



Redington Frognal Neighbourhood Forum

Redington Road - Frognal Lane
Camden

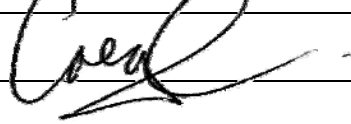
Bat activity survey

Dr [REDACTED]

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Primary Author	Dr [REDACTED]	
Contributor		
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© Ecology Network Ltd
Primrose Hill Business Centre
110 Gloucester Ave
LONDON
NW1 8HX

+44 (0)777 544 6260 Mob
+44 (0)207 483 2681 Tel
+44 (0)207 483 4541 Fax
info@ecologynetwork.co.uk
www.ecologynetwork.co.uk

Registered company: 6906166

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Executive summary

Location	Area around Redington Road and Frognal Lane, Hampstead, London (OS GR: TQ 255859)
Previous surveys	None
Survey	Automated bat activity survey
Conclusions	<p>Gardens within the Redington - Frognal area provide a significant commuting and foraging resource for bats, particularly common and soprano pipistrelles.</p> <p>Larger areas of gardens, closer to the Heath appear to have a greater potential for bat roosts / activity.</p> <p>Larger bats are active within the Redington - Frognal area, but their distribution is less clear.</p> <p>The roost within the horse chestnut at 9 Kiddepore Avenue may not be active.</p>
Recommendations	<p>Build a more complete picture of activity by repeating the survey, using different locations within the survey area.</p> <p>Undertake a dedicated emergence / return survey of the horse chestnut at 9 Kiddepore Avenue, along with a visual inspection.</p>

1. Introduction

- 1.1. Ecology Network Ltd was commissioned by the Redington Frognal Neighbourhood Forum ('the Forum') on 28th April 2016 to undertake a bat survey of the area of Hampstead around Redington Road and Frognal Lane, London (centred around OS Grid Ref: TQ 255859; Fig 1).

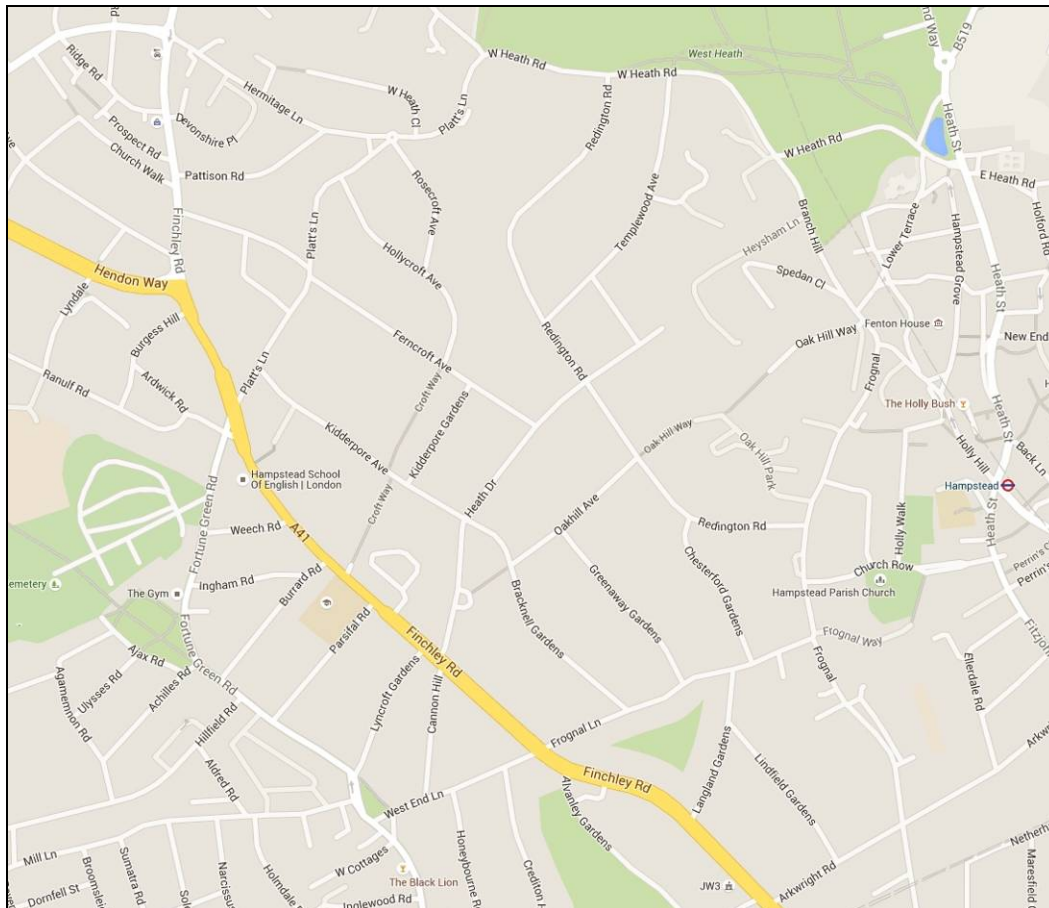


Fig 1 Location plan, study area around Redington Rd and Frognal Lane. Area is confined to the north-east of the Finchley Road.

- 1.2. As the area has been subject to a number of development proposals, the Forum is interested in gaining a greater understanding of the impact of the proposals upon biodiversity, especially in relation to bat roosting and activity.
- 1.3. The area lies adjacent to Hampstead Heath ('the Heath'), which is known to accommodate bats. Consequently, the Forum was particularly keen to find out the degree to which the private gardens in the Redington - Frognal area formed an 'extension' to the Heath in so far as bat activity is concerned.

2. Site description

- 2.1. The study area occupies some 80ha being approximately delineated to the NW by Pattison Road / Platt's Lane, West Heath Road to the north, Branch Hill to the NE, Frognal to the east, Frognal Lane to the south and the Finchley Road to the west. It largely coincides with the Redington - Frognal Conservation Area.
- 2.2. The area comprises almost entirely residential: substantial properties (in the main of the Victorian and Edwardian era) generally with large gardens, which together form significant areas of greenspace.

3. Bat ecology

- 3.1. There are seventeen (including the recently identified Alcaethoe' bat) types of bat in Britain. Many of these are considered to be threatened, largely due to habitat loss and disturbance / damage to roosts. Most of these species regularly use buildings, as well as trees, as roosts.
- 3.2. Bats are highly mobile flying mammals which in Britain feed entirely on insects. They are able to fly and feed in the dark by using a system of echolocation that gives them a 'sound picture' of their surroundings.
- 3.3. In winter, when prey is scarce, bats hibernate in humid parts of buildings, caves and hollow trees where temperatures are stable. They may wake occasionally but only become fully active in the spring.
- 3.4. Female bats gather together in maternity roost in summer to give birth and rear their single offspring. Breeding extends from early June - late August. Like other mammals, bats have fur and give birth to live young. Infant bats suckle on their mothers' milk for several weeks until they can fly and hunt for themselves. Bats are long lived and some British species are known to live for over 25 years.
- 3.5. A breeding roost will usually be well concealed within a man made structure or tree and requires enough space for free movement. These roosts can sometimes be detected by the presence of small mouse-like droppings. Roosts may also be identified by looking for bats 'swarming' at the roost entrance just before dawn.
- 3.6. A hibernation roost is often found in smaller crevices and may or may not be visible from the exterior. Hibernating bats are normally found in smaller numbers than in breeding roosts, from October - April, depending on climatic conditions.

- 3.7. As well as the roosts, the surrounding area can also be important for bats, as it may be an area in which they forage. Different species of bat have different ranges, within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost (the Core Sustenance Zone¹).

4. Legislative & policy background

- 4.1. All bats are protected under Section 9 of the Wildlife and Countryside Act, 1981 (as amended) and Regulation 41 of the Conservation of Habitats and Species Regulations, 2010, which transposes the Habitats Directive into UK law.
- 4.2. This makes it an offence to:
- deliberately kill, injure or take (capture) any bat
 - deliberately disturb bats in such a way as to be likely significantly to affect:
 - the ability of any significant group of bats to survive, breed, or rear or nurture their young, or
 - the local distribution or abundance of that species.
 - damage or destroy a bats breeding site or resting place.
 - intentionally or recklessly damage, destroy or obstruct the access to any place used by bats for shelter or protection (even if bats are not in residence).
- 4.3. This legislation applies to all life stages.
- 4.4. The words 'deliberately' and 'intentionally' include actions where a court can infer that a defendant knew that an action would almost inevitably result in an offence, even if that was not the primary purpose of the act.
- 4.5. The offence of damaging or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 4.6. European Protected Species licences are available from Natural England under certain circumstances which permit activities that would otherwise be considered an offence.

¹ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust.

- 4.7. Consequently, attention should be given to dealing with the modification or development of an area or structure if aspects of it may be deemed important to bats.
- 4.8. In terms of national conservation policy, 7 of the 17 British types of bat are priority species covered by Biodiversity Action Plans², which highlight the importance of certain habitats, detail the threats they face and propose measures to aid in the reduction of population declines.
- 4.9. Although bats are mentioned in the Camden Biodiversity Action Plan³, under the 'Built Environment' and 'Open Spaces and Natural Habitats' action plans, it is mostly in relation to specific sites. There is however a generic aim to 'provide new roosting opportunities for bats across Camden.' (Action 2.16).

5. Methodology

- 5.1. Several options were considered to assess the degree to which the study area formed an 'extension' to the Heath: One was to undertake 3 separate nocturnal (dusk/ dawn) surveys at a point location where continuity of bat activity may be expected between the Heath and study area. For example, on West Heath Road around TQ 25651 86396 where the area of gardens backing on to Platt's Lane and Redington Road form a substantial green 'corridor'. However, the survey of a single point may not have captured the full extent of places where bats crossed from the Heath over West Heath Road.
- 5.2. Another possibility involved undertaking a transect by bicycle along a pre-planned route though the streets of the area. This method had previously been successfully employed in surveying bat activity on the Heath itself⁴. However, it was felt that this may not fully capture activity within the gardens, which are likely to accommodate greater bat activity than along the residential roads.
- 5.3. The method chosen was using automated bat detectors: The ease of deployment at different locations effectively provides a 'sampling' of bat activity across the wider area. Furthermore, that they were left *in situ* for a number of days largely 'removes' the variable of unsuitable climatic conditions on any one particular day.

² <http://jncc.defra.gov.uk/page-5170> (as on 7/8/16)

³ Camden Biodiversity Action Plan, 2013-2018. London Borough of Camden.

⁴ *Hampstead Heath Ponds - Bat Activity Survey*. Ecology Network (Draft), Jan 2013.

- 5.4. Nancy Mayo (Redington Frogna Assoc Ltd) identified a number of residents who were kind enough to accommodate the detectors within their gardens.
- 5.5. The fieldwork (and subsequent data analysis) was undertaken by Dr Greg Carson (NE Licence No: 2015-12402-CLS-CLS).
- 5.6. Anabat Express detectors were deployed across 6 locations (Fig. 2) within two consecutive time periods. Three detectors were deployed on 25 May 2016. These were collected on the 2nd June 2016 and redeployed to a further three locations. They were collected for analysis on 7th June 2016.

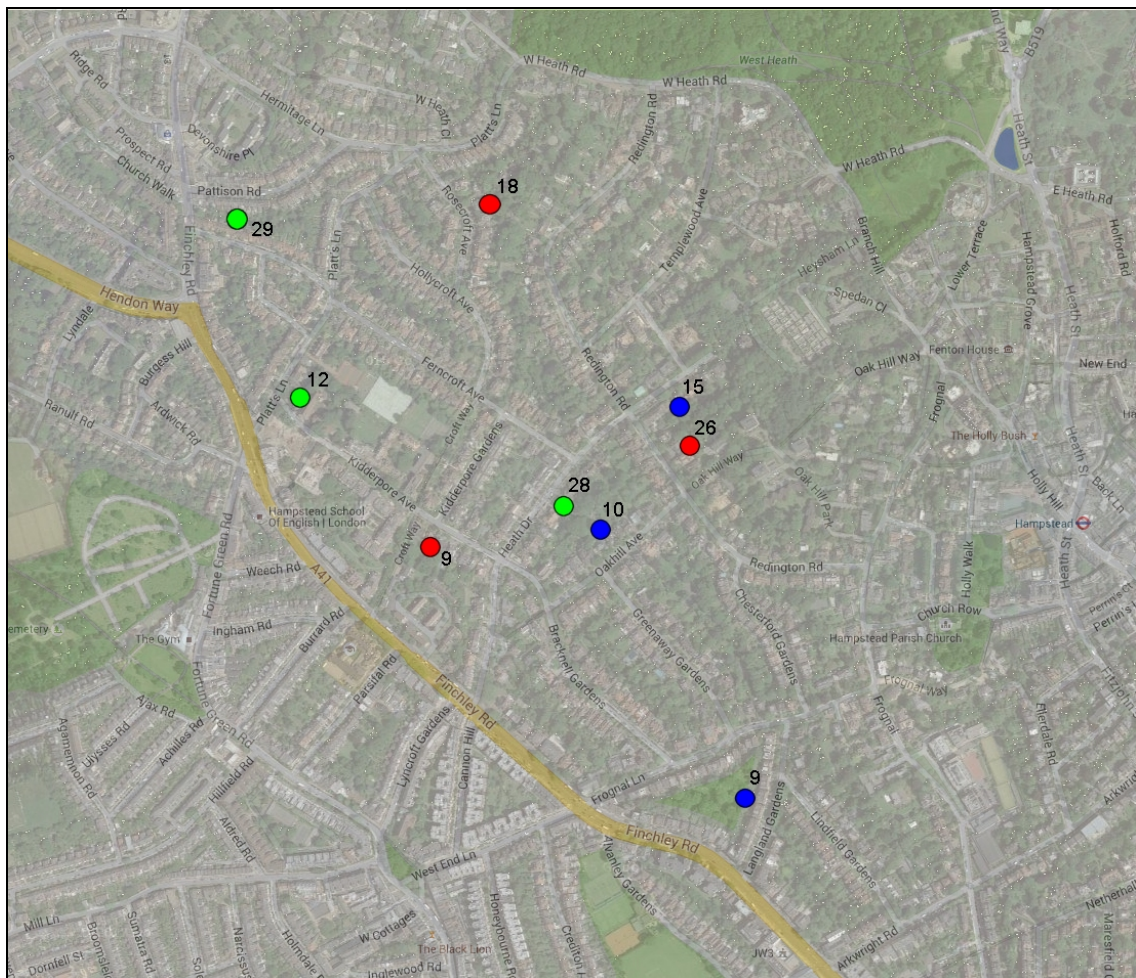


Fig 2 Sample locations. Green = deployed from 25/5/16 - 2/6/16, red = deployed from 2/6/16 - 7/6/16, blue = not part of this study. Plan partially superimposes the aerial photograph - note dense concentration of gardens close to the Heath around Location 18.

- 5.7. The detectors were distributed in such a way that avoided them being 'clustered' within one part of the study area during any one period (see

Fig. 2). This went some way in removing any bias from climatic variation between the two deployment periods, so that any differences between across the area are more likely to reveal a true geographic trend.

- 5.8. At any one location, the detector was oriented so it pointed towards the densest area of vegetation and/or a corridor of trees. An 'EasyLog' temperature / humidity recorder, was also deployed (stationed at 29 Briardale Gardens during the first deployment period and at 18 Rosecroft Avenue, for the second period).

6. Limitations

- 6.1. Only three detectors were available for use during the study. Being able to use 6 (or more) detectors during the same period, would have allowed any variations in activity due to climatic factors to be more accurately determined, and provided a more accurate assessment of spatial variations.
- 6.2. The duration of the survey periods was relatively short due to the need to deploy the detectors elsewhere (on a fresh set of batteries, and set to 'night' mode, an Anabat Express may records activity for up to two weeks).
- 6.3. Due to the time constraints of the study a detailed analysis of the calls was not undertaken, so that no distinction is made between the three larger bat species (noctule *Nyctalus noctula*, Leisler's *N. leisleri* and/or serotine *Eptesicus serotinus*). However, in the authors experience of the area, noctules are likely to be present.

7. Results

- 7.1. The photographs below show the detector *in situ* at each location, as well as the habitat to which it was directed.



Fig 3 Detector mounted on cherry at 29 Briardale Gardens, facing west (temperature logger also deployed).



Fig 4 Habitat towards which detector at 29 Briardale Gardens was directed.



Fig 5 Detector mounted on fence (left side of photo) at 28 Heath Drive, facing north.

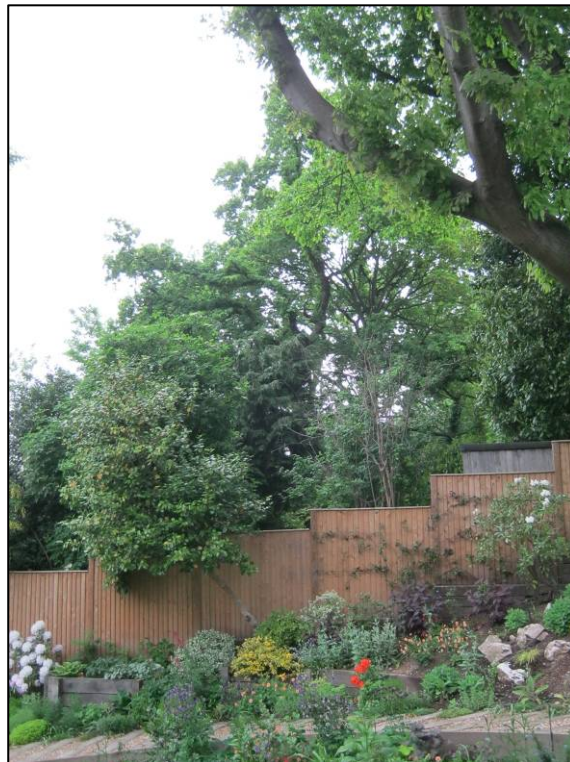


Fig 6 Habitat towards which detector at 28 Heath Drive was directed.



Fig 7 Detector mounted on fence at 12 Kiddepore Ave, facing north.



Fig 8 Mature trees towards which detector at 28 Heath Drive was directed.



Fig 9 Detector attached to the pergola (centre of photo) at 18 Rosecroft Avenue, facing north-west.



Fig 10 Habitat towards which detector at 18 Rosecroft Avenue was directed.



Fig 11 Detector attached to the pergola (centre of photo) at 9 Kiddepore Avenue, facing south-east



Fig 12 Habitat towards which detector at 9 Kiddepore Avenue was directed.

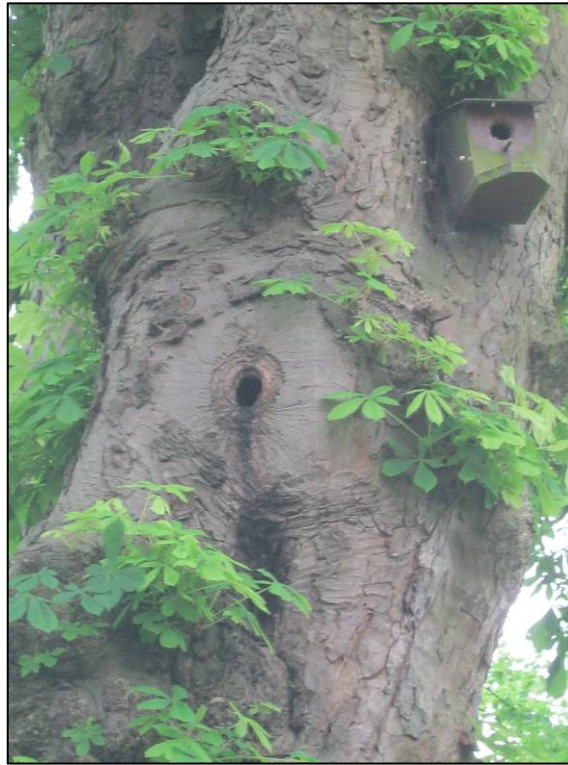


Fig 13 Hole in horse chestnut shown in Fig 12, with staining typical of bats.



Fig 14 Detector placed on light fitting on exterior of 26 Reddington Rd, facing north-east



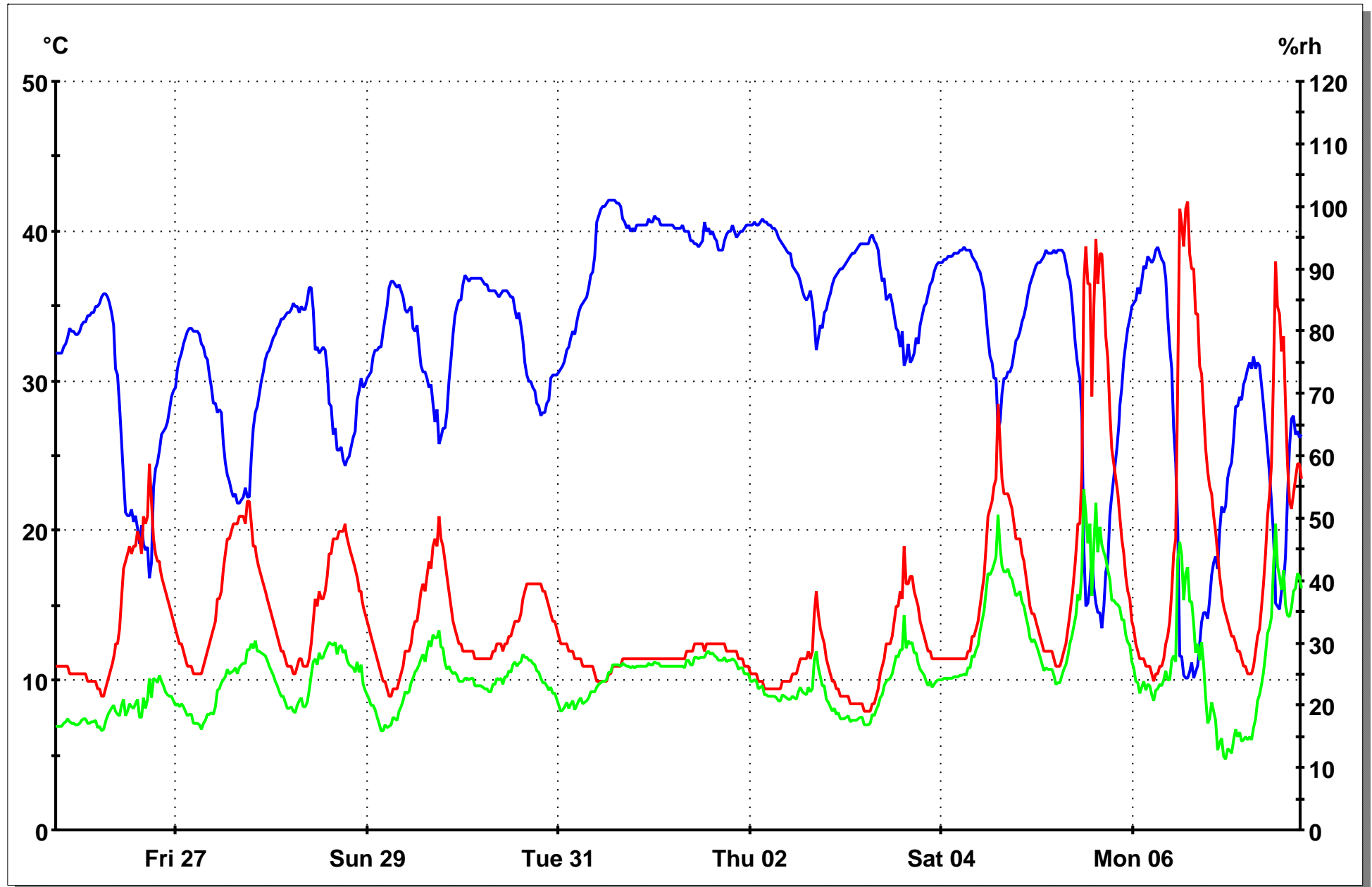
Fig 15 Habitat towards which detector at 26 Reddington Rd was directed. Unlike all the other locations, this garden is extremely small, and has very little suitable habitat for bats (the 'lawn' is made from AstroTurf).

- 7.2. Following the retrieval of the detectors on 7/6/16, the data was analysed using Analook (v4.1g). Due to time constraints, detailed measurement of individual calls was not undertaken, so (for example), a distinction between nocture and Leisler's cannot be made.
- 7.3. The results are qualitatively tabulated (Table 1, below) in such a way that it is possible to compare activity for any one night (as well as any distinctive climatic observations) across all three locations, as well as note the trends within each location. Each pair of locations for any one Anabat (identified by the serial number) is placed in the same column, in order to discern any variations that may have resulted from the individual detector itself. The variation of temperature and humidity throughout the survey period is also illustrated (below).
- 7.4. A number of observations are made:
- All the locations surveyed within the study area accommodate at least both soprano *Pipistrellus pygmaeus* and common *P. pipistrellus* pipistrelle

- Evidence of larger bats appears to be confined to 18 Rosecroft Ave, 9 Kiddepore Ave and 26 Redington Rd.
- Social calls were noted to a greater or lesser degree at all sites, but were particularly evident at 18 Rosecroft Ave
- The results from 28 Heath Drive were particularly 'noisy'.

Table 1 - RedFrog Anabat results						
Deployed 25/5/16 - 7/6/16						
	SN376725	SN376802	SN376787	Weather		
	29 Briardale Gdns	12 Kiddepore Ave	28 Heath Drive			
25-May	Com & Sop	Com	Com, occ Sop. CF social at around 23kHz			
26-May	Com & Sop. Something around 8kHz	Com	Com, occ Sop.			
27-May	Com	Com	Com & Sop			
28-May	Com & Sop. Something around 8kHz	Com & occ Sop	Com & Sop			
29-May	Com	No bats	Com & Sop			
30-May	Com & Sop & social ad calls? (group of 4)	Com. Some social calls	Com & Sop			
31-May	Com	Com	Com & Sop	low temp, high humidity		
01-Jun	Com & Sop & social ad calls? (group of 2)	Com	Com & Sop	low temp, high humidity		
	18 Rosecroft Ave	9 Kiddepore Ave	26 Redington Rd			
02-Jun	Com & Sop incl soc calls. Poss 25kHz calls at end	Com & Sop	Com			
03-Jun	Com & Sop. Noct early on	Com & Sop (Noct soc right at end)	Com & occ Sop. Noct(?) at 01:30			
04-Jun	Com, Sop incl soc & Noct (also pip shaped at 27kHz)	Com & Sop	Com & occ Sop. Noct(?) at 22:11			
05-Jun	Com, Sop incl soc & Noct (also pip shaped at 27kHz)	Com & Sop	Com & occ Sop. Noct(?) at 21:44	max daytime temps		
06-Jun	Com, Sop incl soc & Sero (pip shaped at 27kHz)	Com & Sop, with Noct at 21:29	Com & occ Sop.	max daytime temps		

RedFrog



— Celsius — dew point — Humidity

From:- 25 May 2016 18:00:00 To:- 07 June 2016 18:00:00

8. Discussion

- 8.1. The presence of both soprano and common pipistrelle across all locations suggests that many of the gardens within the Redington-Frognal area serve as suitable habitat for bat movement and foraging. It is of particular interest that this includes 26 Redington Road: Although there are some trees towards the rear of the garden (to which the detector was oriented), the garden is completely devoid of any redeeming features that would make it suitable for bats - it is effectively a 'yard' and even the 'lawn' is plastic. That both species of pipistrelle were noted from this 'impoverished' site does add weight to the likelihood of these animals being ubiquitous within the study area.
- 8.2. The evidence of larger bats appears to be confined to 18 Rosecroft Ave, 9 Kiddepore Ave and 26 Redington Rd. However, it is also the case that all these three locations were surveyed during the same time period - one where daytime temperatures were considerably higher than the few days previous. It seems likely therefore that it was more the climatic conditions rather than geographic location, which prompted increased observations of the larger bats (it is likely that the observations would have been more readily explained had it been possible to survey all 6 locations simultaneously - see Para 6.1).
- 8.3. It was interesting to note that at 9 Kiddepore Avenue, observations of noctule were somewhat limited: The detector was oriented towards the most suitable bat habitat, but this also happened to include the horse chestnut *Aesculus hippocastanum* with a very prominent 'bat access hole' within it, very typical of the larger bats. The observations tentatively suggest that the roost within that tree is not particularly active.
- 8.4. The frequent social calls at 18 Rosecroft Ave may suggest the presence of a roost. This may not be surprising given that, from the aerial photograph, this location lies within the most extensive and nearest 'corridor' extending south from the Heath.
- 8.5. It was not the intention of this survey to determine roost locations. However, an incidental inference of a roost was deduced from the acoustic information recorded (see above paragraph). In addition, the furthest data point from the Heath (9 Kiddepore Avenue) lies only about 1km away. It is almost certain that at least one pipistrelle roost is present either within the study area and/or at the western edge of the Heath. Consequently, it is equally likely that the study area lies within a Core Sustainance Zone for both soprano and common pipistrelles.

- 8.6. It is not possible to find a suitable explanation for the 'noisy' data obtained from 28 Heath Drive: The detector was away from any overhanging vegetation which could have created excess low frequency noise if it was raining. Equally, it is unlikely to be a function of the detector unit, as there was not the same problem when the same detector was deployed at 26 Redington Road.

9. Recommendations

- 9.1. It would be of interest to repeat the survey, using different locations within the survey area, one of which should also be within the same 'corridor' as 18 Rosecroft Avenue.
- 9.2. Equally, a survey may be undertaken to ascertain the status of the roost within the horse chestnut at 9 Kiddepore Avenue. This may include an inspection by ladder (and DNA analysis of any excreta that may be found within the hole), and either manual or automate nocturnal surveys, with a detector directly facing the hole.

10. Conclusions

- 10.1. The ubiquitous presence of common and soprano pipistrelle suggests that the gardens within the Redington - Frognal area provide a significant commuting and foraging resource for bats.
- 10.2. Where the gardens 'coalesce' into an extensive green corridor, which is also close to the Heath, there appears to be a greater potential for bat roosts / activity.
- 10.3. Larger bats are active within the Redington - Frognal area, but their distribution is less clear.
- 10.4. It appears that the roost within the horse chestnut at 9 Kiddepore Avenue may not be active, but this would need to be confirmed with a dedicated survey.

11. Report conditions

- 11.1. This report is produced solely for the benefit of the Redington Frognal Neighbourhood Forum and no liability is accepted for any reliance placed upon it by any other party unless specifically agreed in writing otherwise.
- 11.2. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ecology Network Ltd. In time, improved practices, new information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Ecology Network Ltd using due skill and care in the preparation of the report.
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- 11.4. This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.
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