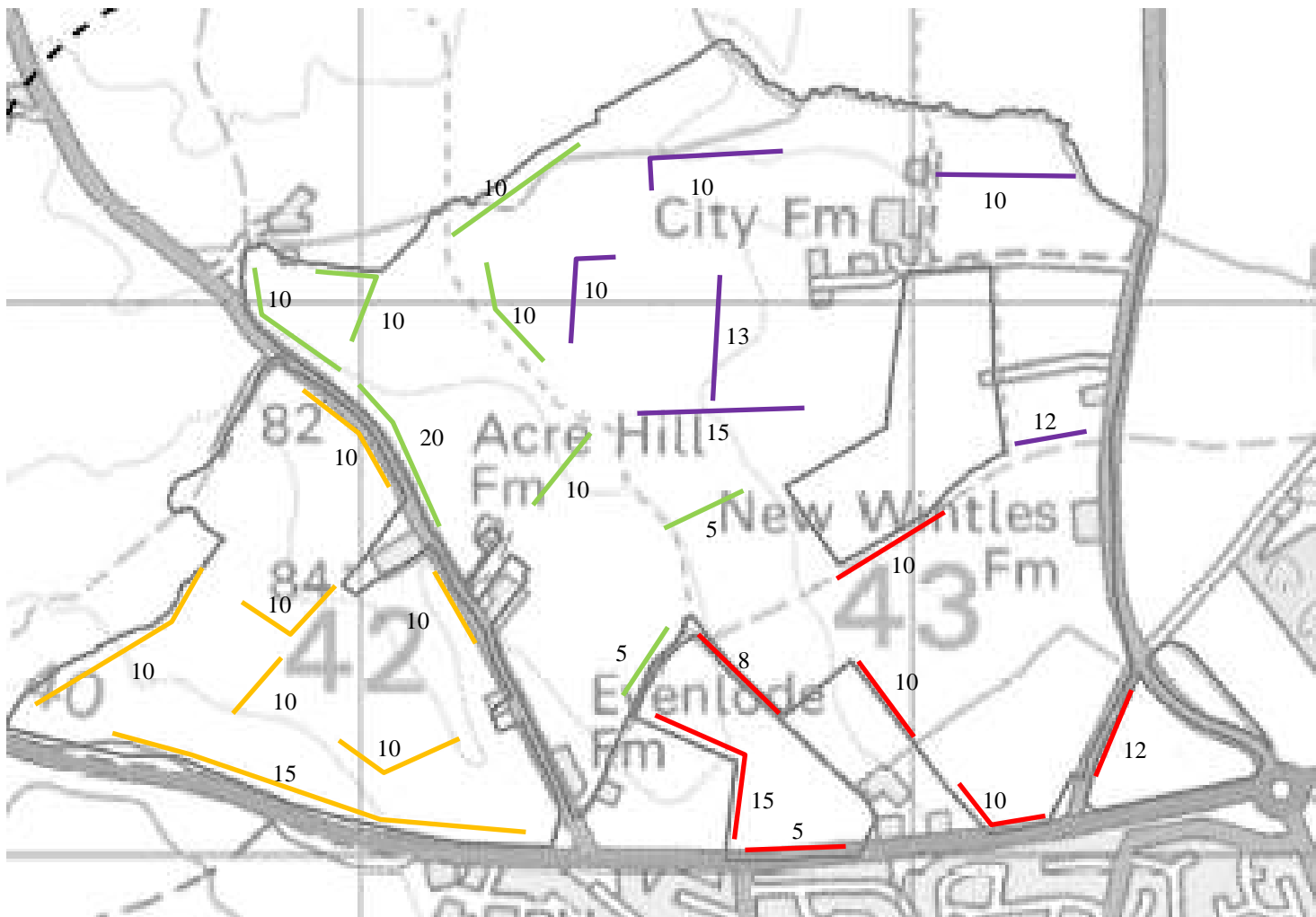
BAT DETECTOR ACTIVITY SURVEY					
SURVEY LOCATION:	Transect 4	SURVEYORS: Joe Marcroft and Andrew Heideman	DATE:	10.10.18	
TEMP AT START:	19°C	SUNSET:	18:24	START TIME:	18:20
TEMP AT END:	16.5°C	CLOUD COVER (oktas):	0/8	END TIME:	20:24

WIND (bft):	1/12	RAINFALL:	none	WEATHER:	Warm/dry
TIME	STOPPING POINT/TARGET NOTE	SPECIES	NUMBER OF BATS	ACTIVITY (behaviour/ commuting/ direction/ foraging/ feeding/ feeding buzzes/ roost/ etc.	
18:53	D	Serotine	1	Circled over hedge, flew west.	
18:54	D	Soprano pipistrelle	1	Flew past stop east to west.	
19:00	D-E	Common pipistrelle	1	Heard but not seen.	
19:03	E	Soprano pipistrelle	1	Seen foraging along a hedgerow.	
19:05	E	Common pipistrelle	1	Heard but not seen.	
19:10	E-F	Soprano pipistrelle	1	Heard but not seen.	
19:18	E-F	Common pipistrelle	1	Heard but not seen.	
19:19	E-F	Soprano pipistrelle	1	Heard but not seen.	
19:19-19:24	F	Common pipistrelle	2	Seen foraging, continuous.	
19:37-19:44	G-H	Common pipistrelle	1	Heard but not seen.	
19:46	H	Common pipistrelle	1	Heard but not seen.	
19:46	H	Noctule	1	Heard but not seen.	
19:47	H	Soprano pipistrelle	1	Heard but not seen.	
19:48	H	Common pipistrelle	1	Heard but not seen.	
19:50-19:01	H- I	Soprano pipistrelle and Common pipistrelle	1	Heard but not seen, intermittent.	
20:17	D	Common pipistrelle	1	Heard but not seen.	
20:20-20:21		Noctule	1	Heard but not seen.	

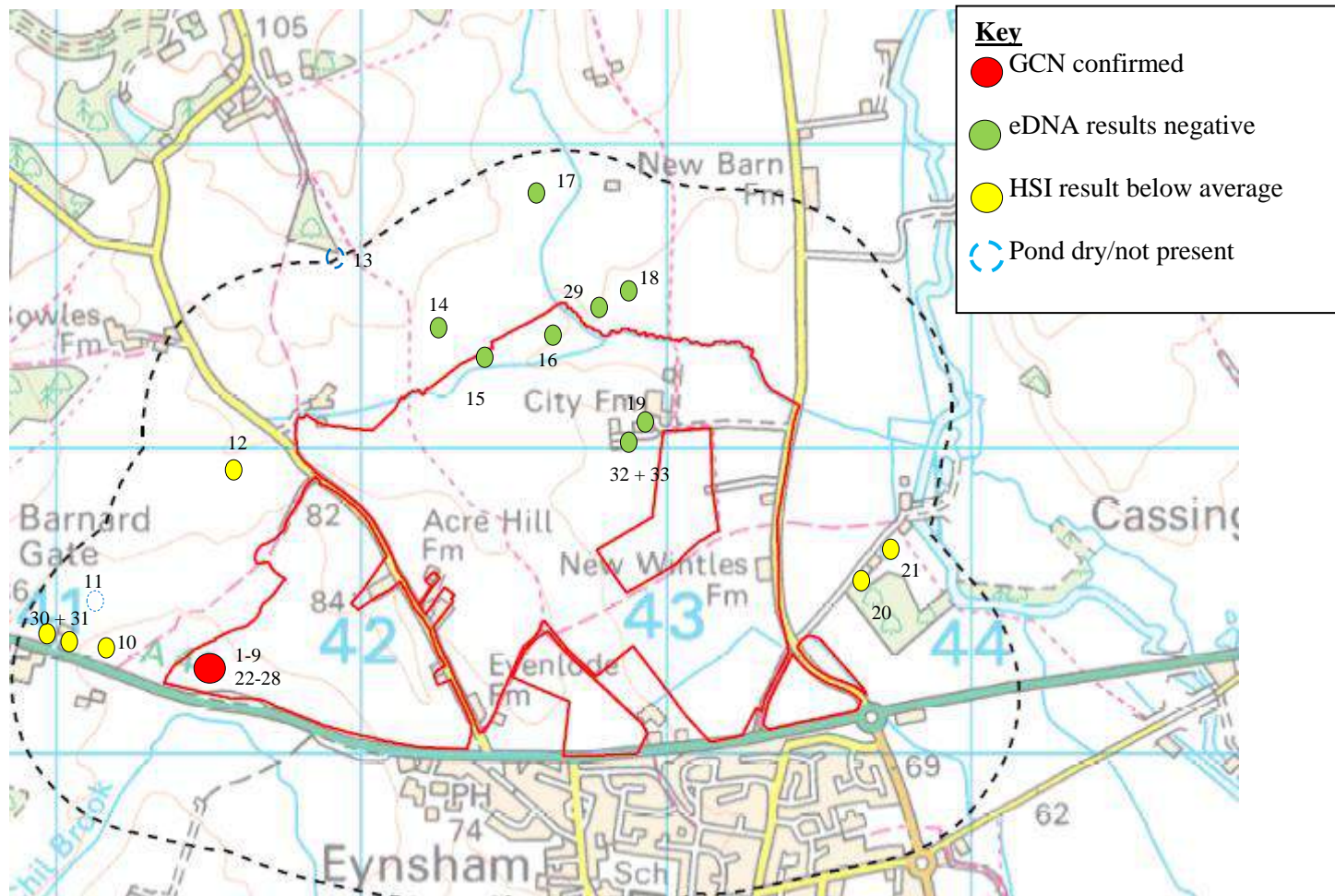
APPENDIX IV: Notable breeding bird territory map



APPENDIX V: Dormice nest tube location



APPENDIX VI: Pond location map



APPENDIX VII: Great crested newts aquatic survey results

Pond 1

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	20	20	20	16	20	20
Measurements taken						
pH	7.5	6.9	7.7	7.5	7.5	7.3
Water temperature (°C)	13.7°C	21.3°C	19.1°C	18.4°C	17.8°C	20.7°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	Dry, 8/8 cloud, 2/12 wind	7/8 cloud, 1/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12 wind
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	Both	Both	Both	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	4	4	4	4	4	4
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	0	0	1
Survey methods						
Sweep netting	N/A	N/A	N/A	N/A	N/A	N/A
Bottle trapping	0	1 female GCN	1 male GCN 2 male smooth 1 female smooth	1 female smooth	0	0
Egg search						
Torch count	0	0	0	0	0	0

Pond 2

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	5	5	5	3	4	4
Measurements taken						

pH	-	7.4	8.2	7.9	8.1	8.1
Water temperature	-	20.6°C	19.2°C	17.4°C	17.4°C	20.1°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	7/8 cloud, 1/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12 wind
Evening air temperature	11°C	11°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	4	4	4	4	4	4
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	0	0	1
Survey methods						
Sweep netting						
Bottle trapping	0	1 juvenile GCN 1 male smooth	1 male GCN 1 male palmate	0	1 female GCN	1 female GCN
Egg search						
Torch count	1 female GCN	0	0	0	5 efts	1 GCN

Pond 3

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	20	25	25	25	25	25
Measurements taken						
pH	8.4	8.2	9.3	8.1	7.6	8.1
Water temperature	15.0°C	23.0°C	18.5°C	19.6°C	19°C	22.3°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	Dry, 8/8 cloud, 2/12	7/8 cloud, 1/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12 wind
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	No	No	Fish	Fish	Fish	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	4	4	4	4	4	4

Turbidity (0-5, 0 clear water, 5 turbid)	3	2	2	0	0	1
Survey methods						
Sweep netting	-	-	-	-	-	-
Bottle trapping	0	1 male GCN 1 male smooth 1 female palmate	1 female smooth	2 female smooth	1 female GCN	1 female GCN
Egg search	Y – eggs present	-	-	-	-	-
Torch count	0	0	0	0	0	0

Pond 4

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Sam Williams, Alex Hannam	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	5	5	6	4	5	5
Measurements taken						
pH	8.9	9.5	9	7.5	7.3	7.1
Water temperature	13.3°C	17.9°C	17.5°C	17.9°C	16.7°C	18.9°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	Dry, 8/8 cloud, 2/12	8/8 cloud, 4/12 dry	1/8 cloud, 1/12 wind	1/8 cloud, 2/12 wind
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	4	4	4	4	4	4
Turbidity (0-5, 0 clear water, 5 turbid)	0	0	0	1	1	2
Survey methods						
Sweep netting	-	-	-	-	-	-
Bottle trapping	0	1 juvenile GCN 3 female smooth	1 female smooth 1 female palmate	0	0	0
Egg search						

Torch count	0	0	0	0	0	0
-------------	---	---	---	---	---	---

Pond 5

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Sam Williams, Alex Hannam	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	30	40	39	38	40	40
Measurements taken						
pH	9.2	8.7	9.5	8.0	7.3	7.5
Water temperature	14.4	20.9	18.7	19.5	17.4	20.0
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	7/8 cloud, 4/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12 wind
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	Fish	Fish	Fish	Fish	Fish	Fish
Vegetation cover (0-5, 0 no cover, 5 completely covered)	2	2	2	2	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	1	1	1
Survey methods						
Sweep netting						
Bottle trapping	0 Tadpoles	0	0	2 male smooth	0	0
Egg search	Yes – eggs present	0	0	0		1 0
Torch count	1 female smooth	0	0	0	1 male smooth	0

Pond 6

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy

Number of traps set	10	10	10	10	10	10
Measurements taken						
pH	8.8	8.5	9.7	7.7	7.4	7.6
Water temperature	13.9°C	18.2°C	16.9°C	19.4°C	16.5°C	19.1°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	8/8 cloud, 3/12 wind	-	1/8 cloud, 2/12 wind
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	1	1	1
Survey methods						
Sweep netting						
Bottle trapping	1 female GCN 2 male smooth 1 female smooth	0	1 male GCN 1 female GCN	1 female GCN 1 male GCN	3 eft 1 female smooth	1 male GCN 1 male smooth 1 female smooth 11 eft
Egg search						
Torch count	2 female smooth	0	1 juvenile GCN 1 male smooth	2 female smooth 1 male smooth	1 female GCN 1 male smooth	0

Pond 7

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Louisa Jones, Matt Tennent	Louisa Jones, Matt Tennent	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	35	35	35	35	35	35
Measurements taken						
pH	8.8	9.3	9.8	8.3	8.1	8.1
Water temperature	15.7°C	20.0°C	17.3°C	20.0°C	17.1°C	21.9°C
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	8/8 cloud, 3/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14°C	14°C	15°C

Night time low air temperature	7°C	7°C	7°C	10°C	10°C	12°C
Fish/Water fowl present	No	No	Yes- fish	Ducks & fish	No	Fish
Vegetation cover (0-5, 0 no cover, 5 completely covered)	1	1	1	1	2	2
Turbidity (0-5, 0 clear water, 5 turbid)	4	4	4	4	5	4
Survey methods						
Sweep netting						
Bottle trapping	2 female smooth 1 male smooth	1 male GCN 5 male smooth 1 male palmate 1 female smooth	6 male smooth 2 female smooth 1 male palmate	0	2 male GCN	1 male GCN 2 female GCN
Egg search						
Torch count	0	0	1 male GCN	0	0	0

Pond 8

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Matt Tennent, Pete Duffy
Number of traps set	11	16	16	16	16	16
Measurements taken						
pH	8.9	8.7	8.0	8.5	8.0	8.2
Water temperature	13.0	19.6	16.2	18.3	16.9	20
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	No	No	No	Fish	Fish	-
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	2	2	2	1	0	0
Survey methods						
Sweep netting	-					

Bottle trapping	0	0	1 male smooth 3 female smooth	1 male smooth 1 female smooth 2 male GCN 4 female GCN	0	1 male smooth
Egg search						
Torch count	0	0	1 female GCN	0	0	1 female smooth

Pond 9

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Sam Williams, Alex Hannam	Matt Tennent, Pete Duffy	Alex Hannam, Joe Marcroft
Number of traps set	35	48	48	48	48	48
Measurements taken						
pH	7.9	8.2	8.4	8.3	7.9	8.4
Water temperature	14.8	20.0	18.5	20.3	17.4	21.8
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	Dry, 7/8 cloud, 5/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	Fish	Fish	Fish	Fish	Fish	Fish
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	1	1	1
Survey methods						
Sweep netting						
Bottle trapping	1 male GCN 2 male smooth 3 female smooth	7 male GCN 3 female GCN 2 male smooth	4 female smooth 7 male smooth 1 male GCN	2 male GCN 2 male smooth 1 female smooth	1 male GCN	1 male GCN 1 female GCN 2 male smooth 1 female smooth
Egg search						
Torch count	5 male GCN 2 female smooth	1 female GCN 2 male GCN	4 male smooth	1 male smooth	1 female smooth	2 female smooth

	1 male smooth	1 male smooth 2 unknown small	2 female smooth 1 male GCN 2 unknown small			
--	---------------	----------------------------------	--	--	--	--

Pond 22

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Alex Hannam, Joe Marcroft
Number of traps set	9	10	10			
Measurements taken						
pH	8.4	8.6	8.8	8.8	8.1	8.4
Water temperature	13.4	19.4	17.7	20.0	16.7	20.2
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	1	1	1	2	2	2
Turbidity (0-5, 0 clear water, 5 turbid)	5	5	4	2	2	3
Survey methods						
Sweep netting						
Bottle trapping	2 male GCN 2 female GCN 2 male smooth	3 female GCN 1 male GCN 2 male smooth 1 female smooth 1 male palmate	6 male smooth 1 juvenile smooth 1 female GCN	2 male smooth 4 female smooth	1 male GCN	2 male smooth 1 female smooth 1 smooth eft
Egg search						
Torch count	0	4 unknown – small 1 male GCN	2 female GCN 2 female smooth	1 male GCN 1 male smooth	1 male GCN 1 male smooth	1 female GCN 1 male smooth 1 female smooth

Pond 23

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Alex Hannam, Sam Williams	Matt Tennent, Pete Duffy	Alex Hannam, Joe Marcroft
Number of traps set	18	18	18	17	18	18
Measurements taken						
pH	8.5	8.4	8.8	7.9	7.6	8
Water temperature	14.0	19.3	18.4	20.1	16.6	19.7
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/ Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	0	0	0	0	0	0
Survey methods						
Sweep netting						
Bottle trapping	0	1 female GCN 2 female smooth 1 male smooth	2 male smooth 3 female GCN 1 male GCN	3 male GCN 1 female GCN	1 male GCN 1 female GCN	0
Egg search						
Torch count	14 male smooth 9 female smooth 2 unknown small	3 unknown small 2 male smooth 1 female smooth	1 male smooth	1 male smooth	0	1 male smooth

Pond 24

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Pete Duffy, Chris Jackson	Matt Tennent, Pete Duffy	Alex Hannam, Joe Marcroft

MDR Associates Architecture
Ecological Appraisal and Phase 2 report – Land at Eynsham

Number of traps set	16	16	16	16	16	16
Measurements taken						
pH	8.7	8.6	8.6	8.7	8.5	8.8
Water temperature	14.2	22.2	18.9	21.8	17.3	24.4
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	Dry, 7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/ fowl present	-	-	-	-	-	-
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	0	0	0
Survey methods						
Sweep netting						
Bottle trapping	1 male smooth	1 male smooth 1 female GCN	2 male smooth 2 female smooth 1 female GCN	0	0	1 female GCN 3 smooth efts
Egg search				Smooth		
Torch count	5 male GCN 2 female GCN 4 male smooth 2 female smooth	6 female GCN 3 male GCN 1 male smooth 2 female smooth 2 unknown small	1 male GCN 5 unknown small 1 male smooth	7 male GCN 1 male smooth 1 female smooth	1 male GCN 1 female smooth	2 female GCN 1 male GCN

Pond 25

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Katie Ford, Sam Williams	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Alex Hannam, Pete Duffy	Alex Hannam, Pete Duffy	Alex Hannam, Joe Marcroft
Number of traps set	12	12	12	3	12	12
Measurements taken						
pH	7.9	8.7	8.5	7.8	8.1	7.8
Water temperature	16.8	23.0	20.0	17.5	17.1	19.7
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	Dry, 7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12

Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	Possible	Possible	Possible	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	3	3	3	3	3
Turbidity (0-5, 0 clear water, 5 turbid)	1	1	1	1	1	1
Survey methods						
Sweep netting						
Bottle trapping	1 male GCN	4 male smooth 1 male GCN 1 female GCN 3 female smooth	1 male smooth 1 female smooth	0	0	0
Egg search						
Torch count	0	1 male smooth 1 female smooth	0	0	0	0

Pond 26

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Pete Duffy, Alex Hannam	Pete Duffy, Alex Hannam	Alex Hannam, Joe Marcroft
Number of traps set	20	20	20	16	20	20
Measurements taken						
pH	8.1	8.1	7.9	6.9	7.8	7.3
Water temperature	13.5	20.5	16.7	17.0	17.0	19.1
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	Dry, 7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	4	4	4	4	4	4
Turbidity (0-5, 0 clear water, 5 turbid)	0	0	0	2	0	0

Survey methods						
Sweep netting						
Bottle trapping	1 female GCN 2 female smooth	3 female smooth 2 male GCN 1 juvenile GCN	3 female smooth 1 male GCN 3 female GCN 4 male smooth 1 male palmate	1 female GCN 2 female smooth	2 female GCN 1 juvenile GCN 1 male smooth	1 male smooth 3 male GCN 2 female GCN
Egg search						
Torch count	0	1 smooth male	0	0	0	1 female smooth 1 female GCN

Pond 27

	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6
Date	03/05/2018	08/05/2018	09/05/2018	23/05/2018	05/06/2018	06/06/2018
Surveyors	Jenny Sutch, Matt Tennent	Katie Ford, Stuart Woodley	Katie Ford, Stuart Woodley	Pete Duffy, Alex Hannam	Pete Duffy, Alex Hannam	Alex Hannam, Joe Marcroft
Number of traps set	6	POND DRY	POND DRY	6	11	11
Measurements taken						
pH	6.2	n/a	n/a	8.0	8.0	8.0
Water temperature	14.8	n/a	n/a	22.6	19.6	23.2
Weather conditions	Dry, 8/8 cloud, 2/12 wind	Warm, dry 4/8 cloud, 2/12 wind	8/8 cloud, 2/12 dry	Dry, 7/8 cloud, 2/12 wind	1/8 cloud, 1/12 wind	1/8 cloud, 2/12
Evening air temperature	11°C	17°C	13°C	14	14°C	15°C
Night time low air temperature	7°C	7°C	7°C	10	10°C	12°C
Fish/Water fowl present	No	No	No	No	No	No
Vegetation cover (0-5, 0 no cover, 5 completely covered)	3	n/a	n/a	4	4	4
Turbidity (0-5, 0 clear water, 5 turbid)	0	n/a	n/a	0	0	0
Survey methods						
Sweep netting						
Bottle trapping	1 female smooth	Pond dry	Pond dry	1 female GCN	6 efts 1 female GCN	6 efts
Egg search						

Torch count	None	1 unknown small	None	0	1 male smooth 1 female smooth Smooth eft	10 efts
-------------	------	--------------------	------	---	--	---------