



FRIENDS OF CITY GARDENS

Nest box cleaning report: 2019 breeding season

1. Results

Nest boxes in City of London gardens are cleaned every year by a team of City gardeners and volunteers. Data on occupancy has been recorded for every nesting season since 2011. Annual nest box cleaning is important not only for maintaining the health of birds but also, together with the annual RSPB Big Garden Birdwatch in spring and the summer Breeding Bird Survey, it provides evidence to evaluate the success of the City's biodiversity strategy and action plan. Cleaning is also essential to maintain the number of potential nest sites as birds are less likely to nest again in a box with old nest material.

1.1 Between September and December 2019 all the 78 nest boxes in the City were cleaned in 27 different gardens; three boxes were replaced, and two additional boxes were installed. A total of 80 boxes are ready for the 2020 nesting season.

- 32 of the boxes had completed nests - 41% occupancy, in comparison to 35% in the 2018 nesting season.
- There were in addition three partial nests that had not been completed.
- The majority of nests were those of Great tits (56%) with the remainder Blue tits.
- No nests had been built in open-type 'robin' boxes.
- There were 14 nests (45%) with either unhatched eggs or dead chicks, compared with 36% in 2018.

1.2. In order to reduce the time spent by City gardeners, this year volunteers cleaned the boxes in Bunhill and the Barbican without gardener supervision. In total cleaning took 24 man-hours of City gardener time spread over one and a half days plus 27 hours of volunteer time.

2. Recommendations

2.1 Improving breeding success - food availability during the breeding season

We can do little to mitigate the effect of the weather, other than ensuring that nest boxes are sited correctly (North or East facing, out of direct sunlight and prevailing winds and rain); and using deep, woodcrete boxes that provide better insulation (all our boxes are now of this type). However, we can improve food availability and quality, which should improve breeding success.

Tits and other birds that are omnivorous feed their young exclusively on caterpillars and other insects. Seeds will be used as a last resort but there is evidence to suggest that the dry diet may cause dehydration of young and contribute to increased mortality rates. Eight City gardens now have well maintained feeding stations and consideration should be given to feeding mealworms during the breeding season. This is already done in Fann Street and Bunhill Fields. Although dried mealworms may contribute to dehydration of chicks, feeding live mealworms would be difficult in most City gardens.

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It was disappointing to note that feeding is no longer carried out in St Dunstan's in the East and we would encourage the City gardens team to reinstall feeders here.

It is possible, however, also to improve the natural diet of breeding birds by increasing the numbers of live caterpillars on their natural forage plants or increasing insect populations by installing more log piles. Both Great tits and Blue tits feed on caterpillars of the Winter Moth, *Operophtera brumata*. These insects require broad leaf trees, such as oak, birch and hawthorn. Planting more of these native species in City gardens would substantially enhance biodiversity and should be a priority in Sites of Importance for Nature Conservation (SINCs).

2.2 Improving food availability year round

Log piles improve insect populations throughout the year and in winter are bird larders! The log piles in Postman's Park were removed as part of the replanting and will be restored in spring 2020. Other gardens that would benefit from log piles and are large enough to accommodate them are Portsoken, Smithfield Rotunda, Cleary, St Mary Staining, Barbican Ironmonger's and Barbican Thomas More.

Feeding stations should be added in all SINCs. In 2019 FoCG installed three additional feeding cages in the following gardens:

Postman's Park
Cleary
St Botolph's Bishopsgate

And replaced the feeders in St Paul's Churchyard. In total eight gardens now have regular feeding throughout the year.

The following SINCs under the management of the City without feeding stations include:

Seething Lane/St Olave's Hart Street
Aldermanbury Gardens
Finsbury Circus
Portsoken*
St Dunstan's in the East

*Temporarily removed because of building works

Feeding cages reduce the likelihood of rodent populations taking advantage of spilled food or pigeon trampling under the feeder; feed is kept in secure metal containers. It is recommended that additional feeding cages are installed in the four gardens listed above during 2020.

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Table 1: Number of nest boxes and number of nests for 2019 season

| | 2019 | | 2018 | | 2017 | |
|-----------------------------------|------------|-----------|------------|-----------|------------|-----------|
| | No. boxes | No. nests | No. boxes | No. nests | No. boxes | No. nests |
| All Hallows by the Tower | 1 | 1 | 1 | 1 | 0 | 0 |
| Barbican – Wildlife Garden* | 8 | 4 | 5 | 1 | 3 | 2 |
| Barbican - Speed | 2 | 1 | 2 | 1 | 2 | 1 |
| Barbican - St Giles | 4 | 2 | 2 | 1 | 2 | 1 |
| Barbican - Thomas More * | 7 | 3 | 7 | 3 | 7 | 4 |
| Barbican – Ironmonger’s | 1 | 1 | NA | NA | NA | NA |
| Bunhill Fields* | 10 | 5 | 12 | 4 | 8 | 2 |
| Church Entry* | 1 | 0 | 1 | 0 | NA | NA |
| Cleary Garden* | 2 | 0 | 2 | 2 | 2 | 2 |
| Finsbury Circus | 2 | 1 | 2 | 1 | 2 | 2 |
| Petticoat Square | 3 | 1 | 2 | 1 | 2 | 1 |
| Portsoken | 2 | 0 | 2 | 0 | 1 | 0 |
| Postman's Park* | 3 | 2 | 3 | 1 | 4 | 0 |
| St Andrew Holborn | 2 | 1 | 2 | 1 | 1 | 0 |
| St Anne and St Agnes | 1 | 0 | 1 | 0 | 1 | 0 |
| St Botolph without Bishopsgate* | 1 | 1 | 1 | 1 | 1 | 1 |
| St Dunstan in the East | 5 | 1 | 5 | 1 | 5 | 2 |
| St Olave Hart Street | 1 | 0 | 1 | 0 | 1 | 0 |
| St Olave Silver Street | 1 | 0 | 1 | 1 | 1 | 1 |
| St Mary Aldermanbury | 2 | 1 | 2 | 1 | 2 | 1 |
| St Mary Staining | 1 | 1 | 1 | 1 | 1 | 1 |
| St Michael Cornhill | 1 | 0 | 1 | 0 | 1 | 0 |
| St Paul's Cathedral* | 8 | 2 | 8 | 2 | 4 | 1 |
| St Peter Cornhill | 1 | 1 | 1 | 0 | 1 | 0 |
| Seething Lane | 3 | 1 | 3 | 1 | NA | NA |
| Senator House | 2 | 1 | NA | NA | NA | NA |
| Smithfield Rotunda* | 3 | 1 | 3 | 1 | 1 | 1 |
| Total | 78 | 32 | 71 | 25 | 53 | 23 |
| Occupancy of checked boxes | 41% | | 35% | | 43% | |

* Gardens with regular feeding taking place throughout the year

3. Observations

3.1 Breeding success – number of nests and mortality rates

It is always difficult to speculate on differences in breeding success based on levels of occupancy without additional observations of the birds using the boxes. No nest boxes were opened to check on occupancy during the breeding season, so these results are based on counting the number of nests (completed and partial) in nest boxes during the annual cleaning at the end of the season. Occupancy was higher in 2019 at 41% of boxes containing a nest compared with 35% in 2018.

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It is likely that the extreme weather experienced in 2018 had an adverse impact on breeding. In 2019 although there was some cold weather in spring, the long hot summer probably contributed to more insects being available for birds to feed on during the breeding season.

3.2 Species

Nest boxes can accommodate a number of different species (see Section 5) and it is difficult to be certain which species has used a box, unless there are observations during the nesting season. However, it is likely that the City's nest boxes are used exclusively by Blue tits and Great tits. Distinguishing the nests can also be difficult, unless there is a dead chick or an abandoned egg. Both types of tit tend to build nests with a base of grasses, substantial amounts of moss, lined with felted hair (or very often teased out cigarette filters) and fabric threads. Blue tits often line the nest with feathers and so all nests with feather linings have been categorised as Blue tit nests and those without as Great tit nests. This analysis has been corroborated by observations of birds using the nests during the breeding season.

In 2019 the number of great tit nests was 56% of the total with the remaining 44% attributed to Blue tits. In 2018 Blue tits accounted for 60% of nests and Great tits 40%.

Table 2: Species building nests 2019

| | Total Nests | Great tit | Blue Tit |
|--------------------------------|--------------------|------------------|-----------------|
| All Hallows by the Tower | 1 | 1 | |
| Barbican – Wildlife Garden | 4 | 2 | 2 |
| Barbican - Speed House | 1 | | 1 |
| Barbican - St Giles terrace | 2 | 2 | |
| Barbican - Thomas More | 3 | | 3 |
| Barbican – Ironmonger's | 1 | | 1 |
| Bunhill Fields | 5 | 4 | 1 |
| Finsbury Circus | 1 | 1 | |
| Petticoat Square | 1 | | 1 |
| Postman's Park | 2 | 1 | 1 |
| Seething Lane | 1 | 1 | |
| Senator House | 1 | | 1 |
| Smithfield Rotunda | 1 | 1 | |
| St Andrew Holborn | 1 | 1 | |
| St Botolph without Bishopsgate | 1 | 1 | |
| St Dunstan in the East | 1 | | 1 |
| St Mary Aldermanbury | 1 | | 1 |
| St Mary Staining | 1 | 1 | |
| St Paul's Cathedral | 2 | 2 | |
| St Peter's Cornhill | 1 | | 1 |
| Total | 32 | 18 | 14 |
| | 100% | 56% | 44% |

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In 2019 14 nests had dead young and or unhatched eggs (nine in 2018). Mortality rates were higher for Blue tits in 2019 with seven out of 14 nests containing dead young or abandoned eggs (50%) compared with seven out of 18 Great tit nests (39%).

Blue tits lay up to 10 eggs and the female body mass is only 80% of maximum clutch size, compared to Great tits which lay fewer eggs and the females are larger and can brood all the eggs in a nest (Deeming & Du Feu 2011). This may result in more unhatched Blue tit eggs. Mortality of a substantial number of tit chicks is normal. Studies in Finland (Hilden, 1978) suggest an average of 5.07 Great tit and 7.05 Blue tit chicks are reared per successful nesting in urban areas of Helsinki.



Blue tit nest from Senator House weight 24 gms

4. Potential sites for new boxes

New boxes could be added to street trees and in additional gardens, although this adds to the time required for maintenance. It is recommended that the current maintenance regime is continued with all boxes being cleaned each year, but there would be a moratorium on installing boxes in new locations, with the possible exception of installing sparrow boxes on the Barbican Estate and in Bunhill Fields where House sparrows have been observed for the first time in recent years. When all of Finsbury Circus garden comes back under control of City Gardens, it is suggested that sparrow boxes and more bird boxes are installed there as part of the restoration. It is however essential that contractors do not install boxes too high for maintenance teams to reach them safely.

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5. Type of box and installation

Front opening woodcrete boxes are the easiest and quickest to clean. They are robust against predators and provide better insulation than wooden boxes. Research has shown that breeding is more successful in these types of boxes (Browne 2006).

It is suggested that boxes with a variety of entry hole sizes continue to be used to attract different species:

- 32mm entrance hole will attract Great, Blue and Coal Tit, Tree and House Sparrow and bats.
- 26mm entrance hole suits Blue, Marsh and Coal Tit and possibly Wren. All other species are prevented from using the nest box due to the smaller entrance hole.
- 45 mm for starlings – although there is no evidence that starlings have used the boxes installed in St Paul's Cathedral garden.

Tit and tree sparrow boxes should be installed approximately 3 metres above the ground on trees with a clear flight path to the nest box. House sparrow and starling boxes should be higher and positioned under eaves if possible.

6. Volunteer involvement

National Nest Box Week (14 – 21 February each year) could be used as a focus for activities such as engaging City businesses in funding new boxes.

7. Interpretation boards

Consideration should be given to placing interpretation boards in some City gardens showing the type of birds that nest and feed. In Bunhill a whiteboard could be placed in the window of the hut and daily sightings could be written up. The existing species sheets in notice boards for birds such as the Peregrine falcon should be updated.