FORCE bat monitoring 2022 and 2023

Summary of Results

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Contents

Introduction

The Friends of River Crane Environment (FORCE) installed an Anabat Swift bat detector at six locations across five sites in 2022 and 2023.

Bat detector locations and recording dates

Table 1. Bat detector locations and recording dates

Site	Lat Long	X	Y	Nights	No. of nights
Bedfont Lakes North	51.44461 -0.42899	509277	172905	30/06/2022 to 14/07/2022	15
DNR	51.45683 -0.42998	509179	174263	12/08/2022 to 18/08/2022	7
Hatton Farm Fields Location 1	51.45867 -0.41623	510129	174488	08/06/2022 to 14/06/2022	7
Hatton Farm Fields Location 2	51.45829 -0.42102	509798	174438	15/06/2022 to 29/06/2022	15
Raleigh Park	51.44276 -0.42743	509389	172702	15/07/2022 to 24/07/2022	10
Little Park	51.44782 -0.38632	512234	173327	06/06/2023 to 12/06/2023	7

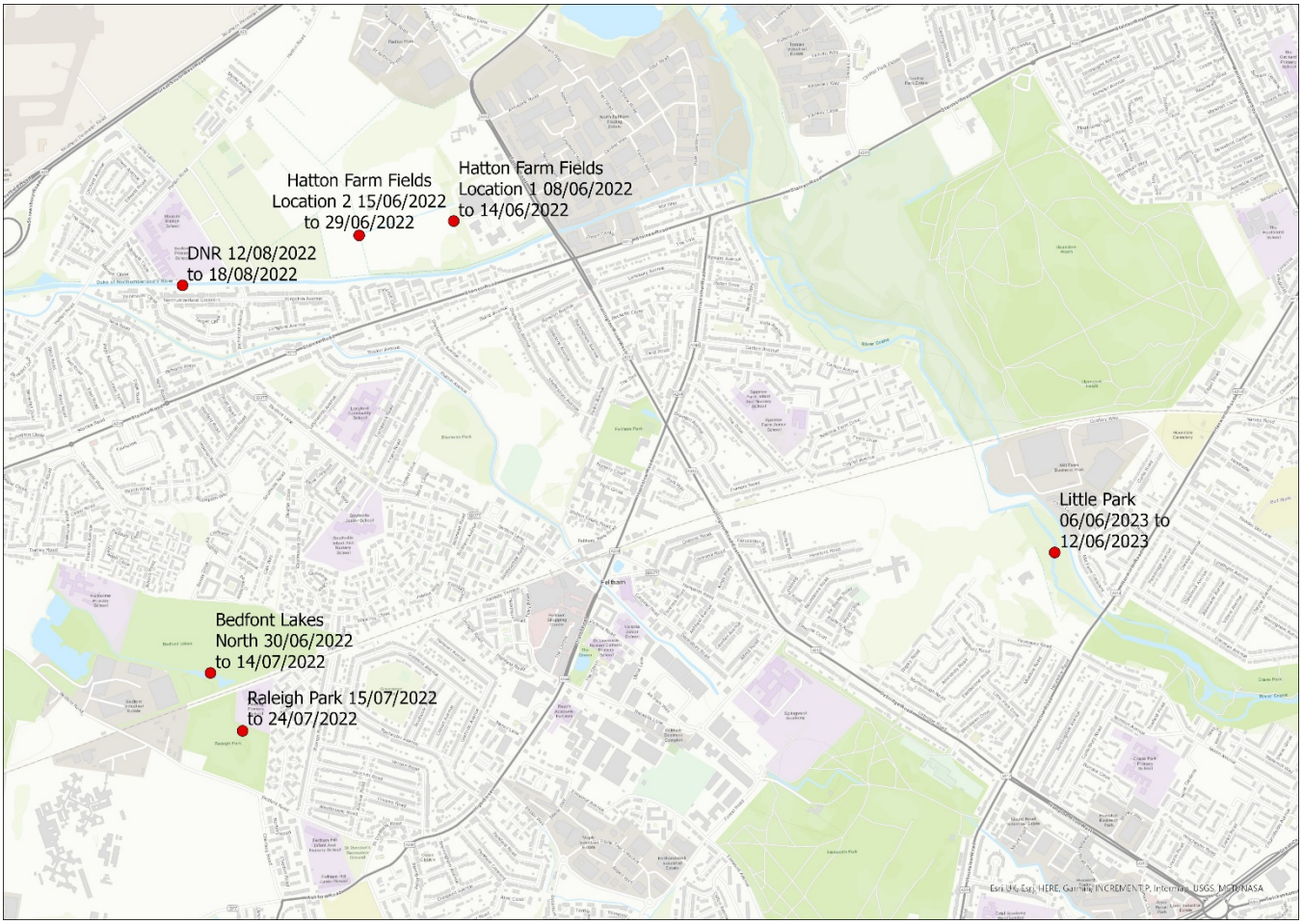

Figure 1. Deployment locations and date periods

Peak site activity for each species

Figures 2 to 6 show the peak activity for each species at each site to give an indication of the relative importance of each site for each species in the borough. To remove the effect of night length (longer nights having the potential for more bat passes recorded), activity levels are shown as the percentage of the night with activity recorded (calculated as no. of minutes with bat activity recorded divided by number of minutes from sunset to sunrise on each night, expressed as a percentage).

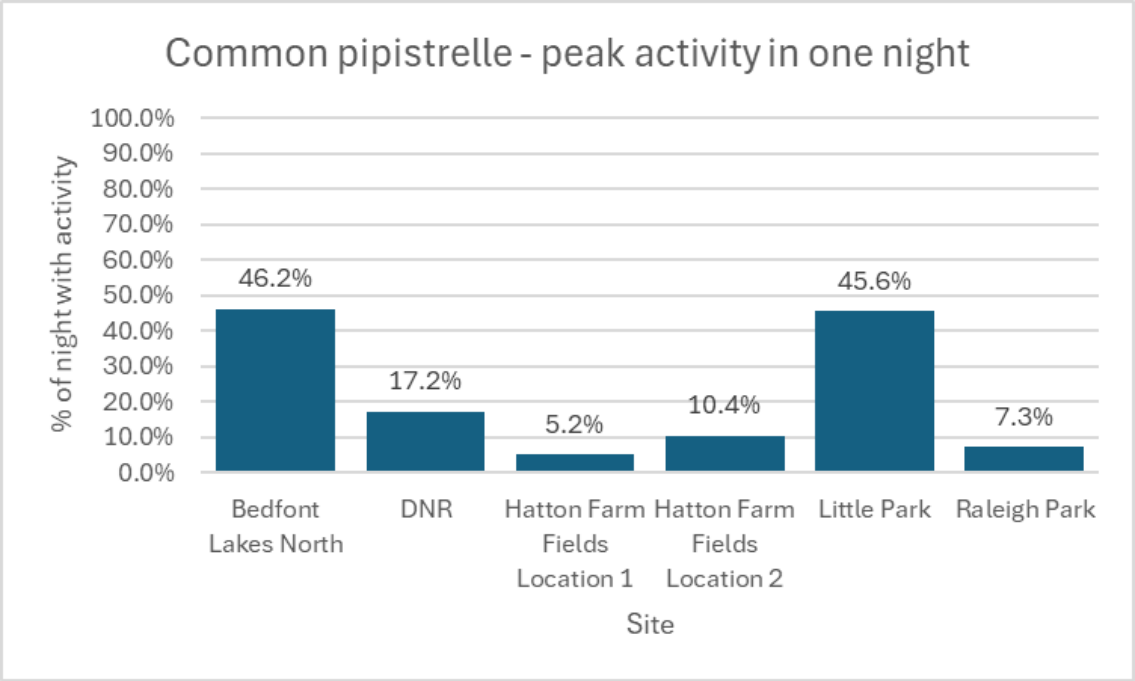

Figure 2. Common pipistrelle peak night count per site

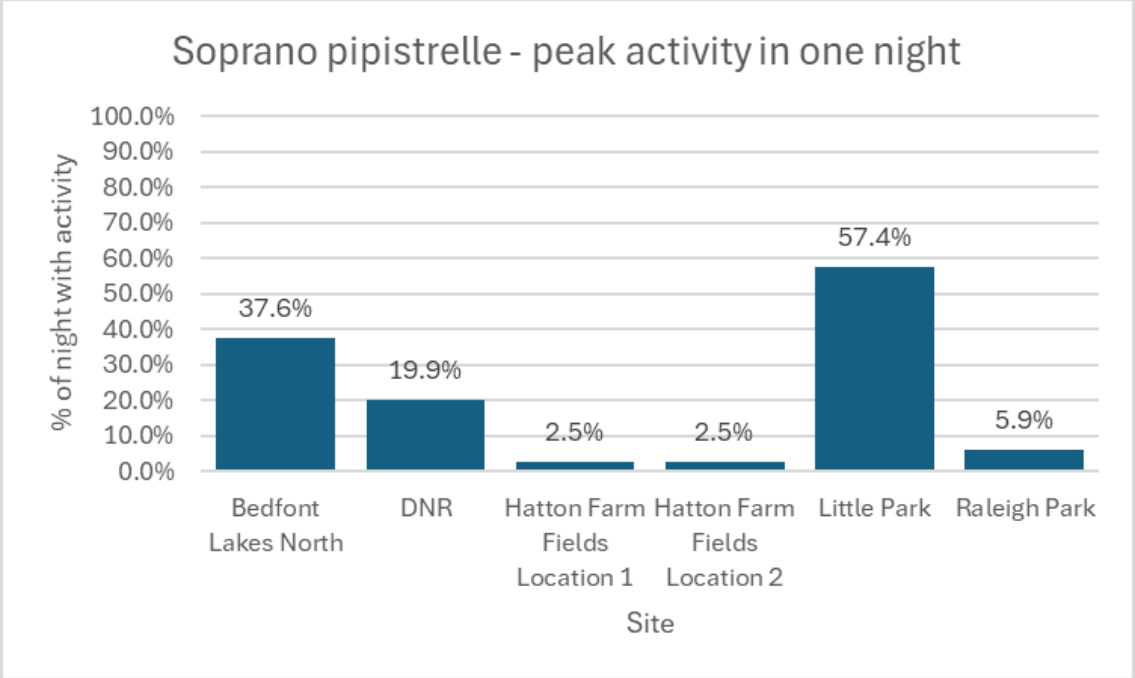

Figure 3. Soprano pipistrelle peak night count per site

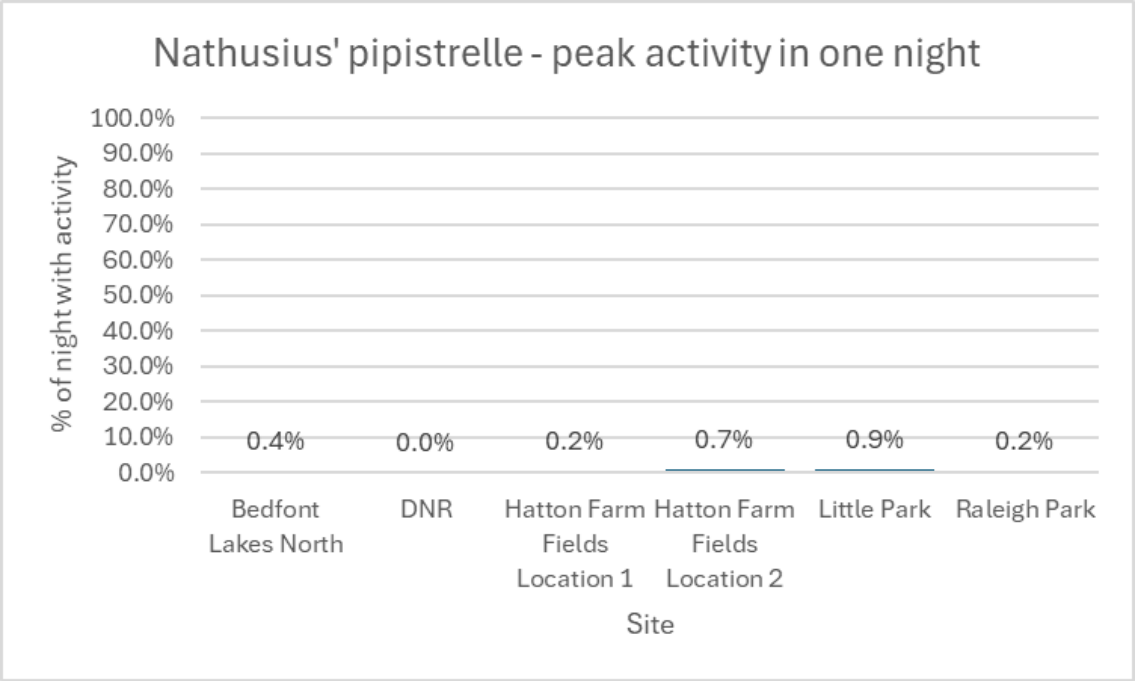

Figure 4. Nathusius' pipistrelle peak night count per site

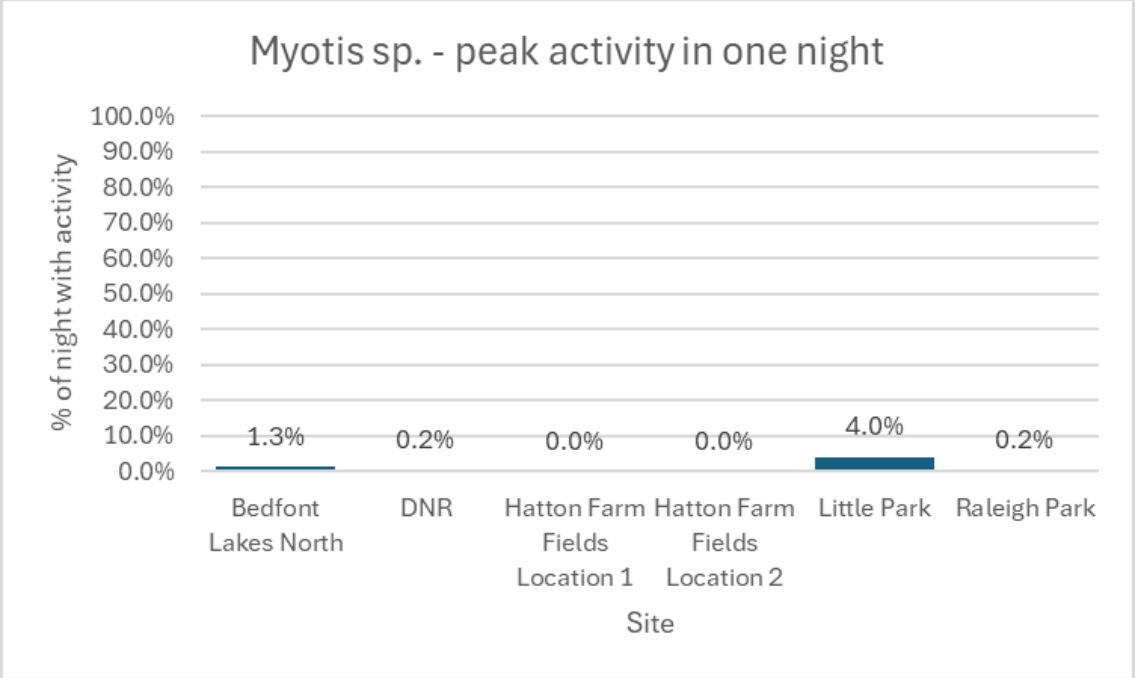

Figure 5. *Myotis* sp. peak night count per site (It was not possible to identify *Myotis* calls to species levels but the two most probable species are Daubenton's bat followed by Natterer's bat)

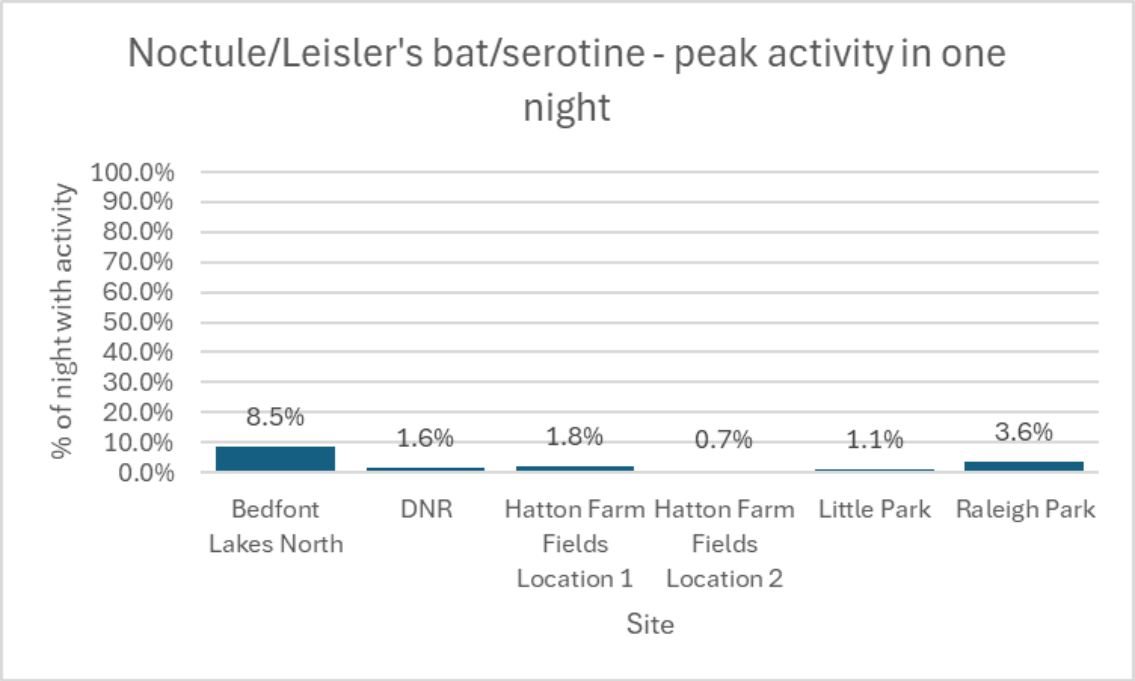

Figure 6. Noctule/Leisler's bat/serotine peak night count per site (this combines "noctule", "Leisler's bat", "noctule/Leisler's bat" and "noctule/Leisler's bat/serotine" records)

Bedfont Lakes North

Figure 7. Bedfont Lakes deployment location and date period

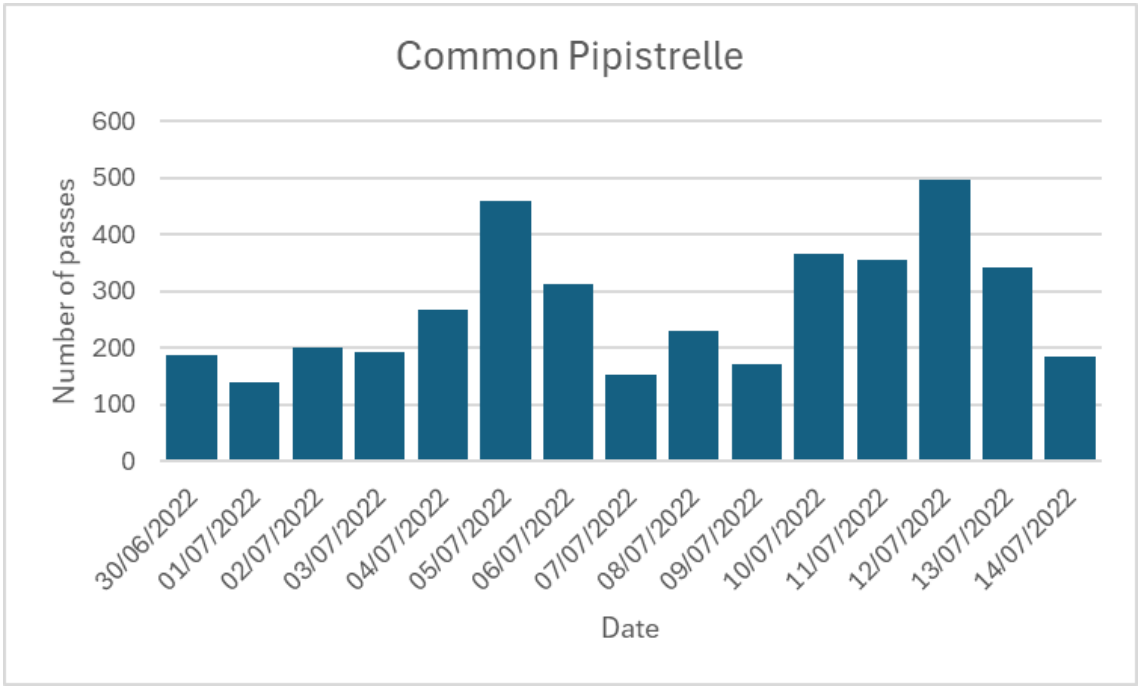

Figure 8. Nightly common pipistrelle activity at Bedfont Lakes

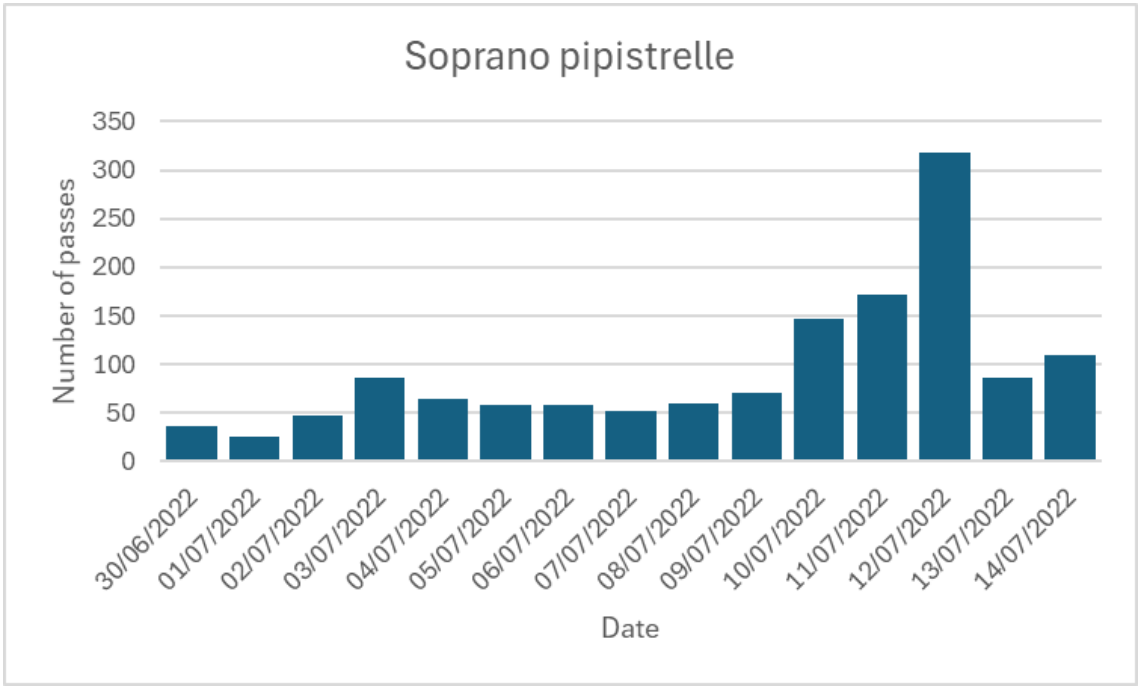

Figure 9. Nightly soprano pipistrelle activity at Bedfont Lakes

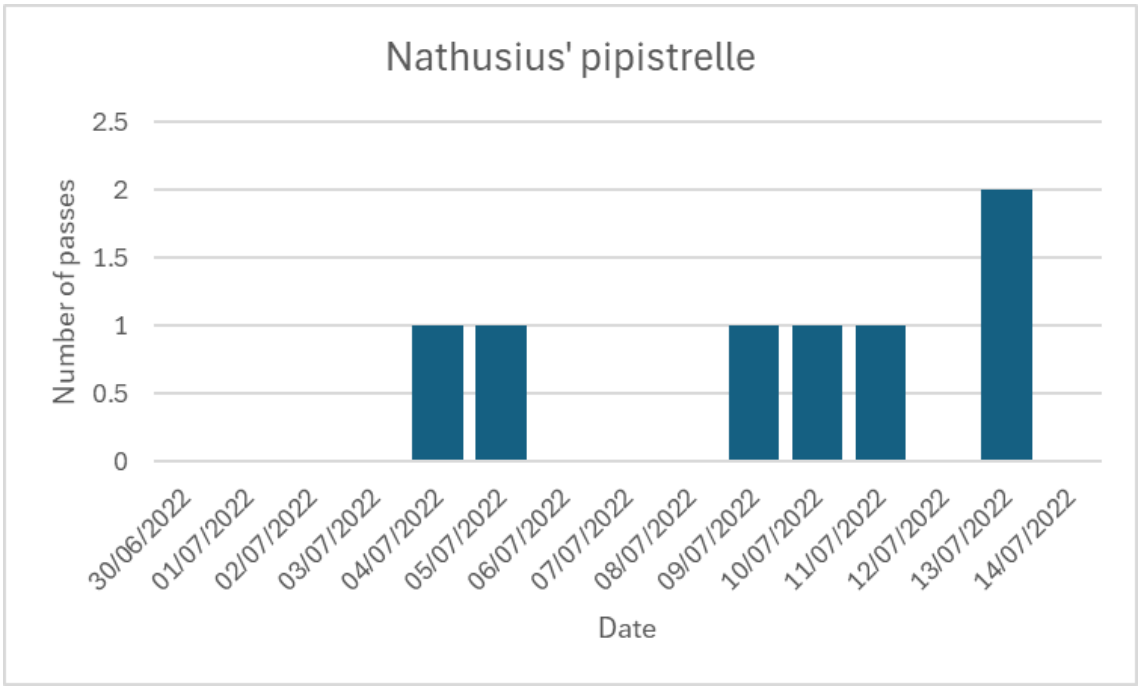

Figure 10. Nightly Nathusius' pipistrelle activity at Bedfont Lakes

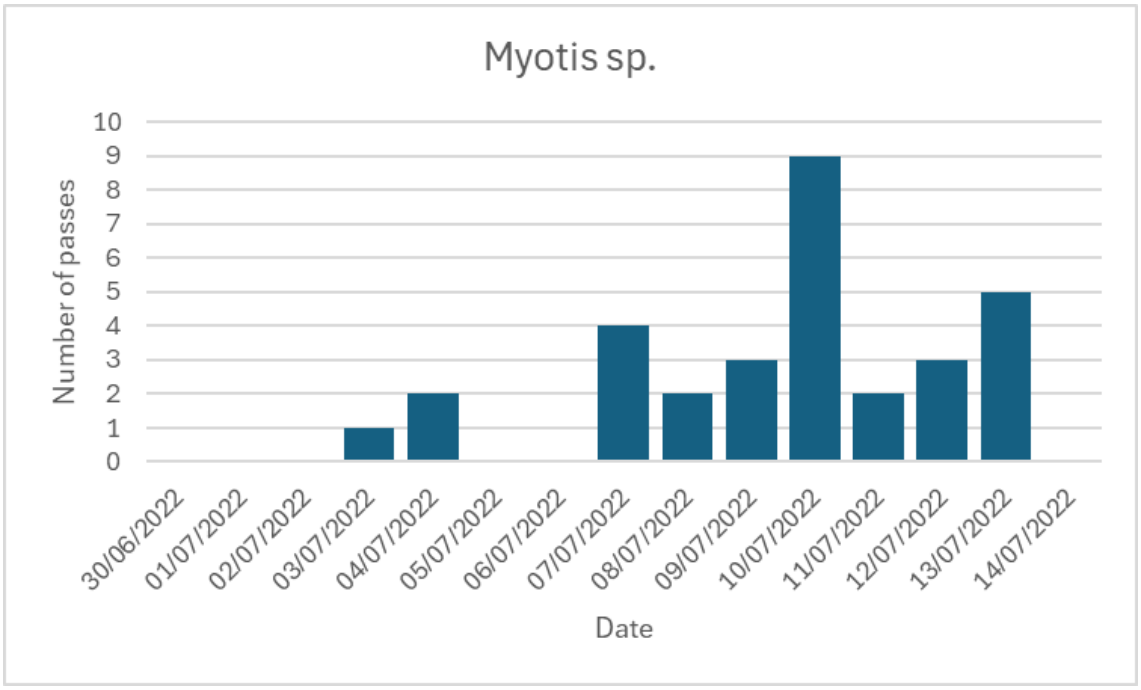

Figure 11. Nightly *Myotis* sp. activity at Bedfont Lakes

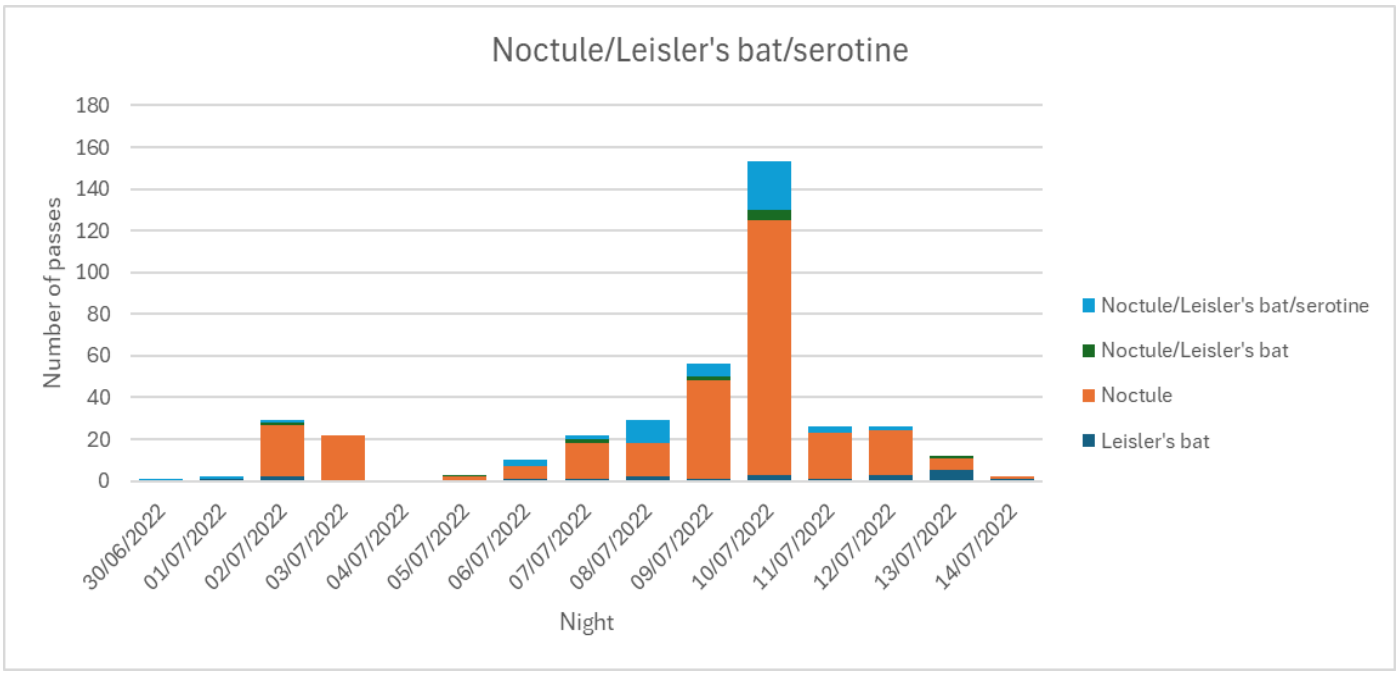

Figure 12. Nightly noctule/Leisler's/serotine bat activity at Bedfont Lakes

In total three species of pipistrelle were identified along with *Myotis* sp. (it was not possible to identify *Myotis* sp. calls to species level but Daubenton's bat and Natterer's bat are the two *Myotis* species known to occur locally), noctule and Leisler's bat – i.e., at least six species in total. There were high levels of bat activity recorded on each night of the survey.

Upper Duke of Northumberland's River at Hatton Fields

Figure 13. DNR deployment location and date period

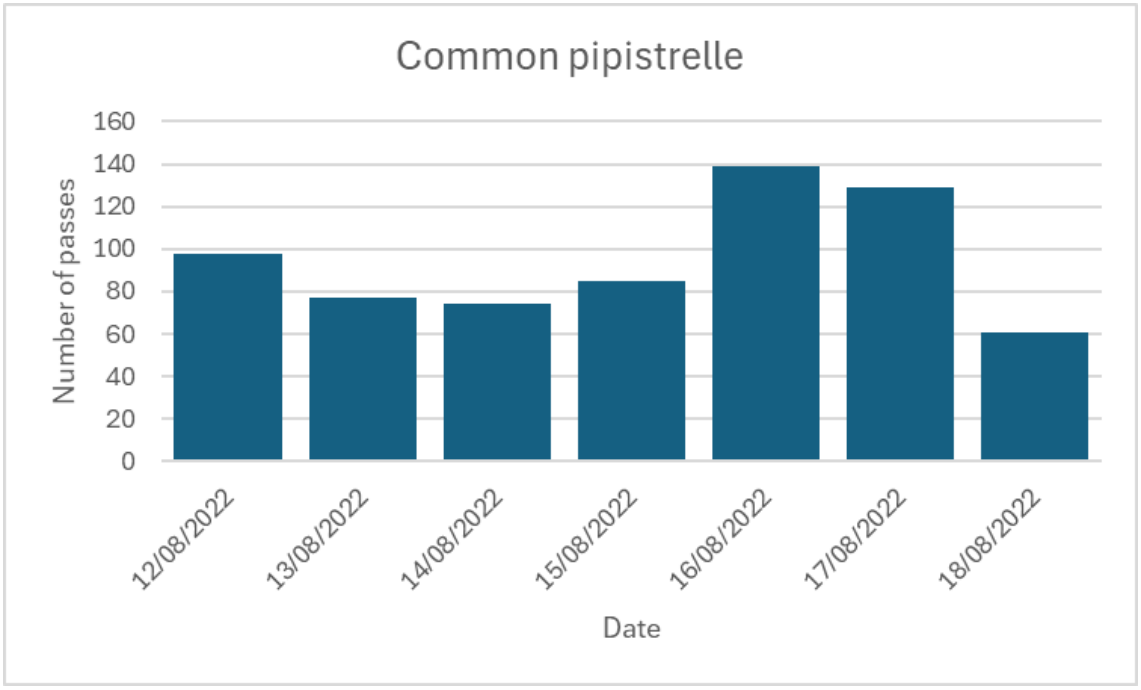

Figure 14. Nightly common pipistrelle activity at DNR

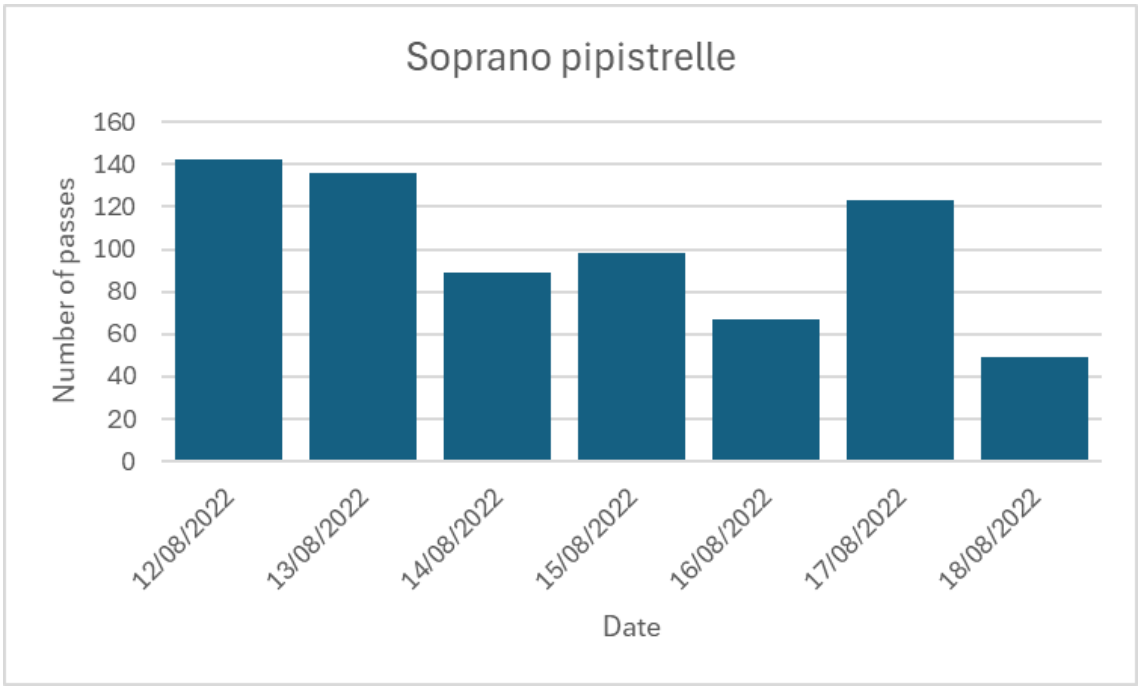

Figure 15. Nightly soprano pipistrelle activity at DNR

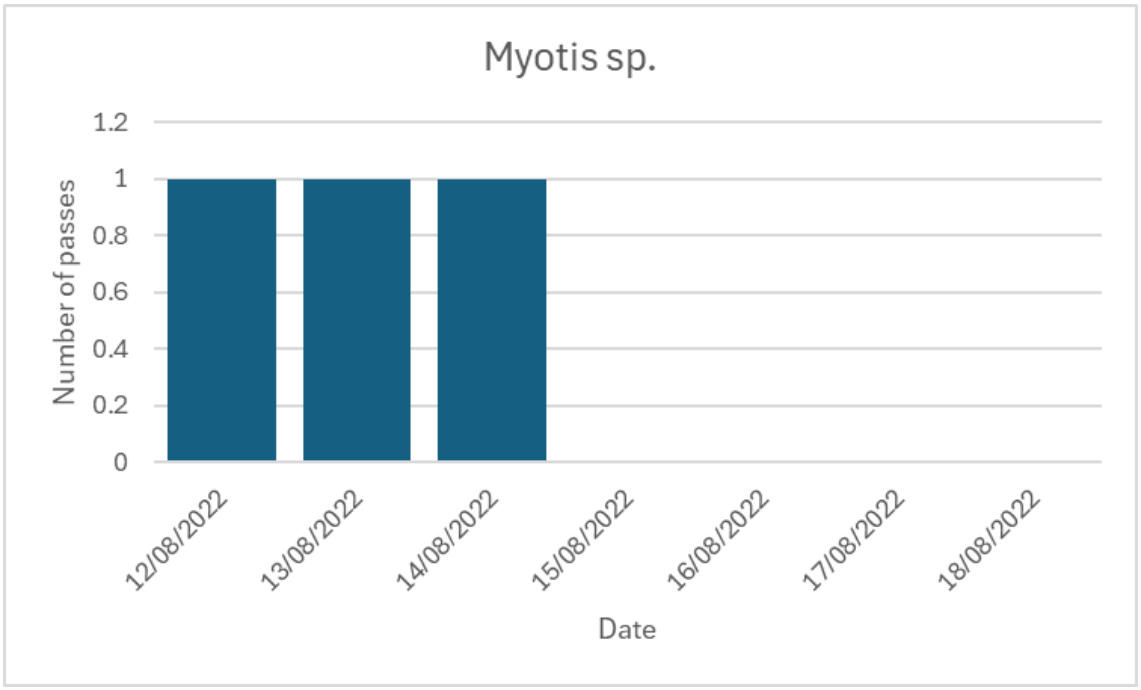

Figure 16. Nightly *Myotis* sp. activity at DNR

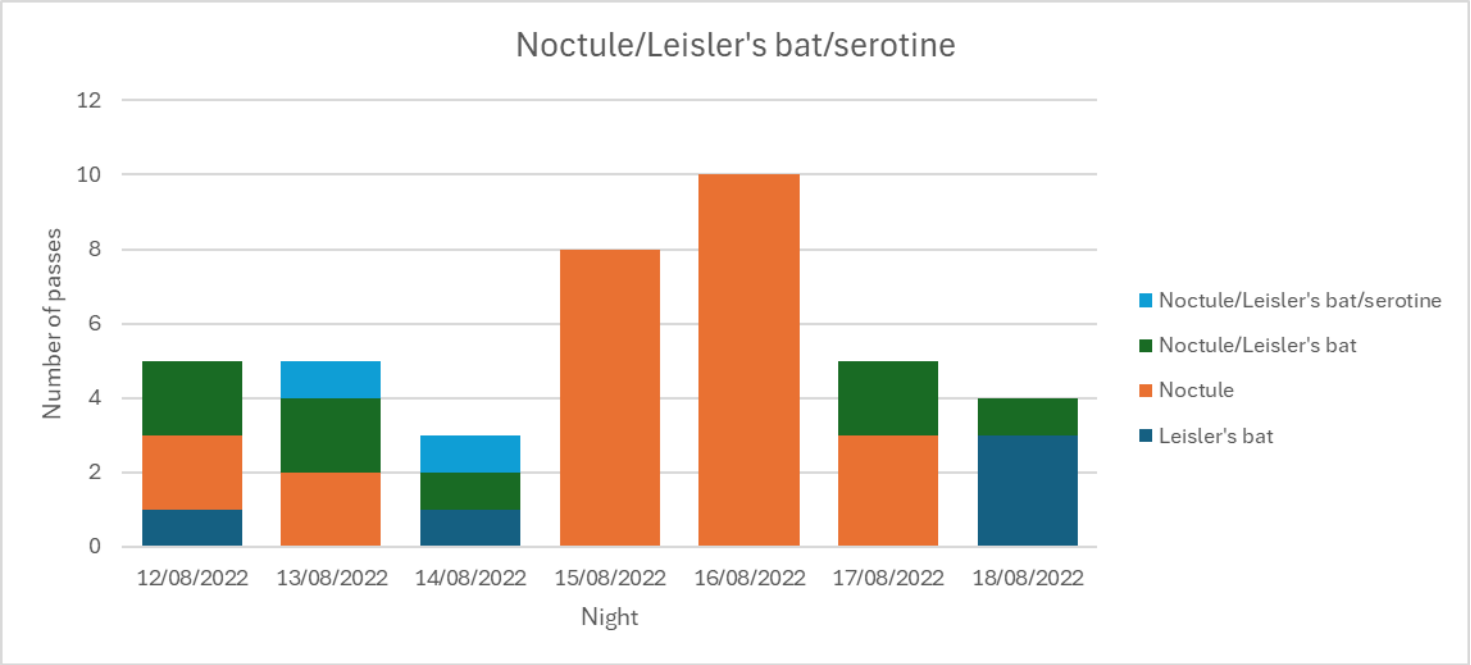

Figure 17. Nightly noctule/Leisler's bat/serotine activity at DNR

In total two species of pipistrelle were identified along with *Myotis* sp. (probably Daubenton's bat or Natterer's bat), noctule and Leisler's bat – i.e. at least five species in total. There were high levels of bat activity recorded on each night of the survey.

Hatton Farm Fields

The survey looked at two locations as shown below.

Figure 18. Hatton Farm Fields deployment locations and date periods

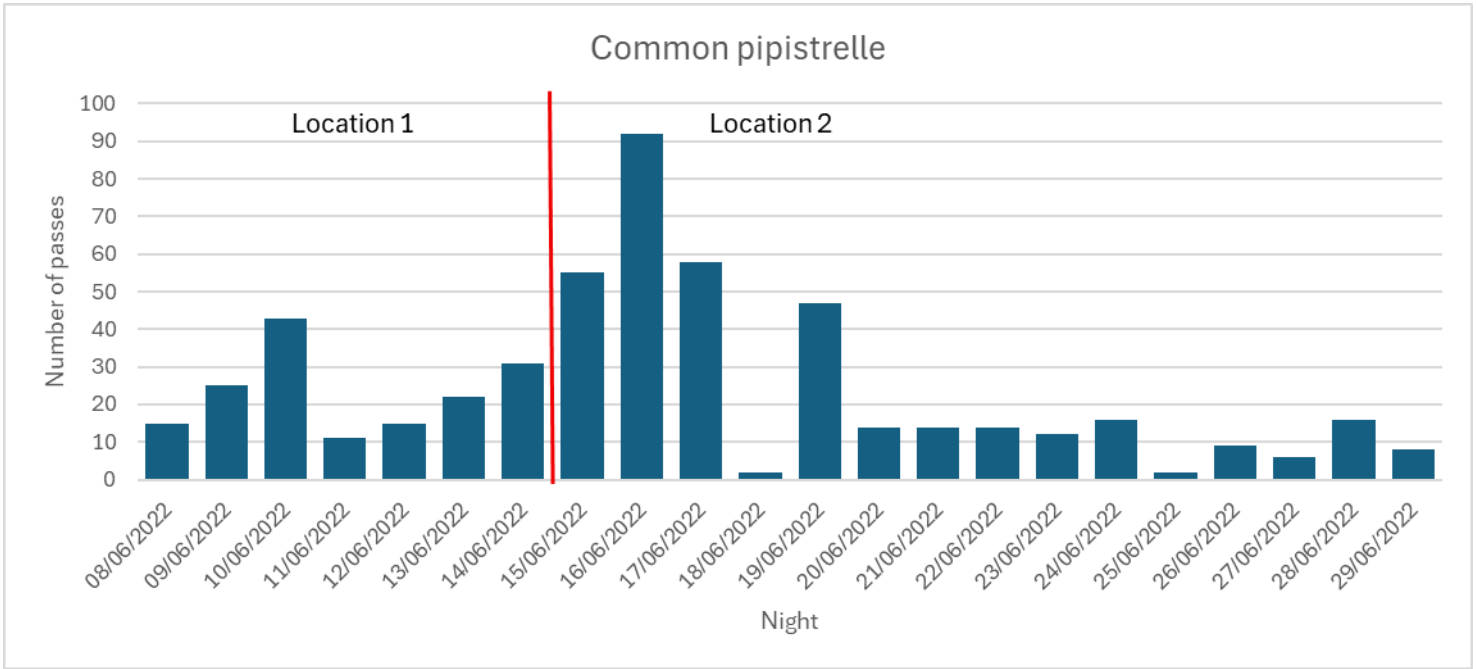

Figure 19. Nightly common pipistrelle activity at Hatton Farm Fields

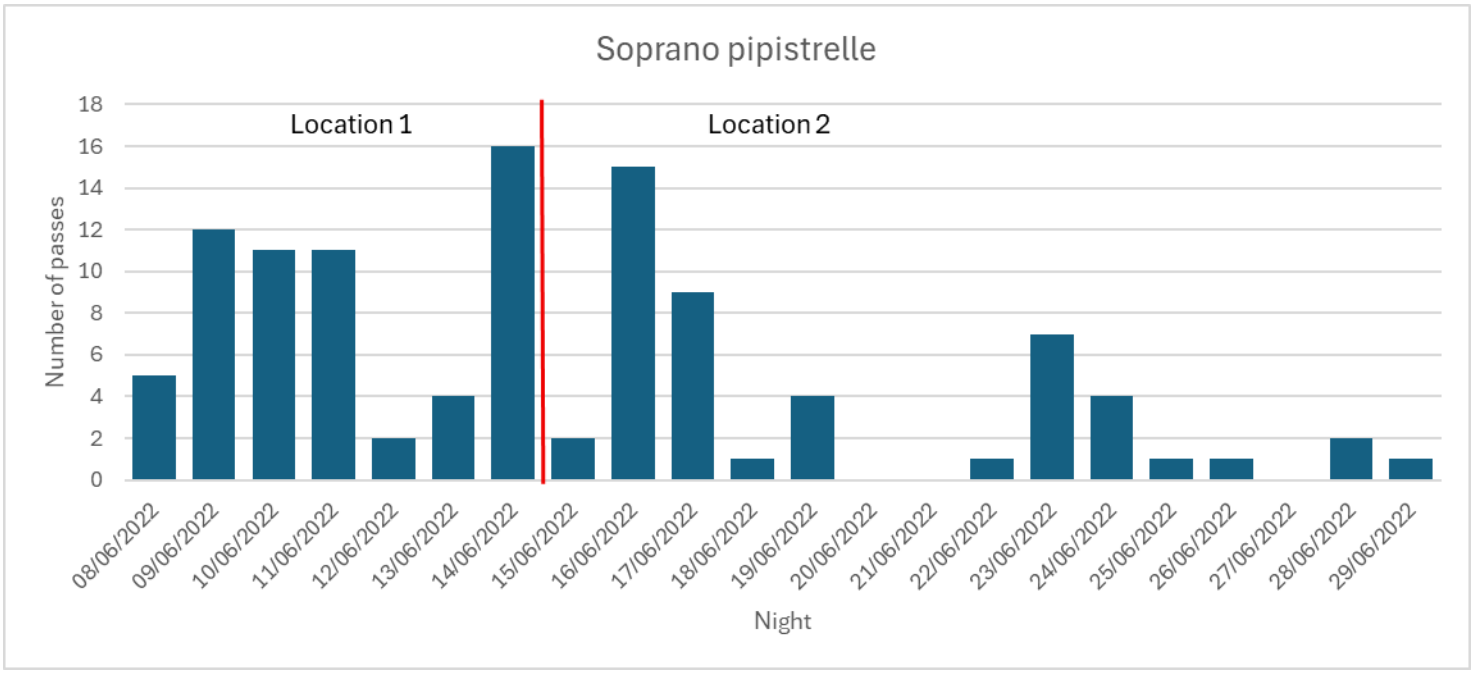

Figure 20. Nightly soprano pipistrelle activity at Hatton Farm Fields

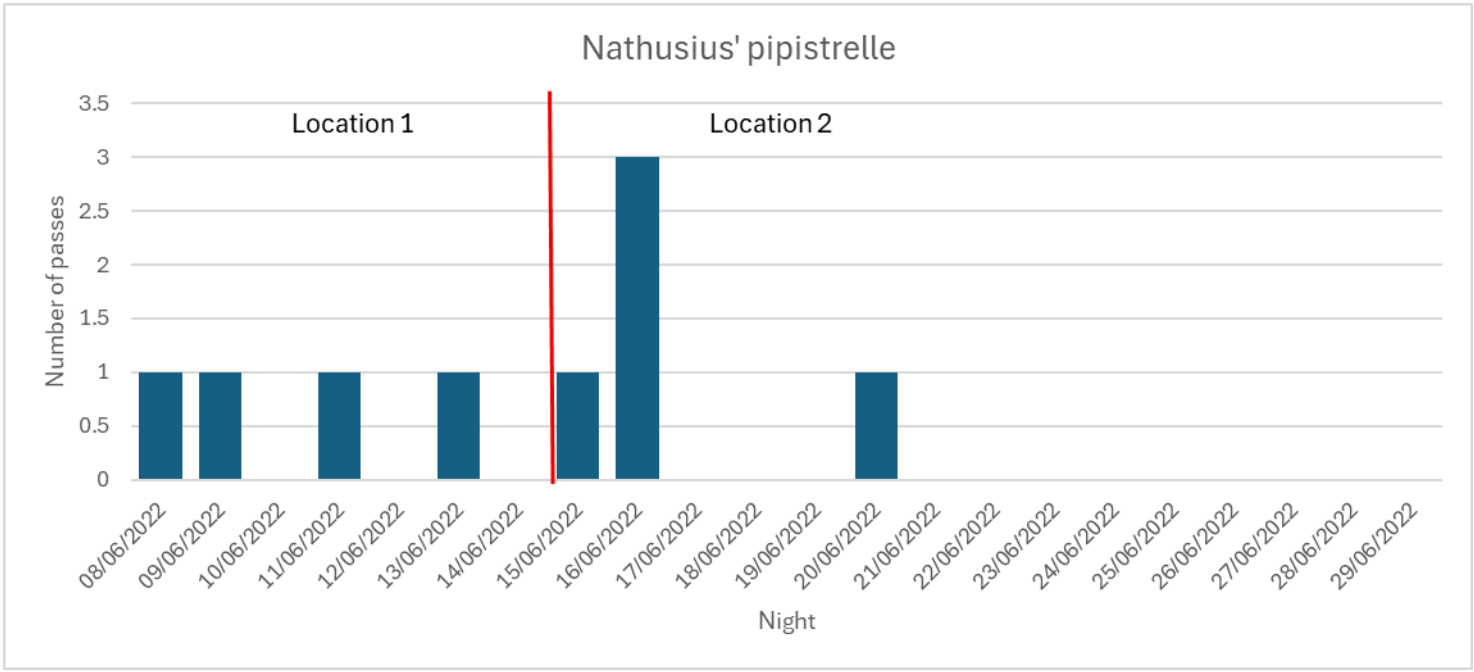

Figure 21. Nightly Nathusius' pipistrelle activity at Hatton Farm Fields

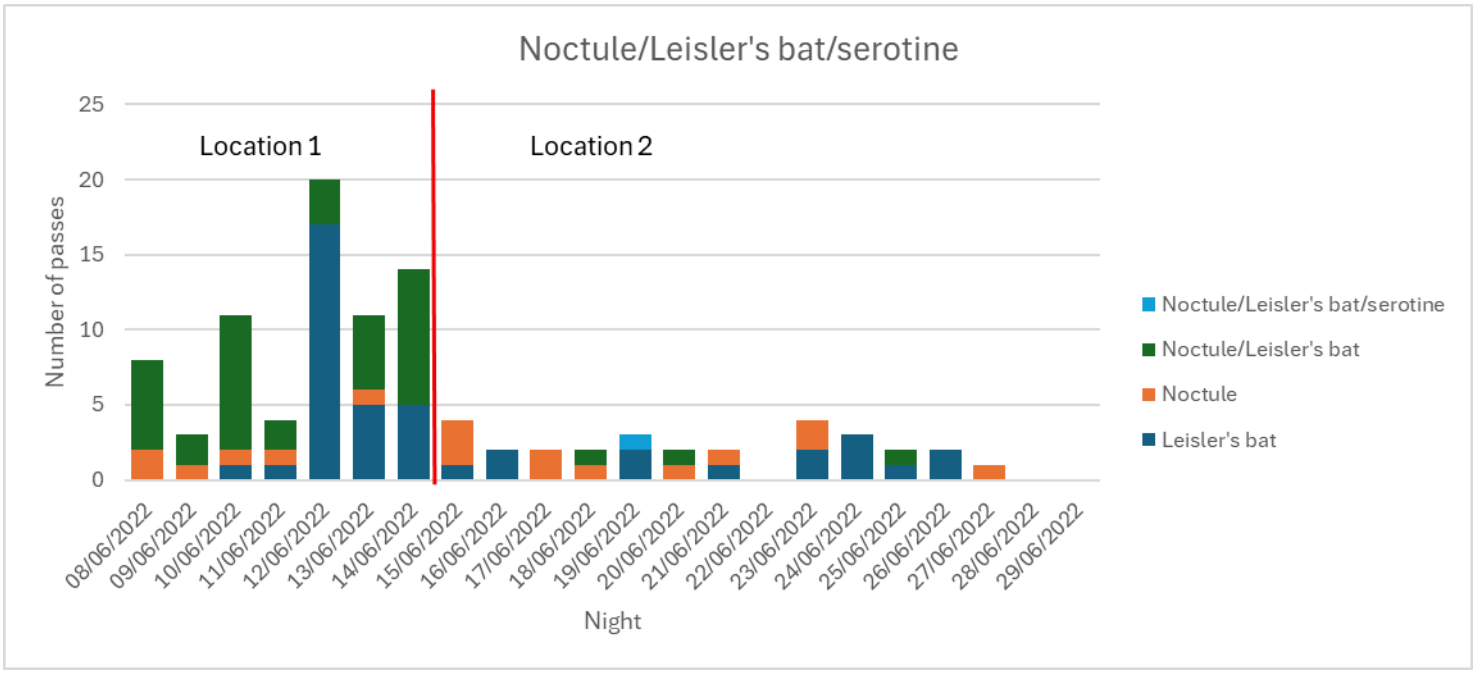

Figure 22. Nightly noctule activity at Hatton Farm Fields

In total three species of pipistrelle were identified along with noctule and Leisler's bat – i.e., five species in total. There were bats recorded on each night of the survey.

Raleigh Park

Figure 23. Raleigh Park deployment location and date period

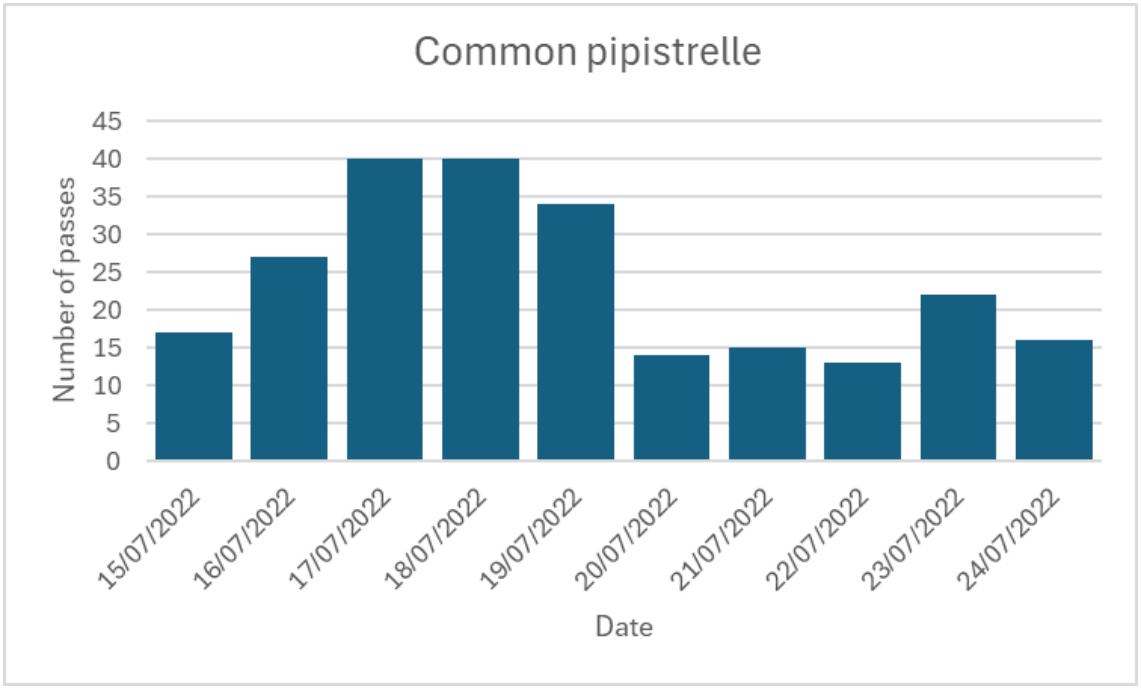

Figure 24. Nightly common pipistrelle activity at Raleigh Park

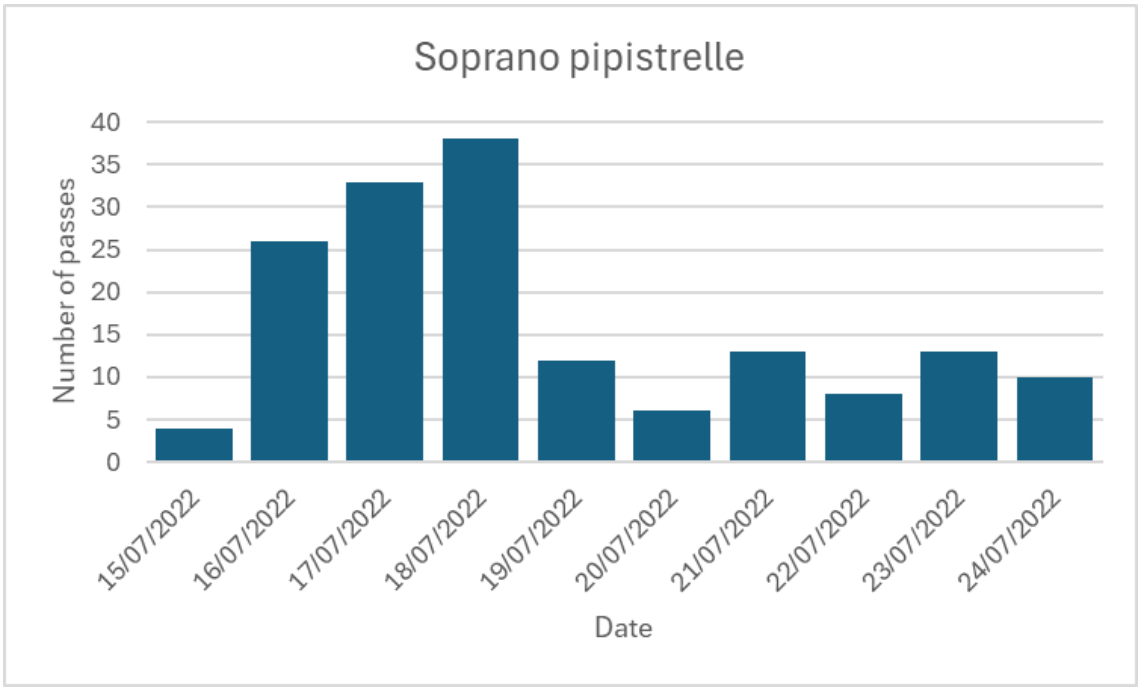

Figure 25. Nightly soprano pipistrelle activity at Raleigh Park

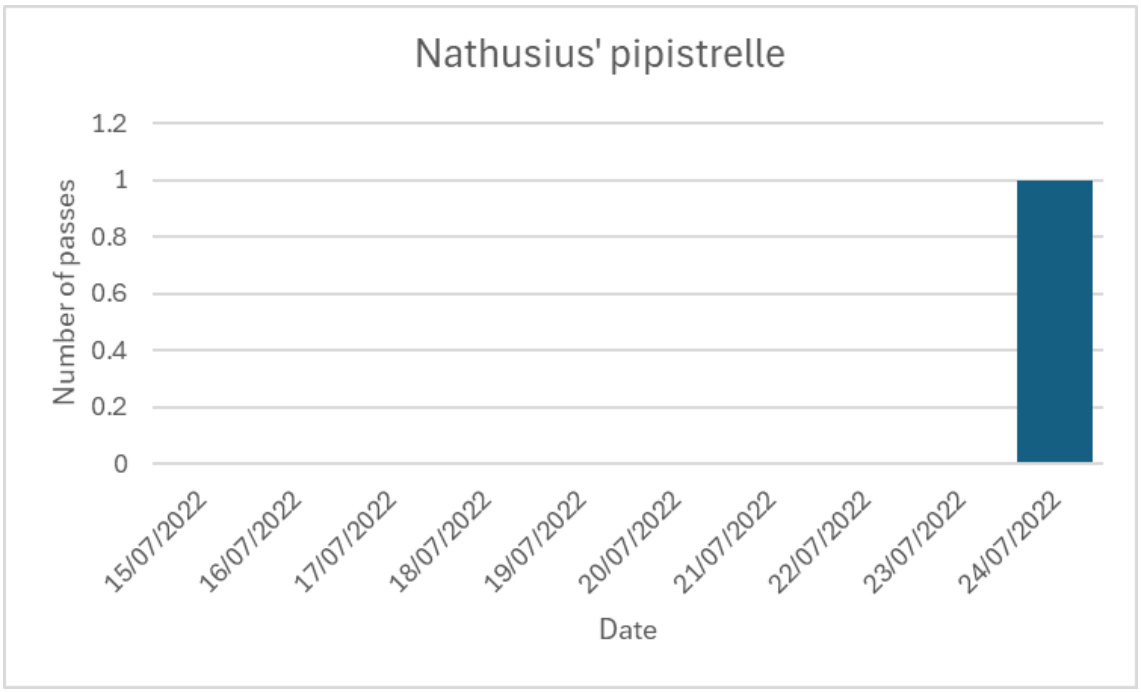

Figure 26. Nightly Nathusius' pipistrelle activity at Raleigh Park

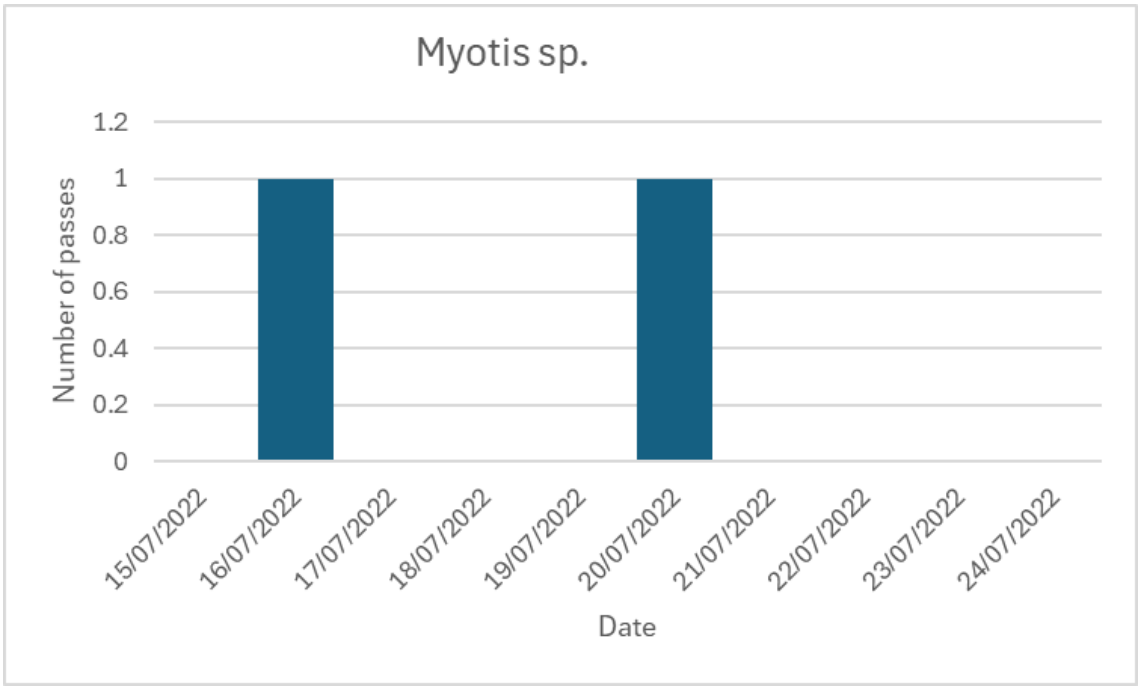

Figure 27. Nightly *Myotis* sp. activity at Raleigh Park

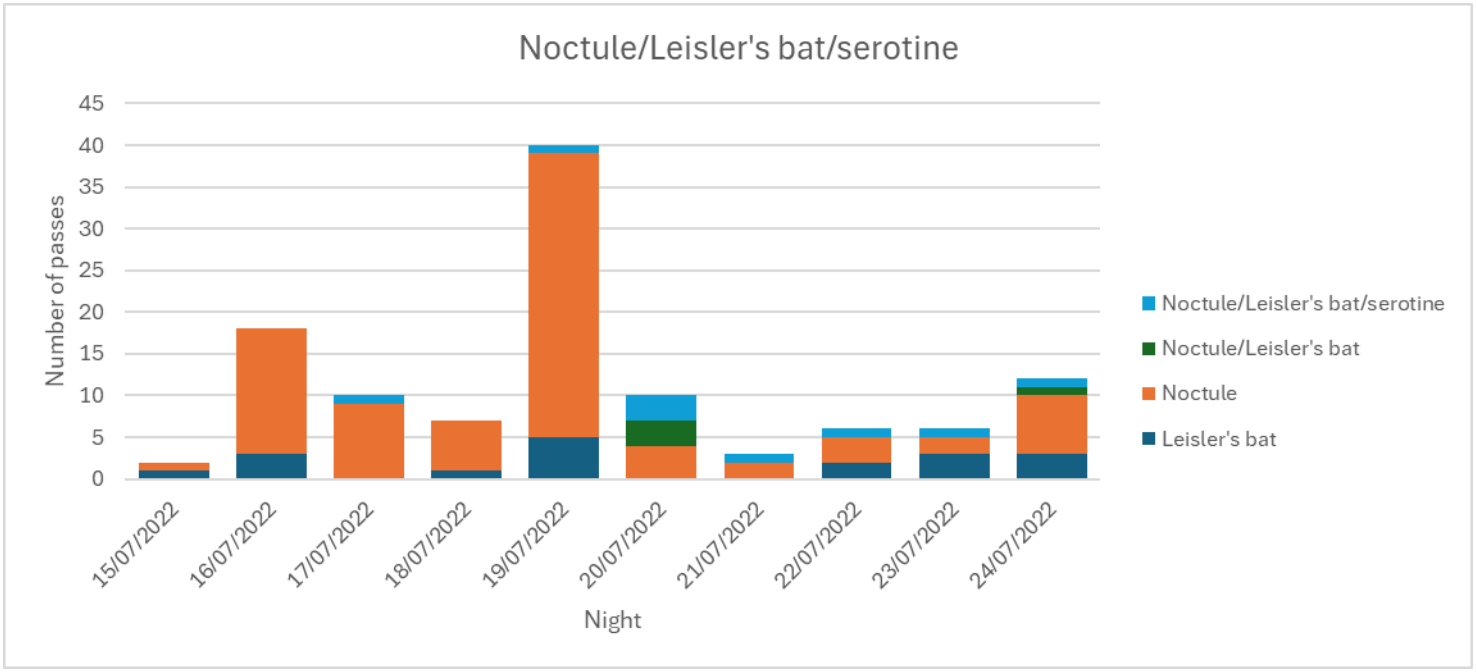

Figure 28. Nightly noctule/Leisler's bat/serotine activity at Raleigh Park

In total three species of pipistrelle were identified along with *Myotis* sp. (probably Daubenton's bat or Natterer's bat), noctule and Leisler's bat – i.e., at least six species in total. There were bats recorded on each night of the survey.

Little Park

Figure 29. Little Park deployment location and date period

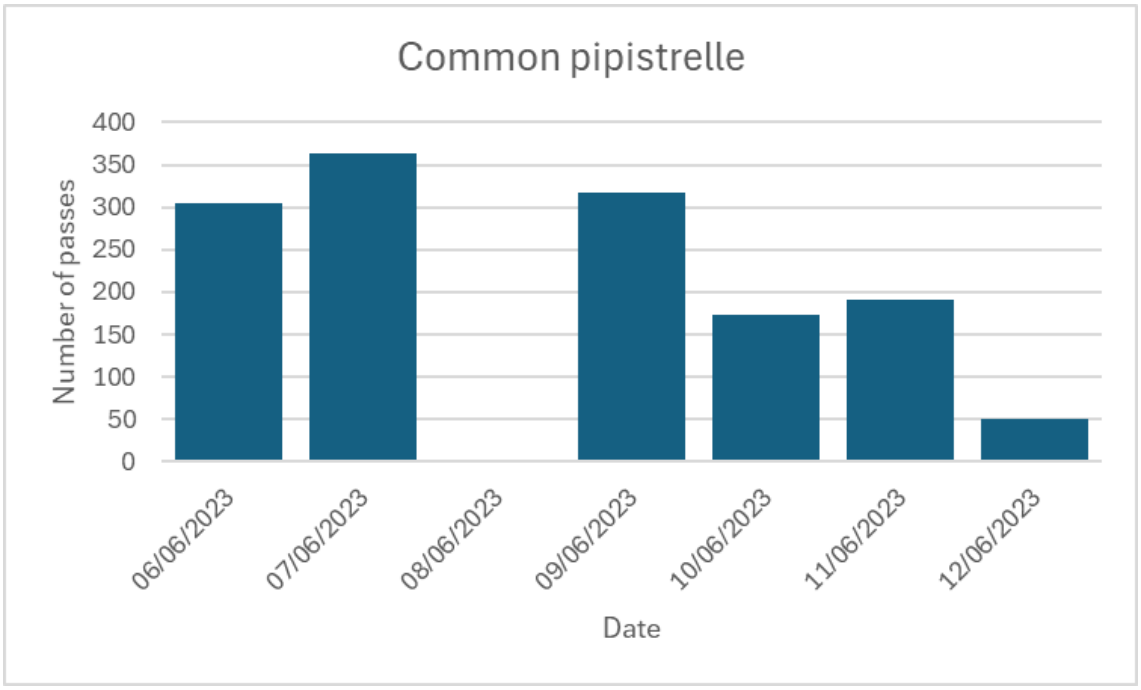

Figure 30. Nightly common pipistrelle activity at Little Park

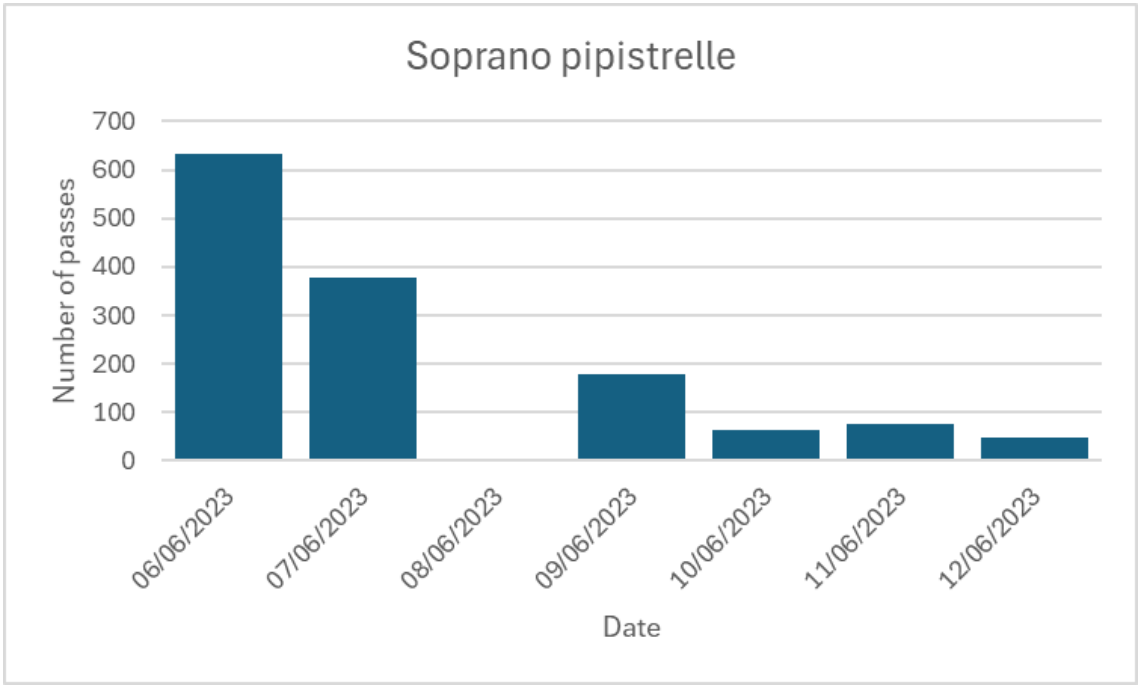

Figure 31. Nightly soprano pipistrelle activity at Little Park

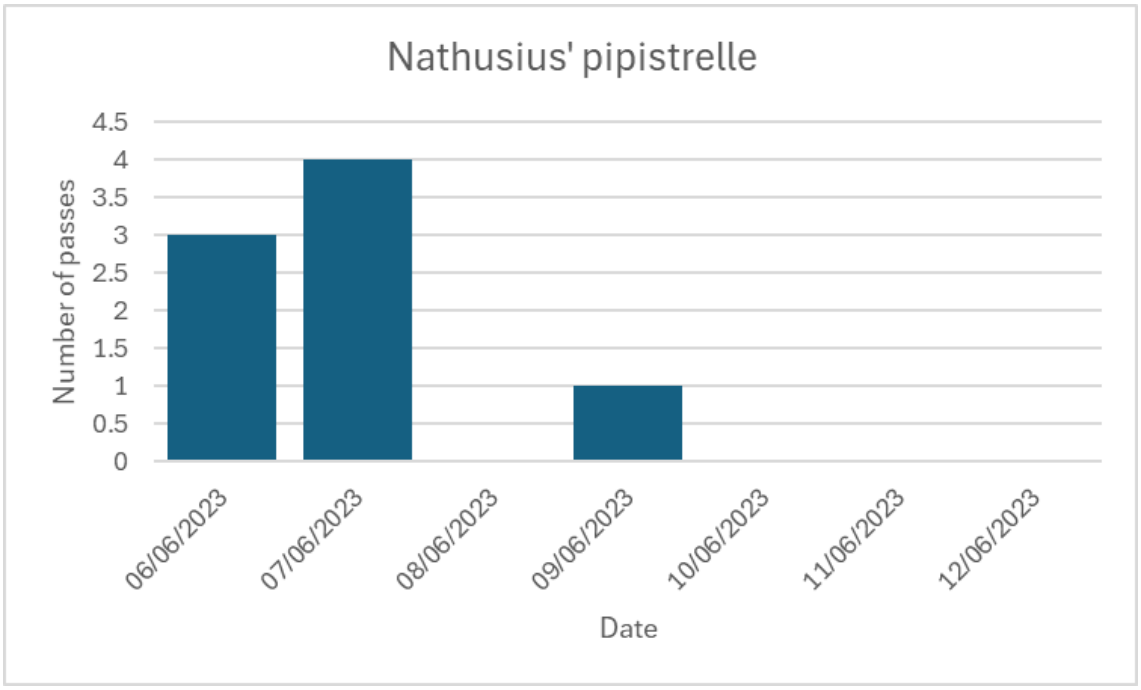

Figure 32. Nightly Nathusius' pipistrelle activity at Little Park

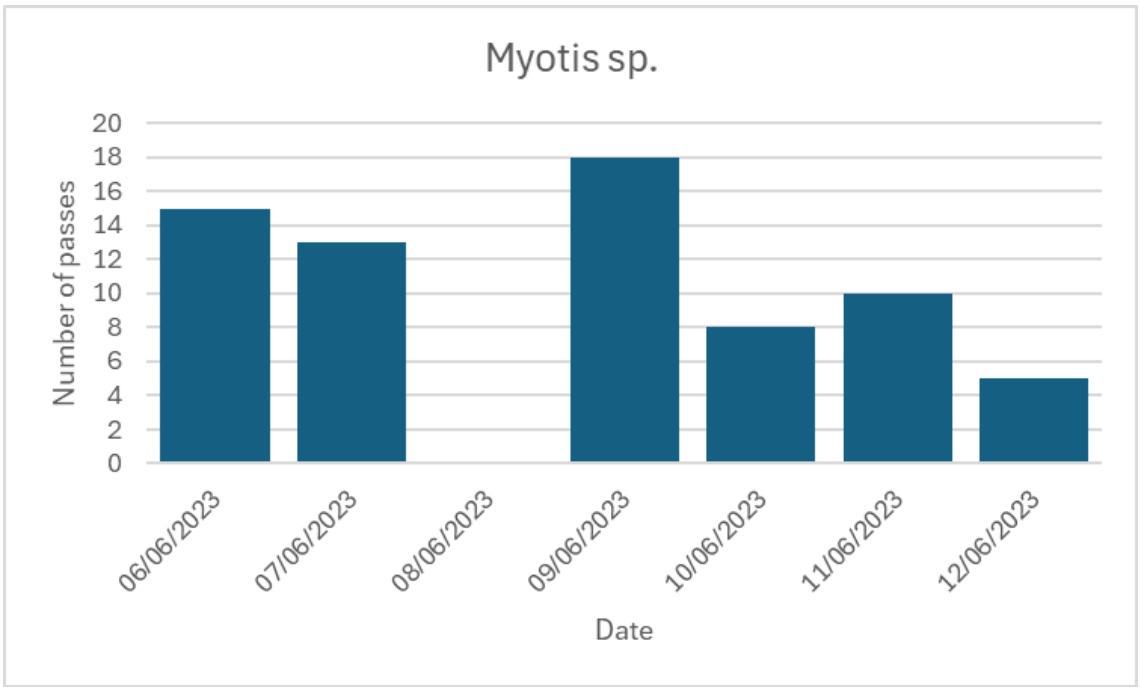

Figure 33. Nightly *Myotis* sp. activity at Little Park

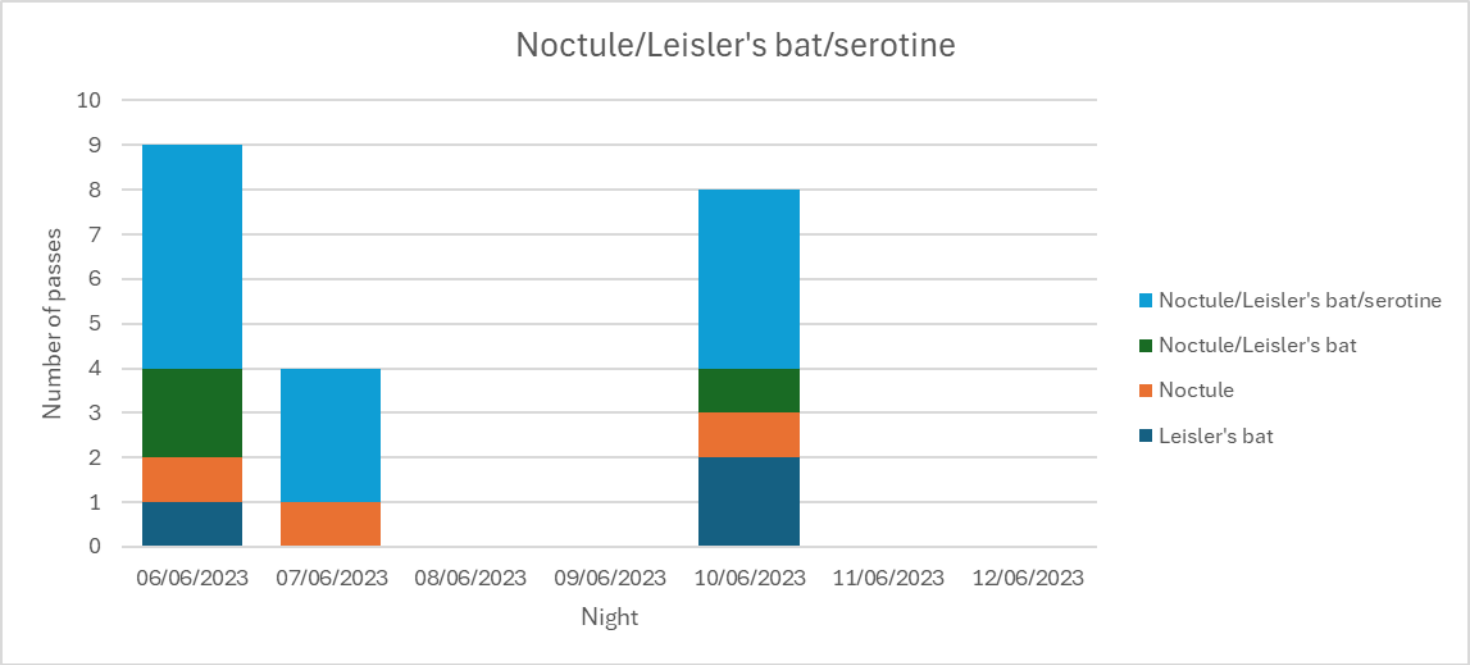

Figure 34. Nightly noctule/Leisler's bat/serotine activity at Little Park

In total three species of pipistrelle were identified along with *Myotis* sp. (probably Daubenton's bat or Natterer's bat), noctule and Leisler's bat – i.e., at least six species in total. There were high levels of bat activity recorded on each night of the survey.

Site summaries

Bedfont Lakes North
In terms of peak night of bat activity for each species (Figures 2 – 6), Bedfont Lakes North came out top for common pipistrelle (the night with peak activity had common pipistrelle activity in 46.2% of the minutes between sunset and sunrise), second for soprano pipistrelle (37.6%), third for Nathusius' pipistrelle (though only 0.4%), second for *Myotis* sp. (though only 1.3%), and first for the noctule/Leisler's bat/serotine species group (8.5%).

Long-term bat box checks and trapping surveys have shown that the main Bedfont Lakes site to the south of the road is a highly important site for Nathusius' pipistrelles so it is surprising that this species was recorded in very low numbers on these survey nights (Figure 10). It may be that the site is more important from late September to spring when migratory Nathusius' pipistrelles are present in the UK, having migrated from their main breeding grounds in eastern Europe. The results from the Anabat detector survey suggest that this species is relatively scarce at this site during the summer. This species was only recorded on six of the 15 nights and only a single pass recorded per night apart from one night with two passes. This suggests that either a single Nathusius' pipistrelle flew over the site en route to somewhere else, or that the detector was not placed in an optimum location to record this species' activity on site, though the water's edge location (Figure 7) certainly looks like a suitable location for monitoring this species' activity.

The bat box checks and trapping surveys also pick up lots of soprano pipistrelle and only occasional common pipistrelles so it was interesting that the Anabat surveys picked up more common than soprano pipistrelle activity. Both species were recorded across all nights surveyed (Figures 8 and 9).

Myotis sp. records were also quite low for a wetland site such as this, where Daubenton's bat would normally be expected to be much in evidence. *Myotis* sp. passes were recorded on nine out of the 15 nights, with generally low activity recorded, peaking at nine passes on 10th July (Figure 11).

Records in the "noctule/Leisler's bat/serotine" group were recorded on all but one night (Figure 17) with an unusually high count of 153 passes on 10th July. At this site identifications could be pinned down to both noctule and Leisler's bat, with noctule by far the dominant species.

Upper DNR at Hatton Fields

In terms of peak night of bat activity for each species (Figures 2 – 6), the DNR site came third for common pipistrelle (the night with peak activity had common pipistrelle activity in 17.2% of the minutes between sunset and sunrise), third for soprano pipistrelle (19.9%), was the only site with no records of Nathusius' pipistrelle, joint third for *Myotis* sp. (though only 0.2%), and fourth for the noctule/Leisler's bat/serotine species group (1.6%).

Common and soprano pipistrelle activity was recorded across all nights (Figures 14 and 15). The detector was placed on a linear feature which could well be an important commuting route for these species.

Myotis sp. was only represented by a single pass on three of the seven nights (Figure 16). Records in the "noctule/Leisler's bat/serotine" group were recorded across all nights (Figure 17). The only records that could be identified to species level were for noctule, which peaked at 10 passes on 16th August.

Hatton Farm Fields – main site

The detector was placed in two locations at this site, location 1 from 8th – 14th June 2022, location 2 from 15th – 29th June 2022. In terms of peak night of bat activity for each species (Figures 2 – 6), Hatton Farm Fields came fourth for common pipistrelle (the night with peak activity had common pipistrelle activity in 10.4% of the minutes between sunset and sunrise at location 2), bottom for soprano pipistrelle (2.5% at both locations), second for Nathusius' pipistrelle (though only 0.7% - location 2), was the only site with no records of *Myotis* sp., and was third for the noctule/Leisler's bat/serotine species group (1.8% - location 2).

Common pipistrelle was recorded on all nights (Figure 19), with peak activity (92 passes) recorded on 16th June at location 2. Soprano pipistrelle was recorded on all but three nights (Figure 20) with peak activity (16 passes) recorded on 14th June at location 1.

Nathusius' pipistrelle was only represented by a single pass on six of the 22 nights, apart from 16th June when three passes were recorded (Figure 21). Records in the "noctule/Leisler's bat/serotine" were recorded on all but three nights (Figure 22). At this site identifications could be pinned down to both noctule and Leisler's bat.

Raleigh Park

In terms of peak night of bat activity for each species (Figures 2 – 6), Raleigh Park came bottom for common pipistrelle (the night with peak activity had common pipistrelle activity in 7.3% of the minutes between sunset and sunrise at location 2), fourth for soprano pipistrelle (5.9%), fourth for Nathusius' pipistrelle (only 0.2%), joint third for *Myotis* sp. (0.2%), and second for the noctule/Leisler's bat/serotine species group (3.6%).

Common and soprano pipistrelle activity was recorded across all nights (Figures 24 and 25). Only one Nathusius' pipistrelle pass was recorded, on 24th July 2022.

Myotis sp. was represented by a single pass on two of the ten nights (Figure 27). Records in the "noctule/Leisler's bat/serotine" group were recorded across all nights (Figure 28). At this site identifications could be pinned down to both noctule and Leisler's bat.

Little Park

In terms of peak night of bat activity for each species (Figures 2 – 6), Little Park came second for common pipistrelle (the night with peak activity had common pipistrelle activity in 45.6% of the minutes between sunset and sunrise at location 2), first for soprano pipistrelle (57.4%), first for Nathusius' pipistrelle (though only 0.9%), first for *Myotis* sp. (4%), and bottom for the noctule/Leisler's bat/serotine species group (1.1%).

Common and soprano pipistrelle activity was recorded across all nights except for 8th June 2023 (Figures 30 and 31). This night had no bat activity from any species so is likely to have been a night with unsuitable weather. Nathusius' pipistrelle was recorded on three nights, though only peaking at four passes on 7th June 2023.

Myotis sp. activity ranged from 5 to 18 passes per night (Figure 33), apart from 8th June, the night with no bat activity. Records in the "noctule/Leisler's bat/serotine" group were recorded on three nights, with activity ranging from 4 to 9 passes (Figure 34). At this site identifications could be pinned down to both noctule and Leisler's bat.