

Pencoed Ganol Solar Farm
Dormouse Survey Report

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1 Introduction

- 1.1 BSG Ecology was commissioned by Windel Solar 11 Ltd to undertake a survey for hazel dormouse *Muscardinus avellanarius* in connection with a proposed solar farm site at Pencoed Ganol Farm, Bynea, Llanelli, SA14 9PL¹ (hereafter referred to as the “Site”).
- 1.2 The proposals include the construction and operation of a 30MW solar farm along with associated infrastructure including access and internal tracks, sub-station and a perimeter fence. At the time of this report the project was at the early design stage. The Site boundary can be seen in **Figure 1**.

Site description

- 1.3 The Site is approximately 48 hectares (ha) in size and consists of 20 relatively uniform fields used mostly as cow pastures and linked by farm tracks and field gates. The fields are bordered by mostly intact hedgerows. Agricultural buildings present in the central part of the Site are used as cow sheds and for storage of farm equipment/materials. An artificially-constructed (concrete-sided) pond is present, and ditches occur along the boundaries of some fields; these appear to retain some water throughout the year. Trees and woodland are lacking from much of the Site, with one area of mature woodland towards the southern site boundary (see **Figure 2** for habitats within the Site). The Site is located between the villages of Bynea, to the south, Bryn and Llangennech to the north, and is approximately 260 m west of the lower River Loughor at its closest point.

Aims of study

- 1.4 Development design will seek to retain hedgerows and woodland, while proposed habitat management will aim to manage these habitats to maximise their value to protected and priority species, including hazel dormouse. Survey work is therefore precautionary in nature; it is not assumed that hedgerow severance or minor losses (such as widening of some existing field access points) can be avoided until the design of the proposed solar farm has been fixed.
- 1.5 The aim of this study is to determine the presence or likely absence of dormouse within the Site to inform an assessment of impacts on this species resulting from the proposed development.

¹ Approximate central Ordnance Survey Grid Reference SN 55349 00185.

2 Methods

Desk study

- 2.1 A data request was made to the West Wales Biodiversity Information Centre (WWBIC) to obtain information records of protected species including hazel dormouse. The data request was for records within 2 km of the approximate centre of the Site (Ordnance Survey Grid Reference (OSGR) SN 55349 00185). Data were received on 18 April 2024.
- 2.2 The desk study also involved a review of historical aerial imagery using Google Earth Pro² to understand connectivity between onsite habitats and offsite habitats at the landscape level; particularly linkages to 'high quality' or potentially high quality woodland habitats.

Field survey

- 2.3 Industry standard guidance for survey, set out in the Dormouse Conservation Handbook (Natural England, 2006³)⁴, is that a minimum of 50 nest boxes or nest tubes should be deployed at development sites at a spacing of 15-20 m intervals. It is then left to the professional judgement of the consultant as to how to scale this number of sampling locations to reflect the size of a site. Once in place, dormouse tubes / boxes are checked monthly or bi-monthly until a minimum survey effort score is reached. For each month that boxes are in place, a score (points) based on the probability of dormouse occupying nest tubes or boxes in that month is counted. For a survey to be considered robust, a total of 20 or more points are required (Natural England, 2006) (see Table 1).

Table 1. Monthly index of probability (of dormouse using a nest box or nest tube; taken from Natural England, 2006)

Month	Index of probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

- 2.4 A total of 103 tubes were deployed to sample the areas considered to be the most suitable habitat for hazel dormouse⁵. These were deployed by consultant ecologists Rhys Lewis, Zoe Paraskevopoulou and Megan Nicklin on 24 May 2024 and 28 May 2024. The locations of dormouse tubes are presented in **Figure 2**; a photograph showing a dormouse tube in situ is presented in **Photograph 2**.
- 2.5 The boxes were checked by licensed surveyor Steven Hancock⁶ for occupation / evidence of use in late June, early August, early November and mid December 2024. The latter two visits were carried out to record evidence of use in October and November respectively. The survey work achieved 20 points (with reference to Table 1; boxes were in place and available for use by dormice between June and November inclusive). These were spaced ~40 m apart. Tube placement and subsequent survey dates are presented in **Table 2**.

⁴ Google Earth Pro 7.3.3.7786.

³ Natural England (previously known as English Nature). (2006). The Dormouse Conservation Handbook (2nd edition). EN, Peterborough

⁴ This guidance is also applied by in Wales by Natural Resources Wales (NRW).

⁵ English Nature (2006) suggests that putting clusters of boxes in 'good places' [rather than in a fixed grid] will enhance occupancy rates and increase the probability of detecting the presence of dormice.

⁶ NRW dormouse licence number: S090528/1

Table 2: Tube placement and survey dates, times and conditions.

Date	Activity	Time of survey	Surveyor	Weather conditions ⁷
24/05/2024	Tube deployment	12:30 – 18:30	RL, ZP	14°C, cloud cover (cc)=2, 3 Beaufort (bft), dry
28/05/2024	Tube deployment	12:30 - 19:00	RL, MN	14°C, cc=8, 4 bft, light rain
21/06/2024	Survey	10:00 - 17:15	SH	15°C, cc=8, 3 bft, dry
05/08/2024	Survey	09:00 - 16:30	SH	20°C, cc=8, 4 bft, damp (intermittent light rain)
05/11/2024	Survey	08:40 – 15:15	SH	13°C, cc=8, 2 bft, damp (no rain)
13/12/2024	Survey and tube collection	09:00 – 16:15	SH	7°C, cc=8, 1 bft, dry

Consideration of potential limitations

- 2.6 There were no limitations to survey identified. While tubes were spaced slightly further apart than is recommended in guidance, the extent and connectivity of hedgerows on Site allowed them to be placed representatively. The number of tubes deployed considerably exceeded the minimum guidance recommendation.

Personnel Involved

- 2.7 Summaries of the qualifications and experience of personnel involved in the work, and their role in delivering it, are outlined below.
- 2.8 Steve Hancock MRes, CEnv, is a director of Draig Ecology Ltd and has worked as an ecologist since 2009. Steve has extensive experience in leading ecological surveys for a range of protected species and holds an NRW survey licence for dormouse (licence number: S090528/1). Steve carried out the dormouse surveys.
- 2.9 Zoe Paraskevopoulou MBiol, Qualifying CIEEM Membership (Consultant Ecologist) has worked in ecological consultancy since 2021 and joined BSG Ecology in 2023. Zoe has extensive experience in carrying out protected species surveys and ecological assessments for small and medium-scale projects. She has had training regarding dormouse tube deployment and surveying by Steve Hancock in connection with previous dormouse surveys undertaken by BSG Ecology. Zoe assisted in the deployment of the dormouse tubes, organised the required fieldwork, and was the author of this report.
- 2.10 Rhys Lewis, BSc. has worked for BSG Ecology since 2023 during which time he has gained experience on a range of protected species surveys. Rhys has assisted licensed survey leads with dormouse surveys across South Wales and Cornwall and is involved with the national dormouse monitoring programme at a site in Caerphilly. Rhys is working towards his dormouse survey licence and has attended a course run by the Mammal Society which discussed dormouse survey techniques. Rhys assisted in the deployment of the dormouse tubes.
- 2.11 Megan Nicklin, MSc. has worked for BSG Ecology since 2024, during which she has assisted in undertaking a range of protected species surveys. Megan has assisted with dormouse nest box checks and has received training from licenced dormouse surveyors on the correct deployment of dormouse survey equipment. Megan assisted in the deployment of the dormouse tubes.
- 2.12 Owain Gabb, BSc, MSc, MCIEEM, CEnv is Director of BSG Ecology. He has worked as a professional ecologist since 1998 and in consultancy since 2003. Owain has managed and directed numerous projects requiring dormouse surveys across the UK, and has considerable experience working in Wales. Owain was the reviewer of this report.

⁷ Cloud cover measured in oktas.

- 2.13 A summary of each BSG staff member's experience and competence as a professional ecologist is provided at <http://www.bsg-ecology.com/people/>.

3 Results and Evaluation

- 3.1 WWBIC returned no historical records for dormouse within 2 km of the Site.
- 3.2 No dormouse, or evidence of use by dormouse were found in any of the tubes during the survey work. Wood mouse *Apodemus sylvaticus* (individuals and nests) were recorded using 19 tubes during the August, November and December surveys. Small rodent food caches were recorded in eight tubes during the November and December surveys. A pygmy shrew *Sorex minutus* was recorded in one tube during the November survey. The dormouse box and tube locations are presented in **Figure 2** and the detailed survey results are provided **Appendix 2**.
- 3.3 Based on the lack of desk study records and the lack of evidence of hazel dormouse during the surveys it is likely that the species is absent from the Site.

4 References

Bright, P., Morris, P. & Mitchell-Jones, A. (2007) The dormouse conservation handbook 2nd Edition. English Nature, Peterborough

5 Figures

(overleaf)



Legend

Site boundary

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PROJECT TITLE
PENCOED GANOL SOLAR FARM

DRAWING TITLE
Figure 1: Site location

DATE: 12/11/2024	CHECKED: OG	SCALE: 1:10,657
DRAWN: ZP	APPROVED: OG	VERSION:1.0

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Sources: BSG Ecology survey data



- Legend
- Nest Tube
 - Survey boundary
 - Site boundary



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PROJECT TITLE
PENCOED GANOL SOLAR FARM

DRAWING TITLE
Figure 2: Hazel dormouse nest tube locations

DATE: 15/01/2025	CHECKED: OG	SCALE: 1:4,000
DRAWN: CS	APPROVED: OG	VERSION:1.0

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Sources: BSG Ecology survey data

6 Photographs



Photograph 1: Example of hedgerows suitable for dormouse within the Site.



Photograph 2: Nest tube in hedgerow (circled).

Appendix 1: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

Environment (Wales) Act 2016

The Environment (Wales) Act 2016 passed into law in March 2016. Part 1 of the Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 in relation to Wales, and applies to those authorities that fell within the previous duty.

Public authorities will be required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience. This is expanded on in sub-section (2):

In complying with subsection (1), a public authority must take account of the resilience of ecosystems, in particular the following aspects—

- diversity between and within ecosystems;
- the connections between and within ecosystems;
- the scale of ecosystems;
- the condition of ecosystems (including their structure and functioning);
- the adaptability of ecosystems.

Section 7 concerns biodiversity lists and the duty to take steps to maintain and enhance biodiversity. It replaced the duty in section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales.

The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

Planning Policy Wales 12

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is periodically revised. The latest iteration is PPW version 12 (February 2024). Chapter 6 (Distinctive and Natural Places) sets out how the planning system in Wales meets the challenges set out in the Global Biodiversity Framework⁸, the Biodiversity Deep Dive recommendations developed in response to this (Welsh Government, 2022), and the Duty, under Section 6 of the Environment (Wales) Act 2016, to maintain and enhance biodiversity and ecosystem resilience in Wales.

The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties.

Protected Species

With regard to protected species PPW states:

- A species protected under European or UK legislation, or under Section 7 of the Environment (Wales) Act 2016 is a material consideration when a planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat and to ensure that the range and population of the species is sustained.

⁸ See: <https://www.cbd.int/gbf/>

- Planning authorities should advise anyone submitting a planning application that they must conform with any statutory species protection provisions affecting the site, and potentially the surrounding area, concerned.
- An ecological survey to confirm whether a protected species is present and an assessment of the likely impact of the development on a protected species may be required in order to inform the development management process. It is considered best practice that screening to determine the presence of protected species should be carried out by a competent ecologist on the basis of data provided by the relevant Local Environmental Record Centre.

Developments are always subject to the legislation covering European protected species. Proposals for which development works would contravene the protection afforded to European protected species require derogations from the provisions of the Habitats Directive. A derogation may only be authorised if there is no satisfactory alternative and if the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.

European protected species (Animals)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

“European protected species” (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

- Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
- Possess or control any live or dead specimens or any part of, or anything derived from a these species
- deliberately or recklessly disturb wild animals of any such species
- deliberately take or destroy the eggs of such an animal, or
- intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

- to impair their ability—
 - to survive, to breed or reproduce, or to rear or nurture their young, or
 - in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- to affect significantly the local distribution or abundance of the species to which they belong.

Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

- The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’
- ‘There is no satisfactory alternative’
- The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.’

Definition of breeding sites and resting places

Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.⁹ Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

⁹ Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

Appendix 2: Hazel dormouse survey results

Date	Nest Tube ID	Evidence of Dormouse Activity (Y/N)	Details*
05/08/2024	65	N	Wood mouse individual and nest
05/11/2024	3	N	Wood mouse nest
05/11/2024	7	N	Wood mouse nest
05/11/2024	10	N	Pygmy shrew
05/11/2024	18	N	Wood mouse individuals (x2) and nest
05/11/2024	28	N	Wood mouse nest
05/11/2024	29	N	Small rodent food cache including rose hips
05/11/2024	43	N	Wood mouse individuals (x2) and nest
05/11/2024	44	N	Wood mouse nest
05/11/2024	51	N	Wood mouse nest
05/11/2024	61	N	Wood mouse nest
05/11/2024	63	N	Wood mouse nest
05/11/2024	65	N	Wood mouse nest
05/11/2024	73	N	Wood mouse nest
05/11/2024	75	N	Wood mouse individuals (x4) and nest
05/11/2024	76	N	Small rodent food cache
05/11/2024	97	N	Small rodent food cache
05/11/2024	100	N	Wood mouse nest
05/11/2024	101	N	Wood mouse individual and nest
05/11/2024	103	N	Wood mouse nest
13/12/2024	1	N	Small rodent food cache including rose hips
25/07/2024	2	N	Small rodent food cache including rose hips
25/07/2024	10	N	Wood mouse nest (old)
25/07/2024	18	N	Wood mouse nest
25/07/2024	22	N	Wood mouse nest
25/07/2024	24	N	Small rodent food cache (blackberries)
25/07/2024	27	N	Small rodent food cache (holly berries)
25/07/2024	39	N	Small rodent food cache (ivy berries)
25/07/2024	65	N	Wood mouse nest
25/07/2024	74	N	Wood mouse nest
25/07/2024	75	N	Wood mouse nest
25/07/2024	82	N	Wood mouse nest
25/07/2024	100	N	Wood mouse nest
25/07/2024	101	N	Wood mouse nest
05/09/2024	103	N	Wood mouse nest

*All boxes not listed were empty