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## Dormouse Survey

LAND AT DUNSBURY HILL FARM  
LEIGH PARK, HAVANT

PRELIMINARY SURVEY

6<sup>th</sup> February, 24<sup>th</sup> April & 4<sup>th</sup> May 2002

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## **INTRODUCTION**

### **General Site Description**

Dunsbury Hill Farm is situated on the urban fringe and comprises a field system that is currently used for arable crops and horse grazing. Most of the fields are bounded by hedgerows of varying quality/width and are interspersed with small areas of woodland and scrub.

The site is adjacent to a formal recreation area, however there appears to be considerable use of the site for passive recreation, mainly dog walking, along the various tracks and footpaths. Staunton Country Park is situated to the immediate north east of the site.

### **Limits to Survey**

All areas on site were surveyed. Where possible a visual check was made into neighbouring land.

Dormice move about their territory, between nesting, feeding and hibernation areas, on a seasonal basis. The pattern of dormouse activity will change in relation to temperature and the weather. The findings of a dormouse survey are likely to change with the seasons. When planning development, in an area of known dormouse activity, an up to date survey should be used in order to avoid harm to dormice or damage to their habitat.

### **Planning Status**

This survey has been conducted as part of an Ecological Assessment of the area.

### **Full Postal Address of Site:**

Dunsbury Hill Farm  
Leigh Park  
Havant  
Hampshire

**OS Grid ref. for centre of site:** SU 700 092

**Name and Address of Client:** Robert Rummey Associates  
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## 1 DISCUSSION

- 1.1 The Dunsbury Hill Farm site was surveyed, over a period of four months, for the field signs of the common dormouse (*Muscardinus avellanarius*). The survey days were 6/2/02, 24/4/02 & 4/5/02. A preliminary assessment was also made of the various habitats on site, for their ability to support a population of dormice. The field signs were recorded; details of these records have been reproduced in the Findings section of this report and are summarised and discussed below.

### 1.2 Nut Search

- 1.2.1 The most frequently utilised method of surveying for dormice is to search for hazelnut shells on the woodland floor and then to check the nuts for the distinctive signs of being opened by a dormouse (Hurrell 1980, Bright & Morris 1989). This survey method, whilst it can be diagnostic for the presence of dormice, is obviously limited to those habitats that contain fruiting hazel (*Corylus avellana*).
- 1.2.2 A search for hazelnut remains was conducted on site, but it was rather unproductive because most of the hazel was not fruiting or fruiting poorly. The results of the nut search are shown, in table form, in the Findings. No 'dormouse-gnawed' nuts were found, however this does **not** indicate that dormice are absent from the site.
- 1.2.3 In the absence of fruiting hazel, it is notoriously difficult to verify the presence or absence of the common dormice because it lives at low densities and leaves very few field signs (Bright, Mitchell & Morris 1994). The dormouse's nocturnal and arboreal habits and the fact that they spend many months of the year hibernating beneath ground level compound these problems. Dormouse activity is also directly affected by the weather, particularly the ambient temperature and rainfall (Bright, Morris & Wiles 1996). Higher temperatures lengthen the period of dormouse activity and rainfall reduces it, consequently the cold wet weather that has been a feature of 2001-2002 may also account for the lack of field signs.
- 1.2.4 Whilst the best dormouse habitat is ancient semi-natural woodland, ***it is now clear that dormice occur in a wider range of habitats than first thought. It is commonly held misconception that dormice only occur in areas where hazel is present.*** Whilst hazel is a valuable pre-hibernal food, it is **not** a crucial food plant. Recent research has shown that dormice utilise atypical habitats and that bramble appears to be the crucial food plant (M. Woods, 2002 pers. comm.).
- 1.2.5 As breeding populations of dormice can occur in habitats where hazel (*Corylus avellana*) is **absent**, another method of surveying for dormice, in addition to the nut search, needed to be developed. In response to this, a new method of surveying for dormice, using Nest Tubes, has **very** recently been developed (Morris & Bright 2001/2). It is strongly recommended that further survey work be carried out in the form of a Nest Tube study, before it can be safely determined that dormice are absent from the site. The use of Nest Tubes will be discussed in the Recommendations Section.

### 1.3 Suitability of Habitat

- 1.3.1 A preliminary assessment of the site revealed that it contains a cluster of small wooded areas, which are linked with hedgerows, areas of bramble and scrub. These areas were assessed for their ability to provide dormice with nesting sites and food resources throughout the year and for the availability of arboreal route ways. A desktop study was also conducted to identify any woodland on neighbouring land.

### 1.3.2 Woodland Structure

The two factors that determine the quality of woodland for dormice are tree species diversity and tree canopy overlap (Bright & Morris 1990).

- 1.3.3 *Tree Species Diversity* – The wooded areas on site are mainly recent woodland or scrub, containing predominately native broad-leaved species. Almost all of the tree species utilised by dormice are present (see Findings). This array of plant species is capable of providing a succession of food sources for the dormouse, throughout the year.

- 1.3.4 *Tree canopy overlap* – Most of the wooded areas have a reasonable understorey, which is dense and well developed in places. There is a problem with canopy overlap in some areas, reducing the light to the understorey and shading-out some of the food plants. The understorey is generally unmanaged, the hazel in Beech Wood becoming stored coppice.

### 1.3.5 Food Resources

There is an abundance of the dormouse's crucial food plant, bramble (*Rubus fruticosus*) and the other key species oak (*Quercus robur*), honeysuckle (*Lonicera periclymenum*) and hazel (*Corylus avellana*) (Bright & Morris 1985). Many other plant species utilised by dormice are also present on site (see Findings). The woodland on site contains a suitable array of tree and shrub species, capable of providing a succession of food sources for the common dormouse throughout year.

- 1.3.6 *Hedgerows & Scrub* - The hedgerows and scrub on site contain a variety of trees and woody plant species that are of particular value to dormice (see Findings). There is an abundance of bramble (*Rubus fruticosus*) and again the plant species present are capable of providing a succession of food sources for the dormouse, throughout the year.

### 1.3.7 Nesting Sites

The plant species required for nest construction are present on site. There are many suitable nesting locations particularly because of the abundance of bramble, which can provide nests with some protection from predators (Hurrell & McIntosh 1984). The hedgerows on site vary in width, structure and species diversity. Some, but not all, of the hedgerows and areas of bramble/scrub are wide enough to be used for breeding purposes.

- 1.3.8 The woodland/scrub near Hermitage Stream is quite wet and grazing animals appear to gain access to it. These factors would reduce the number of suitable sites for hibernation, and may increase the already high mortality rate of dormouse individuals during hibernation.

### 1.3.9 Arboreal Links

Habitat fragmentation is one of the major threats to dormice survival. A viable population of dormice is unlikely to survive in an **isolated** wood of less than 20 hectares (Bright, Mitchell & Morris 1994). However, dormice can live in smaller woodlands and even hedgerows, where they are linked by arboreal route ways to other woodlands and areas of scrub.

- 1.3.10 Each woodland block on site has a number of hedgerow boundaries radiating from it. Consequently, all areas of woodland on site are connected with hedgerows, or areas of bramble and scrub. This will provide arboreal route ways, between the various woodland blocks, and aid dormouse dispersal. These arboreal links could ensure that there is genetic interchange between any existing woodland populations. They will also

allow for colonisation of new areas and the recolonization of woodlands from which dormice have been lost.

- 1.3.11 There are several gaps in some of the hedgerows, however where these occur they are only a few meters wide and are bridged by lower growing plants such as bracken, that dormice can use in order to cross open areas (M.Woods, 2002 pers. comm.).

1.3.12 Neighbouring Woodland

Staunton Country Park is situated to the immediate north-east of the site. It contains large tracts of broad-leaved woodland, which are recorded as a fragmented part of the Forest of Bere. Bell's Copse, Deer Slaughter Plain & Cabbage Field Row are all recorded as containing some ancient semi-natural woodland (Hampshire County Councils Phase One Survey Records).

- 1.3.13 The Countryside Officer for Staunton Country Park reports that dormice-gnawed hazelnuts have been found within the Country Park. This record greatly increases the likelihood of dormice being present on site, as there are arboreal routes that link the woodland and hedgerows on site with the woodland within Staunton Country Park.

1.3.14 Predators

The overall suitability of the site as dormouse habitat is diminished by the close proximity of the residential area. The domestic cat may be a major predator of the dormouse. The Mammal Society's Cat Predation Survey 2001, revealed that in relation to the relative population sizes, cats actually predate a greater proportion of the dormouse population than that of wood mice. The presence of domestic cats in urban areas tends to deplete the immediate population of dormice, creating a 'halo effect' around residential areas (M.Woods pers. comm.).

1.4 **Summary**

- 1.4.1 The 'key' plant species utilised by dormice are present on site, as well as many other native food plants. The trees and woody shrubs on site are capable of providing a succession of food resources for the dormouse, throughout the year. In most areas the woodland, hedgerow and scrub structure is capable of providing plenty of arboreal route-ways and nesting sites.

- 1.4.2 Whilst the hazelnut search on site was not conclusive, dormouse gnawed nuts have been found in the ancient semi-natural woodland within the neighbouring Staunton Country Park. There are arboreal route-ways linking the habitat on site with this existing population of dormice. Therefore it is highly probable that there are dormice on site.

1.5 **Recommendations**

- 1.5.1 It is strongly recommended that a Nest Tube Study be conducted, in order to confirm the absence or presence of dormice and to identify which areas of the site are utilised; estimate the population and identify conservation measures. Dormice are vulnerable to changes in woodland and hedgerow management and the effects of habitat fragmentation. Consequently, conservation measures are likely to include enhancing/maintaining arboreal links and species diversity, improving woodland and hedgerow structure/management, provision of nesting boxes and the installation of specialised fencing to provide protection from predators.

- 1.5.2 Ideally a nest tube study should be undertaken for a minimum of 3 months, in good weather, although presence can often be confirmed after a few weeks. The nest tubes are usually fixed in place from April and then checked every 2 weeks for the presence

of dormice nests. The nest tubes should be utilised in a wide range of habitat types as recent research has shown that dormice are not just utilising woodland and hedgerows but also gorse and bramble scrub.

## 1.6 Legal Protection

1.6.1 The common dormouse is protected under Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations 1994 and Schedule 5 of the Wildlife & Countryside Act 1981. The recent Countryside and Rights of Way Act 2000 (CROW Act) has strengthened this protection so that reckless damage or disturbance is now an offence. Taken together the various Acts and Regulations make it illegal to:

- a) Intentionally, deliberately or **recklessly** kill, injure or capture dormice.
- b) Deliberately or **recklessly** disturb dormice.
- c) Damage or destroy dormouse breeding sites or resting places.
- d) Possess or transport a dormouse or part of a dormouse, unless acquired legally.
- e) Sell, barter or exchange dormice, or parts of dormice.

1.6.2 The dormouse is the emblem species for English Nature's Species Recovery Programme and is the subject of one of their Priority Species Biodiversity Action Plans. English Nature seek to ensure that Local Authorities take account of PPG9 and their written advice is "*Developments which fragment habitats and break up natural features which link wildlife sites (notably road building) have a significant impact on dormouse populations. The importance of retaining and managing natural features linking wildlife sites was emphasised in DOE's Planning Policy Guidance Note on Nature Conservation (PPG9)*".

1.6.3 Development that might affect dormice can only be permitted by way of a Development Licence issued by DEFRA. Three tests must be satisfied before DEFRA can issue a licence to permit otherwise prohibited acts:

1.6.3.1 Regulation 44(2)(e) states that licences may be granted by DEFRA 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*".

1.6.3.2 Regulation 44(3)(a) states that a licence may not be granted unless DEFRA is satisfied "*that there is no satisfactory alternative*".

1.6.3.3 Regulation 44(3)(b) states that a licence cannot be issued unless DEFRA is satisfied that the action proposed "*will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range*".

1.6.4 Dormice cannot be translocated from an area without a DEFRA licence and such a Translocation Licence would not be issued unless it was of "*overriding national importance*".

## 2 FINDINGS

- 2.1 The presence or absence of dormice is usually assessed by searching for hazelnut shells, on the woodland floor (Hurrell 1980, Hurrell & McIntosh 1984; Bright & Morris 1989). However, it is notoriously difficult to find field signs of dormouse activity where hazel (*Corylus avellana*) is absent or not fruiting (Bright, Mitchell & Morris 1994). In such cases other field signs will be sought and a preliminary assessment will be made of the suitability of the habitat for dormice. Where hazel is absent, it is strongly recommended that a Nest Tube Study is conducted before one can safely determine that dormice are absent.

### 2.2 Nests

#### 2.2.1 Dormice Nests

It should be noted that most summer nests are built in tree hollows and searching for these is impractical (Bright & Morris 1992).

- 2.2.2 Summer nests - Some areas of bramble (*Rubus fruticosus*) were inspected for summer nests, none were found. The denseness of the vegetation and a high proportion of leaf retention, due to the mild winter, hampered inspection of some of the thicker bramble areas.

- 2.2.3 Hibernation nests - It is impractical to search for these, nevertheless the site contains many suitable sites for hibernation nests. Some areas are too wet and it appears that livestock can gain access to some of the woodland areas, which would be detrimental to any hibernating dormice.

#### 2.2.4 Potential Nest Sites

There are several wide, species-rich, hedgerows on site, which could provide suitable nesting sites particularly those with mature trees and those with adjacent areas of bramble and scrub. However, some of the hedgerows are too narrow to be suitable for breeding nests.

- 2.2.5 The woodland areas on site are generally deciduous with a mixed understorey including bramble, ivy and honeysuckle, plant species utilised as nest sites.

- 2.2.6 Tree hollows appeared to be present in the more mature trees on site.

- 2.2.7 Old discarded bird's nests are present on site in the woodland hedgerows and scrub, a few were checked but no dormice nests were found.

- 2.2.8 There are a few areas of rough grassland with areas of encroaching scrub. These areas could also provide nesting sites amongst the larger patches of gorse and bramble.

#### 2.2.9 Nesting material

All of the plant materials that are required for nest construction can be found on site, within some of the hedgerows and most of the woodland blocks (see table).

### 2.3 Feeding Remains

#### 2.3.1 Nuts

The discarded remains of hazelnut shells were gathered and examined with a hand lens in order to determine which small mammal had eaten it. Few nuts were found, as many of the hazel trees were too shaded or too immature to fruit. The results are listed in the table below.

|                                      |    |
|--------------------------------------|----|
| Number of Hazel Nut Remains Gathered | 12 |
| Number eaten by dormice              | 0  |
| Number eaten by wood mice            | 8  |
| Number eaten by vole                 | 1  |
| Number eaten by squirrel             | 3  |

## 2.4 Woodland Structure

2.4.1 A preliminary assessment has been made of the general structure of the woodland on site and the availability of tree, shrub and climbing plant species that are utilised by dormice.

2.4.2 *Tree Canopy Overlap* – In some of the recent woodland, standard trees are growing closely and tree canopy overlap is a problem, reducing the light to the understorey and shading out some of the food plants. However, in other areas the standard trees are well spaced, with uneven-aged wood and a well-developed understorey. The understorey is generally unmanaged but the hazel in Beech Wood shows signs of being coppiced.

2.4.3 *Tree Species Diversity* – Most of the recent woodland on site contains native-broad leaved species. Introduced species include sycamore and sweet chestnut. The dominant tree species in Beech Wood is Oak (*Quercus robur*), the most important tree species to the dormouse. Other species include silver birch (*Betula pendula*), Scots pine (*Pinus sylvestris*), sweet chestnut (*Castanea sativa*), hazel (*Corylus avellana*), field maple (*Acer campestre*), goat willow (*Salix caprea*) and hawthorn (*Crataegus monogyna*). Beech Wood has been bisected by the A3(M) road construction some years previously.

2.4.4 Cherry Tree Row, the adjacent wedge-shaped woodland and the areas of woodland close to Hermitage Stream also contain an excellent mix of native tree species. These include oak, ash (*Fraxinus excelsior*), hazel, hawthorn, blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), goat willow, field maple and silver birch. Bramble, honeysuckle (*Lonicera periclymenum*) and ivy (*Hedera helix*) are also present in all woodland areas.

2.4.5 The hedgerows on site vary in width, structure and species diversity. Most contain several of the plant species required by dormice, notably oak, hawthorn and bramble. Some sections of hedgerow are 4metres or wider; others are flanked by bramble scrub.

## 2.5 Arboreal Route-ways

2.5.1 The site was assessed for its ability to provide arboreal links between the areas of deciduous woodland both on and off site.

2.5.2 Most areas of woodland on site are connected with hedgerows or areas of bramble and scrub. These will provide arboreal links between the various woodland blocks and aid dormouse dispersal.

2.5.3 There are arboreal links between Beech Wood (on site), Bell's Copse and other woodland areas within Staunton Country Park.

2.5.4 There are several gaps in some of the hedgerows on site. However, where these occur they are only a few metres wide and are bridged by bracken (*Pteridium aquilinum*), hogweed (*Heracleum sphondylium*) and tall grasses (Meadow Fescue *Festuca pratensis*; Cocksfoot *Dactylis glomerata*; Drooping Brome *Bromus sterilis*; Yellow Oat grass *Trisetum flavescens*; and Meadow Barley *Hordeum secalinum*).

## 2.6 Food Plant Availability

2.6.1 The following plants, which are valuable to dormice, are present on site:

| Plant          | Provides food Source in |               |         | Nesting material | Nest Sites           |
|----------------|-------------------------|---------------|---------|------------------|----------------------|
|                | Spring                  | Summer        | Autumn  |                  |                      |
| Bramble        | pollen/nectar           | pollen/nectar | fruit   |                  | in branches          |
| Hazel          | pollen/nectar           | insects       | nuts    | leaves           |                      |
| Blackthorn     | pollen/nectar           | fruit         | fruit   |                  |                      |
| Honeysuckle    |                         | flower        | berries | bark             |                      |
| Ash            |                         | ash keys      |         |                  |                      |
| Goat Willow    | pollen/nectar           | seeds/insects |         |                  |                      |
| Hawthorn       | pollen/nectar           |               | fruit   |                  |                      |
| Wild Clematis  |                         |               |         | bark             |                      |
| Oak            | pollen/nectar           | insects       |         |                  | tree hollows         |
| Hornbeam       |                         | seeds         | seeds   |                  | tree hollows         |
| Alder          |                         | insects       |         |                  | tree hollows         |
| Broom          |                         | pollen/nectar |         |                  |                      |
| Birch          |                         | seeds         |         |                  |                      |
| Sweet Chestnut |                         | pollen/nectar | fruit   |                  | tree hollows         |
| Gorse          |                         | flowers       |         |                  | in branches          |
| Sycamore       | pollen/nectar           | insects       | insects |                  | tree hollows         |
| Wayfaring Tree | Pollen/nectar           | fruit         |         |                  |                      |
| Yew            |                         | fruit         | fruit   |                  | tree hollows         |
| Ivy            | old fruit               |               | nectar  |                  | stems close to trunk |

2.6.2 Potential food sources may come from other tree flowers and fruit, such as the elder, cherry and crab apple on site. However, the full value of these to dormice has not yet been fully researched.

## 2.7 Neighbouring Woodland

2.7.1 Staunton Country Park lies to the north-east of the site and contains large tracts of deciduous and mixed woodland.

2.7.2 Hampshire County Council's records show that Bell's Copse, Cabbage Field Row and Deer Slaughter Plain all contain sections of ancient semi-natural woodland. Much of the woodland within Staunton Country Park is recorded as a fragmented part of the Forest of Bere.

2.7.3 Dormouse gnawed hazelnuts have been found in Staunton Country Park (see Summary).

## 2.8 Predators

There are numerous cats on site, close to the residential area and along Park Lane.

## APPENDICES

- DORMOUSE PRELIMINARY SURVEY METHODOLOGY
- BIBLIOGRAPHY

## DORMOUSE PRELIMINARY SURVEY METHODOLOGY

Dormice lead a nocturnal and arboreal lifestyle and this makes them very elusive. Trapping of dormice is difficult and, as the dormouse is a protected species, can only be conducted when authorised by a scientific/survey licence from English Nature. Consequently, dormouse surveys have to be conducted indirectly by searching for the signs of their presence (Hurrell & McIntosh 1984; Bright & Morris 1989)

### **Nut Search**

Where hazel (*Corylus avellana*) is present on site, a nut search will be conducted to locate the remains of hazelnuts that have been eaten by small mammals. Patches of potentially suitable dormouse habitat (Bright & Morris 1990) will be selected as areas in which to conduct subsequent quadrat surveys. Quadrats on the woodland floor measuring 10m x 10m will be systematically searched for 20 minutes, for discarded hazelnuts. Any hazelnut remains will be collected for later examination. Five quadrats will be searched in this manner.

The collected nutshells will be examined with a hand lens in order to determine which mammal had gnawed the nut open. Where the nuts are found to bear the distinctive signs of being opened by a dormouse (Hurrell 1980; Hurrell & McIntosh 1984; Bright & Morris 1989) this will be taken as a positive indicator of the presence of dormice.

### **Nest Search**

Where hazel is absent or fruiting poorly, a nest search may be conducted. Many dormouse nests are built in tree hollows and it would be impractical to search for these nests (Bright & Morris 1992). However, areas of bramble or wide, species-rich hedgerows are used as summer nesting sites and suitable areas will be selected for subsequent searches.

Where possible 50meters of suitable hedgerow will be searched for 20 minutes, with both sides being inspected. Large areas of bramble approximately 10m x 10m will also be selected for a visual inspection. Alternatively several smaller patches of bramble, which collectively cover a similar area, can be selected. The patches of bramble and hedgerows will be inspected for 20 minutes, carefully viewing from the edge, using a torch and inspection mirror where necessary. Five quadrats/transects will be searched in this way.

The visual inspections will be undertaken carefully to ensure that disturbance is kept to the minimum and that the habitat is not damaged in any way. If a distinctive dormouse nest is observed this will be taken as a positive indicator for the presence of dormice and the nest search will be terminated. The nest/s will not be disturbed or damaged in any way.

### **Nesting Tube Study**

It is strongly recommended that a Nesting Tube Study is undertaken when hazel is absent or fruiting poorly. This technique is beyond the remit of a preliminary survey and a separate methodology can be provided on request.

### **Preliminary Habitat Assessment**

A preliminary assessment will be made of the various habitats on site and their suitability for dormice. Woodland areas will be assessed by their type, size, structure, management, species diversity, arboreal links with other woodland areas and the distance from the nearest area of ancient woodland. Hedgerows will be assessed for their structure, width, management regime, species diversity and arboreal links with other hedgerows, woodland or areas of scrub. Areas of scrub will be assessed for their species diversity, and arboreal links with other suitable dormouse habitat.

Good dormouse habitat will have a range of tree and shrub species capable of providing a succession of dormouse food sources throughout the year. It will have an abundance of suitable nesting areas for both summer and hibernation nests. There will be plenty of arboreal links within woodland and hedgerows, and there will be arboreal dispersal routes linking the habitat with other suitable areas of woodland, hedgerows and scrub.

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