Friends of City Gardens

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Bat Survey Report 2019

Summary

- Bat activity in the City of London has been monitored for the last two years using static recorders.
- Bats were monitored at 14 different locations.
- Bats were recorded at all sites with significant bat activity at 13 sites and low-level activity at one location.
- Sites with high levels of bat activity scored in the upper 10 percentile for observations per hour when compared to the Ecobat database of comparable sites and dates.
- The level of activity strongly suggests the presence of summer and maternity roosts in the Barbican, Finsbury Circus and St. Dunstan's in the East areas.
- Recordings of bat activity in the Barbican area during winter months suggests the presence of nearby winter hibernation roosts.
- FoCG will continue to record bats in the City and provide data for GiGL We will need more static detectors to achieve this goal and welcome any additional help with financing the purchase of more equipment.

Recommendations

Evidence of a year-round presence of bats in the City, breeding and foraging and hibernating has the following implications:

1. Impact on planning, building maintenance and construction
Bats are a highly protected species and interference with roosts and access to roosts is strictly controlled. This interference can take the form of:
- destruction of habitat
- changes to or intensification of lighting
- blocking access to or removing roosts

Good practice for professional surveys prior to any physical interventions are set out in the Bat Surveys for Professional Ecologists (2016).

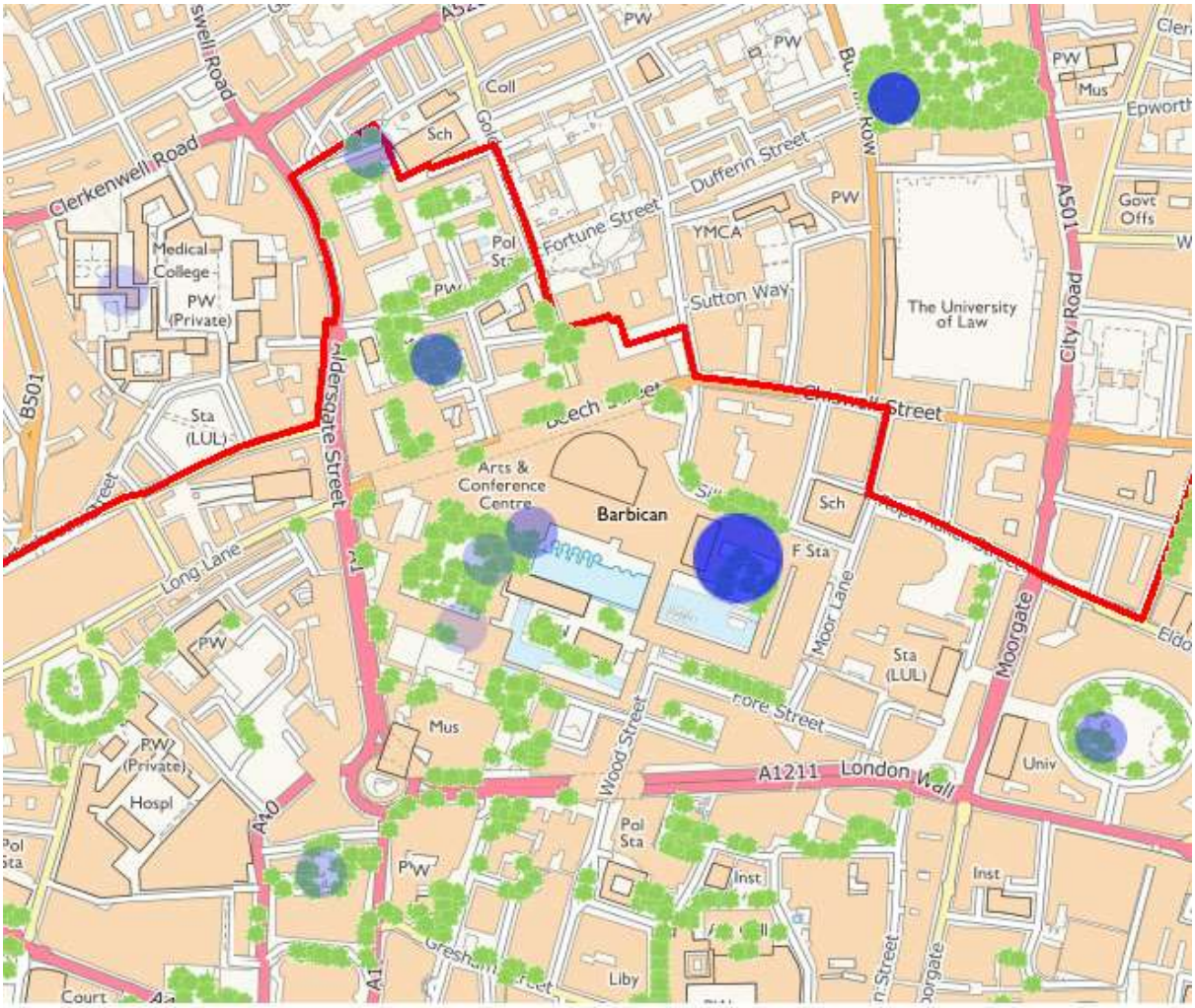
We also recommend that a species habitat plan is adopted as a Subsidiary Planning Document to the Local Plan to better protect and enhance the environment for bats.

2. Opportunities to enhance green spaces in the City for bats
There are plenty of ways in which green spaces (both public and private) can be enhanced for bats. All UK bat species are insectivorous, so increasing the number of

night flying insects will have direct benefits on the City's bat population. Enhancement could include:

- planting nectar-rich night scented plants
- creating green corridors of trees and pocket parks
- including water in new and existing green spaces
- installing bat boxes to provide summer roosts

Map1: Bat recording locations 2018 - 2019



The density of the discs relates to the number of observations per day, with the exception of Speed Gardens, where size is also an indication. In Speed Gardens 940 observations per day were recorded. The next most populous site was St Dunstan's in the East with 290 per day

St Dunstan's

3. Raising public and corporate awareness

FoCG currently lead two to three bat walks a year in the Barbican area and have made presentations to City staff. There is now a case for organising further workshops for

building managers in conjunction with trained ecologists and planners. We will make this an objective for 2020.

4. The need for more data
The donation of a second bat detector by the planning department in 2019 was extremely welcome and has enabled us to gather significantly more data. If FoCG is to continue to build a comprehensive picture of bat activity year-round across the Square Mile and respond to requests for investigating particular sites, then we will need more static detectors. We will make this an objective for 2020 and will seek funding to achieve this.

5. Collaboration with professional ecologists and conservation organisations
FoCG are keen to continue to share our data with conservation organisations and other ecological professionals. We have updated GiGL with all our results and contributed data to the Ecobat database. Volunteers have also undergone training in bat surveys and software analysis provided by the Bat Conservation Trust.

Results

2019 was the second year of systematic observations of bats in the City of London using static recorders. The results for 2019 build on those for 2018 and show that there is a widespread population of Common pipistrelle (*Pipistrellus pipistrellus*) in the City that is present throughout the year. The results confirm that these bats not only forage and breed in the City during summer months but also hibernate here in winter. The software used to analyse the data suggest that other bat species may be present, namely Nathusius' pipistrelle (*Pipistrellus nathusii*) and Soprano pipistrelle (*Pipistrellus pygmaeus*). However, since it is difficult to distinguish the calls of these three species from sonograms, only observations of Common pipistrelle have been included in this report.

The observations were recorded with static bat detectors; the first was operational from late July 2018 to the end of October 2018; over 7,000 observations were made in six locations (Table 2). A second recorder was added in 2019, allowing a greater number of gardens to be sampled and a total of nearly 33,000 observations were made between March 2019 and January 2020 (Table 1).

The Tables show, as expected, the highest levels of activity in summer. Late summer is when swarming behaviour can be observed as bats are mating and feeding to build up their fat reserves before hibernation. This type of activity is clearly seen in Chart 1.

Table 1: Number of individual recordings of bats 2019

Location	Grid ref	Dates	Days	Total no. recordings	Av. /night
Thomas More	TQ32258179	9 Mar – 2 Apr	25	145	6
Thomas More	TQ32258179	25 Oct - 20 Nov	27	1,208	45
Thomas More	TQ32258179	27 Dec – 8 Jan 2020	13	90	7
Speed	TQ32488175	3 May – 12 May	10	4,922	492
Speed	TQ32488175	30 May – 2 Jun	4	2,827	707
Barber Surgeons	TQ32258166	2 – 7 Sept	6	24	4
Gilbert Roof	TQ32408174	26 Jul – 17 Aug	23	57	25
Andrewes Roof	TQ32418171	13 Dec – 8 Jan	27	590	22
Charterhouse	TQ31918199	9 – 19 May	11	49	4
St Dunstan's	TQ33168071	18 Jul – 7 Sept	52	14,879	286
Finsbury Circus	TQ32868159	25 May – 14 July	51	8,075	158
Cleary	TQ32228092	6 – 13 Oct	8	1	0.1
Total			**257**	**32,867**	**128**

Table 2: Number of individual recordings of bats 2018

Location	Grid ref	Dates 2018	Days	Total no. recordings	Av. /night
Thomas More	TQ32258179	21 July – 2 Sept	44	4,811	109
Barbican Wildlife garden	TQ32178198	8 – 16 Sept	9	272	30
Postman's Park	TQ32108149	16 – 22 Sept	7	7	1
Mountjoy	TQ32248170	22 – 28 Sept	7	28	4
Bunhill Fields	TQ32638226	29 Sept – 14 Oct	16	1,645	103
Golden Lane allotments	TQ32148217	15 – 29 Oct	15	391	26
Total			**98**	**7,154**	**73**

Chart 1: St Dunstan's – diurnal bat activity 18 July – 7 September 2019

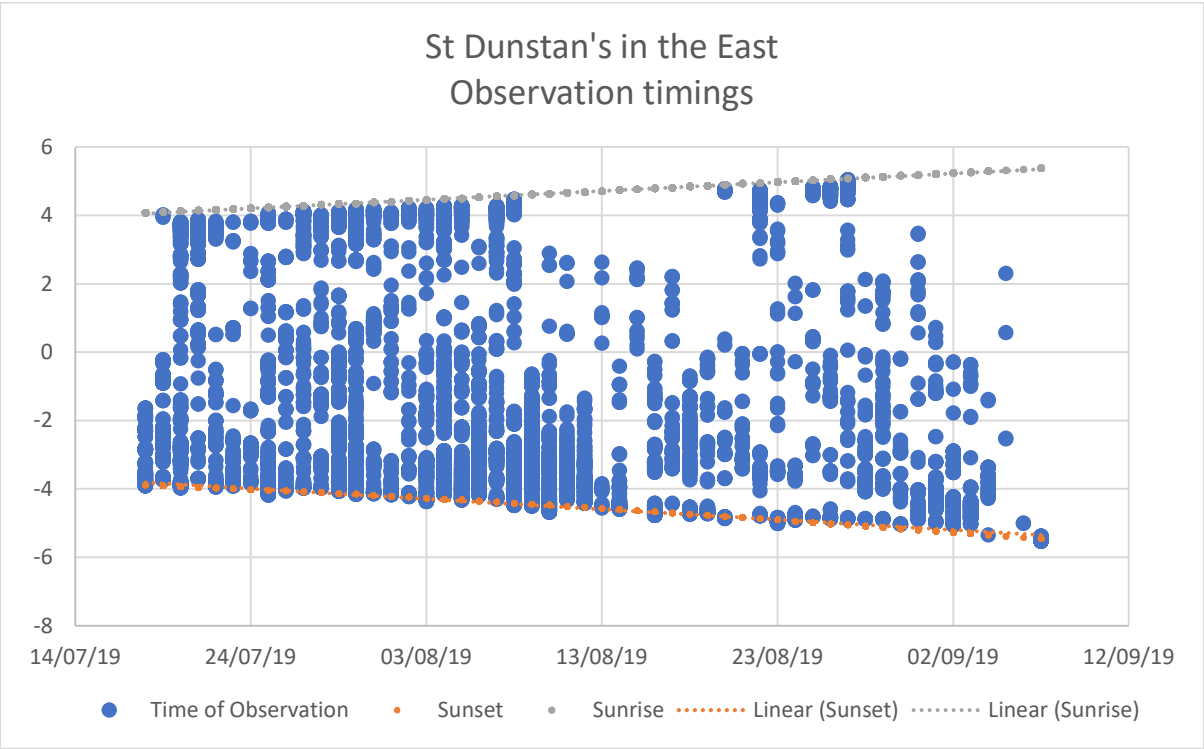
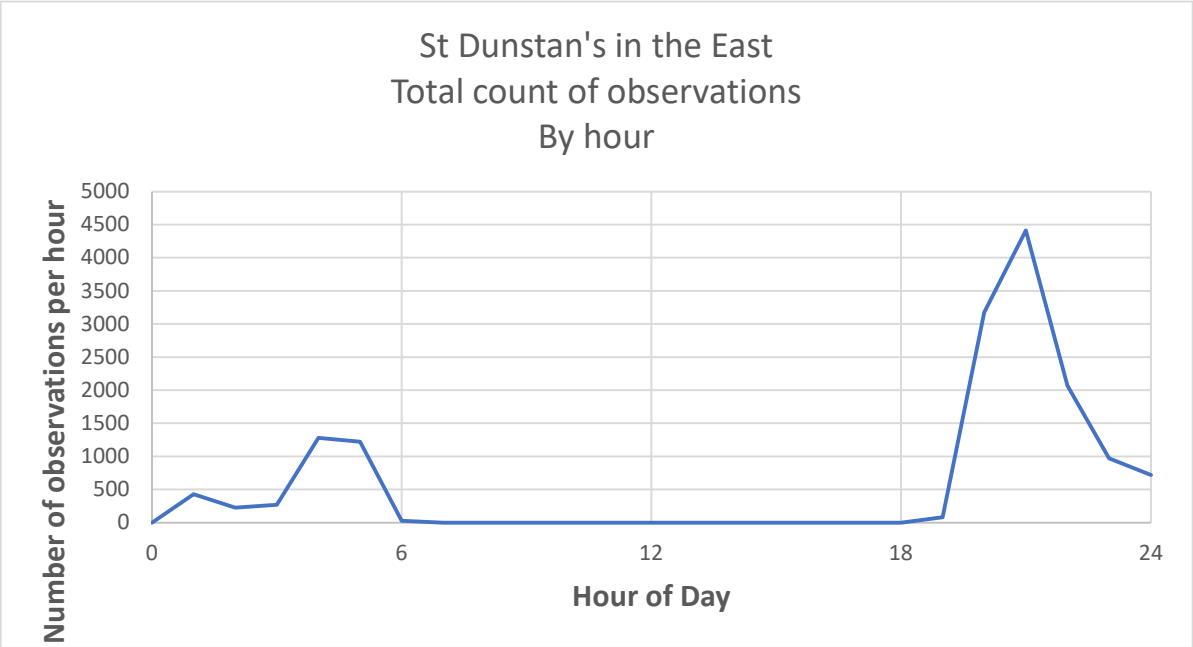


Chart 1 shows the timing of recordings in relation to sunrise and sunset. This is a typical pattern with very high levels of bat activity in late July to early August 2019, particularly at just before and close to sunset. Activity decreases in late August to September. Chart 2 gives a better picture of the absolute level of recordings, showing concentration in the hours around sunset.

Chart 2: St Dunstan's total bat activity by hour 8 July – 7 September 2019



The timing of recordings can give a good indication of whether there are summer, maternity or hibernation roosts close to the location of the recorder. In the case of St Dunstan's, Finsbury and Barbican locations analysis using Ecobat software suggests that both maternity and summer roosts are close by. The winter recordings in the Barbican also suggest the presence of hibernation roosts.

References

Bat Survey Guidelines for Professional Ecologists, Bat Conservation Trust, 2016
https://cdn.bats.org.uk/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?mtime=20181115113931

Landscape and Urban Design for Bats and Biodiversity, Bat Conservation Trust, 2012
https://cdn.bats.org.uk/pdf/Our%20Work/Landscape_and_urban_design_for_bats_and_biodiversityweb.pdf?mtime=20181101151349

Ecobat is a database developed by the University of Exeter and maintained by the Mammal Society http://www.ecobat.org.uk/

Swarm and Switch: On the trail of the hibernating common pipistrelle, Bat News. No. 110 (Summer 2016). p. 8-10. Bat Conservation Trust.

Appendix1: Note on recordings and methodology

Tables 1 and 2 summarise the number of recordings of individual pulses of sound over the number of nights the recorder was in place. Each recording can capture from one single pulse to over 60, with a duration of a fraction of a second to more than 10 seconds. Each individual recording is not in itself an indication of the number of bats in a location. However, the duration and number of pulses in each individual recording; the number of recordings in a night and, the number of recordings in each hour during the night can give a good indication of the relative number of bats present and whether the site is close to a roost.

All the 2018 observations were made with a Wildlife Acoustics SM4 Zero Crossing recorder. In 2019 recordings were made on both the SM4 ZC and a SM4 Full Spectrum recorder. In total 32,867 observations of bat pulses were made in 2019 and 7,154 in 2018. The sonograms were analysed using Kaleidoscope Pro software to create automatic species IDs. The software was set to the most conservative algorithm but still produced a number of doubtful IDs that were probably the result of high frequency interference. These were removed after manual inspection. Manual inspection of IDs attributed to the less common Nathusius' pipistrelle and Soprano pipistrelle appeared insufficiently different to those of Common pipistrelle, so the more conservative ID was adopted in all cases.

The data was then further analysed using Ecobat software that compares the FoCG observations with a database of observations that have been made:

- within 30 days of the survey date
- within 100 km radius of the survey location
- using any make of bat detector