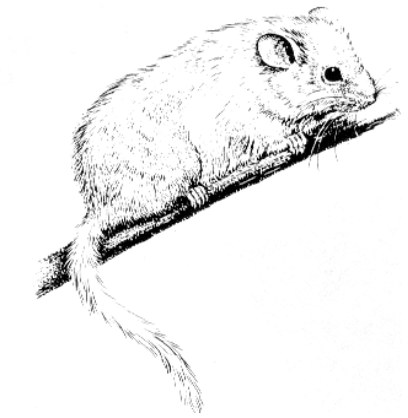
Rockfield Farm
Undy
Monmouthshire

A report following a survey for dormouse presence by:



Just MAMMALS Consultancy
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On behalf of:

monmouthshire
sir fynwy

January 2015

Client	**Monmouthshire County Council**
Project Name	**Rockfield Farm, Undy, Monmouthshire**
Report Title	**A report following a survey for dormouse presence**
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Contents

1 Executive Summary

1.1 An area of woodland, designated as a Site of Importance for Nature Conservation (SINC), is to be enclosed by a proposed housing development on the edge of the community of Undy. Surrounding grassland habitat will be lost, and it is likely that linking hedgerows will at least, be temporarily lost during development. The site is currently a working farm, with cattle and sheep grazing. The woodland itself is not managed.

1.2 To support the development proposals, an extended Phase 1 habitat survey was undertaken in July 2014, by an experienced ecologist, which recommended that additional follow up survey work be carried out to establish presence/likely absence of protected species. This report describes the results of this additional survey effort, for native hazel dormouse, undertaken in 2014.

1.3 The site contains areas of suitable dormouse habitat – a linear corridor of a scrub woodland, well established, and with plenty of linking hedgerows to the wider countryside. The assessment for dormouse included general assessment of vegetation structure and deployment of a suite of 50 dormouse nest tubes. Other typical dormouse survey techniques; searching for hazel nuts; and searching for nests within bramble, could only be used to a limited extent due to modest amount of hazel and bramble present.

1.4 Despite a robust assessment between August and December 2014, no evidence was found to suggest the presence of dormice, although the habitat is considered suitable for sustaining a resident, but low density, population of these protected animals. The woodland is not to be included within the development, but the works are likely to have an impact on connectivity, this must be re-established following development. A suitable buffer must also be adopted around the woodland in order to protect root zones and the longevity of the SINC. Guidance is given below with respect to the timing and undertaking of the proposed work.

2 Introduction

2.1 Rockfield Farm at Undy, Monmouthshire, is being put forward for development. Proposals are to use the land for much needed residential housing. The land has been allocated for development as part of the Local Development Plan for Monmouthshire. It lies around National Grid Reference (NGR) ST 438 877. Suitable areas of habitat for hazel dormice (*Muscardinus avellanarius*) are present on the site, and the M4 corridor, just north of the site has been identified as an important dispersal vector for the species.

2.2 A small stretch of woodland on site offers suitable food species' and general habitat for dormice. Hedgerows provide further connectivity to the wider countryside. While plans are for the retention of the woodland, removal of hedgerows providing connectivity can have negative impacts on the long term survival of any populations potentially present on site. It was therefore concluded that further assessment for the species on site was required.

2.3 In order to determine presence/likely absence of dormouse and therefore establish if the removal of vegetation would have an impact on dormice, the Just Mammals Consultancy LLP carried out a targeted assessment. Survey involved a well-established methodology, described below. Assessment sought to:

- establish if the habitat is used by dormice;
- make appropriate recommendations in light of the findings to permit the proposed works to proceed with the minimum likelihood of impacts on dormouse populations.

2.4 Survey was carried out between August and December 2014, by a team of experienced ecologists. This report details the findings of the assessment effort and makes appropriate recommendations in light of those findings.

3 Survey Team Experience

3.1 Lead surveyor was Phil Morgan. Phil has been working with dormice for over 25 years. In that time he has been regularly monitoring dormouse populations, surveying for dormice using a variety of methods, as well as held training courses on dormice. Phil also holds a Natural Resources Wales (NRW) scientific survey licence (58244:OTH:SA:2014, valid until 31st August 2016) for hazel dormice.

3.2 Assistant surveyor was Carola Dallmeier, who is also the author of this report. Carola holds an MSc in Environmental Conservation Management and has practical expertise with bats, birds, botanical assessments, mammalian and reptile surveys, both in the United Kingdom (UK) and overseas. As well as assisting in conservation-based research, she has carried out biodiversity audits and ecological enquiries. Carola has completed a study of water voles and is currently assisting with bird ringing. She is a Graduate member of the Chartered Institute of Ecology and Environmental Management (Grad CIEEM) and is employed as an Ecologist by the Just Mammals Consultancy LLP.

3.3 Providing further assistance with the survey were Diane Morgan, Jenny Gatward, and James Hoskins.

4 Survey Methodology

4.1 Survey followed two methodologies which have proven effective on other occasions. The first was the undertaking of a nest tube survey in late summer/autumn by installing 50 nest tubes. Nest tubes are readily adopted by dormice, which use the small volume of the tube to create temporary 'stop' nests. Such nests are not as complex or intricate as will be made within nest boxes or in the open, reflecting the minimal effort a dormouse needs to make to provide adequate cover within a tube. The tubes were erected in mid-August 2014 and kept in place until late December 2014.

4.2 Installing dormouse tubes in spring and early summer rarely results in use of tubes by dormice. The reasons for this relate to their behaviour, which tends to see animals high up in the woodland canopy and remaining faithful to their territories and exploiting the invertebrates which they can find at upper levels.

4.3 For a dormouse to create a nest requires some effort and energy expenditure for a small animal. A traditional nest which will be used regularly during the summer months involves the weaving of a central core of soft plant material which performs as an insulation layer. Materials which will be used for the creation of this core include grasses, stripped honeysuckle (*Lonicera periclymenum*) bark, willowherb (*Epilobium sp.*), bracken (*Pteridium aquilinum*), and even reeds or rushes – suitably stripped back to provide more flexibility in the weaving process. Over this insulation layer the dormouse will wrap the nest with fresh green leaves – hazel being popular due to the size and softness of the leaves. The green leaves provide a waterproof outer layer.

4.4 Nest boxes have been used for many years as a means of monitoring known dormouse populations and from observations of the nests created it is clear that a female dormouse will expend an even greater effort on the creation of a nest in which she will give birth to ensure that it is warm and dry. Nests that do not serve this function are often less rigorously constructed and less robust. However, dormice will also create smaller nests, particularly when dispersing known as temporary stop nests. These are often made in a similar way to regular nests, but smaller and less structured.

4.5 The fact that they will construct such nests in tubes means that nest tubes serve as an excellent means of finding dormice. However, as noted earlier, they tend to be ignored by dormice early in the spring and summer if they are deployed at low level where they can be inspected without recourse to using a ladder to check the tubes. In the spring period, dormice forage where a wide variety of food sources is available to them in the canopy of trees and tall hedges. Autumn is also the time of dispersal for young dormice and the youngsters move along connecting hedgerows seeking new woodlands or habitats which they can exploit. Another key factor in utilising dormouse nest tubes as a survey technique for dormice in the autumn is the fact that the tubes tend to be adopted by birds earlier in the spring and early summer, resulting in them being unavailable to dormice.

4.6 A second element to the assessment process was to consider the vegetation structure and composition. Sites with a greater diversity of plant species tend to offer improved opportunities for dormice and although this may not lead to a greater number of dormice being present, it does increase their chances of longer term survivability in a hedge. Structure and connectivity of trees and hedges are also important factors. Whilst research has shown that dormice will cover many hundreds of metres of open ground to access areas of suitable food or during dispersal, they are clearly happier and less at risk of attack by predators if they can remain close to, or within the structure of vegetation most of the time. When assessing the site, the

surveyors therefore considered the natural habitat features and general context within the surrounding countryside.

5 Site Description

5.1 Rockfield Farm is a 16 hectare area of land between the village of Undy in Monmouthshire and the M4 corridor. It lies on a slight crest dropping off towards the motorway. A section of farmland at the northern end of the farm, adjacent to the M4 motorway, is not included in the development.

5.2 The development site, hereafter called Rockfield Farm, consists of a farm yard area, with nine buildings, surrounding fields, and a stretch of woodland running from the farm yard to the south-west. This is designated as a Site of Importance for Nature Conservation (SINC), and lies on a north-facing slope. Hedges connect the woodland to the wider countryside as well as the M4 corridor.

5.3 For the dormouse survey, the site was assessed to contain three broad habitat zones:

- scrub woodland supporting good numbers of favourable species but with open understorey;
- hedgerows connecting the woodland to the wider countryside;
- the grassland and buildings, which are of little value to dormice.

5.4 No part of the site is within a statutory designated site of conservation value (e.g. a Site of Special Scientific Interest (SSSI); Special Area of Conservation (SAC); Special Protection Area (SPA); or National Nature Reserve (NNR)). However, a small strip of woodland on site forms a large part of a Site of Importance for Nature Conservation (SINC). This is not a legally protecting designation, but highlights the site to be of conservation value. The SINC is called Breezy Bank to Rockfield Farm. A search within a buffer zone of 2km around the site revealed four SSSI's to be in the surrounding area. Gwent Levels – Magor and Undy, Gwent Levels – Redwick and Llandevenny, Magor Marsh, are to the south of the site forming part of the Gwent Levels, a small sliver of Penhow Woodlands SSSI is within the 2km radius to the north-east of the site.

6 Survey Constraints

6.1 There were no constraints to undertaking the survey. The milder conditions near the coast made the survey viable even though the survey was started slightly late in the season.

7 Survey Results

7.1 An initial assessment of the sites was carried out on the 23rd of July 2014. Following this, several site visits were made as shown in Table 1 below, which shows timing and weather conditions. The initial site visit included an assessment of the general habitat features, and the potential of the site to support dormice which is described in the Phase 1 survey report dated August 2014.

Table 1 – Summary of Dormouse Survey Activity and Weather Conditions

Survey Type	Dates	Timing	Weather Conditions
Installation of 47 dormouse tubes (CD, JH)	19/08/2014	10.30 – 13.30 hours British Summer Time (BST)	
Monitoring of dormouse tubes (CD, JG)	29/08/2014	11.10 – 11.50 hours BST	Air temperature: 18°C Cloud cover: 7/8 oktas Wind speed: F3, gentle breeze Conditions: Showers
Monitoring of dormouse tubes plus installation of 3 additional tubes (PM)	29/09/2014	11.45 – 13.15 BST	Air temperature: 11°C Cloud cover: 2/8 oktas Wind speed: F0, calm Conditions: Dry
Monitoring of dormouse tubes (DM)	21/10/2014	11.30 – 13.00 BST	Air temperature: 13°C Cloud cover: 5/8 oktas Wind speed: F6, strong breeze Conditions: Dry
Monitoring of dormouse tubes (PM)	19/11/2014	09.30 – 11.00 hours Greenwich Mean Time (GMT)	Air temperature: 16°C Cloud cover: 6/8 oktas Wind speed: F2, light breeze Conditions: Dry
Monitoring of dormouse tubes and removal from site (CD)	18/12/2014	10.30 – 12.45 hours GMT	Air temperature: 12.7°C Cloud cover: 8/8 oktas

			Wind speed: F4, moderate breeze Conditions: Dry
Surveyors	Phil Morgan (PM), Carola Dallmeier (CD), Jenny Gatward (JG), James Hoskins (JH), Diane Morgan (DM)		

7.2 Fifty dormouse nest tubes were installed across the site. A site plan of tube locations is included in Appendix I. The nest tubes were installed in early August 2014, and this was followed up with five monthly monitoring visits from late August to late December. Results from the monitoring sessions are given in Table 2 below.

Table 2 – Dormouse Nest Tube Survey Results

	29th August	29th September	21st October	19th November	18th December
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	Not found	-
14	-	-	-	-	-
15	-	-	-	-	-
16	-	-	Wood mouse nest	Wood mouse nest	Wood mouse nest
17	-	-	-	-	-
18	-	-	-	-	-
19	-	-	-	-	-
20	-	-	-	-	-
21	-	-	Not found	-	-
22	-	-	-	-	-
23	-	-	-	-	-
24	-	-	-	-	-
25	-	-	-	-	Food cache
26	-	Not found	-	-	Food cache
27	-	-	-	-	-
28	-	Not found	-	Not found	-
29	-	Not found	-	Not found	Not found
30	-	-	-	-	-
31	-	-	-	-	-
32	-	-	-	-	-
33	-	-	-	Hawthorn berries	Hawthorn berries
34	-	-	-	-	-
35	-	-	-	-	Hawthorn berries
36	-	-	-	-	-
37	-	-	-	-	-
38	-	-	-	-	-
39	-	-	-	-	-
40	-	-	-	-	-
41	-	-	Not found	-	-
42	-	-	-	-	-
43	-	-	-	-	-
44	-	-	-	-	-
45	-	-	-	-	-
46	-	-	-	-	-
47	-	-	-	-	-
48	Not found	Not found	-	-	-
49	Not found	Not found	Not found	-	-
50	Not found	Not found	-	-	-

7.3 No evidence was found for the presence of dormice, but signs of wood mice (*Apodemus sylvaticus*), were found in Tube 12, from the October monitoring visit onwards. No other mammal activity relating to the tubes was noted. Evidence of badger (*Meles meles*) foraging was noted, and mole (*Talpa europaea*) hills were observed.

7.4 The final aspect to the assessment was undertaken on Thursday the 18th of December 2014. A hazel nut search was conducted, which found nuts but none that were opened by dormice. No evidence of dormouse nests was visible in the vegetation.

8 Discussion and Conclusions

8.1 Survey effort failed to find any evidence for dormouse presence, with no opened nuts, nests, or actual animals being noted. It is considered that the level of survey was appropriate, as was the time of year when the assessment was undertaken. Despite using a robust methodology, no evidence for presence of dormouse was established.

8.2 Generally the site is considered suitable to support a population of dormice, were they to be present in the wider area. The M4 corridor has previously been found to be a dispersal route for dormice. The nearest sizeable woodland lies within the centre of Undy, smaller fragments are present across the M4 to the north. The Rockfield Farm woodland is a SINC, and is to be excluded from the proposed housing development. Some connectivity, in the shape of mature hedgerows, are likely to be lost due to the development.

8.3 In the absence of any evidence to suggest the presence of dormice in the woodland and hedges which are to be affected in this case, recommendations are limited to the execution of the management works. No application for a derogation licence for a European Protected Species has to be made to Natural Resources Wales for the proposed work, as a derogation licence cannot be issued in the absence of evidence for the presence of a species.

9 Recommendations

9.1 In the absence of evidence for the presence of dormouse, recommendations are limited to what must be done to retain natural features and enhance the site for biodiversity. Recommendations are made below which compliment guidance already provided within other ecological reports for the site.

9.2 In order to protect the tree corridor, which is designated as a SINC, a buffer zone must be left around the woodland in order to ensure no damage to roots is done during or after the works. Further evidence of the active use of the badger sett on site was observed during the dormouse survey and this measure will help to provide a buffer aiding movement of these widely roaming animals.

9.3 If the existing hedgerows on site have to be removed in total or in part, then the landscaping plan must include proposals for re-planting of hedgerows with native species for the benefits of wildlife. Planting schemes have to take into consideration connectivity issues on the site and within the wider countryside, ensuring connectivity especially where hedgerows and other linear features are concerned.

9.4 Bird boxes must further be installed to provide alternative options in the intervening time between the clearance of vegetation and establishment of new growth. They can be installed on the houses, or even incorporated into the buildings if necessary. The boxes must not be put up so that they receive direct sunlight, or suffer from rainwater driving into them.

9.5 Work to remove vegetation risks damaging or destroying active bird nests if such work is conducted in the bird breeding season of March through to August. It is therefore appropriate to schedule work to clear and remove vegetation within the winter months to avoid the risk of encountering active bird nests.

9.6 Tables 3 and 4 below include a list of suitable native tree and shrub species, which can be planted as part of any landscaping proposals. It is essential that such plants are sourced locally in order to reduce likelihood of introducing diseases.

Table 3 – Recommended Native Tree and Shrub Species

Common Name	Scientific Name
Alder	*Alnus glutinosa*
Crab apple	*Malus sylvestris*
Dogwood	*Cornus sanguinea*
Elder	*Sambucus nigra*
Field maple	*Acer campestre*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Holly	*Ilex aquifolium*
Rowan	*Sorbus aucuparia*
Silver birch	*Betula pendula*
Yew	*Taxus baccata*

9.7 Additional species which can be planted, which although not exclusively native species, will bring benefits for wildlife are included in Table 4 below. Again, only plants from local stockists must be used where this is possible.

Table 4 – Recommended Garden Shrubs

Common Name	Scientific Name
Barberry	*Berberis vulgaris*
Clematis	*Clematis montana* or *Clematis vitalba*
Common broom	*Cytisus scoparius*
Dog rose	*Rosa canina*
Guelder rose	*Viburnum opulus*
Hebe	*Hebe albicans*
Honeysuckle	*Lonicera periclymenum*
Lavender	*Lavandula spp.*
Oregon grape	*Mahonia aquifolium*
Tree cotoneaster	*Cotoneaster 'Coral Beauty'*
Tree cotoneaster	*Cotoneaster Hybridus Pendulus*
Vibernum	*Viburnum davidii*

9.8 It is acceptable for other plant species to be provided on site, as recommended by the landscape architect. However, any planting proposals must include a minimum 70% proportion of the species listed in Tables 3 and 4.

9.9 Whilst it is likely there will be areas of grassland within the proposed development, and some of these will require an amenity grassland seed mix, there are opportunities to sow wildflower grassland areas on parts of the site. To meet these needs it is recommended that the following seed mixes are used. British Seed Houses Mix A24 is a wear and tear mixture suitable for lawns and hard-working areas near to pathways. It contains five species of plant which are suitable for this location. For the wildflower areas the Emorsgate EM3 wildflower seed mix is recommended, with some twenty -five wild plant and grass species.

10 References

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11 Site Photographs

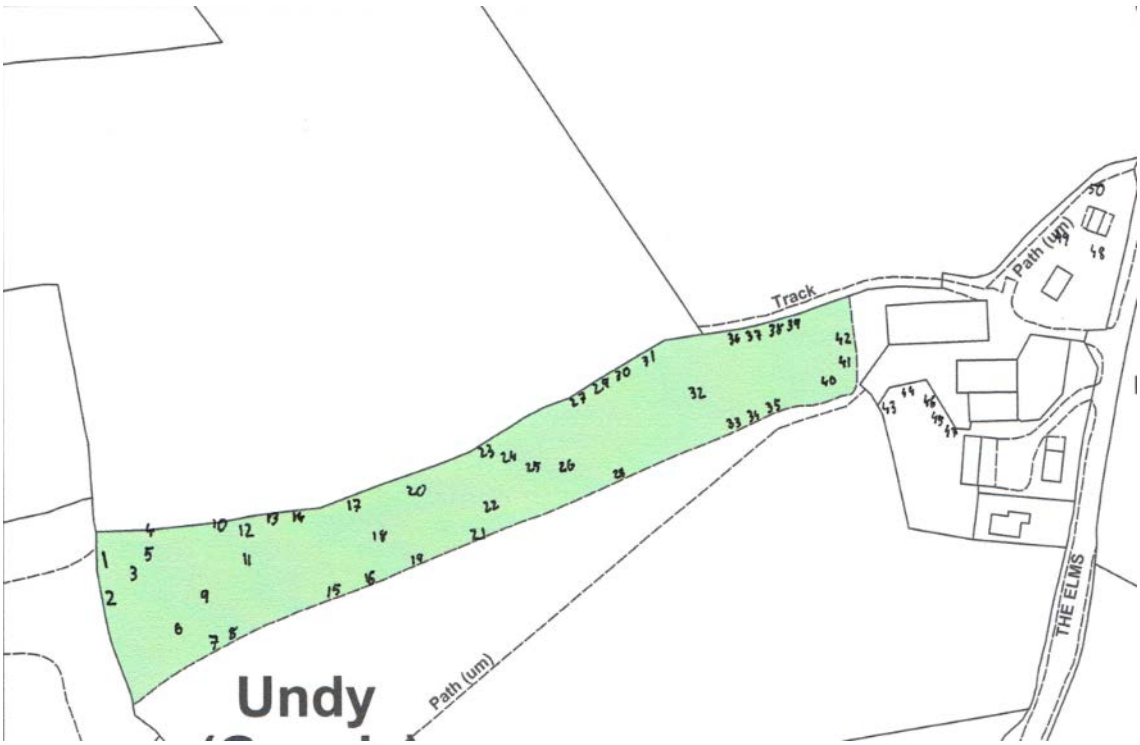
Figure 1 – Inside SINC woodland

Figure 2 – Connecting hedgerows

Figure 3 – Dormouse tube in situ

Figure 4 – Wood mouse nest

12 Appendix I – Approximate Location of Dormouse Nest Tubes



We confirm that in preparing this document we have exercised reasonable skill and care, taking into account the project objectives, the agreed scope of the work, prevailing site conditions and the degree of manpower and resources allocated to the project.

This document is valid for a period of two years from the front cover date.

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