

**Lower Woods Nature Reserve :
Dormouse Monitoring 2005 – 2011
Gef and Genny Lucena**

September, 2011

*Torpid Dormouse ©
Gef and Genny Lucena*



Introduction

The hazel or common dormouse (*Muscardinus avellanarius*) is the only species of dormouse native to Britain. Almost solely found in ancient woodlands, it is considered a 'flagship' species for biodiversity within woodland. In the UK dormouse numbers and their distribution range have declined over the past 100 years to an estimated total adult population of around 45,000 throughout England (Battersby 2005), mostly in the southern half of the country. There are none in Scotland and only small numbers in Wales.

Dormice and coppicing

Lower Woods, near Hawkesbury Upton in South Gloucestershire, has been a Gloucestershire Wildlife Trust Nature Reserve since 1996 (part since 1967). The reserve is important both for the diversity of its ancient woodlands and the extensive species-rich meadows and rides. Most of the reserve's 287 hectares lie within a larger Site of Special Scientific Interest which includes the historic commons in the northern part of the woods and others adjoining the reserve.

From the 19th century traditional coppice management had declined in the Woods, but is now being restored in considerable areas by the Trust to benefit a range of flora, birds, invertebrates and dormice. In coppicing most trees are cut to ground level, and this is followed by regrowth of a dense understorey including vital dormouse food sources such as bramble and honeysuckle. A density at eye level of just a few metres may be ideal for dormice, whereas the more open structure of mature woods is generally accepted as not beneficial. However until there is sufficient coppice re-growth, dormouse survival may be inhibited in recently-coppiced coupes.

Survey rationale

The rationale behind the Lower Woods dormouse survey is both to monitor the existence and numbers of dormice but also to relate this to the age of coppice in the management of the woods. The survey began in 2005, with the intention of looking at coppice coupes of varying ages, and carrying out a 'floating' survey in non-intervention woodland compartments as a control.

Methodology

Traditionally dormice are believed to only come down to ground level in order to hibernate. Monitoring their presence is therefore difficult and has often been achieved by finding hazel nut shells with the classical gnaw marks around the rim of the hole in the nut. However, this only works where there is abundant fruiting hazel and moreover it does not give information about numbers, weight, etc. Dormice build nests in dense brambles or in holes in trees, but it is their liking for suitable holes that makes the rear entrance nest box attractive even though it is at human eye height.

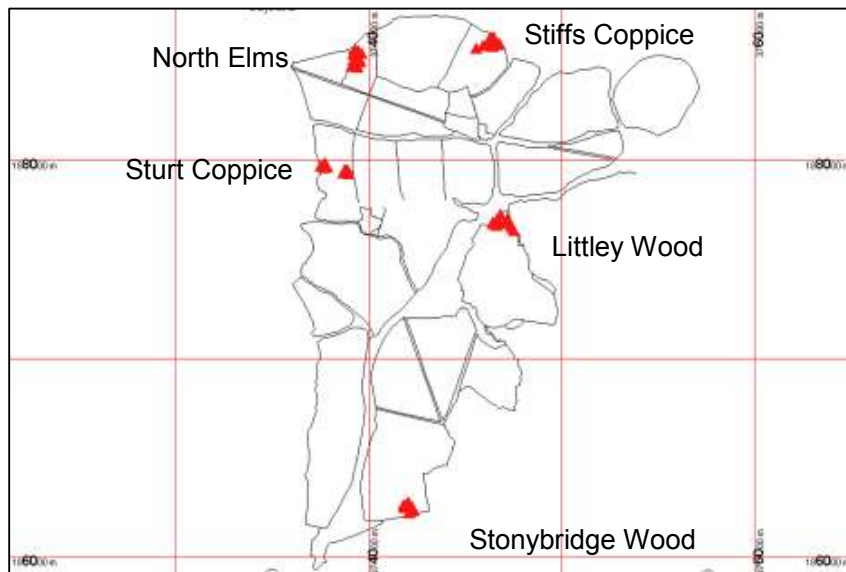
Our survey methodology has therefore been to define coppice coupes of varying age and to place 10 boxes in each coupe at human eye height about 20 – 30 metres apart. Normally these are checked in the second half of June and October. Boxes with signs of dormouse presence are removed and placed in a large clear polythene bag and the lid carefully removed to examine the contents. Any dormice found are sexed, weighed and 'posted' back to the box. If the check is made early enough in the day (particularly in the spring check) then the inhabitants may be in torpor and easy to handle.

Photographs: box in situ and active dormice during survey © Gef and Genny Lucena



Box locations 2005-2009 (Years 1-5)

In 2005 50 breeding nest boxes were installed in 5 woodland compartments, four of varying coppice ages and the fifth in a non-intervention area to act as a control. In 2008 this was increased to 70 boxes in 7 sites. The intention was to increase to 100 boxes when a second survey team became available, which occurred in 2011.



**Map 1 : box locations
2005-9 by gps**

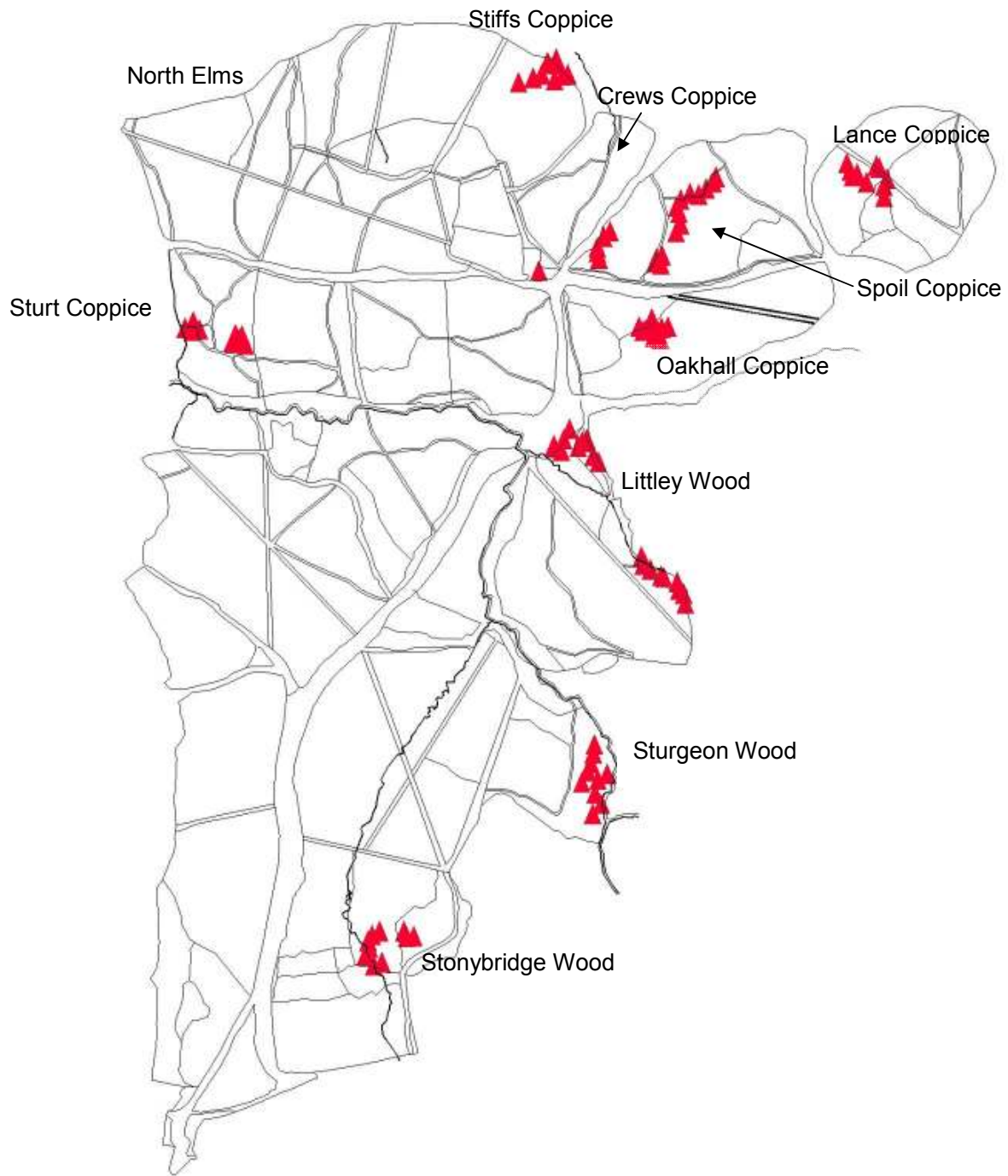
Box locations 2010-2011 (Years 6-7). (See map overleaf)

An additional 30 boxes were installed for the 2010 season to bring the total to 10 sites of 10 boxes each. These new boxes were made of rigid plastic and appeared to be of good design with adequate drainage and an easy to slide lid. However, in practice virtually all the nests found in them (bird nests and no dormouse nests) were very wet with evidence of decayed fledglings and cold eggs. Because of this observation, wooden boxes of a good design were purchased and installed in close proximity to the plastic ones for the 2011 season. Again the plastic boxes were found with wet nesting material whereas the wooden boxes remained dry. The problem would seem to be condensation rather than rain ingress. The intention is now to remove all 30 plastic boxes from sites and inform PTES (People's Trust For Endangered Species) of our experience with them. PTES operate the national dormouse survey of which the Lower Woods survey is a part.

In 2010 boxes were installed in Sturgeon Wood (non-intervention) and Lance Coppice (1997 coppice) but yielded no evidence of dormice in either 2010 or 2011. The intention is to remove these boxes and provisionally install them in recent coppice in Crews and Oakhall Coppices. The boxes in Stuffs Coppice have failed to give results in the past three seasons and may be moved to a new location yet to be decided. A nut survey may be introduced in 'failed' and other areas as an additional indicator of dormouse activity.

In 2011, because of the problem with small birds, mostly blue tits and great tits, nesting in the boxes in early spring before dormice are out of hibernation, it was thought that by taping up the rear entrance hole at the beginning of the year and removing it at the end of April this problem would be overcome. Accordingly 60 boxes were taped up with heavy duty reinforced tape but this did not deter blue tits from pecking through and having successful broods. This taping up procedure may not be repeated as the main breeding season for dormice is July and August by which time the survey team will have cleaned out the redundant bird nests.

Map 2: box locations 2010 by gps



2011 Survey (Year 7)

Two survey teams participated in 2011, team 1, Gef and Genny Lucena, and team 2, Katherine Baker and Andy Turner, and this seventh year of survey was completed in mid September. In past years the spring and autumn checks were made in the second half of June and October, but this year the autumn check was brought forward by a month, it being thought that October was too near the hibernation season. The number of animals seen in 2009 and 2010 were 14 and 16 respectively but only 5 in 2011, and this with a larger number of boxes.

Tables 1-5, Results 2005-2011

Table 1 Nest contents 2005-2011

year	Spr 20 11	Aut 20 11	Spr 20 10	Aut 20 10	Spr 20 09	Aut 20 09	Spr 20 08	Aut 20 08	Spr 20 07	Aut 20 07	Spr 20 06	Aut 20 06	20 05	
empty	71	107	43	84	20	41	11	41	19	23	12	35	21	
birds nests	47	0	52	0	37	5	33	5	9	4	32	4	14	
hornet nests	0	0	0	0	2	2	2	1	2	1	3	1	0	
dormouse nest	3	6	4	11	1	6	3	4	6	4	0	6	4	
wood mouse nests	9	17	0	5	9	14	0	0	16	17	1	0	9	
yellow necked mouse nest	0	0	0	0	1	2	0	0	0	3	2	3	0	
bats	0	0	1	0	0	0	0	0	0	0	0	1	2	
DM individuals	2	3	4	14	4	12	5	4	5	3	0	7	0	
torpid	0	0	2	0	2	0	1	0	0	0	0	0	0	
active		2	2	14	2	12	4	4	5	3	0	7	0	
no record	0	0	0	0	0	0	3	1	0	0	0	0	0	
boxes stolen	0	0	0	0	0	0	4	4	4	4	0	0	0	
boxes in survey	130	130	100	100	70	70	56	56	56	56	50	50	50	
DM nests in season total	8		11		6		5		8		6		4	48
DM individuals in season	5		16		14		6		8		7		0	56

Table 2. Results by age of coppice

Results by age of coppice:	animals	nests
2 years	3	1
3 years	2	2
4 years	4	4
5 years	2	3
6 years	1	3
7 years	3	4
8 years	7	4
9 years	1	2
10 years	8	5
11 years	2	4
12 years	1	2
pre-GWT	21	13
non-intervention	1	1
	56	48

Table 3. Evidence of dormouse nests recorded in each location per season

Evidence of DM nests in season:	tot survey years	2011	2010	2009	2008	2007	2006	2005	Tot nests	Tot animals
Sturt Coppice - 2002 coppice	7	1 in 1 nest	7 in 3 nests	1 in 1 nest	0	0 in 2 nests	2 in 2 nests	0	9	11
Stiffs Coppice - 2004 coppice	7	0	0	0	2 in 2 nests	2 in 2 nests	3 in 1 nest	0	5	7
Littley Wood 1 - 1999 coppice	7	0	0	0	0 in ?1 nest	0 in 1 nest	2 in 3 nests	0 in 2 nests	7	2
Littley Wood 2 - ?2000/2002 coppice	2	1 in 2 nests	0						2	1
Stonybridge A - conifer/replanted pre-GWT	5	1 in 2 nests	4 in 2 nests	6 in 2 nests	4 in 2 nests	6 in 2 nests	-	-	10	21
Stonybridge B- hazel pre-GWT coppice area	3	removed	removed	0 in 1 nest	0 in 1 nest	0 in 1 nest	-	-	3	0
North Elms - non intervention	5	removed	removed	0	0	0	0	0	0	0
Spoil Coppice - 1998/99 coppice	3	1 in 2 nests	2 in 4 nests	7 in 3 nests	-	-	-	-	9	10
Spoil Coppice (non intervention)	2	0	1 in 1 nest						1	1
Oakhall Coppice - 2004/5 coppice	2	1 in 1 nest	2 in 1 nest						2	3
Lance Coppice - 1997 coppice	2	0	0						0	0
Sturgeon Wood - non intervention	2	0	0						0	0
									48	56
No. of DM nests		8	11	7	6	8	6	2		
DM individuals seen once/twice in season		5	16	14	6	8	7	0		

Table 4. Total animals found according to coppice age

(for locations please refer to map on page 3.)

ANIMALS	Coppice Age in 2005	Coppice age in years											pre-GWT	non-int		
		2y	3y	4y	5y	6y	7y	8y	9y	10y	11y	12y				
Sturt Coppice - 2002 coppice	3			2			1	7	1							
Stiffs Coppice - 2004 coppice	1	3	2	2												
Littley Wood 1 - 1999 coppice	6						2									
Littley Wood 2 - ?2000/2002 coppice	4									1						
Stonybridge A - conifer/replanted pre-GWT	-												21			
Stonybridge B- hazel pre-GWT coppice area	-															
North Elms - non intervention	-															
Spoil Coppice - 1998/99 coppice	6									7	2	1				
Spoil Coppice (non intervention)	-														1	
Oakhall Coppice - 2004/5 coppice	0				2	1										
Lance Coppice - 1997 coppice	8															
Sturgeon Wood - non intervention	-															
		3	2	4	2	1	3	7	1	8	2	1	21	1	56	

Table 5. Total nests found according to coppice age

NESTS	Coppice age in 2005	Coppice age in years											pre-gwt	non-int		
		2y	3y	4y	5y	6y	7y	8y	9y	10y	11y	12y				
Sturt Coppice - 2002 coppice	3			2	2		1	3	1							
Stiffs Coppice - 2004 coppice	1	1	2	2												
Littley Wood 1 - 1999 coppice	6					2	3	1	1							
Littley Wood 2 - ?2000/2002 coppice	4									2						
Stonybridge A - conifer/replanted pre-GWT	-												13			
Stonybridge B- hazel pre-GWT coppice area	-															
North Elms - non intervention	-															
Spoil Coppice - 1998/99 coppice	6									3	4	2				
Spoil Coppice (non intervention)	-														1	
Oakhall Coppice - 2004/5 coppice	0				1	1										
Lance Coppice - 1997 coppice	8															
Sturgeon - non intervention	-															
		1	2	4	3	3	4	4	2	5	4	2	13	1	48	

Interpreting the data

The rationale behind the Lower Woods dormouse survey is both to monitor the existence and numbers of dormice but also to relate this to the age of coppice in the management of the woods. The limited data so far available indicate that coppice ages from 2 to 10 or more years provide good habitat for dormice. The very high result for the pre-GWT coppice in Stonybridge amongst and adjacent to a coniferous area is interesting as is the poor result for non-intervention sites. The latter accords with received wisdom but, whilst this makes sense with the lack of understorey in high forest, it may be that a good dormouse population lives in the high canopy. Results from a Gloucestershire Wildlife Trust survey in the Forest of Dean are showing that nesting boxes placed high in the trees do indeed infer this.

The contents of the nest boxes table show a very high incidence of bird nests in the spring checks. These were mostly of blue tit and great tit which nest at least a month earlier than dormice who have to fatten up after their hibernation before looking for a breeding site. The main breeding time for dormice is July and August which gives them long enough to fatten up and for their offspring to be at least 15g in weight in order to survive the long hibernation to come.

Wood mice and occasionally yellow necked mice also use the boxes for breeding. Hornet nests are also found, a source of danger to the survey team as they will attack if their nest is threatened. The bird nests are cleared out in June after the baby birds have fledged to give the dormice a chance to move in. The table also shows that four boxes were stolen from Stonybridge in 2007. These were later spotted in a garden in Chipping Sodbury where the owner told the police he had found them in a skip!

It is possible that the long, hard winter of 2010/11 and the then sudden and early warm spell may have upset the timing of dormice emerging from hibernation and the availability of food. National trends may confirm this hypothesis when published by PTES (People's Trust For Endangered Species).

Promoting public awareness of dormouse conservation

Survey is the main focus of this document, but autumn dormouse walks have also taken place for the Trust in the last three years and for the Bristol and Gloucestershire Mammal Society in the last two. Dormice were found on all occasions, helping to promote the popularity of an already favoured species and to raise the profile of nature conservation.

G. and G. Lucena
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