



## BRILLEY GREEN DINGLE, HEREFORDSHIRE BAT SURVEY REPORT 23<sup>RD</sup> MAY 2018

Note: This report is for information only and should not be used as an Ecological Impact Assessment for planned works whether forestry, renovations or development. This report should not be passed on to any third party (including an ecological consultant) without the express permission of the Herefordshire Mammal Group.

### Background

Since 2013 Herefordshire Mammal Group (HMG) has been undertaking research in and around the county to determine which bat species are actually present and how many are benefiting from and thriving in our woodlands, especially woodlands which are managed for timber and conservation. These studies include bat box monitoring and detector and trapping surveys in Forestry Commission (FC), National Trust, English Heritage, Wildlife Trust and privately owned woodlands. This research has contributed to bat conservation at a local level by promoting changes to Forestry Commission policy and woodland management plans. So far, 23 woodlands have been surveyed, 9 of which are owned by the Forestry Commission, 4 by the Herefordshire Wildlife Trust, 1 by the National Trust and 9 are privately owned. A total of 58 separate surveys has been carried out, as some woods warranted additional survey effort due to their size and required return visits. The ratio of plantation to broad-leaved areas varies between woodlands, as does the distribution of tree species.

The aim of the project is primarily to determine how bat species utilize broad-leaved and plantation woodlands as part of a wider study to determine the distribution of bat species in the county. The project involves bat detector surveys together with trapping studies in order to identify species that are difficult or impossible, to distinguish with bat detectors alone, such as the *Myotis* species and the "Big Bats" Serotine (*Eptesicus serotinus*), Leisler's (*Nyctalus leisleri*) and Noctule (*N. noctula*). Since 2014 the project has been extended to include ringing and radio-tracking.

Species such as soprano and common pipistrelle (*Pipistrellus pygmaeus*, *P. pipistrellus*) are readily recorded by bat detectors but trapping, using mist nets and harp traps, is more likely to find more challenging species and also provides valuable information about condition and breeding status of the bats. The use of mist nets and harp traps together with acoustic lures is particularly helpful to identify the full range of species utilizing the woodland.

Mist netting and harp trapping also provide valuable training to members of the local mammal group, the Forestry Commission, Wildlife Trust volunteers and interested private landowners. Such training involves bat identification, assessment of breeding condition, and recording of biometrics.

It is not fully understood how bats move around their ranges and how far they will travel to alternative roosting sites, especially if woodlands are isolated and small in size. Commuting routes to and from foraging areas are also poorly understood, especially in Herefordshire. Herefordshire can boast low human population but there is a lot of pressure on the land due to intensified farming methods eg poly tunnels, arable and pasture farming systems. The paucity of county bat records, obtained from the Herefordshire Biological Records Centre (HBRC), reveals that very little is known about which bat species are using Herefordshire woodlands.

The Herefordshire Woodland Bat Project will continue until further notice, along with other related projects that have derived from this research, including a new bat box scheme in Frith Wood, near Ledbury and radio tracking and ringing studies to locate natural roost sites, determine habitat use and investigate social structures throughout Herefordshire woodlands.

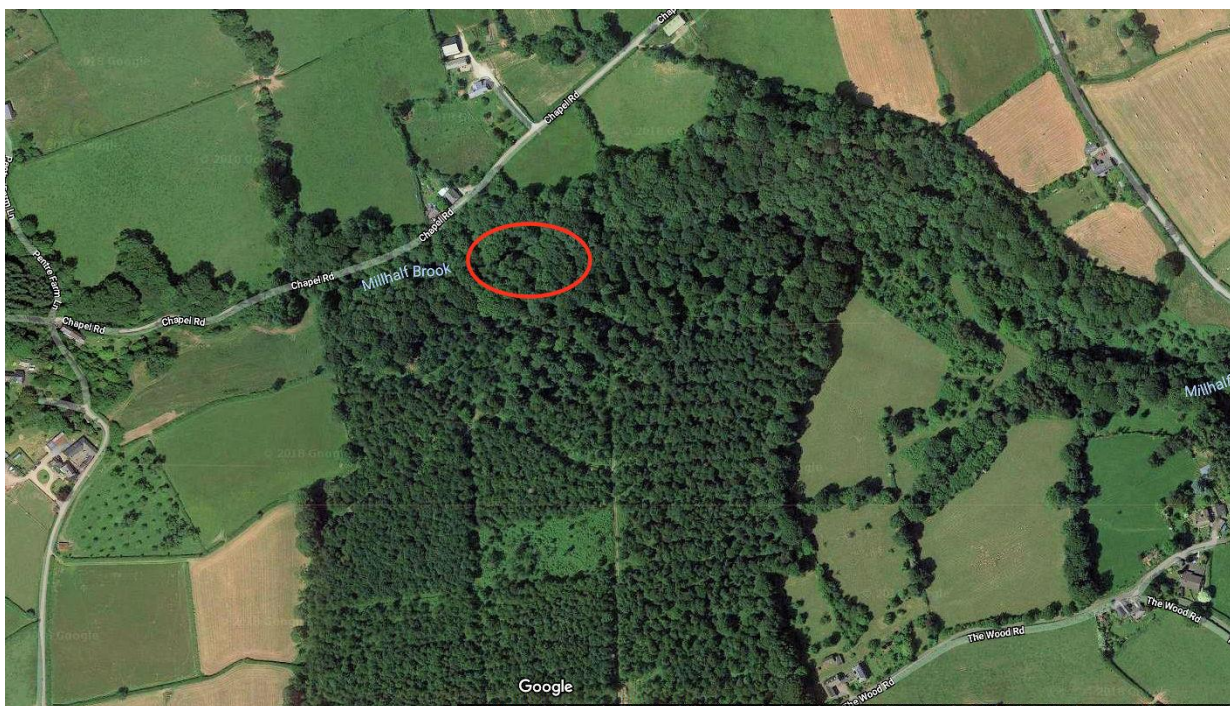


Image 1: An aerial view showing Brilley Green Dingle, which is part of a large complex of woodland. Millhalf Brook runs through the Dingle; the River Wye is 1.5km due south. Overall, there is a good connectivity within the area which will provide good foraging for many bat species.

#### TRAPPING SURVEY - SITE LOCATION, DATES AND SURVEY SITES

Brilley Green Dingle is located in OS grid squares SO2648 and 2748. The bat survey was carried out towards the west of the site by the brook.



Image 2: Streetview map showing harp trap, mist net and static bat detector placements on 23rd May 2018. Bat detectors are shown as red dots (AE and HMG =Anabat Express detectors) and traps and nets are shown as blue dots (HP=Harp Trap, M=size of mist net system)

## WEATHER CONDITIONS

Table 1 documents weather conditions, sunset times, moon rise, moon set and moon phase. Cold nights, a full visible moon and breezy conditions may effect bat activity and catch rate.

**Table 1: Weather conditions for trapping at Brilley Green Dingle on 23rd May 2018**

Date	Sunset (hrs)	Start Temp	End Temp	Cloud	Wind	Dry/Rain	Moon rise/set (hrs)	Moon Phase
23-May-18	21.08	17.1°C	13.3°C	Clear	Calm	Dry	Rise 13.56 Set 02.59 (24 <sup>th</sup> )	67% Visible

## PREVIOUS RECORDS FOR THE SITE

**HBRC Data:** 5 records involving 2 species are available from HMG's database in OS grid squares SO2648 and SO2748: common pipistrelle (*Pipistrellus pipistrellus*) and noctule (*Nyctalus noctula*).

**HMG Data:** 20 records involving 3/4 species are available from HMG's database (2014 to 2017): soprano pipistrelle (*Pipistrellus pygmaeus*), pipistrelle species (*Pipistrellus sp.*), noctule (*Nyctalus noctula*) and brown long-eared bat (*Plecotus auritus*).

## BAT DETECTOR RESULTS

**Table 2: An abbreviated record of the bat detector survey for Brilley Green Dingle on 23<sup>rd</sup> May 2018 highlighting the key activities such as emergence times, based on the bats expected time of emergence after sunset, and bats using the woods for foraging or commuting.**

BAT DETECTORS	SUNSET	TIME	SPECIES	COMMENTS
AE00 - On the ridge facing south towards the brook (16 sound files)	21.08	21.39	Soprano pipistrelle	Local Emergence
	21.08	21.43	Soprano pipistrelle	Pass
	21.08	21.57	Soprano pipistrelle	Pass
	21.08	22.42	Lesser horseshoe	Pass
	21.08	0.10	Long-eared bat	Pass
	21.08	0.17	<i>Myotis</i> species	Pass
	21.08	0.26	Soprano pipistrelle	2 passes
	21.08	0.47	<i>Myotis</i> species	Pass
AE89 - Facing across brook by 6M net (345 sound files)	21.08	21.10	Soprano pipistrelle	Local Emergence
	21.08	21.14 Onwards	Soprano pipistrelle	Moderate to High activity throughout 4 hour survey
	21.08	21.29	Common pipistrelle	Local Emergence
	21.08	21.30 Onwards	Common pipistrelle	Moderate to High activity throughout 4 hour survey
	21.08	21.37	<i>Myotis</i> species	Local Emergence
	21.08	21.41	Barbastelle	2 passes
	21.08	21.43	<i>Myotis</i> species	High activity until the end of the 4 hour survey
	21.08	21.45	Natterer's bat	Broadband call
	21.08	21.45 to 21.51	Barbastelle	Several Passes
	21.08	22.51	Long-eared bat	Pass
	21.08	23.30	Long-eared bat	Pass

BAT DETECTORS	SUNSET	TIME	SPECIES	COMMENTS
AE66 - By Processing (160 sound files)	21.08	21.10	Soprano pipistrelle	Local Emergence
	21.08	21.40	<i>Myotis</i> species	Local Emergence
	21.08	21.41	<i>Myotis</i> species	Several Passes
	21.08	21.56	Long-eared bat	Pass
	21.08	22.14	Long-eared bat	Several Passes
HMG1 - At west end of site in clearing by brook (324 files)	21.08	21.23 to 21.29	Soprano pipistrelle	Local Emergence and several passes
	21.08	21.27	Common pipistrelle	Local Emergence
	21.08	21.30	Common pipistrelle	Moderate to High activity throughout 4 hour survey and social calling
	21.08	21.34	Soprano pipistrelle	Moderate to High activity throughout 4 hour survey and social calling
	21.08	21.46	Long-eared bat	Local Emergence
	21.08	21.49	<i>Myotis</i> species	Local Emergence
	21.08	21.49	Barbastelle	Pass
	21.08	21.50	Barbastelle	Pass
	21.08	21.51	<i>Myotis</i> species	Moderate Activity until the end of the 4 hour survey
	21.08	21.55	Noctule	Pass
	21.08	22.00	Barbastelle	Pass
	21.08	22.03	Long-eared bat	Pass
	21.08	22.25	Barbastelle	Pass
	21.08	22.28	Noctule	Pass
	21.08	22.31	Barbastelle	Pass
	21.08	22.52	Barbastelle	Pass
	21.08	23.37	Long-eared bat	Pass
21.08	23.58	Noctule	Pass	
21.08	0.33	Barbastelle	Pass	
HMG2 - On slope by track near to 1FS bat box (50 sound files)	21.08	21,10	Soprano pipistrelle	Local Emergence
	21.08	21.43	<i>Myotis</i> species	Local Emergence
	21.08	21.51 onwards	<i>Myotis</i> species	Continuous
	21.08	23.30	Long-eared bat	Pass
	21.08	0.53	Long-eared bat	Pass

## TRAPPING RESULTS

Trapping surveys are essential in order to positively identify species of *Myotis* bats and the “Big Bats” (ie serotine, Leisler’s and noctule) using the wood and also to determine their body condition and breeding status.

**Table 3: The catch rate for 23<sup>rd</sup> May 2018 was moderate. Bats in blue text were encountered during a bat box check which took place in the afternoon.**

TRAP/BOX	Bat Spp.	Sex (M or F)	Age? JOINTS (1-4) A/J	TESTES SIZE ♂ (0/1/2)	EPID SIZE ♂ (0/1/2)	EPID COLOUR ♂ (0/1/2)	♀ Breeding Condition
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	F	A	-	-	-	P
Bat box 2SE	Brown long-eared	M	A	0	0	D	-
Bat box 9N	Brown long-eared	F	A	-	-	-	P
Bat box 9N	Brown long-eared	F	A	-	-	-	P
HP1	Natterer's bat	M	A	0	0	D	-
HP1	Whiskered bat	F	A	-	-	-	NP
9M DL	Brown long-eared	F	A	-	-	-	P
HP1	Whiskered bat	F	A	-	-	-	P
HP1	Whiskered bat	F	A	-	-	-	P
3M DL	Soprano pip	M	A	1	1	PDT	-
HP2	Soprano pip	M	A	0	1	D	-
HP2	Noctule	M	A	0	0	PDT	-
9M DL	Brown long-eared	M	A	0	0	D	-
9M DL	Brown long-eared	F	A	-	-	-	P
9M DL	Brown long-eared	F	A	-	-	-	P
9M DL	Brown long-eared	F	A	-	-	-	P
9M DL	Brown long-eared	F	A	-	-	-	P
9M DL	Brown long-eared	F	A	-	-	-	P
9M DL	Noctule	M	A	1	1(Left), 0 (right)	PDT	-
HP2	Noctule	M	A	0	1	Pale	-

### Key to Breeding Condition:

Male (epididymis condition) showing sexual maturity; D = Dark (not sexually mature), PDT = Pale with dark tips (sexually mature), P = Pale (older bat having bred a number of times)

Female (nipple condition); NP = Nulli-parous (non-breeding), P = Parous (bred before), L = Lactating, PL = Post-lactating

**Table 4:** Below is a list of bat species that are using Brilley Green Dingle for roosting and breeding, as determined from their breeding condition and their emergence times relative to sunset.

SPECIES RECORDED	HOW BATS ARE USING AREA AROUND BRILLEY GREEN DINGLE 2018
Soprano pipistrelle	Roosting locally
Common pipistrelle	Roosting locally
Brown long-eared bat	Confirmed Roosting locally
Whiskered bat	Confirmed Roosting locally
Unidentified <i>Myotis</i> species	Roosting locally
Natterer's bat	Possibly Roosting locally
Barbastelle	Possibly Roosting locally
Lesser Horseshoe	Visiting/Foraging/Commuting
Noctule	Visiting/Foraging/Commuting

## RESULTS AND CONCLUSION

Brilley Green Dingle is managed by the Herefordshire Wildlife Trust and it appears to be “low intervention” woodland, compared with other HWT sites. This low level of management seems to have benefitted bats, as food and roosting opportunities are abundant. Brilley Green Dingle is part of a much larger complex of woodland, which extends down to the River Wye, so bats have a much wider choice for foraging and roosting. The Herefordshire Mammal Group selected Brilley Green Dingle for a trapping event to determine whether Daubenton’s and Bechstein’s bats were present. Prior to the trapping event, a bat box check took place earlier in the day where 9 brown long-eared bats were encountered.

The night-time temperatures and weather conditions at Brilley Green Dingle on the 23<sup>rd</sup> May 2018 were favourable so there were expectations of catching a good number of bats. The overall results of the trapping and detector surveys are presented in Tables 2 to 4 above and show 8/9 species using Brilley Green Dingle for foraging and roosting.

Bat detector recordings and captures at Brilley Green Dingle on the 23<sup>rd</sup> May 2018 were moderate. However, new records were obtained for the area including Natterer’s bat, whiskered bat, barbastelle and lesser horseshoe bat. The target species (Daubenton’s and Bechstein’s) were not caught or detected.

Early in the evening a small group of whiskered female bats were captured, roughly at the same time, suggesting a maternity roost is nearby. Late in the evening a small group of commuting brown long-eared bats, probably those encountered during the bat box check earlier in the day, were caught in a mist net. All bats were processed and released as a group.

At least 2 bat species are confirmed breeding locally (brown long-eared and whiskered bat), 5 bat species are likely to be roosting locally (soprano pipistrelle, common pipistrelle, Natterer’s bat, barbastelle and unidentified *Myotis* species) and 2 are visiting, foraging and/or commuting (lesser horseshoe and noctule). However, noctule has been found roosting in bat boxes at certain times of the year. These conclusions are based on the time of a species first appearance compared to its expected emergence time and the breeding status of all bats caught.

Overall, a moderate number of bats was recorded in Brilley Green Dingle at the time of the survey, with a total of 8/9 confirmed species (common pipistrelle, soprano pipistrelle, brown long-eared bat, whiskered bat, Natterer's bat, noctule, barbastelle, lesser horseshoe and an unidentified *Myotis* species).



**Photo 1: 3 male noctule bats were captured late in the evening. Photo 2: One of 3 female whiskered bats caught early in the evening.**

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*Natural England Roost Visitor*

*Natural England Licenced Bat Worker (Class Licence Levels 3 to 4)*

*Natural England Dormouse Worker (Class Licence Level 1)*