

MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 7, Annex 3.13: Hazel dormouse survey technical report

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Image of an offshore wind farm

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Glossary

Term	Meaning
Expert Working Group (EWG)	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Mona Onshore Development Area	The area in which the landfall, onshore cable corridor, onshore substation, mitigation areas, temporary construction facilities (such as access roads and construction compounds), and the connection to National Grid infrastructure will be located.
Species of Principal Importance (SPI)	Species recognised in Welsh policy and afforded due regard in the planning system by the Environment (Wales) Act 2016, Section 7. Public bodies have a legal duty to conserve such species through their work.

Acronyms

Acronym	Description
Defra	Department for Environment, Food & Rural Affairs
DNA	Deoxyribonucleic acid
EWG	Expert Working Group
GPS	Global Positioning System
MAGIC	Multi-Agency Geographic Information for the Countryside
NRW	Natural Resources Wales
SPI	Species of Principal Importance

Units

Unit	Description
BS	Beaufort Scale
cm	Centimetre
km	Kilometre
°C	Degrees Celsius

1 HAZEL DORMOUSE SURVEY TECHNICAL REPORT

1.1 Introduction

- 1.1.1.1 This document forms Volume 7, Annex 3.13: Hazel dormouse survey technical report of the Environmental Statement for the Mona Offshore Wind Project.
- 1.1.1.2 This technical report presents the results of the hazel dormouse *Muscardinus avellanarius* desk study and field surveys undertaken between May 2023 and November 2023 to inform Volume 3, Chapter 3: Onshore ecology of the Environmental Statement.
- 1.1.1.3 The desk study and field surveys were designed to determine the presence or likely absence of hazel dormouse.
- 1.1.1.4 Two separate areas have been defined for the purposes of this technical report. These include the ‘study area’, which describes the geographical extent subject to desk-based research, and the ‘survey area’, which describes the area of land subject to site-specific surveys. The extent of the study area and the survey area were selected to ensure data was collected for the Mona Onshore Development Area and the surroundings that may support this species, hazel dormouse, and may reasonably be affected by the Mona Offshore Wind Project. The extent of the study area and the survey area were discussed and agreed with the onshore ecology Expert Working Group (EWG).

1.2 Study area

- 1.2.1.1 The study area comprises the Mona Onshore Development Area, landward of Mean Low Water Springs (MLWS) and a 2 km buffer (‘the hazel dormouse study area’).
- 1.2.1.2 The location and geographical extent of the hazel dormouse study area is presented in Figure 1.1 of this technical report.

1.3 Survey area

- 1.3.1.1 Following the commencement of hazel dormouse surveys, the Mona Onshore Development Area has been refined and now occupies a smaller geographical area. As such, the area of land subject to hazel dormouse surveys (‘the hazel dormouse survey area’) extends beyond the current iteration of the Mona Onshore Development Area. The results from surveys undertaken beyond the Mona Onshore Development Area (i.e. surveys undertaken based on an earlier design iterations) have been included in this technical report because they provide further context regarding the ecological sensitivity of the wider area and to inform Volume 3, Chapter 3: Onshore ecology of the Environmental Statement (where relevant). All the ecological data collected as part of the Environmental Statement for the Mona Offshore Wind Project has been made publicly available through the relevant data records centre.
- 1.3.1.2 Adopting a survey area that is greater in extent than the Mona Onshore Development Area is in accordance with the precautionary approach. It ensures that the Environmental Statement is accurately informed with data from within the Mona Onshore Development Area (i.e. that may be subject to direct impacts) and data from outside the Mona Onshore Development Area (i.e. that may be subject to indirect impacts).

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- 1.3.1.3 The location and geographical extent of the hazel dormouse survey area is presented in Figure 1.1 of this technical report.

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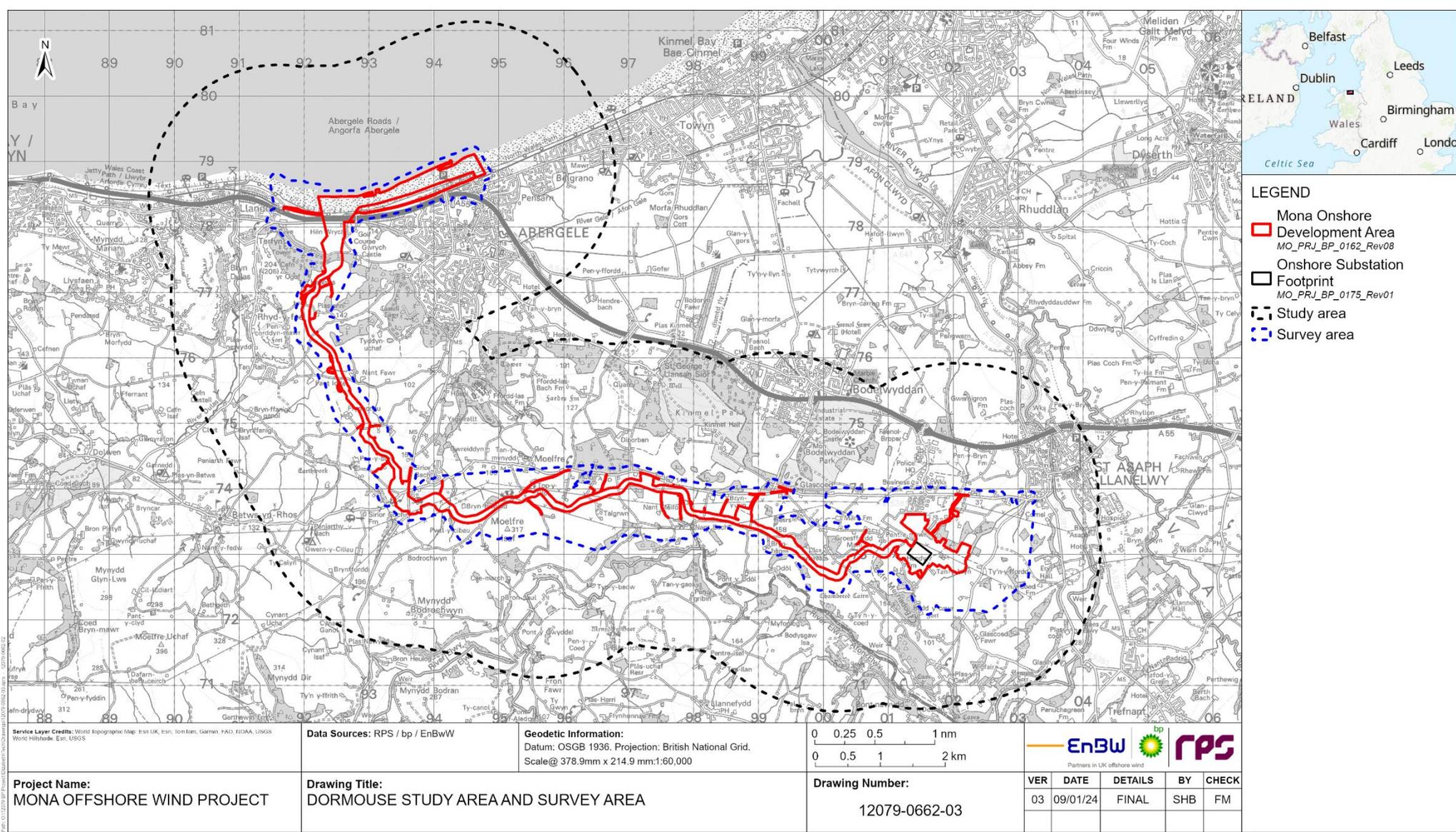


Figure 1.1: The hazel dormouse study area and survey area.

1.4 Relevant legislation

- 1.4.1.1 Three key pieces of legislation are relevant for hazel dormouse under Welsh and UK law: the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), the Wildlife and Countryside Act 1981 (as amended), and the Environment (Wales) Act 2016.
- 1.4.1.2 Hazel dormice are fully protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. The Habitats Regulations make it an offence to:
- Intentionally, recklessly or deliberately kill, injure or take hazel dormouse
 - Deliberately disturb hazel dormouse in such a way as to significantly affect:
 - Their ability to survive, hibernate, migrate, breed, or rear or nurture their young
 - The local distribution or abundance of dormice
 - Damage or destruct a breeding site or resting place (nest)
 - Possess or transport hazel dormice.
- 1.4.1.3 Hazel dormice are fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended). Under Schedule 5 it is an offence to:
- Intentionally or recklessly disturb hazel dormouse while it is occupying a structure or place, which it uses for that purpose
 - Obstruct access to any place of shelter, breeding or rest
 - Selling, bartering or exchange of this species.
- 1.4.1.4 Hazel dormice are afforded due regard in the planning system in Wales by the Environment (Wales) Act 2016, Section 7. Hazel dormouse is listed as a Species of Principal Importance (SPI), giving public bodies and local planning authorities a legal duty to have regard for conserving a SPI when exercising their duties.

1.5 Consultation

- 1.5.1.1 The scope, methodology and findings of hazel dormouse surveys, including those undertaken beyond the current Mona Onshore Development Area, were discussed and agreed with stakeholders via regular Onshore Ecology Expert Working Group EWG meetings. Further detail regarding consultation undertaken with respect to onshore ecology, including hazel dormouse surveys can be found in Volume 3, Chapter 3: Onshore ecology of the Environmental Statement and the Consultation Report (Document reference: E.3).

1.6 Methodology

1.6.1 Overview

- 1.6.1.1 A combination of desktop studies and site-specific surveys were undertaken to establish the presence or likely absence of hazel dormouse within the hazel dormouse study area. The results of the desktop studies are described in Volume 7, Annex 3.1: Onshore ecology desk study technical report of the Environmental Statement and summarised in section 1.7.1 below. The results of the hazel dormouse surveys undertaken in 2023 are detailed in section 1.7.2 below.

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1.6.2 Desk study

1.6.2.1 Information on hazel dormouse within the study area was collected from existing studies and datasets. These are summarised in Table 1.1 below.

Table 1.1: Summary of key desktop sources.

Title	Source	Year	Author
Historical biological records	Cofnod	2023	Cofnod
DataMapWales	Welsh Government	2023	Welsh Government
Distribution of the Dormouse <i>Muscardinus avellanarius</i> in "Wales"	Peoples Trust for Endangered Species	2023	PTES
Multi-Agency Geographic Information for the Countryside (MAGIC)	Department For Environment, Food & Rural Affairs (Defra)	2023	Defra
UK Protected Area Joint Nature Conservation Committee (JNCC)	JNCC website	2023	JNCC

1.6.3 Site-specific surveys

1.6.3.1 Extended phase 1 habitat surveys undertaken between May 2022 and September 2023 were used to identify habitat within the hazel dormouse study area likely to support hazel dormouse and therefore, which should be subject to further surveys (see Volume 7, Annex 3.2: Extended phase 1 habitat surveys technical report of the Environmental Statement). Habitats likely to support hazel dormouse are generally well connected and comprise a diverse structure of ground, mid and high canopy cover (e.g. hedgerows connected to deciduous woodland) with hazel *Corylus avellana*.

1.6.3.2 Survey effort focused particularly on land required for the Onshore Substation, the Temporary Construction Compounds and where the Onshore Cable Corridor bisects important and good quality hedgerows or woodlands.

Nest tube survey

1.6.3.3 Hazel dormouse nest tube surveys were undertaken in habitat suitable for hazel dormouse, where access permitted. Survey methodologies followed guidelines set out in The Dormouse Conservation Handbook (Bright *et al*, 2006) and Surveying dormice using net tubes: results and experiences from the south-west dormice projects (Channing and Woods, 2003). All field surveyors were suitably trained and experienced in undertaking the survey methodologies set out in the following sections of this annex.

1.6.3.4 Nest tubes were installed in habitats or groups of connected habitats that were identified as being suitable for dormice, which are hence forth referred to as a 'site'. Nest tubes were installed 15 to 20 m apart from one another. The nest tubes were of standard design and made from stiff double walled black plastic measuring approximately 5 cm in width, 5 cm in height and 25 cm in length, with a small plywood tray blocking one end and projecting 5 cm from the other. An image of a standard nest tube is presented in Figure 1.2 below.

1.6.3.5 All hazel dormouse tube locations were geo-located and grid-references were recorded using Global Positioning System (GPS). In areas of particularly dense vegetation or where access was poor, markers such as coloured string or high visibility

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tape was tied to nearby branches to help locate the hazel dormouse nest tubes during subsequent visit.



Figure 1.2: Example of hazel dormouse nest tube deployed in suitable habitat.

Survey programme and effort

1.6.3.6 The hazel dormouse tubes were checked monthly between May and November 2023 where access was available and in accordance with best practice set out in The Dormouse Conservation Handbook (Bright *et al*, 2006). Chanin and Woods (2003) defined a scoring system for nest tube surveys based on the probability of finding dormouse in a nest tube in any one month (see Table 1.2 below). Under this methodology, a minimum cumulative score of 20 ‘index of probability’ points must be reached to robustly determine presence or likely absence.

Table 1.2: Index of probability for finding hazel dormouse during nest tube surveys in any one month.

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

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- 1.6.3.7 All hazel dormouse nest tubes had to obtain a cumulative score of 20 or more to determine presence or likely absence. Survey effort was determined by summing the index of probability scores from the month nest tubes are deployed to when they are removed (i.e. not just the months where the tubes are physically checked). As such, nest tubes were deployed in the field when access permitted and surveyed when access was available.
- 1.6.3.8 All hazel dormouse nest tubes were checked once during June, July, August September, October and November 2023, where access was available.
- 1.6.3.9 The first nest tube check did not start until at least one calendar month after the hazel dormouse tubes had been in the field. This gave sufficient time for any non-natural smells on the hazel dormouse tubes to dissipate and for the hazel dormouse to find the tubes.
- 1.6.3.10 During each nest tube check, all hazel dormouse nest tubes were inspected for potential signs of use by hazel dormouse including:
- Presence of individual hazel dormouse
 - Characteristic hazel dormouse nesting material
 - Presence of characteristic gnawed hazel nuts
 - Presence of hazel dormouse droppings.
- 1.6.3.11 During each check, the above information was recorded, alongside any information that indicated use of hazel dormouse nest tubes by other small mammal species (e.g. wood mouse *Apodemus sylvaticus* etc.). Any lost or dislodged hazel dormouse tubes were also recorded.

Limitations

- 1.6.3.12 Some sites identified as suitable for hazel dormice and within the dormouse survey area were not surveyed due to unsafe topography, physical barriers (e.g. security fencing) or where access was not granted. However, none of the sites subject to surveys in 2023 achieved the requisite 20 points, and as such, surveys will continue in 2024 within the Mona Onshore Development Area (as shown in Appendix A of this technical report below).
- 1.6.3.13 The 2024 surveys will inform requirements for the NRW European Protected Species Mitigation License (EPSML) across the Mona Onshore Development Area. The data collected to date is considered suitable for assessment.

1.7 Results

1.7.1 Desktop study

- 1.7.1.1 Wales is on the edge of the distribution range of hazel dormouse in Britain and records indicate a sparse distribution of the species in this country (Peoples Trust for Endangered Species, 2023). Hazel dormouse are widely distributed in Wales but individual populations are usually small and often isolated. Hazel dormouse are infrequently recorded in North Wales with few known populations, which are scattered (www.gwynedd.llyw.cymru). The species is more abundant in South Wales.
- 1.7.1.2 There were five historical records of hazel dormouse dated between 2011 and 2022 within the hazel dormouse study area. All five records were located outside the Mona Onshore Development Area but within the 2 km hazel dormouse study area buffer.

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Further information is provided in Volume 7, Annex 3.1: Onshore Ecology Desk Study technical report of the Environmental Statement.

1.7.2 Site-specific surveys

Nest tube surveys

- 1.7.2.1 A total of 49 sites with habitat suitable for supporting hazel dormouse were surveyed using nest tubes. Of these, 35 were within the Mona Onshore Development Area.
- 1.7.2.2 Across the Mona Onshore Development Area, a total of 1,675 nest tubes were used across the survey sites in habitat with suitability for supporting hazel dormouse. Many of the sites are connected by suitable habitat such as hedgerows, scrub, woodland and tree lines therefore, providing good survey coverage of the area.
- 1.7.2.3 Evidence of hazel dormouse nests were recorded at three of the 49 sites. The sites with evidence of hazel dormouse were 11, 12 and 24, which together comprised nine empty hazel dormouse nests. Five empty dormouse nests were identified at site 11 and three at site 12, which were all within the Mona Onshore Development Area. One nest was identified at site 24 which was adjacent to but outside the Mona Onshore Development Area. The locations of the nests can be seen in Figure 1.3 to Figure 1.9 below.
- 1.7.2.4 No hazel dormouse were actually observed during the surveys.
- 1.7.2.5 A summary of results is presented in Table 1.3 of this technical report. The full results of hazel dormouse nest tube surveys are provided in Appendix A of this technical report.
- 1.7.2.6 Evidence of wood mouse was recorded at 20 sites across the hazel dormouse survey area. The sites included 1, 3, 6, 8, 11, 12, 13, 15, 17, 20, 24, 26, 27, 30, 31, 32, 37, 39, 46 and 49. Evidence identified included nest material, stored food, and live wood mouse.
- 1.7.2.7 The current index of probability score is presented in Appendix A of this technical report.

Table 1.3: Summary of hazel dormouse nest tube surveys.

Site	Survey Dates	Results	Sex	Life stage
11	08 September 2023 25 October 2023 17 November 2023 22 November 2023	5 x empty dormouse nests	N/A	N/A
12	25 October 2023 22 November 2023	3 x empty dormouse nests	N/A	N/A
24	27 October 2023 17 November 2023	1 x empty dormouse nest	N/A	N/A

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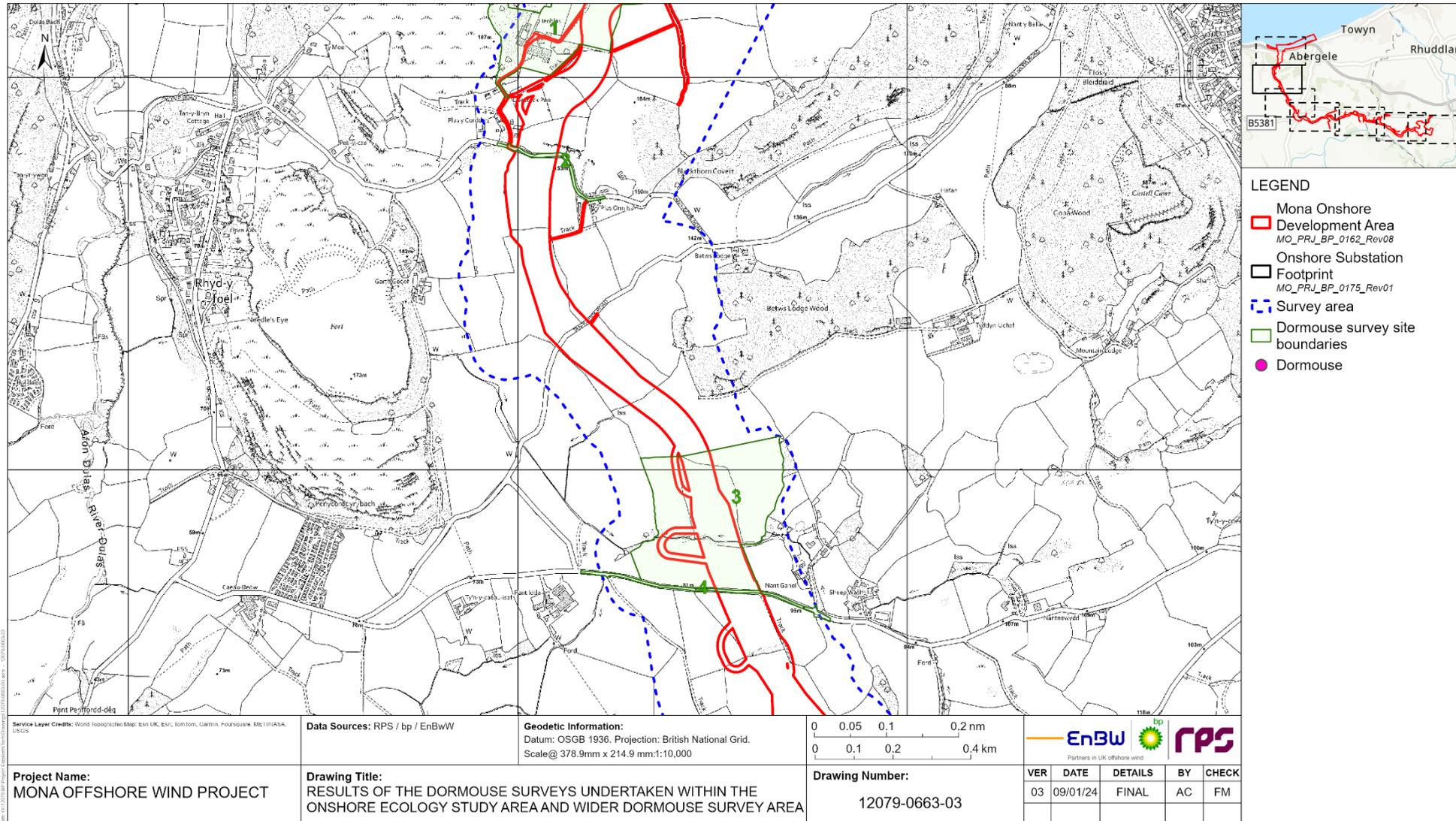


Figure 1.4: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

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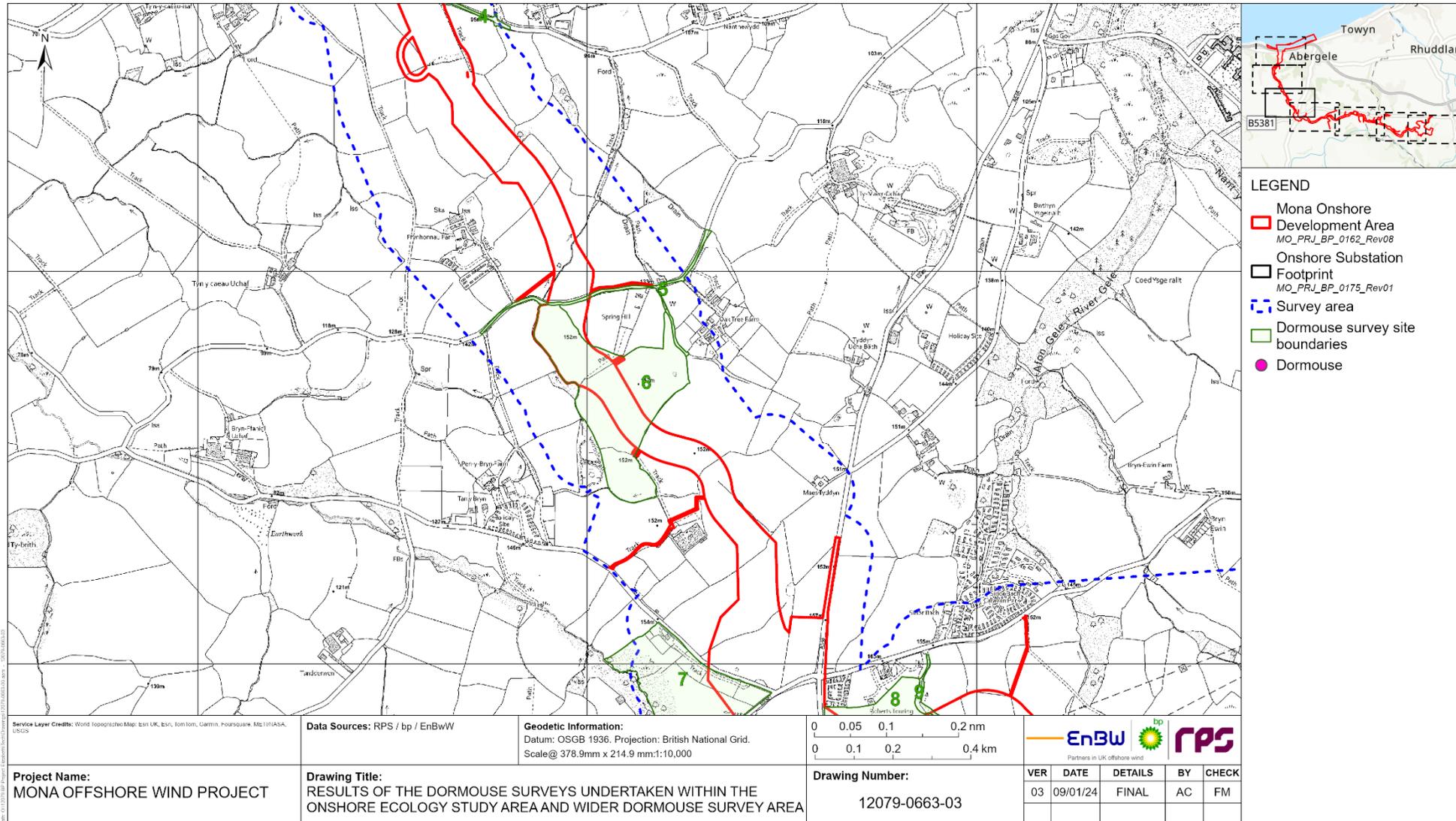


Figure 1.5: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

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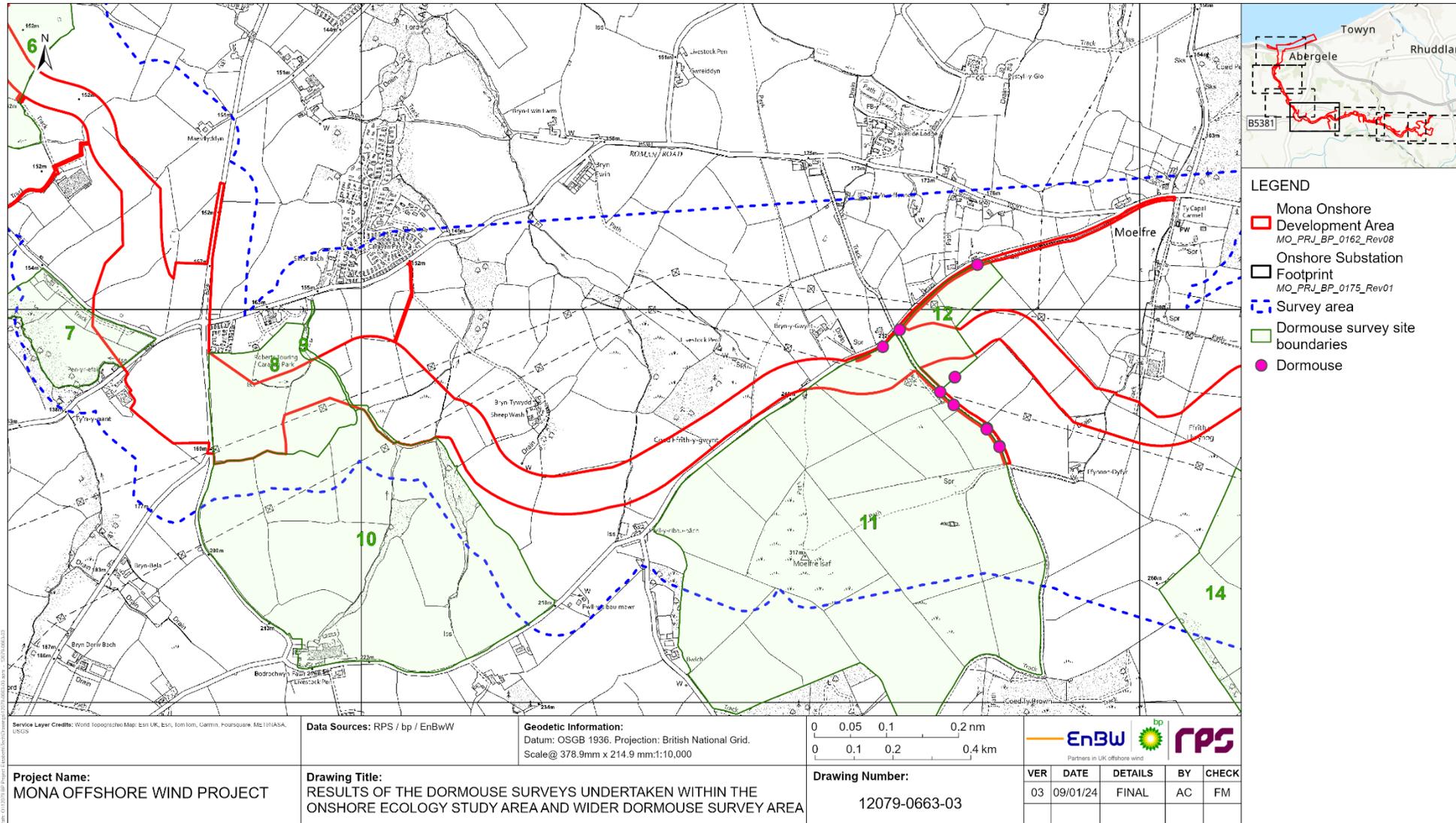


Figure 1.6: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

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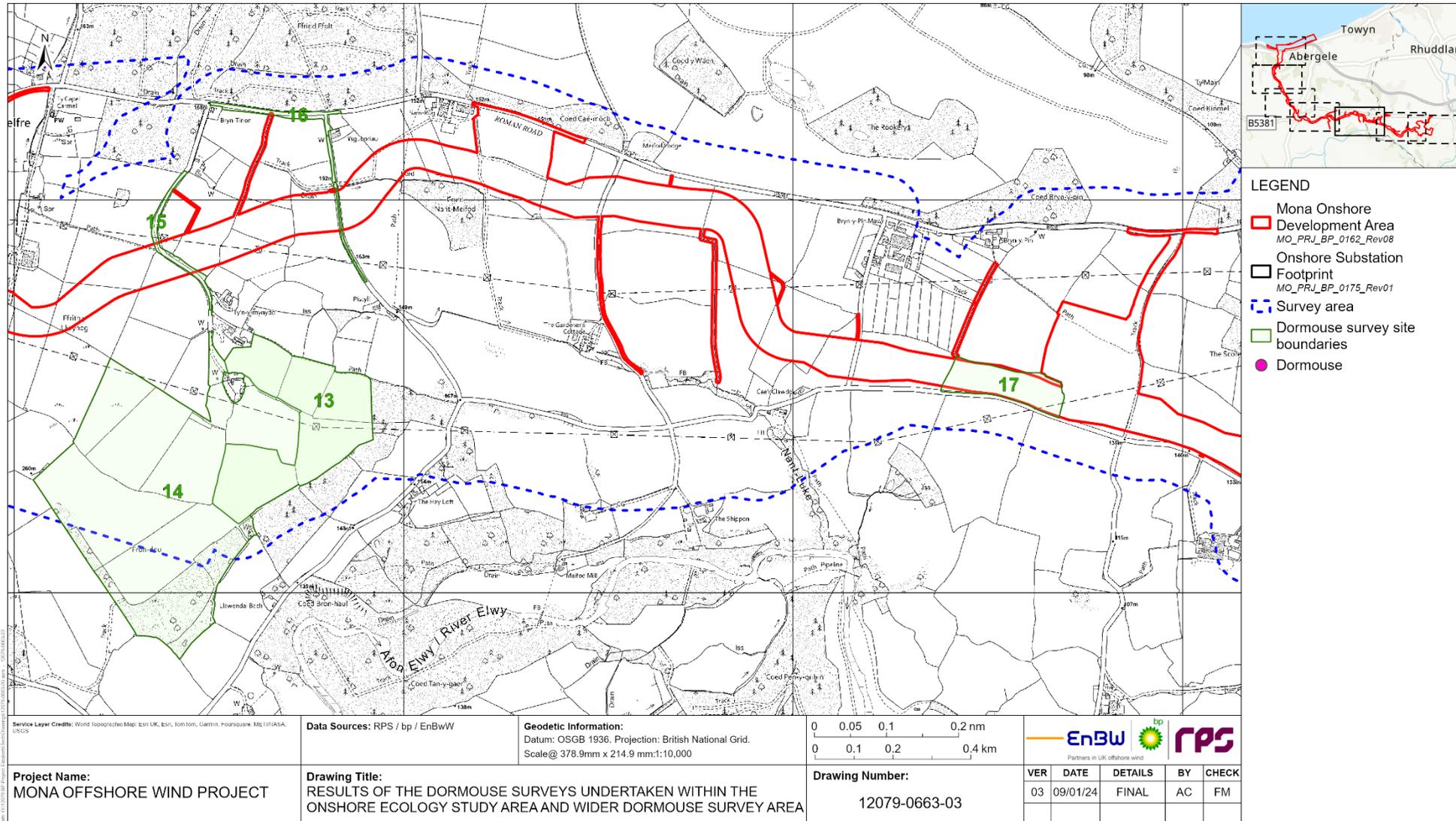


Figure 1.7: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

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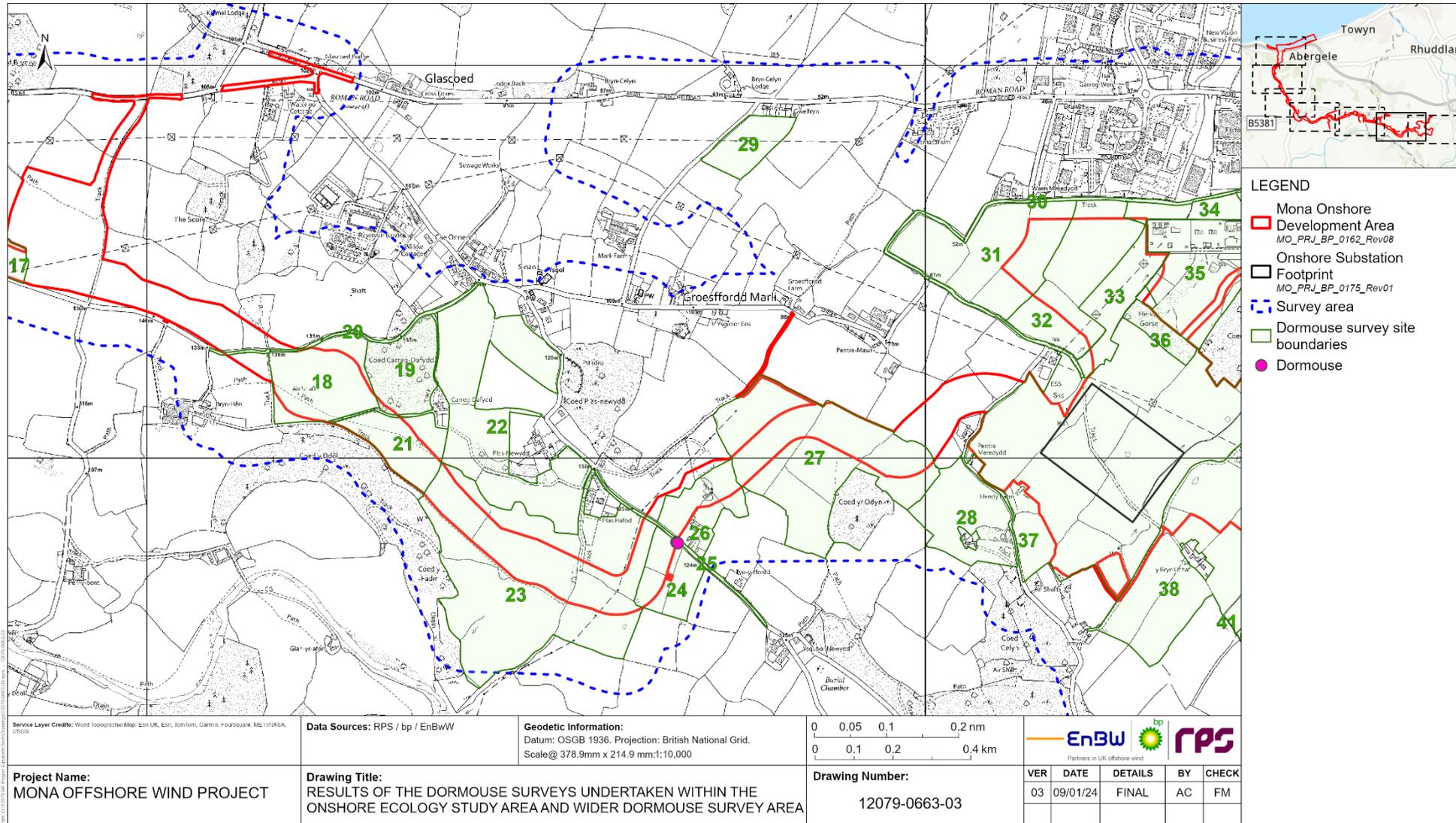


Figure 1.8: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

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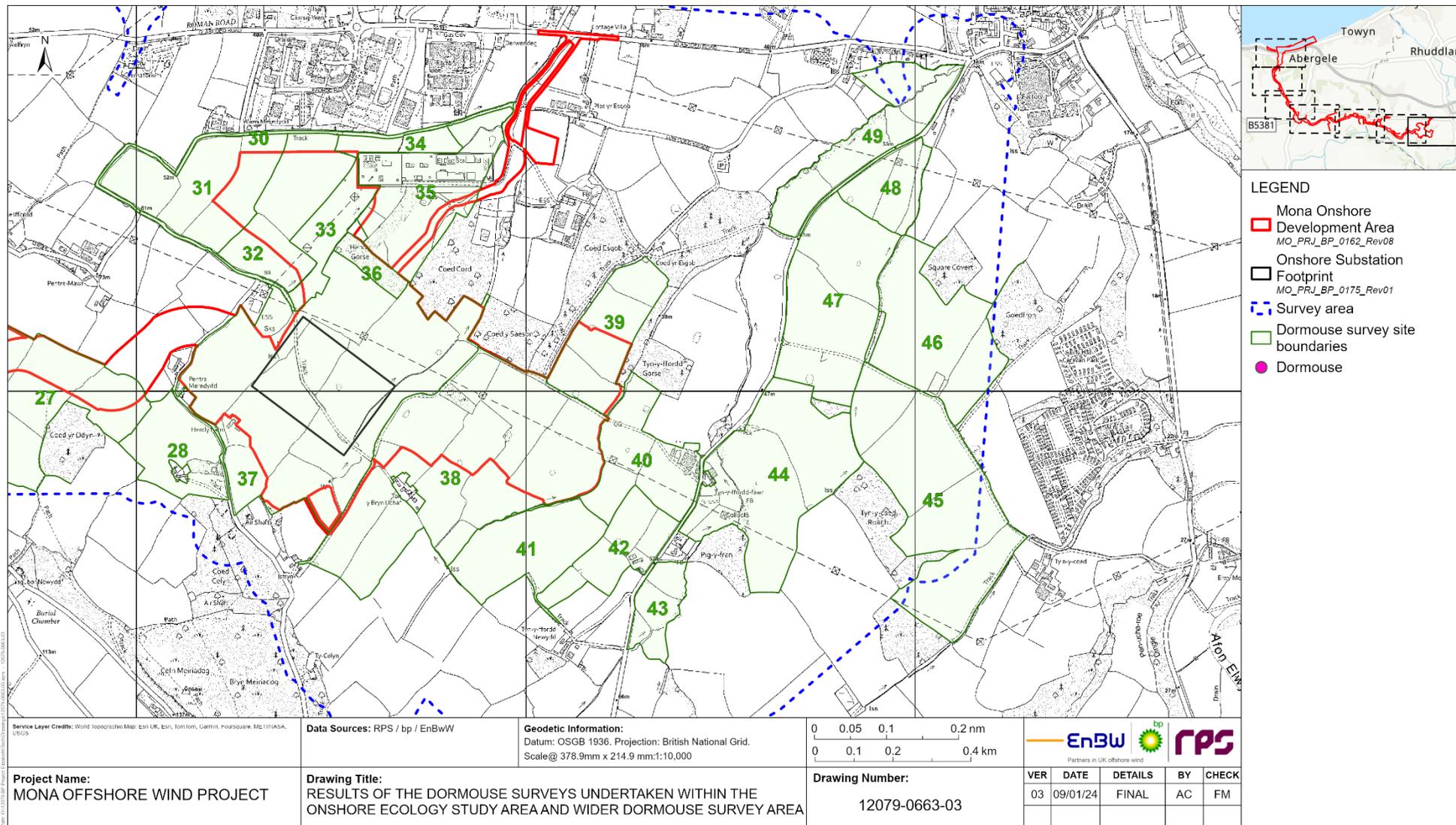


Figure 1.9: Results of the hazel dormouse nest tube surveys undertaken within the hazel dormouse survey area.

1.8 Summary

- 1.8.1.1 This technical report presents the results of the hazel dormouse surveys undertaken between June and November 2023 to inform Volume 3: Chapter 3: Onshore ecology of the Environmental Statement.
- 1.8.1.2 The desk study confirmed that Wales is on the edge of the distribution range of hazel dormouse in Britain, and records indicated that presence in North Wales is infrequent. Five historical records of hazel dormouse were recorded between 2011 and 2022. All five were located outside the Mona Onshore Development Area but inside the hazel dormouse study area.
- 1.8.1.3 A total of 49 sites with habitat suitable for supporting hazel dormouse were surveyed using nest tubes between June and November 2023. Of these, 35 were within the Mona Onshore Development Area.
- 1.8.1.4 Evidence of hazel dormouse nests were recorded at three of the 49 sites. These sites are 11, 12 and 24 with nine empty nests identified in total across the three sites. Five empty dormouse nests were identified at site 11, and three nests were identified at site 12, all of which were inside the Mona Onshore Development Area. One nest was identified at site 24 which was directly adjacent to, but outside to the Mona Onshore Development Area.
- 1.8.1.5 Evidence of wood mouse was recorded in 20 sites across the hazel dormouse survey area. Sites included, 1, 3, 6, 8, 11, 12, 13, 15, 17, 20, 24, 26, 27, 30, 31, 32, 37, 39, 46 and 49. Evidence identified included nest material, caches and live wood mouse.
- 1.8.1.6 Further surveys are required across all survey sites in 2024 to achieve the required index of probability score of 20 which will provide confidence in a likely absence result if hazel dormouse is not identified (Bright *et al*, 2006). However, given the extensive survey effort throughout the Mona Onshore Development Area, the data collected to date is considered suitable for the purposes of informing the assessment in Volume 3, Chapter 3: Onshore ecology of the Environmental Statement. The 2024 surveys will inform the detailed requirements for a NRW EPSML.

1.9 References

Bright, P, Morris, P, and Mitchell-Jones, T, (2006). Dormouse Conservation Handbook. Second Edition. English Nature, Peterborough.

Channing, P., and Woods, M. (2003) Surveying dormice using net tubes: results and experiences from the south-west dormice projects. English Nature Research figure Report No. 524. English Nature, Peterborough.

CIEEM (2017), Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management, Winchester

Appendix A: Hazel dormouse survey results

Table A. 1: Hazel dormouse survey results.

Site number	Number of tubes	Month set up	Survey months	Results	Index of probability
1	16	April	July, August, September and November	Wood mouse cache and empty wood mouse nest	16
2	29	April	August, September and November	None	14
3	19	April	July, September and October	Empty wood mouse nest	11
4	16	April	August, September, November	None	14
5	21	April	August, September and October	None	14
6	17	September (start)	September (end)	Occupied wood mouse nest	7
7	11	August (start)	August (end)	None	5
8	19	August	August, September, October	Wood mouse cache	14
9	13	August	August, September, October	None	14
10	46	April	None	None	0
11	37	April	August, September, October and November	Empty dormouse nest Empty wood mouse nest, cache and occupied nest	16
12	40	April	June, August, October, November	Empty dormouse nest Occupied wood mouse nest, empty wood mouse nest and wood mouse cache	11
13	92	April	July, August, November	Empty wood mouse nest and cache	9
14	30	April	July	None	2

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Site number	Number of tubes	Month set up	Survey months	Results	Index of probability
15	8	April	August, September, November	Empty wood mouse nest	14
16	24	April	August, September, October	None	14
17	34	April	August, November	Occupied wood mouse nest, empty wood mouse nest and cache	7
18	25	April	October	None	2
19	32	April	August	None	5
20	17	April	October	Wood mouse cache	2
21	20	April	None	None	0
22	28	August	None	None	0
23	49	May	None	None	0
24	17	April	June, July, August, November	Empty dormouse nest Occupied and empty wood mouse nest	11
25	20	April	September, October, November	None	11
26	29	April	June, July, November	Occupied wood mouse nest and empty wood mouse nest	6
27	93	April	June, August, September	Occupied wood mouse nest, empty wood mouse nest and wood mouse cache	14
28	55	April	July, August, September	None	14
29	9	April	August	None	5
30	75	April	August, September, November	Empty wood mouse nest and wood mouse cache	14
31	88	April	August, September, October, November	Empty wood mouse nest and cache	16

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Site number	Number of tubes	Month set up	Survey months	Results	Index of probability
32	30	April	August, September, November	Empty wood mouse nest and wood mouse cache	14
33	30	April	June, July, August, October, November	None	13
34	12	April	June, July, August, October, November	None	13
35	18	April	June, July, August, October, November	None	13
36	22	April	June, July, August, October, November	None	13
37	15	April	June, July, August, October, November	Occupied wood mouse nest, empty wood mouse nest and cache	13
38	185	April	June, July, August, October, November	None	13
39	21	April	July and August	Empty wood mouse nest and wood mouse cache	7
40	13	April	None	None	0
41	13	April	August	None	5
42	24	April	August	None	5
43	36	April	August	None	5
44	41	April	July	None	2
45	47	July	None	None	0
46	51	April	June and August	Empty wood mouse nest	7
47	41	July	None	None	0
48	16	April	None	None	0
49	31	April	June	Empty wood mouse nest	2