

APPENDIX 15.5

Dormouse Survey Report

Contents

Section	Page
Appendix 15.5 – Dormouse Survey Report	
1. Introduction	3
2. Methodology	4
3. Results	5
4. Discussion and Conclusions.....	6
5. References	7

List of Tables

Table 1 – Summary of dormouse tubes checks 2010/2011.....	5
Table 2 – Summary of Mouchel (Highways Agency) dormouse tubes checked by Atkins ecologists within the proposed Scheme boundary in 2011	6

List of Figures

Figure 15E.1 – Dormouse Survey Locations (<i>please see Figure 1.2 of ES for final red line boundary</i>)	
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1. Introduction

- 1.1 Atkins Limited was commissioned by Portsmouth County Council to undertake dormouse surveys of an area of Dunsbury Hill Farm, Havant, Hampshire. Habitat suitable for dormice was identified within woodland in Cherry Tree Row, Beech Wood East and Neville's Park, plus hedgerows across the site and adjoining Park Lane, but there were no records of dormice prior to the 2010 dormouse survey by Atkins. The closest record of dormice was from Staunton Country Park which is 2.1 km north-east of Dunsbury Hill Farm (Neeve, 2002). The typical habitat for dormice is hazel coppice or ancient semi-natural species-rich broad-leaved woodland. However, dormice are often found in other areas, including coniferous forest and species-rich hedgerows (Bright *et al*, 2006).
- 1.2 This report presents the findings of dormouse surveys carried out between 24/09/2010 and 28/08/2011.

Legislative background

- 1.3 Dormice are legally protected because their numbers and distributional range have declined by at least half during the past 100 years. The dormouse is legally protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended), which implements the EC Directive 92/43/EEC in the United Kingdom.
- 1.4 As the dormouse is a European Protected Species a Development licence from Natural England with respect to dormice is required for any work that would otherwise be in contravention of the EU Directive. A licence can only be issued to permit otherwise prohibited acts if Natural England is satisfied that the following three tests have been met:
- a) The work needs to be carried out to preserve public health or public safety or other imperative reasons of over-riding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.
 - b) that there is no satisfactory alternative.
 - c) 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.
- 1.5 The conservation status of a species will be taken as "favourable" when:
- a) The population dynamics of the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
 - b) the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
 - c) there is, and probably will be, a sufficiently large habitat to maintain its population on a long term basis.
- 1.6 The Natural Environment and Rural Communities Act 2006 requires public authorities to have regard to the purpose of conserving biodiversity in relation to habitats and species listed as being of principal importance for the conservation of biodiversity. This list of habitats and species has been updated in 2010 under Section 41 of the Natural Environment and Rural Communities Act 2006 and replaces the list included in Annex C of the joint Circular ODPM 06/2005 and Defra 01/2005, which accompanies Planning Policy Statement 9 (PPS 9) *Biodiversity and Geological Conservation*. The dormouse is included in

this list and is a priority species in the UK, Hampshire and Highways Agency Biodiversity Action Plans (BAPs).

- 1.7 The objectives of the UK BAP are to maintain and enhance dormouse populations in the counties where they occur and re-establish self-sustaining populations in at least 5 counties where they have been lost. Dormice are known to be widely distributed throughout Hampshire, but relatively rare, with Hampshire being one of the most important strongholds for dormice in the UK (Ewald, 2004).

2. Methodology

- 2.1 The methodology used was consistent with the nest tube surveys methodology described in the Dormouse Conservation Handbook, Second Edition (Bright *et al.* 2006). The dormouse boxes and tubes were put up between August 2010 and August 2011. The location of these boxes/tubes can be found in **Figure 15E.1**.
- 2.2 100 dormouse tubes were erected in suitable dormouse habitat in August 2010. Each tube was checked in September 2010 and monthly between April and August 2011 inclusive. The majority of the checks were carried out in suitable weather conditions (dry and calm). However, on some site visits the weather became less than optimal. On these occasions, the amount of handling the animals found was limited as much as possible to prevent the animals from becoming wet and/or chilled. This meant that not all the dormice were weighed and sexed during some of the checks.
- 2.3 Using the index of probability of finding dormice present in nest tubes in any one month described in the Dormouse Conservation Handbook, Second Edition (Bright *et al.* 2006), the survey effort was calculated and resulted in a score of 41, which showed that sufficient survey effort had been undertaken to detect the presence of dormice using nest tubes.
- 2.4 All nest tubes were checked by a licensed dormouse handler.
- 2.5 An area of mixed woodland in Neville's Park West SINC, broadleaved woodland and scrub to the west of Hulbert Road was not included in the dormouse survey but was inspected in September to determine its potential to support dormice and search for evidence of dormouse presence such as nests and feeding remains.

Limitations

- 2.6 Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna such as season, climate, migration patterns and species behaviour. Even if evidence of dormice is not discovered during the survey, this does not mean that dormice are not present, or that they will not be present in the future.
- 2.7 There are factors such as potential tampering with the nest tubes by members of the public that may have affected the results of the dormouse surveys. The nest tubes were positioned and hidden as best as possible away from public footpaths. The surveys were all carried out in suitable weather. It is thought that the site was surveyed thoroughly.
- 2.8 During a dormouse survey in June 2011 a number of additional dormouse nest tubes were found amongst vegetation to the side of the Hermitage Stream. Upon further investigation it was discovered that the Highways Agency had contracted the consultancy Mouchel to undertake dormouse surveys along the Hermitage Stream and within Highways Agency land. Some of these nest tubes were within the site boundary, and may have affected our population results as dormice may have been using these additional nest tubes instead of those from the Atkins survey. The results of the Mouchel survey have been obtained and are included in Table 2 below.

- 2.9 Some of the nest tubes were not found during a number of the surveys due to either dense vegetation and/or removal. Where possible these tubes were replaced. On two visits (April and July 2011) some tubes could not be surveyed due to health and safety reasons as there were vagrants present.

3. Results

- 3.1 Dormice have been found across the Dunsbury Hill site. The full results of the dormouse surveys undertaken can be found in Annex 1. **Figure 15E.1** illustrates the locations of the tubes and shows which have been occupied by dormice. Table 1 below provides a summary of the results.
- 3.2 Some habitat changes were noted over the survey period. These comprised of a new housing development to the east of Cherry Tree Row Site of Important Nature Conservation (SINC) and south of Leigh Park housing estate at Woolston Road, where some trees and undergrowth were cut along the boundary with this housing development site and Cherry Tree Row SINC. Other habitat changes included vegetation clearance of ruderal plants/scrub under a number of pylons across the Dunsbury Hill site, and also ploughing of some fields which had previously been left fallow.
- 3.3 The number of tubes checked on each survey varied slightly (between 93 and 100 boxes were checked). This is due to the loss of tubes in some places, as well as the wooden inserts falling out the tubes or the tubes not being re-located within the dense vegetation.
- 3.4 An area of mixed woodland in Neville's Park West SINC, broadleaved woodland and scrub to the west of Hulbert Road were identified as being potential habitat for dormice in September 2011. This area was not included within the nest tube survey but no signs of dormice were found during a search for evidence, such as nest and feeding remains, in September 2011. However given the proximity of this site to areas where dormice are known to be present it is considered likely that dormice would utilise this habitat.

Table 1 – Summary of dormouse tubes checks 2010/2011

	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
No tubes surveyed	100	95	93	97	93	95
No of dormice found	8	6	6	3	0	2
Tubes with signs of dormouse occupancy (occupied and unoccupied nests)	13	14	7	8	8	9
Percentage of tubes showing signs of dormouse occupancy (occupied and unoccupied nests)	13	15	8	8	9	9

Table 2 – Summary of Mouchel (Highways Agency) dormouse tubes checked by Atkins ecologists within the proposed Scheme boundary in 2011

	June 2011	July 2011	August 2011
No tubes surveyed	6	4	0
No of dormice found	0	0	0
Tubes with signs of dormouse occupancy (occupied and unoccupied nests)	0	0	0

Note: Mouchel confirmed that, during the first check of their dormouse tubes in July 2011, three tubes had signs of dormouse occupancy (two tubes had a dormouse nest, and the third one had a dormouse nest and a dormouse)

4. Discussion and Conclusions

- 4.1 Dormice were recorded across all the survey areas, suggesting they are using all suitable habitat within the site. The presence of juveniles indicates that there is a successful breeding dormouse population in the area.
- 4.2 Densities of dormice are naturally thought to be quite low in England, compared with other small mammals. In early summer there are typically only 3 to 5 (but sometimes up to 10) adults per ha in deciduous and coniferous habitats (Bright *et al* 2006).
- 4.3 It is not possible to estimate the density of dormice with confidence based on field survey data, but some areas appeared to support higher densities than others. For example, more dormice were recorded in the woodland areas of Beech Wood East and Cherry Tree Row.
- 4.4 Some of the hedgerows that cross the site, such as H1 (Park Lane long hedge) and H3 (Long hedge) had regular records of dormice. H1 was connected to other areas of scrub and woodland, whilst H3 was separated from other hedgerows/scrub by a gap of approximately 2 m width at either end of the hedge. It seems likely that dormice are using these hedgerows as corridors between other habitat blocks, such as woodland.
- 4.5 An area of mixed woodland in Neville's Park West SINC, broadleaved woodland and scrub to the west of Hulbert Road have potential habitat for dormice, although no signs of dormice were found in these areas during an extended phase 1 survey undertaken in September 2011. Neville's Park West SINC woodland is connected to Neville's Park East SINC woodland across Hulbert Road by canopy linkage; therefore providing potential dormouse habitat linkage from Dunsbury Hill to suitable areas outside the site boundary.
- 4.6 It was noted in the summer months that some tubes with nests and young that had been recorded in the previous survey visit; had all nest material removed on the next survey. It is not known what could have removed all the nest material between surveys; but it is possible that external factors such as interference by members of the public were responsible.
- 4.7 A series of mitigation measures will need to be put in place and a Natural England licence for the works will need to be obtained because of the legal protection afforded to the dormouse as a European Protected Species. Proposed mitigation measures are discussed in the Ecology chapter of the Environmental Statement.

5. References

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

Ewald, N (2004). Distribution and Status of the Dormouse *Muscardinus avellanarius* in Hampshire. Hampshire and Isle of Wight Wildlife Trust

Hampshire Biodiversity Partnership (2010) Priority Species Action Plan – Dormouse
<http://www.hampshirebiodiversity.org.uk/pdf/vol2/Vol2ActionPlansp1-13.pdf>. website accessed September 2011

Neeves, M (2002) Dormouse Survey: Land at Dunsbury Hill Farm, Leigh Park, Havant. Regarding Badgers Consultancy.

UK Biodiversity Partnership (2010) Species Action Plan - Dormouse
<http://jncc.defra.gov.uk/speciespages/462.pdf>. website accessed September 2011

Annex 1: Survey results 2010/2011

♀ = Female

T = Torpid

TS = Males with Testes Scotal

♂ = Male

A = Active

P = female clearly pregnant

J = Juvenile

L= lactating female

PL = Post Lactating

NB = non-breeding (none of the above)

Babies:

Pink = no fur

Grey = with grey fur and eyes still closed

Eyes open = grey/brown fur eyes open

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
Park Lane long hedge (H1)						
T1	Empty	Bird droppings	Empty	Empty	Green leaves only	Small mammal nest but not dormouse nest
T2	Empty	Potential dormouse nest but could not be confirmed at time of survey	Beginning of dormouse nest	Green leaves only	Empty	Empty
T3	1 wood mouse and nest	Small mammal nest but not dormouse nest	Empty	Empty	Empty	Empty
T4	1 A unsexed adult dormouse escaped and nest in tube	Small mammal nest but not dormouse nest	Empty	Empty	Empty	1 ♀ wood mouse and nest
T5	Empty	Tube missing and replaced with new tube	Empty	Empty	Empty	Dormouse nest and food cache
T6	Empty	Tray fallen on ground and re-installed	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation
T7	Empty	Old food cache of acorns and some dry leaves	Old food cache of acorns and some dry leaves	Old food cache of acorns and some dry leaves	Empty	Empty
T8	Empty	Small mammal nest but not dormouse nest	Empty	Tray fallen on ground and re-installed	Empty	Dormouse nest and food cache
Park Lane short hedge (H2)						
T1	Empty	Tube missing and replaced with new tube	Empty	Empty	Empty	1 ♀ wood mouse and nest
T2	Empty	Small mammal nest but not dormouse nest	Empty	Empty	Empty	Single leaf
T3	Empty	Small mammal nest but not dormouse nest and bird droppings	Tube missing and replaced with new tube	Empty	Empty	Small mammal nest but not dormouse nest
T4	Empty	Empty	Empty	1 T♂ 17g and nest	1 yellow-necked mouse and nest	Dormouse nest

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
Long hedge (H3)						
T15	1 A J escaped	Old leaves only	Empty	Empty	Empty	Empty
T14	Empty	Bird droppings	Empty	Empty	Fresh green leaves	Small mammal nest but not dormouse nest
T13	Empty	Old food cache	Old food cache	Empty	Fresh green leaves	Small mammal nest but not dormouse nest
T12	Empty	Empty	Tube missing and replaced with new tube	Empty	Empty	Empty
T11	Empty	Dormouse nest	Empty	Empty	1 ♂ wood mouse and nest	1 wood mouse and nest
T10	Empty	1 single chewed cherry stone by dormouse	Empty	Empty	Empty	Empty
T9	Empty	1 yellow-necked mouse and nest	1 yellow-necked mouse nest	Empty	Empty	Empty
T8	1 A J ♀ 13g and 1 A ♂ 17g and nest	Small mammal nest but not dormouse nest	Empty	Empty	Empty	1 A unsexed escaped and nest
T7	Empty	Empty	Empty	Empty	Empty	Empty
T6	Empty	1 A ♂ escaped and nest	1 T ♀ 18g and 1 T ♀ 17g and nest	Dormouse nest	Dormouse nest	Dormouse nest
T5	Empty	Old food cache	Empty	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation
T4	Empty	Empty	Empty	Empty	Empty	Empty
T3	Empty	Empty	Empty	Empty	Empty	Empty
T2	Start of small mammal nest with fresh hawthorn leaves	2 wood mice and nest	Small mammal nest but not dormouse nest	Wet small mammal nest	Empty	Empty
T1	Empty	Bird's nest	Bird's nest	Bird's nest	Empty	Empty
Cherry Tree Row 1						
T1	Empty	Empty	Empty	Empty	Empty	Empty

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
T2	Empty	Bird droppings	Empty	Empty	Empty	Empty
T3	Empty	Empty	Empty	Tray missing and tube removed	Not replaced	Not replaced
T4	Empty	Empty	Empty	Empty	Empty	Empty
T5	Empty	Tray missing and replaced	Empty	Empty	Empty	Empty
T6	Empty	Empty	Empty	Empty	Empty	Empty
T7	Empty	Bird droppings	Empty	Empty	Empty	Empty
T8	Dormouse nest	Dormouse nest	Empty	Empty	Empty	Empty
T9	Empty	Empty	Empty	Tube relocated due to potential interference in vicinity	Empty	Empty
T10	Empty	Empty	Bird's nest	Bird's nest	Empty	Empty
T11	1 A J escaped	Dormouse nest	Empty	Empty	Empty	Empty
T12	Empty	Small mammal nest but not dormouse nest	Empty	Empty	Empty	1 yellow-necked mouse and leaves
T13	Empty	Bird droppings	Empty	Empty	Empty	Empty
T14	Empty	Bird's nest	Small mammal nest but not dormouse nest	Dormouse nest	Dormouse nest	Small mammal nest but not dormouse nest
T15	Empty	Empty	Empty	Empty	Empty	Empty
Cherry Tree Row 2						
T1	Empty	Bird droppings	Empty	Empty	Empty	Empty
T2	Empty	Tube missing and replaced	Empty	Empty	Empty	Empty
T3	Empty	Empty	Empty	Empty	Empty	Empty
T4	Empty	Empty	Empty	Empty	Empty	Empty
T5	Empty	Empty	Empty	Empty	Empty	Empty

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
T6	Empty	Empty	Empty	Empty	Empty	Empty
T7	Empty	Bird's nest	Bird's nest and eggs	Bird's nest	Bird's nest	Empty
T8	Empty	Empty	Empty	Empty	Empty	Empty
T9	Empty	Dormouse nest	Empty	Empty	Not checked due to vagrant and health and safety reasons	Empty
T10	Empty	Empty	Empty	Empty	Not checked due to vagrant and health and safety reasons	Empty
T11	Empty	Bird's nest	Bird's nest	Bird's nest	Bird's nest	Empty
T12	Empty	Bird droppings	Empty	Empty	Empty	Empty
T13	Empty	Bird's nest	Bird's nest and chicks	Bird's nest	Empty	Empty
T14	Empty	Empty	Empty	Empty	Empty	Empty
T15	Empty	Bird's nest	Bird's nest and eggs	Bird's nest	Empty	Empty
T16	Empty	Could not check due to health and safety reasons as suspicious people in vicinity	Empty	Empty	Empty	Empty
T17	Empty	Empty	Empty	Empty	Empty	Empty
T18	Empty	Empty	Empty	Empty	Empty	Empty
T19	Empty	Bird droppings	Empty	Empty	Empty	Empty
T20	Empty	Empty	Empty	Empty	Empty	Empty
Cherry Tree Row 3						
T1	Empty	Empty	Empty	Empty	Empty	Empty
T2	Empty	Empty	Dormouse nest	Dormouse nest and bumblebee	Dormouse nest	Small mammal nest but not dormouse nest
T3	Empty	Dormouse nest	Bird's nest	Bird's nest	Empty	Single blackberry

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
T4	Empty	Empty	1 A L ♀ escaped and nest with 3 Pink babies	Dormouse nest	Dormouse nest	Shredded grass and food cache
T5	1 A unsexed adult escaped and nest in tube	Empty	Dormouse nest	1 A unsexed escaped	Wet dormouse nest	Empty
T6	Empty	Empty	Empty	Empty	Empty	Empty
T7	Empty	Bumblebees and nest	Empty	Empty	Empty	Empty
T8	Empty	Empty	Empty	Empty	Empty	Empty
T9	Empty	Empty	Empty	Empty	Empty	1 A unsexed escaped and nest
T10	Empty	Empty	Empty	Empty	Empty	Empty
T11	Empty	Bird's nest	Empty	Empty	Empty	Empty
T12	Empty	Bird droppings	Empty	Empty	Bird droppings	Empty
T13	Empty	Empty	Tube missing	Empty	Empty	Empty
T14	Empty	Empty	Empty	Empty	Empty	Empty
T15	Empty	Empty	Empty	Empty	Empty	Empty
Adder hedge (H4)						
T1	Empty	Empty	Empty	Empty	Empty	Empty
T2	Empty	Tube missing	Tube missing	Tube missing	Tube missing	Tube missing
T3	Empty	Tray missing and replaced	Empty	Empty	Dormouse nest	Empty
Highways Agency Boundary Fence						
TA	Dormouse nest	Dormouse nest	Empty	Empty	Empty	Empty
TB	1 A J ♂ 19g and nest	Dormouse nest	Empty	Empty	Empty	Empty
TC	Empty	Dormouse nest	Empty	Empty	Empty	Empty

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
Neville's Park Woodland						
T1	Empty	Bird's nest	Empty	Empty	Empty	Empty
T2	Empty	Empty	Empty	Empty	Empty	Not found
T3	Empty	Empty	Not found	Empty	Empty	Empty
T4	Empty	Bird's nest	Bird's nest	Bird's nest	Bird's nest	Empty
T5	Empty	Empty	Empty	Empty	Empty	Empty
Beech Wood East						
T1	Empty	Bird droppings	Bird droppings	Empty	Empty	Empty
T2	Empty	Tube not found and replaced	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation
T3	Empty	Tube not found and replaced	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation
T4	1 A ♂ escaped	1 A unsexed escaped and 1 A ♀ 13g with white tail-tip	Empty	Empty	Empty	Dormouse chewed hazel nuts
T5	Empty	Bird droppings	Empty	1 A unsexed escaped and nest	Dormouse nest	Dormouse nest
T6	Dormouse nest	Tube not found and replaced	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation	Not found due to dense vegetation
T7	Dormouse nest	Empty	Not found due to dense vegetation	Empty	Not found due to dense vegetation	Food cache but could not confirm chewed by dormouse
T8	Empty	2 A ♂ and 1 A J ♂ - not weighed due to stress and high temperatures	Dormouse nest	Dormouse nest	Dormouse nest	Dormouse nest
T9	Empty	Bird droppings	Empty	Empty	Empty	Empty
T10	Empty	Bird droppings	Empty	Empty	Empty	Empty
T11	Empty	Bird droppings	Empty	Empty	Empty	Empty

Tube No.	Sept 2010	April 2011	May 2011	June 2011	July 2011	August 2011
T12	Empty	Bird droppings	Empty	Empty	Empty	Empty
T13	Empty	Empty	Empty	Empty	Empty	Empty
T14	Dormouse nest	Dormouse nest	Small mammal nest but not dormouse nest	Fresh green leaves	Small mammal nest but not dormouse nest	Empty
T15	Empty	Tube not found and replaced	Empty	Empty	Empty	Empty