Strategic Eastleigh Site

Bat Trapping and Radio-tracking

Baseline Report and Evaluation

August 2017

The Highwood Group and Drew Smith Group

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The Pavilion, 1st Floor, Botleigh Grange Office Campus, Hedge End, Southampton, Hampshire, SO30 2AF

Tel: 02382 022800

Email: ecology@wyg.com

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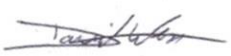
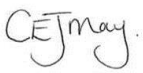
Prepared by:		Ian Davidson-Watts MCIEEM **Director of DW Ecology**
Checked By:		David West CEnv MCIEEM **Principal Ecologist**
Verified By:		Clare May CEnv MCIEEM **Associate Director**

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Executive Summary

Contents	Summary
Site Location	Land located in North Eastleigh, Hampshire, is currently being considered for allocation for major residential, commercial development and a strategic infrastructure network. The land identified and currently under consideration is approximately 400ha of greenbelt comprising a range of agricultural and forest habitats including permanent pasture, arable, replanted ancient woodland, deciduous woodland and wetlands.
Proposals	The proposals are the allocation of the site to deliver a strategic mixed use development incorporating c. 6000 dwellings; strategic transport network (including a North of Bishopstoke Bypass alongside improvements to the local highway network); green infrastructure; sustainable travel; community infrastructure; c. 30,000m^2 of employment space and new local centres to provide shops and services.
Existing Site Information	In 2016 advanced bat surveys of woodlands in Eastleigh Borough for Eastleigh Borough Council (Davidson-Watts Ecology Ltd 2016) confirmed the presence of Bechstein's bat, in the eastern part of the Borough and barbastelle bats in the northern parts of Eastleigh Borough, as well as a range of other tree roosting species not normally recorded/confirmed in standard acoustic bat surveys.
Scope of this Survey(s)	Advanced bat surveys including trapping and radiotracking to better understand the bat fauna present and from which to be able to assess any significant ecological impacts.
Results	Eight species of bat were confirmed to be present in the survey area. No Annex 2 species (Bechstein's or Barbastelle) were caught. As an assemblage of bats this species presence is considered significant at the District/Borough level, due to the regular capture of breeding individuals of whiskered (District), Daubenton's (Local/District), Natterer's (District), noctule (District), common pipistrelle (Local), soprano pipistrelle (Local) and brown long-eared bat (Local/District), and a capture of male Brandt's bat (Local).
Recommendations	Any EIA supporting the development proposals should provide further information on bats to refine mitigation measures The protection of woodland habitats and treelines linking woodland habitats should be a high priority. This should include retention where feasible and/or further woodland planting to compensate for any woodland habitat loss. Buffers should be based on the level of likely importance of a woodland site to bats and based on this results the following guide to buffers are: • 30-50m buffers - Lincoln's Copse, Pitmore Copse, Crowd Hill, Park Hills Copse, Otterbourne Park and Upper Barn Copse. Additionally Breach Sling Copse (as roost site) • 25-30m buffers - Tippers Copse and Halls Land Farm • 15m buffers - Hills Copse and Stoke Park Wood. Recognising that the increase of residential development is likely to lead to increase use of woodlands locally, management plans and strategies should be developed to ensure the sustainable recreational and visitor management and that woodland management practices ensure the protection and enhancement of potential bat roost sites.

1.0 Introduction

1.1 Background

Land located in North Eastleigh, Hampshire, is currently being considered for allocation for major residential, commercial development and strategic infrastructure network. The land identified and currently under consideration is approximately 400ha of greenbelt comprising a range of agricultural and forest habitats including permanent pasture, arable, replanted ancient woodland, deciduous woodland and wetlands.

The development area proposal is currently being considered for allocation in the local plan and likely to require an Environmental Impact Assessment. The proposals are the allocation of the site to deliver a strategic mixed use development incorporating c. 6000 dwellings (including affordable, elderly and other specialist accommodation); highways infrastructure (including a North of Bishopstoke Bypass alongside improvements to the local highway network); green infrastructure (including public open space, recreation and biodiversity enhancements); sustainable travel (including strategic cycle and pedestrian routes); community infrastructure (including education, healthcare and community facilities); c. 30,000m^2 of employment space and new local centres to provide shops and services.

In 2016 advanced bat surveys of woodlands in Eastleigh Borough for Eastleigh Borough Council (Davidson-Watts Ecology Ltd 2016) confirmed the presence of Bechstein's bat (*Myotis bechsteinii*), in the eastern part of the Borough and barbastelle (*Barbastella barbastellus*) bats in the northern parts of Eastleigh Borough (including one male caught in Upper Barn Copse), as well as a range of other tree roosting species not normally recorded/confirmed in standard acoustic bat surveys. Surveys in 2016 (Aspect Ecology) in support of a development adjacent to Lincoln Copse also recorded the presence of barbastelle (a peak of 137 registrations between 6-10th July) on the eastern boundary of Lincoln's Copse.

Given the woodland habitats present and known populations of barbastelle and possibly Bechstein's bats in the north Eastleigh area, WYG leading the ecological assessments for the proposals, have recommended advanced bat surveys to better understand the bat fauna present and from which to be able to assess any significant ecological impacts. This approach is consistent with the Bat Survey Guidelines 3rd Edition (Collins, 2016), which suggests advanced methods to assist in the determination of landscape level schemes at the strategic level.

Davidson-Watts Ecology Ltd were therefore commissioned to undertake the advanced surveys of land in north Eastleigh Borough and surrounding areas in 2017 to achieve the following objectives.

1.2 Purpose of the Report

The aims of the survey were to:

- Investigate the status of Bechstein's and barbastelle bats at the proposed development allocation area with an emphasis on woodland habitat and tree lines during the breeding season (May – September 2017);
- Where captured, radio track male and female Bechstein's and barbastelle bats to determine home ranges, activity patterns, habitat use and roost locations;

- Radio track key individual male and female bats of other tree roosting bat species to locate significant roosting areas in May and July 2017; and
- Present a robust data set of the use of the site and surrounding areas by Bechstein's, barbastelle and other tree roosting bat species, to further establish an ecological baseline, assess potential impacts and develop appropriate mitigation including appropriate roost protection measures, lighting design, detailed landscaping/planting inventories and habitat management.

2.0 Methodology

2.1 Overview

Due to the difficult nature of locating bat roosts in trees and assessing the context of bat activity over large areas with bat detector/acoustic surveys, the primary approach to meeting the project aims was to trap free-flying bats and to radio-track individual bats of specific species to locate maternity and other roost types, and to investigate use of the site by bats when active at night. The target species included whiskered/Brandt's, Natterer's, noctule, Daubenton's, barbastelle and Bechstein's bats, as these species are known to regularly roost in trees, or records of roosts are uncommon.

Key woodland areas likely to support the target bat species were selected across and within or adjacent to the proposed development allocation area (https://www.eastleigh.gov.uk/media/252267/161130-v2-Highwood-Drew-Strategic-Site-Rationale-Delivery-Strategy-FINAL.pdf). All but one of the initially selected sites (Park Hills Wood) were sampled using the survey methods outline below.

Two survey sessions of approximately one week each were undertaken, including one session in May 2017 and one session in July 2017. Each session began with the trapping of bats. Radio-tagged bats were subsequently followed by radio-tracking during the week to locate roost sites and to examine nocturnal activity of bats, with a focus on collecting activity data for bats within the development allocation boundary. Where access was possible, emergence counts were undertaken at identified roosts to determine the function of the roost and to provide an estimate of population sizes.

A further targeted survey at the end of August 2017 was undertaken of a smaller number of key sites with previous records of barbastelle bat to ensure any late summer activity for this rare species could be properly determined.

The following methods were undertaken in line with Chapter 9 (Advanced licensed bat survey methods) in Collins, 2016.

2.2 Trapping Methods

Bats were caught using up to seven 4m^2 harp traps placed in woodlands within the land subject to investigation (the site). Six acoustic lures (Sussex Autobats) were used to improve catch efficiency in woodland (Hill and Greenaway 2005). The lures emitted synthesised bat social calls. Lures were placed next to harp traps and any bats captured were identified, sexed, aged and breeding status determined.

Generally trapping teams monitored trap sites with hand held bat detectors (Pettersson 240x or Elekon Batlogger M) during the trapping survey, mainly to assess bat activity in the vicinity of the traps. As part of this process, any possible barbastelle bat passes were recorded and analysed using the method under 2.2.3 below.

Due to previous records of barbastelle bats being recorded adjacent to Lincoln's copse (Aspect Ecology 2016), an Elekon Batlogger A+, was deployed on the eastern edge of the copse during the trapping survey of 3 July 2017, to record any echolocation calls (bat passes) from foraging/commuting bats. Recorded bat passes were analysed using BatExplorer sound analysis software to determine species and/or genus.

2.3 Tracking Methods

Target bats were fitted with lightweight radio-transmitter tags (Biotrack Ltd, Wareham, Dorset, United Kingdom) weighing <5 % of the weight of the bat using skin bond adhesive. Tagging of female bats in advanced stages of pregnancy was avoided. Lactating bats were tagged if they met the target weight and were in good condition, although early lactating bats were not tagged for welfare reasons. Bats were processed quickly and released within 30 minutes of capture provided the glue attaching the transmitter had cured sufficiently.

All tagged bats were tracked using a Sika receiver (Biotrack Ltd., Wareham, United Kingdom) and a 3-element Yagi antenna (Biotrack Ltd). Tagged bats were located during the day to find roost sites and at night to determine the extent of use of the site for commuting and foraging. The primary aim at night was to record positional fixes that enabled determination of key areas of activity within the site. Bats were tracked using the "homing-in" method (White and Garrott 1990) either on foot or by vehicle. Radio-tracking fixes for each individual bat were plotted in the field on digitised 1:25,000 scale Ordinance Survey maps in the MemoryMap mobile application and subsequently transferred into Ranges 9 radio tracking software (Anatrak Ltd). Aerial images in the Google Earth mobile application were used in the field as an additional visual guide when plotting fixes in MemoryMap. Digitised radio-tracking data were analysed in Ranges 9 (Anatrack Ltd., Wareham, United Kingdom) to calculate home range areas (100% minimum convex polygons (MCPs)) and core activity areas (90% cluster core polygons) (Davidson-Watts *et al.* 2006; Zeale *et al.* 2012).

2.4 Roost Emergence

When tagged bats were tracked to roost sites, subsequent roost exit counts were undertaken using infrared cameras (Canon XA10) with infrared illuminators to determine roost size and status (e.g. maternity roost). Roost attributes such as location, type of structure and other descriptors were recorded where possible.

2.5 Licensing

All trapping and tracking were undertaken under a project licence from Natural England number: 2017-28664-SCI-SCI-1 obtained by Dr Ian Davidson-Watts MCIEEM with 24 years bat survey experience, who designed and coordinated the field surveys and undertook the analysis of the results. Field surveys were undertaken by Dr David Hill, Jade Flear O'Rourke, Mike Bird MCIEEM, and Alan Crane, who were assisted by WYG ecologists Ben Cooke GradCIEEM, Max Ward GradCIEEM, Alex Hellyar and Dominika Murienova.

2.6 Adjustments and Limitations

Bats are mobile species and may use a variety of roosts, commuting routes and foraging areas during their yearly lifecycle, which is influenced by a range of factors such as breeding status, energetic requirements and the availability of prey. The survey techniques described in this report involve a sampling effort that is considered appropriate for obtaining valuable information on the location of roosts and foraging areas potentially affected by the development allocation proposals while ensuring that local bat populations are not disturbed adversely. The methods used here do not provide a full account of all bat activity in the area or activity at other times of the year outside of the survey

periods (i.e. outside of the summer early to mid-breeding period) which is focussed on identifying key maternity populations.

The bats captured and tracked during this study were all non-Annex 2 species (i.e. not Bechstein's or barbastelle bats). These bats were generally tracked for only one full night each, in some cases two nights, as the primary objective of tracking for these species was roost location and general activity patterns. Therefore, although home ranges and core areas (cluster cores) were determined for these species, it is recommended that three nights of data is obtained to provide a reliable estimation of homes ranges (Collins, 2016).

Weather conditions were appropriate throughout both survey sessions and so the results of trapping and radio-tracking were not constrained or affected by weather in so far as expected bat activity at that time of year. In line with early bat activity season conditions, the weather in early May was cool, and may have limited bat activity.

2.7 Evaluation Criteria

Ecological features and resources have been evaluated based on the approach described in 'Guidelines for Ecological Impact Assessment in the United Kingdom' published by the Chartered Institute of Ecology and Environmental Management (2016) whereby the value of an ecological feature or resource is determined within a defined geographical context using the following criteria:

- International;
- National (England)
- Regional (South-East)
- County/District (Eastleigh)
- Local (or Parish) (Bishopstoke); and
- At the site level only.

3.0 Results

3.1 Bat Trapping

Two bat trapping survey sessions were undertaken during early and mid-summer of 2017. The primary aim of trapping was to capture tree roosting and/or breeding bats for radio tracking. All trapping data is contained in Appendix A.

A total of 36 bats of six species were caught in the five nights of trapping from 7-11th May 2017. Species included Natterer's bat (*Myotis nattereri*), whiskered bat (*M. mystacinus)*, Brandt's bat (*M. brandtii)*, common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus)* and brown long-eared bat (*Plecotus auritus*). There were no captures of Bechstein's or barbastelle bats. The survey was undertaken in early May, and as a result, no conclusive evidence of breeding females could be found at that stage.

A total of 40 bats of eight species were caught in five nights of trapping during 2-7 July 2017 survey session. Species included Natterer's bat, whiskered bat, Brandt's bat, Daubenton's bat (*Myotis daubentonii*), common pipistrelle, soprano pipistrelle, noctule (*Nyctalus noctula*) bat and brown long-eared bat. There were no captures of Bechstein's or barbastelle bats.

A total of 14 bats of five species were caught in two nights of trapping during 30-31 August 2017 survey session. The two nights of survey were undertaken in Crowd Hill Copse, Upper Barn Copse, Lincoln's Copse and Otterboune Park Wood, primarily to determine the presence of barbastelle bats. Species captured included Natterer's bat, whiskered bat/Brandt's bat, common pipistrelle, soprano pipistrelle and brown long-eared bat. There were no captures of Bechstein's or barbastelle bats.

As part of the July and late August trapping surveys, a static bat detector was deployed on the eastern woodland edge of Lincoln's Copse for the duration of the trapping survey (approximately 7 hours). In July 2017, 557 bat calls were detected of which 85% were attributable to common pipistrelle, 12% soprano pipistrelle, 1% were *Myotis* bat and less than 1% were attributable to noctule (one pass recorded) and barbastelle (two passes recorded).

On the 31 August 2017, 306 bat calls were detected of which 47% were attributable to common pipistrelle, 39% soprano pipistrelle, 2% were *Myotis* bat and less than 2% were attributable to noctule/serotine and 10% to the genus *Pipistrellus* . No barbastelle bats were recorded.

Table 1 ***Summary of species present at each woodland survey site (bold denotes breeding female bats)***

Site	Species present May 2017	Species present July 2017	Species present August 2017
Stoke Park Wood 2 x surveys	*Common pipistrelle*	*Natterer's bat*	*N/A*
Crowd Hill Copse 4 x surveys	*Brown long-eared bat* *Soprano pipistrelle* *Common pipistrelle* *Whiskered bat*	***Brown long-eared bat***	*Brown long-eared bat* *Common pipistrelle bat* *Soprano pipistrelle bat* *Whiskered bat*
Upper Barn Copse 4 x surveys	*Soprano pipistrelle* *Whiskered/Brandt's bat*	***Brown long-eared bat*** *Soprano pipistrelle* *Daubenton's bat* *Whiskered bat*	*Common pipistrelle bat* *Natterer's bat* *Soprano pipistrelle bat*
Hill Copse 2 x surveys	*Common pipistrelle*	*Soprano pipistrelle* *Common pipistrelle*	*N/A*

Site	Species present May 2017	Species present July 2017	Species present August 2017
Lincoln's Copse 4 x surveys	*Whiskered/Brandt's bat* *Soprano pipistrelle* *Brandt's bat*	*Natterer's bat* *Soprano pipistrelle* ***Common pipistrelle*** *Brown long-eared bat*	*No bats captured*
Pitmore Copse 2 x surveys	*Soprano pipistrelle* *Whiskered/Brandt's bat*	*Natterer's bat* ***Brown long-eared bat*** ***Daubenton's bat***	*N/A*
Tippers Copse 2 x surveys	*Common pipistrelle* *Natterer's bat* *Soprano pipistrelle*	***Natterer's bat*** ***Noctule***	*N/A*
Halls Land Farm 2 x surveys	*Soprano pipistrelle* *Brown long-eared bat* *Common pipistrelle*	*Common pipistrelle* ***Natterer's bat***	*N/A*
Otterbourne Park 2 x surveys	*No trapping*	*Natterer's bat* ***Brown long-eared bat*** ***Whiskered bat***	*Natterer's bats* *Brown long-eared bat* *Whiskered bat* *Common pipistrelle bat*

3.2 Radio tracking and roosting patterns

A total of six target bats were fitted with radio transmitters to primarily locate roost sites and as a secondary objective determine broad activity areas including foraging sites. Two bats of two species (bat 222 and bat 259) were tagged in May 2017 and four bats of four species were tagged in July 2017.

For each bat, their roosting location was confirmed (where access was permitted) or estimated through triangulation of the radio signal (where access was not permitted). Each tagged bat was followed as described in Section 2.3 for at least one night. The fixes of all tracking nights for each bat were pooled, from which it was possible to determine an area of activity (home range/Minimum Convex Polygon) and core areas of activity (usually associated with roosting or foraging areas).

Table 2 ***Summary data of tagged bats and their home range statistics (refer to Figure 2)***

ID	Species	Sex *breeding	Date captured	Location of capture	Range span (m)	MCP (ha)	Mean core area (ha)
222	*Whiskered bat*	Female	7/5/2017	Crowd Hill	1565	34.6	1.36
259	*Natterer's bat*	Female	10/5/2017	Tippers	1074	20.7	2.39
212	*Natterer's bat*	Male	2/7/2017	Stoke Park	509	7.11	1.08
314	*Daubenton's bat*	Male	3/7/2017	Upper Barn	1727	31.2	1.90
340	*Noctule*	Female*	5/7/2017	Tippers	1539	48.4	2.10
258	*Whiskered bat*	Female*	6/7/2017	Otterbourne Park	725	20.1	1.39

Table 3 ***Roost locations and summary roost attributes of tagged bats (refer to Figure 2 and Appendix B)***

Tag	Species	Sex	Date captured	Roost			
				ID	Type	Location	Feature	Count
222	*Whiskered bat*	Female	7/5/2017	1	House	SU489208	Dormer	1
259	*Natterer's bat*	Female	10/5/2017	2	Tree***	SU499198	-	1**
212	*Natterer's bat*	Male	2/7/2017	3	Beech tree	SU481191	-	1
314	*Daubenton's bat*	Male	3/7/2017	4	Alder tree	SU468206	Cavity	20
340	*Noctule*	Female*	5/7/2017	5	Tree***	SU500198	-	1**
258	*Whiskered bat*	Female*	6/7/2017	6	House	SU458215	Roof	1**

*breeding bat. **potential maternity roost, but no roost access to undertake emergence count. ***assumed tree roost.

3.2.1 *Radio tracking 7th May- 12th May 2017*

During the May 2017 survey session, two bats were marked with radio-transmitter tags (Appendix 1), including one female whiskered bat (Bat 222) and one female Natterer's bat (Bat 259).

Adult female whiskered bat (bat 222) (refer to Figure 3)

Bat 222 was captured on the evening of the 7th May 2017 in Crowd Hill Copse immediately south of the Site, and was radio-tracked/monitored for three days.

On the day following trapping, the bat was recorded roosting in a house roost (R1) (off site). An emergence count was undertaken on the roost on 8th May 2017 and two pipistrelle bats were observed emerging from the location that bat was thought to be roosting. However, Bat 222 did not emerge and was likely in summer torpor given the cool conditions.

Bat 222 stayed in this roost during the week of the May 2017 surveys, and was again monitored on the 11th May 2017, which confirmed that Bat 222 emerged from tiles on the west dormer window at 20:52 and proceeded to commute south to woodland within 500m and then over the B3354 to Crowd Hill Copse. These appeared to be the main foraging areas for this bat during the one night of monitoring.

During the night, the Bat 222 travelled approximately 1.5km from its roost which was the maximum range span for the bat (i.e. distance from roost to furthest edge of home range area). The home range area was small (33.6 ha). Cluster analysis revealed that within the home range area the Bat 222 spent the majority of its time in the woods south of the roost (to the north of the Site/offsite) and within Crowd Hill Copse. Cluster areas formed 4 % (1.36 ha) of the home range area.

Adult Female Natterer's bat (259) (refer to Figure 4)

The bat was captured on the evening of the 10th May in Tippers Copse (on site), and following its release was tracked to a presumed tree roost in Park Hills Wood (north of the Site). There was no access to Park Hills wood, so the tracking team triangulated the bat's position from the closest accessible areas.

Bat 259 was recorded as active within Park Hills wood (around emergence time) on the 11th May 2017 at 21:44. Bat 259 spend time in Park Hills and woodland areas to the south east.

At night, Bat 259 ventured around 1km away from its roosting area and had a home range area of around 20ha. Core areas were made up around 10% of the home range and were predominantly woodland and treeline habitats. Bat 259 returned to the same roosting area on the morning of the 12th May 2017.

3.2.2 *Radio tracking 2nd to 7th July 2017*

During the July 2017 survey session, four bats were fitted with radio transmitters (Appendix 2), including one male Natterer's bat (Bat 212), a male Daubenton's bat (Bat 314), a female breeding noctule bat (340) and breeding whiskered bat (Bat 358).

Male Natterer's bat (Bat 212) (see Figure 5)

The bat was captured on the evening of the 2nd July 2017 in Stoke Park Wood (directly to the south of the site) and following its release spent most of the time within Stoke Park Wood.

Bat 212 was tracked to a roost in a beech tree in Stoke Park Wood (see Figure 5), however despite an extensive search no obvious roost feature was found. The bat emerged on the 3rd July 2017 at 22:24, no confirmed roost feature was recorded despite the use of IR video cameras.

The bat was recorded foraging close to the day roost on each of the nights during the survey session, and its small home range area was entirely within a small area of Stoke Park Wood. The estimated home range area for the bat during the survey session was around 7ha with a core foraging area of approximately 1ha. The maximum span of the home range was approximately 500m.

Adult male Daubenton's bat (Bat 314) (see Figure 6)

Bat 314 was captured on the evening of the 3rd July 2017 in Upper Barn Copse (not part of the Site but in the centre of the proposed development site) and following its release travelled west to the River Itchen area.

Bat 314 was tracked to a roost in an Alder tree in Breach Sling Copse (south of the Site), close to the River Itchen (see Figure 2), further searches revealed it was using a cavity approximately 5m from the ground on the northern edge of the copse. On 6th July 2017, Bat 314 emerged at 22:32, along with 20 other bats from the same roost.

Bat 314 was recorded foraging close to the day roost, mainly around Breach Sling Copse and over the River Itchen. However, the bat did fly back to Upper Barn Copse during the night of the 6th July for a short time before returning the Breach Sling Copse. As a result, Bat 314's home range was greatly increased to 31 ha, from its core area of approximately 2 ha around Breach Sling Copse.

Adult female breeding noctule bat (340) (see Figure 7)

Bat 340 was captured on the evening of the 5th July 2017 in Tippers Copse (see Figure 1) and following its release was tracked to a presumed tree roost in Park Hills Wood. There was no access to Park Hills wood, so the tracking team triangulated the bat's position from areas where access was possible.

Bat 340 was recorded as active within Park Hills wood (around emergence time) on the 6th July 2017 at 21:42. Bat 340 spent time in Park Hills and woodland areas to the east.

At night, Bat 340 ventured approximately 1.5km away from its roosting area and had a home range area of around 40ha. Core areas were made up around 5% of the home range and were predominantly woodland and treeline habitats. Bat 340 returned to the same roosting area on the morning of the 7th July 2017.

Adult female breeding whiskered bat (258) (see Figure 8)

Bat 258 was captured on the 6th July 2017 in Otterbourne Park Wood (off site to the north west), and subsequently tracked to a roost in a house on Pitmore Lane.

Bat 258 was tracked for one night on the 7th July 2017 and its general area of activity was in Otterbourne Park Wood (see Figure 8). No emergence survey was possible due to access limitations (the householders were not at home to ask permission), so it is not clear whether this was the maternity roost, or a day roost. Although the former is most likely as Bat 258 returned to the same roost site at dawn on the 8th July 2017 and was or had been recently feeding young.

The bat's home range was approximately 20ha and core areas 1.3 ha. The maximum range span of the bat's activity was 725m, the majority of which was confined to woodland habitat.

4.0 Discussion and Evaluation

4.1 Overview of the importance of the site for bats

The site, which incorporates extensive urban, agricultural, wetland and woodland habitats in the northern portion of Eastleigh Borough is a very large area and presents significant challenges which to undertake an effective bat survey. This report has built on work undertaken by Eastleigh Borough Council to the nature of this survey technique only woodland related habitats were sampled due to the difficulty of trapping bats in more open habitats.

Despite this limitation, 76 bats of eight bat species were confirmed using the site. Breeding females of 6 species were confirmed on site, including Daubenton's bat, whiskered/Brandt's bat, brown long-eared bat, common pipistrelle, Natterer's and noctule.

Overall, the range of species and number of bats captured indicates an important role of the woodlands within the proposed development area for bats, which appears to be predominantly related to foraging and commuting.

Despite there being records of barbastelle bats at Upper Barn Copse (Davidson-Watts Ecology 2016) and Lincoln's Copse (Aspect Ecology 2016), no further evidence of barbastelle has been gathered at Upper Barn Copse, or at any other survey site, except for Lincoln's copse, where a deployed static bat detector detected two barbastelle bat calls on the eastern edge of the copse. Based on these results and the results of previous surveys combined, it is considered that the presence of barbastelle bat is limited to either ad hoc visits to woodlands from males, or irregularly used foraging areas on the fringes of homes ranges of breeding colonies located elsewhere. Further information being gathered elsewhere on male barbastelle bats (Davidson-Watts, unpublished data) suggests that male bats can be relatively itinerant during the summer months, roosting and patrolling different woodland sites, perhaps as part of territory protection/investigation in readiness for the mating period (usually August to November). At present, data from this study do not indicate the presence of a regularly occurring population of barbastelle bats in the north Eastleigh area.

Six bats of four species were tagged, from which six roost sites/structures were located. Four roosts were located in trees, (two of which could not be confirmed as trees, but were in woodlands and presumed trees) . The confirmed tree roosts within the proposed allocation area supported male bats, Natterer's and Daubenton's). The presumed tree roosts both occurred just to the north of the site in Park Hills Wood, and are likely to support breeding roosts.

The remaining two tagged bats (both female whiskered) roosted in suburban houses within 1km of where they were captured. The whiskered bat captured in July 2017 was breeding and it is presumed the roost she used for the duration of the study was a breeding roost, however due to access restrictions this was not confirmed, although the bat was observed swarming with other bats from a distance shortly before returning to the roost at dawn, making this assessment likely.

4.2 Species evaluation

4.2.1 Species assemblage

Eight species of bat were confirmed to be present in the survey area and individual bat species are evaluated below. As an assemblage of bats this species presence is considered significant at the

District/Borough level, due to the regular capture of breeding individuals of whiskered (District), Daubenton's (Local/District), Natterer's (District), noctule (District), common pipistrelle (Local), soprano pipistrelle (Local) and brown long-eared bat (Local/District), and a capture of male Brandt's bat (Local).

4.2.2 Daubenton's bat

The main outcome of the surveys was the discovery of a roost in Breach Sling Copse for this species. It contained over 20 individuals, and was located via the radio tracking of an adult male. Although the numbers of bats in such a roost would normally indicate a maternity population, other surveys (Davidson-Watts, unpublished data) have found large male Daubenton's bat roosts of 15-22 bats, therefore this could be one such roost.

Daubenton's bats are considered to be relatively common and widespread throughout the UK, with increasing populations (BCT, 2016). In Hampshire, records of this species are numerous around wetland/riverine habitats and, therefore, the species is considered to be widespread and locally abundant (NBN Atlas 2017). The species is generally associated with open water and riparian habitats, and roosts in woodlands and buildings.

The results of the surveys suggest that the wooded areas on the site and close to the Itchen Valley are likely to provide an important roosting and perhaps also foraging resource for this species, especially given the proximity to open water habitats associated with the nearby River Itchen. Due to the mobility of tree roosting bat species it is likely that further tree roosts will be used within the site than currently known and it should be assumed that trees within such woodlands with suitable roosting cavities are likely to form part of this roosting resource. Given the breeding female caught on site it should also be considered that maternity roosts may be present on site.

Although the species is common and widespread, the capture of a breeding female caught and the likely large male population is significant when considering the importance of the site for this species in relation to the River Itchen habitats. The population of Daubenton's bats associated with the site is, therefore, considered to be of **Local/District** value.

4.2.3 Natterer's bat

Natterer's bat was regularly captured during the surveys in both May and July 2017. The captures of breeding females in Tippers Copse and Halls Land Copse, as well as the tracking of the adult female which later roosted in Park Hills Wood, indicates a maternity/breeding population using the eastern end of the study area and the woodland copses are likely to be an important foraging resource.

Male Natterer's bats were also captured at the western end of the study area and at Stoke Park Wood, where an individual roosted in a beech tree.

This *Myotis* species has a wide distribution across the UK with an increasing population (BCT 2016). This species is known to roost in trees and buildings and the relatively frequent capture rate of this species in the study area reflects the national status of this species.

Given the likely presence of a nearby breeding population of Natterer's bats, and the likely role of the site in supporting foraging, commuting and possibly roosting bats from this breeding population, the Natterer's bat population should be considered to be of **District** value.

4.2.4 Whiskered/Brandt's/Alcathoe bat

Small *Myotis* species, which include whiskered, Brandt's and Alcathoe bats are often grouped together due to difficulties identifying these species using morphological features. Indeed, a breeding (pregnant) female small *Myotis* was caught on site without clear diagnostic morphological features, limiting identification to 'whiskered/Brandt's/Alcathoe'.

Alcathoe bat has not been confirmed in Hampshire to date, but some historical records of whiskered and Brandt's bat are likely to be unreliable. The three species are evaluated together here as at this stage the roosting behaviour and habitat use for each have not been described separately in detail.

The trapping data suggests that small Myotis bats are present in the Upper Barn/Crowd Hill area and also a major population around Pitmore/Lincoln's/Otterbourne Park area, which was also confirmed through the radio tracking in both May and July. A likely breeding roosts was confirmed on Pitmore Road.

It is confirmed that whiskered and Brandt's bats are present on site as males of this species with clear identification features were examined (identified through differences in male sexual organs). Whiskered bats have a wide distribution across the UK with a stable population, there is less information on Brandt's bat, but are generally treated the same as whiskered (BCT 2016), although the species is considered to be one of the 'rarer' bats (Wray *et al* 2010).

Given the likely presence of a nearby breeding population of small *Myotis* bats, and the likely role of the site in supporting foraging, commuting and possibly roosting bats from this breeding population, without further confirmation of species the local small *Myotis* bat population should be considered to be of **District** value.

4.2.5 Brown long-eared bat

Brown long-eared bats were caught during the May and July survey sessions. A mixture of breeding females and adult male bats were caught in July across the study area. Breeding females were confirmed in copses on the western and mid and eastern parts of the study area, and it is likely that at least two breeding populations use the site for roosting, foraging and commuting.

The brown long-eared bat is a relatively common species with stable populations, and is widespread throughout the UK and in Hampshire (NBN Atlas 2017). The species is generally considered to be a woodland bat, using trees and a wide variety of building types for roosting. Due to the mobility of tree roosting bat species, it is likely that tree roosts will be used within the sites they were captured.

The presence of a breeding colonies on the site is important, as is the confirmed role of the site in providing foraging habitat for the species. Given that locally the species is widespread and abundant, the population of brown long-eared bats associated with the site is considered to be of **Local/District** value.

4.2.6 Common and soprano pipistrelles

Common and soprano pipistrelles were the bat species caught most frequently on site making up over 50% of all captures and captured frequently in most of the site's surveyed. Common pipistrelle bats were mainly males however, with only Lincoln's Copse being confirmed as supporting a breeding female. Soprano pipistrelle bats were captured more frequently and again were mainly male bats, with no sites specifically being confirmed as supporting breeding female bats.

Davidson-Watts *et al.* (2006) found that the common pipistrelle is a generalist forager using a wider variety of mainly woodland habitats for foraging, whereas the soprano pipistrelle prefers riparian habitats. The dominance of male soprano pipistrelles within the interior of woodlands has been observed regularly on other trapping studies (Davidson-Watts, unpublished data), with bats often being captured prior to sunset indicating the presence of roosts in trees. The high capture rate of male pipistrelles in woodlands may also be as a result of the use of lures, and individuals could be responding more readily than any females in the same habitat.

Common pipistrelle populations are considered to be increasing and soprano pipistrelle bats are considered stable nationally (BCT 2016). Both species are locally common and widespread in Hampshire (NBN Atlas 2017). It is concluded that populations of both common and soprano pipistrelles associated with the site are considered to be of **Local** value.

4.2.7 Noctule

One breeding (lactating) female noctule was caught in Tippers Copse in July 2017. The bat may have been foraging along the woodland edge or above the canopy, or may have entered the woodland searching for a roost or feeding perch, when it was caught (perhaps attracted by the acoustic lure). The individual bat was tagged and tracked to a presume breeding tree roost in Park Hills Wood.

This species generally roosts in cavities in trees. Open space, riparian and woodland habitats are known to be preferred foraging habitats and they are difficult to catch due to their open space habitat preferences, therefore the results of the trapping surveys are likely under record their presence

Noctule bats are widespread in Hampshire (NBN Atlas 2017) and although they are found throughout the UK they are likely to be relatively sparsely populated throughout their range due to the large home ranges they occupy. Noctule populations in the UK are considered stable (BCT, 2016). As a likely breeding population was discovered at Park Hills Wood and used the eastern part of the study area for foraging and commuting, the population of noctules associated with the site is considered to be of **District** value.

5.0 Conclusions and Recommendations

5.1 Conclusions

The trapping and radio tracking study of the Strategic Eastleigh Site has provided a high level of qualitative data relating to the bat species potentially affected by the allocation proposals and other important information around the status of bat populations that could not be obtained using standard bat surveys methods.

The results of the surveys suggest that the area is important to a range of woodland and other bat species and supports some significant breeding populations. The overall valuation of these species combined is at the District level, and whilst other studies have suggested the presence of rarer species such as barbastelle bat, these data indicate that such records are more likely indicative of itinerant behaviour from this species. Therefore with respect to barbastelle bat, the combined results of trapping surveys carried out in 2016 and the present study do not indicate a regular presence or a major population (e.g. breeding colony).

The results do suggest resident breeding populations of both (primarily) building roosting species and tree roosting species and, without mitigation, many of these species could be affected from impacts such as habitat and roost loss, habitat fragmentation and artificial light pollution/affects at the District level.

However with a range of appropriate mitigation measures and early planning, it should be possible to mitigate the potential effects of the development proposals on these bat populations.

5.2 Recommendations

Any EIA supporting the development proposals should provide further information on bats to refine mitigation measures from the potential impacts identified in 5.1.

The protection of woodland habitats and treelines linking woodland habitats should be a high priority. This should include retention where feasible and/or further woodland planting to compensate for any woodland habitat loss.

To limit indirect effects from the developments such as artificial lighting, buffers between 15m and 50m should be provided and artificial lighting reduction measures employed near habitats supporting potential roosting, foraging and commuting bat habitats.

Buffers should be based on the level of likely importance of a woodland site to bats and based on this results the following guide to buffers is recommended:

- 30-50m buffers - Lincoln's Copse, Pitmore Copse, Crowd Hill, Park Hills Copse, Otterbourne Park and Upper Barn Copse. Additionally Breach Sling Copse (as roost site)
- 25-30m buffers - Tippers Copse and Halls Land Farm
- 15m buffers - Hills Copse and Stoke Park Wood.

Recognising that the increase of residential development is likely to lead to increase use of woodlands locally, management plans and strategies should be developed to ensure the sustainable recreational and visitor management and that woodland management practices ensure the protection and enhancement of potential bat roost sites in dead standing wood etc.

6.0 References

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FIGURES

Figure 1 Survey Area & Trapping Location

Site Name: Strategic Eastleigh Site

Figure 2 Overview of radio tracking data

Home ranges of all bats tracked in May and July 2017. Dark blue – female whiskered bats (May 2017), Yellow - female Natterer's bat (May 2017), Orange – male Natterer's bat (July 2017), Pink – male Daubenton's bat (July 2017), Green – female noctule bat (July 2017) and Light blue – female whiskered bat (July 2017). Dost show roost sites and red polygons show foraging areas.

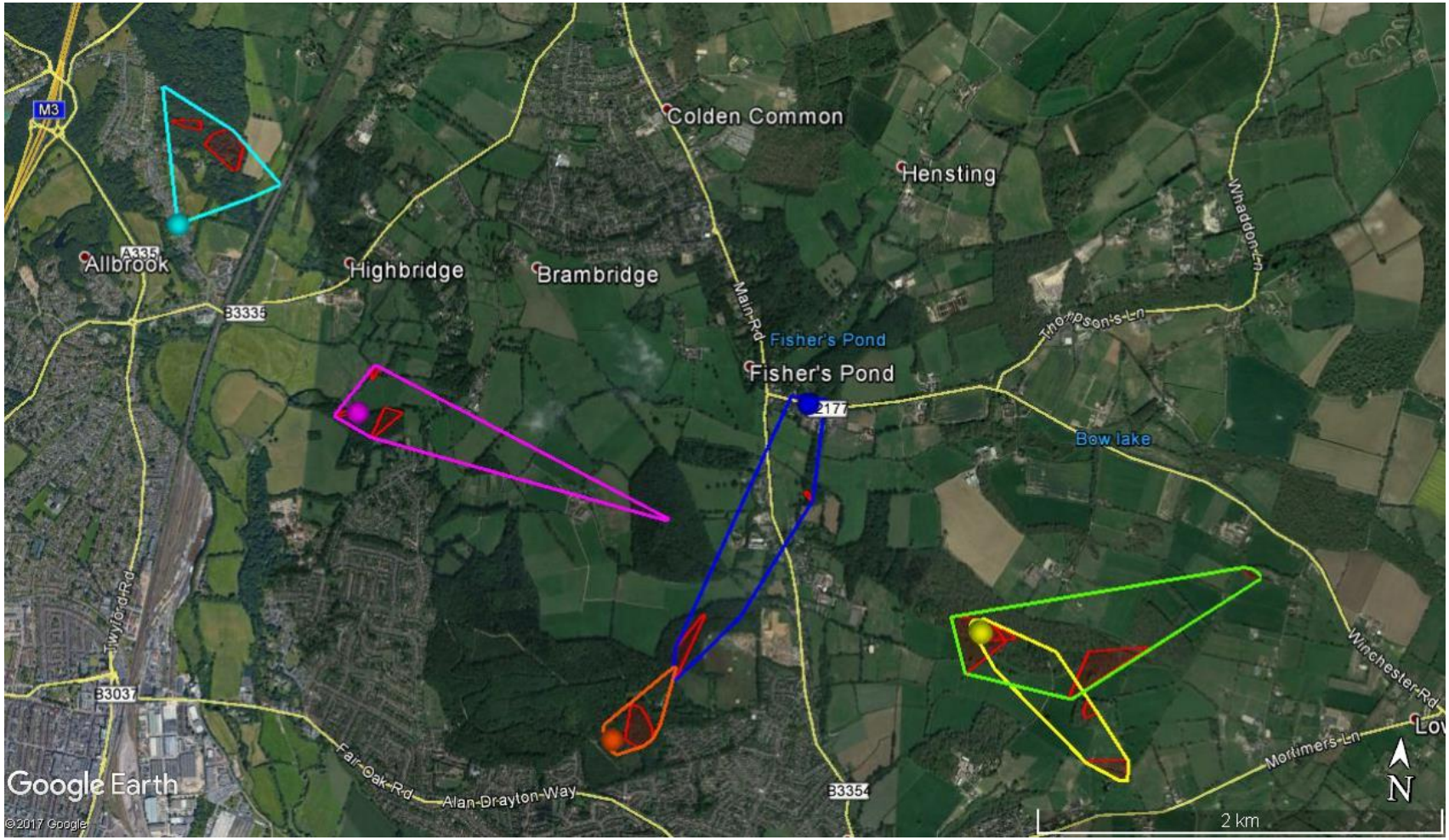
M3
Colden Common
Hensting
Allbrook
A335
Highbridge
Brambridge
B3335
Main Rd
Fisher's Pond
Fisher's Pond
Whaddon Ln
Thompsons Ln
2177
Bow lake
Twyford Rd
B3037
Fair Oak Rd
Alan Drayton Way
B3354
Winchester Rd
Mortimers Ln
Google Earth
©2017 Google
2 km
N

Figure 3 Female whiskered bat (222) radio-tracking data

Radio-tracking data obtained from one female whiskered bat caught on 7th May 2017. Radio-tracking data over three days and one night from 7th May to 10th May 2017. The figure shows the MCP home range area (blue polygon) for the bat, as well as core foraging areas (red polygons) and the location of day roost (blue dot).

Site Name: Strategic Eastleigh Site

Figure 4 Female Natterer's bat (259) radio-tracking data

Radio-tracking data obtained from one female Natterer's bat caught on 10th May 2017. Radio-tracking data for one night from 11th May 2017. The figure shows the MCP home range area (yellow polygon) for the bat, core foraging areas (red polygons), as well as the estimated location of a single roost (yellow dot).

Site Name: Strategic Eastleigh Site

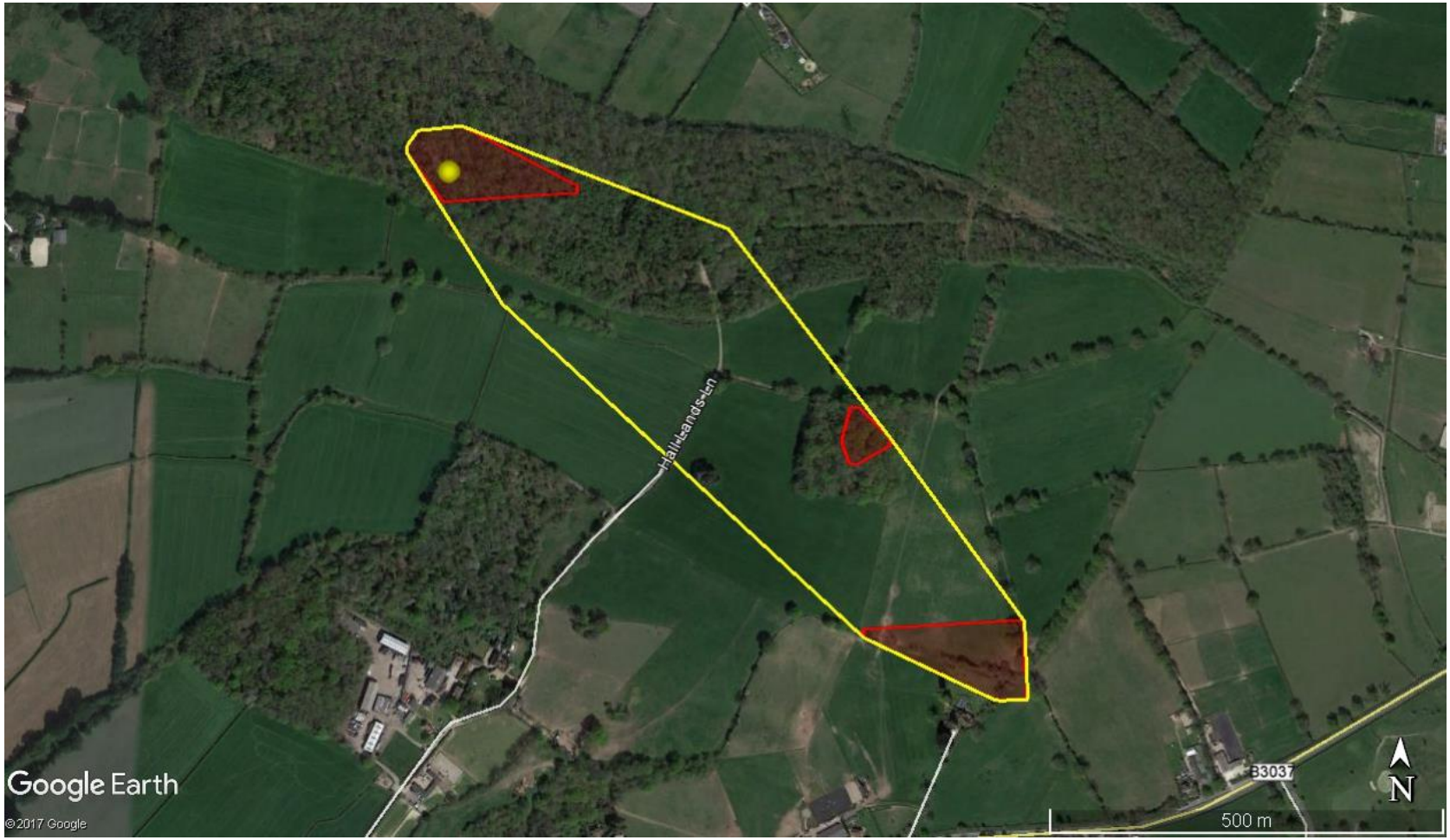

Figure 5 Male Natterer's bat (212) radio tracking data

Radio-tracking data obtained from one male Natterer's bat caught on 2nd July 2017. Radio-tracking data for one night from 3rd July 2017. The figure shows the MCP home range area (orange polygon) for the bat, core foraging areas (red polygons), as well as the location of a single roost (orange dot).

Site Name: Strategic Eastleigh Site

Figure 6 Male Daubenton's bat (314) radio-tracking data

Radio-tracking data obtained from one male Daubenton's bat caught on 3rd July 2017. Radio-tracking data for one night from 4th July 2017. The figure shows the MCP home range area (pink polygon) for the bat, core foraging areas (red polygons), as well as the location of a single roost (red dot).

Site Name: Strategic Eastleigh Site

Figure 7 Male Daubenton's bat (314) radio-tracking data

Radio-tracking data obtained from one lactating female noctule bat caught on 5th July 2017. Radio-tracking data cover one night from 6th July 2017. The figure shows the MCP home range area (green polygon) for the bat, core foraging areas (red polygons) as well as the estimated location of a possible maternity roost (green dot).

Site Name: Strategic Eastleigh Site

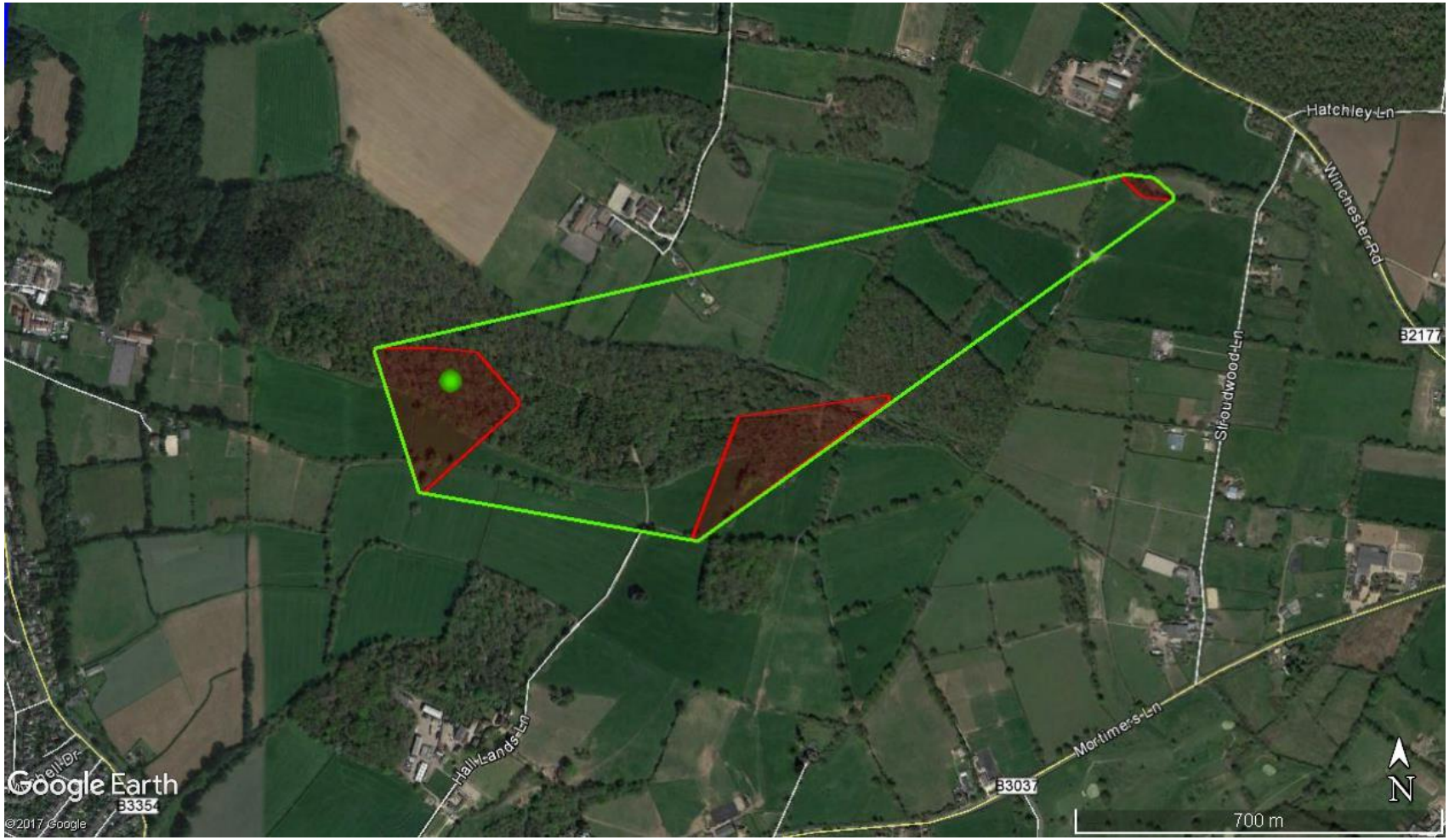

Figure 8 Female lactating whiskered bat (258) radio tracking data

Radio-tracking data obtained from one female whiskered bat caught on 6th July 2017. Radio-tracking data for one night from 7th July 2017. The figure shows the MCP home range area (light blue polygon) for the bat, core foraging areas (red polygons), as well as the estimated location of a single roost (light blue dot).

Site Name: Strategic Eastleigh Site

Appendix A – Trapping results
Appendix B – Roost photographs

Appendix A Trapping results

Location	Date	Time	Species	Sex	Age	Breeding status	Trap location	Tag Freq	Bat ref	Sunset	Weather (for survey date)
Stoke Park Wood	07/05/2017	21:20	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	21:20	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	22:00	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	23:30	*Pipistrellus pipistrellus*	Male	Adult		SU 4801 1929			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	00:18	*Pipistrellus pipistrellus*	Male	Adult		SU 4769 1929			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	21:15	*Plecotus auritus*	Male	Adult		SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	22:48	*Plecotus auritus*	Male	Adult		SU4862119732			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:28	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:28	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:55	*Myotis mystacinus/brandtii*	Female	Adult	Not detectably pregnant	SU4862119732	(173)2220	BAT1	20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	00:43	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4862119732			20:36	12°c, BS2, dry, 30% cloud cover
Upper Barn Copse	08/05/2017	22:10	*Pipistrellus pygmaeus*	Male	Adult		SU 4843 2042			20:38	14°c, BS2, dry, 10% cloud cover
Upper Barn Copse	08/05/2017	22:50	*Myotis mystacinus/brandtii*	Female	Adult		SU 4843 2042			20:38	14°c, BS2, dry, 10% cloud cover
Hill Copse	08/05/2017	21:33	*Pipistrellus pygmaeus*	Male	Adult		SU4849720559			20:38	14°c, BS2, dry, 10% cloud cover
Hill Copse	08/05/2017	22:25	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4869920568			20:38	14°c, BS2, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	22:21	*Myotis mystacinus/brandtii*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover

Lincoln's Copse	09/05/2017	23:14	*Myotis mystacinus/brandtii*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	23:14	*Pipistrellus pygmaeus*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	00:45	*Myotis brandtii*	Male	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	21:19	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	21:40	*Pipistrellus pygmaeus*	Male	Adult		SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	00:25	*Myotis mystacinus/brandtii*	Female	Adult	Not detectably pregnant	SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover
Tippers Copse	10/05/2017	22:15	*Pipistrellus pipistrellus*	Male	Adult		SU 5055 1947			20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	22:35	*Myotis nattereri*	Female	Adult		SU 5052 1939	(173)2590	BAT2	20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	22:46	*Pipistrellus pygmaeus*	Male	Adult		SU 5055 1947			20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	00:35	*Pipistrellus pipistrellus*	Male	Adult		SU 5052 1939			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	21:55	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:36	*Plecotus auritus*	Female	Adult	Not detectably pregnant	SU4984519106			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:36	*Pipistrellus pipistrellus*	Female	Adult	Not detectably pregnant	SU4984519106			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:47	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	23:26	*Plecotus auritus*	Male	Adult		SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	01:18	*Pipistrellus pygmaeus*	Male	Adult		SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Crowdhill Copse	11/05/2017	22:34	*Pipistrellus pipistrellus*	Female	Adult	Not detectably pregnant	SU4861719762			20:42	14°c, BS0, rain showers throughout, 100% cloud
Crowdhill Copse	11/05/2017	23:35	*Pipistrellus pygmaeus*	Male	Adult		SU4863819763			20:42	14°c, BS0, rain showers throughout, 100% cloud
Upper Barn Copse	11/05/2017	22:33	*Pipistrellus pygmaeus*	Female	Adult		SU 4827 2050			20:42	14°c, BS0, rain showers throughout, 100% cloud
Upper Barn Copse	11/05/2017	22:56	*Pipistrellus pygmaeus*	Male	Adult		SU 4830 2033			20:42	14°c, BS0, rain showers throughout, 100% cloud

Site Name: Strategic Eastleigh Site

Location	Date	Time	Species	Sex	Age	Breeding status	Trap location	Tag Freq	Bat ref	Sunset	Weather (for survey date)
Stoke Park Wood	02/07/2017	21:20	*Myotis nattereri*	Male	Adult		SU 48365 19256	173.2128	Bat1	21:22	19°c, BS0, dry, 0% cloud cover
Stoke Park Wood	02/07/2017	N/A	No captures	N/A	N/A		SU 48170 19603			21:22	19°c, BS0, dry, 0% cloud cover
Stoke Park Wood	02/07/2017	N/A	No captures	N/A	N/A		SU 48218 19211			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	23:27	*Plecotus auritus*	Female	Adult	Lactating	SU 48768 19826			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	23:27	*Plecotus auritus*	Male	Adult		SU 48768 19826			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	02:27	*Plecotus auritus*	Female	Adult	Heavily pregnant	SU 48550 19656			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	N/A	No captures	N/A	N/A					21:22	19°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	22:25	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	22:25	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	00:00	*Plecotus auritus*	Female	Adult	Lactating	SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	00:00	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	01:10	*Myotis daubentonii*	Male	Adult		SU 48419 20217	173.314	Bat2	21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	01:20	*Myotis mystacinus*	Male	Adult		SU 48265 20517			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48251 20358			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	23:33	*Pipistrellus pygmaeus*	Male	Adult		SU 48408 20529			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	23:33	*Pipistrellus pipistrellus*	Male	Adult		SU 48408 20529			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48627 19733			21:21	18°c, BS0, dry, 0% cloud cover

Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48582 06601			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48425 20631			21:21	18°c, BS0, dry, 0% cloud cover
Lincolns Copse	04/07/2017	21:47	*Pipistrellus pygmaeus*	Male	Adult		SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	22:15	*Pipistrellus pygmaeus*	Female	Adult	Not breeding	SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	22:15	*Myotis nattereri*	Male	Adult		SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	00:03	*Pipistrellus pygmaeus*	Male	Adult		SU 45605 21729			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	00:03	*Pipistrellus pygmaeus*	Male	Adult		SU 45605 21729			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	01:40	*Pipistrellus pipistrellus*	Female	Adult	Lactating	SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	01:56	*Plecotus auritus*	Male	Adult		SU 45529 21701			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	23:04	*Myotis nattereri*	Male	Adult		SU 45344 22011			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	23:10	*Plecotus auritus*	Female	Adult	Lactating	SU 45350 21944			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	00:45	*Myotis daubentonii*	Female	Adult	Heavily pregnant	SU 45344 22011			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	N/A	No captures	N/A	N/A		SU 45412 22034			21:21	16°c, BS2, dry, 60% cloud cover
Tippers Copse	05/07/2017	22:37	*Myotis nattereri*	Female	Adult	Lactating	SU 50511 19388			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	22:43	*Myotis nattereri*	Female	Adult	Lactating	SU 50450 19452			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	23:15	*Myotis nattereri*	Female	Adult	Lactating	SU 50450 19452			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	01:40	*Nyctalus noctula*	Female	Adult	Lactating	SU 50582 19510	173.3405	Bat3	21:21	21°c, BS0, dry, 5% cloud cover

Lincolns Copse	05/07/2017	00:21	*Pipistrellus pipistrellus*	Male	Adult		SU 45579 21750			21:21	21°c, BS0, dry, 5% cloud cover
Lincolns Copse	05/07/2017	N/A	No captures	N/A	N/A		SU 45598 21656			21:21	21°c, BS0, dry, 5% cloud cover
Lincolns Copse	05/07/2017	N/A	No captures	N/A	N/A		SU 45515 21698			21:21	21°c, BS0, dry, 5% cloud cover
Hall Lands Farm	06/07/2017	22:06	*Pipistrellus pipistrellus*	Male	Juvenile		SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:06	*Myotis nattereri*	Female	Adult	Lactating	SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:49	*Pipistrellus pipistrellus*	Female	Juvenile	Not breeding	SU 49735 19285			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:49	*Pipistrellus pipistrellus*	Male	Juvenile		SU 49735 19285			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	01:45	*Myotis nattereri*	Male	Adult		SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	N/A	No captures	N/A	N/A		SU 49761 19108			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	22:43	*Plecotus auritus*	Female	Adult	Lactating	SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	22:43	*Plecotus auritus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	23:11	*Myotis nattereri*	Male	Adult		SU4603422024			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	23:46	*Myotis mystacinus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	00:45	*Plecotus auritus*	Male	Adult		SU4605922290			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	01:36	*Myotis mystacinus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	02:30	*Myotis mystacinus/brandtii*	Female	Adult	Lactating	SU4587022059	173.2585	Bat4	21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	02:30	*Myotis mystacinus/brandtii*	Female	Adult	Lactating	SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover

Site Name: Strategic Eastleigh Site

Location	Date	Time	Species	Sex	Age	Breeding status	Trap location	Tag Freq	Bat ref	Sunset	Weather (for survey date)
Stoke Park Wood	07/05/2017	21:20	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	21:20	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	22:00	*Pipistrellus pipistrellus*	Male	Adult		SU 4837 1921			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	23:30	*Pipistrellus pipistrellus*	Male	Adult		SU 4801 1929			20:36	12°c, BS2, dry, 30% cloud cover
Stoke Park Wood	07/05/2017	00:18	*Pipistrellus pipistrellus*	Male	Adult		SU 4769 1929			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	21:15	*Plecotus auritus*	Male	Adult		SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	22:48	*Plecotus auritus*	Male	Adult		SU4862119732			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:28	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:28	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4876919845			20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	23:55	*Myotis mystacinus/brandtii*	Female	Adult	Not detectably pregnant	SU4862119732	(173)2220	BAT1	20:36	12°c, BS2, dry, 30% cloud cover
Crowdhill Copse	07/05/2017	00:43	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4862119732			20:36	12°c, BS2, dry, 30% cloud cover
Upper Barn Copse	08/05/2017	22:10	*Pipistrellus pygmaeus*	Male	Adult		SU 4843 2042			20:38	14°c, BS2, dry, 10% cloud cover
Upper Barn Copse	08/05/2017	22:50	*Myotis mystacinus/brandtii*	Female	Adult		SU 4843 2042			20:38	14°c, BS2, dry, 10% cloud cover
Hill Copse	08/05/2017	21:33	*Pipistrellus pygmaeus*	Male	Adult		SU4849720559			20:38	14°c, BS2, dry, 10% cloud cover
Hill Copse	08/05/2017	22:25	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4869920568			20:38	14°c, BS2, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	22:21	*Myotis mystacinus/brandtii*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	23:14	*Myotis mystacinus/brandtii*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	23:14	*Pipistrellus pygmaeus*	Female	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Lincoln's Copse	09/05/2017	00:45	*Myotis brandtii*	Male	Adult		SU 4563 2159			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	21:19	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	21:40	*Pipistrellus pygmaeus*	Male	Adult		SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover
Pitmore Copse	09/05/2017	00:25	*Myotis mystacinus/brandtii*	Female	Adult	Not detectably pregnant	SU4541222038			20:39	10°c, BS1, dry, 10% cloud cover

Tippers Copse	10/05/2017	22:15	*Pipistrellus pipistrellus*	Male	Adult		SU 5055 1947			20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	22:35	*Myotis nattereri*	Female	Adult		SU 5052 1939	(173)2590	BAT2	20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	22:46	*Pipistrellus pygmaeus*	Male	Adult		SU 5055 1947			20:41	13°c, BS2, dry, 20% cloud cover
Tippers Copse	10/05/2017	00:35	*Pipistrellus pipistrellus*	Male	Adult		SU 5052 1939			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	21:55	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:36	*Plecotus auritus*	Female	Adult	Not detectably pregnant	SU4984519106			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:36	*Pipistrellus pipistrellus*	Female	Adult	Not detectably pregnant	SU4984519106			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	22:47	*Pipistrellus pygmaeus*	Female	Adult	Not detectably pregnant	SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	23:26	*Plecotus auritus*	Male	Adult		SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Hall Lands Farm	10/05/2017	01:18	*Pipistrellus pygmaeus*	Male	Adult		SU4981219178			20:41	13°c, BS2, dry, 20% cloud cover
Crowdhill Copse	11/05/2017	22:34	*Pipistrellus pipistrellus*	Female	Adult	Not detectably pregnant	SU4861719762			20:42	14°c, BS0, rain showers throughout, 100% cloud
Crowdhill Copse	11/05/2017	23:35	*Pipistrellus pygmaeus*	Male	Adult		SU4863819763			20:42	14°c, BS0, rain showers throughout, 100% cloud
Upper Barn Copse	11/05/2017	22:33	*Pipistrellus pygmaeus*	Female	Adult		SU 4827 2050			20:42	14°c, BS0, rain showers throughout, 100% cloud
Upper Barn Copse	11/05/2017	22:56	*Pipistrellus pygmaeus*	Male	Adult		SU 4830 2033			20:42	14°c, BS0, rain showers throughout, 100% cloud

Location	Date	Time	Species	Sex	Age	Breeding status	Trap location	Tag Freq	Bat ref	Sunset	Weather (for survey date)
Stoke Park Wood	02/07/2017	21:20	*Myotis nattereri*	Male	Adult		SU 48365 19256	173.2128	Bat1	21:22	19°c, BS0, dry, 0% cloud cover
Stoke Park Wood	02/07/2017	N/A	No captures	N/A	N/A		SU 48170 19603			21:22	19°c, BS0, dry, 0% cloud cover
Stoke Park Wood	02/07/2017	N/A	No captures	N/A	N/A		SU 48218 19211			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	23:27	*Plecotus auritus*	Female	Adult	Lactating	SU 48768 19826			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	23:27	*Plecotus auritus*	Male	Adult		SU 48768 19826			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	02:27	*Plecotus auritus*	Female	Adult	Heavily pregnant	SU 48550 19656			21:22	19°c, BS0, dry, 0% cloud cover
Crowdhill Copse	02/07/2017	N/A	No captures	N/A	N/A					21:22	19°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	22:25	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover

Upper Barn Copse	03/07/2017	22:25	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	00:00	*Plecotus auritus*	Female	Adult	Lactating	SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	00:00	*Pipistrellus pygmaeus*	Male	Adult		SU 48419 20217			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	01:10	*Myotis daubentonii*	Male	Adult		SU 48419 20217	173.314	Bat2	21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	01:20	*Myotis mystacinus*	Male	Adult		SU 48265 20517			21:21	18°c, BS0, dry, 0% cloud cover
Upper Barn Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48251 20358			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	23:33	*Pipistrellus pygmaeus*	Male	Adult		SU 48408 20529			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	23:33	*Pipistrellus pipistrellus*	Male	Adult		SU 48408 20529			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48627 19733			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48582 06601			21:21	18°c, BS0, dry, 0% cloud cover
Hill Copse	03/07/2017	N/A	No captures	N/A	N/A		SU 48425 20631			21:21	18°c, BS0, dry, 0% cloud cover
Lincolns Copse	04/07/2017	21:47	*Pipistrellus pygmaeus*	Male	Adult		SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	22:15	*Pipistrellus pygmaeus*	Female	Adult	Not breeding	SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	22:15	*Myotis nattereri*	Male	Adult		SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	00:03	*Pipistrellus pygmaeus*	Male	Adult		SU 45605 21729			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	00:03	*Pipistrellus pygmaeus*	Male	Adult		SU 45605 21729			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	01:40	*Pipistrellus pipistrellus*	Female	Adult	Lactating	SU 45602 21591			21:21	16°c, BS2, dry, 60% cloud cover
Lincolns Copse	04/07/2017	01:56	*Plecotus auritus*	Male	Adult		SU 45529 21701			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	23:04	*Myotis nattereri*	Male	Adult		SU 45344 22011			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	23:10	*Plecotus auritus*	Female	Adult	Lactating	SU 45350 21944			21:21	16°c, BS2, dry, 60% cloud cover
Pitmore Copse	04/07/2017	00:45	*Myotis daubentonii*	Female	Adult	Heavily pregnant	SU 45344 22011			21:21	16°c, BS2, dry, 60% cloud cover

Pitmore Copse	04/07/2017	N/A	No captures	N/A	N/A		SU 45412 22034			21:21	16°c, BS2, dry, 60% cloud cover
Tippers Copse	05/07/2017	22:37	*Myotis nattereri*	Female	Adult	Lactating	SU 50511 19388			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	22:43	*Myotis nattereri*	Female	Adult	Lactating	SU 50450 19452			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	23:15	*Myotis nattereri*	Female	Adult	Lactating	SU 50450 19452			21:21	21°c, BS0, dry, 5% cloud cover
Tippers Copse	05/07/2017	01:40	*Nyctalus noctula*	Female	Adult	Lactating	SU 50582 19510	173.3405	Bat3	21:21	21°c, BS0, dry, 5% cloud cover
Lincolns Copse	05/07/2017	00:21	*Pipistrellus pipistrellus*	Male	Adult		SU 45579 21750			21:21	21°c, BS0, dry, 5% cloud cover
Lincolns Copse	05/07/2017	N/A	No captures	N/A	N/A		SU 45598 21656			21:21	21°c, BS0, dry, 5% cloud cover
Lincolns Copse	05/07/2017	N/A	No captures	N/A	N/A		SU 45515 21698			21:21	21°c, BS0, dry, 5% cloud cover
Hall Lands Farm	06/07/2017	22:06	*Pipistrellus pipistrellus*	Male	Juvenile		SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:06	*Myotis nattereri*	Female	Adult	Lactating	SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:49	*Pipistrellus pipistrellus*	Female	Juvenile	Not breeding	SU 49735 19285			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	22:49	*Pipistrellus pipistrellus*	Male	Juvenile		SU 49735 19285			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	01:45	*Myotis nattereri*	Male	Adult		SU 49786 19193			21:20	19°C, BS2, dry, 0% cloud cover
Hall Lands Farm	06/07/2017	N/A	No captures	N/A	N/A		SU 49761 19108			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	22:43	*Plecotus auritus*	Female	Adult	Lactating	SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	22:43	*Plecotus auritus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	23:11	*Myotis nattereri*	Male	Adult		SU4603422024			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	23:46	*Myotis mystacinus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	00:45	*Plecotus auritus*	Male	Adult		SU4605922290			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	01:36	*Myotis mystacinus*	Male	Adult		SU4587022059			21:20	19°C, BS2, dry, 0% cloud cover
Otterbourne Park	06/07/2017	02:30	*Myotis mystacinus/brandtii*	Female	Adult	Lactating	SU4587022059	173.2585	Bat4	21:20	19°C, BS2, dry, 0% cloud cover

Otterbourne Park	06/07/2017	02:30	*Myotis mystacinus/brandtii*	Female	Adult	Lactating	SU4587022059	21:20	19°C, BS2, dry, 0% cloud cover

Location (site name)	Date	Time	Species	Sex	Age (class)	Breeding status	Trap location	Weather (for survey date)
Upper Barn Copse	30/08/2017	21:20	*Pipistrellus pygmaeus*	F	Juvenile		SU4831320287	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Upper Barn Copse	30/08/2017	22:06	*Pipistrellus pipistrellus*	M	Juvenile		SU4842420331	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Upper Barn Copse	30/08/2017	00:53	*Myotis nattereri*	F	Adult	Post-lactating	SU4842420331	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Crowdhill Copse	30/08/2017	22:08	*Pipistrellus pipistrellus*	Female	Adult	Non reproductive	SU4846119535	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Crowdhill Copse	30/08/2017	22:41	Whiskered/Brandt's	Female	Adult	Non reproductive	SU4857219730	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Crowdhill Copse	30/08/2017	23:50	*Pipistrellus pygmaeus*	Male	Juvenile		SU4876819826	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Crowdhill Copse	30/08/2017	00:00	*Plecotus auritus*	Female	Juvenile		SU4857219730	Calm (Bf 0), 16 deg C, light rain early on but stopped by 21:30
Otterbourne Park Wood	31/08/2017	22:26	*Myotis mystacinus*	M	Juvenile		SU4597922445	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	23:20	*Myotis nattereri*	F	Adult	Non-parous	SU4597922445	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	23:25	*Pipistrellus pipistrellus*	F	Adult	Non-parous	SU4597922445	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	23:24	*Pipistrellus pipistrellus*	M	Adult		SU4597922445	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	01:21	*Myotis mystacinus*	M	Juvenile		SU4597922445	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	22:43	*Myotis nattereri*	Male	Adult		SU4587622223	Calm (Bf 0), 15-11 deg C, cloudy, dry
Otterbourne Park Wood	31/08/2017	23:53	*Plecotus auritus*	Male	Adult		SU4587022045	Calm (Bf 0), 15-11 deg C, cloudy, dry

Appendix B Roost photographs

Plate 1 – Whiskered bat May 2017 (Bat 222)

Plate 2 – Natterer's bat July 2017 (Bat 212)

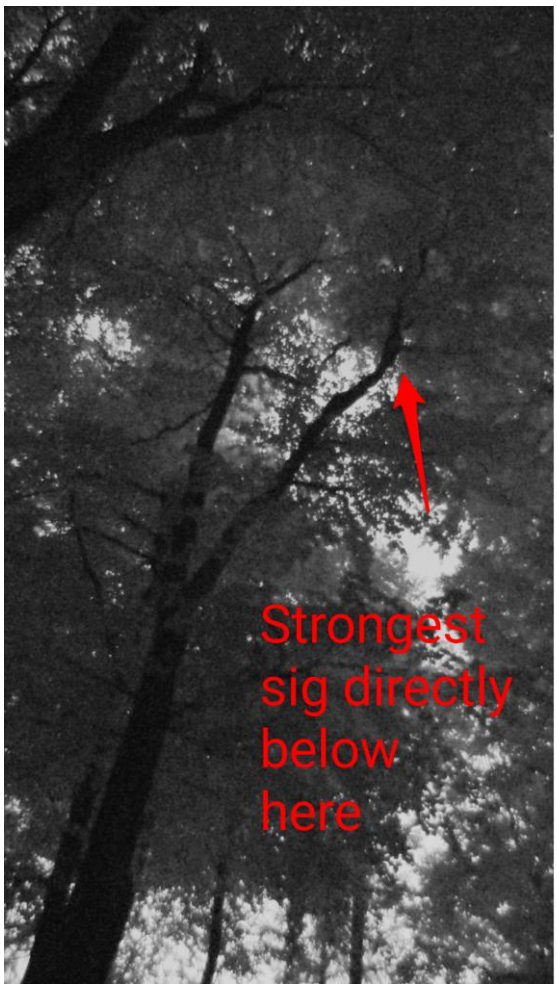

Plate 3 – Daubenton's bats July 2017 (Bat 314)

Plate 4 – Whiskered bat July 2017 (Bat 258)