



# **Bat Transect Survey**

of


## **The Proposed Extension to Dagnam Park, London Borough of Havering**

on behalf of

### **The London Borough of Havering**

**October 2011**

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## **0 Executive Summary**

- 0.1 A Bat Transect Survey of land which is proposed for inclusion into the existing Dagnam Park, Harold Hill, London was undertaken by ecologists from James Blake Associates on the 22<sup>nd</sup> and 30<sup>th</sup> August 2011.
- 0.2 Bat activity was mainly concentrated close to veteran trees, woodland edges, hedgerows and lines of trees which dissected the site. Very little activity was recorded in the open parkland habitats.
- 0.3 Moderate numbers of common pipistrelles were recorded foraging and commuting throughout the site.
- 0.4 Low numbers of soprano pipistrelles, and individual noctule and *Myotis sp.* (likely Natterer's) bats were recorded, mostly in areas close to the site boundaries.
- 0.5 The site provided good foraging and commuting habitats for bats and there were a large number of trees with high bat roost potential.
- 0.6 Any mature trees with bat roosting potential which will be subject to surgery works for health and safety or visual and amenity reasons, should be subject to further survey prior to works (Climb-and-Inspect survey by a bat licenced ecologist, or activity survey in the bat season).

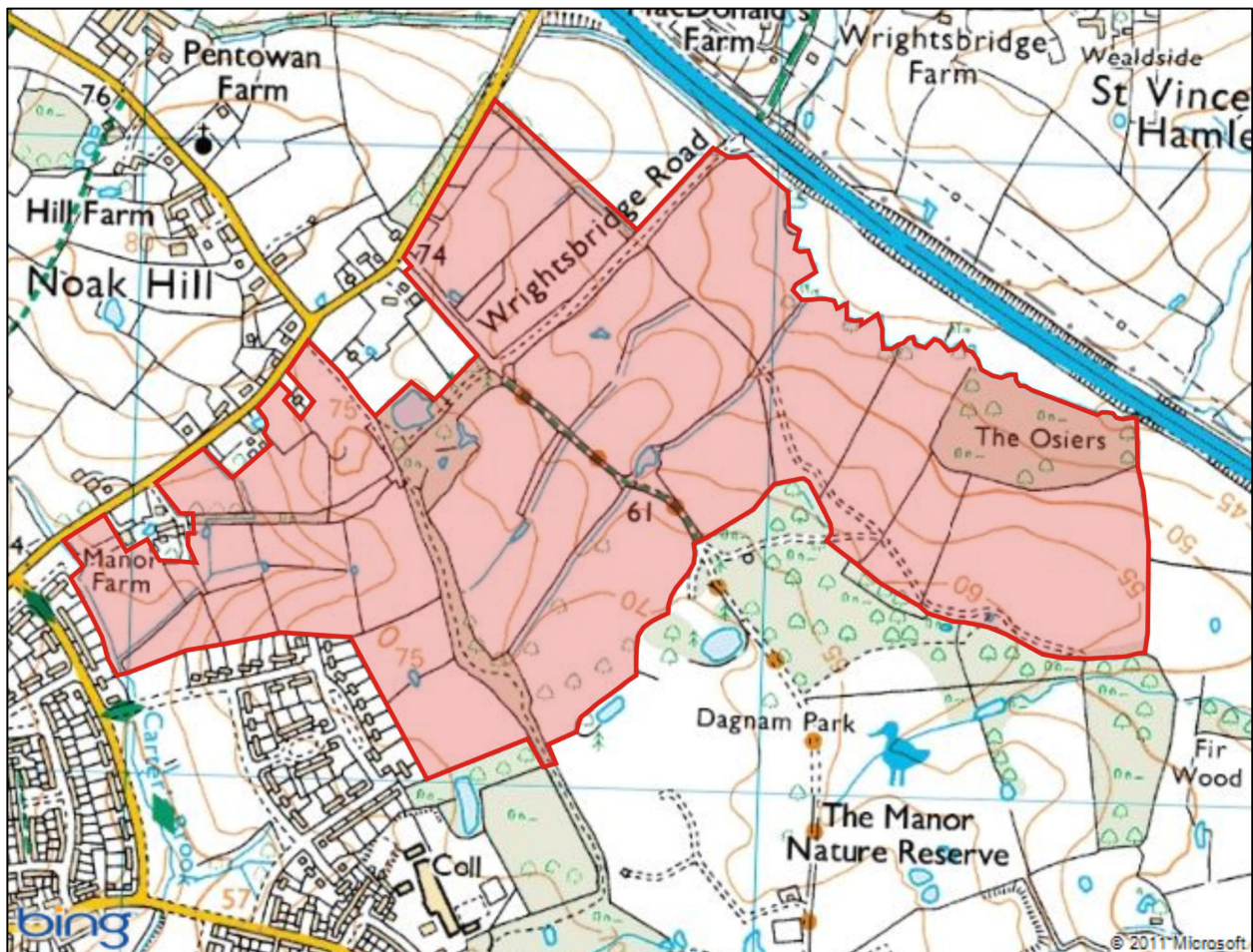
## **1 Introduction**

### **Background**

- 1.1 James Blake Associates were commissioned by the London Borough of Havering to undertake a Bat Transect Survey of land which is proposed for inclusion into Dagnam Park, Harold Hill, London. Grid ref. TQ 550 936 (taken from the centre of the site).
- 1.2 The assessment was required to inform an Ecology Management Plan which will accompany a planning application for a change of land use from Grade 3b agricultural land to public open space.
- 1.3 The Bat Transect Survey was undertaken to gain an understanding of the use of the site by bats, including species; numbers; foraging areas and commuting routes. The survey did not include the identification of specific bat roost locations within the site.
- 1.4 Bats are legally protected and some bat species are also UK priority BAP (Biodiversity Action Plan) species. All protected species and BAP species are material considerations for individual planning decisions under PPS9 (Planning Policy Statement 9) (ODPM, 1994).

### **Geographical Scope**

- 1.5 The site is located to the north of the existing Dagnam Park near Harold Hill, London and covers an area of approximately 81.75ha. The site forms part of The Manor Local Nature Reserve (LNR) and contains two Sites of Metropolitan Importance. The wider landscape beyond the site boundaries comprises the M25 Motorway to the north-east, Mylands Golf Course to the south-east, Dagnam Park to the south, the rear of dwellings fronting Priory Road, Tees Drive and Tring Gardens to the west; and Noak Hill Road to the north-west (see Figure 1 below),
- 1.6 The site itself comprises arable and improved grassland fields which are dissected by numerous hedgerows, veteran trees, woodland, paths and paved tracks. A pond is also present and a number of other small waterbodies are shown on the OS maps. However, they were not identified during the survey which indicates that they either no longer exist, or become seasonally desiccated.

**Figure 1:** Site location: Proposed extension to Dagnam Park

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### **Aims and objectives**

1.7 The aim of the survey was to:

- Identify species of bats foraging and commuting within the site;
- Assess the use of the site by bats;
- Provide data to inform the Ecology Management Plan which will in turn serve to preserve and enhance biodiversity within the site.

## 2 Methods

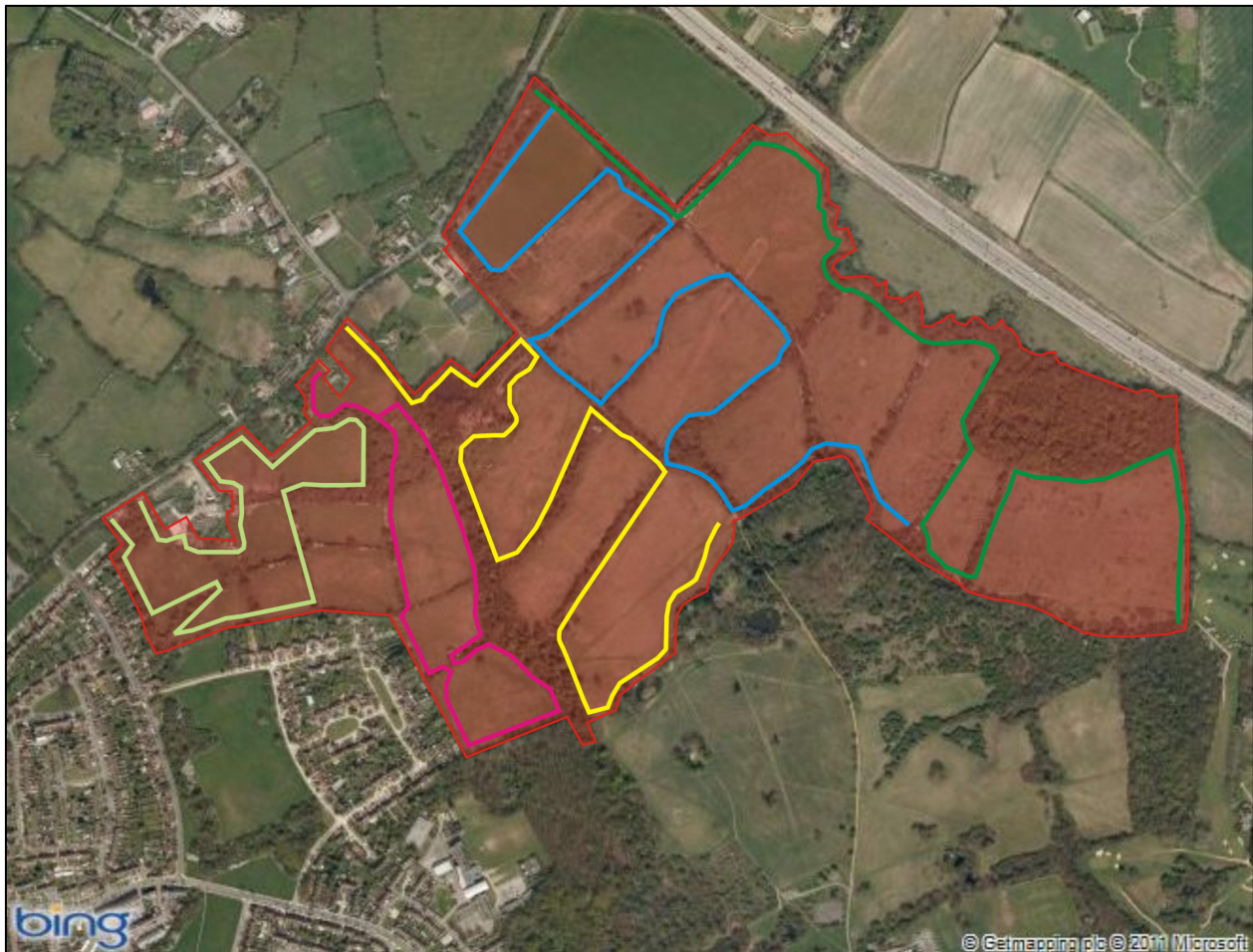
### Desk study

- 2.1 The National Biodiversity Network (NBN) website was accessed on the 20<sup>th</sup> September 2011 to obtain records of *Chiroptera* on the site and within the surrounding landscape. The Distribution Atlas of Bats in Britain and Ireland (Richardson, 2000) was consulted to identify bat species which have been recorded within the same 10km grid square as the site.

### Bat Transect Survey

- 2.2 The Bat Transect Survey was undertaken by Odette Robson BSc (Hons) PhD MIEEM (bat licence number 20112704); Mary Davies BSc (Hons) MSc AIEEM (bat licence number 20104163); Les Cousins BSc (Hons) Grad IEEM (bat licence number 20112748); Sam Pottier BSc (Hons) MSc Grad IEEM; and Anthony Owers BSc (Hons) Grad IEEM on the 22<sup>nd</sup> and 30<sup>th</sup> of August 2011.
- 2.3 The survey methodology followed standard techniques and guidelines for walked transects recommended in 'Bat Surveys – Good Practice Guidelines' (Bat Conservation Trust, 2007). These included:
- Selecting a pre-defined route which incorporates habitat features with potential for use by foraging and commuting bats;
  - Walking the transect in daylight hours to plan the route;
  - Ensuring that the transect takes no longer than three hours.
- 2.4 Five transects were selected which incorporated the maximum amount of habitat features on the site which were suitable for foraging and commuting bats, such as hedgerows, woodland edges, lines of trees and open parkland (see Figure 2 below).



**Figure 2:** Transect routes

- 2.5 The survey was conducted over two evenings in optimal weather conditions (mild, dry, little wind) and in the peak survey season (between 22<sup>nd</sup> and 30<sup>th</sup> August). The survey started at sunset and continued for approximately two hours. Each transect was walked at least once on both evenings. Some transects were walked twice on each evening due to fewer suitable habitat features along the routes compared to other transects (see Table 1).
- 2.6 All transects were started at alternate ends on the second survey visit to provide a more balanced understanding of bat activity on the site due to emergence times varying (between 5 to 50 minutes after sunset), depending on the species of bat. This method maximizes the chances of recording bats along the full length of the transects.



**Table 1:** Transect routes and frequency of walks

Transect	Approximate transect length (km)	Number of times walked during each survey
Light Green	2.0	2
Pink	2.0	1
Yellow	2.1	1
Blue	2.3	1
Dark Green	2.2	2

- 2.7 Equipment used included Pettersson D240x time expansion, Pettersson D230 and Batbox Duet frequency division detectors, with Zoom H2 digital recorders, as well as observation to record bats on the site. An SM2 detector/recorder was also carried by the surveyor walking the dark green transect. The recordings were analysed using BatSound software.

### 3 Results

#### Desk Study

- 3.1 Records of *Chiroptera* on and around the site from the NBN and BCT Bat Atlas are listed below (Table 2).

**Table 2:** *Chiroptera* records on and around the site

Species	Protection	Distance from Site	Date
Brown long-eared	UK and Local BAP, European protected	Within the same 10km square	2004
Common pipistrelle	Local BAP, European protected	6km north-east	2008
Daubenton's	European protected	Within the same 10km square	1980-1999
Leisler's	Local BAP, European protected	2km south-west	1988
		Within the same 10km square	1980-1999
Natterer's	Local BAP, European protected	5km south-east	1987
		Within the same 10km square	1980-1999
Noctule	UK BAP and	Within the same 10km	1980-1999

	European protected	square	
Serotine	Local BAP, European protected	Within the same 10km square	1980-1999
Soprano pipistrelle	UK and Local BAP, European protected	Within the same 10km square	1980-1999

### **Bat Transect Survey**

3.2 Bats were recorded on each of the five transects on both survey visits. Areas of activity were associated with boundary features such as hedgerows, lines of trees, woodland edges and veteran trees. Very little activity was recorded in the open parkland throughout the site. Activity was also limited in the south-eastern corner of the site and along the boundaries associated with residential properties to the south-west (See Appendices B and C for distribution of bats).

#### ***Common Pipistrelle***

3.3 Moderate numbers of common pipistrelles (up to four at a time) were recorded foraging and commuting around the site and were the most abundant species recorded during the survey.

3.4 Peak areas of foraging activity were located close to veteran oaks, along the central track, and around the central woodland edges and hedgerows. Similar amounts of foraging and commuting activity were recorded on both survey visits. The first common pipistrelles were recorded approximately eight minutes after sunset.

#### ***Soprano Pipistrelle***

3.5 Small numbers of soprano pipistrelles (up to three at a time) were recorded foraging and commuting around the site on both survey visits. Most of the soprano pipistrelles were recorded foraging with common pipistrelles.

3.6 Soprano pipistrelles were recorded in the central areas of the site; mainly close to the pond and along the southern boundary of the site. The first soprano pipistrelles were recorded approximately twelve minutes after sunset.

#### ***Noctule***

3.7 Individual noctule bats were recorded commuting across the site on both survey visits. They were recorded in scattered locations around the site but were more commonly encountered in the south-western areas of the site. The first noctule bats

were recorded 47 minutes after sunset, suggesting that they were not roosting very close to the site.

***Myotis sp. (Likely Natterer's)***

- 3.8 Individual *Myotis* bats (likely Natterer's) were recorded foraging and commuting around the site on both survey visits. They were recorded in the south-western areas of the site and near woodland along the north-eastern boundary. The first *Myotis sp.* was recorded approximately 50 minutes after sunset.

## **4 Evaluation**

- 4.1 The transects covered most of the suitable habitats found within the site boundary and it was considered that the two survey visits provided representative information on bat species present during those evenings.
- 4.2 Seven bat species, highlighted in the desk study, have been recorded within two kilometres of the site. Although only four species were recorded on the site during the survey, it was considered likely that other species (such as Leisler's, Daubenton's and brown long-eared bats) could use the site for roosting and foraging.
- 4.3 No roosts were identified during the surveys, although the identification of roosts was not within the scope of the survey. However, there were a high number of veteran trees throughout the site with high bat roost potential. They exhibited features such as crack, crevices, aerial deadwood and hollows which were suitable for roosting bats. Any works to these trees should be preceded by a detailed inspection by a Bat licenced tree-climber, to ensure that no roosts are impacted during tree surgery works.
- 4.4 Bat activity was dominated by common pipistrelles: Moderate numbers were recorded in most parts of the site, mostly along hedgerows and tree lines to the field boundaries. The early sightings / recordings after sunset indicate that they were likely to be roosting in and around the site.
- 4.5 Small numbers of soprano pipistrelles were recorded at scattered locations around the site and, like the common pipistrelles, these were mostly associated with field boundary features. The early sightings / recordings after sunset also indicate that they could be roosting within or close to the site.

- 4.6 Individual noctule and *Myotis sp.* (likely Natterer's) were recorded commuting along tree lines and hedgerows close to the site boundaries. There were numerous buildings beyond the western boundary which may provide roosting opportunities for the *Myotis sp.* which were most often recorded in the south-western areas of the site. It was considered that very low numbers of both of these species were using the site for foraging and commuting, and there were suitable roosting opportunities for both either on the site or within the surrounding landscape.
- 4.7 Boundary features (hedgerows, tree lines and woodland edges) were the key habitats used by foraging and commuting bats. These habitats support good populations of flying invertebrates for bats to feed on and also form an extensive network of linear features which bats can use to commute through the site and into the surrounding landscape.
- 4.8 Fewer species and overall bat activity were recorded than expected from the survey given the high quality habitats present for bats within the site. However, the two survey visits only provide a 'snap-shot' of bat activity and more species and numbers may be using the site at different times throughout the year. It was also considered that the recently widened and fully lit M25 may act as an ecological barrier to at least some species of bats, limiting dispersal opportunities for bats from habitats beyond the site to the north-east.

## 5 Conclusion

- 5.1 The site was used by moderate numbers of common pipistrelles and by low numbers of soprano pipistrelle, noctule and *Myotis sp.* bats.
- 5.2 There were numerous trees within the site which were suitable for roosting bats and field boundary features were used for foraging and commuting.
- 5.3 Management of the site should ensure that field boundary features and veteran trees are maintained, appropriately managed by approved arboricultural contractors, and (where suitable) enhanced. The implementation of such a management plan would benefit the local conservation status of bats, and offset any adverse impact caused by increased visitor numbers to the Park.
- 5.4 A programme of habitat enhancement could be implemented to further increase the value of the habitat for bats. This could include the inclusion of open water features, such as ponds; filling in any gaps in the hedge-lines or other linear features; increasing invertebrate numbers through appropriate, native planting and log

pile/hibernacular/loggery creation; increasing roosting opportunities through the inclusion of bat boxes.

## 6 References

BCT (2007). *Bat Surveys: Good Practice Guidelines 2007*. Bat Conservation Trust. London.

Office of the Deputy Prime Minister (ODPM), (1994). *Planning Policy Statement 9*. The Stationery Office (TSO), London.

Richardson, P. (2000). *Distribution Atlas of Bats in Britain and Ireland 1980-1999*. Bat Conservation Trust. London

### Web references

National Biodiversity Network: Protected species data downloaded from URL <http://data.nbn.org/interactive/map>

UK BAP [www.ukbap.org.uk](http://www.ukbap.org.uk)

## 7 Appendices

### Appendix A: Bat Transect Survey Results

**22<sup>nd</sup> August 2011.** Sunset: 8:08pm / Start time: 8:00pm / Finish time: 10:00pm

**Weather:** Beaufort 4, Cloud cover 60%, **Temperature:** 17°C, **Detectors:** Petterson D240x, Petterson D230, BatBox Duet and SM2.

**30<sup>th</sup> August 2011.** Sunset: 7:51pm / Start time: 8:00pm / Finish time: 10:00pm

**Weather:** Beaufort 0, Cloud cover 100%, **Temperature:** 15°C, **Detectors:** Petterson D240x, Petterson D230, BatBox Duet and SM2.

#### Dark Green Transect

Time	22.08.11	Time	30.08.11
20.33	1x common pipistrelle, heard not seen	20.15	1x common pipistrelle, distant pass
20.34	1x common pipistrelle, foraging around trees	20.18	1x common pipistrelle, brief foraging pass
20.39	1x common pipistrelle, foraging pass	20.21	1x common pipistrelle, foraging along lane
20.41	1x common pipistrelle, foraging and commuting along lane	20.29	1x common pipistrelle, foraging along lane
20.46	2x common pipistrelles, foraging along lane	20.30	4x common pipistrelles, foraging around veteran oak
20.48	1x common pipistrelle, foraging 1x soprano pipistrelle, foraging	20.57	1x common pipistrelle, distant foraging
20.54	1x common pipistrelle, distant pass	21.09	1x common pipistrelle, faint pass
21.02	1x <i>Myotis</i> (likely Natterer's), brief pass	21.12	1x common pipistrelle, distant foraging
21.28	1x common pipistrelle, foraging along hedge	21.20	1x common pipistrelle, foraging
21.33	3x common pipistrelles, foraging along hedge	21.30	1x common pipistrelle, foraging 1x noctule, pass
21.36	1x common pipistrelle, foraging	21.36	1x common pipistrelle, foraging
21.53	1x common pipistrelle, foraging	21.40	1x common pipistrelle, foraging
21.58	3x common pipistrelles, foraging along field edge	21.41	1x <i>Myotis</i> (likely Natterer's), two brief passes
22.02	2x common pipistrelles, foraging along lane	21.46	3x common pipistrelles, foraging around oaks
		21.57	2x common pipistrelles, foraging along tree line

#### Blue Transect

Time	22.08.11	Time	30.08.11
20.24	1x common pipistrelle, heard not seen	20.19	1x common pipistrelle, two passes along woodland edge
20.29	1x common pipistrelle, commuting west along track	20.23	2x common pipistrelles, commuting north-west from woodland
20.30	1x common pipistrelle, brief pass	20.25	1x common pipistrelle, foraging at tree top
20.34	2x common pipistrelles, commuting north-west	20.31	1x soprano pipistrelle, brief pass, heard not seen
20.35	1x soprano pipistrelle, foraging	20.38	1x common pipistrelle, commuting south-east along tree line
20.36	1 x common pipistrelle, foraging along hedge	20.41	2x common pipistrelles, foraging in trees
20.42	1x common pipistrelle, two brief passes	20.49	1x common pipistrelle, foraging around oaks



20.44	1x common pipistrelle, foraging then commuting south-west	20.50	3x common pipistrelles, foraging around trees
20.46	1x common pipistrelle, heard not seen	21.01	1x common pipistrelle, heard not seen
20.48	3x common pipistrelles, foraging along track	21.02	1x common pipistrelle, foraging
20.49	1x noctule, brief pass, heard not seen	21.05	2x common pipistrelles, foraging along hedge
20.54	1x common pipistrelle, three passes, heard not seen	21.07	2x common pipistrelles, foraging along track
20.57	1x common pipistrelle, commuting south-west	21.12	1x common pipistrelle, commuting north-east
20.59	1x common pipistrelle, foraging 1x soprano pipistrelle, foraging	21.18	1x common pipistrelle, commuting south-west
21.05	2x common pipistrelles, foraging around trees	21.19	1x common pipistrelle, brief pass
21.11	4x common pipistrelles, foraging around veteran oaks	21.23	2x common pipistrelles, foraging in trees
21.15	1x common pipistrelle, brief pass	21.28	1x common pipistrelle, commuting south-west along tree line
21.17	2x common pipistrelles, foraging in tree line	21.30	1x common pipistrelle, brief pass
21.22	1x common pipistrelle, two passes, heard not seen	21.37	2x common pipistrelles, foraging around trees
21.31	1x common pipistrelle, heard not seen	21.39	1x common pipistrelle, foraging at woodland edge
21.35	1x common pipistrelle, distant passes, heard not seen	21.44	2x common pipistrelle, foraging in woodland, heard not seen
21.38	1x common pipistrelle, foraging in woodland, heard not seen		
21.42	2x common pipistrelles, commuting north-east along woodland edge		
21.49	1x soprano pipistrelle, commuting north-west through field		

**Yellow Transect**

<b>Time</b>	<b>22.08.11</b>	<b>Time</b>	<b>30.08.11</b>
20.12	2x soprano pipistrelles, foraging around trees near pond	20.15	1x soprano pipistrelle, heard not seen
20.24	1x common pipistrelle, foraging	20.18	3x soprano pipistrelles, foraging along tree line
20.41	1x common pipistrelle, two passes, heard not seen	20.22	1x soprano pipistrelle, brief pass
20.45	1x common pipistrelle, brief pass near veteran oaks	20.26	1x common pipistrelle, commuting south-east
20.49	1x common pipistrelle, faint pass, heard not seen	20.40	1x common pipistrelle, foraging in field
20.54	1x common pipistrelle, heard not seen	20.50	1x common pipistrelle, three passes, heard not seen
21.00	1x common pipistrelle, foraging	20.57	1x common pipistrelle, foraging, heard not seen
21.16	1x common pipistrelle, heard not seen	21.05	1x common pipistrelle, brief pass, heard not seen
21.24	1x noctule, brief pass, heard not seen	21.09	2x common pipistrelles, foraging, heard not seen
21.30	1x common pipistrelle, foraging near pond	21.15	1x common pipistrelle, heard not seen
21.36	1x common pipistrelle, brief pass	21.17	1x common pipistrelle, heard not seen
		21.27	1x common pipistrelle, heard not seen
		21.35	3x common pipistrelles, foraging 1x soprano pipistrelle, foraging
		21.43	At least 3 common pipistrelles, foraging in woodland, heard not seen

**Light Green Transect**

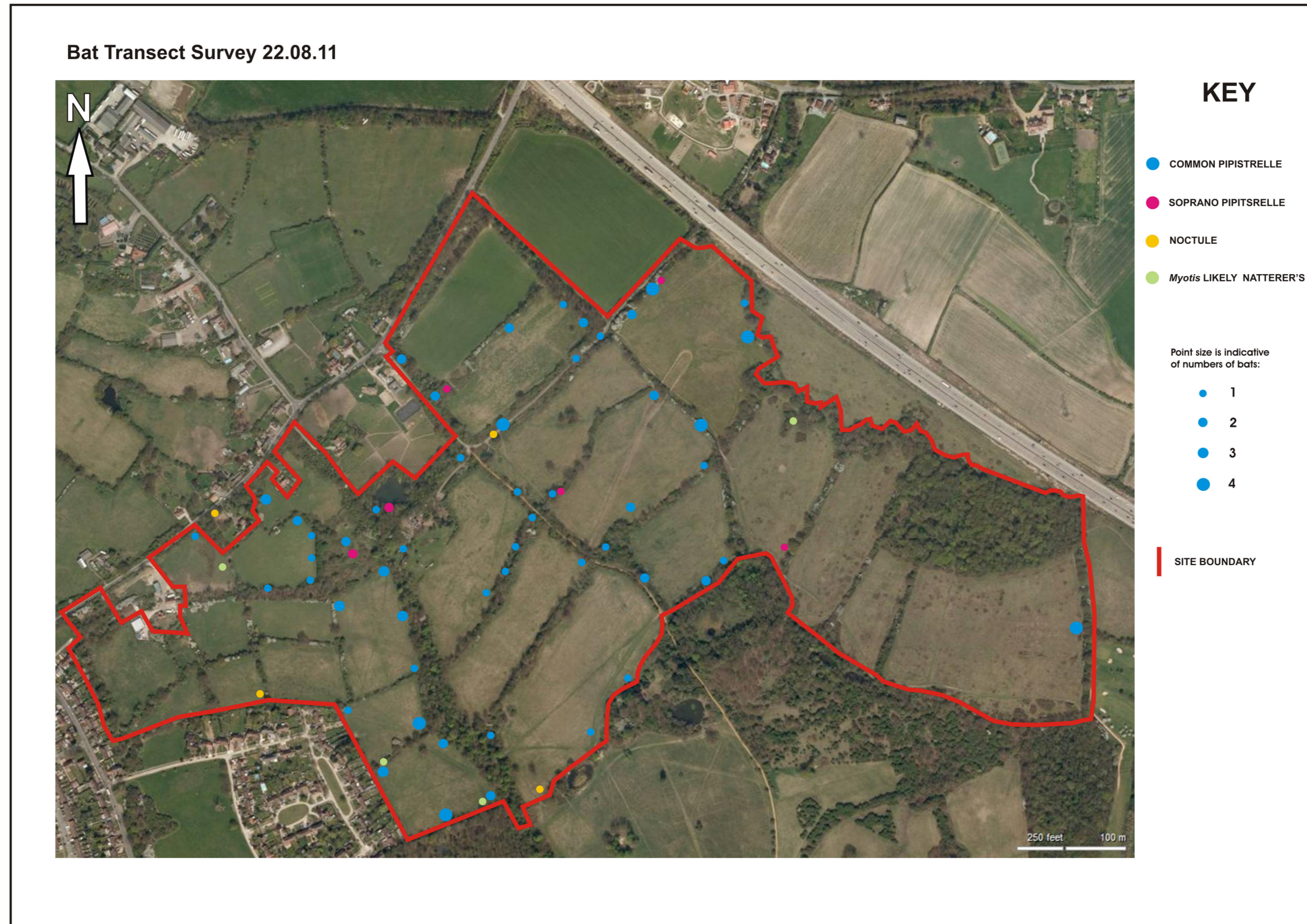
<b>Time</b>	<b>22.08.11</b>	<b>Time</b>	<b>30.08.11</b>
20.24	1x common pipistrelle, foraging around trees	20.07	1x common pipistrelle, foraging in field
20.27	1x common pipistrelle, foraging in corner of field	20.10	1x common pipistrelle, foraging in field corner
20.32	1x common pipistrelle, commuting north towards road	20.30	1x common pipistrelle, commuting east
20.37	1x common pipistrelle, foraging along hedgerow	20.38	1x noctule, pass, heard not seen
20.56	1x common pipistrelle, foraging around veteran oak	20.40	1x common pipistrelle, foraging near trees
21.05	2x common pipistrelles, foraging along hedgerow	20.50	1x noctule, commuting, heard not seen
21.12	1x <i>Myotis</i> (likely Natterer's), commuting west along scrub line	21.12	1x <i>Myotis</i> (likely Natterer's), commuting, heard not seen
21.17	1x Noctule, foraging, heard not seen	21.26	1x common pipistrelle, commuting north
21.49	1x common pipistrelle foraging near road	21.29	1x common pipistrelle, heard not seen
		21.37	1x common pipistrelle, commuting east along hedgerow
		21.39	1x common pipistrelle, heard not seen

**Pink Transect**

<b>Time</b>	<b>22.08.11</b>	<b>Time</b>	<b>30.08.11</b>
20.27	2x soprano pipistrelles, brief passes	20.10	1x common pipistrelle, brief pass
20.29	1x common pipistrelle, foraging above trees	20.13	2x common pipistrelles, foraging, heard not seen
20.33	1x common pipistrelle, foraging	20.16	1x common pipistrelle, foraging around trees
20.39	1x common pipistrelle, foraging along hedge	20.24	1x common pipistrelle, commuting south-east
20.44	2x common pipistrelles, foraging	20.29	1x common pipistrelle, commuting south along woodland edge
20.50	4x common pipistrelles, foraging around trees	20.35	1x common pipistrelle, two passes
21.06	4x common pipistrelles, foraging	20.38	1x common pipistrelle, foraging, heard not seen
21.10	1x common pipistrelle, heard not seen	20.50	3x common pipistrelles, foraging along line of trees
21.12	2x common pipistrelles, brief passes	20.55	1x common pipistrelle, brief pass
21.17	1x <i>Myotis</i> (likely Natterer's), brief pass, heard not seen	20.58	2x common pipistrelles, foraging
21.19	3x common pipistrelles, foraging at woodland edge	21.03	1x common pipistrelle, single pass
21.21	1x <i>Myotis</i> (likely Natterer's), foraging	21.10	1x common pipistrelle, foraging in trees
21.28	1x common pipistrelle, commuting north	21.20	2x common pipistrelles, brief pass
21.34	2x common pipistrelles, foraging, heard not seen	21.32	1x common pipistrelle, foraging
21.58	1x common pipistrelle, brief pass		



Appendix B: Bat Distribution Plan 22.08.11





Appendix C: Bat Distribution Plan 30.08.11

Bat Transect Survey 30.08.11



**KEY**

- COMMON PIPISTRELLE
- SOPRANO PIPITSRELLE
- NOCTULE
- *Myotis* LIKELY NATTERER'S

Point size is indicative of numbers of bats:

- 1
- 2
- 3
- 4

■ SITE BOUNDARY