

Land at Pendragon Road, Exeter, Devon

Ecology Addendum

July 2021

A report on behalf of ALD Developments

Ref: 1243-EA-SL

Site Details

| | |
|---------------------------|------------------------|
| Site Name | Land at Pendragon Road |
| Site Location | Exeter, Devon |
| Central OS Grid Reference | SX 93973 94871 |
| Client | ALD Developments |

Quality Assurance

| | |
|--------------------|-----------------------------|
| Report Title | Ecology Addendum |
| Report Reference | 1243-EA-SL |
| Author | Samantha Lincoln BSc ACIEEM |
| Checked By | Richard Pash BSc MCIEEM |
| Approved By | Richard Pash BSc MCIEEM |
| Revision No. | - |
| Issue Date | 08 July 2021 |
| Summary of Changes | N/A |
| Revised By | N/A |
| Approved By | N/A |

The content of this report that has been provided by GE Consulting is true, and has been prepared and submitted in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. Its contents are compliant with British Standard BS42020: 2013 Biodiversity Code of Practice for Planning and Development.

This report has been prepared for the exclusive use of the stated client and unless otherwise agreed in writing by GE Consulting, no other party may use, make use of or rely on the contents of the report. No liability is accepted by GE Consulting for any use of this report, other than for the purposes for which it was originally prepared and provided.

GE Consulting has exercised due care in preparing this report. It has not, unless specifically stated, independently verified information provided by others. No other warranty, express or implied, is made in relation to the content of this report and GE Consulting assumes no liability for any loss resulting from errors, omissions or misrepresentation made by others.

Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that GE Consulting undertook the work. Nothing in this report constitutes legal opinion. If legal opinion is required the advice of a qualified legal professional should be secured.

© Copyright GE Consulting Services (UK) Limited 2021




A Glossary of the terms used in this report is provided in **Appendix 1**.

Executive Summary

This Ecology Addendum presents the results of additional ecology surveys at Land at Pendragon Road, Exeter, Devon (central OS grid reference: SX 93973 94871) in relation to an outline planning application (planning ref. 21/0020/OUT). This report should be read in conjunction with the Ecological Impact Assessment (EcIA) dated 24th February 2021 which was submitted with the planning application.

The Site is approximately 6.7 hectares (ha) and comprised two species poor semi-improved grassland fields bordered and intersected by a number of species rich and species poor hedgerows with associated trees. The development will result in loss of extents of poor semi-improved grassland and approximately 30 linear metres of hedgerow to facilitate access.

This Ecology Addendum includes the results and an evaluation of the following surveys which were conducted in 2021:

-  Three additional bat activity surveys (April to June);
-  Additional dormouse nest tube survey (April to June);
-  Reptile presence/absence survey (April to May).

The findings of these surveys confirmed that the impact assessments for bats, dormouse and reptiles made in the original EcIA (GE Consulting, 2021) are appropriate and that the measures already outlined are suitable with the addition of a reptile mitigation strategy, required due to the confirmed presence of slow worm and common lizard on the Site.

An updated Devon Wildlife Checklist has been provided in **Appendix 2**.

Contents

| | | |
|----------|---|----------|
| 1 | Introduction | 5 |
| 1.1 | Description of Proposed Development | 5 |
| 1.2 | Aims | 5 |
| 2 | Methods | 5 |
| 2.1 | Ecological Scoping and Baseline Data Collection | 5 |
| 2.2 | Baseline Evaluation and Impact Assessment..... | 5 |
| 2.3 | Limitations..... | 6 |
| 3 | Baseline Conditions & Evaluation | 6 |
| 3.1 | Bats..... | 6 |
| 3.2 | Dormouse | 6 |
| 3.3 | Reptiles | 6 |
| 4 | Further Survey Work | 7 |
| 5 | Impact Assessment And Mitigation | 7 |
| 5.1 | Bats..... | 7 |
| 5.2 | Reptiles | 7 |
| 6 | summary and Conclusions | 7 |
| 7 | References..... | 8 |

Figures

- 1: Bat Activity Survey Results
- 2: Dormouse Tube Locations
- 3: Reptile Survey Results

Appendices

| | |
|---|----|
| Appendix 1 – General Glossary of Terms | 12 |
| Appendix 2 – Updated Devon Wildlife Checklist | 13 |
| Appendix 3 – Fauna Mentioned in Report | 15 |
| Appendix 4 – Bat Activity Surveys | 16 |
| Appendix 5 – Dormouse Survey | 20 |
| Appendix 6 – Reptile Survey | 21 |

1 INTRODUCTION

This Ecology Addendum presents the results of an Ecology Addendum additional ecology surveys undertaken at Land at Pendragon Road, Exeter, Devon (central OS grid reference: SX 93973 94871) in relation to an outline planning application (planning ref. 21/0020/OUT). The surveys were commissioned by ALD Developments. The area within the application boundary is hereafter referred to as the 'Site'.

This report should be read in conjunction with the Ecological Impact Assessment (EclA) by GE Consulting dated 24th February 2021 which was submitted with the planning application. The EclA was prepared when a proportion of the required surveys were outstanding; therefore, this Ecology Addendum provides an update to the EclA now that all surveys have been completed.

1.1 Description of Proposed Development

1.2 Proposals include the development of up to 100 new dwellings with associated infrastructure (all matters reserved except for access). Aims

The aims of this report are to:

- Present additional survey results for bats, dormouse and reptiles;
- Identify key ecological constraints to the proposed development and evaluate the significance of any potential effects in relation to bats, dormouse and reptiles; and,
- Provide recommendations for mitigation and enhancement opportunities in accordance with relevant planning policy, legislation and other published guidance where this advice differs from the original EclA (refer to EclA for details of relevant planning policy and legislation).

2 METHODS

2.1 Ecological Scoping and Baseline Data Collection

Table 1 summarises the additional surveys undertaken to provide ecological baseline information for the Site. Full details are provided in the appendices.

Table 1: Summary of Baseline Data Collection Surveys

| Survey Type | Date (s) | Relevant Appendix |
|----------------------|--|-------------------|
| Bat Activity Surveys | April, May and June 2021 Surveys undertaken July-October 2020 were reported in the EclA (GE Consulting, 2021) This addendum report combines the results of all six surveys. | Appendix 4 |
| Dormouse survey | April – May 2021 Surveys undertaken July – October 2020 were reported in the EclA (GE Consulting, 2021) This addendum report combines the results of all surveys. | Appendix 5 |
| Reptile survey | April-May 2021 | Appendix 6 |

2.2 Baseline Evaluation and Impact Assessment

Determining the importance of ecological features was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018). An assessment was then made of possible ecological impacts of the proposed development on each feature within the development's likely 'Zone of Influence' (ZoI). Where uncertainty exists, a precautionary approach has been adopted.

Measures are described to ensure that any impacts can be avoided, minimised or compensated for by applying the mitigation hierarchy in accordance with NPPF paragraph 175 (a) which states:

“If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.”

Additional information contained within the EcIA (GE Consulting, 2021) was used to evaluate the survey findings in the context of local records and previous results.

2.3 Limitations

Care has been taken to ensure that balanced advice is provided on the information available and collected during the study periods, and within the resources available for the project. However, the possibility of important ecological features being missed due to survey timings, absence during surveys or the year of survey cannot be ruled out. In addition, the lack of evidence or records of protected species on Site does not preclude their presence from Site.

Bat activity surveys in April and May were undertaken in sub-optimal conditions due to prolonged unseasonably cold weather. One of the April 2021 static detectors failed to record. However, given that bat data has been collected to cover all seasons the available data is considered to be representative of bat activity on Site sufficient to allow a robust assessment.

3 BASELINE CONDITIONS & EVALUATION

3.1 Bats

During the 2020 and 2021 automated surveys, a total of eleven bat species were recorded (see **Figure 1**). The majority of passes recorded were from pipistrelle species (94.7%) and were identified using all boundaries of the Site. Passes from the light averse and/ or rare *Myotis* species, barbastelle, greater horseshoe and lesser horseshoe were occasionally recorded at hedgerows and woodland edges across the Site but did not show particular affinity to any one location or feature. Although it is considered that the Site does not form an important foraging area or commuting route for these species, the hedgerows and woodland edge are of importance for commuting and foraging bats. As a result, Site is considered to be of **Local** importance for bat species. See **Appendix 4** for further details of bat activity on Site.

3.2 Dormouse

No dormouse nests or other evidence of dormouse were recorded during the 2020 and 2021 surveys and dormice are therefore considered absent from the Site. Dormice will not be considered further in this report.

3.3 Reptiles

During the 2021 surveys, the peak adult count was twenty-eight slow-worms and two common lizards, indicating an exceptional and small population of these species respectively in line with Froglife (1999). The slow worms were recorded using all boundaries of the Site whilst common lizard were recorded on the western edge of the central hedgerow (see **Figure 3**).

The Site is considered to be of value to common species of reptile at the **Local** level.

4 FURTHER SURVEY WORK

No further ecological survey work is considered necessary for this application; however any changes to the proposed masterplan or if any significant amount of time has passed since the date of this report, a re-appraisal may be required.

5 IMPACT ASSESSMENT AND MITIGATION

5.1 Bats

The findings of the 2020 bat surveys do not change the impact assessment and mitigation advice contained within the EclA. Therefore, no further assessment or additional mitigation measures are included in this report.

5.2 Reptiles

During vegetation and ground clearance there is the possibility of reptiles being killed or injured which would be an offence under the Wildlife and Countryside Act 1981 (as amended). Therefore, a mitigation strategy detailed below will be implemented prior to Site clearance.

Given that large extents of suitable and connected habitat will be retained as part of the proposals it is not considered necessary to carry out a translocation of the reptile population. Instead it is considered appropriate to carry out habitat manipulation to encourage reptiles to disperse to areas of retained habitat around site margins beyond the construction area. Removal of sections of hedgerow and areas of greater sensitivity (i.e. scrub margins) should be overseen by an Ecological Clerk of Works (ECoW) who should check for reptiles ahead of clearance. These works will only be undertaken during the period **April to September**¹ when reptiles are most active, in suitable weather conditions when temperatures exceed 10°C. Habitat suitability will be reduced by strimming vegetation using a staged cutting process;

- Grassland and scrub vegetation will initially be cut to approximately 150mm, (starting from the south and working north) with the arisings removed and habitats left for a minimum of 48 hours in suitable weather conditions i.e. no rain or high winds;
- A further cut will then be made to 50mm, beginning at one end of the Site and moving in one direction (from north to south), to encourage any remaining reptiles/ amphibians towards the retained areas of scrub and hedgerows to the north of the Site;
- Once complete, the vegetation will be maintained at a low-level (<50mm) until the start of ground works.

Refuge areas for reptiles will be provided within the Site through the retention of suitable habitat in the northern extents of the Site. Habitat piles will also be created using arisings from vegetation removal on Site and will provide additional habitat for reptiles.

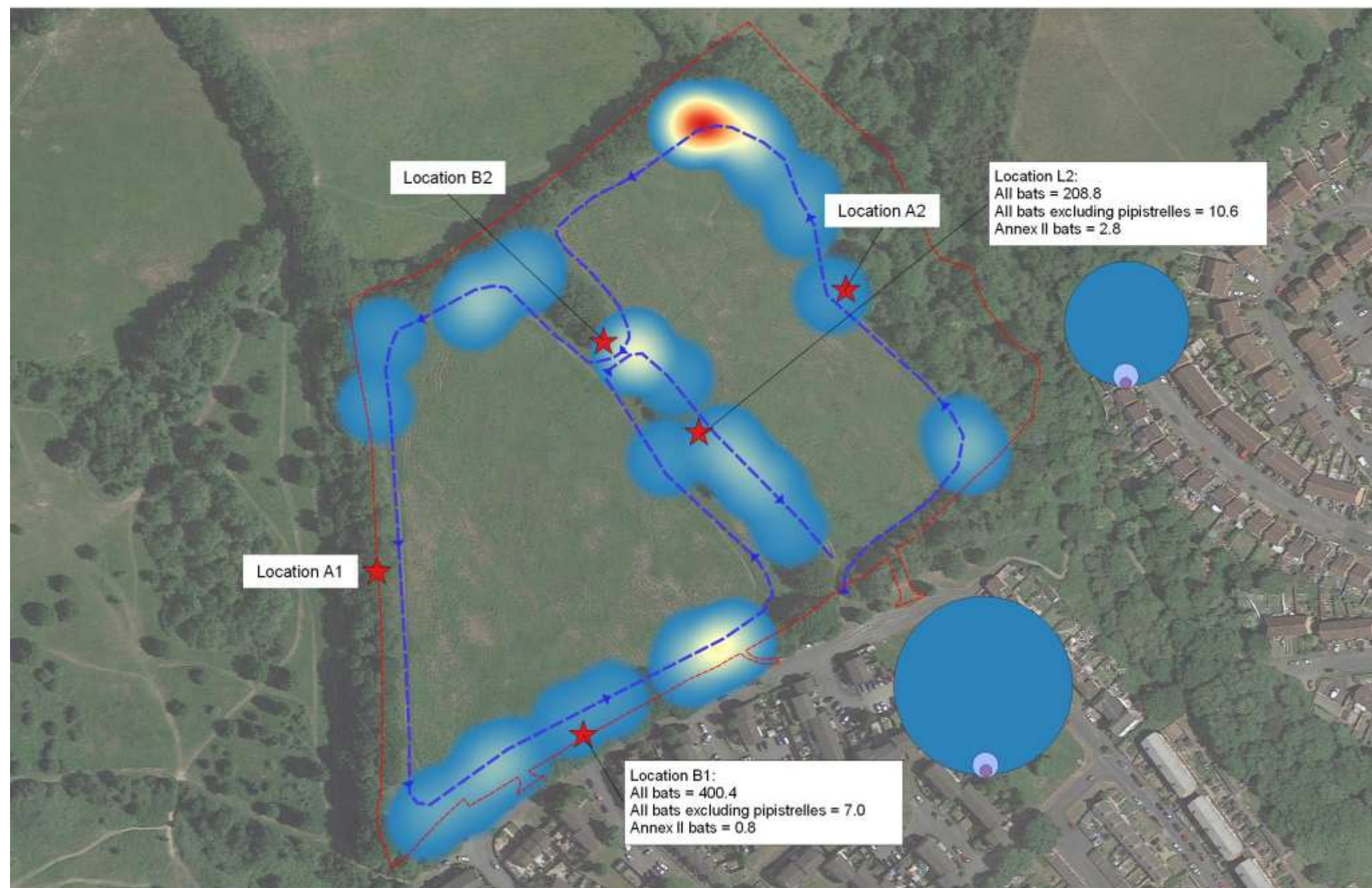
6 SUMMARY AND CONCLUSIONS

In summary, the findings of the 2021 surveys for bats, dormouse and reptiles do not change the impact assessment as set out within the EclA (GE Consulting, 2021). Therefore, the avoidance, mitigation and compensation measures contained within the EclA remain applicable with the addition of the reptile mitigation strategy as outlined in **Section 5**.

¹ Season may be extended at the discretion on the ecologist if weather conditions are mild.

7 REFERENCES

- Bat Conservation Trust (2014) *Artificial lighting and wildlife. Interim Guidance: Recommendations to help minimise the impact artificial lighting*. Available at http://www.bats.org.uk/pages/bats_and_lighting.html
- Bat Conservation Trust/ Institute of Lighting Professional (2018) *Guidance Note 08/18 - Bats and Artificial Lighting in the UK*. Bats and the Built Environment Series.
- Bright P.W., Morris P.A. and Mitchell-Jones A. (2006) *Dormouse Conservation Handbook, 2nd Edition*. English Nature, Peterborough.
- BSI (2013) *BS42020: 2013 Biodiversity. Code of practice for planning and development*. British Standards Institution, London, UK.
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016) *Bat Survey for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.
- Ecologic (2020) *Preliminary Ecological Appraisal & Protected Species Surveys*. Ref: 191205 rev01
- Froglife (1999) *Reptile survey, An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife advice sheet 10
- GE Consulting (2021) *Land at Pendragon Road, Exeter, Devon - Ecological Impact Assessment* Ref:1243-EcIA-RP.
- Joint Nature Conservation Committee (2010) *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit*. Reprinted by JNCC, Peterborough.
- Russ, J.M. (2012) *British Bat Calls: A Guide to Species Identification*. Pelagic Publishing, Exeter.
- Stone, E.L. (2013) *Bats and lighting: Overview of current evidence and mitigation guidance*.
- Wray S. Wells D., Long E. & Mitchell-Jones T (2010) *Valuing Bats in Ecological Impact Assessment*, In Practice 70: 23-25.



Key:

Site Boundary

Static Locations

Circles are indicative of the average number of bat passes per night for April, May and June 2021 surveys

All bats

All bats excluding pipistrelle species

Annex II species

Total Passes Across All Bat Transect Surveys



0 30 60 90 120 m

Map data: Imagery (c)2021 Google, Imagery (c)2021 CNES / Airbus, Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies

Figure 1:
Bat Survey Results

Project:
Land at Pendragon Road, Exeter

Client:
ALD Developments

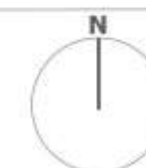
Date:
6/7/2021

Drawn:
SL

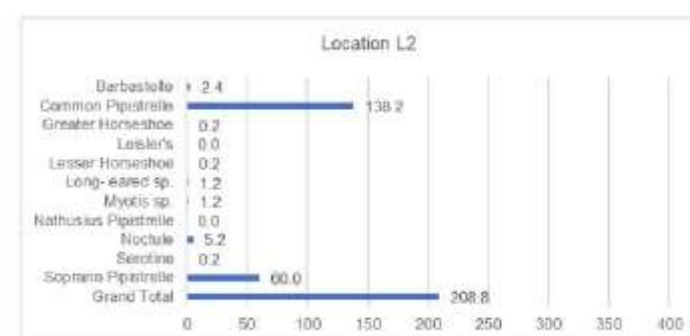
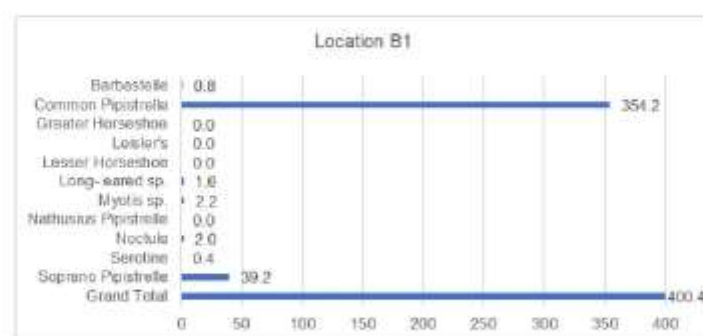
Ref:
1243-EA-F1

Revision:
-

ge consulting
ECOLOGY
ARBORICULTURE
LAND MANAGEMENT



Graphs show the average number of passes per night for each species across the season at each location.





Key:

Site Boundary

→ Dormouse Tubes



(c) Crown copyright and database rights 2021. Ordnance Survey 0100031673.

Figure 2:
Dormouse Tube Locations

Project:
Land off Pendragon Rd., Exeter

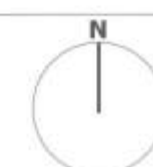
Client:
ALD Developments

Date:
6/7/2021

Drawn:
SL

Ref:
1243-EA-F2

Revision:
-





Key:

Site Boundary

Reptile Mats



(c) Crown copyright and database rights 2021. Ordnance Survey 0100031673.

Figure 3:
Reptile Survey Results

Project:
Land off Pendragon Rd., Exeter

Client:
ALD Developments

Date:
6/7/2021

Drawn:
SL

Ref:
1243-EA-F3

Revision:
-



Appendix 1 – General Glossary of Terms

| | |
|----------|--|
| Annex I | Threatened bird listed on Annex I of the EC Birds Directive |
| Annex II | Habitats and species of community interest whose conservation requires the designation of SACs |
| BAP | Biodiversity Action Plan |
| BNG | Biodiversity Net Gain |
| BoCC | Bird of Conservation Concern (published by Eaton <i>et al.</i> , 2015). |
| CEMP | Construction Environmental Management Plan |
| EPS | European Protected Species |
| HPI | Habitat of Principal Importance required under Section 41 of the NERC Act 2006 |
| JNCC | Joint Nature Conservation Committee |
| LBAP | Local Biodiversity Action Plan |
| LEMP | Landscape and Ecology Management Plan |
| NERC Act | Natural Environment and Rural Communities Act 2006 |
| NVC | National Vegetation Classification Survey |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| SPI | Species of Principal Importance required under Section 41 of the NERC Act 2006 |
| SSSI | Site of Special Scientific Interest |
| WCA | Wildlife and Countryside Act 1981(as amended) |

Appendix 2 – Updated Devon Wildlife Checklist

| Species - terrestrial, intertidal, marine | Walkover shows that suitable habitat present and reasonably likely that the species will be found? <u>Tick or cross</u> | Detailed survey needed to clarify impacts and mitigation requirements? | Detailed survey carried out and included? | Species Present or Assumed to be present on site Indicate with P or A and name the <u>species</u> | Impact on species? | Detailed Conservation Action Statement included? Sets out actions needed in relation to avoidance, mitigation, compensation , enhancement | EPS offence committed? Three tests met? | Grid ref for specific location of species (for large sites) |
|---|--|---|---|--|---|---|---|---|
| Bats (roost) | ✓ | X | X | Assumed | Potential for without mitigation | | N/A | |
| Bats (flight line / foraging habitat) | ✓ | ✓ | ✓ | P 11 species recorded inc Annex II greater horseshoe, lesser horseshoe and barbastelle | ✓ | ✓ | N/A | |
| Dormice | ✓ | ✓ | ✓ | X | | | | |
| Otters | X | | | | | | | |
| Great crested newts (*check consultation zone) | X | | | | | | | |
| Curlew buntings (*check consultation zone) | X | | | | | | | |
| Barn owls | X | | | | | | | |
| Other Schedule 1 birds | X | | | | | | | |
| Breeding birds | ✓ | X | X | P | ✓ | ✓ | | |
| Reptiles | ✓ | X | X | Slow worm and common lizard | ✓ | ✓ | | |
| Native crayfish | X | | | | | | | |
| Water voles | X | | | | | | | |

| | | | | | | | | |
|-------------------------|---|---|---|------------------|---|---|--|--|
| Badgers | ✓ | | | Assumed | | | | |
| Other protected species | ✓ | | | | | | | |
| UK BAP priority species | ✓ | | | Hedgehog assumed | ✓ | ✓ | | |
| Devon BAP key species | ✓ | ✓ | ✓ | GHS present | ✓ | ✓ | | |
| Invasive species | X | | | | | | | |

| Designation Terrestrial, intertidal, marine | Within site or potential impact. <u>Tick or cross</u> | Name of site / habitat | Detailed Conservation Action Statement inc. in report? | Habitat balance sheet included (showing area of habitats lost, gained & overall net gain) | Relevant organisation consulted & response included in the application? |
|---|--|---------------------------------------|---|---|---|
| <i>Statutory designations</i> | | | | | |
| European designations - Special Area of Conservation (SAC), Special Protection Area (SPA) and RAMSAR site or within Greater Horseshoe consultation zone | ✓ | Exe Estuary SAC/Ramsar | Sufficient information included in order for the LPA to undertake an HRA? Yes | | |
| Site of Special Scientific Interest (SSSIs) | ✓ | Stoke Woods SSSI | | | |
| Marine Conservation Zone (MCZ) | X | | | | |
| Local Nature Reserve (LNR) | X | | | | |
| <i>Non statutory wildlife designations</i> | | | | | |
| County Wildlife Site (CWS) | ✓ | Mincinglake Plantation and Savoy Hill | Yes | N/A | |
| Ancient woodland | X | | | | |
| Special Verge | X | | | | |
| UK BAP Priority habitat | X | | | | |
| Local Biodiversity Network (mapped by Devon Wildlife Trust / through Green Infrastructure work) | ✓ | Exeter Biodiversity Network | | | |
| <i>Non statutory geological designation</i> | | | | | |
| County Geological Site (CGS or RIGS) | X | | | | |

Appendix 3 – Fauna Mentioned in Report

| Common Name | Scientific name |
|-------------------------|----------------------------------|
| Barbastelle bat | <i>Barbastella barbastellus</i> |
| Brown long-eared bat | <i>Plecotus auritus</i> |
| Common lizard | <i>Lacerta vivipara</i> |
| Common pipistrelle | <i>Pipistrellus pipistrelles</i> |
| Dormouse | <i>Muscardinus avellanarius</i> |
| Greater horseshoe bat | <i>Rhinolophus ferrumequinum</i> |
| Leisler's bat | <i>Nyctalus leisleri</i> |
| Lesser horseshoe bat | <i>Rhinolophus hipposideros</i> |
| Nathusius pipistrelle | <i>Pipistrellus nathusii</i> |
| Noctule bat | <i>Nyctalus noctula</i> |
| Serotine bat | <i>Eptesicus serotinus</i> |
| Slow worm | <i>Anguis fragilis</i> |
| Soprano pipistrelle bat | <i>Pipistrellus pygmaeus</i> |

Appendix 4 – Bat Activity Surveys

Methods

Please refer to the EcIA (GE Consulting, 2021) and PEA (Ecologic, 2020) for detailed methodologies of the 2020 bat activity surveys and desk study.

Considering the predicted impacts of the proposed development on bats and taking into account previous survey information, it was therefore proportionate to undertake additional surveys once a month between April and June 2021, in accordance with Collins (2016) and BS42020 (BSI 2013).

Additional activity surveys involved two experienced surveyors walking a pre-defined transect route covering all habitats of the Site and passing features with potential for use by foraging and commuting bats. Surveyors were equipped with a manual hand-held detector and recorder (Wildlife Acoustics Echo Metre Echo Meter Touch Pro). When a bat was encountered the time, species and flight direction/ behaviour was noted. Starting locations were altered between surveys to prevent biased results.

Transects commenced at sunset and continued for two hours. All surveys were completed during optimal weather conditions, as detailed below in **Table 4.1**.

Table 4.1: Bat activity transect survey dates and personnel

| Date | Survey type | Sunset/ start time | End time | Transect length (time) | Weather | Personnel |
|------------|-------------|--------------------|----------|------------------------|--|-----------|
| 08/04/2021 | Dusk | 19:56 | 21:56 | 2 hours | Dry, 9-7°C, 30% cloud cover (cc), wind 1 Beaufort (bf) | AM, HS |
| 04/05/2021 | Dusk | 20:38 | 22:38 | 2 hours | Dry, 9-6°C, 10-0% cc, wind 2 bf | AM, HS |
| 09/06/2021 | Dusk | 21:25 | 23:25 | 2 hours | Dry, 14-12°C, 50-0% cc, wind 1 bf | TK, AM |

AM = Adam Martin MA MSc (NE Level 2 bat class licence 2016-23396-CLS-CLS); **HS** = Hannah Spencer BSc MRes; **TK** = Tonia Kenyon BSc (NE Level 1 bat class licence 2018-35106-CLS-CLS).

Automated Detector Surveys

Activity transects were supplemented with the use of static automated detectors to increase survey effort.

This involved the deployment of two static detectors (Titley Scientific Anabat Express) in hedgerows for a minimum of five nights per month between April and June 2021, on the following dates:

- 8th – 12th April 2021
- 4th – 8th May 2021
- 9th – 13th June 2021.

Bat Data Analysis

Wildlife Acoustics Kaleidoscope Pro software was used for processing and analysing static bat data. The confidence settings used are “neutral” with samples of all recordings, including “noise” files checked. Batches of noise files are checked depending upon their characteristics which are grouped by a range of variables including background noise and strength of calls. All bat calls other than common pipistrelle, soprano pipistrelle and noctule are verified manually. Further identification of more cryptic species such as Myotis, long-eared and barbastelle is undertaken using Titley Scientific Analook software where necessary.

Transect data was extracted from Analook and processed through Microsoft Excel and QGIS (QGIS Development Team (2018) Geographic Information System Open Source Geospatial Foundation Project). to produce heat maps of the use of the Site by all bats over the survey period. Further information was extracted to provide greater detail of how EC Annex II species are using the Site.

Results

Desk Study

Please refer to the EcIA (GE Consulting, 2021) for results of the desk study.

Transect Survey

During the transect surveys, common pipistrelle was the most frequently recorded species, with lower frequencies of soprano pipistrelle. Common pipistrelle did not show particular affinity to any specific areas of the Site and was recorded frequently using hedgerows in all parts of the Site. Soprano pipistrelle was mainly recorded in association with the southern boundary. Foraging activity of common pipistrelle was recorded within the north-eastern corner of the Site.

Four passes of noctule were recorded, commuting high over the central hedgerow. Barbastelle, which is an Annex II species, was recorded once along the north-eastern corner of the Site. One pass of long-eared species was recorded within the south-eastern corner of the Site. A summary of bat passes is shown in **Table 4.2** below.

Table 4.2: Summary of bat passes recorded during activity transects

| Survey Month | Pp | Ppy | Plsp | Nn | Bb | Grand Total |
|--------------------|-----------|-----------|----------|----------|----------|-------------|
| April | 4 | 0 | 0 | 0 | 1 | 5 |
| May | 0 | 1 | 0 | 0 | 0 | 1 |
| June | 49 | 9 | 1 | 4 | 0 | 63 |
| Grand Total | 53 | 10 | 1 | 4 | 1 | 69 |

Pp = common pipistrelle; **Ppy** = soprano pipistrelle; **Nn** = noctule; **Bb** = barbastelle; **Plsp** = Long-eared bat species.

Automated Detector Survey

During all the automated detector surveys undertaken in 2020 and 2021, common pipistrelle was again the most frequently recorded bat species (80.87%) with soprano pipistrelle (13.81%) also recorded in high relatively high numbers. Location B2 supported the highest numbers of these species.

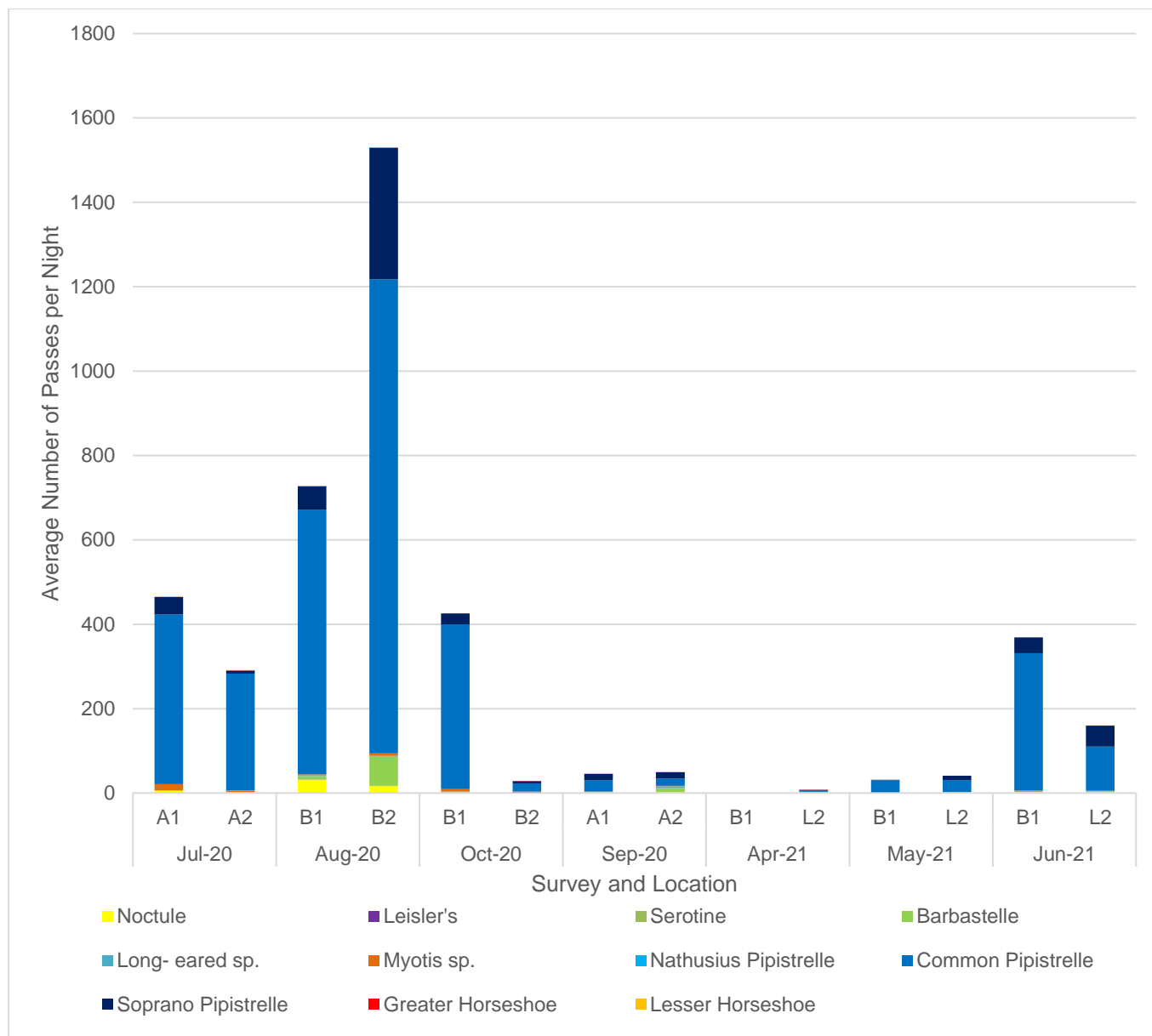
Light-averse *Myotis* species (0.90%) were recorded at all locations and serotine (0.08%) was recorded at all locations apart from A2. The rare barbastelle (2.18%) was recorded at all static locations but showed greatest affinity to Location B2 during the August 2020 survey. Noctule (1.67%) was recorded at all locations but showed greatest affinity with Location B1. Long-eared bat species (0.30%) was recorded at both detector locations, with the highest number of passes at Location A2. Occasional passes of the rare lesser horseshoe bat (0.07%) and greater horseshoe bat (0.08%) did not show affinity with any particular area and were recorded at all detector locations. A total of three Leisler's (0.01%) calls were recorded at Location B2 during the October 2020 survey. Occasional passes from Nathusius pipistrelle (0.02%) were recorded at Location A2 and B1. See **Figure 1** for additional survey static survey data.

Please refer to the EcIA (GE Consulting, 2021) and PEA (Ecologic, 2020) for detailed results of the 2020 bat activity surveys and desk study.

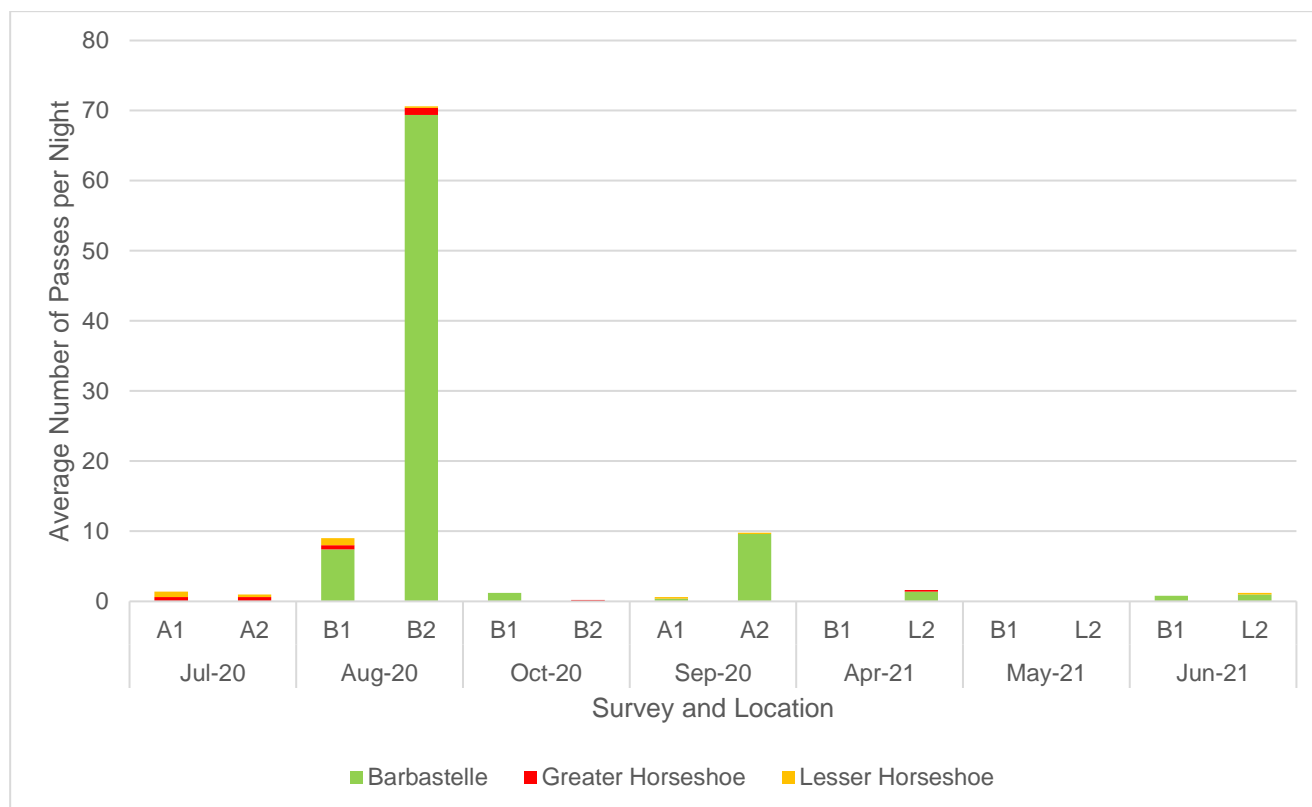
Graph 1 overleaf shows the average passes per night for each survey period.

Graph 2 overleaf shows the average passes per night for each survey period for Annex II species only.

Graph 1: Average bat passes per night during the automated detector survey period



Graph 2: Average bat passes per night during the automated detector survey period for Annex II species only



Summary

Although overall highest bat activity was recorded at the central boundary (Location B2), the majority of passes were from widespread species common pipistrelle and soprano pipistrelle, both of which are generalist species that will forage within urban and edge of settlement locations and are tolerant of artificial light. Street lighting is currently present along Pendragon Road. Surveys found that the central hedgerow was also of greatest importance to rare and light averse species such as horseshoe bats and barbastelle during the August 2020 survey, however, these species were recorded using all boundaries of the Site.

Appendix 5 – Dormouse Survey

Methods

A dormouse *Muscardinus avellanarius* tube survey was undertaken in accordance with The Dormouse Conservation Handbook (Bright *et al.*, 2006). 50 tubes were deployed in July 2020 and March 2021 at approximately 20m intervals (see **Figure 2**). Tubes were checked August-October 2020 by Aby Sampson and May-June 2021 by Hannah Spencer BSc MRes and Tonia Kenyon BSc (NE dormouse Level 1 survey licence 2017-32585-CLS-CLS).

A survey must score a minimum probability score of 20 to provide sufficient survey effort to determine presence/likely absence of the species on a given site (based on 50 tubes). **Table 5.1** details the months in which tubes were in-situ and the probability score.

Table 5.1: Index of probability of finding dormice present (based on best practice guidelines) and months nest tubes were present

| Month | Index of Probability (Bright <i>et al.</i> , 2006) for 50 tubes | Probability Score for Site |
|--------------------|---|----------------------------|
| July | 2 | 2 |
| August | 5 | 5 |
| September | 7 | 7 |
| October | 2 | 2 |
| November | 2 | - |
| April | 1 | 1 |
| May | 4 | 4 |
| TOTAL SCORE | | 21 |

Results

Please refer to the EcIA (GE Consulting, 2021) for results of the desk study.

No dormouse nests or other evidence of dormouse were recorded over the 2020 and 2021 survey periods and dormice are therefore considered absent from the Site.

Appendix 6 – Reptile Survey

Methods

Surveys to ascertain the likely presence/ absence of reptiles were undertaken following current good practice methodologies (Froglife 1999). This involved the deployment of 50 0.5m² artificial refuges (roofing felt) on 09 March 2021 in areas of suitable habitat (see **Figure 3**). Refuges were left to 'bed-in' for five weeks prior to a series of seven visits in which a search for reptiles was made both under/ on-top of refuges and within open habitats. Dates, personnel and weather conditions for visits are detailed in **Table 6.1**.

Table 6.1: Reptile survey dates and weather conditions

| Visit | Date | Time | Surveyor | Temperature (°C) | Weather |
|-------|------------|-------|----------|------------------|--|
| 1 | 13/04/2021 | 13:30 | SL & NH | 10 | Dry, sunny intervals, 50 % cc wind 1 bf |
| 2 | 20/04/2021 | 16:15 | HS | 14 | Dry, sunny, 30% cc, wind 1 bf |
| 3 | 21/04/2021 | 13:35 | HS | 13 | Dry, sunny intervals, 80% cc, wind 1 bf |
| 4 | 27/04/2021 | 14:45 | HS | 13 | Overcast, occasional showers, 100% cc, wind 1 bf |
| 5 | 30/04/2021 | 11:15 | HS | 12 | Dry, sunny, 65% cc, wind 1 bf |
| 6 | 04/05/2021 | 18:00 | HS | 10 | Dry, sunny, 10% cc, wind 2 bf |
| 7 | 05/05/2021 | 16:00 | HS | 12 | Dry, overcast, 90% cc, wind 1 bf |

SL=Sammy Lincoln BSc ACIEEM; NH = Naomi Hawkes-Southern BA (Oxon) MSc; HS = Hannah Spencer BSc MRes

Results

Please refer to the EcIA (GE Consulting, 2021) for results of the desk study.

Slow worm and common lizard reptile species were recorded on Site during the seven visits. A total of 155 reptiles were recorded during the seven survey visits, with a peak adult counts of twenty-eight slow worms and two common lizards on any one survey (see **Table 6.2**). Slow worms were found at the hedgerow bases and scrub edges around all boundaries of the Site and did not show a particular affinity to any area. The results indicate a breeding population due to the presence of juveniles. Common lizard were recorded on the western side of the central hedgerow.

Table 6.2: Reptile survey results (total counts per species, per visit)

| Visit | Common Lizard | | Slow Worm | | |
|------------------------------|---------------|------------|--------------------|------------|------------|
| | Adult | Juvenile | Adult | Sub-adult | Juvenile |
| 1 | 1 | 0 | 28 | 1 | 0 |
| 2 | 0 | 0 | 24 | 1 | 0 |
| 3 | 0 | 0 | 28 | 3 | 0 |
| 4 | 2 | 2 | 12 | 0 | 0 |
| 5 | 1 | 0 | 25 | 1 | 0 |
| 6 | 0 | 0 | 3 | 0 | 0 |
| 7 | 2 | 0 | 17 | 1 | 3 |
| Population size class | Low | N/A | Exceptional | N/A | N/A |

