

PLAN ECO6

July 2021 Bat Activity Survey Results

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- KEY:**
- SITE BOUNDARY
 - COMMERCIAL ORCHARD
 - DENSE SCRUB
 - SPECIES POOR SEMI-IMPROVED GRASSLAND
 - SPOIL MOUND
 - HEDGEROW
 - TREE LINE
 - TREE
 - POND
 - BUILDING
 - COMMON PIPISTRELLE REGISTRATION
 - SOPRANO PIPISTRELLE REGISTRATION
 - NATHUSIUS' PIPISTRELLE REGISTRATION
 - MYOTIS SP. REGISTRATION
 - NYCTALUS SP. REGISTRATION



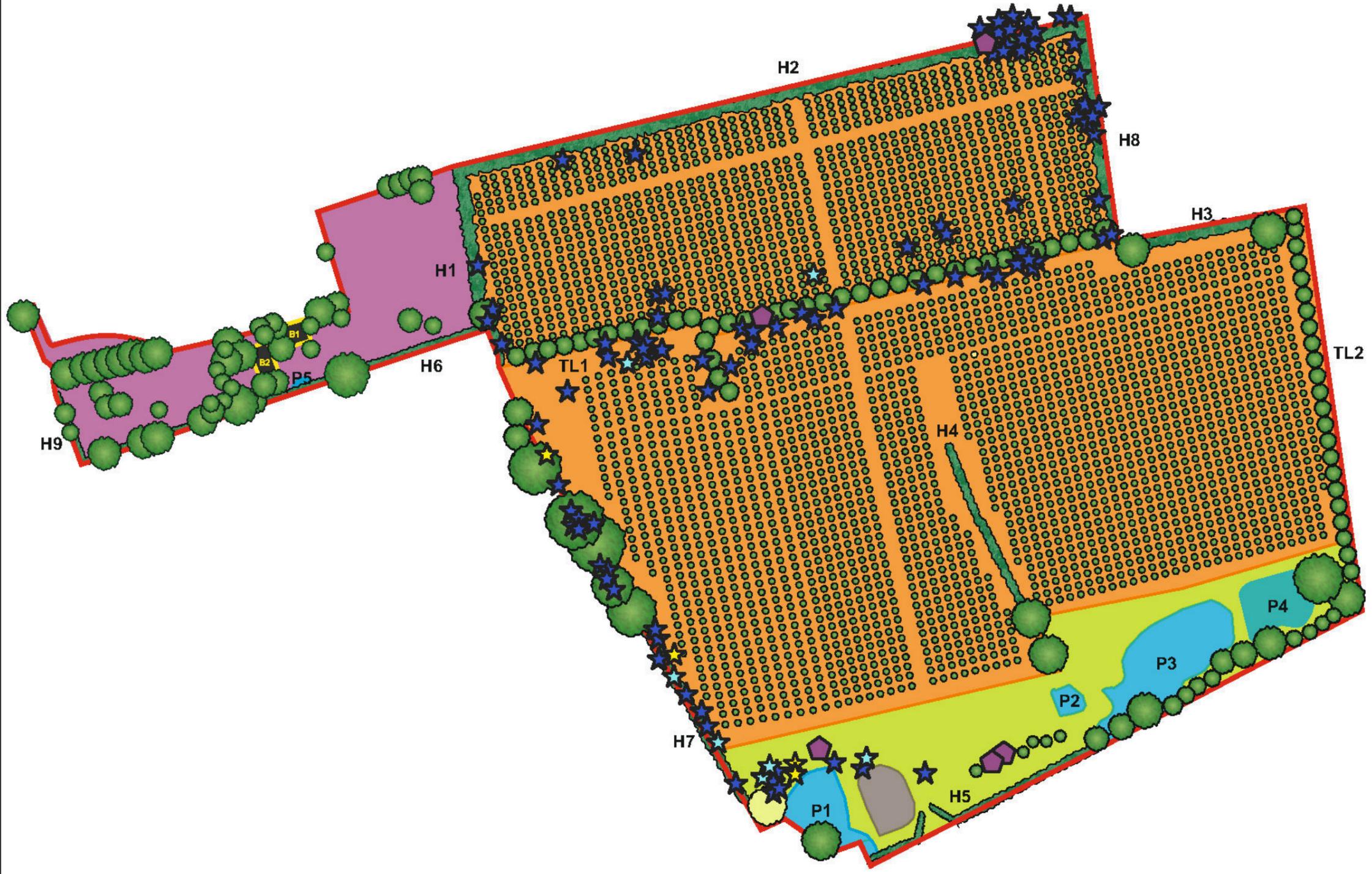
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	8372: LAND EAST OF ALBION ROAD & LAND NORTH OF COPPER LANE, MARDEN

PLAN ECO6: JULY 2021 BAT ACTIVITY SURVEY RESULTS	Rev: A Aug 2022
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PLAN ECO7

September 2021 Bat Activity Survey Results

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PLAN ECO7: SEPTEMBER 2021 BAT ACTIVITY SURVEY RESULTS	Rev: A Aug 2022
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PLAN ECO8

May 2023 Bat Activity Survey Results

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-  SITE BOUNDARY
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 -  HEDGEROW
 -  TREE LINE
 -  TREE
 -  POND
 -  BUILDING
 -  COMMON PIPISTRELLE REGISTRATION
 -  SOPRANO PIPISTRELLE REGISTRATION
 -  NATHUSIUS' PIPISTRELLE REGISTRATION
 -  MYOTIS SP. REGISTRATION



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PLAN ECO8: MAY
2023 BAT ACTIVITY SURVEY
RESULTS

Rev: A
Aug
2023

PLAN ECO9

Automatic Detector Locations

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- KEY:**
-  SITE BOUNDARY
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 -  SPECIES POOR SEMI-IMPROVED GRASSLAND
 -  SPOIL MOUND
 -  HEDGEROW
 -  TREE LINE
 -  TREE
 -  POND
 -  BUILDING
 -  MAY 2021 STATIC DETECTOR LOCATIONS
 -  JULY 2021 STATIC DETECTOR LOCATIONS
 -  SEPTEMBER 2021 & MAY 2023 STATIC DETECTOR LOCATIONS



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8372: LAND EAST OF ALBION ROAD &
LAND NORTH OF COPPER LANE,
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PLAN ECO9: AUTOMATIC
DETECTOR LOCATIONS

Rev: A
Aug
2023

APPENDICES

APPENDIX 1

Site Layout



- KEY**
- Site boundary
 - ▶ Site access
 - Affordable Homes
 - ◆ Focal Building
 - ★ Gateway Building
 - LAP Local Area of Play
 - SS Sub Station
 - Car Barn
 - Brickwork Walls



HIGHWAY ACCESS AS PER ITB 15098-GA-028

ACCESS TO THE HOWLANDS RE-PROVIDED FROM THE SITE ACCESS ROAD

RUSSET GROVE (RECENTLY CONSTRUCTED)

EXISTING TREES / PERIMETER HEDGEROW

COPPER LANE

LANDSCAPED ATTENUATION POND

LINKAGE - AS EMERGENCY ACCESS SHARED WITH PEDESTRIAN / CYCLE ACCESS FROM ALBION ROAD TO COPPER LANE



Coloured Site Layout
Land East of Albion Road
& North of Copper Lane, Marden

22037 / SK25H
Scale 1:500 @ A0 August 2023

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APPENDIX 2

Information Obtained from MAGIC



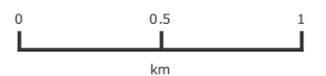
Legend

- National Nature Reserves (England)
- Ramsar Sites (England)
- Proposed Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland

Projection = OSGB36
 xmin = 570300
 ymin = 142000
 xmax = 579700
 ymax = 147100



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APPENDIX 3

Bat Survey Weather Conditions

BAT SURVEY WEATHER CONDITIONS

Date	Weather Conditions	Sunset Temp. (°C)	Minimum night Temp. (°C)	Sunset Wind Speed (km/h)
MAY / JUNE 2021				
28.05.21	Cloudy	15	13	3
29.05.22	Cloudy	13	8	6
30.05.23	Fair	12	7	10
31.05.24	Fair	15	11	6
01.06.21	Fair	16	12	8
02.06.21	Cloudy	19	15	2
Jul-21				
12.06.21	Cloudy	17	15	6
13.06.21	Cloudy	17	14	7
14.06.21	Fair	16	14	7
15.06.21	Fair and Cloudy	15	12	6
16.06.21	Cloudy	20	15	6
17.06.21	Fair	20	16	3
18.06.21	Fair	22	17	2
Sep-21				
08.09.21	Cloudy	14	14	2
09.09.21	Fair	13	12	4
10.09.21	Cloudy	14	11	4
11.09.21	Fair and Cloudy	15	13	5
12.09.21	Fair and Cloudy	19	14	3
13.09.21	Cloudy and Rain	14	14	7
MAY / JUNE 2023				
24.05.23	Cloudy	14	10	8
25.05.23	Cloudy	14	10	6
26.05.23	Fair	10	8	4
27.05.23	Fair	15	12	7
28.05.23	Fair	11	11	11
29.05.23	Cloudy	12	11	11
30.05.23	Cloudy	13	9	15
31.05.23	Cloudy	13	8	6
01.06.23	Fair	15	11	12
02.06.23	Fair	10	9	12
03.06.23	Fair	13	13	13
04.06.23	Cloudy	11	10	11
05.06.23	Fair	11	10	11
06.06.23	Cloudy	11	9	12

APPENDIX 4

Detailed Automated Bat Survey Results

1. The automated detector located in location 1 along hedgerow H4 recorded the most registrations from Common Pipistrelle with less registrations recorded on the 30th May and peaks recorded on the 28th May and 1st June. Higher levels of registrations were also recorded from Soprano Pipistrelle with peaks on the 31st May. Fewer registrations were recorded from *Myotis* sp., Brown Long-eared (with registrations on five of the six recording nights), *Nyctalus* sp. (with registrations recorded on four of the six recording nights), and Serotine (with registrations recorded on three of the six recording nights) (see table 1 below).

Table 1. 28th May – 2nd June 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1					
	28.05.21	29.05.21	30.05.21	31.05.21	01.06.21	02.06.21
Common Pipistrelle	300	150	20	139	287	262
Soprano Pipistrelle	15	121	2	236	27	25
Nathusius' Pipistrelle	1	2	2	12	21	33
<i>Nyctalus</i> sp.	5	0	0	1	3	5
<i>Myotis</i> sp.	5	1	1	5	11	5
Serotine	0	1	0	1	0	0
Brown Long-eared	3	3	0	5	5	2

2. The automated detector located in location 2 along hedgerow H2 recorded fewer registrations than that at location 1. The most registrations were again recorded from Common Pipistrelle with peaks recorded on the 28th and 31st May. Fewer registrations were recorded from Soprano Pipistrelle, *Myotis* sp., *Nyctalus* sp. (with registrations recorded on four of the six recording nights), and Nathusius' Pipistrelle and Serotine (with registrations recorded on three of the six recording nights) (see table 2 below).

Table 2. 28th May – 2nd June 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2					
	28.05.21	29.05.21	30.05.21	31.05.21	01.06.21	02.06.21
Common Pipistrelle	96	53	42	90	56	66
Soprano Pipistrelle	2	6	2	6	5	3
Nathusius' Pipistrelle	0	1	0	1	1	0
<i>Nyctalus</i> sp.	1	0	0	2	2	5
<i>Myotis</i> sp.	1	1	5	4	2	7
Serotine	1	0	0	1	0	1

3. The automatic detector located at location 1 along tree line TL1 failed after a single recording night. The most registrations were collected from Nathusius' Pipistrelle with fewer registrations recorded from *Nyctalus* sp. and Serotine, with only a single registration recorded from *Myotis* sp. (see table 3 below).

Table 3. 12th July 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1
	12.07.21
Nathusius' Pipistrelle	78
<i>Nyctalus sp.</i>	3
<i>Myotis sp.</i>	1
Serotine	2

4. The automated detector located at location 2 along hedgerow H7 recorded relatively higher levels of bat activity. The most registrations were recorded from Common Pipistrelle, followed by Soprano Pipistrelle. Lower levels of registrations were recorded from Nathusius' Pipistrelle and *Myotis sp.* (with peak registrations on the 15th July). Low number of registrations from *Nyctalus sp.* were recorded on five of the seven recording nights, and from Serotine on two of the seven recording nights (see table 4 below).

Table 4. 12th – 18th July 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2						
	12.07.21	13.07.21	14.07.21	15.07.21	16.07.21	17.07.21	18.07.21
Common Pipistrelle	327	610	564	640	662	806	301
Soprano Pipistrelle	24	89	90	53	46	66	55
Nathusius' Pipistrelle	14	17	11	8	22	28	16
<i>Nyctalus sp.</i>	4	0	1	1	0	1	3
<i>Myotis sp.</i>	1	0	8	62	3	5	4
Serotine	0	0	0	1	0	0	7

5. The automated detector located at location 1 along hedgerow H1 recorded low levels of bat activity with the most registrations again recorded from Common Pipistrelle, followed by Soprano Pipistrelle. Fewer registrations were recorded from *Myotis sp.* and *Nyctalus sp.* and a single registration was recorded from Brown Long-eared on a single night (see table 5 below).

Table 5. 8th – 13th September 2021. Automated detector results – Location 1.

Species	Number of registrations - Location 1					
	08.09.21	09.09.21	10.09.21	11.09.21	12.09.21	13.09.21
Common Pipistrelle	82	59	128	43	43	92
Soprano Pipistrelle	16	24	21	20	22	15
<i>Myotis sp.</i>	7	6	4	12	7	3
<i>Nyctalus sp.</i>	6	1	2	0	0	2
Brown Long-eared	0	0	0	1	0	0

6. The automated detector located at location 2 along tree line TL2 recorded relatively higher levels of bat activity than recorded at location 1. Again the most registrations were recorded from Common Pipistrelle and Soprano Pipistrelle, with fewer registrations recorded from Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. Very occasional registrations were also recorded from Brown Long-eared on three of the seven recording nights (see table 6 below).

Table 6. 8th – 13th September 2021. Automated detector results – Location 2.

Species	Number of registrations - Location 2					
	08.09.21	09.09.21	10.09.21	11.09.21	12.09.21	13.09.21
Common Pipistrelle	40	158	286	46	303	220
Soprano Pipistrelle	11	46	213	30	84	121
Nathusius' Pipistrelle	7	11	18	3	4	4
<i>Myotis</i> sp.	5	6	9	2	33	12
<i>Nyctalus</i> sp.	12	10	11	3	3	6
Brown Long-eared	0	0	0	3	3	1

7. The automated detector located at location 1 along hedgerow H1 recorded low levels of bat activity. Again the most registrations were recorded from Common Pipistrelle, with fewer registrations recorded from Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. A single registration also recorded from Brown Long-eared (see table 7 below).

8.

Table 7. 24th – 29th May 2023. Automated detector results – Location 2.

Species	Number of registrations - Location 1					
	24.05.23	25.05.23	26.05.23	27.05.23	28.05.23	29.05.23
Common Pipistrelle	32	11	4	82	5	472
Soprano Pipistrelle	6	1	0	7	0	42
Nathusius' Pipistrelle	1	0	1	1	0	8
<i>Myotis</i> sp.	0	1	0	4	0	37
<i>Nyctalus</i> sp.	0	0	0	0	1	0
Brown Long-eared	1	0	0	0	0	0

9. The automated detector located at location 2 along tree line TL2 recorded higher levels of bat activity than recorded at location 1. Again the most registrations were recorded from Common Pipistrelle and Soprano Pipistrelle, with fewer registrations recorded from Nathusius' Pipistrelle, *Myotis* sp. and *Nyctalus* sp. (see table 8 below).

10.

Table 8. 29th May – 5th June 2023. Automated detector results – Location 2.

Species	Number of registrations - Location 2							
	29.05.23	30.05.23	31.05.23	01.06.23	02.06.23	03.06.23	04.06.23	05.06.23
Common Pipistrelle	233	879	717	754	992	787	382	638
Soprano Pipistrelle	68	70	107	59	67	17	109	80
Nathusius' Pipistrelle	1	12	10	5	5	22	6	16
<i>Myotis</i> sp.	5	34	12	29	11	14	8	13
<i>Nyctalus</i> sp.	0	1	0	0	4	0	0	0

APPENDIX 5

Suitable Examples of Bat Boxes

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg



2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

Woodcrete construction, 16cm diameter, height 33cm.

APPENDIX 6

Suitable Examples of Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to spotted flycatcher and black redstarts.

Best sited on the walls of buildings with the entrance on one side.



2M Bird Box

A free-hanging box offering greater protection from predators. Supplied complete with hanger which loops and fastens around a branch.





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