2014-03(08)

30th September 2016

Ms L Steele
Framptons
42 North Bar Street
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Dear Ms. Steele

Re: Update of bat hibernation checks at Coventry Stadium, Warwickshire

This letter details the additional survey work and results that followed on from the recommendations within the Bat Assessment Report for Coventry Stadium by Ecolocation (9th December 2014 - Revision A) to undertake hibernation checks of the site in January and February.

The aim of these surveys was to determine whether any hibernating bats were present in building 4 and if so, what species were present, their numbers, and how the development might impact them. If bat roosts were present, outline mitigation would also be described.

Methodology

Three detailed assessments of the stadium were undertaken by Anna Swift (Bat survey Level 2 No:01296) and Casey Griffin (Bat Survey Level 1 No. 2015-15623) during the peak season for hibernating bats, on 11th January 2016, 19th February 2016 and 8th March 2016. The area of focus was the grandstand (building 4) that had a number of gaps between blocks in the ceiling, which were assumed to afford bats access to a void above.

A search for the following was undertaken of the grandstand area, particularly its blockwork ceiling:

- ***Live or dead bats*** - live bats could be tucked away in a crevice between the blocks (depending on the bat species)
- ***Droppings*** - bat droppings will crumble when rubbed between your fingers (unlike those of small rodents such as mice and voles, which are typically hard and solid). Also bat droppings are often found in places where rodent droppings are not, such as stuck to walls or caught in cobwebs
- ***Feeding remains*** - these typically include the discarded wings of butterflies (such as peacock and tortoiseshell) and moth (such as noctuid species). An accumulation of such wings may be present under a well-used feeding perch and would often indicate the presence of brown long-eared or horseshoe bats, which typically leave such remains
- ***Absence of cobwebs*** - a roof void that is free of cobwebs could indicate animals, such as bats or even birds flying around in this space
- ***Oil staining*** - the fur of bats may leave an oily residue on areas around a well-used access point to a roost
- ***Smell*** – some bat species, such as soprano pipistrelle or Noctule have an identifiable smell

The use of ladders, binoculars, a million candle power torch and a See Snake endoscope were utilised. This void was not able to be investigated in great detail with an endoscope as whilst the gaps between the blocks can be investigated, the

endoscope cannot then bend 90º to look on top of the blocks. Also, it was estimated that there were close to 1000 crevices in which bats could gain access to potential roosting opportunities for hibernation.

In addition to the daytime inspection, two static bat detectors (SM2 and SM2+) were deployed at the site and left in place for a period of 2-3 weeks from the date of each inspection. Such detectors monitor the external temperature and will record the echolocation sounds of any bat species that passes, in order to gauge bat activity levels at the site. Should any bat activity be recorded, it will likely be from a bat that has woken briefly from hibernation in order to forage. Whilst this alone is not sufficient to confirm presence/absence of hibernating bats, it is a useful tool that can corroborate other findings.

Results

Weather conditions during the inspection

Parameter	*Recorded Figure 11th January 2016*	*Recorded Figure 19th February 2016*	*Recorded Figure 8th March 2016*
Temperature	*4ºC*	*5ºC*	*7ºC*
Cloud cover	*40%*	*10%*	*60%*
Precipitation	*0*	*0*	*0*
Wind speed (Beaufort Scale)	*3 -Gentle breeze*	*1 - Light air*	*2 - Light breeze*

Inspection results

January 2016

The inspection of the grandstand in January 2016 revealed a collection of *c*20 bat droppings on top of a brick wall in the ladies toilets of building 4. The droppings were small in size and appeared to be relatively fresh - either from recent weeks or the preceding autumn. A number of discarded butterfly wings were also noted on the floor below this roosting location as well as loosely scattered on the floor of the ladies toilets. It should be noted that this roost was not recorded during any of the previous bat inspections or bat activity surveys at the site during 2014.

The roost in building 5 could not be accessed again in January and February 2016 as the door was locked with no key available, although it was noted that some re-pointing of the top of the walls had taken place and it was not clear whether this directly impacted the roosting location of the bats or not.

Location of bat roost on top of wall in ladies toilets in building 4

Location of discarded noctuid wings on wall of ladies toilets in building 4

February 2016

In the time between collecting the static bat detectors on 4th February 2016 and re-visiting for the second inspection on 19th February 2016, further evidence of bats was noted. This time it was located outside the entrance to the ladies toilets in building 4 and broadly beneath gaps between blocks in the ceiling, where the original hibernation potential was noted. These droppings were fresh and a similar size to those found in the ladies toilets.

The location of these droppings was in a corridor that is open to the elements at either end and, as such, is subject to being blown about by the wind. As such, it is difficult to say with absolute clarity that the droppings were from a bat roosting in the gaps/void in the blockwork ceiling, although a precautionary interpretation would suggest this was the case.

Blockwork ceiling in corridor of building 4

Roosting opportunities above bat dropping location in corridor of building 4

March 2016

In the time between the February and March inspections, the floor of the ladies toilets had been swept, yet on 8th March, 15 fresh bat droppings were noted stuck to the wall and scattered on the floor in this room. These were all noted to be rather small in size. A sample was collected and sent off to Warwick University for DNA analysis. This returned a result of brown long-eared bats (see certificate enclosed). The small size of the droppings was rather surprising but it is postulated that this may be due to the bat(s) eating less at this time of year and/or eating different prey items. Swift (1991) notes that brown long-eared bats typically roost in crevices but may also be found roosting on walls. In this case, the hibernation roost of a single or low numbers of brown long-eared bats was considered to be on top of the wall in the far corner of the ladies toilets within building 4 (much like the location common pipistrelle were roosting in building 5 during the summer months).

In addition to this, two medium sized droppings were noted outside the ladies toilets in the corridor directly beneath gaps in the blockwork ceiling. This was in the same place as was noted during the February inspection. A sample was collected and sent off to Warwick University for DNA analysis; however, the DNA analysis of this sample failed (see certificate enclosed). Such failure is most likely due to degradation of the DNA from the dropping getting damp or wet as it was located in the open corridor by the ladies toilets in building 4, which is open to the elements.

Static bat detectors

These were left in place from:

- 11th January - 4th February (occasionally removed on weekends due to use of the stadium grandstand for spectators of the greyhound racing)
- 19th February - 8th March

Weather conditions

The weather conditions at the site were monitored over these periods and were generally noted to be between 2ºC and 12ºC. The average temperature over this period was 8.3ºC, with the highest recorded temperature being 14ºC, the lowest being -4ºC (on one of only a handful of frosty nights); whilst on 21st February the evening temperature was as high as 10ºC.

Static bat detector results

The results of the static bat detectors were nil - they did not detect a single bat pass all the while they were deployed at the site. This is despite some apparently milder temperatures in which you might expect a hibernating bat to wake and feed.

Discussion and conclusion

The results of the bat hibernation check indicate the presence of a small hibernation roost of brown long-eared bats roosting on top of the wall in the ladies toilet in building 4, and a probable small hibernation roost of an undetermined bat species (likely brown long-eared given the proximity of the other hibernation roost knowledge of bat species using the site) using the void in the blockwork ceiling of the grandstand. Unfortunately, it appears that this bat activity took place during the period when the static bat detectors were not in place at the site, although the DNA analysis was at least able to confirm the species.

There were significant limitations with the surveying effort which should be noted. The sheer extent of the crevices in the blockwork ceiling meant that full inspection with an endoscope was not possible without a destructive search. It was also not possible to deploy bat detectors at the site indefinitely as the stadium was in use on weekends with crowds of spectators using the grandstand in question. In addition to this, the use of surveyors and activity surveys was not an option as it cannot be predicted when a bat may wake from hibernation to feed, as such, one may conduct dusk activity surveys on 20 consecutive nights to find no bat activity, but this does not prove absence. Also, it is not a cost-effective option. Finally, the construction of the grandstand was very much open to the elements and there is a significant risk that low numbers of bat droppings would easily be blown away. Consequently, a combination of daytime inspections and the use of static bat detectors was considered appropriate.

These results indicate that the demolition of building 4 would result in the loss of 2 x hibernation roosts of low numbers of a common bat species. As such, a bat mitigation licence application must be made to Natural England and this must be informed by more detailed and up-to-date hibernation surveys of building 4, as well as surveys in autumn to check for mating roosts. The bat licence from Natural England must be in place prior to any disturbing works to building 4 (notwithstanding the presence of summer bat roosts in other buildings at the site). Nevertheless, at this stage, the bat hibernation mitigation, compensation and enhancement strategy provided within the Bat Assessment Report for Brandon Stadium by Ecolocation (9th December 2014 - Revision A) remains appropriate. This is reiterated below for ease.

Recommendations

- The loss of hibernation opportunities for roosting bats can be mitigated for via the provision of a dedicated bat hibernacula, the location of which is suggested within the woodland strip to be unaffected by the proposed development. The precise location of this would be agreed with the arboriculturalist to minimise any damage to significant trees, but is specifically suggested to be located here as it would be shaded on all sides by trees ensuring that it does not receive direct sunlight which could result in the internal temperature of the hibernacula being too warm. The bat hibernacula should take the form of a structure of minimum footprint 5m x 5m with thick walls of brick or stone that are enclosed (although access for bats could be provided via a grille opening on a door that was only accessible to a licensed bat worker for monitoring purposes). The building would be enclosed (i.e. not open-sided) and it would need no separate loft space as crevices would be created on the ground floor of the hibernacula within the walls and via the addition of Norfolk bat bricks (suitable for use by hibernating bats) - see enclosed information. The roof of the hibernacula should be of a design that would allow for a range of temperature levels within the building between 0ºC and 10ºC and to encourage humidity levels to be high (around 90% is ideal). A bare earth floor and locating the hibernacula partially underground will all help to achieve this.

- See Norfolk Bat Group info sheet on bat hibernacula and Norfolk bat bricks attached.

- Updated bat mating roost and hibernation checks of buildings 4 and 5 will be required in the periods September-October and November-February immediately preceding a bat licence application. This should involve a combination of regular daytime inspections, the use of static bat detectors and consider whether the use of thermal imaging equipment may be appropriate. Such updated and detailed survey information will be necessary to inform a bat licence application to Natural England in advance of any disturbing works.

Yours sincerely,

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