

Appendix 7.1

Ecology

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Glossary

Term	Definition
Application Site Boundary	The red line boundary that encompasses the Proposed Development.
Baseline	The existing conditions that prevail against which the effects of the Proposed Development are compared.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment (EIA) is a means of drawing together by the developer, in a systematic way, a description of the development and information relating to the likely significant environmental effects arising from a proposed development.
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
Proposed Development	The Proposed Development comprises the Deucheran Hill 2 repowering and extension, including up to 14 wind turbines (three with a maximum tip height of 220 m, four at 200 m and seven at 180 m), and associated ancillary infrastructure.
Proposed Infrastructure	All proposed turbines, tracks, earthworks, laydown areas, borrow pits and other infrastructure associated with the Proposed Development.
Proposed Wind Farm Development Area	The area within which the proposed wind farm will be located.
Scottish Biodiversity List (SBL)	A list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland.
Study Area	The area within which ecological baseline surveys were carried out, specific areas are defined within Volume 1, Chapter 7: Ecology Section 7.4.

List of Abbreviations

Abbreviation	Description
AB BAP	Argyll and Bute Biodiversity Action Plan
ABReC	Argyll Biological Records Centre
BAI	Bat Activity Index
BAP	Biodiversity Action Plan UK List
Bern: Appendix	Special protection under the Bern Convention 1979
eDNA	environmental DNA
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
GCN	Great Crested Newt
GLTA	Ground Level Tree Assessment
GPS	Global Positioning System
ha	Hectare
HabDir	Conservation of Natural Habitats and of Wild Fauna and Flora 1992 (commonly referred to as the Habitats Directive)
HabReg	The Conservation of Habitats and Species Regulations 2010
HLC	Habitat Loss Calculations
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
kHz	Kilohertz
km	Kilometre
m	Metre
ms	Millisecond
NVC	National Vegetation Classification
PRF	Potential Roost Feature
QGIS	Geographic Information System
SBL	Scottish Biodiversity List
UK BAP	United Kingdom Biodiversity Action Plan
WCA	Wildlife and Countryside Act 1981 (as amended)

Introduction

A7.1.1. This appendix presents the following information in support of **Volume 1, Chapter 7: Ecology** of the Environmental Impact Assessment Report (EIAR) for Deucheran Hill 2 Wind Farm (the Proposed Development):

- Summary of existing non-confidential ecology records within a 2 kilometre (km) radius of the Proposed Wind Farm Development Area (10 km for bats) held by the Argyll Biological Records Centre (ABReC);
- Summary of ancient woods from the Ancient Woodland Inventory (AWI) within a 2 km radius of the Proposed Wind Farm Development Area held by ABReC and NatureScot;
- Details of habitat surveys (Phase 1 habitat survey and National Vegetation Classification (NVC) survey);
- Details of protected mammal surveys;
- Details of great crested newt (GCN; *Triturus cristatus*) surveys; and
- Details on Habitat Loss Calculations (HLC) methodology.

Desk Study Results

- A7.1.2. A desk-based study was carried out in October 2025 to determine the presence of all ecological (non-avian) species of conservation interest recorded within the previous 10 years (2015 – 2025) within a search buffer of the Proposed Wind Farm Development Area. ABReC provided data on species recorded within 2 km of the Application Site Boundary, extended to 10 km for bats, a summary of which is provided in **Table A7.1**.
- A7.1.3. A summary of ancient woods from the AWI within a 2 km radius of the Proposed Wind Farm Development Area held by ABReC and NatureScot is provided in **Table A7.2**.

Table A7.1: Summary of ecological species of conservation interest from ABReC (2015 – 2025) within 2 km of the Application Site Boundary (extended to 10 km for bats)

Taxon group	Species	No. records	Last recorded	Approx. distance to Application Site Boundary (km)	Legal protection	Priority species
Terrestrial mammal	European badger (<i>Meles meles</i>)	1	2022	1.2	Protection of Badgers Act 1992	N/A
Terrestrial mammal	European otter (<i>Lutra lutra</i>)	3	2023	0 – Within Application Site Boundary	Bern: Appendix 2 / HabDir-Annex 2 (non-priority) & 4 / WCA-Sch5 / HabReg-Sch2	BAP UK / SBL / AB BAP
Terrestrial mammal	Red squirrel (<i>Sciurus vulgaris</i>)	57	2025	1.2	WCA-Sch5	BAP UK / SBL / AB BAP
Terrestrial mammal - bat	<i>Myotis</i> species	2	2016	1.2	HabReg-Sch2	BAP UK / SBL / AB BAP

Taxon group	Species	No. records	Last recorded	Approx. distance to Application Site Boundary (km)	Legal protection	Priority species
Terrestrial mammal - bat	Daubenton's bat (<i>Myotis daubentonii</i>)	4	2024	7.2	HabReg-Sch2	BAP UK / SBL / AB BAP
Terrestrial mammal - bat	Leisler's bat (<i>Nyctalus leisleri</i>)	1	2016	1.2	HabReg-Sch2	BAP UK / SBL / AB BAP
Terrestrial mammal - bat	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	3	2016	5.5	HabReg-Sch2	BAP UK / SBL / AB BAP
Terrestrial mammal - bat	Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)	1	2016	1.2	HabReg-Sch2	BAP UK / SBL / AB BAP
Marine mammal	Common/harbour seal (<i>Phoca vitulina</i>)	2	2020	1.3	HabDir-Annex 2 (non-priority)	SBL
Amphibian	Common frog (<i>Rana temporaria</i>)	3	2023	0 – Within Application Site Boundary	HabDir-Annex 5 / WCA-Sch5	N/A
Butterfly	Small pearl-bordered fritillary (<i>Boloria selene</i>)	1	2023	0 – Within Application Site Boundary	N/A	BAP UK / SBL
Butterfly	Grayling (<i>Hipparchia semele</i>)	1	2022	1.2	N/A	BAP UK / SBL

Taxon group	Species	No. records	Last recorded	Approx. distance to Application Site Boundary (km)	Legal protection	Priority species
Moth	Cinnabar (<i>Tyria jacobaeae</i>)	3	2023	0 – Within Application Site Boundary	N/A	BAP UK
Flowering plant	Arctic eyebright (<i>Euphrasia arctica</i>)	7	2024	0.5	N/A	IUCN Red List: Near Threatened
Flowering plant	Bluebell (<i>Hyacinthoides non-scripta</i>)	10	2024	0.5	WCA-Sch8	N/A
Flowering plant	Chicory (<i>Cichorium intybus</i>)	2	2018	1.7	N/A	N/A
Flowering plant	Confused eyebright (<i>Euphrasia confuse</i>)	2	2017	1.4	N/A	IUCN Red List: Vulnerable
Flowering plant	Corn spurrey (<i>Spergula arvensis</i>)	2	2019	1.7	N/A	IUCN Red List: Vulnerable
Flowering plant	Eelgrass (<i>Zostera marina</i>)	2	2020	0.5	Bern: Appendix 1	IUCN Red List: Near Threatened
Flowering plant	Slender eyebright (<i>Euphrasia micrantha</i>)	7	2018	0.7	N/A	IUCN Red List: Vulnerable
Fern	<i>Dryopteris pseudocomplexa</i>	2	2017	0.1	N/A	IUCN Red List: Vulnerable

Taxon group	Species	No. records	Last recorded	Approx. distance to Application Site Boundary (km)	Legal protection	Priority species
Fern	Wilson's filmy-fern (<i>Hymenophyllum wilsonii</i>)	3	2019	0.7	N/A	IUCN Red List: Near Threatened
Conifer	Juniper (<i>Juniperus communis</i>)	1	2018	0 – Within Application Site Boundary	N/A	BAP UK / SBL
Conifer	Scots pine (<i>Pinus sylvestris</i>)	1	2018	1.2	N/A	Red List (Non IUCN): Nationally Scarce
Clubmoss	Stag's-horn clubmoss (<i>Lycopodium clavatum</i>)	1	2018	1.0	HabDir-Annex 5	N/A
Lichen	<i>Lobaria pulmonaria</i>	1	2024	1.7	WCA-Sch8	N/A
Lichen	<i>Pseudocyphellaria norvegica</i>	1	2024	0.6	N/A	BAP UK / Red List (non IUCN): Nationally Rare
Moss	Blunt-leaved bog-moss (<i>Sphagnum palustre</i>)	1	2017	1.1	HabDir-Annex 5	N/A
Moss	Cow-horn bog-moss (<i>Sphagnum auriculatum</i>)		2017	1.1	HabDir-Annex 5	N/A

Taxon group	Species	No. records	Last recorded	Approx. distance to Application Site Boundary (km)	Legal protection	Priority species
Moss	Girgensohn's bog-moss (<i>Sphagnum girgensohnii</i>)	1	2017	1.1	HabDir-Annex 5	N/A
Moss	Lustrous bog-moss (<i>Sphagnum subnitens</i>)	1	2017	1.1	HabDir-Annex 5	N/A
Moss	Red bog-moss (<i>Sphagnum capillifolium</i>)	1	2017	0.6	HabDir-Annex 5	N/A

Source: ABRcC

Key:

AB BAP: Argyll and Bute Biodiversity Action Plan

Bern: Appendix 1/ 2/ 3: Special protection under the Bern Convention (1979)

HabDir Annex 2-5: EC Directive of the Conservation of Natural Habitats and of Wild Fauna and Flora 1992 (commonly referred to as the Habitats Directive)

HabReg Sch2-5: The Conservation of Habitats and Species Regulations 2010

IUCN Red List: The International Union for Conservation of Nature Red List of Threatened Species

Red List (non IUCN): National Red List

SBL: Scottish Biodiversity List

UK BAP: UK Biodiversity Action Plan list

WCA Schedule 1-8: Wildlife and Countryside Act 1981 (as amended)

Table A7.1: Ancient woodland inventory sites within 2 km of the Application Site Boundary

Category	Number of sites	Distance of nearest AWI (km)
Ancient woodland of semi-natural origin	46	5 woodland sites within the Proposed Wind Farm Development Area
Long-established, of plantation origin	17	7 woodland sites within the Proposed Wind Farm Development Area
Other	11	6 woodland sites within the Proposed Wind Farm Development Area

Source: AWI¹

Field Survey Methods

- A7.1.4. Baseline surveys were carried out between 2023 and 2025 (inclusive) to assess the habitats present within the Study Area and to determine how the Proposed Wind Farm Development Area is being used by protected mammal species (e.g. breeding, foraging, commuting). Surveys to cover the existing access track were carried out in 2025 only.
- A7.1.5. Baseline ecological surveys of the Study Area comprised:
- Extended Phase 1 habitat survey and NVC survey;
 - Preliminary bat roost assessment and bat activity surveys;
 - Badger, pine marten (*Martes martes*) and red squirrel surveys;
 - Otter and water vole (*Arvicola amphibius*) surveys;
 - GCN environmental DNA (eDNA) surveys; and
 - Fish and freshwater pearl mussel habitat suitability surveys and electrofishing (*Margaritifera margaritifera*).
- A7.1.6. Baseline ecological surveys completed in 2025 within a buffer of infrastructure and for the existing access track comprised an extended Phase 1 habitat survey and NVC survey.

Phase 1 Habitat Survey

- A7.1.7. A Phase 1 Habitat survey was carried out within the Application Site Boundary at the time of survey, including the Proposed Wind Farm Development Area, between June and September

¹ NatureScot (2022) Ancient Woodland Inventory [Online] Available at: <https://opendata.nature.scot/maps/ancient-woodland-inventory/explore> [Accessed 19/06/2026]

2023. A Phase 1 Habitat survey of a 250 metre (m) buffer of the Proposed Wind Farm Development Area was undertaken in August 2024. The existing access track and a 250 m as well as a 250 m buffer of infrastructure which had not previously been surveyed were surveyed in October – December 2025. Study Areas are shown on **Volume 2a, Figure 7.1: Site Location and Survey Areas**.

- A7.1.8. The Phase 1 habitat survey methodology provides a standardised system for classifying and mapping semi-natural vegetation and wildlife habitats over large areas of countryside.
- A7.1.9. Habitats across the Study Area were identified and mapped using the standard Joint Nature Conservation Committee (JNCC) Phase 1 habitat classification².
- A7.1.10. The survey was 'extended' to search for and record signs of legally protected or other notable species, and to assess the potential for the habitats to support such species.

National Vegetation Classification

- A7.1.11. An NVC survey was carried out within the Turbine Development Area between June and September 2023. An NVC survey of portions of the existing access track was undertaken in October – December 2025, where access was permitted, and where within 250 m of the proposed infrastructure at the time of survey. Study Areas are shown on **Volume 2a, Figure 7.1**.
- A7.1.12. The NVC is a detailed phytosociological classification, which assesses the full suite of vascular plant, bryophyte and macro-lichen species within a certain vegetation type.
- A7.1.13. NVC community and sub-community types were identified in the field (based on extensive surveyor experience) and delineated and mapped using Global Positioning System (GPS) as per Chapter 10 of the NVC Users' Handbook³. Where areas were considered to comprise mosaics or complexes of different habitat communities, the proportion of each was estimated in percentage terms. Details of habitat types identified within the Turbine Development Area are provided in **Chapter 7** of the EIAR. Target notes were recorded to provide further information on features of ecological interest.

Habitat Loss Calculations

- A7.1.14. Habitat loss calculations were carried out using a bespoke tool developed within Geographic Information System (QGIS) version 3.40. This tool imports shapefiles representing the different infrastructure features constituting the Proposed Development, as well as a shapefile containing the Phase 1 Habitat classifications across the Application Site Boundary based on the field surveys carried out for the Proposed Development.

² JNCC (2010) Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit. Joint Nature Conservation Committee, Peterborough

³ Rodwell, J.S. (2006) NVC Users' Handbook, JNCC, Peterborough, ISBN 978 1 86107 574 1

A7.1.15. Each infrastructure polygon is intersected with the habitat shapefile to allow calculation of the area of each habitat type that would be lost due to construction of that infrastructure feature. Any overlap in infrastructure features is dealt with in a hierarchical way to avoid inclusion of the same areas of habitat twice.

A7.1.16. Loss attributed to permanent infrastructure features, such as turbine foundations, permanent hardstanding, tracks, the substation, the security hut and the track verges are calculated first, followed by additional loss associated with temporary structures such as temporary hardstanding, the construction compound, borrow pits, cut and fill earthworks, the batching plant, the blade laydown area, the anemometry mast and temporary track verges. Temporary infrastructure relates to features that should be fully reinstated and therefore do not reflect permanent habitat loss.

A7.1.17. Habitat loss was calculated separately for:

- 14 x permanent turbine foundations (approx. 408 m² each);
- 14 x permanent hardstanding (approx. 1,399 m² each);
- Permanent new track (approx. 5 m wide);
- Permanent upgraded track (approx. 5 m wide);
- Permanent HGV track (approx. 5 m wide);
- Permanent substation (approx. 60 x 120 m wide);
- Permanent track verges (approx. 116,504 m² total);
- Temporary security hut (approx. 3 m²);
- Temporary hardstanding (approx. 122,144 m²);
- Temporary construction compound (approx. 100 x 100 m wide);
- Temporary borrow pits (approx. 105,569 m²);
- Temporary cut and fill earthworks (approx. 217,139 m²);
- Temporary batching plant (approx. 50 x 100 m wide);
- Temporary blade laydown area (approx. 9,988 m²);
- Temporary anemometry mast (footprint approx. 24 m²); and
- Temporary track verges (approx. 2,476 m² total).

A7.1.18. Total habitat loss was calculated by summing the loss associated with each individual feature. Additionally, for each habitat type, the proportion of the total area of that habitat type recorded during surveys to be lost within the Study Area was also calculated.

A7.1.19. To allow for potential hydrological changes to peatland habitats resulting from the proposed infrastructure, a 15 m buffer of temporary infrastructure and floating tracks has been calculated as well as a 30 m buffer of permanent infrastructure.

Bat Surveys

A7.1.20. Surveys were undertaken between May and September 2023 inclusive and during November 2024. Methods were based on best practice guidance from NatureScot⁴ that was current at the time of survey and included a walkover survey for potential bat roosts, and an automated static detector survey.

Preliminary Roost Assessment

A7.1.21. A Ground Level Tree Assessment (GLTA) for bat roosts within the Proposed Wind Farm Development Area was undertaken between June and September 2023 inclusive. An updated GLTA for bat roosts within a 250 m buffer of the Proposed Wind Farm Development Area was undertaken in November 2024.

A7.1.22. Survey of any trees and other structures with the potential to support bat roosts was undertaken in accordance with guidance⁵. Searches for potential roost features (PRFs) included a preliminary assessment of trees for any cracks, holes and crevices which would provide suitable roosting habitat. The inspection was undertaken from ground level with binoculars.

Bat Activity Surveys

A7.1.23. A total of 14 full spectrum Anabat Swift detectors were deployed following the methods outlined by NatureScot⁴ at sample locations within the Turbine Development Area (see **Volume 2a, Figure 7.2: Bat Detector Locations** and **Table A7.3**) for a minimum of 13 nights per deployment. Only nights on which suitable weather conditions (temperature 8°C or above at dusk; ground wind speed 5 m/s or less; little to no rain) were recorded have been considered as part of the survey “effort” and included in the analysis. A summary of the automated survey locations, survey effort and habitats surrounding detectors is provided in **Table A7.3**.

A7.1.24. Detectors were programmed to commence recording from 1 hour before sunset and continue until one hour after sunrise, to cover the active period for all species potentially encountered within the Proposed Wind Farm Development Area. Detectors recorded data to a memory card which was downloaded and later analysed to identify species present. Relative bat activity levels have also been assessed for each bat detector following NatureScot guidance⁴, by producing bat activity indices (BAI) based on the number of bat passes detected per night of survey effort. A bat pass was defined as a sequence of bat pulses captured on a 15 second sound file. One sound file was counted as one bat pass and different species within the same 15 second sound file were counted as separate bat passes.

⁴ NatureScot (August 2021) - *Bats and onshore wind turbines - survey, assessment and mitigation* [Online] Available at: <https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation> [Accessed 19/06/2026]

⁵ Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists. Good practice Guidelines (4th edition)*. The Bat Conservation Trust, London

A7.1.25. During the static bat detector surveys, Detector 7 failed in spring while Detector 3 failed in summer and autumn. A summary of the automated survey schedule and technical faults is provided in **Table A7.4**.

Table A7.2: Static bat detector locations, survey effort and surrounding habitats

Detect or ID	Grid reference	Survey effort per season (nights)			Habitat description
		Spring	Summer	Autumn	
1	NR 74627 42818	13	17	11	Recently felled coniferous woodland
2	NR 75097 43517	13	17	11	Wet modified bog
3	NR 75976 43604	13	9	0	Plantation coniferous woodland
4	NR 76401 44048	13	18	11	Plantation coniferous woodland
5	NR 77331 43842	13	18	11	Plantation coniferous woodland; watercourse within 100 m
6	NR 77060 45138	13	18	11	Plantation coniferous woodland
7	NR 76486 45547	0	18	11	Semi-natural coniferous woodland; watercourse within 100 m
8	NR 75502 42200	13	9	11	Wet dwarf shrub heath; watercourse within 100 m
9	NR 75104 43516	13	9	11	Plantation coniferous woodland
10	NR 77107 46042	13	9	11	Plantation coniferous woodland
11	NR 78343 46365	13	9	11	Plantation coniferous woodland
12	NR 78179 45820	13	11	11	Plantation coniferous woodland
13	NR 74926 44387	13	17	11	Dry dwarf shrub heath; watercourse within 100 m
14	NR 75633 44857	13	17	11	Recently felled coniferous woodland; watercourse within 100 m

Source: Natural Power

Table A7.3: Static bat detector deployment dates

Season	Survey period	Dates removed for weather	No. of nights deployed	No. of nights used in analysis	Notes
Spring	09 May – 22 May 2023	-	13	13	No data due to technical issues for Detector 7. The log files⁶ for Detectors 2, 11 and 13 did not match the actual number of audio files recorded.
Summer	27 June – 20 July 2023	30 June, 1-3 and 6 July	23	18	The log files for Detectors 10, 12, 13 and 14 did not match the actual number of audio files recorded. Detectors 1, 2, 13 and 14 started one night later than the others.
Autumn	05 September – 18 September 2023	13 September	13	11	No data due to technical issues for Detector 3. The log files for Detectors 10 and 13 did not match the actual number of audio files recorded. No audio files were collected on the last night of survey on any of the detectors and log files also ended on the 16/09. The night of 17/09 was therefore not included in the analysis.

Source: Natural Power

⁶ Log files automatically record system activity such as recording times, saved files, and any errors

Bat Survey Analysis

- A7.1.26. Acoustic data analysis was undertaken using Kaleidoscope automatic identification software. Signal parameters were 16-120 kilohertz (kHz), 2-500 milliseconds (ms), 500 ms maximum inter-syllable gap with a minimum of two pulses. The Kaleidoscope software provides automatic identification to species level which was assumed to be correct for common pipistrelles, soprano pipistrelles and noise, and these records were not investigated further. Automatic identification of other bat species records is considered less reliable and manual quality checks were therefore performed on all other acoustic records.
- A7.1.27. *Myotis* species were not identified further than genus due to the overlap between species frequency calls. Pipistrelle and *Myotis* bats were manually identified to species when possible but to genus when it was not possible to distinguish call types to species level.
- A7.1.28. A bat pass was defined as a sequence of bat pulses captured on a 15 second sound file. One sound file was counted as one bat pass and different species within the same 15 second sound file were counted as separate bat passes.
- A7.1.29. All dates included are for the night of survey (i.e., the date does not change at midnight). Weather data summaries can be provided upon request.

Valuing Bats

- A7.1.30. For the purposes of this assessment and of assigning value to bats, the guidance set out by NatureScot⁴ has been considered. Table 2 in this guidance identifies the population vulnerability of bat species based on the collision risk posed for individual bat species by wind turbines as determined by behavioural characteristics, and by bat population sensitivity based upon species rarity (adapted from Wray *et al.*⁷). **Table A7.5** summarises the predicted collision risk and sensitivity of bat populations.

Table A7.4: Level of potential vulnerability of populations of Scottish bat species

	Low collision risk	Medium collision risk	High collision risk
Common species	N/A	N/A	Common pipistrelle Soprano pipistrelle
Rare species	Brown long-eared bat (<i>Plecotus auritus</i>) Daubenton's bat Natterer's bat (<i>Myotis nattereri</i>)	N/A	N/A

⁷ Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010). *Valuing Bats in Ecological Impact Assessment*. IIEEM In-Practice pp. 23-25

	Low collision risk	Medium collision risk	High collision risk
Rarest species	Whiskered bat (<i>Myotis mystacinus</i>) Brandt's bat (<i>Myotis brandti</i>)	N/A	Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>) Noctule bat (<i>Nyctalus noctule</i>) Leisler's bat

Source: Wray *et al.*⁷. Only those species which are known to occur in Scotland are included⁵

Protected Species Surveys

A7.1.31. Protected species surveys were undertaken within the Turbine Development Area between June and September 2023 and within a 250 m buffer of the Turbine Development Area in November 2024. Study Areas are shown on **Volume 2a, Figure 7.1**.

Badger, Pine Marten and Red Squirrel

A7.1.32. Surveys for badger, pine marten and red squirrel were undertaken in areas of suitable habitat within the Study Area. Surveys were carried out by experienced surveyors in suitable weather conditions. Field signs that were searched for were as described in Bang & Dahlstrøm⁸ and Sargent & Morris⁹.

Otter and Water Vole

A7.1.33. Otter and water vole surveys were undertaken along all watercourses within the Study Area. Surveys were carried out by experienced surveyors in suitable weather conditions. Otter and water vole field signs that were searched for were as described in Sargent & Morris⁹ and Strachan *et al.*¹⁰ respectively.

Great Crested Newt Surveys

A7.1.34. A GCN eDNA survey¹¹ was undertaken in June 2024 in five waterbodies within the Turbine Development Area. **Table A7.6** shows the location of surveyed waterbodies, including the distance from proposed infrastructure.

⁸ Bang, P. & Dahlstrøm, P. (2001) *Animal Tracks and Signs*. Oxford University Press, Oxford.

⁹ Sargent, G., Morris, P. and Troughton, G. (2003) *How to Find and Identify Mammals, 3rd Edition*. The Mammal Society, Southampton.

¹⁰ Strachan, R., Moorhouse, T. & Gelling, M. (2011) *The Water Vole Conservation Handbook*. Third Edition, Wildlife Conservation Research Unit, University of Oxford, Abingdon

¹¹ Natural England (2021) *Technical Advice Note 2: Environmental DNA (eDNA) for Great Crested Newt Surveys*. ADAS

Table A7.6: Great crested newt survey locations 2024

Waterbody	Central grid reference	Approx. distance from infrastructure (m)
Loch Losgainn	NR 74805 43201	60
Loch a' Chromain	NR 75263 45186	60
Loch nan Eun	NR 75615 42817	90
Loch Eireannach	NR 79429 44599	2050
Loch Barr-lice	NR 79880 43599	2820

Source: Natural Power

Freshwater Surveys

A7.1.35. A fish and freshwater pearl mussel habitat assessment (walkover survey) and electrofishing surveys of watercourses within the Proposed Wind Farm Development Area and adjoining catchments were undertaken by the Argyll Fisheries Trust between October and November 2024. The desk-based assessment, watercourses covered and methods used during the surveys are described in the Fish and Habitat Survey Report (**Appendix 7.3**).

Survey Results

Phase 1 Habitat and NVC Surveys

A7.1.36. Target notes recorded during Phase 1 habitat surveys in 2023 and 2024 are shown in **Table A7.7** and **Table A7.8** respectively. The location of Phase 1 target notes can be found on **Volume 2a, Figure 7.5: Phase 1 Survey Results**.

Table A7.7: Phase 1 target notes 2023

ID	Grid reference	Notes
1	NR 76305 44520	Lesser twayblade (<i>Noettia cordata</i>).
2	NR 76057 44486	Hemlock water dropwort (<i>Oenanthe crocata</i>).
3	NR 74906 44552	Austin's Bog-moss (<i>Sphagnum austinii</i>).
4	NR 80151 45605	Pond at base of small disused quarry.
5	NR 79720 46365	Pond measuring 15m x 8m.
6	NR 77858 39124	Larch (<i>Larix</i> sp.) dieback.

Source: Natural Power

Table A7.8: Phase 1 target notes 2024

Target Note	Grid reference	Notes
A	NR 69665 44604	A1.1.1 Semi-natural broadleaved woodland Canopy species include ash (<i>Fraxinus excelsior</i>), sycamore (<i>Acer pseudoplatanus</i>), beech (<i>Fagus sylvatica</i>), wych elm (<i>Ulmus glabra</i>), Norway maple (<i>Acer platanoides</i>), common lime (<i>Tilia x europaea</i>), birch (<i>Betula sp.</i>) and Scots pine (<10%). <i>Rhododendron ponticum</i>, holly (<i>Ilex aquilifolium</i>) and wych elm form the mid layer. Ground layer vegetation includes dog's mercury (<i>Mercurialis perennis</i>), greater wood-rush (<i>Luzula sylvatica</i>), male fern (<i>Dryopteris filix-mas</i>), bracken (<i>Pteridium aquilinum</i>), colt's foot (<i>Tussilago farfara</i>), ivy (<i>Hedera helix</i>), broad buckler fern (<i>Dryopteris dilatata</i>), figwort (<i>Scrophularia nodosa</i>), hart's tongue fern (<i>Asplenium scolopendrium</i>), bramble (<i>Rubus fruticosus</i>) and wood sage (<i>Teucrium scorodonia</i>). Woodland shows a good degree of semi-natural character and is on both sides of Killeen Burn. The watercourse is deeply incised in places with steep sides and rock exposure.
B	NR 69729 44556	B5 Marshy grassland Dominated by soft rush (<i>Juncus effusus</i>), with marsh willowherb (<i>Epilobium palustre</i>), marsh thistle (<i>Cirsium palustre</i>), common lady fern (<i>Athyrium filix-femina</i>) and ragwort (<i>Jacobaea vulgaris</i>).
C	NR 69679 44515	B2.2 Semi-improved neutral grassland Grazed field with sweet vernal grass (<i>Anthoxanthum odoratum</i>), Yorkshire fog (<i>Holcus lanatus</i>) and soft rush.
D	NR 69843 44572	B2.2 Semi-improved neutral grassland <i>Holcus lanatus</i> - <i>Juncus effusus</i> grazed pasture with sweet vernal grass and common bent (<i>Agrostis capillaris</i>).
E	NR 69620 44776	A1.1.1 Semi-natural broadleaved woodland Sycamore dominated woodland on sloping ground above access road. Ash and alder (<i>Alnus glutinosa</i>) also present. Ground layer includes dog's mercury, male fern, broad buckler fern and large stands of hemlock water dropwort (<i>Oenanthe crocata</i>).

Target Note	Grid reference	Notes
		Of planted origin but has a degree of semi-natural character in the ground layer.
F	NR 69811 44613	A1.1.2 Broadleaved plantation woodland Stand of planted beech, common lime and sycamore over a grassy ground layer.
H	NR 70051 44785	A1.2.2 Coniferous plantation woodland Larch plantation over bracken.
I	NR 70206 44780	A1.1.1 Semi-natural broadleaved woodland Woodland dominated by downy birch (<i>Betula pubescens</i>) and sessile oak (<i>Quercus petraea</i>). Occasional hazel (<i>Corylus avellana</i>) with greater wood-rush dominant in the ground layer. Rhododendron is spreading within this woodland.
J	NR 70042 44852	B2.2 Semi-improved neutral grassland Former field dominated by Yorkshire fog <i>Holcus lanatus</i> and tufted hairgrass (<i>Deschampsia cespitosa</i>). With broad-leaved dock (<i>Rumex obtusifolius</i>), cock's foot, creeping thistle (<i>Cirsium arvense</i>) and common knapweed (<i>Centaurea nigra</i>).
K	NR 70205 44855	A2.2 Scattered scrub Roadside verge with scattered scrub consisting of downy birch, young sycamore, Rhododendron, eared willow (<i>Salix aurita</i>), grey willow (<i>Salix cinerea</i>) and the non-native prickly heath (<i>Gaultheria mucronate</i>).
M	NR 70353 44837	A2.1 Dense scrub Dense gorse (<i>Ulex europaeus</i>) and bramble scrub.
N	NR 70329 44812	A2.1 Dense scrub Dense gorse and bramble scrub. Creeping thistle and hazel also present.
O	NR 70621 44632	A1.1.1 Semi-natural broadleaved woodland Woodland dominated by downy birch with hazel.
P	NR 70559 44735	C1.1 Dense bracken / A2.2 Scattered scrub Mosaic of dense bracken (80%), and scattered scrub (20%). Scrub species include willow (<i>Salix sp.</i>) and gorse with nettle (<i>Urtica dioica</i>) and broad-leaved dock.

Target Note	Grid reference	Notes
R	NR 70864 44605	A2.1 Dense scrub Eared willow, gorse, birch, hazel and bracken.
S	NR 71208 44736	C1.1 Dense bracken / A1.2 Dense scrub mosaic (50/50). Eared willow and bracken.
T	NR 71117 44728	B2.2 Semi-improved neutral grassland with areas of dry heath, scrub and bracken. Neutral grassland with tufted hair-grass, sweet vernal grass, Yorkshire fog, crested dog's tail (<i>Cynosurus cristatus</i>), sharp-flowered rush (<i>Juncus acutiflorus</i>), selfheal (<i>Prunella vulgaris</i>), white clover (<i>Trifolium repens</i>) and red clover (<i>Trifolium pratense</i>). Habitat is in mosaic with: – Patches of dense bracken. – Areas of dry heath vegetation with both bell heather (<i>Erica cinerea</i>) and ling (<i>Calluna vulgaris</i>) dominant. – Stands of dense gorse and/or eared willow scrub.
U	NR 71757 44909	A2.1 Dense scrub Eared willow scrub.
Z	NR 71865 45072	E2.1 Acid flush Sharp-flowered rush over bryophyte dominated vegetation of (<i>Polytrichum commune</i>) and <i>Sphagnum</i> mosses. Some bog myrtle (<i>Myrica gale</i>).
1	NR 74758 44178	E1.7 Wet modified bog <i>Calluna</i> dominated wet modified bog.
2	NR 71785 44851	B5 Marshy grassland Meadowsweet (<i>Filipendula ulmaria</i>), sharp-flowered rush, marsh thistle (<i>Cirsium palustre</i>), selfheal, Yorkshire fog, devil's bit scabious (<i>Succisa pratensis</i>), tormentil (<i>Potentilla erecta</i>), lesser spearwort (<i>Ranunculus flammula</i>), ragwort, marsh willowherb, wild marjoram (<i>Origanum vulgare</i>) and sneezewort (<i>Achillea ptarmica</i>).
3	NR 74667 44200	E2.1 Acid flush Sharp-flowered rush dominated.
4	NR 74293 44030	E1.6.1 Blanket bog <i>Calluna</i> dominated with purple moor grass (<i>Molinia caerulea</i>), bog asphodel (<i>Narthecium ossifragum</i>), and hare's-tail cottongrass (<i>Eriophorum vaginatum</i>) over a cover of bryophytes including <i>Sphagnum</i> species.

Target Note	Grid reference	Notes
6	NR 74465 43918	E1.7 Wet modified bog Calluna dominated bog with purple moor grass, hare's-tail cottongrass, bilberry (<i>Vaccinium myrtillus</i>), cross-leaved heath (<i>Erica tetralix</i>), bog asphodel and tormentil. Wetter areas with papillose peatmoss (<i>Sphagnum papillosum</i>). Some scattered spruce (<i>Picea</i> sp.) regeneration and evidence of past peat cutting in areas.
7	NR 74583 44047	I2.1 Stone quarry Former quarry for access road material. Has vegetated with D5 dry dwarf shrub heath / acid grassland mosaic and scattered eared willow scrub.
8	NR 74268 43835	G1 oligotrophic standing water.
9	NR 73523 43916	I2.1 Stone quarry Former quarry for access road material. Dry heath vegetation.
10	NR 73489 44013	E2.1 Acid flush Sharp-flowered rush dominated over Flat-topped bog-moss (<i>Sphagnum fallax</i>).
11	NR 73295 43925	D5 Dry heath / acid grassland mosaic Small area with mosaic of bell heather <i>Erica cinerea</i> dominated dry heath and wavy hair-grass (<i>Deschampsia flexuosa</i>) dominated acid grassland on knoll to north of access road.
12	NR 73320 43871	I2.1 Stone quarry Former quarry for access road material. Mosaic of dry heath and acid grassland vegetation with rock exposure and spoil.
13	NR 73241 43883	I2.1 Stone quarry Former quarry for access road material with swamp vegetation at base of excavation and dry heath/acid grassland mosaic on quarry sides. Swamp vegetation includes common sedge (<i>Carex nigra</i>), star sedge (<i>Carex echinata</i>), lesser spearwort and common spikerush (<i>Elocharis palustris</i>).

Source: Natural Power

Habitat Loss Calculations

A7.1.37. Details of habitats that will be lost as a result of the Proposed Development are shown in **Table A7.9**.

Table A7.5: Habitat loss from the Proposed Development

Phase 1 Habitat	Habitat in Study Area (ha)	Permanent loss to the Proposed Development		Temporary loss to the Proposed Development	
		(ha)	(%)	(ha)	(%)
A1.1.1 – Semi-natural broadleaved woodland	193.23	0.15	0.08	0.08	0.04
A1.1.2 – Plantation broadleaved woodland	3.10	0.00	0.00	0.00	0.00
A1.2.2 – Plantation coniferous woodland	2567.23	22.35	0.87	35.26	1.37
A1.3.2 – Plantation mixed woodland	5.60	0.00	0.00	0.00	0.00
A2.1 – Dense/continuous scrub	87.49	0.31	0.35	0.10	0.11
A2.2 – Scattered scrub	0.10	0.00	0.00	0.00	0.00
A4.2 – Recently felled coniferous woodland	182.42	1.16	0.64	2.11	1.16
B1.1 – Acid grassland - unimproved	0.79	0.00	0.00	0.00	0.00
B1.2 – Acid grassland - semi-improved	0.14	0.00	0.00	0.02	12.18
B2.1 – Neutral grassland - unimproved	0.33	0.00	0.00	0.00	0.00

Phase 1 Habitat	Habitat in Study Area (ha)	Permanent loss to the Proposed Development		Temporary loss to the Proposed Development	
		(ha)	(%)	(ha)	(%)
B2.2 – Neutral grassland - semi-improved	8.26	0.01	0.11	1.01	1.60
B5 – Marshy grassland	45.82	0.06	0.14	0.09	4.56
C1.1 – Continuous bracken	71.65	0.56	0.78	1.15	0.02
C1.1/A2.2 – Continuous bracken/scattered scrub	0.35	0.06	18.04	0.02	55.50
C3.1 – Ruderal tall herb and fern	0.17	0.00	0.00	0.00	0.86
C3.2 – Non-ruderal tall herb and fern	0.25	0.00	0.00	0.14	6.83
D1.1 – Dry dwarf shrub heath	53.42	0.50	0.93	0.46	2.14
D2 – Wet dwarf shrub heath	9.53	0.05	0.53	0.65	2.21
D5 – Dry heath/acid grassland mosaic	0.77	0.04	5.85	0.02	0.24
D6 – Wet heath/acid grassland mosaic	0.27	<0.01	1.68	0.01	4.30
E1.6.1 – Blanket bog	6.65	0.00	0.45	0.00	0.00
E1.7 – Wet modified bog	77.59	1.03	1.33	3.33	4.30
E1.8 – Dry modified bog	14.58	0.62	4.27	0.99	6.79
E2.1 – Flush and spring - acid/neutral	30.57	0.39	1.28	0.55	1.80

Phase 1 Habitat	Habitat in Study Area (ha)	Permanent loss to the Proposed Development		Temporary loss to the Proposed Development	
		(ha)	(%)	(ha)	(%)
E3.1 – Fen -valley mire	4.79	0.00	0.00	0.00	0.00
F1 – Swamp	1.94	0.00	0.00	0.00	0.00
G1 – Standing water	2.82	0.00	0.00	0.00	0.00
G1.3 – Standing water - oligotrophic	1.46	0.00	0.00	0.00	0.00
G2 – Running water	3.20	0.00	0.00	0.00	0.00
I2.1 – Artificial rock exposure - quarry	0.79	0.03	3.59	0.02	2.23
J1.3 – Cultivated/disturbed land - ephemeral/short perennial	0.18	0.00	0.00	0.00	0.00
J4 – Bare ground	1.29	0.01	0.57	0.01	0.40
J5 – Other habitat (track)	6.39	3.29	51.46	0.38	6.03

Source: Natural Power

Bats Preliminary Roost Assessment

A7.1.38. Potential bat roosting features (PRFs) identified during the preliminary roost assessment undertaken within the Study Area are summarised in **Table A7.10** and shown on **Volume 2a, Figure 7.7: Protected Mammal Survey Results**.

Table A7.10: Potential bat roost features identified 2023 and 2024

Year	Distance from nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
2023	570	4	539	Alder with rot holes / woodpecker holes at 6 m high on east side of trunk.
	1177	6	1123	Mature oaks (<i>Quercus</i> sp.).
	2110	6	2054	Partly dead sycamore with rot hole 5 m high on north side of trunk.
	2381	6	2302	Standing dead tree with single rot hole on south side of trunk.
	3266	6	3178	Sycamore with rot hole 15 m high on east side of main stem.
	3285	6	3186	Mature oak with two broken limbs and lateral cracks.
	3362	4	3293	Mature oaks on steep escarpment (no access to trees).
	3887	4	3853	Mature oak with lateral cracks on one dead branch.
	4409	4	4376	Mature oaks in steep burn valley viewed from distance (no access to trees).
2024	650	14	623	Old building, potential roost site between drystone walls. Potential only for individual bats in summer and possibly winter.
	938	3	883	Cavity / cave in old borrow pit. Appears damp so probably unsuitable but feature is at height so could not be inspected.

Source: Natural Power

Automated Static Detector Surveys

A7.1.39. Summaries of the total recorded bat passes are shown in **Table A7.11** and **Table A7.12**. **Graphic A7.1** shows the overall bat passes per species, per detector across the entire deployment period.

A7.1.40. **Graphic A7.2**, **Graphic A7.3** and **Graphic A7.4** show the bat passes per species per detector for each season of deployment. Similarly, the number of bat passes per night for spring, summer, and autumn are shown in **Graphic A7.5**, **Graphic A7.6** and **Graphic A7.7** respectively.

A7.1.41. The total number of nights with recorded bat activity has been summarised in **Table A7.13** for each detector and species.

Table A7.11: The total number of bat passes recorded by each detector during the survey periods

Detector ID	Spring	Summer	Autumn	Total
1	51	297	298	646
2	15	114	0	129
3	913	2349	0	3262
4	5	25	266	296
5	38	55	56	149
6	12	42	97	151
7	0	2	61	63
8	3	120	592	715
9	125	161	216	502
10	5	14	37	56
11	33	76	76	185
12	14	29	95	138
13	86	572	1061	1719
14	14	87	33	134
Total	1314	3943	2888	8145

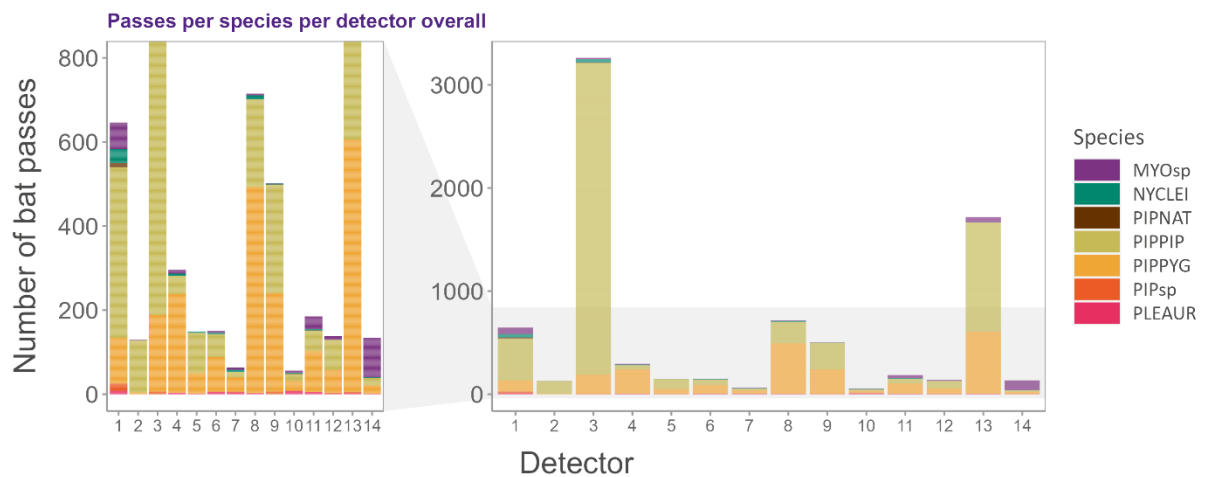
Source: Natural Power

Table A7.12: The total number of bat passes recorded for each species per season

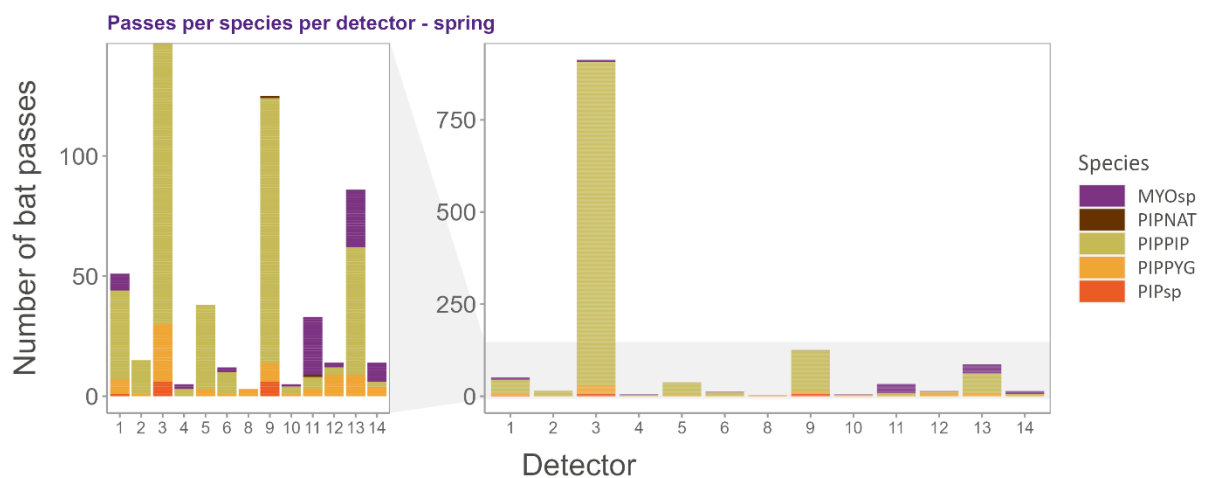
Species/species group	Spring	Summer	Autumn	Total	Percentage of total (%)
<i>Myotis</i> sp.	73	131	88	292	3
Leisler's	0	33	68	101	1

Species/species group	Spring	Summer	Autumn	Total	Percentage of total (%)
Nathusius' pipistrelle	5	11	1	17	>1
Common pipistrelle	1151	3389	899	5439	67
Soprano pipistrelle	72	375	1772	2219	27
<i>Pipistrellus</i> sp.	13	0	24	37	1
Brown long-eared	0	4	36	40	1
Total	1314	3943	2888	8145	100

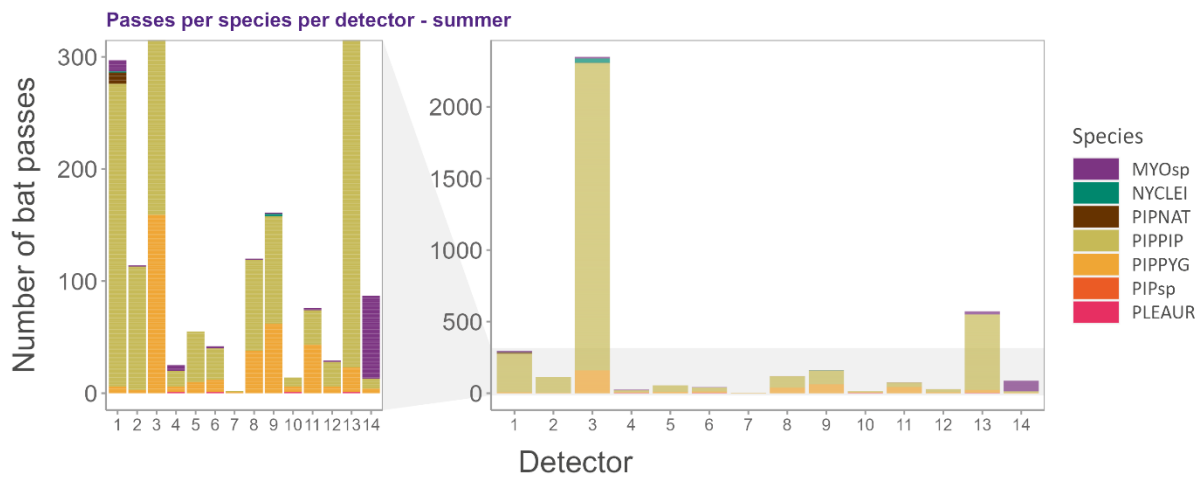
Source: Natural Power



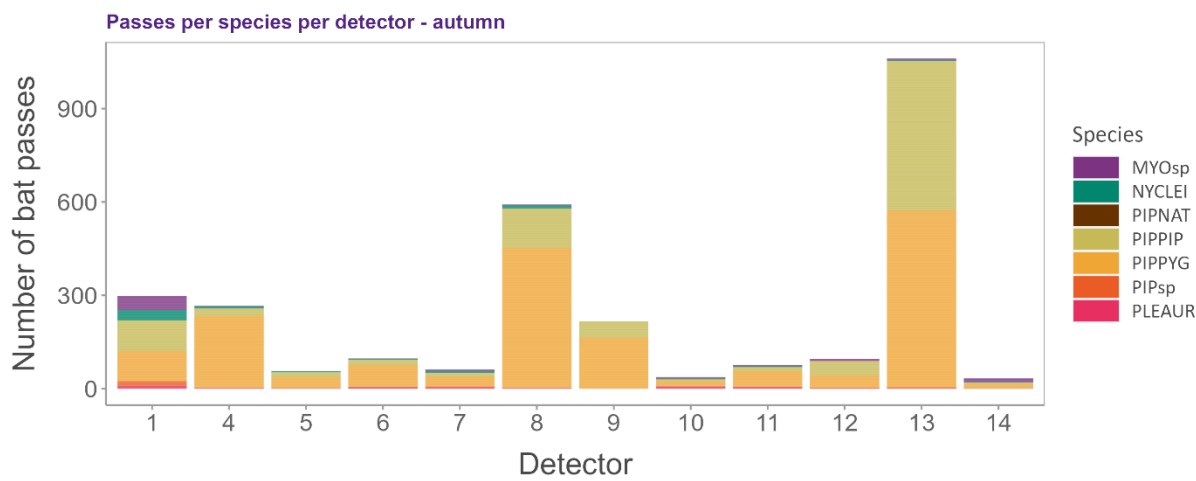
Graphic A7.1: Overall bat passes per species per detector (the plot on the left is scaled to enable better visualization of detectors with fewer passes)



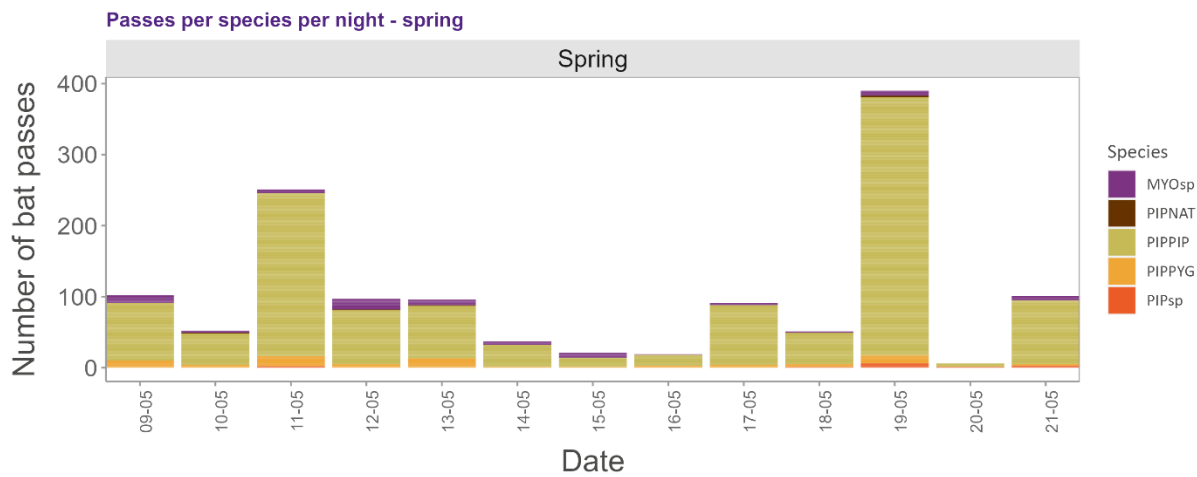
Graphic A7.1: Bat passes per species per detector for the spring deployment (the plot on the left is scaled to enable better visualization of detectors with fewer passes). Note that detector 7 was removed as no data was collected due to technical issues



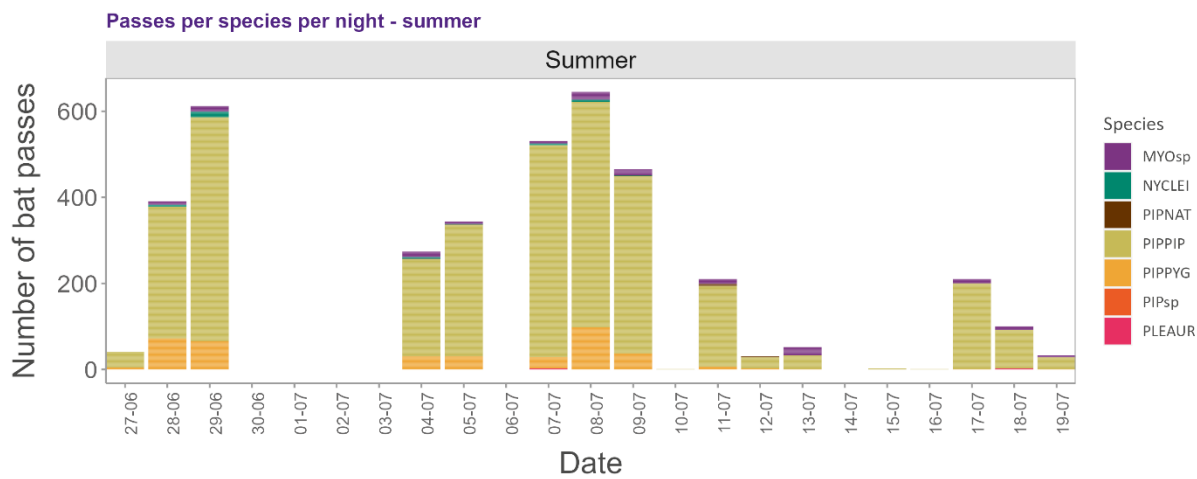
Graphic A7.2: Bat passes per species per detector for the summer deployment^{Error! Bookmark not defined.}
(the plot on the left is scaled to enable better visualization of detectors with fewer passes)



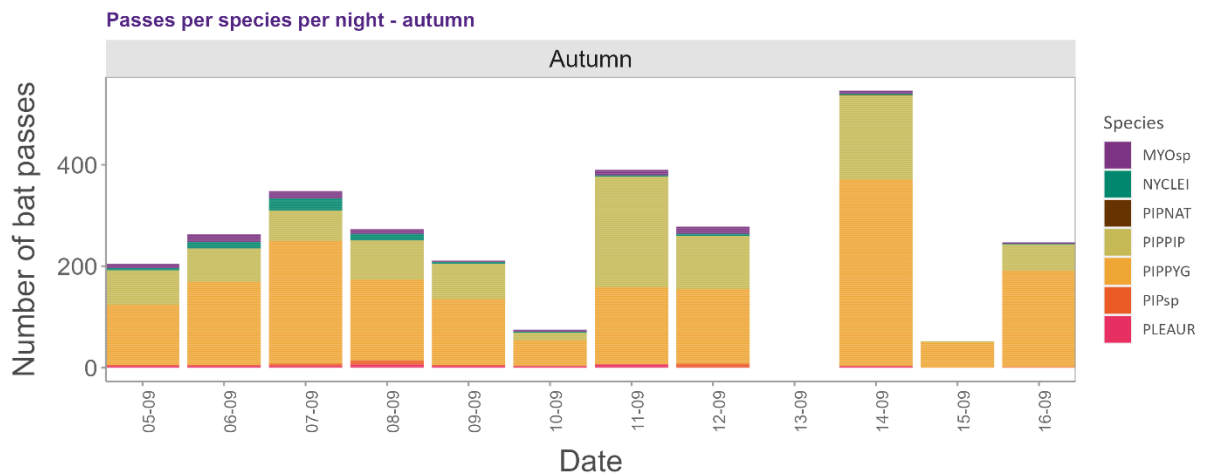
Graphic A7.3: Bat passes per species per detector for the autumn deployment¹².
Note that detector 3 was removed as no data was collected due to technical issues



Graphic A7.4: Bat passes per species per night for the spring deployment¹²



Graphic A7.5: Bat passes per species per night for the summer deployment



Graphic A7.6: Bat passes per species per night for the autumn deployment

Table A7.6: Total number of nights with bat activity (per detector per species)

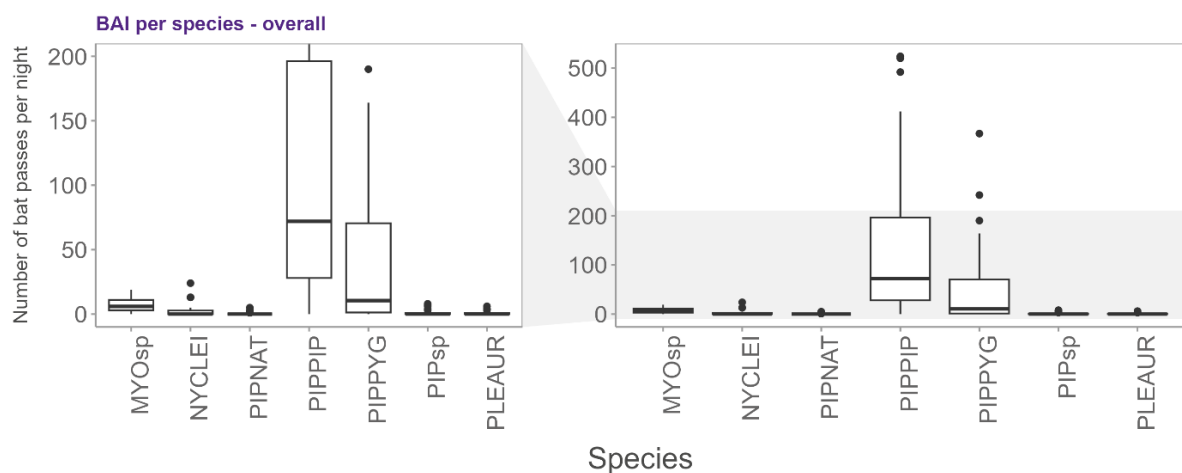
Detector ID	<i>Myotis</i> sp.	Leisler's	Nathusius' pipistrelle	Common pipistrelle	Soprano pipistrelle	<i>Pipistrellus</i> sp.	Brown long-eared
1	18	7	4	26	21	6	5
2	1	0	0	17	3	0	0
3	8	7	3	20	14	2	0
4	8	2	0	16	13	0	3
5	0	2	0	18	14	0	1
6	5	3	0	22	19	1	4
7	3	3	0	6	11	2	3
8	4	6	0	16	22	0	2
9	1	1	1	29	22	5	0
10	4	1	1	10	10	0	6
11	16	2	1	18	16	0	5
12	7	0	0	19	15	1	1
13	22	2	0	31	23	2	2
14	17	1	0	10	8	0	1
Total	114	37	10	258	211	19	33

Source: Natural Power

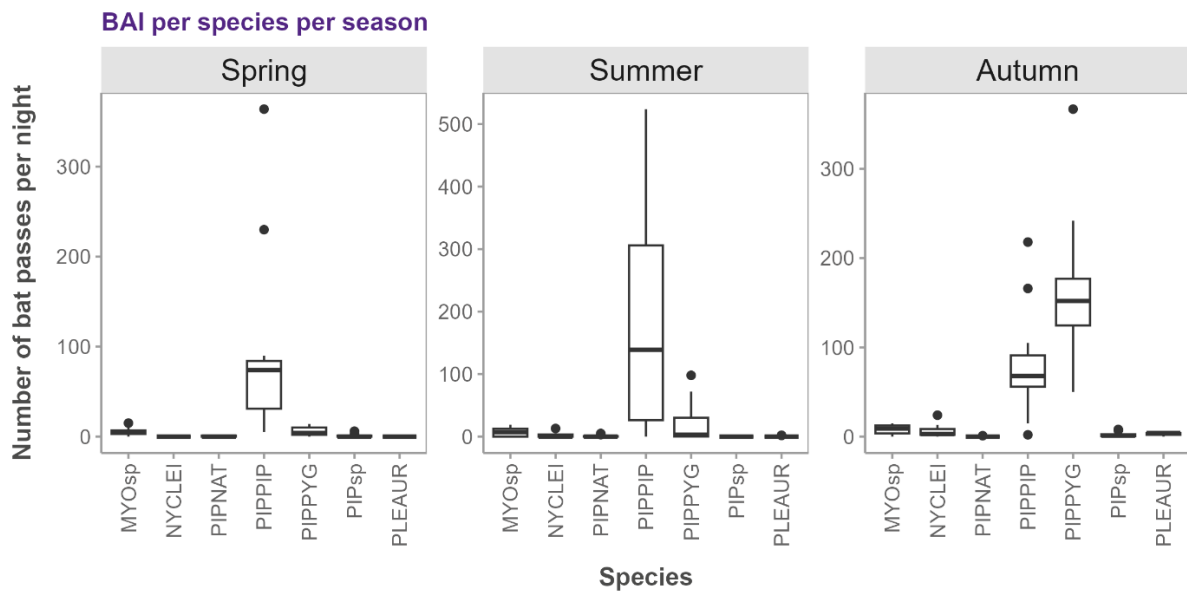
Bat Activity Index

A7.1.42. BAI is a measure of presence within the Study Area per unit of time. Here, BAI was calculated as number of bat passes detected per night of survey effort. **Graphic A7.8** to **Graphic A7.10** display summary statistics for bat activity which has been corrected for effort.

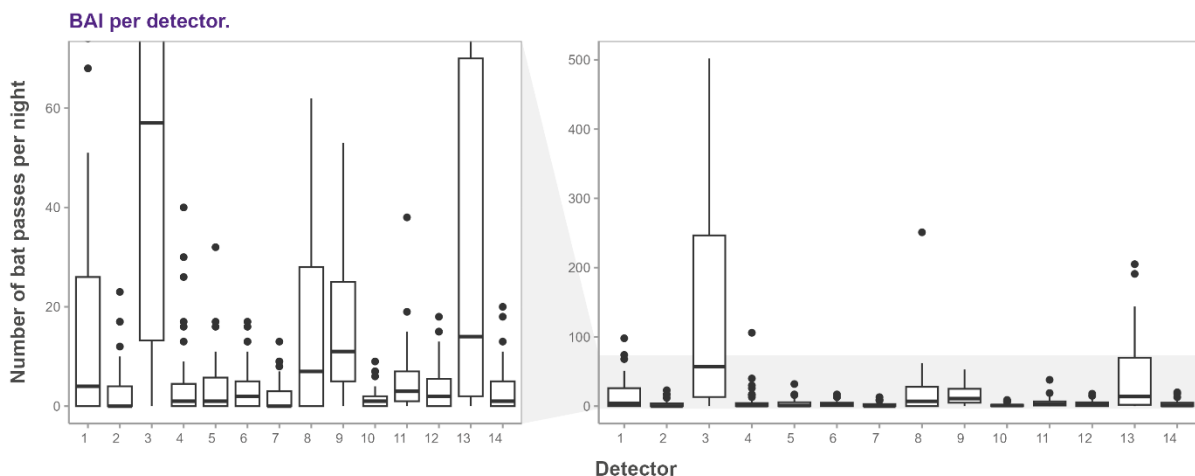
A7.1.43. The 'box' shows the interquartile range, which is where the middle 50% of the data lie. The line dividing the box is the median, the mid-point of the data. The 'whiskers' extend from the box and represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. An outlier is any extreme value that lies further away from the box than 1.5 times the interquartile range. Outliers are shown as dots. Where very few passes are recorded it is not possible to produce the box, so the data are shown as a line.



Graphic A7.7: Overall BAI per species (the plot on the left is scaled to enable better visualization of less common species)



Graphic A7.8: Overall BAI per species per season¹²

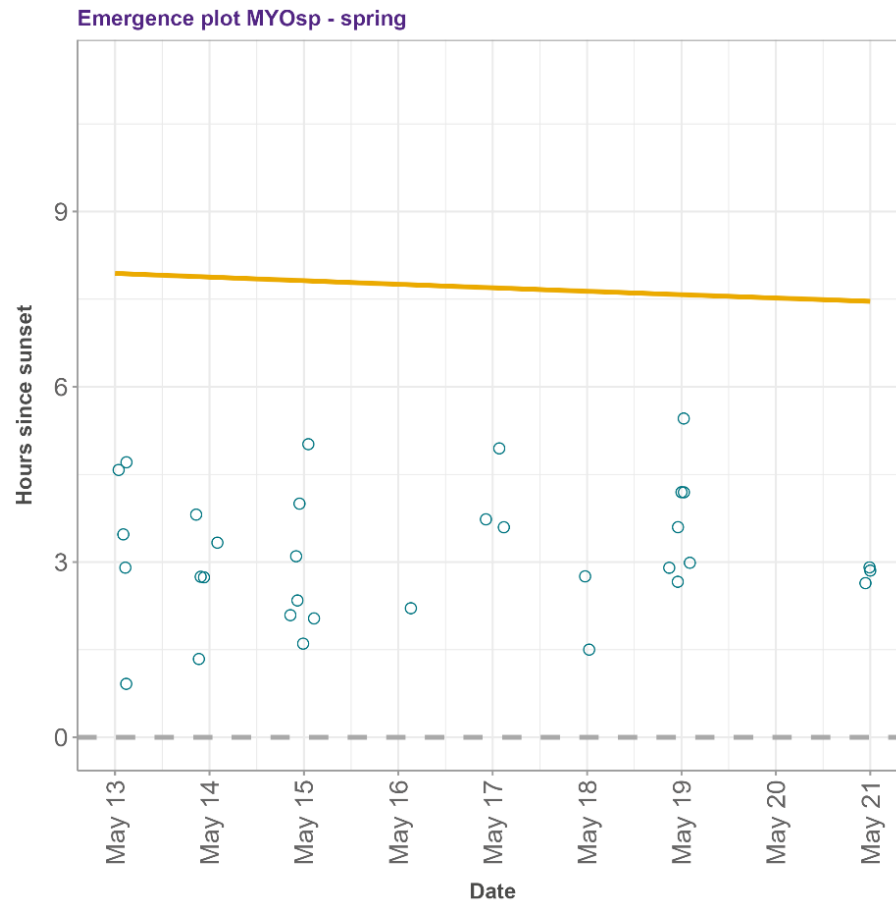


Graphic A7.9: Overall BAI per detector¹² (the plot on the left is scaled to enable better visualization of detectors with fewer passes)

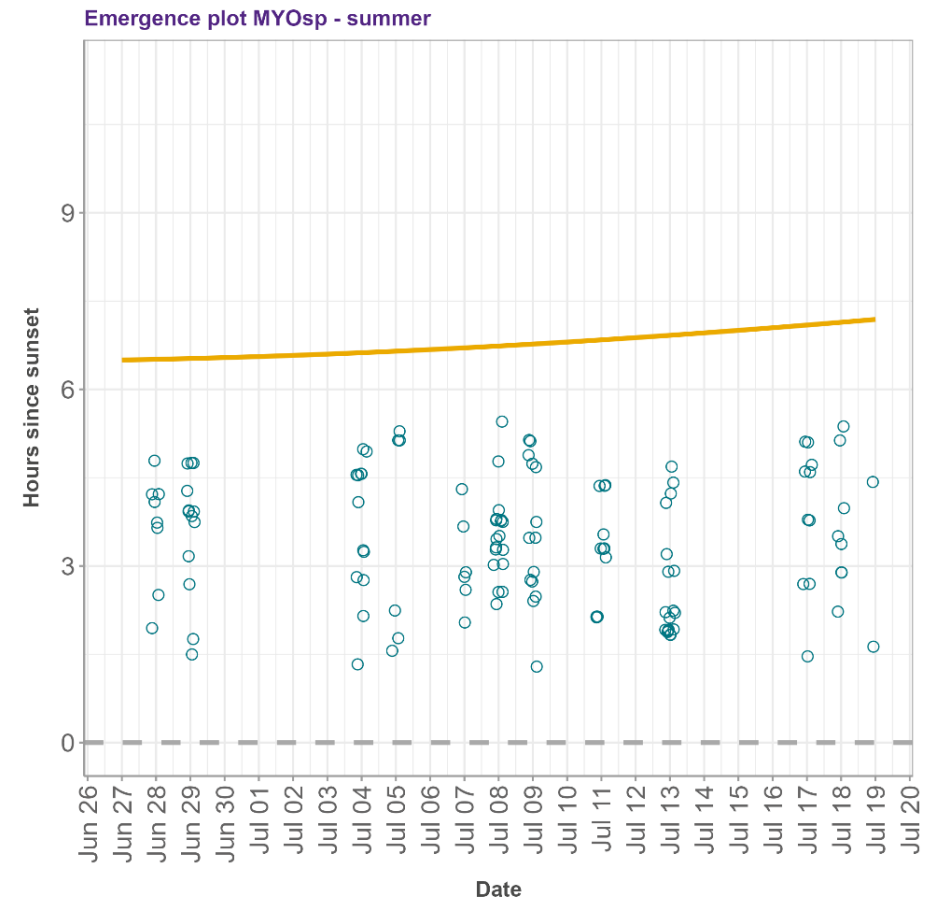
Bat Activity in Relation to Sunset (emergence)

A7.1.44. **Graphic A7.11** to **Graphic A7.26** show the distribution of bat activity across the night over the survey period. The timing of bat calls are plotted as hours after sunset, whereby 0 on the y axis is sunset and is represented by a grey dashed line. Sunrise throughout the survey period is represented by the orange line

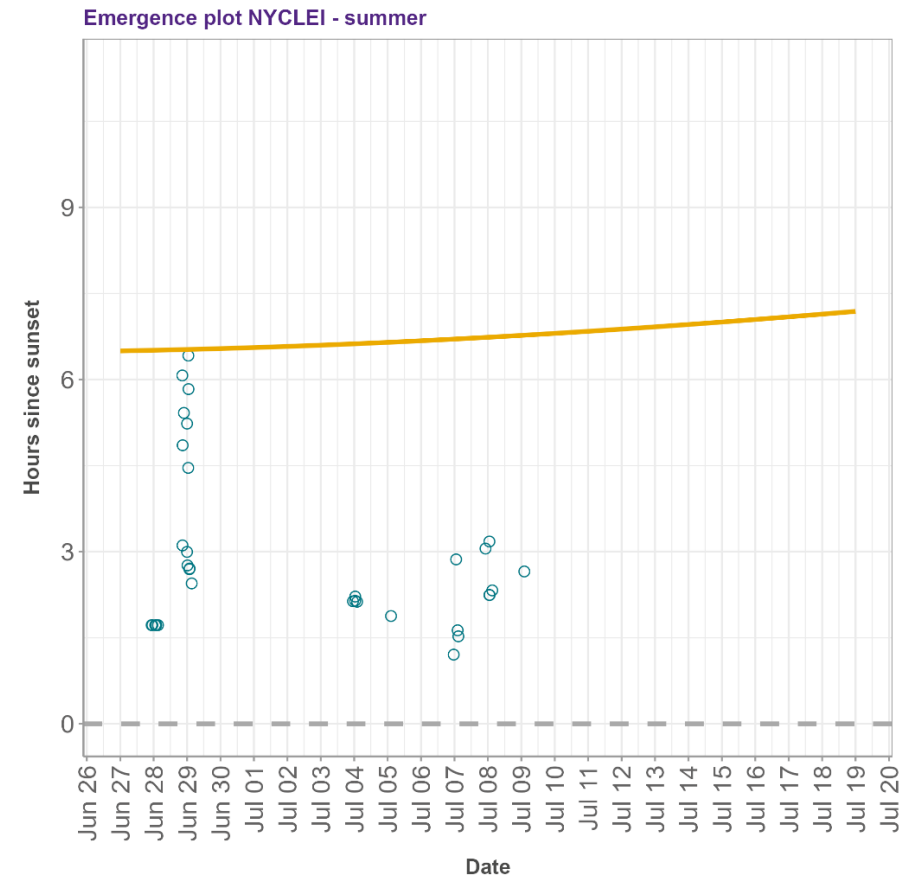
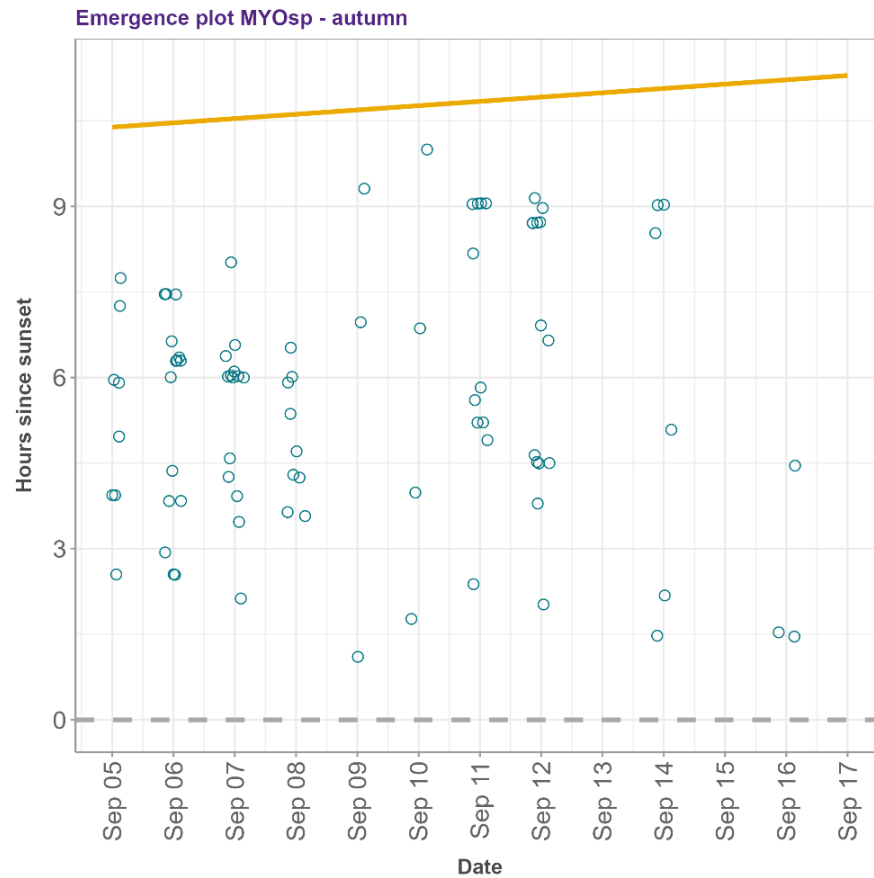
A7.1.45. Bat passes recorded before or within 30 minutes of sunset and after or within 30 minutes of sunrise are shown in **Table A7.14** and **Table A7.15** respectively.



Graphic A7.10: *Myotis* species activity in relation to sunset in spring

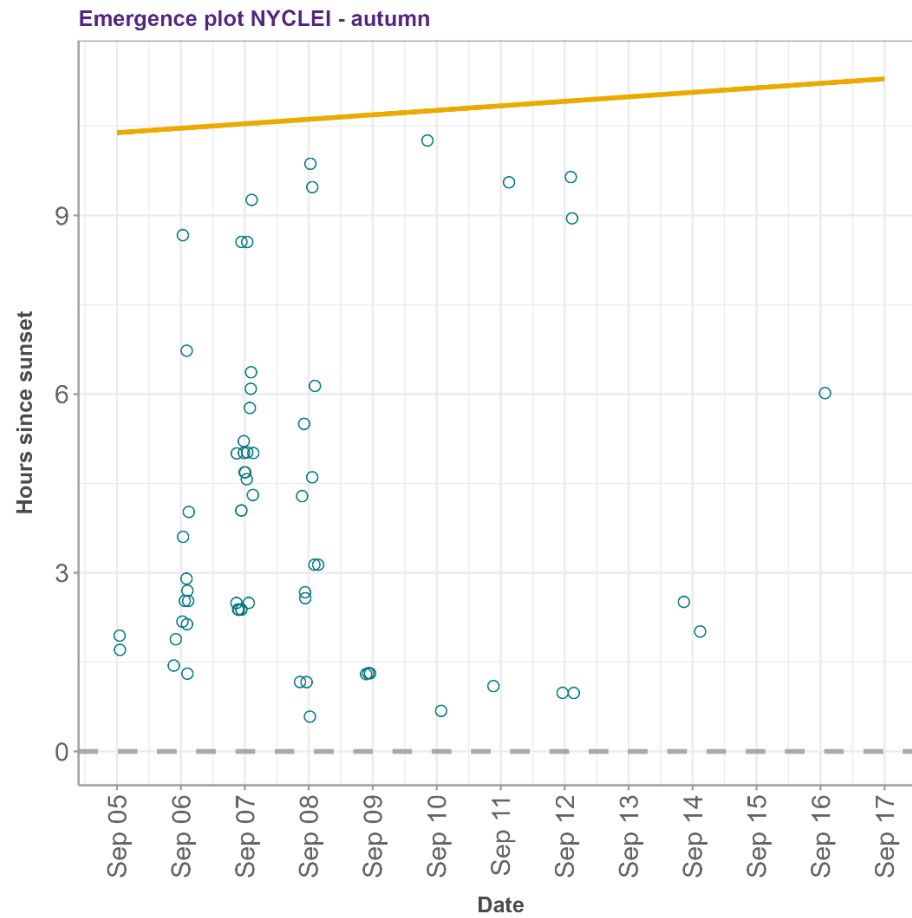


Graphic A7.11: *Myotis* species activity in relation to sunset in summer

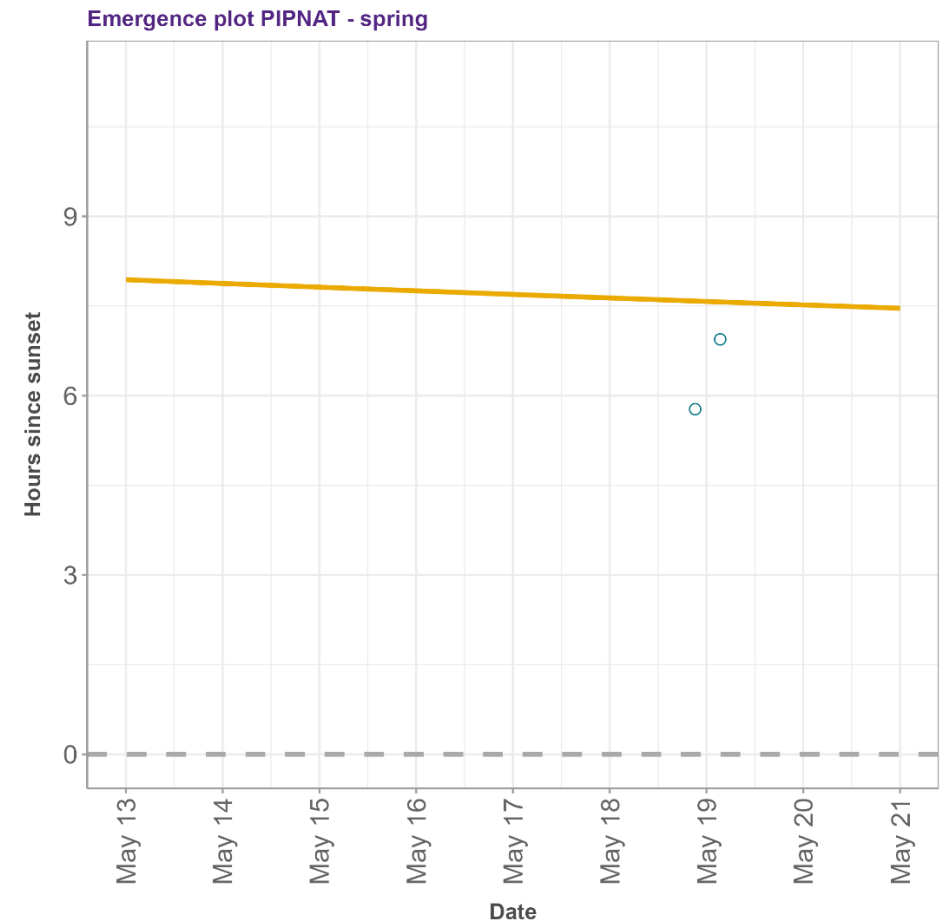


Graphic A7.12: *Myotis* species activity in relation to sunset in autumn

Graphic A7.13: Leisler's activity in relation to sunset in summer

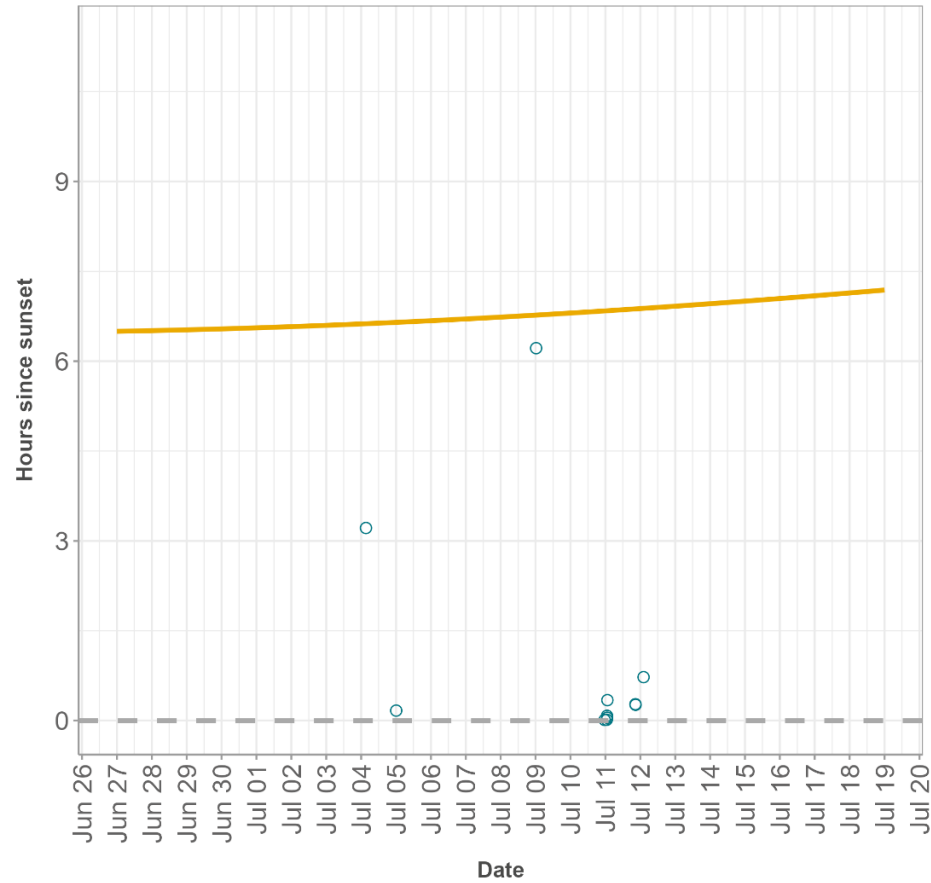


Graphic A7.14: Leisler's activity in relation to sunset in autumn



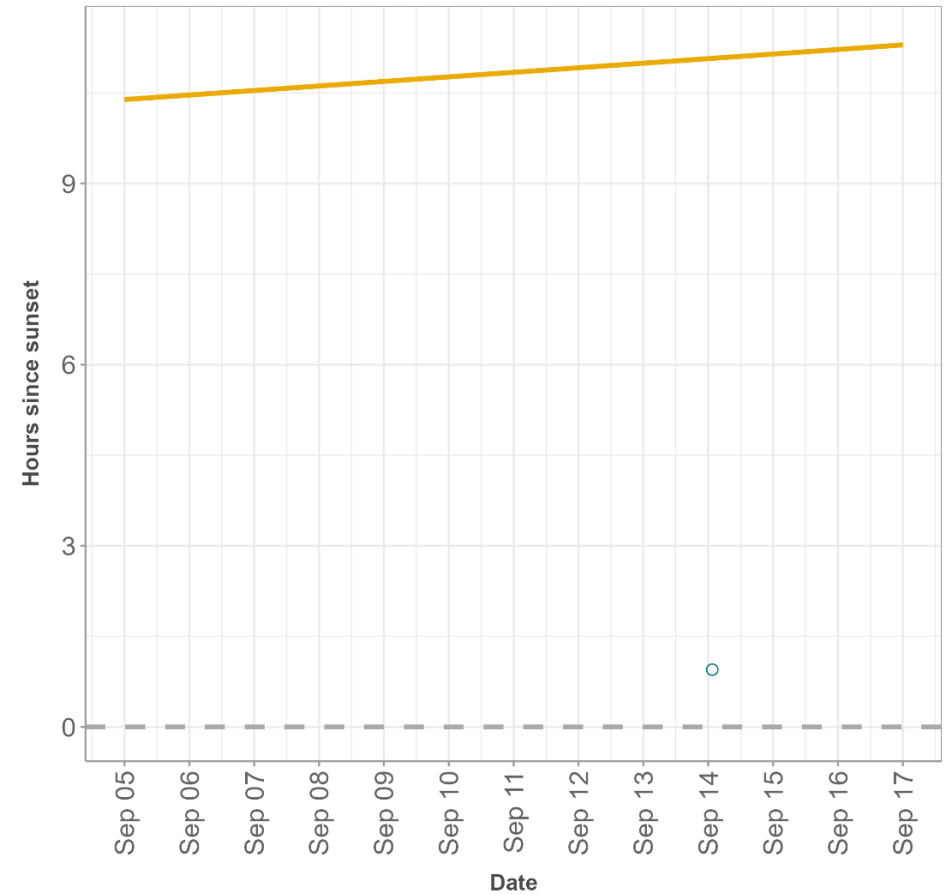
Graphic A7.15: Nathusius' pipistrelle activity in relation to sunset in spring

Emergence plot PIPNAT - summer



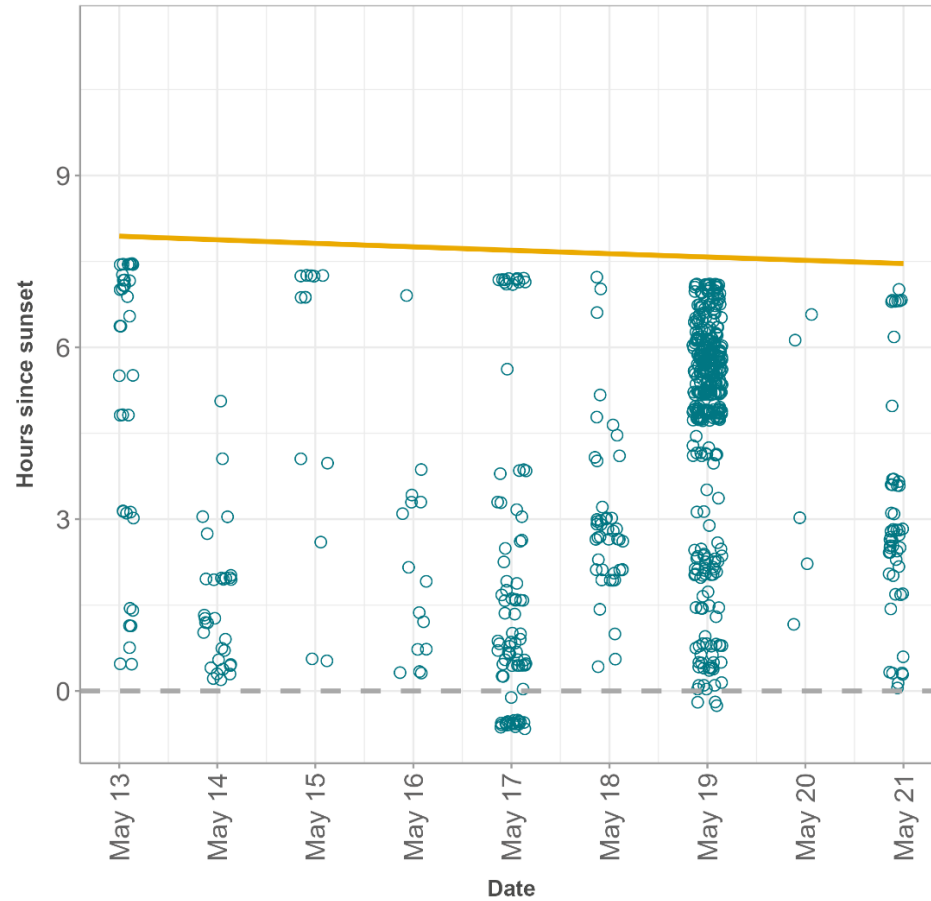
Graphic A7.16: Nathusius' pipistrelle activity in relation to sunset in summer

Emergence plot PIPNAT - autumn



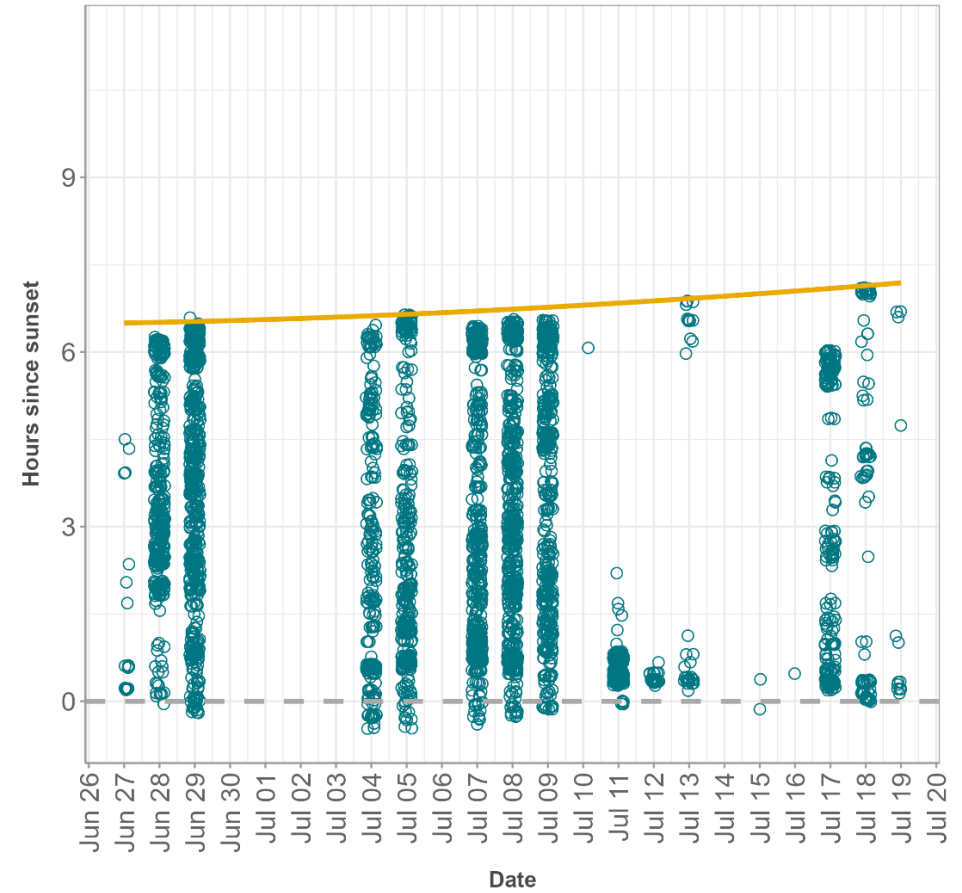
Graphic A7.17: Nathusius' pipistrelle activity in relation to sunset in autumn

Emergence plot PIPPIP - spring

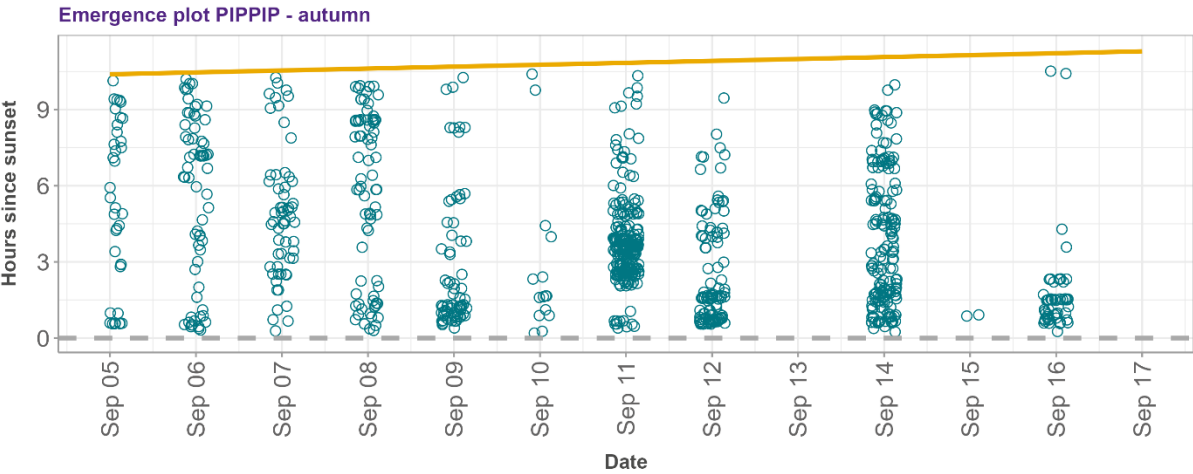


Graphic A7.18: Common pipistrelle activity in relation to sunset in spring

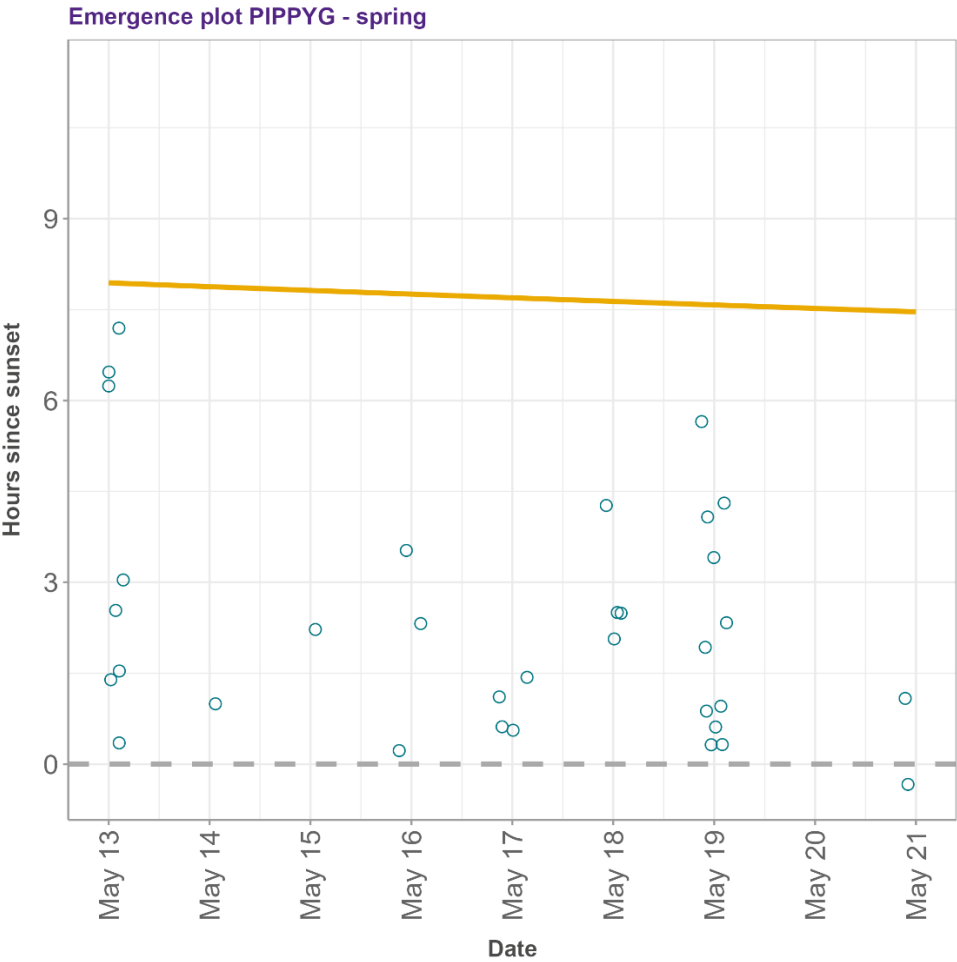
Emergence plot PIPPIP - summer



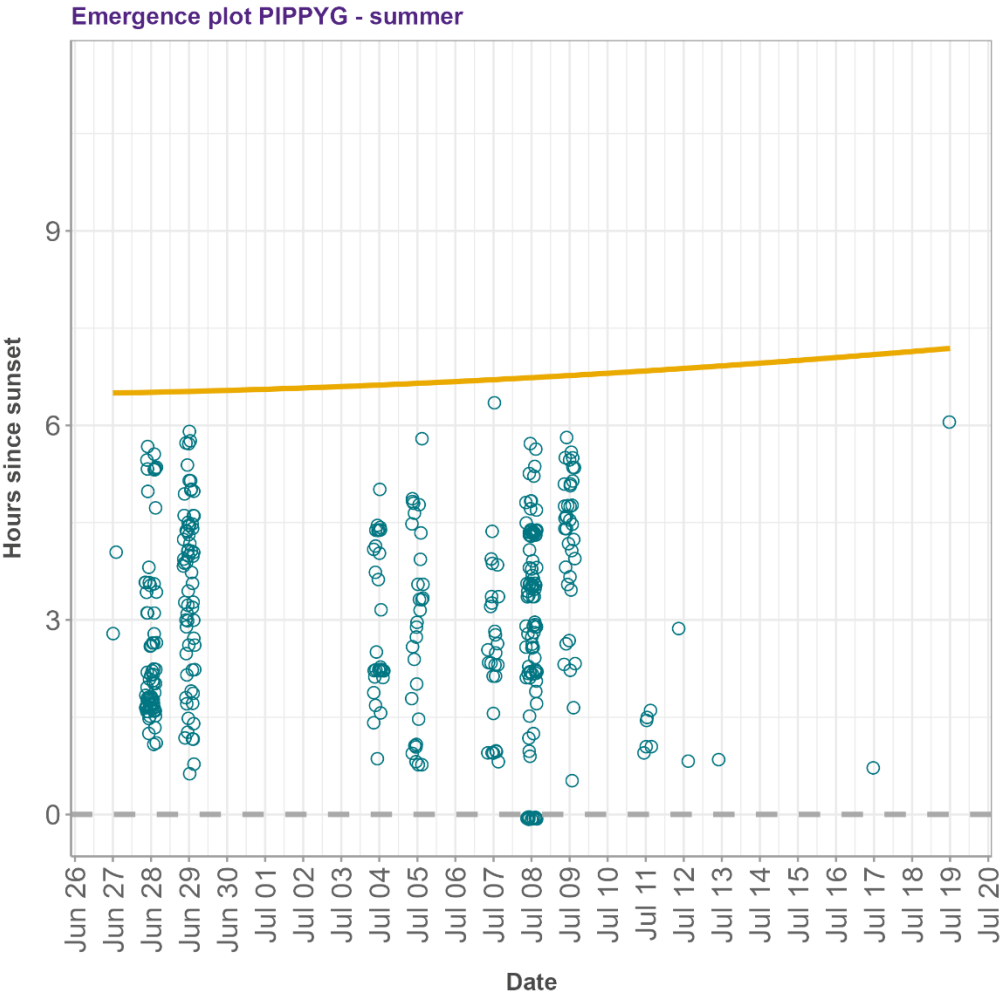
Graphic A7.19: Common pipistrelle activity in relation to sunset in summer



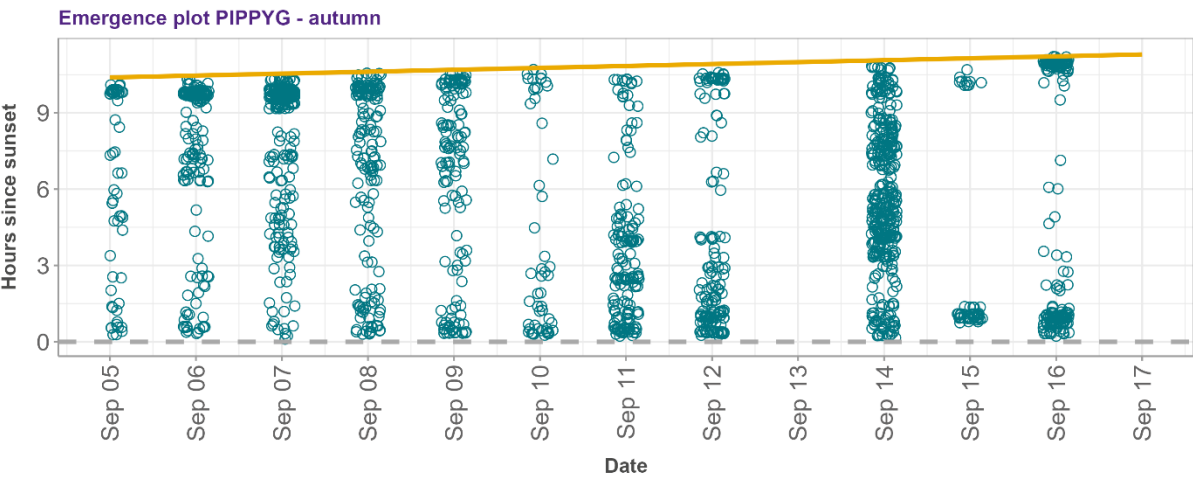
Graphic A7.20: Common pipistrelle activity in relation to sunset in autumn



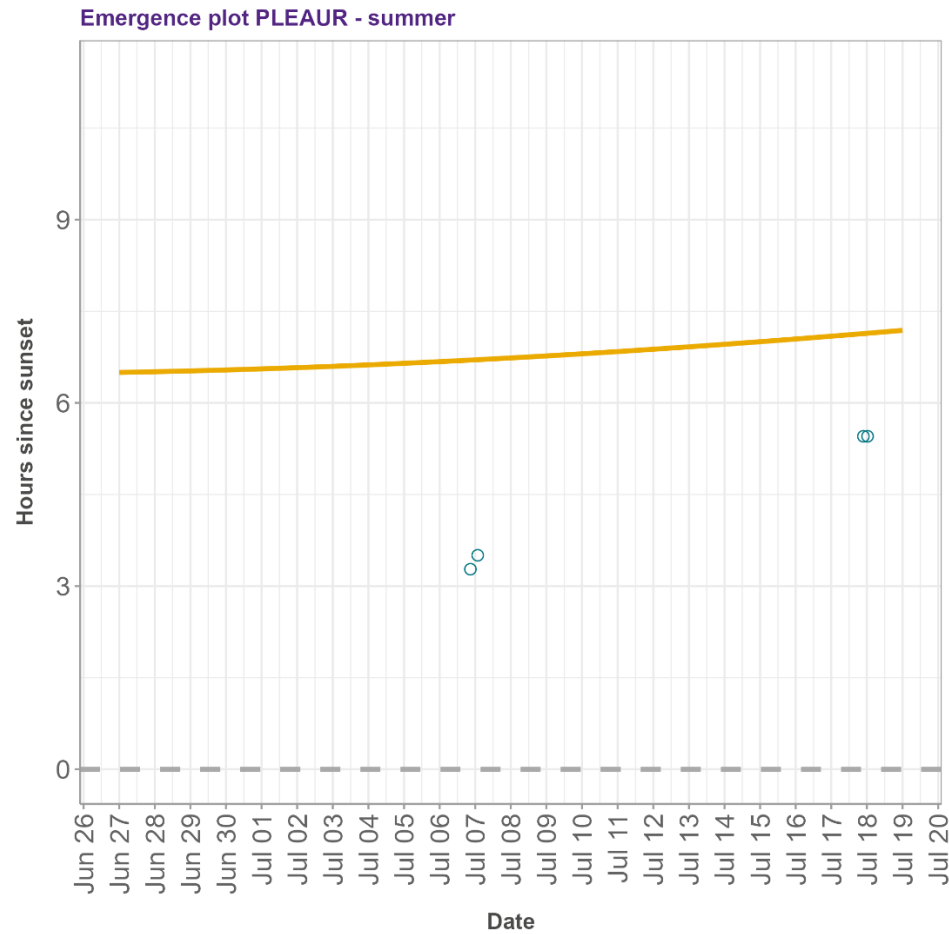
Graphic A7.21: Soprano pipistrelle activity in relation to sunset in spring



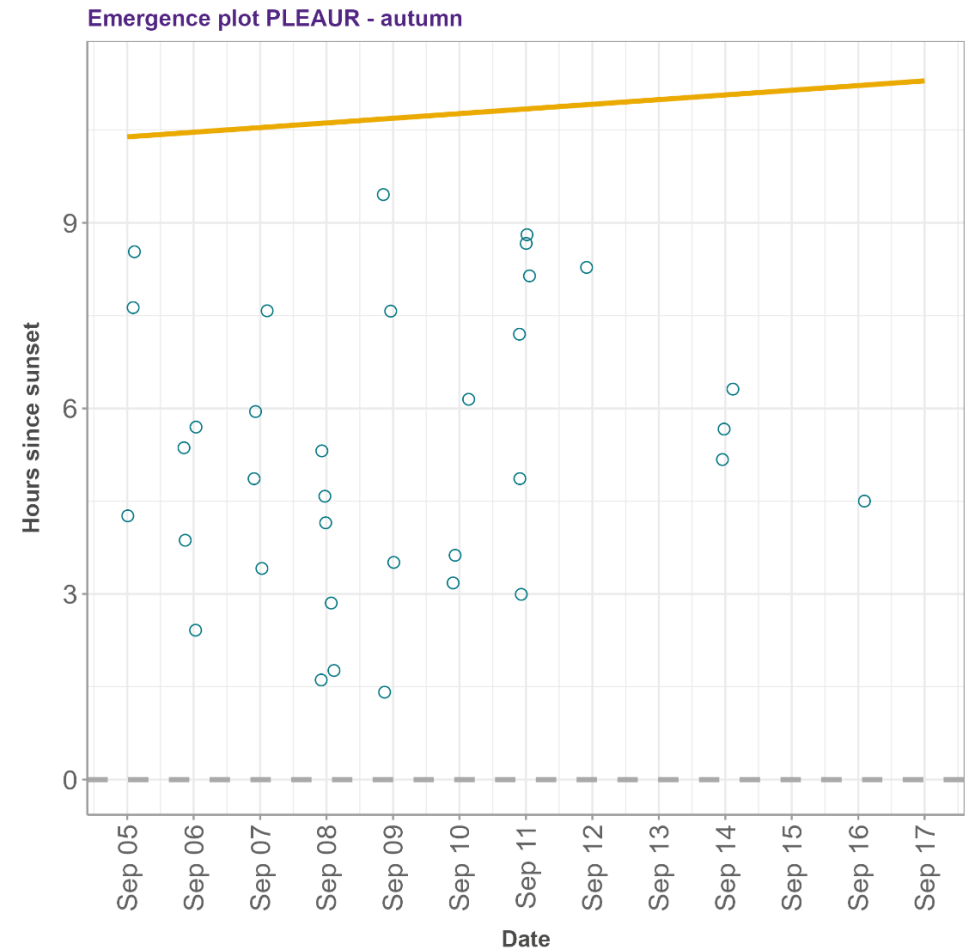
Graphic A7.22: Soprano pipistrelle activity in relation to sunset in summer



Graphic A7.23: Soprano pipistrelle activity in relation to sunset in autumn



Graphic A7.24: Brown long-eared activity in relation to sunset in summer



Graphic A7.25: Brown long-eared activity in relation to sunset in autumn

Source: Natural Power

Table A7.14: Bat passes recorded before or within 30 minutes of sunset

Season	Detector														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Myotis sp.															
Spring	2	0	0	1	0	1	0	0	0	1	2	0	4	2	13
Summer	2	0	1	0	0	2	0	1	0	0	0	0	4	8	18
Autumn	1	0	0	0	0	0	0	0	0	0	1	3	1	0	6
Leisler's															
Summer	1	0	6	0	0	0	0	0	2	0	0	0	0	0	9
Autumn	7	0	0	0	0	0	0	7	0	1	0	0	0	0	15
Nathusius' pipistrelle															
Spring	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Summer	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Autumn	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Common pipistrelle															
Spring	8	8	164	2	2	2	0	0	41	2	3	2	32	1	267

Season	Detector														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Summer	254	25	514	2	7	3	0	20	31	7	8	14	312	5	1202
Autumn	26	0	0	11	12	5	2	21	18	1	1	23	176	1	297
Soprano pipistrelle															
Spring	3	1	8	0	2	0	0	2	5	0	1	5	2	3	32
Summer	4	0	16	2	3	2	1	5	28	0	6	3	11	2	83
Autumn	38	0	0	103	19	12	10	69	20	7	3	28	116	7	432
Pipistrellus sp.															
Spring	1	0	1	0	0	0	0	0	2	0	0	0	0	0	4
Autumn	7	0	0	0	0	0	1	0	0	0	0	0	0	0	8
Brown long-eared															
Autumn	2	0	0	0	0	0	1	0	0	1	0	0	0	0	4
Total	365	34	710	121	45	27	15	125	147	21	26	78	658	29	2401

Source: Natural Power

Table A7.7: Bat passes recorded after or within 30 minutes of sunrise

Season	Detector														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Myotis sp.															
Spring	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3

Season	Detector														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Summer	0	0	7	0	0	0	0	0	0	0	0	0	3	4	14
Autumn	4	0	0	0	0	0	1	1	0	0	0	1	0	0	7
Leisler's															
Summer	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6
Autumn	2	0	0	1	1	1	1	1	0	0	0	0	0	0	7
Nathusius' pipistrelle															
Spring	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Summer	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Common pipistrelle															
Spring	0	6	315	1	0	2	0	0	19	1	0	0	3	0	347
Summer	13	75	642	0	8	5	1	8	10	0	4	1	136	2	905
Autumn	5	0	0	1	2	2	2	17	6	1	2	5	19	2	64
Soprano pipistrelle															
Spring	0	0	0	0	1	0	0	0	0	0	0	0	5	0	6
Summer	1	1	12	0	2	1	0	8	7	0	12	0	7	0	51
Autumn	13	0	0	86	9	22	8	97	46	3	1	0	350	1	636
Pipistrellus sp.															
Spring	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3

Season	Detector														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Autumn	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Brown long-eared															
Summer	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
Autumn	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Total	39	82	986	90	23	35	13	132	89	5	20	7	526	9	2056

Source: Natural Power

Protected Species

A7.1.46. A summary of all protected mammal signs recorded within the Application Site Boundary and a 250 m buffer is provided in **Table A7.16** (2023) and **Table A7.17** (2024).

A7.1.47. Confidential protected species records are provided in **Confidential Appendix 7.2**.

Table A7.16: Protected mammal records within the Study Area in 2023

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Otter	531	4	500	Spraint, weathered.
Otter	555	4	524	Spraint at edge of channel.
Otter	843	7	647	Spraint on rocks.
Otter	1279	4	1184	Spraint on concrete flange under bridge, side of river.
Otter	1758	6	1707	Spraint - weathered in channel.
Otter	1971	4	1933	Spraint on rock in channel.
Otter	1988	4	1950	Spraint on rock in channel.
Otter	2043	4	2007	Spraint and jelly.
Otter	2064	4	2029	Spraint, weathered.
Otter	2092	4	2059	Spraint and jelly on prominent rock at side of channel.
Otter	2159	4	2125	Spraint on rock in channel.

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Otter	3930	4	3897	Spraint in watercourse channel, weathered.
Otter	4503	4	4470	Spraint, weathered. Found under bridge.
Pine marten	86	4	0	Scat on path.
Pine marten	193	14	166	Scat on path.
Pine marten	201	4	101	Scat on track.
Pine marten	207	7	111	Scat.
Pine marten	291	7	227	Scat on track, weathered.
Pine marten	411	3	0	Scat on path.
Pine marten	419	2	307	Scat on path.
Pine marten	435	6	381	Scat on track.
Pine marten	484	7	439	Scat.
Pine marten	496	6	440	Scat on track.
Pine marten	524	2	43	Scat on track.
Pine marten	561	5	526	Scat on track.
Pine marten	570	3	512	Scat on path.
Pine marten	653	12	598	Scat.
Pine marten	665	5	494	Scat on track.
Pine marten	852	3	722	Scat on path.
Pine marten	1007	12	964	Scat on path.

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Pine marten	1135	3	1082	Scat on path.
Pine marten	1253	6	1118	Scat on track.
Pine marten	1300	3	1257	Scat on path.
Pine marten	1318	3	1280	Scat on path.
Pine marten	1340	3	1303	Scat on path.
Pine marten	1505	4	1427	Scat on path.
Pine marten	1572	4	1503	Scat on path.
Red squirrel	61	6	33	Feeding signs.
Red squirrel	106	5	33	Feeding signs.
Red squirrel	223	6	190	Feeding signs.
Red squirrel	235	9	81	Feeding signs.
Red squirrel	342	8	47	Feeding signs.
Red squirrel	575	5	476	Feeding signs.
Red squirrel	609	6	531	Feeding signs.
Red squirrel	616	6	489	Feeding signs.
Red squirrel	722	4	688	Feeding signs.
Red squirrel	1062	4	984	Feeding signs.
Red squirrel	1072	4	994	Feeding signs.
Red squirrel	1436	12	1383	Potential cache under windblown root plate.

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Red squirrel	1647	7	1480	Feeding signs.
Red squirrel	1753	12	1699	Potential cache under windblown tree.
Red squirrel	2234	6	2172	Feeding signs.
Red squirrel	2639	6	2548	Feeding signs.
Red squirrel	2664	6	2569	Feeding signs, multiple cones.
Red squirrel	2721	4	2648	Feeding sign.
Red squirrel	2731	6	2677	Feeding sign.
Red squirrel	2836	4	2753	Feeding sign.
Red squirrel	2852	4	2770	Feeding signs, multiple cones.
Red squirrel	2920	4	2836	Feeding sign.
Red squirrel	4543	12	4492	Feeding signs.

Source: Natural Power

Table A7.8: Protected mammal records within the Study Area in 2024

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Otter	732	2	514	Section of watercourse with high potential for otter. Lots of boulders and crags in a wooded ravine. Not safe to survey.

Species	Distance to nearest turbine (m)	Nearest turbine no.	Distance from nearest infrastructure (m)	Notes
Otter	829	13	186	More recent spraint with an old one next to it.
Otter	877	13	159	Very old spraint on edge of the channel.
Pine marten	1154	6	995	Scat.
Pine marten	2905	7	2850	Scat.
Pine marten	2952	7	2897	Scat.
Pine marten	2806	7	2751	Large scat possible pine marten but would not rule out fox.
Pine marten	4029	7	3945	Ten scats on an old felling trail through plantation. Suggests a very active territorial boundary.
Pine marten	4221	7	4137	Scat on prominent mound.

Source: Natural Power