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Bat Survey

Trapping Survey Report of Results 2018

Binsted Woods MAVES Group

Arundel

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16-012-BS
2018

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1 Introduction

- 1.1 This Bat survey and report has been carried out and prepared by Daniel Whitby of AEWCLtd, a Natural England Licensed bat worker, and was commissioned by the Mid Arun Valley Environmental Surveys (MAVES Group) to conduct advanced bat surveys throughout the survey area.
- 1.2 The survey involved conducting trapping using a number of advanced bat survey techniques. These included trapping surveys across the site with an acoustic lure playing a range of species' social calls to trap bats present on the site to identify species, sex and breeding status.
- 1.3 This report represents only the results of surveys from 2018. Additional surveys have been conducted in 2016 and 2017.

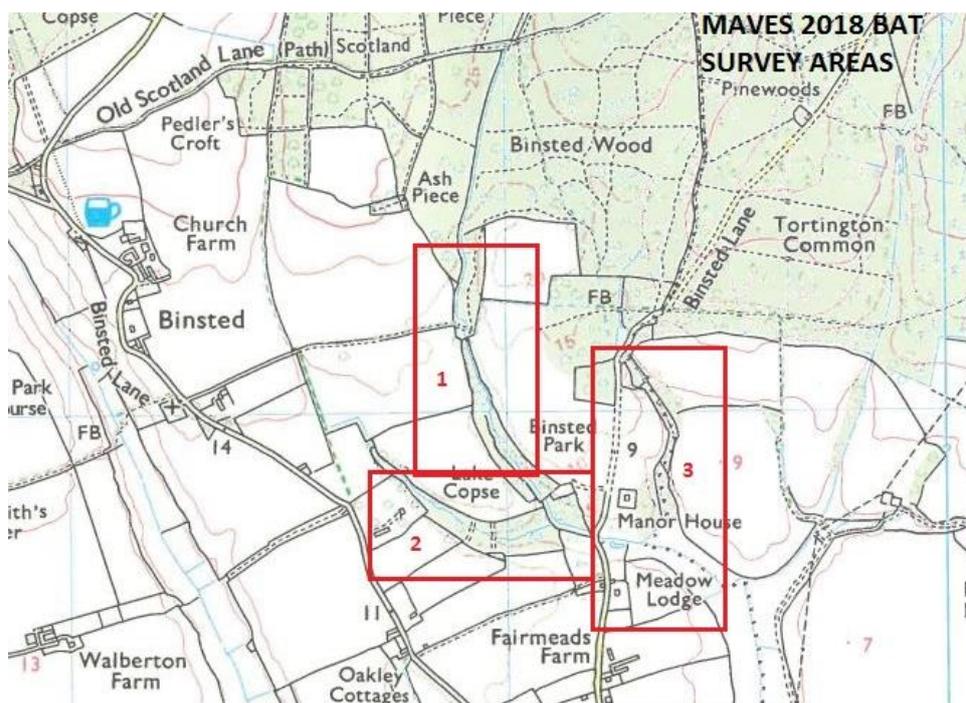
2 Background

- 2.1 Binsted is a small village to the west of Arundel just south of the A27. The MAVES group have commissioned a baseline bat survey, to include any roost locating of any notable rare species as part of a suite of surveys to inform on species present in the local area.
- 2.2 The area comprises farmland including arable, pasture and hay meadows, as well as a large block of mixed woodland and plantation, including some ancient parkland and mature oak woodland. For a full description of the site a Phase 1 survey should be consulted.
- 2.3 The local area is known to be good for bats, extensive surveys have been conducted at Slindon National Trust estate over a number of years to identify the species present and study the Barbastelle colony discovered there.
- 2.4 There are historical records of bats from Binsted Wood in the record centre, these include common pipistrelle, serotine, noctule, Natterer's and brown long-eared. However, all of the records for all species have the same grid reference even when years apart, and there is no information provided on how these records were obtained, how they were recorded or how many bats were present and so cannot be considered accurate.
- 2.5 Surveys were conducted on the site in 2016/17 which identified 13 species present, making this a highly diverse site for bats. Eight of these species were confirmed to be breeding populations with breeding females or juveniles caught on the site. This included Alcahloe and Bechstein's which were identified through radiotracking to have maternity colonies present roosting within trees within the woodland. A nonbreeding Barbastelle female was also found roosting within the woodland.
- 2.6 Species list for Binsted Wood confirmed in 2016/17 trapping surveys:
 - Barbastelle – *Barbastella barbastellus*
 - Alcahloe bat – *Myotis alcahloe*

- Bechstein's bat – *Myotis bechsteinii*
- Brandt's bat – *Myotis brandtii*
- Daubenton's bat – *Myotis daubentonii*
- Natterer's bat – *Myotis nattereri*
- Whiskered bat – *Myotis mystacinus*
- Long-eared bat, Brown – *Plecotus auritus*
- Nathusius' pipistrelle – *Pipistrellus nathusii*
- Pipistrelle, Common – *Pipistrellus pipistrellus*
- Pipistrelle, Soprano – *Pipistrellus pygmaeus*
- Noctule – *Nyctalus noctula*
- Serotine – *Eptesicus serotinus*

3 Method

- 3.1 To accurately identify potential impacts a proposed road may have on any bats, or population/colony present locally, notably any rare species such as Barbastelle, it is important to identify the sex and breeding status of individuals to inform on the presence, potential presence of a breeding population, or local maternity colony that could be impacted.
- 3.2 In order to identify the species present, as well as the sex and breeding status of individuals, trapping surveys were undertaken, as the only survey method capable of obtaining this information.
- 3.3 During 2018, trapping was requested for specific areas, notably Hundred House Copse, southern end of Spinning Wheel Copse and The Shaw (1), Lake Copse (2) and The Lag (3). See plan 1



Plan 1 – showing new 2018 bat survey areas

- 3.4 The whole site was assessed during daylight hours for the surveyor to familiarise with the site and identify areas of potential high bat activity and suitable access. Different habitats and features throughout the site were evaluated and assessed for their importance and the potential for different species which could be present to be surveyed for.
- 3.5 Acoustic surveys conducted earlier in 2018 had identified higher numbers of Barbastelle passes in April and May around two small ancient woodlands, along the eastern and western ends of the proposed route.
- 3.6 Trapping surveys were conducted using Harp traps and Mist nets to trap bats, where suitable this was accompanied with a sonic lure (Sussex Autobat or Binary Acoustic Technology AT100) to attract any bats foraging in the area using a range of bat species' social calls. This can increase the detection rate of quiet whispering species, such as Barbastelle and long-eared bats, which can be under-recorded on detector surveys.
- 3.7 The sonic lures used were Sussex Autobat with accompanying amplifiers and BAT AT 100 lures. These are tried and tested lures suitable for these species and surveys. While a range of social calls were used, which can attract a range of species, predominantly rare species bat calls were used over other species calls as the main target species.
- 3.8 Trapping was conducted from dusk, to just before dawn, unless otherwise stated and cancelled early. All traps were checked regularly, to ensure no bats were trapped for extended periods. All bats caught were identified accurately to species level, sexed, aged and reproductive status ascertained. All bats were released at the capture site on the same night of capture.
- 3.9 Identifying the location of maternity roosts can only be accomplished by radio tracking. If any notably rare species were caught then these could be tagged to identify the location of maternity roosts. Radio tags (Biotrack UK) were fixed to a bat using a latex based adhesive (Torbot bonding cement)
- 3.10 Emergence surveys were conducted using professional night vision video cameras with IR illuminators to accurately identify and record bats emerging where possible to do so. This enabled accurate roost counts of visible roosts.

4 Constraints

- 4.1 Bats are some of the most difficult species to locate, identify and study. They cannot be easily identified in flight and nocturnal activity means that they cannot be easily visually observed to identify behaviours and movements.
- 4.2 Many species have very similar echolocation calls making accurate species identification from acoustic surveys difficult, especially for cryptic groups like Myotis bats. Different amplitude of species calls dramatically under or over identify the

presence of some species, resulting in a very biased survey technique and commonly missing identifying presence of some species.

- 4.3 Trapping surveys can improve data gathering by confirming species identification, sex and breeding status but trapping is more difficult and specialist. Bats are difficult to locate in foraging habitat and difficult to catch especially in large, exposed open areas. Different species may also forage in different habitats throughout the year according to the availability of their preferred prey and particular weather conditions, changing foraging habits in light rain and fog.
- 4.4 By their nature, rare species are difficult to catch, especially ones that have large, wide-ranging foraging areas. Trapping can be improved via use of an ultrasonic lure to target specific species, but no surveys can be used as confirmation of absence.
- 4.5 Much of the survey area is not easily accessible, some of the site is unmanaged and there is not vehicle access through the woodland, making access or setting up of trapping equipment prohibitive in some areas, as a result trapping was restricted to accessible areas with suitable trapping locations.

5 Results

- 5.1 A total of three trapping nights were conducted on 26th May, 29th July and 1st August 2018. One trapping survey was conducted in May in Hundred Acre Wood, and two surveys in July/August in the more southern areas of the site, Lake Copse, The Shaw and The Lag.
- 5.2 The trapping surveys caught a total of 53 bats of nine species –
- Alcathoe bat – *Myotis alcathoe*
 - Bechstein's bat – *Myotis bechsteinii*
 - Brandt's bat – *Myotis brandtii*
 - Daubenton's bat – *Myotis daubentonii*
 - Natterer's bat – *Myotis nattereri*
 - Whiskered bat – *Myotis mystacinus*
 - Long-eared bat, Brown – *Plecotus auritus*
 - Pipistrelle, Common – *Pipistrellus pipistrellus*
 - Pipistrelle, Soprano – *Pipistrellus pygmaeus*



Plan 3 – showing trap locations in southern area of the site

May 26th

- 5.3 Weather conditions were suboptimal. While it was a warm and clear evening with a stiff breeze, un-forecast rain started during the evening with a large distant thunderstorm. There was a notably heavier shower around 2300hrs and from midnight it was clear.
- 5.4 Only 11 bats were caught, which is unsurprising given the heavy rain shower. The most common bat caught was brown long-eared. One single male Natterer's, whiskered and Brandt's were caught and a single female Alcahoie that appeared pregnant. This bat was un-ringed however the bald patch on its back showed that it had been very recently tagged (within the last few weeks) and so couldn't be tagged.

July 29th

- 5.5 Weather was okay, a heavy rain shower during the day until 6-7pm was heavier and later than forecast. The evening was dry and warm, overcast with 100%CC and gusty winds in some areas, although trapping is mostly in sheltered areas.
- 5.6 A total of 25 bats were caught, these were mostly pipistrelle bats and again a good number of long-eared bats with six caught, of which four were juveniles. A single juvenile male Bechstein's was caught.

August 1st

- 5.7 Weather conditions were partly suboptimal. The start of the evening was clear, still and warm and conditions were suitable, however the temperature dropped quickly which was not forecast. This may in part be due to local topography and microclimatic conditions but the temperature had dropped to below 10°C by midnight, and at 0100hrs the forecast was 15°C and the local temperature was 8°C and trapping was packed up early as per trapping conditions.
- 5.8 Only 17 bats were caught which is considered low, but not unexpected given the colder weather conditions. Notably very few pipistrelle species were caught, when compared to the trapping results of only three days earlier, likely due to the colder weather. A number of Natterer's were caught, mostly adult females and juveniles, and four of these were in one net, indicating that there may be a maternity roost in the local area, or this may be on a flight line for this species.

6 Conclusions

- 6.1 These 2018 bat surveys build on the data collected in the 2016 and 2017 surveys, however it must still be noted that the survey area is very large, with complex habitats. This includes the large main block of woodland with a variety of habitat within this, from ancient woodland to modern non-native plantations, smaller copses, wet areas, streams and farmland over a large area. The survey effort for this area, especially given all the species identified present and habitats, is considered to be very low and greater survey effort may identify more species in different areas, and presence of more breeding species.
- 6.2 The survey area for 2018 is additionally very small, and predominantly a more separate copse and woodland corridors to the south of the main woodland block. Surveys should ideally be conducted once per month, and at least three times in each area to inform on use by bats, however this survey effort is beyond the scope of this study.
- 6.3 The surveys in 2018 have trapped nine species from the smaller survey areas, with the total number of species confirmed on the site being 13. While the trapping rates were slightly lower in 2018 to previous years there are a number of potential reasons for this. The survey area is notably smaller and not part of the larger main block of woodland. Additionally, microclimates may play a part, the trapping corridors are in a lower part of the site and more notably on the last night trapping this acted as a cold sink and became much colder and damp, much more so than the surrounding areas.
- 6.4 No bats were tagged in 2018, and so no new roosts were identified, or emergence counts conducted. This was in part due to bats of the same species having been currently tagged by other researchers on the site, and so tagging the same species at the same time should be avoided, and that bats caught were either underweight or unsuitable (e.g. juveniles) or individuals that had already been tagged by other individuals.

- 6.5 The data collected by surveys conducted on behalf of Highways England is believed to be notable, including the roosts and colonies for a number of species locally, including Alcatheo, Bechstein's and Barbastelle.
- 6.6 It is understood that a Barbastelle that was tagged locally was radio tracked to be roosting in Slindon Estate, where a colony is known to use as an important roosting area. It is also understood that a tagged Barbastelle was roosting within the Binsted area indicating that this area is also used by the same colony and that connectivity between these areas is important. Precise details on the surveys and findings would be required to identify this.
- 6.7 These surveys of the site continue to clearly show that this is an important area for bats, with two Annex II species present and several other rare or threatened species, including the recently discovered Alcatheo bat, showing that this is clearly an area of high bat diversity. Bats can be used as indicators of biodiversity, accounting for over 1/3 of all native mammal species. The number of bat species found present in Binsted clearly demonstrates how important this area is with a rich bat fauna.

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