



BAT SURVEY REPORT

Client: London Wildlife Trust

Site: Sydenham Hill Wood and Dulwich Woods,
London

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Version 001





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Report	This report remains valid for 12 to 18 months from date of issue. The report, conclusions and recommendations are valid for current development plans only. Should this change, the report should be reviewed and, if necessary, further survey work and desk study review undertaken.		
Survey Data	Survey data are valid for 12 to 18 months from the date the survey was undertaken.		

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The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

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1. Summary

Site Details
<ul style="list-style-type: none"> • Site Address: Sydenham Hill Wood and Dulwich Woods, Crescent Wood Road, Sydenham Hill, SE26 6LS. • OS Grid Reference (Sydenham Hill Wood): TQ 34374 72538. • OS Grid Reference (Dulwich Woods): TQ 34007 72494. • Approximate Area of Survey Area (Sydenham Hill Wood and Dulwich Woods): 23 ha.
Scope of Works
<ul style="list-style-type: none"> • aLyne Ecology Ltd was commissioned by London Wildlife Trust to undertake bat activity transect surveys as part of the Reuniting Sydenham Hill Wood & Dulwich Woods Heritage Lottery Fund Project. The brief and objectives of the work include the gathering of data of foraging and commuting bat species that can be used to inform future site management as part of the project.
Results and Evaluation
<ul style="list-style-type: none"> • Bats, their roosts and habitats are strictly protected under the Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species Regulations 2017 (as amended). • Three visits to conduct walked transects at Sydenham Hill Wood and Dulwich Woods were carried out during July, August, and September 2023, to assess the importance of the survey area for foraging and commuting bats (the locations of transect routes are provided in Figure 1 and Figure 2). <p><u>Sydenham Hill Wood</u></p> <ul style="list-style-type: none"> • For the walked transects at Sydenham Hill Wood, in total, 331 bat passes, comprising at least five different bat species, were recorded over all three visits combined. • During the walked transect on 27th July 2023, 101 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle, and serotine. • During the walked transect carried out on 16th August 2023 at Sydenham Hill Wood, 111 bat passes were recorded from two different species, namely common pipistrelle, and soprano pipistrelle. A high number of soprano pipistrelle calls and passes were recorded around the old pedestrian bridge over the former railway (see Target Note 1 on Figure 1) at the commencement of the survey, suggesting a soprano pipistrelle roost is present at this location. • During the walked transect carried out on 13th September 2023 at Sydenham Hill Woods, 119 bat passes were recorded from four different species, namely common pipistrelle, soprano pipistrelle, noctule and <i>Myotis</i>. Noctule social calls were recorded and passes seen in a specific location in Section 4 within dense woodland (see Target Note 2 on Figure 1). It was noted that the behaviour recorded was attributed to male noctules advertising the location of a mating roost from a stationary position to female noctules. This was audible to the surveyors without the use of a bat detector. It is likely that one of

the mature trees in this area is a natural noctule mating roost (Middelton et. al, 2014).

- Figure 1 provides the location of the walked transect, Stopping Points and Sections for Sydenham Hill Wood.
- Bat passes were recorded to be most frequent at Stopping Point 2, Section 3 and Section 4, where peak counts were recorded for soprano pipistrelle (Stopping Point 2), common pipistrelle (Section 3) and noctule (Section 4). Only a few passes were recorded at Stopping Point 1 (3 passes) and Stopping Point 4 (8 passes) over the three surveys.
- Bat call analysis of the walked transects data for Sydenham Hill Wood indicates that the site currently supports foraging and commuting habitat of at least regional importance for noctule bats. The site also supports foraging and commuting habitat of at least county importance for soprano pipistrelle and local importance for common pipistrelle and serotine. Figure 3 provides a heatmap showing the distribution and level of bat activity within Sydenham Hill Wood over all three visits.

Dulwich Woods

- For the walked transects at Dulwich Woods, in total, 244 passes, comprising at least six different bat species, were recorded over all three visits combined.
- During the walked transect on 27th July 2023, 86 bat passes were recorded from four different species, namely common pipistrelle, soprano pipistrelle, noctule and serotine.
- During the walked transect on 16th August 2023, 55 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle and Daubenton's.
- During the walked transect on 13th September 2023, 103 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle and *Myotis*.
- Figure 2 provides the location of the walked transect, Stopping Points and Sections for Dulwich Woods.
- Bat passes were recorded to be most frequent at Stopping Point 1 and Stopping Point 3, where peak counts were recorded for soprano pipistrelle (Stopping Point 1), common pipistrelle (Stopping Point 3), serotine (Stopping Point 3), *Myotis* (Stopping Point 3) and noctule (Stopping Point 3). Only low numbers of bat passes were recorded at Section 1 (11 passes), Stopping Point 2 (17 passes) and Stopping Point 4 (5 passes) over the three visits.
- Bat call analysis of the walked transects data for Dulwich Woods indicates that the site currently supports foraging and commuting habitat of at least regional importance for serotine bats. The site also supports foraging and commuting habitat of at least local importance for common pipistrelle, soprano pipistrelle and noctule bats. Figure 4 provides heatmap showing the distribution and level of bat activity within Dulwich Woods over all three visits.

Recommendations

- Recommendations for future habitat and site management to benefit foraging, commuting and roosting bats for Sydenham Hill Wood and Dulwich Woods are provided in Section 7.

2. Introduction

2.1 Site Details

Table 1 provides details on the survey areas, intended as a summary of key features. Information provided in Table 1 have been derived from www.magic.gov.uk.

Table 1. Site Details

Site Name	Sydenham Hill Wood and Dulwich Woods
Site Address	Sydenham Hill Wood and Dulwich Woods, Crescent Wood Road, Sydenham Hill, SE26 6LS.
OS Grid Reference (Sydenham Hill Wood)	TQ 34485 72599
OS Grid Reference (Dulwich Woods)	TQ 34007 72494
Total Approximate Area of Survey Area (Sydenham Hill Wood and Dulwich Woods)	23 ha
Landowner and Local Authority	London Wildlife Trust and Dulwich Estate, London Borough of Southwark
Geology and Soils	Slowly permeable seasonally wet slightly acid, but base-rich loamy and clayey soils
Hydrology	Impeded drainage
Nature Conservation Designations	Sydenham Hill Wood and Fern Bank Local Nature Reserve (LNR) and Sydenham Hill Wood and Dulwich Woods Site of Importance for Nature Conservation (SINC)
Other Designations	None on site
Ancient Woodland	Ancient & Semi-Natural Woodland
Biodiversity Opportunity Area	None known
National Habitat Network	Ancient Woodland
Primary Habitats	Woodlands

An aerial plan showing the location of the survey area is provided below.



Site Location (© Google Earth Pro, accessed 25th September 2023).

2.2 Scope of Works

The brief was to undertake bat activity transects as part of the Reuniting Sydenham Hill Wood & Dulwich Woods Heritage Lottery Fund Project. The brief and objectives of the work include the collection of data on bat activity, which can be used to inform future site management as part of the project.

The objective of the Bat Activity Surveys was to:

- Survey foraging and commuting bats in the survey area, noting species and abundance.
- Provide recommendations for future habitat and site management at Sydenham Hill Wood and Dulwich Woods to benefit bat conservation.

3. Legislation

All UK bat species and their roosts are fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). All bats are also included in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and are afforded further protection through the Countryside and Rights of Way (CRoW) Act, 2000.

The combined legislation makes it illegal to:

- Intentionally kill, injure, or capture bats.
- Deliberately disturb bats (whether in a roost or not).
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport a bat or any part of a bat, unless acquired legally.
- Sell, barter or exchange bats, or parts of bats.

As a signatory to the Bonn Convention (Agreement of Bats in Europe), the UK is also required to protect their habitats, requiring the identification and protection from damage or disturbance of important feeding areas.

4. Methods

4.1 Bat Activity Surveys

The survey area comprises Sydenham Hill Wood and Dulwich Woods with a transect being undertaken on each site. The survey routes were designed to encompass areas of optimal bat foraging and commuting habitats across each site, including dense woodland and woodland edges.

Two surveyors conducted the walked transects. Three walked transects were completed at Sydenham Hill Wood and Dulwich Woods, one month apart, at dusk, during July, August, and September 2023, with reference to guidance produced by the Bat Conservation Trust (Collins, 2016). Transect routes are shown in Figures 1 and 2.

Each transect was completed twice by surveyors equipped with an Elekon BatLogger M bat detector. The transect route included five walked Sections and four Stopping Points. The transects commenced at sunset and continued for 120 minutes after sunset.

Surveyors stopped for a maximum of five minutes at each Stopping Point to record bat activity. Descriptions of the walked transect routes are shown in Tables 4 and 5. Raw data is provided in Appendix 1.

Bat echolocation calls were analysed using BatExplorer software and bat species identified by comparison of sonograms with a known reference of echolocation call parameters and library of echolocation calls. Echolocation calls were assigned to species level, where possible. Where this was not deemed possible, identification to genus level was made. Details of the surveys are provided in Tables 2 to 3.

Table 2. Sydenham Hill Wood Bat Activity Survey Details

	Transect Visit 1	Transect Visit 2	Transect Visit 3
Date:	27 th July 2023	16 th August 2023	13 th September 2023
Surveyors:	MR, LB, ST	MR, JBr	MR
Weather conditions:	24°C, dry, 10% cloud cover, wind force 1	20°C, dry, 10% cloud cover, wind force 1	19°C, dry, 80% cloud cover, wind force 1
Sunset/Sunrise:	20.56	20:21	19:20
Start time:	20.56	20:21	19:20
Finish time	22.56	22:21	21:20

Surveyor codes: MR – Martin Roche BSc (Hons) ACIEEM, JBr – Josh Brown BSc (Hons); LB – Lucie Bloomfield BA (Hons); ST – Sam Taylor (London Wildlife Trust)

Table 3. Dulwich Woods Bat Activity Survey Details

	Transect Visit 1	Transect Visit 2	Transect Visit 3
Date:	27 th July 2023	16 th August 2023	13 th September 2023
Surveyors:	CG, JBI	CG, NA	JBI, DG
Weather conditions:	24°C, dry, 10% cloud cover, wind force 1	20°C, dry, 10% cloud cover, wind force 1	19°C, dry, 80% cloud cover, wind force 1
Sunset/Sunrise:	20.56	20:21	19:20
Start time:	20.56	20:21	19:20
Finish time	22.56	22:21	21:20

Surveyor codes: CG – Charlie Gardiner BSc (Hons) ACIEEM; JBI – John Blewett BSc (Hons); MR – Martin Roche BSc (Hons) ACIEEM; NA – Nikki Archard BSc; DG - Daniel Greenwood (London Wildlife Trust)

Table 4. Description of Sydenham Hill Wood Bat Activity Transect Route

Location	Habitat and Potential Bat Feature Details	Length of Section (m)	Time Elapsed (minutes)
Start/End Point	Positioned adjacent to a former pedestrian railway bridge at the eastern end.	N/A	N/A
Section 1	Running down the former railway cutting embankment and along the disused track bed within woodland either side of the track.	350	7
Stopping Point 1	An open clearing within the woodland beside the disused track bed with wood and shrub species providing an edge to the wider woodland.	N/A	5
Section 2	Following the disused railway track bed towards the disused former railway tunnel.	290	10
Stopping Point 2	Positioned on the southern site boundary close to Crescent Hill Road. Situated above the mouth of the disused railway tunnel within dense woodland.	N/A	5
Section 3	Heading northwest through dense woodland and mature canopy cover.	356	10
Stopping Point 3	In the centre of the site within dense woodland with mature canopy cover.	N/A	5
Section 4	Running parallel to the disused railway track bed but within dense woodland still before walking the former pedestrian railway bridge.	350	10
Stopping Point 4	Positioned adjacent to the western end of the former pedestrian railway bridge.	N/A	5
Section 5	Crossing the disused railway cutting embankment and across the former railway track bed.	173	3

Table 5. Description of Dulwich Woods Bat Activity Transect Route

Location	Habitat and Potential Bat Feature Details	Length of Section (m)	Time Elapsed (minutes)
Start/End Point	Beside the former disused railway at the western end of the former pedestrian bridge.	N/A	N/A
Section 1	Immediately entering a small parcel of dense woodland surrounded by holly understory and walking north along the woodland edge abutting the off-site golf course.	108	10
Stopping Point 1	Positioned at the most northern end of Dulwich Woods beside Cox's Walk.	N/A	5
Section 2	Following established path through the woodland with limited understory but mature pedunculate oak canopy beside occasional clearings of taken by bramble.	490	10
Stopping Point 2	Positioned on the central northern boundary beside the woodland edge abutting off-site allotments to the north.	N/A	5

Location	Habitat and Potential Bat Feature Details	Length of Section (m)	Time Elapsed (minutes)
Section 3	Running along the remainder of the northern boundary before turning deeper into the woodland surrounded by dense mature pedunculate oak canopy with occasional woodland clearings with dominant scrub.	794	10
Stopping Point 3	The southwestern corner of the Dulwich Woods within dense holly understory with occasional clearings created by fallen mature trees.	N/A	5
Section 4	Running along the southern boundary of Dulwich Woods with limited understory but retains significant dense mature canopy cover from pedunculate oak trees.	710	10
Stopping Point 4	Positioned adjacent to a woodland pond with marginal vegetation. Native shrubs and marginal habitat provide an edge to the wider woodland surrounding.	N/A	5
Section 5	Back along the northern boundary before heading deeper into dense woodland with a dominant holly understory before approaching the western end of the former pedestrian bridge.	257	7

4.1.1 Evaluation

Table 6 defines the relative geographical rarity of each species of bat based on the known populations of bat species in England. Accurate population figures are not available for all species in England. The data presented in Table 10 is taken from Wray *et al.* (2010), whose data are primarily taken from estimates given in Richardson (2000), Harris *et al.* (1995) and Harris and Yalden (2008).

Table 6. Categorising Bats by Distribution and Rarity in England

Rarity within England	Species
Rarest (Population under 10,000)	<p>Alcathoe (<i>Myotis alcathoe</i>) Barbastelle (<i>Barbastella barbastellus</i>) Bechstein's bat (<i>Myotis bechsteini</i>) Greater horseshoe (<i>Rhinolophus ferrumequinum</i>) Greater mouse-eared bat (<i>Myotis myotis</i>) Grey long-eared bat (<i>Plecotus austriacus</i>)</p>
Rarer (Population 10,000 – 100,000)	<p>Brandt's bat (<i>Myotis brandtii</i>) Daubenton's bat (<i>Myotis daubentonii</i>) Leisler's bat (<i>Nyctalus leisleri</i>) Lesser horseshoe (<i>Rhinolophus hipposideros</i>) Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>) Natterer's bat (<i>Myotis nattereri</i>) Noctule (<i>Nyctalus noctula</i>) Serotine (<i>Eptesicus serotinus</i>) Whiskered (<i>Myotis mystacinus</i>)</p>

Rarity within England	Species
Common (Population over 100,000)	Brown long-eared bat (<i>Plecotus auritus</i>) Common pipistrelle (<i>Pipistrellus pipistrellus</i>) Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)

Table 7 shows grouped numbers of foraging and commuting bat passes (an indication of activity) for each species rarity in England. The groups of bat passes have been assigned based on bat transect surveys carried out by aLyne Ecology Ltd in south-east England over the past six years.

Table 7. Valuing Numbers of Foraging and Commuting Bats

Rarity within England	Number of Bats		
	Individuals	Small Group	Large Group
Rarest (Population under 10,000)	Less than 5	6 – 10	More than 10
Rarer (Population 10,000 – 100,000)	Less than 5	6 – 10	More than 10
Common (Population over 100,000)	Less than 5	6 – 50	More than 50

Table 8 shows the value of the commuting routes for bats to determine the appropriate geographical frame of reference (see Table 10). Table 8 gives the species rarity, population size based on the survey data, the presence of known and potential roosts near the survey area (as communicated by London Wildlife Trust, taking into account potential unknown number of roosts) and the type and complexity of linear features on site. The values presented in Table 8 are taken from Wray *et al.* (2010).

Table 8. Valuing Commuting Routes

Species Rarity (Value)	Population Size (Value)	Roosts/ Potential Roosts Nearby (Value)	Type and Complexity of Linear Features (Value)
Rarest (20)	Individual bats (5)	None (1)	Absence of linear features (1)
		Small number (less than 5) (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Small (10)	Moderate number (between 6 and 10) / Not known (4)	Walls, defunct hedgerows, isolated well-grown hedgerows, and moderate sized fields (3)
		Large number (more than 10) / Close to a Site of Special Scientific Interest (SSSI) for the species (5)	Well-grown and well-connected hedgerows and small field sizes (4)
Common (2)	Large (20)	Close to a Special Area of Conservation (SAC) for the species (20)	Complex network of mature well-established hedgerows, small fields, and streams (5)

Table 9 shows the value of the foraging areas for bats to determine the appropriate geographical frame of reference (Table 10). Table 9 considers the species rarity, population size based on the survey data, the presence of known and potential roosts near the site and the foraging habitat characteristics on site. The values presented in Table 9 are taken from Wray *et al.* (2010).

Table 9. Valuing Foraging Areas

Species Rarity (Value)	Population Size (Value)	Roosts/ Potential Roosts Nearby (Value)	Type and Complexity of Linear Features (Value)
Rarest (20)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small (10)	Moderate number / Not known (4)	Isolated woodland patches, less intensive arable and/or small town and villages (3)
		Large number / Close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages / hamlets (4)
Common (2)	Large (20)	Close to a SAC for the species (20)	Mosaic of pasture, woodlands, and wetland areas (5)

Table 10 shows the scoring system for valuing commuting and foraging bats. Each score indicates the geographical frame of reference to determine the importance of the site for commuting and foraging bats (taken from Wray *et al.* 2010).

Table 10. Scoring System for Valuing Commuting and Foraging Bats

Geographic Frame of Reference	Score
International	>50
National	41 – 50
Regional	31 – 40
County	21 – 30
District, Local or Parish	11 – 20
Not Important	1 – 10

4.2 Survey Limitations

There were no limitations considered to negatively influence the outcome of the bat activity surveys in relation to the following:

- Personal competence, i.e., qualifications, training, skills, understanding, experience.
- Resources (equipment and personnel).
- Time spent surveying.
- Data (e.g., arising from incomplete or inappropriate surveys).
- Timing or seasonal constraints and suboptimal survey periods.

Bat surveys undertaken using bat detectors are inherently biased as bats with louder calls (such as the *Nyctalus* species) will be recorded at a greater distance (and therefore more frequently) than species which use quiet calls such as *Plecotus* sp.

Long-eared bat (*Plecotus* spp.) is a genus that generally only emerges in full darkness and which has a very quiet echolocation call, generally not detectable in the open if more than 3-5 m from the bat detector. As a result, long-eared bats are difficult to detect during activity surveys and it is likely this genus is under-recorded during such surveys.

Species identification by sonogram is limited (to a certain extent) by similarities in call structure. In addition, all bats can modulate their calls according to the habitats they are navigating, their behaviour and the information they require at the time. This imposes limitations on reliable analysis particularly between species in the genera *Plecotus*, *Myotis* and *Nyctalus*.

The above survey limitations are unavoidable, and it is considered that they have not affected the robustness of the survey results for the purposes of this study. Therefore, it is considered that there were no limitations to the survey works.

After the first transect at Dulwich Woods on 27th July 2023, the original transect route was amended to reflect the locations of existing paths and inaccessible areas.

The value of bats across the survey area using a geographical frame of reference under (Wray et, al, 2010) has been conducted, which should be viewed as indicative only, as the method has been designed to take into account data across seven visits.

5. Results

Across both survey areas, 575 bat passes, comprising at least eight different bat species, were recorded in total over the three visits. In total, across the three visits conducted at Sydenham Hill Wood 331 bat passes were recorded, and 244 bat passes were recorded at Dulwich Woods.

Figures 3 and 4 provide heatmaps for Sydenham Hill Wood and Dulwich Woods. The heatmaps combine bat species data from all three visits for each survey area, showing the distribution and level of foraging, and commuting bat activity. Raw data for each survey area is provided in Appendix 1.

5.1 Sydenham Hill Wood

In total, 331 bat passes, comprising at least five different species were recorded at Sydenham Hill Wood for all three visits combined. One pass was classified as *Myotis*, which could be identified to genus level only.

During the walked transect on 27th July 2023, 101 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle, and serotine.

During the walked transect carried out on 16th August 2023 at Sydenham Hill Wood, 111 bat passes were recorded from two different species, namely common pipistrelle, and soprano pipistrelle. A high number of soprano pipistrelle calls and passes were recorded around the old pedestrian bridge over the former railway (see Target Note 1 on Figure 1) at the commencement of the survey, suggesting a soprano pipistrelle roost is present at this location.

During the walked transect carried out on 13th September 2023 at Sydenham Hill Woods, 119 bat passes were recorded from four different species, namely common pipistrelle, soprano pipistrelle, noctule and *Myotis*. Noctule social calls were recorded and passes seen in a specific location in Section 4 within dense woodland (see Target Note 2 on Figure 1). It was noted that the behaviour recorded was attributed to male noctules advertising the location of a mating roost from a stationary position to female noctules. This was audible to the surveyors without the use of a bat detector. It is likely that one of the mature trees in this area is a natural noctule mating roost (Middelton et. al, 2014).

Table 11 shows the number of bat passes recorded for each species across the three transect visits, broken down for each Section and Stopping Point for Sydenham Hill Wood. The numbers in bold indicate the peak count for each species.

Table 11. Total Number and Peak Number of Bat Passes for Bat Species Recorded at Sydenham Hill Wood

Species	Total Number of Passes									
	Section 1	Stopping Point 1	Section 2	Stopping Point 2	Section 3	Stopping Point 3	Section 4	Stopping Point 4	Section 5	Total
Common Pipistrelle	0	2	3	7	50	4	17	7	16	106
Soprano Pipistrelle	19	1	45	56	18	18	9	1	10	177
Noctule	0	0	0	0	0	0	41	0	0	41
Serotine	0	0	1	0	2	3	0	0	0	6

Species	Total Number of Passes									
	Section 1	Stopping Point 1	Section 2	Stopping Point 2	Section 3	Stopping Point 3	Section 4	Stopping Point 4	Section 5	Total
<i>Myotis</i>	0	0	0	0	1	0	0	0	0	1
Total	19	3	49	63	71	25	67	8	26	331

Table 12 shows a summary of the peak count for each bat species recorded during the three transects and a description of the corresponding habitat, as provided in Table 4.

Table 12. Sydenham Hill Wood - Summary of Peak Count and Corresponding Habitat

Species	Peak Count	Peak Count Location	Description of Habitat
Common Pipistrelle	50	Section 3	Dense Woodland
Soprano Pipistrelle	56	Stopping Point 2	Dense Woodland
Noctule	41	Section 4	Dense Woodland
Serotine	3	Stopping Point 3	Dense Woodland
<i>Myotis</i>	1	Section 3	Dense Woodland

5.2 Dulwich Woods

In total, 244 bat passes, comprising at least six different bat species were recorded at Dulwich Woods across all three visits. Two passes were classified as *Myotis*, which could be identified to genus level only.

During the walked transect on 27th July 2023, 86 bat passes were recorded from four different species, namely common pipistrelle, soprano pipistrelle, noctule and serotine.

During the walked transect on 16th August 2023, 55 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle and Daubenton's.

During the walked transect on 13th September 2023, 103 bat passes were recorded from three different species, namely common pipistrelle, soprano pipistrelle and *Myotis*.

Table 13 shows the number of bat passes recorded for each species across the three transect visits, broken down for each Section and Stopping Point for Dulwich Woods. The numbers in bold indicate the peak count for each species.

Table 13. Total Number and Peak Number of Bat Passes for Bat Species Recorded at Dulwich Woods

Species	Total Number of Passes									
	Section 1	Stopping Point 1	Section 2	Stopping Point 2	Section 3	Stopping Point 3	Section 4	Stopping Point 4	Section 5	Total
Common Pipistrelle	7	11	12	15	16	19	18	2	11	111

Species	Total Number of Passes									
	Section 1	Stopping Point 1	Section 2	Stopping Point 2	Section 3	Stopping Point 3	Section 4	Stopping Point 4	Section 5	Total
Soprano Pipistrelle	4	48	16	2	9	9	6	3	11	108
Noctule	0	0	0	0	0	1	0	0	0	1
Serotine	0	0	1	0	1	18	0	0	0	20
<i>Myotis</i>	0	0	0	0	0	2	0	0	0	2
Daubenton's	0	0	0	0	0	0	2	0	0	2
Total	11	59	29	17	26	49	26	5	22	244

Table 14 shows a summary of the peak count for each bat species recorded during the three transects and a description of the corresponding habitat, as provided in Table 5.

Table 14. Dulwich Woods - Summary of Peak Count and Corresponding Habitat

Species	Peak Count	Peak Count Location	Description of Habitat
Common Pipistrelle	19	Stopping Point 3	Dense Woodland with Occasional Clearings
Soprano Pipistrelle	48	Stopping Point 1	Dense Woodland with Limited Canopy
Noctule	1	Stopping Point 3	Dense Woodland with Occasional Clearings
Serotine	18	Stopping Point 3	Dense Woodland with Occasional Clearings
<i>Myotis</i>	2	Stopping Point 3	Dense Woodland with Occasional Clearings
Daubenton's	2	Section 4	Dense Woodland with Limited Understory

6. Evaluation

6.1 Sydenham Hill Wood

Bat passes were recorded to be most frequent at Stopping Point 2, Section 3 and Section 4, where peak counts were recorded for soprano pipistrelle (Stopping Point 2), common pipistrelle (Section 3) and noctule (Section 4). Only a few passes were recorded at Stopping Point 1 (3 passes) and Stopping Point 4 (8 passes) over the three visits.

Tables 15 and 16 provide an evaluation of the foraging and commuting habitat for bats at Sydenham Hill Wood. Table 15 provides scores for species rarity, number of bats (using the peak count for each species, as shown in Table 13, and comparing the number to the groups given in Table 7), the proximity of known roosts, and the nature and complexity of linear features in the survey area for commuting bats (as detailed in Table 8). In this case, the linear features within the survey area have been given a score of 4, taking into account the large parcel of woodland and the disused railway line.

A score is taken from each column and added together in order to arrive at a total score, with the corresponding geographic frame of reference (see Table 10). Where bats have only been identified to genus level, i.e., *Myotis*, scoring is not possible, because these species groups span more than one species rarity group.

Table 15. Sydenham Hill Wood - Valuing Commuting Routes for Bats

Species	Species Rarity Value	Number of Bats Value (Peak Count)	Roosts/Potential Roosts Nearby Value	Linear Features Value	Total Score	Geographic Frame of Reference
Common Pipistrelle	2	10 (50)	4	4	20	Local
Soprano Pipistrelle	2	20 (56)	4	4	30	County
Noctule	5	20 (41)	4	4	33	Regional
Serotine	5	5 (3)	4	4	18	Local

Table 16 provides the same information for foraging areas for bats at Sydenham Hill Wood (as detailed in Table 8). In this case, the foraging features in the survey area have been given a value of 4, taking into account the mature woodland which dominates the survey area.

Table 16. Sydenham Hill Wood - Valuing Foraging Areas for Bats

Species	Species Rarity Value	Number of Bats Value (Peak Count)	Roosts/Potential Roosts Nearby Value	Foraging Habitat Value	Total Score	Geographic Frame of Reference
Common Pipistrelle	2	10 (50)	4	4	20	Local
Soprano Pipistrelle	2	20 (56)	4	4	30	County
Noctule	5	20 (41)	4	4	33	Regional
Serotine	5	5 (3)	4	4	18	Local

Bat call analysis of the Sydenham Hill Wood walked transect data indicates that the survey area currently supports commuting and foraging habitat of at least county importance for soprano pipistrelle, of local importance for common pipistrelle and serotine, and of regional importance for noctule.

6.2 Dulwich Woods

Bat passes were recorded to be most frequent at Stopping Point 1 and Stopping Point 3, where peak counts were recorded for soprano pipistrelle (Stopping Point 1), common pipistrelle (Stopping Point 3), serotine (Stopping Point 3), *Myotis* (Stopping Point 3) and noctule (Stopping Point 3). Only low numbers of bat passes were recorded at Section 1 (11 passes), Stopping Point 2 (17 passes) and Stopping Point 4 (5 passes) over the three visits.

Tables 17 and 18 provide an evaluation of the foraging and commuting habitats for bats at Dulwich Woods. Table 17 provides scores for species rarity, number of bats (using the peak count for each species, as shown in Table 14, and comparing the number to the groups given in Table 7), the proximity of known roosts, and the nature and complexity of linear features on the survey area for commuting bats (as detailed in Table 8). In this case, the linear features within the survey area have been given a score of 4, taking into account the large parcel of woodland and the woodland edge with the offsite golf course to the north.

A score is taken from each column and added together in order to arrive at a total score, with the corresponding geographic frame of reference (see Table 10). Where bats have only been identified to genus level, i.e., *Myotis*, scoring is not possible, because these species groups span more than one species rarity group.

Table 17. Dulwich Woods - Valuing Commuting Routes for Bats

Species	Species Rarity Value	Number of Bats Value (Peak Count)	Roosts/Potential Roosts Nearby Value	Linear Features Value	Total Score	Geographic Frame of Reference
Common Pipistrelle	2	10 (19)	4	4	20	Local
Soprano Pipistrelle	2	10 (48)	4	4	20	Local
Noctule	5	5 (1)	4	4	18	Local
Serotine	5	20 (18)	4	4	33	Regional
Daubenton's	5	5 (2)	4	4	18	Local

Table 18 provides the same information for foraging areas for bats (as detailed in Table 8). In this case, the foraging features in the survey area have been given a value of 4, taking into account the mature woodland which dominates the survey area.

Table 18. Dulwich Woods - Valuing Foraging Areas for Bats

Species	Species Rarity Value	Number of Bats Value (Peak Count)	Roosts/Potential Roosts Nearby Value	Foraging Habitat Value	Total Score	Geographic Frame of Reference
Common Pipistrelle	2	10 (19)	4	4	20	Local
Soprano Pipistrelle	2	10 (48)	4	4	20	Local

Species	Species Rarity Value	Number of Bats Value Peak Count)	Roosts/Potential Roosts Nearby Value	Foraging Habitat Value	Total Score	Geographic Frame of Reference
Noctule	5	5 (1)	4	4	18	Local
Serotine	5	20 (18)	4	4	33	Regional
Daubenton's	5	5 (2)	4	4	18	Local

Bat call analysis of the Sydenham Hill Wood walked transect data indicates that the survey area currently supports commuting and foraging habitat of regional importance for serotine bats and of local importance for common pipistrelle, soprano pipistrelle, serotine, and Daubenton's bats.

7. Recommendations

The following measures could be considered to enhance habitats for bats at Sydenham Hill Wood and Dulwich Woods:

- The removal and treatment of non-native species such as *Rhododendron ponticum* in Dulwich Woods. Native species could be planted to provide understory within the dense mature woodlands. This would also provide an enhancement to the ancient woodland in both Sydenham Hill Wood and Dulwich Woods. Suitable species for replanting could include hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), English oak (*Quercus robur*), field maple (*Acer campestre*), guelder-rose (*Viburnum opulus*) and rowan (*Sorbus aucuparia*).
- The open area beside the former disused railway tracked bed in Sydenham Hill Wood could be managed as a woodland glade. This would need to be kept clear of scrub / ruderal encroachment such as bramble (*Rubus fruticosus* agg.) and willowherb (*Epilobium* and *Chamaenerion* sp.) to provide a woodland edge habitat.
- Further enhancement of the open area beside the former disused railway tracked bed in Sydenham Hill Wood could include the provision of a seeded wildflower area within an open glade, using seed of local provenance and suitable for the soil type. The resulting wildflower area would attract invertebrates, which would provide a food resource for bats when foraging. Suitable seed can be supplied from www.wildseed.co.uk.
- Bark boxes for bats could be installed on mature trees in both Sydenham Hill Wood and Dulwich Woods. These boxes are moulded and painted to appear like tree bark and contain roosting features that would be utilised by many different species of bats. The natural appearance of the bat box would be advantageous to the woodland environment of both Sydenham Hill Wood and Dulwich Woods. A mixture of hibernation boxes and general crevice boxes could be installed to provide shelter through all seasons for bats. These boxes are available from www.barkboxes.co.uk.
- The management of the wildlife pond in Dulwich Woods by enhancing marginal aquatic vegetation to attract a greater variety of invertebrates that would attract bats to forage. It has been noted that the pond is fenced off the general public and this should continue to allow the natural seed bank to re-establish.
- Alteration of night lighting in Sydenham Hill Wood at Target Note 1 (Figure 1), to include downward facing hoods, to reduce light spill. Further information on bats and artificial lighting at night can be found at: Bat Conservation Trust/Institution of Lighting Professionals, Guidance Note 08/23, Bats and Artificial Lighting at Night 2023.

8. References

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9. Appendix 1 – Raw Data

9.1 Sydenham Hill Wood

Visit 1				
Location	Common Pipistrelle	Soprano Pipistrelle	Serotine	Total
Section 1	0	0	0	0
Stopping Point 1	0	0	0	0
Section 2	0	3	1	4
Stopping Point 2	4	1	0	5
Section 3	46	17	2	65
Stopping Point 3	0	0	3	3
Section 4	3	2	0	5
Stopping Point 4	3	0	0	3
Section 5	15	1	0	16
Total	71	24	6	101

Visit 2			
Location	Common Pipistrelle	Soprano Pipistrelle	Total
Section 1	0	10	10
Stopping Point 1	2	0	2
Section 2	0	1	1
Stopping Point 2	3	54	57
Section 3	4	0	4
Stopping Point 3	4	14	18
Section 4	12	1	13
Stopping Point 4	4	1	5
Section 5	0	1	1
Total	29	82	111

Visit 3					
Location	Common Pipistrelle	Soprano Pipistrelle	Noctule	<i>Myotis</i>	Total
Section 1	0	9	0	0	9
Stopping Point 1	0	1	0	0	1
Section 2	3	41	0	0	44
Stopping Point 2	0	1	0	0	1
Section 3	0	1	0	1	2
Stopping Point 3	0	4	0	0	4
Section 4	2	6	41	0	49
Stopping Point 4	0	0	0	0	0
Section 5	1	8	0	0	9
Total	6	71	41	1	119

9.2 Dulwich Woods

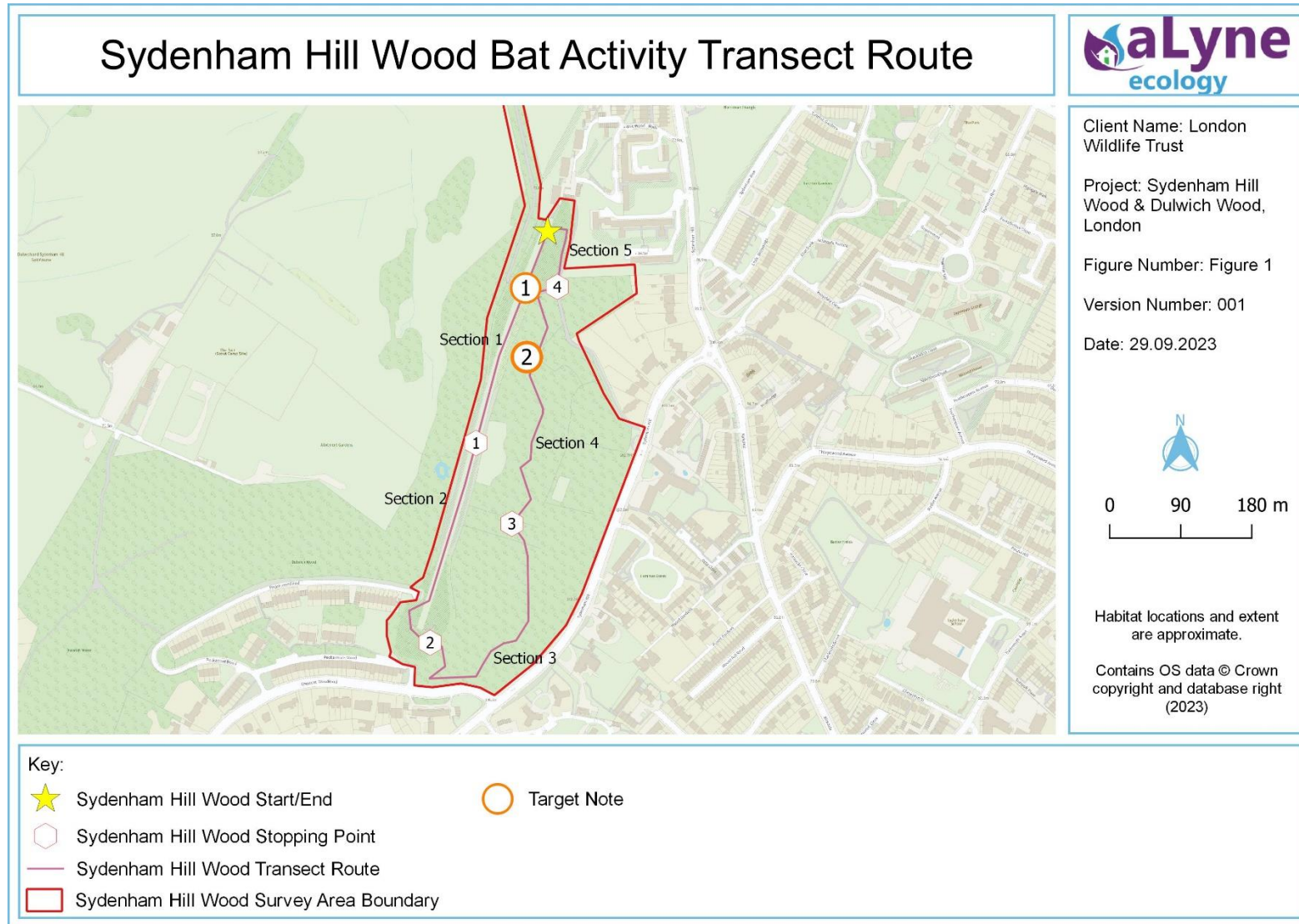
Visit 1					
Location	Common Pipistrelle	Soprano Pipistrelle	Noctule	Serotine	Total
Section 1	7	0	0	0	7
Stopping Point 1	7	3	0	0	10
Section 2	6	4	0	1	11
Stopping Point 2	15	1	0	0	16
Section 3	8	0	0	1	9
Stopping Point 3	4	4	1	18	27
Section 4	0	0	0	0	0
Stopping Point 4	0	0	0	0	0
Section 5	5	1	0	0	6
Total	52	13	1	20	86

Visit 2				
Location	Common Pipistrelle	Soprano Pipistrelle	Daubenton's	Total
Section 1	0	0	0	0
Stopping Point 1	1	0	0	1
Section 2	2	10	0	12
Stopping Point 2	0	1	0	1
Section 3	4	0	0	4

Visit 2				
Location	Common Pipistrelle	Soprano Pipistrelle	Daubenton's	Total
Stopping Point 3	3	1	0	4
Section 4	14	3	2	19
Stopping Point 4	2	0	0	2
Section 5	4	8	0	12
Total	30	23	2	55

Visit 3				
Location	Common Pipistrelle	Soprano Pipistrelle	<i>Myotis</i>	Total
Section 1	0	4	0	4
Stopping Point 1	3	45	0	48
Section 2	4	2	0	6
Stopping Point 2	0	0	0	0
Section 3	4	9	0	13
Stopping Point 3	12	4	2	18
Section 4	4	3	0	7
Stopping Point 4	0	3	0	3
Section 5	2	2	0	4
Total	29	72	2	103

10. Figures



Dulwich Woods Bat Activity Transect Route



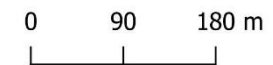
Client Name: London Wildlife Trust

Project: Sydenham Hill Wood & Dulwich Wood, London

Figure Number: Figure 2

Version Number: 002

Date: 29.09.2023







Habitat locations and extent are approximate.

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Key:

-  Dulwich Woods Start/End
-  Dulwich Woods Stopping Point
-  Dulwich Woods Transect Route
-  Dulwich Woods Survey Area Boundary

Sydenham Hill Wood Bat Activity Survey Heatmap



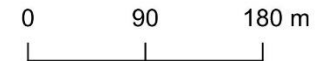
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Project: Sydenham Hill Wood and Dulwich Woods, London

Figure Number: Figure 3

Version Number: 001

Date: 27.09.2023



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Key:

- Sydenham Hill Wood Start/End
- Sydenham Hill Wood Stopping Point
- Sydenham Hill Wood Transect Route
- Sydenham Hill Wood Survey Area Boundary

Dulwich Woods Bat Activity Survey Heatmap



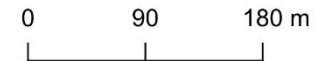
Client Name: London Wildlife Trust

Project: Sydenham Hill Wood and Dulwich Woods, London

Figure Number: Figure 4

Version Number: 001

Date: 29.09.2023



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Key:

- Dulwich Woods Start/End
- Dulwich Woods Stopping Point
- Dulwich Woods Transect Route
- Dulwich Woods Survey Area Boundary