

Lower Thames Crossing

6.3 Environmental Statement Appendices

Appendix 8.9 - Dormouse

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1 Introduction

- 1.1.1 This document presents the results of the dormouse *Muscardinus avellanarius* desk study and field surveys carried out between 2017 and 2020 to inform the Environmental Impact Assessment for the A122 Lower Thames Crossing (the Project). It forms an appendix to Chapter 8: Terrestrial Biodiversity (Application Document 6.1) of the Environmental Statement.

2 Legislation and conservation status

- 2.1.1 The Wildlife and Countryside Act 1981 (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats 1979 (commonly referred to as the 'Bern Convention'). The dormouse is listed on Schedule 5 of the Wildlife and Countryside Act 1981 in respect of section 9, which makes it an offence, inter alia, to:
- a. intentionally or recklessly kill, injure, or take (handle) a dormouse
 - b. intentionally or recklessly damage, destroy or obstruct access to any structure or place that a dormouse uses for shelter or protection
 - c. intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection
- 2.1.2 The dormouse receives further protection under Regulation 42 of the Conservation of Habitats and Species Regulations 2017, which implement the European Union Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Dormouse is listed on Annex IV of the Habitats Directive, which means member states must put in place a system of strict protection for them, as outlined in Article 12 of the Habitats Directive. This is done through inclusion on Schedule 2 of the Regulations, which makes it an offence, inter alia, to:
- a. deliberately capture, injure or kill any dormouse
 - b. deliberately disturb a dormouse, in particular any disturbance that is likely to impair its ability:
 - i. to survive, to breed or reproduce, or to rear or nurture its young
 - ii. to hibernate or migrate
 - c. deliberately disturb a dormouse, in particular any disturbance that is likely to affect significantly the local distribution or abundance of dormice, or damage or destroy a breeding site or resting place of a dormouse
- 2.1.3 The dormouse is also listed as a species of principal importance for the purpose of conserving biodiversity under section 41 of the Natural Environment and Rural Communities Act 2006.

3 Background ecology

- 3.1.1 Predominantly nocturnal, the dormouse is generally found within deciduous woodland, species-rich hedgerows connected to woodland, and scrub habitats. Certain tree and shrub species, specifically hazel *Corylus avellana*, bramble *Rubus fruticosus agg.* and honeysuckle *Lonicera periclymenum* are important food sources for dormouse.
- 3.1.2 Although dormouse studies in the past have stressed the requirement for diverse woodlands greater than 20ha in size to maintain populations, recent research has shown that populations can survive in multiple, smaller, well-connected woodlands and hedgerows (English Nature, 2006; Juškaitis, 2008). However, connectivity is essential in such cases and it is likely that poorly connected woodlands smaller than 20ha are less likely to contain dormice.
- 3.1.3 Hibernation occurs on or near the ground from October to March or April; apart from hibernation, dormice tend to avoid being on the ground and out in the open (English Nature, 2006).

4 Methodology

- 4.1.1 A desk study was carried out by the Project ecology team in 2017 and subsequently updated in 2020, which considered all recent protected species records, including dormouse, within 2km of the Order Limits ('desk study area'). Records were requested from Kent & Medway Biological Records Centre (2020), Essex Wildlife Trust Biological Records Centre (2020), Essex Field Club (2020) and Greenspace Information for Greater London (2020).
- 4.1.2 The suitability of habitats for dormouse was assessed within the Order Limits of the Project plus a 500m buffer (the 'survey boundary') during the desk study and Extended Phase 1 habitat and protected species survey, which was carried out in 2017. This involved considering the structure, species composition and connectivity of the habitat types present, particularly those known to provide good dormouse habitat such as hedgerows and woodlands.
- 4.1.3 In areas where hazel trees were present within the survey boundary, nut searches were conducted in October and November 2017 to identify any evidence of dormouse presence ('nut search areas'). This involved searching for characteristically chewed hazel nuts in a 10m x 10m section of ground for 20 minutes, which is in compliance with the methodology outlined in The Dormouse Conservation Handbook (English Nature, 2006). Nut searches were carried out within 21 areas in total. Fruiting hazel was present in six of these areas.
- 4.1.4 In March and April 2018, nest tubes and boxes were deployed within suitable dormouse habitat within the survey boundary in 12 survey areas to the south of the River Thames and 13 survey areas to the north of the River Thames, as shown on Figure 8.26: Dormouse Survey Locations and Results (Application Document 6.2), following guidance given in The Dormouse Conservation Handbook (English Nature, 2006). Tubes and boxes were erected at 20m intervals at a density of at least 50 tubes per survey area (with boxes supplementary to this) and replaced if broken or vandalised. These were then checked for evidence of dormice every other month until their removal in November 2018. Additional surveys were carried out in three areas south of the River Thames in 2020 that were not surveyed in 2018. In 2020, a total of 190 tubes (with boxes supplementary to this) were set up across the three survey sites in March 2020, with a minimum of 50 tubes per survey site. Surveys were carried out every other month between May and November.
- 4.1.5 The index of probability (English Nature, 2006) was used to establish a search effort score. Each month scores an index between one and seven; the indices for each month the tubes and boxes were left *in situ* were summed to calculate a search effort score. Absence should not be assumed based on a score of less than 20. As all tubes and boxes were left out for the whole season (April/May to November) in all survey areas, the surveys all scored a minimum of 24 points.

- 4.1.6 In order to effectively check each tube or box, they were approached quietly and carefully, and then the entrance sealed with a cloth. The inside of the tube or box was then carefully inspected for the presence of nests or animals. Dormouse nests have characteristic features that can be readily distinguished from those of other species when present. Where a dormouse nest was confirmed or assumed present, the tube or box was carefully removed and placed into a large plastic bag in order to allow for the nest to be inspected further and any dormice present to be captured, weighed and accurately recorded before the tube or box was put back into position.

5 Results

5.1 Desk study

- 5.1.1 Despite their national decline, dormice are still widespread in Kent, with the county being a stronghold for the species (Morris, 2011). There is a concentration of ancient woodland habitat within and next to the Order Limits along the A2 corridor to the south of the River Thames, which supports dormice. This was confirmed by desk study data received from the Kent & Medway Biological Records Centre (2022), which provided 180 dormouse records in this area.
- 5.1.2 Desk study records indicated that dormice are less widespread in Essex. Essex Field Club (2022) and Essex Wildlife Trust Biological Records Centre (2020) returned no records of dormouse within 2km of the Order Limits to the north of the River Thames. Greenspace Information for Greater London (2022) records indicate there was two dormouse records within 2km of the Order Limits. This record was located 675m from the Order Limits, but no geographical information was included with this record.
- 5.1.3 One non-statutory designated site within the desk study area mentioned dormice as designated interest features; Walderslade Woods, Chatham Local Wildlife Site (LWS). Walderslade Woods, Chatham LWS is located South of the River Thames and is located approximately 210m to the south of the Order Limits.

5.2 Field study

- 5.2.1 No hazel nuts were found during the nut checks, despite the nut search areas being identified as suitable dormouse habitat.
- 5.2.2 A total of 52 dormouse nests were recorded within the survey areas where nest boxes and tubes were deployed to the south of the River Thames in 2018 and 2020. A total of 35 individual animals were also recorded. The results are summarised in Table 5.1 and shown on Figure 8.26: Dormouse Survey Locations and Results (Application Document 6.2).
- 5.2.3 One nest was found to the north of the River Thames within survey area N11 that was recorded as 'inconclusive'. It was lacking a woven structure and could not be ruled out as a dormouse nest since it may have been disturbed mid-build. However, as no dormice or other dormouse signs were found in this area, it is considered unlikely, based on professional judgement, to be evidence of dormouse.

Table 5.1 Summary of dormouse evidence within the survey boundary

Location	Year of survey	Survey area	Number of dormouse nests	Number of adults	Number of juveniles	Number of EO ¹	GEC ² /Pink ³
Shorne Woods – Shorne Woods Country Park and Randall and Brewers Woods	2018	S26, S28	2	2	0	0	No
Ashenbank Wood	2018	S27	4	2	0	0	Yes
Great Crabbles Wood	2018	S29	1	0	0	0	No
Cobham Woods – Ranscombe Farm Reserve and Rochester & Cobham Park Golf Club	2018	S30, S32	3	1	0	0	No
Cobham Woods – A2 corridor	2018	S34, S35	20	7	6	3	Yes
Mar Dyke	2018	N11	1 (inconclusive)	0	0	0	No
Singlewell feeder station	2020	S40	18	4	10	0	No
Southern Valley Golf Club	2020	S42	4	0	0	0	No
A2 Cyclopark	2020	S43	0	0	0	0	No

1 Eyes open, grey/brown fur, not weaned (approx. weight 6g–10g)

2 Grey fur, eyes still closed (approx. weight 2.5g–6g)

3 New-born with no sign of fur (approx. weight 1g–2.5g)

6 Limitations and assumptions

- 6.1.1 Tubes in survey area S35 were not deployed until May 2018, due to access restrictions in March and April. However, based on the index of probability (English Nature, 2006), this survey area still accumulated 24 search effort points, which is above the required minimum of 20 points.
- 6.1.2 Over the course of the field surveys, some dormouse tubes could not be located or were found in poor condition (such as the inner tray or wire missing) in 16 of the survey areas. However, only three of those areas had more than five missing/damaged tubes. Where practicable, damaged or missing tubes were replaced immediately. The highest number of damaged/missing tubes occurred at survey area N39 with 14 damaged/missing tubes, thought to be due to vandalism. Given the high number of tubes deployed at each survey area and the immediate replacement of tubes, this was not considered to be a significant constraint.

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