

**Alison Fure MSc C.Env MIEEM
Ecological Consultant**

Furesfen

Tel/fax 020 8974 6670
Mob.0786 750 7086
Email alison@furesfen.co.uk
Website: www.furesfen.co.uk

**BAT ASSESSEMENT REPORT,
MONTPELIER SQUARE,
LONDON,
SW7 1JT.**

To:

October, 2012

From:

Alison Fure
28, Bonner Hill Rd
Kingston upon Thames
Surrey KT1 3HE



REPORT CONTENTS

1. Introduction
2. Methodology
3. Results of surveys
4. Evaluation and Limitations
5. Discussion
6. Recommendations
7. Underpinning Legislation and Policy
8. References

1.0 INTRODUCTION

1.1 PURPOSE

Furesfen was asked by Mr N. Carthy, to undertake a bat assessment at Montpelier Square, London (TQ273795). The assessment was carried out by A. Fure, bat licence number, 20120447. The investigation was necessary in order to determine how bats were using the square and if any species might be affected by proposals to retain the uplighters beneath seven trees.

1.2 SITE DESCRIPTION

This is a square in a heavily built up area, which is well vegetated and well maintained. There are a number of mature trees namely horse chestnut *Pachycnemia hippocastanaria* as well as London Plane *Platanus occidentalis x orientalis*. The northern boundary has been recently planted with new trees such as silver birch and birch *spp.* *Betula pendula* and has a more open character than the southern boundary, which is more heavily vegetated. Shade tolerant tree ferns and hydrangeas flourish beneath the trees and provide a source of insect prey.

1.3 DESIGNATION

In nature conservation terms, the square lies 400m south of an important corridor running through several Metropolitan sites to the Thames. Hyde Park and Kensington Gardens together with Green and St. James's Park, form a strategic 'flyway' for birds and mammals right into and out of the centre of London. Kensington Gardens, Ordinance Survey NGR TQ269806 is a Site of Metropolitan Importance (SMI, M103), providing a refuge for urban wildlife and open space for a variety of leisure activities. SMIs have the highest priority for wildlife protection. These are sites which:

- contain the best examples of London's habitats;
- contain particularly rare species, rare assemblages of species or important populations of species; and
- are of particular significance within otherwise heavily built-up areas of London.

1.4 PROTECTION OF FEATURES

Eight/nine species of bat have been recorded at nearby locations on account of the presence of a number of features, which include: old trees with rot holes; large water

bodies providing food resources; and the size and connectivity to other sites. Trees and tree lines are used by bats in order to commute between features as well as produce and shelter insect biomass upon which they feed. They also create a shield against light ingress, which is a factor for some of the less common bat species.

2.0 METHOD

2.1 DESK STUDY

A desk study was undertaken using information from surveys at Hyde Park, Kensington Gardens, Buckingham Palace and nearby sites in the neighbouring borough of Kensington and Chelsea (author's data, 2003-2011).

2.2 WALKOVER SURVEY

A walkover of the area was undertaken on 5.10.12 to establish features of bat interest, including any flight lines there might be around the square as well as any roost opportunities. This included a binocular inspection of any tree-holes visible from the ground.

2.3 LIGHT METER READINGS

Readings were undertaken of the existing illumination using an Alphatek lux meter.

3.0 RESULTS

3.1 DESK STUDY

The desk study showed that eight species of bat are regularly recorded locally five of which are roosting nearby. Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius’s pipistrelle *Pipistrellus nathusii*, Noctule bat *Nyctalus noctula*, Leisler’s bat *Nyctalus leisleri*, Daubenton’s bats *Myotis daubentonii* and Serotine bat *Eptesicus serotinus*. This includes hibernating pipistrelles and possible brown long-eared bat *Plecotus auritus*. (Author’s data).

Table 1: Status of bats recorded in the local catchment.

Species	Frequency	Main roosts sites
Common pipistrelle	Common	Buildings nearby
Soprano pipistrelle	Common	Buildings and trees especially near water (LBG).
Nathusius’s pipistrelle	Rare	Buildings Trees roosted within the catchment but its local status is variable
Daubenton’s bat	Becoming less common	Trees, structures and underground sites in the local area.
Noctule bat	Becoming less common in London	Known roosts nearby
Leisler’s bat	rare	No known roosts in the area flight records only but early registrations
Serotine	Rare in London	A record from the surveys, 2010
Brown long-eared bat	Becoming rare in London	difficult to detect in flight Record from 2010

Adapted from Mitchell-Jones (2007) LBG=London Bat Group records

3.2 HABITAT FEATURES:

During the initial walkover survey, the following features of bat interest were found:

- cracks, loose bark and small voids in mature trees namely a horse chestnut tree; and
- period buildings around the square capable of supporting bats.

3.3 EXISTING LIGHTS

There was a double ring of vintage style lights around the square. The luminaires were unshielded and lacked modern horizontal cut offs or UV shields. Consequently light spillage from streetlights was high, particularly on the northern boundary where there was no vegetation screen. Light meter readings were undertaken before and after the

illumination of the tree lights. The tree lights made no material difference to the lux levels whose average measurement remained the same. All light meter readings were higher than would normally be expected in a garden environment (refer to photos 1 & 2 and table 2).



Figs.1 & 2 Lights on southern boundary no tree lights, lights on southern boundary with tree lights

Table 2 Light meter readings without tree lights 5.10.12

Lux (Three readings)	Lux	Lux	Lux
Southern boundary path	8.9	7.9	8.2
Northern boundary path	12.6	13.8	10.8

n.b there was no material difference when the tree lights were illuminated

4.0 EVALUATION

4.1 Table 3: Evaluation Summary Table.

Site Resources	Value.	Reasons.
Mature trees	District	This is important local habitat providing a stepping stone for wildlife across an otherwise <i>hostile</i> urban landscape. It offers foraging and nesting opportunities for birds and insect species and is probably used by bat species at certain times of the year particularly the summer months. It could be made more interesting for bats by some habitat creation.

4.2 VALUE.

Overall the site is assessed to be of District value. It could be assessed as having value at a higher level, if more than one bat species was recorded using the site, or bats were found using the square on a regular basis for roosting purposes.

4.3 SURVEY EVALUATION.

- The survey identified the potential for bat species protected by European Law;
- The survey identified bird species protected by wildlife law if nesting; and
- The field survey identified niches/refugia for insects.

4.4 IMPACT

The light pollution around the site reduces the potential for bat, bird and insect interest. ENV.10 policy on lighting within the Westminster Unitary Development Plan draws attention to upward glare, accumulative impacts of lighting etc. The Council has also published a guidance note on good practice, 'Lighting up the City'.

4.5 LIMITATIONS

This is very late in the year to undertake bat emergence and activity surveys, which are best undertaken during the warm summer weather. However an assessment based on quality of the habitat, proximity to areas of known bat activity and knowledge of bat commuting and roosting behaviour can assess for the suitability of bat use of a site. Limitations pertain to the lux measurements undertaken in that they could not measure light levels in the tree canopy only at ground level.

5.0 DISCUSSION

5.1 BAT SPECIES

Eight bat species are recorded in and around Hyde Park and Kensington Gardens etc. Most of these bat species enter the park from offsite residential property to forage at approximately twenty minutes after sunset with the exception of the tree dwelling species, which mainly roost within the parks. Three pipistrelle species (common, soprano and Nathusius) are recorded nearby and probably use Montpellier Square for

foraging purposes during the summer months. The “common” pipistrelle has been split into two separate species *Pipistrellus pipistrellus* that echolocates around 45 kHz and *P. pygmaeus* that calls around 55 kHz. The 45 kHz pipistrelle can use a wide range of habitats, but frequents the more open situations, such as woodland edges, parkland, recent plantations, watersides and gardens. Colonies, usually of 30-60 bats; they frequently use modern buildings for roost sites, but are rarely found in bat boxes. The 55 kHz pipistrelle may prefer waterside locations such as rivers, lakes and wet woodland. Colonies are usually larger than the 45 kHz pipistrelle with numbers often in the region of 100-150.

5.2 NATHUSIUS PIPISTRELLE

Nathusius pipistrelle is a relatively recent continental migrant and a bat of open habitats. It can be found in French and Spanish towns, where it may emerge early in the evening at urbanised centres. It has colonised sites in the London Region, where there are large stands of open water (such as the Serpentine) and may have a tolerance to urban environments, as long as certain features are present. It roosts in a variety of buildings and trees and has been found using the expansion joints in high rise buildings, which may have a similarity to cliff faces. This species has also been found in bat boxes and known to share roost with soprano pipistrelles. It is possible that this relatively rare bat species may use this and nearby squares for foraging purposes during the summer months.

5.3 BAT RESPONSE TO LIGHT

Light entering the square from streetlights creates a problem for all wildlife and can be disruptive of bird circadian rhythms. This may cause robins to sing throughout the night, thereby impacting on their energy budget. Light spillage from streetlamps is far greater than the uplighters placed at the base of trees. A light level of 14 lux can be a better indication of pipistrelle emergence in urban areas than minutes after sunset. In areas affected by light pollution, bats can emerge late in the evening. This means that the dusk peak for insects may have passed and our urban bat populations may be feeding at a suboptimal time, which may be a major factor in the decline in some bat species such as Daubenton's bat in the London region, Briggs et al (2007). For this reason curtailing the uplighters in the square during the summer months (when bats are supporting young) is recommended.

5.4 BAT TIPPING POINT

The extent and density of urbanized land-use is increasing, with implications for habitat quality, connectivity and city ecology. Little is known about 'densification' thresholds for urban ecosystem function and the response of nocturnal mammals is poorly studied (Hale *et al*, 2012). In this study, common pipistrelle activity exhibited a non-linear relationship with the area of built land-cover and was much reduced beyond the threshold of ~60% built surface, implying the existence of a threshold or tipping point, of which light pollution plays a part. Protecting and establishing tree networks may improve the resilience of some bat populations to urban densification, but only if they remain unaffected by illuminance.

5.5 EFFECT ON INSECT PREY

As the wavelength of light decreases, the attractiveness to insect's increases. As low pressure sodium light has wave lengths in the region of 555nm, it does not attract insects. High pressure sodium does attract some insects but on average 57% fewer insects than a Mercury vapour light source. This positive 'phototaxis' can lead to demographic insect losses and 1/3 of the insects that fly around light will damage themselves or die.

5.6 BAT CONSERVATION TRUST GUIDANCE

A Statement by the Bat Conservation Trust on Lighting and Mitigation for Bats (May, 2011) resolved that: smarter lighting, rather than less lighting, is key to mitigating the effects of light pollution. Light should only be erected where it is needed, illuminated during the time period it will be used, and at levels that enhance visibility. Any bare bulbs and any light pointing upwards should be eliminated. The spread of light should be kept near to or below the horizontal. Narrow spectrum bulbs should be used to lower the range of species affected by lighting and light sources that emit ultra-violet light must be avoided. For pedestrian lighting, low level lighting that is directional as possible should be used and below 3 lux at ground level. This has been changed in recent guidance to 1 lux.

6.0 RECOMMENDATIONS

- There should be no use of the uplighters during the months of June, July, August as this is the most important foraging period for bats;
- Some of the uplighters are in need of slight adjustment and repositioning; and
- Residents may wish to consider a bat survey during June/July, 2013 to see how many bat species are associated with the square.

7.0 LEGISLATION AND POLICY

7.1 EUROPEAN AND UK LAW PERTAINING TO BATS

All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion in Schedule 5. All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations, 2010. The Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (take) 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 other part of a bat, unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

7.2 AMENDMENTS TO THE CONSERVATION OF HABITATS REGULATIONS (2010)

Moves to strengthen the protection of features of importance that protected species are reliant upon. This applies where there may be ANY disturbance to bats or a disturbance affecting:

- The ability of a group of animals of that species to survive, breed or rear or nurture their young;
- In the case of migratory species, impair their ability to hibernate or migrate or
- The local distribution or abundance of the species

This may preclude fragmentation of corridors caused by **light pollution** and a useful discussion of this is provided by Garland and Markham (2007). If a bat roost is to be

affected by development activities, a licence from Natural England will need to be obtained.

7.3 NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) 2006

This states that every public authority in exercising its function, must secure compliance in conserving biodiversity

(3) Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

(4) "Public authority" means any of the following (c) a public body (including a government department, a local authority and a local planning authority);

Within the terms of this act are habitats and species of principal importance for the purpose of conserving biodiversity.

7.4 UK HABITATS AND SPECIES OF PRINCIPLE IMPORTANCE NERC 2006 AND THE ROLE OF CONSERVATION UNDER BIODIVERSITY ACTION PLANS (BAPS)

Section 40 (1) of the NERC Act (2006): lists principle habitats and species, which are often included in Local, Regional and National Biodiversity Action Plans (BAP's). For example, the UK Biodiversity Action Plan (BAP) contains a Bat Species Action Plan (SAP). The BAP aims to increase the number of this species within the district by protecting certain habitats; securing appropriate management for them and by halting the factors leading to their decline such as:

- Loss of maternity roost sites through damage or destruction resulting from a lack or a misunderstanding of the legislation protecting bats ;
- Loss of hibernation and other seasonally used roost sites;
- Lack of insect rich feeding habitats such as wetlands, woodlands and grasslands;
- Losses of linear landscape elements (flight line features) such as tree lines; and
- Excessive lighting, such as in streets and some open spaces.

7.5 ROYAL COMMISSION ON ENVIRONMENTAL POLLUTION (2009)

The Royal Commission on Environmental Pollution, reported on the nuisance caused by badly designed lighting and the effects of artificial light on nature and ecosystems. It concluded that there was an urgent need for government to recognise that artificial light in the wrong place at the wrong time is a pollutant, which can harm the natural environment.

8.0 REFERENCES

Author's data 2001-2012

Bat Conservation Trust (2012) Bat Survey Guidelines available from www.bats.org.uk

Briggs, P.A., Bullock, R. J., Tovey, J., (2007) Ten years of bat monitoring at the WWT London Wetland Centre, compared with National Bat Monitoring Programme trends for Greater London, London Naturalist no 86 London Natural History Society

Garland L., & Markham S., (2007) Is important bat foraging and commuting habitat legally protected?

Mitchell –Jones A.J. & McLeish A. P. (Ed's). (2004) 'Bat workers Manual' JNCC

Royal Commission on Environmental Pollution [RCEP] (November, 2009) Artificial Light in the Environment