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Lesser Horseshoe Monitoring

Northern Quarter

Cinderford

**Daniel Whitby
2016**

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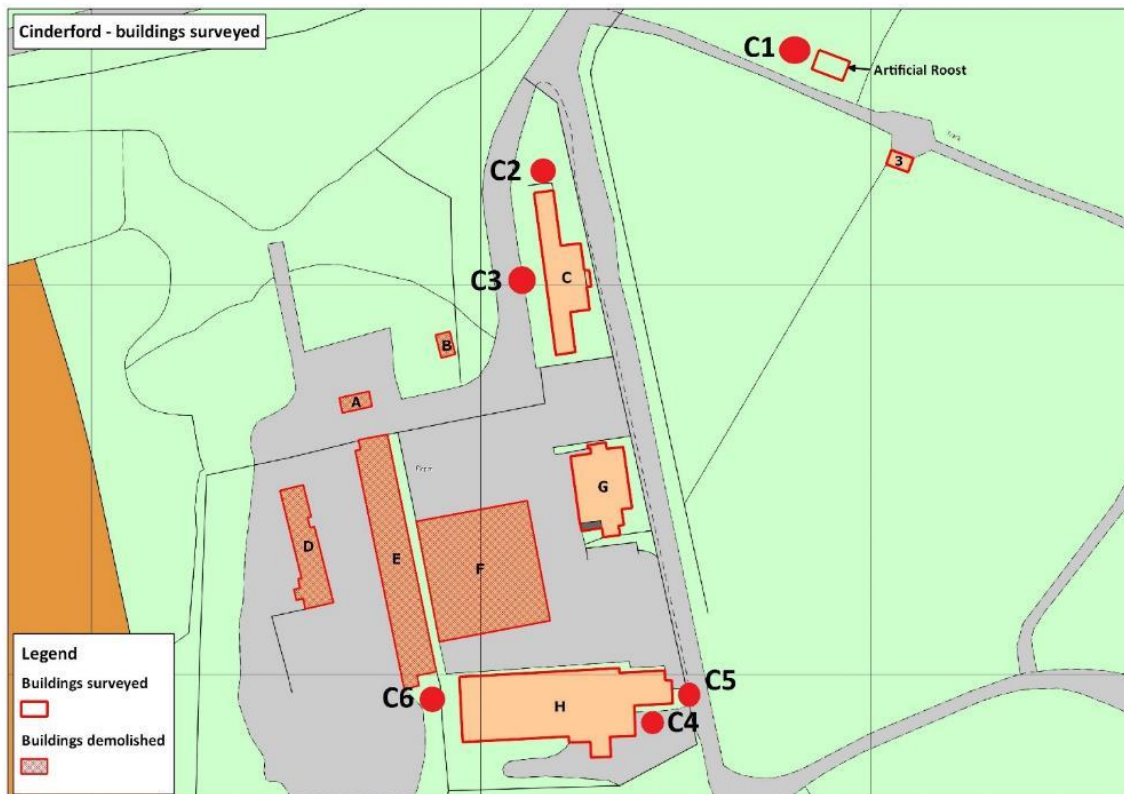
1 Introduction

- 1.1 AEWCLtd. was commissioned by the Forest of Dean Council to conduct monthly monitoring surveys of all buildings present at the Northern Quarter site from January through to December 2016.
- 1.2 These surveys are a continuation of monthly surveys conducted at the site by AEWCLtd. from July 2013 and by other consultancies prior to this.
- 1.3 This report provides the results of the surveys conducted to date at the site by AEWCLtd since January 2016 to December 2016. The results of this monitoring are intended to be used to inform for any proposed development of the site and to be used with licence applications for this site.

2 Method

- 2.1 There are 5 structures that are surveyed each month by licenced ecologists, the bath house, canteen building, office building, woodland shed and artificial roost. The same survey methodology has been used as was used by AEWCLtd surveys from July 2013 to ensuring consistency of data gathered with the exception of reducing the emergence surveys on the bath house following notable reduction for some time in bat present in this building and increased accuracy of surveys from internal surveys over emergence surveys of this building due to inaccessible access points.
- 2.2 Surveys are conducted once each month with all buildings surveyed on the same day to ensure accuracy of surveys and no bats are moving between buildings being re-counted.
- 2.3 Each month internal surveys are conducted on the bath house, canteen building, office building and woodland shed, the Artificial roost is only surveyed internally during colder months from October to April due to the high levels of disturbance this would cause to the main maternity roost colony during summer months and inaccuracy of using this survey method with high numbers of active bats present.
- 2.4 During summer months from April to October emergence surveys were conducted using night vision cameras and IR illuminators to enable the visual identification of bats emerging from the building in low light and dark conditions which are otherwise impossible to count the bats present. Recording was conducted at all identified emergence locations from the Office building and artificial roost and recordings watched back to accurately count the numbers of bats emerging.
- 2.5 During 2016 the Bath House was not recorded during emergence surveys as previous years had identified low numbers of bats present. At the end of each survey the Artificial roost and Office are inspected internally to count the number of bats still present remaining within the roosts.
- 2.6 Surveys were only conducted under suitable weather conditions with an absence of rain, high winds or cold temperatures ensuring that bats will be active and an accurate count will be achieved.

2.7 Additional 'juvenile' surveys were undertaken in 2016 to assist in evaluating birth rate success (subject to a specific report and not referred to further here).



Plan 1 – showing 6 camera locations (C-office building, G-canteen building, H-Bath House, 3-woodland shed)

Lesser horseshoe emergence counts.

- C1- Camera located on artificial roost emergence point.
- C2- Camera located on the North end of office (Building C) covering roller doors.
- C3- Camera located western side of office (Building C) covering dormer entrance.
- C4- Camera located covering the southern emergence point in the south-eastern area of the Bath House, bath house emergence point A (Building H).
- C5- Camera located covering the eastern emergence point in the south-eastern area of the Bath House, bath house emergence point B (Building H).
- C6- Camera located covering the western emergence points of the bath house (building H) bath house emergence points C + D.

NB – emergence points C4, C5 and C6 were not conducted in 2016

3 Results

3.1 During 2014/15 there has been observed a steady increase in LHB numbers despite the previous year's notably poor weather conditions and documented reduced breeding success. Trapping surveys at the roost sites in 2013 did identify that there were unusually high proportions of male bats present using the roost sites, however these surveys cannot identify the sex of bats present to identify if this has continued into recent years.

Monthly observations

January 18th 2016 – during this survey two non LHB species was identified, one, a single Natterers bat found within the canteen in the holes in the ceiling and a male Common Pipistrelle bat found in the door frame of the office building.

No bats were found in the bathhouse or the woodland shed.

Lesser horseshoe bats were only identified present in the artificial roost with 55 identified present. Most of these were downstairs with only 8 bats upstairs.

February 18th 2016 – during this survey only LHB bats were found throughout the whole site. No bats were found in the Office building, the canteen or the woodland shed.

One solitary bat was identified in the bath house located in the eastern cupboard.

54 Lesser horseshoe bats were identified present in the artificial roost with most again downstairs. One fresh dead bat was found on the floor in the main room and one partly dried dead bat was found still hanging in the hot box.

March 15th 2016 – during this survey the number of LHB on the site had increased, probably due to the mild conditions and winter over the past month when occasional foraging may have been possible.

Two LHB were found in the Bath house, both in the main cupboard. 5 bats were identified in the office, one being a Brown long-eared identified in the ridge of the main roof.

87 Lesser horseshoe bats were identified present in the artificial roost with most again downstairs (82).

April 18th 2016 – During this survey the number of LHB had increased as individuals are coming out of hibernation. As with previous years this month individuals were found in the Canteen and at more locations in the Bath House.

A total of 20 LHB were found in the office, two in each roof area and 16 in the drying room.

The canteen had two individuals present once in the central rear area in the open and one in the store room area.

The bath house had 6 LHB, only two were in the main cupboard, one in both the east and western cupboard, one just adjacent to this by unused front door and one in central single toilet.

The artificial roost had 151 LHB bats, of which 120 were in the large downstairs room. No bats were in the heated part of the hot box.

May 11th 2016 – this month the Artificial roost was not fully inspected internally as there were too many active bats. Notably a bird nest was present in the entrance to the artificial roost.

A total of 6 LHB were found in the office, two in each roof area and 2 in the drying room. One Male Common Pip was found roosting in the door frame.

The canteen had one individuals present in the store room area.

The bath house had 8 LHB, 7 were in the main cupboard, one in the western cupboard.

June 20th 2016 – this month the Artificial roost was not fully inspected internally as there were too many active bats. The recent weather had been poor and unseasonal delaying the survey with regular rainfall.

The Bath House was notably wet and damp in many area, only 3 bats were found present, 2 in main cupboard and 1 in east cupboard.

A total of 21 LHB and one BLEB were found in the office, 11 along the ridge of the main roof and 9 in rear roof, most were active, one torpid bat was in the drying room. One BLEB was present in the southern area of the eastern roof.

At the end of the survey 18 bats were still in the artificial roost, two with rings on, however, approximately 10 bats were in the office building and a number were observed entering on camera during the survey.

July 15th 2016 – this month the Artificial roost was not fully inspected internally as there were too many active bats. The weather during this month had on average been unseasonably poor.

The Bath House was wetter and damp in many areas where it often dryer at this time of the year, only 3 bats were found present, 2 in main cupboard and 1 in main large room. The Bechstein's had returned and was in the toilets.

One natterers was present in the main roof of the Canteen building.

A total of 18 LHB were found in the office, 13 along the ridge of the main roof and 5 in rear roof, most were active, no bats were present in the drying room.

At the end of the survey 43 adults were in the Artificial roost, there were 51 pups in the back of the roof, 35 in the hotbox and 2 in main roof. The Office had one adult and two pups present.

August 15th 2016 – this month the Artificial roost was not fully inspected internally as there were too many active bats.

The Bath House was drier than the previous month. Only 16 bats were found present, 3 LHB in main large room and 11 LHB in the main cupboard. The Bechstein's had returned and was in the toilets and a BLEB was present in the electrics room. One LHB had a ring on it.

One natterers was present in the main roof of the Canteen building.

Approximately 23 LHB were found in the office as many were flying, 1 along the ridge of the main roof and approx. 18 in rear roof, most were active, 4 flying bats were present in the drying room. One LHB had a ring on it. One BLEB was present in the rear roof.

At the end of the survey only 2 bats were present in the Artificial roost, one adult and one pup. There were no bats present in the office.

September 15th 2016 – this month the Artificial roost was not fully inspected internally as there were too many active bats.

The Bath House was much wetter than the previous month, especially in the south-western area. Only 5 bats were found present, 4 LHB in main cupboard and a BLEB was present in the electrics room. The Bechstein's was not present, but this room was damp with condensation on the ceiling

No bats were present in the Canteen building

Approximately 20 LHB were found in the office as many were flying, 2 along the ridge of the main roof and approx. 8 in rear roof, most were active, 12 torpid bats were present in the drying room.

At the end of the survey only 1 bat was present in the office, but there were 30 bats present in the artificial roost that did not leave.

October 18th 2016 – this month the Artificial roost was inspected and counted from a daytime inspection as most bats were in torpor. The small rom had 35, 2 in the stairs, 99 in the large room making 136 downstairs in total. There were 52 upstairs, 42 in the hot box and 44 to the rear, although most in the hot box were roosting low/below the heaters.

The Bath House was again wet, there were only three bats observed all LHB, one in the main cupboard, one in the eastern tile room and one behind the boarded door to the east.

Only 7 bats were in the office, all present in the drying room.

No bats were present in the Canteen building

November 17th 2016 – this month the Artificial roost was inspected and counted from a daytime inspection as bats were in torpor. The small rom had 47, 3 in the stairs and 75 in the large room making 125 downstairs in total. There were 72 upstairs, 28 in the hot box and 24 to the rear and 20 in the main roof area, a higher number upstairs than the previous month.

During the inspection, which included downloading data loggers, it was identified that the heaters were not on and had been switched off at the mains.

The Bath House was again wet, there were only three bats observed all LHB, no bats were in the main cupboard. One in the east hallway, one on east door and one in the eastern cupboard.

There were 10 bats in the office, two BLEB were in the main roof, the remaining 8 were all LHB, three in the rear roof and 5 in the drying room.

No bats were present in the woodland shed Canteen building

December 16th 2016 – By December the numbers of bats in the artificial roost had diminished notably to only 53 individuals. Downstairs the small room had 13, with 5 in the stairs and 22 in the main room, as well as three dead juveniles, two in water which has only been seen once before.

Upstairs there were only 13, 5 in the main roof and 4 in the hot box and rear roof area.

The office had only 4 LHB, two in each roof area and no bats were identified in the canteen or woodland shed.

The bath house was not accessible and could not be surveyed due to health and Safety restrictions.

3.2 The results of the internal counts are shown in table 1, note that the Artificial roost was not internally counted on all months due to the very high number of bats present during this time which would be very disturbing, as well as the inaccuracy of this survey method with such high numbers of active bats present, therefore for these months there is no total. The emergence survey results are shown in table 2.

Table 1 – 2016 internal counts

Building	Area	January 19th	February 18th	March 15th	April 18th	May 11th	June 20th	July 15th	August 15th	September 15th	October 18th	November 17th	December 16th
Artificial roost	small room+stairs	11	16	17	23	N/A	N/A	N/A	N/A	N/A	37	50	18
	large ground	36	33	65	120	N/A	N/A	N/A	N/A	N/A	99	75	22
	upstairs	8	5	5	8	N/A	N/A	N/A	N/A	N/A	138	72	13
Shed opposite	Artificial roost	0	0	0	0	0	0	0	1	0	0	0	0
Office	main roof	p.pip	0	1BLEB	2	2+pip	11	13	1	2	0	2 BLEB	2
	second roof	0	0	1	2	2	9+1BLEB	5	>18	8	0	3	2
	storage room	0	0	3	16	2	1	0	4	12	7	5	0
Canteen		M.n	0	0	2	1	0	M.n	M.n	0	0	0	0
Bath house		0	1	2	6	8	3	3+M.b	14+M.b+B LE	4+BLE	3	3	NA
Total LHB		55	54	94	179	NA	NA	NA	NA	NA	284	208	57

BLEB-Brown Long-eared bats, M.b – Bechstein’s, R.F - Greater Horseshoe, P.pip – Common Pipistrelle , Bat – unidentified species

Table 2 - Emergence survey counts 2016

	11th May	20th June	15th July	15th August	15th September
1-artificial roost	233	453	498	551	412
2-roller door, office	2	3	6	11	8
3-dormer, office	4	11	12	37	19
4-east hole, bath house	N/A	N/A	N/A	N/A	N/A
5-south east hole,bath house	N/A	N/A	N/A	N/A	N/A
6-west holes, bath house	N/A	N/A	N/A	N/A	N/A
Total	239	467	516	599	439

- 3.3 During 2016 the emergence surveys were only conducted from May to September, this was since both April and October were notably cool and so bats were in torpor within the artificial roost and could therefore be successfully counted during a daytime inspection.
- 3.4 During 2016 emergence surveys were not conducted of the Bath House, the surveys during the previous years had only ever identified low numbers of bats present within the bath house and as such it was considered accurate more accurate to count the bats during the daytime than emergence surveys when not all emergence points were visible.
- 3.5 The total peak counts of Lesser Horseshoe bats using each building and the total for the site is shown in table 3. Generally the number of bats present using the Northern United buildings is low, especially during the hibernation period where there is only the very odd individual present. The bottom of table three shows the percentages of the number of bats identified each month using the two main buildings on the Northern United site, the Office and the Bath House.

Table 3

Total Lesser horseshoe only counts for each building 2016

	January	February	March	April	May	June	July	August	September	October	November	December
Artificial roost	55	54	87	151	233	453	498	551	412	274	197	53
Shed oposite	0	0	0	0	0	0	0	1	0	0	0	0
Office	0	0	4	20	6	21	18	48	19	7	8	4
Canteen	0	0	0	2	1	0	0	0	0	0	0	0
Bath House	0	1	2	6	8	3	3	14	4	3	3	
Peak Total	55	55	93	179	248	477	519	614	435	284	208	57

% LHB in Bath House	0.0%	1.8%	2.2%	3.4%	3.2%	0.6%	0.6%	2.3%	0.9%	1.1%	1.4%	0.0%
% LHB in Office	0.0%	0.0%	4.3%	11.2%	2.4%	4.4%	3.5%	7.8%	4.4%	2.5%	3.8%	7.0%

4 Constraints/Limitations

- 4.1 The bath house has several potential access points for lesser horseshoe bats, and more for other species, however, many of these are not visible from the ground and are not safe to access, such as the collapsed roof, for this reason there is a good chance that bats may emerge from this building unrecorded, however the main emergence points are monitored.
- 4.2 The bat numbers on the site fluctuate notably, not only throughout the seasons but can change notably from one month to the next, and, it is believed from one day to the next. Each survey only acts as a snapshot in time and gives an indication of the numbers of bats using the site, however, numbers present may fluctuate daily with bats moving to other sites.

5 Discussion

- 5.1 The counts in summer of 2016 are again notably higher than the previous year. The 2016 surveys have identified a new colony maximum recorded population of 614 up from 555 individuals in 2015 and 432 in 2014.
- 6.1 The peak count is just over 10% higher than the count in 2015, even though 2016 was considered a poor breeding year and in many area counts were lower.
- 6.2 The number of bats using all the Northern United buildings has remained notably low over the 2016 season. Although the peak was 62 bats in August this was only 10% of the colony and the highest proportion recorded throughout the year was in April, a transient month, when 28 bats represented 14.6% of the colony.
- 6.3 The use of the bath house has remained very low, with more than 10 bats being identified present on only one occasion when 14 individuals were present in August. The bath house has continued to be used by other species including Brown long-eared and the Bechstein's bat consistently using this building in later summer.
- 6.4 The canteen and office building have regularly been identified as being used by other species, with a natterers bat, Brown long eared and Common Pipistrelle bats identified present.
- 6.5 During the last year (January 2016 – December 2016) the average percentage of the colony using the Northern united buildings was 5.73%, slightly down from 5.9% in 2015 which is demonstrating that the use of these buildings is consistently low by the colony.
- 6.6 The artificial roost is still by far the main roost site and the vast majority of bats on the site are using this building and as an average over 94% of bats are using this one building over the last year. This is also the main building on the site used by hibernating bats with very few bats ever found using any other buildings.