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Bat Survey

Trapping Survey

Binsted Woods

MAVES Group

Arundel

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16-012-BS
2016

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1 Introduction

- 1.1 This Bat survey and report has been carried out and prepared by Daniel Whitby, an English Nature Licensed bat worker. The survey involved using 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.
- 1.2 The objective of this survey was to conduct an initial baseline survey to indicate the species assemblages, however particular interest was aimed at identifying any notably rare species and if necessary radio tagging to identify roost locations of any notably rare species to inform on roost location and hence the site importance.

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 includes 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 records of bats from Binsted wood in the record centre, these include Common Pipistrelle, Serotine, Noctule, Natterers and Brown long-eared. However, all of the records have the same grid reference even when years apart for all species 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.

3 Method

- 3.1 The 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 of different species which could be present to be surveyed for.
- 3.2 The night trapping surveys were conducted on the 31st July and 18th August 2016 a time of the year when bats are active and are most likely to be found foraging on the site.

- 3.3 The survey involved catching bats using harp traps and Mist nets, with a sonic lure (Autobat) 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, which can be under recorded on detector surveys. All bats were identified, sexed and reproductive status ascertained. All bats were released at the capture site on same night of capture.
- 3.4 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)
- 3.5 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 difficult to locate and identify, they cannot be easily identified in flight and many species have very similar echolocation calls making accurate species identification difficult, especially for cryptic groups like Myotis bats, trapping can improve species ID and sex and breeding status but trapping is more difficult.
- 4.2 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.
- 4.3 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 The two trapping species caught a total of 48 bats of 12* species. However in addition to this Noctule bats were also heard early in the evening confirming presence on the site. Some species can be highly cryptic, notably the small myotis so species should be taken as an indication and confirmed through DNA. (*Suspect species waiting DNA)

5.2 Species list for Binsted woods

- Barbastelle – *Barbastella barbastellus*
- Alcaholic 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*
- Nathusius' pipistrelle – *Pipistrellus nathusii*
- Pipistrelle, Common – *Pipistrellus pipistrellus*
- Pipistrelle, Soprano – *Pipistrellus pygmaeus*
- Noctule – *Nyctalus noctula*
- Serotine – *Eptesicus serotinus*

5.3 **31st July** – the first trapping session involved a number of surveyors manning traps throughout the site. In total there were a total of 10 trap locations consisting of 8 harp traps and 4 mist nets. Traps were located throughout the site in different features including woodland edge, rides and woodland interior. The weather was good with it warm, light breeze and scattered clouds. Trapping was conducted from sunset until 4am. (See figure 1)

5.4 A total of 33 bats were caught during the survey of 10 species, additionally during the survey Noctule bats were seen and heard commuting high over the site early on during the survey, Serotine bats were observed commuting north up the woodland corridor along the western edge of Binsted Park and Common Pipistrelle bats were recorded on detector. This makes a total of 13 species identified.

Trap 1 – SU99200637 – Harp trap with lure – located in mature woodland with Oak
 1 – Female non breeder – Barbastelle – (Radotagged 2+ Ringed H4427)
 1 – Juvenile male – Bechstein's (Radiotagged 3)
 1 – Juvenile female – Soprano Pipistrelle
 1 – Male – Bechsteins
 1 – male – Brown Long-eared
 1 – Lactating – Bechstein's
 1 – Male – Brandt's bat*

Trap 2 – SU99150646 – Harp trap with lure – located in mature woodland

1 – Male – Daubenton's bat
 1 – Juvenile male – Soprano Pipistrelle
 1 – Male – Brown Long-eared
 1 – Lactating – Natterers
 1 – Nulliparous – Natterers

Trap 3 – SU99040647 - Harp trap with lure – located in mature woodland with Oak

1 – Parous – Brown Long-eared
 1 – Lactating – Brown Long-eared
 1 – Juvenile male – Bechstein's

Trap 4 – SU98920636 – Harp trap with lure within woodland

1 – Juvenile male – Daubenton's

Trap 5 – SU98890623 Harp trap with lure in woodland corridor

1 – Nulliparous – Soprano Pipistrelle
 1 – Post lactating – Alcathe bat

Trap 6 – SU98920619 – Harp trap with lure adjacent to track in woodland strip

1 – Juvenile male – Natterer's bat
 1 – Post lactating – Natterer's bat
 1 – male – Soprano Pipistrelle
 1 – Male – Daubenton's

Trap 7 – SU9893 0617 – mist net along track – no lure

1 – Juvenile female – Natterer's bat
 1 – Post lac – Whiskered bat*

Trap 8 – SU98930616 – Harp trap adjacent to track with lure

1 – Parous – Natterer's bat
 1 – juvenile female – Brown Long-eared
 1 – Lactating – Natterer's bat

Trap 9 – SU 99000600 – Triple high mist net with lure

1 – Juvenile female – Natterer's bat
 1 – Parous – Natterer's bat
 1 – Juvenile female – Natterer's bat
 1 – Make – Brown Long-eared
 1 – Male – Nathusius Pipistrelle (Ringed H4355)

Trap 10 – SU 98970599 – three mist nets together – no lure

1 – Nulliparous – Alcathe bat (Radiotagged 1)



Figure 1 – Showing distribution of traps on 31st July. (HT-Harp trap, MN-Mist Net, THMN – Triple high mist net)

- 5.5 **18th August** – the Second trapping session was concentrated in an eastern area of Binsted within and around Barns Copse or 100 acre wood. In total there were 5 traps used each with an ultrasonic lure. Weather conditions were good with it warm still and clear. Trapping was conducted from sunset to approximately 3am. (See figure 2)
- 5.6 A total of 15 bats were caught during the survey of 8 species, this included Common Pipistrelle and Serotine bats that were not caught during the previous survey.

Trap 11 – SU98150692 – Mist Net no lure, on corner of wood over track
1 – Male – Common Pipistrelle

Trap 12 – SU98020688 – Harp trap within woodland
1 – Juvenile female – Serotine (Radiotagged 4)
1 – Male – Brown Long-eared
1 – Parous – Soprano Pipistrelle
1 – Male – Natterer's bat

Trap 13 – SU97840694 – Harp trap within woodland
1 – Juvenile male – Soprano Pipistrelle
1 – Post lactating – Soprano Pipistrelle
1 – Juvenile male – Whiskered bat*
1 – Nulliparous – Brown Long-eared

Trap 14 – SU9776406786 – Harp trap within woodland

1 – Male – Natterer's bat

1 – Male – Soprano Pipistrelle

1 – Male – Soprano Pipistrelle

1 – Juvenile female – Brown Long-eared

1 – Juvenile male - Alcaethoe

Trap 15 – SU9777106680 – Harp trap within woodland

1 – Male – Brandt's bat*



Figure 2 – showing trap locations on 18th August

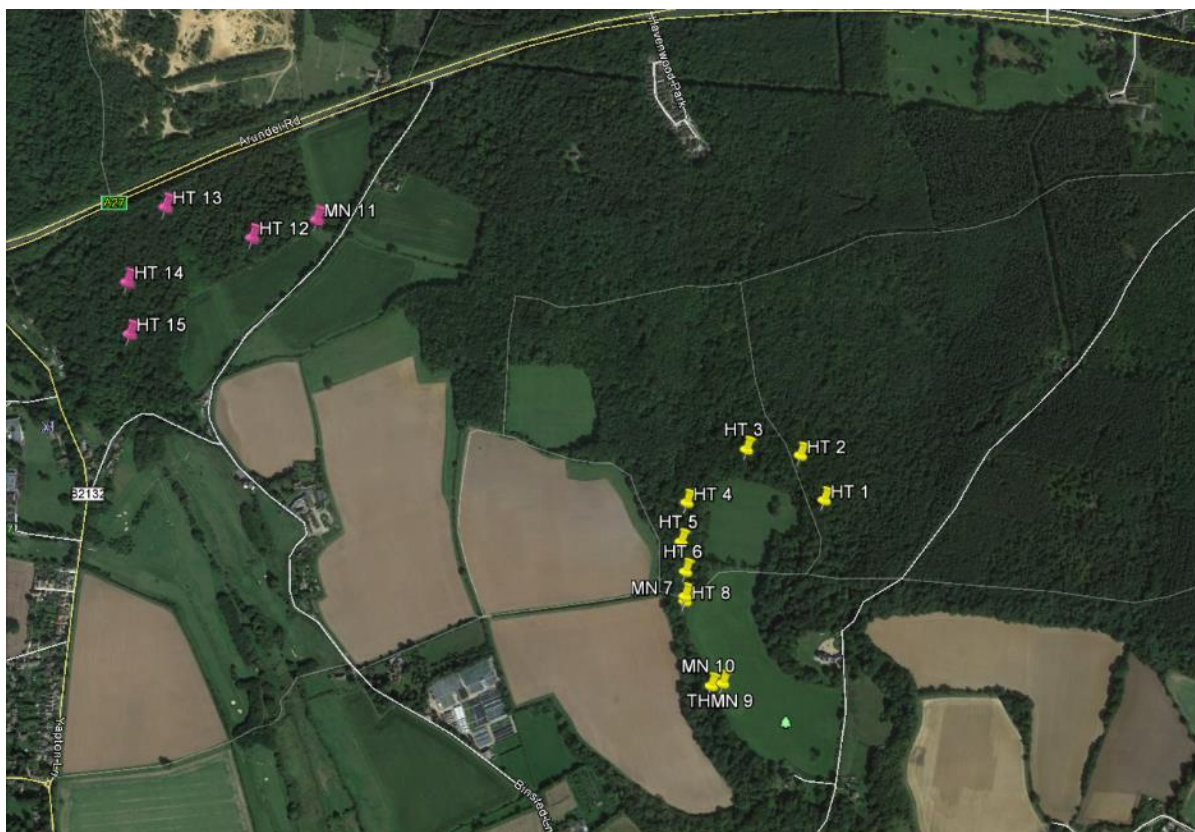


Figure 3 – showing trap locations from both nights throughout the site

Radiotracking

- 5.7 A total of four bats were radio tracked with the aim of identifying location of roosts, colonies and obtaining roost counts to try and confirm breeding colonies.
- 5.8 **Alcathoe bat** – this was tagged on the 31st July – this species was known to be present locally with both Males and a single non breeding female caught at Slindon estate approximately 5km North West.
- 5.9 The individual radio tagged was a non-breeding female which in itself does not indicate a maternity colony, however a post lactating female was also caught demonstrating bats are breeding in the area and increasing the chance that tagging this bat may find a colony.

1st August – the bat was followed after being tagged and was identified roosting in a tree SU98920649. Although only reached at dawn a low number of bats were seen active in the canopy area.

2nd August – the bat had moved roost and was identified at a new grid reference SU99280692. An emergence survey was conducted on this night, however weather conditions were unfavourable with gusty winds and the tagged bat did not emerge. Only one other bat was seen and this was not heard to confirm species. The bat was not present in the roost on the 3rd August and had moved to a new roost..

- 5.10 **Barbastelle bats** – this was tagged on the 31st July – this species is present locally with a maternity colony at Slindon approximately 4km NW.

5.11 The individual radio tagged was a non-breeding female which in itself does not indicate a maternity colony, however, a maternity colony is present locally and this individual was considered likely to return to this area both confirming use of this wood by that colony and informing other research.

1st August – the bat was followed after being tagged and was identified roosting high in the canopy at SU987906558. No other bats were seen active.

During the emergence survey the bat emerged unseen, only one other bat was seen and this was not a Barbastelle making it likely that this was a solitary roost location. The bat was not found using this roost again and was not heard, possibly from tag failure.

5.12 **Bechstein's bat** – this was tagged on the 31st July – this species is present locally, however only adult males have ever been caught on the Slindon estate approximately 4km NW.

5.13 The individual radio tagged was a juvenile, however this was fully grown and a good weight and should go back to a maternity colony. This bat was followed at dawn however it disappeared and the signal was lost.

1st August – the bat was searched for during the day and was located in an Oak tree approximately SU9977106159. A woodpecker hole was identified as the likely roost site however during emergence bats were identified emerging from a smaller feature lower down the tree and only 7 were observed.

2nd August – an additional emergence survey was conducted having enabled access to observe the roost feature fully and a total of 26 bats were observed emerge. The bat was confirmed using the same roost after tagging from the 1st to 6th August

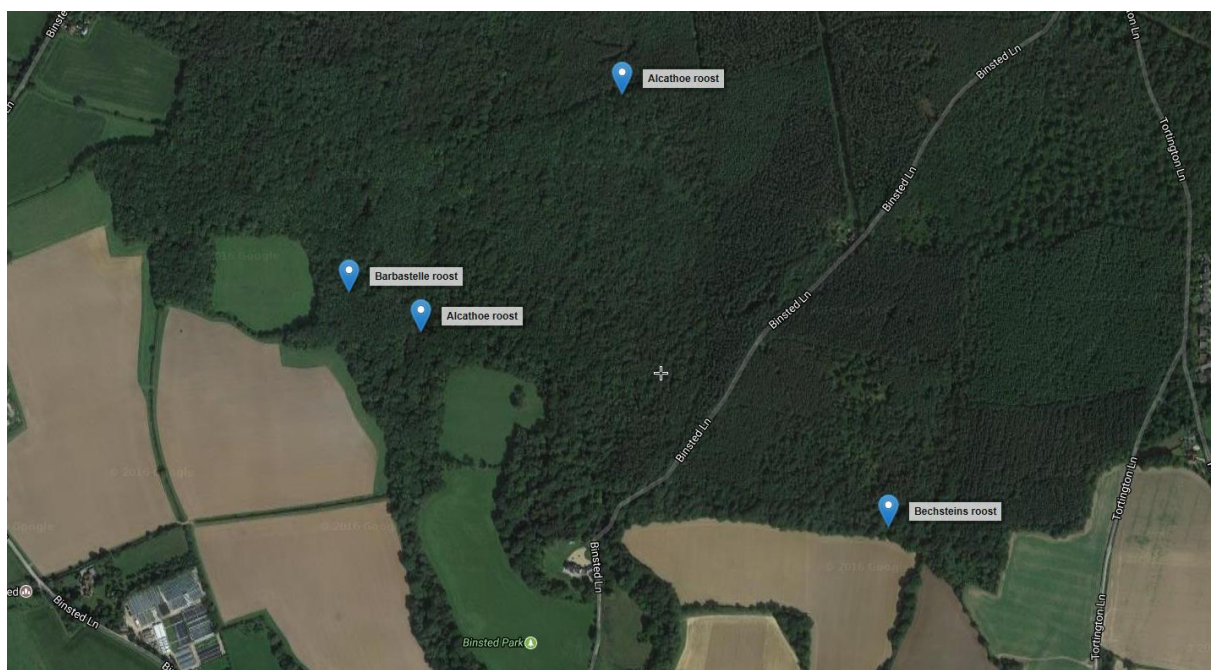


Figure 4 – showing roost locations for Alcathoe, Barbastelle and Bechstein's

5.14 **Serotine bat** – this was tagged on the 18th August – this species is present locally and a maternity roost is present at Slindon approximately 5km from the site. Several Serotine bats had been observed on the previous survey indicating this area is used regularly by a number of bats, potentially from the slindon colony.

At the end of the survey the bat was searched for and could not be found after disappearing in a westerly direction.

19th August – the bat was searched for covering the Slindon and 2km radius of Binsted wood, however no signal could be found.

21st August – the bat was searched for covering a wider area south and located approximately 3.5km South west from Binsted wood within a residential property (roost 1). The rear of the property was accessed with the owners in the evening and a good number of bats were observed emerge from the western end of the building confirming this as a maternity roost location. The owners report that bats are present throughout the summer using the building.

The bat was monitored for a number of days, from the 21st August to 1st September and identified that this moved roost regularly using a total of three roosts, with a 4th roost identified as being used by Serotine bats as well. All roosts were in buildings in close proximity (within 70m) to each other.

Roosts 1 and 2 were in two semi-detached properties. Most bats were observed roosting on the southern side of the building emerging from gaps under tiles.

Roost 3 had bats identified emerge from under roof tiles near the gable end.

Roost 4 had bats identified emerging from under tiles near the ridge on the southern hip end.



Figure 5 – showing the 3.3km distance from the trap site to roost locations.

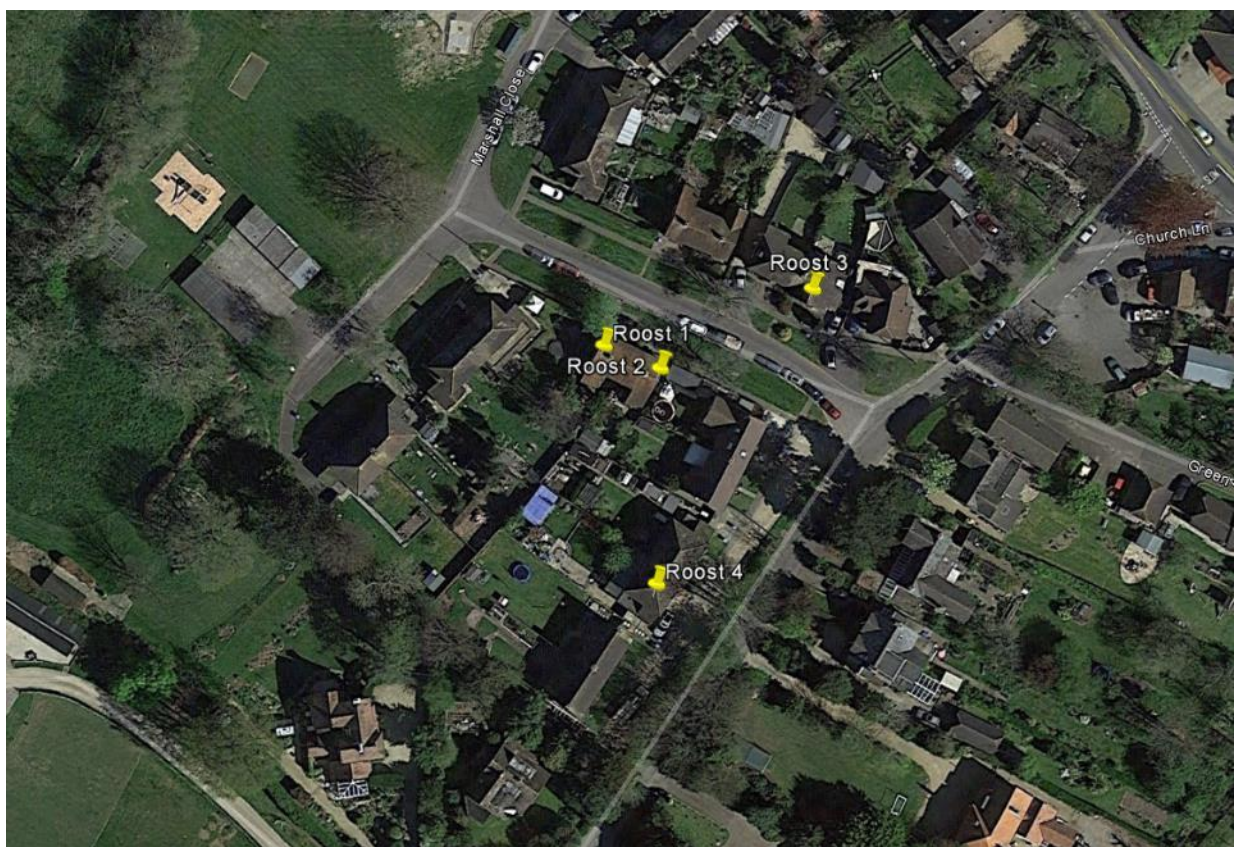


Figure 6 – showing the 4 roost location in Barnham

Dates – roosts – emergence counts conducted by surveyors, volunteers and home owners.

21st – Roost first identified. (roost 1)

22nd – Emergence survey identified bats emerging from more than one location, and bats seen commute past that did not emerge from the same roost indicating more roosts nearby. Bats also seen emerge from neighbour (roost 2)

23rd – Bat confirmed during day back in roost 1

24th – bat radio tracked to new roost, roost no 3.

25th – Roost 3

26th – Roost 3 and emergence count of 19 individuals

27th – Not checked

28th – Bat in roost 3 and emergence count of 12 bats and emergence count of 5 from roost 1 at same time.

29th – roost 3 and emergence of 12 bats

30th –

31st – Bat moved to new roost – roost 4 and minimum 4 bats emerge.

1st September – bat roosting in roost 4 and 5 bats emerge from roost, an additional 7 bats in roost 2, no bats in roost 3.

6 Constraints

- 6.1 Bats are difficult to locate and identify, they cannot be easily identified in flight and many species have very similar echolocation calls making accurate species identification difficult, especially for cryptic groups like Myotis bats, trapping can improve species ID and sex and breeding status but trapping is more difficult.
- 6.2 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.
- 6.3 The surveys have only conducted a limited survey of only 2 nights within limited areas of the whole site, additionally radiotracking has been limited to in follow up availability and in bats selected for tagging, non-breeding female alcaethoe, due to weight limitations which may limit the discovery of a maternity colony.

7 Conclusions

- 7.1 The Binsted area, including the large main block of woodland, smaller copses and farmland covers a large area, this would normally require a through complete set of bat surveys across all habitats and different areas throughout the year to build up a picture of bat species using the site. The survey effort for this area is considered to be very low and greater survey effort may identify more species in different areas and presence of more breeding species.
- 7.2 However, despite the low survey effort the bat fauna identified at the site is very high, with 13 species confirmed 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. It is likely that Noctule bats may be breeding locally and other species may additionally be breeding locally and using the site.
- 7.3 A total of 4 species were radio tagged, Barbastelle, Bechstein's, Alcatheo and Serotine bats, this identified roosts of three species within the woodland, and a Serotine colony in Barnham approximately 3.3km to the south west.
- 7.4 Barbastelle bats are a rare Annex II species, a maternity colony is known to be present in Slindon National Trust estate and this species is known to forage over a wide area utilising both woodlands and farmland/floodplains for foraging. Barbastelle bats are tree roosting specialists and more commonly found in old woodland roosting in damaged trees. The roost identified was high and could not be observed from the ground, even with night vision cameras, this may have been a solitary roost, or a low number of individuals. The signal was lost after 2 days which may be due to the bat moving to another area locally out of the signal range, or, tag failure which was common.
- 7.5 Greater research on Barbastelle bats using this woodland would be beneficial in identifying if this is used by a maternity colony, and if this is a new separate colony or the one from Slindon Estate. The individual Barbastelle was not ringed, and many from Slindon have been but not all individuals. If this bat is subsequently found at Slindon this can be identified from the ring number. Part of the site is less than 2km from Slindon maternity roosts so it is considered very likely that individuals from the slindon colony will be using this area.
- 7.6 Alcatheo bats are a more recently discovered UK bat species, these were first discovered in 2001 in Greece and only identified present in the UK in 2010. Sussex and Surrey appear to be a good area for this species, however, the species is poorly studied and only handful of maternity roosts are known throughout the country.
- 7.7 Recent research on this species in the UK has found that a colony fragments regularly into a number of smaller roosting groups throughout an area of woodland and use a high number of roosts. All of the data gathered on this species indicate that this is a tree roosting specialist and predominantly forage within woodland, specialising in mature old woodland.
- 7.8 While the emergence survey did not confirm a maternity colony, trapping has caught several breeding female and juvenile Alcatheo bats showing that they are breeding within this woodland area. Further research would identify several roosts and can be used to work out a colony minimum population.

- 7.9 A new maternity colony of Serotine bats has been confirmed to the SW of the Binsted area using several building roosts. During the surveys a number of Serotine bats were observed commuting from the west following hedges and woodland edges indicating that there may be a number of individuals from this colony visiting this area to forage.
- 7.10 Bechstein's bats are a rare Annex II species, this species is also a woodland specialist both roosting and foraging within woodlands and unlike Barbastelle bats do not travel over large areas to forage. Bechstein's bats specialise in old mature woodland with a high proportion of mature Oak. This woodland is obviously important for this species and demonstrates the value of this woodland locally and is the most southerly recorded maternity colony in Sussex.
- 7.11 The colony count was 26 individuals, which included some juveniles, however it is likely, like many bat species, that the colony could have fragmented into a number of smaller roosts and as such this should be treated as a minimum colony count and the true colony population may be higher. If however the colony is small then it may indicate that this colony is not thriving and suitable habitat may be limited and any negative impacts on this colony could result in colony loss.
- 7.12 Bechstein's bats can be greatly affected by changes within woodland, given the small foraging areas and territory they use loss of woodland, through direct woodland loss and fragmentation, such as severing foraging areas from roosting sites can be highly detrimental for this species. It is recommended that woodland owners are notified of the presence of this species and advice provided, or habitat management plan, to maintain and enhance the Oak woodland for this species.
- 7.13 In addition to the species radio tracked other breeding species have been confirmed present and may be breeding locally, notably several Natterers bats were trapped and this is another common tree roosting species and given the number caught close together it is considered likely that there is another maternity colony on or very near the site.
- 7.14 These initial baseline surveys 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 alcahoie bat 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 mammals the number of bats found present in Binsted clearly demonstrates how important this area is as a rich ecological area.

Daniel Whitby

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