SURREY DORMOUSE GROUP

DORMOUSE CAMERA:

PILOT STUDY AND FEASIBILITY ASSESSMENT

FINAL REPORT

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ABOUT SURREY DORMOUSE GROUP (SDG)

Surrey Dormouse Group (SDG) is a group of volunteer conservationists dedicated to improving the conservation status of the Hazel or Common Dormouse *Muscardinus avellanarius* within Surrey. We are affiliated with, and supported by, Surrey Wildlife Trust (SWT). Our members include people from a variety of professions and walks of life who have been brought together by a common interest in ensuring the conservation of Dormice in the wild. Our numbers include both amateur and professional naturalists, and others with technical and professional skills that have been crucial in the success of the group and of this study.

Our activities range from surveying new sites to establish whether Dormice are present, to monitoring the status of known populations of Dormice within Surrey, undertaking practical conservation tasks and holding training and educational events for new volunteers and others with a general interest in Dormice.

If you are interested in joining or otherwise supporting the activities of the Surrey Dormouse Group, please contact Dave Williams, Mammal Officer of Surrey Wildlife Trust and leader of the Dormouse Group, at the following address:

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PREFACE

This document reports upon a pilot study undertaken by Surrey Dormouse Group (SDG) during 2008 in which an infra-red black and white camera was used to record footage of wild Dormice using a nest box at a site that supports a known population of Dormice regularly monitored by the group.

The purpose of this study was not specifically to add conclusive new evidence of Dormouse behaviour to the existing body of literature, rather to test how such a camera set up might usefully do so if employed within the context of a structured investigation. This report sets out the findings of the pilot study, and undertakes an assessment of the feasibility of employing the camera as part of a wider study of Dormice.

The pilot study itself was extremely successful, with extensive footage of Dormice being obtained through two months of the active season, including a number of behavioural observations believed to be ‘firsts’ in terms of their empirical verification beyond speculation in the literature.

Our conclusions are set out within this report, and we believe that, subject to human resources and funding constraints, the use of an infra-red camera within the context of a wider study of Dormice has the potential to obtain information that could be usefully applied in maintaining and enhancing the conservation status of Dormice in the United Kingdom.

1.0 INTRODUCTION

1.1 This Report

This report sets out the findings of an infra-red camera pilot and motion detect recorder study undertaken by the Surrey Dormouse Group in 2008. The original concept for the camera study was based around a three-phased approach developed by Surrey Dormouse Group and Dave Williams, Mammal Officer from the Surrey Wildlife Trust, and approved by the trust in December 2007.

The three stages of the original proposal were as follows:

1. Local Pilot;
2. Woodland Pilot; and
3. Multi-camera filming.

This report is primarily concerned with the Stage 2 Woodland Pilot, as Stage 1 was undertaken to determine whether or not the camera was capable of capturing mammal activity in a garden location and set parameters for Stage 2, and Stage 3 is yet to be attempted. Further details concerning the methodology, equipment and objectives of the study are set out in the following sections of this report.

It should be noted at this juncture, that the observations of Dormice made during the course of this pilot study relate to a very small number of individuals, and consequently therefore they do not constitute any form of conclusive evidence of the behaviour of Dormice. The purpose of the study was simply to 'road-test' and refine an experimental method to be used in later phases of the project and demonstrate proof of concept. It is hoped that, in due course, the recommendations made in this report for further research can eventually be implemented and will be able to produce sufficient information to identify statistically significant relationships between aspects of Dormouse behaviour and other variables, and as such will constitute more of an empirical verification of inferences drawn from the data.

1.2 About the Hazel Dormouse

1.2.1 Status and Distribution

The Hazel or Common Dormouse is a largely arboreal small mammal that is native to the UK. It is the only native British representative of a family of rodents known as the Gliridae, as the only other species from this family present in the UK, the Edible Dormouse *Glis glis,* was introduced to Britain in the early 1900s. For brevity, the words 'Dormouse' and 'Dormice' are used in this report to refer only to the subject of this report, that being the Hazel Dormouse.

Although believed to be once widespread across England and Wales, Dormice have declined both in numbers and in range in the last 100 years are now confined mainly

to southern England, with both the number of known sites decreasing further northward. They are now thought to be extinct across half of their former distributional range, including six counties where they were previously reported to be present (Rope, 1885 cited in Bright *et al,* 2006). Bright *et al* (2006) also report that there are fewer than ten known Dormouse sites (including reintroduction sites) north of the Wirral and the Wash, and that they are absent from Scotland.

In view of their dramatic decline in the UK, the Hazel Dormouse is currently a priority species that is the subject of a National Species Action Plan (SAP) aimed at maintaining and enhancing Dormouse populations in all counties in which they still occur, and re-establishing self-sustaining populations in at least 5 counties where they have been lost (www.ukbap.org.uk). The ecology and lifestyle of the Dormouse is discussed further below in relation to the likely causes of decline of the species.

The surrey Dormouse project began in 2002 in a very small way. Some boxes were placed in one of SWT's reserves to see if Dormice were present. From this small beginning we now have over a thousand boxes in over twenty woodlands throughout the county. The number of records has increased enormously and as has the protection and condition of these woodlands, by incorporating habitat improvements into existing management plans. The Dormouse population peaked in 2006, but since that year we have had lower numbers, possibly due to bad weather conditions. Dormice have been found in 15 woodlands, but only in small numbers which makes their survival vulnerable. We have plans to increase our monitoring to cover the whole of the County to ensure that dormice will survive and hopefully increase.

On a National basis, the status and distribution of Dormice is monitored by the National Dormouse Monitoring Programme (NDMP), which was set up in 1991 and is led by the People's Trust for Endangered Species (PTES). The Surrey Dormouse Group monitors a number of known Dormouse sites across Surrey and submits the resultant data to PTES annually.

1.2.2 Dormouse Ecology and Likely Causes of Decline

Habitat

Although Dormice are known to favour the combination of deciduous ancient woodland habitats and mature species-rich hedgerows, they can occur in a variety of other types of woody habitat including Blackthorn scrub, conifer plantations and high forest (Eden & Eden, 2001). They are chiefly nocturnal animals that are active and feed at night. They spend the day sleeping in nests that are typically constructed of shredded and woven bark (often honeysuckle), with the outer layer consisting of concentrically arranged leaves (Bright & Morris, 2005). A useful indicator that such a nest may currently be in use by a Dormouse is the presence of fresh green leaves in this outer layer. The nest that a Dormouse builds during its active season (usually considered to be between April and November inclusive) is built up off the ground within the branches of shrubs or trees, and may also be built within the woodland canopy.

Dormice tend to occur at low population densities and as metapopulations even in good quality habitat (Ewald, 2004), and as a consequence habitat connectivity is considered to be very important in preventing the isolation and decline of individual metapopulations. The arboreal nature of Dormice and their reliance on interconnecting woody habitat has traditionally been thought to be a key factor in their vulnerability to the severance and fragmentation of suitable areas of habitat (Bright, 1998). More recent evidence, including that presented at the 7th International Dormouse Conference held in 2008 Somerset (Williams, D *pers comm, 2008*), indicates that Dormice may be able to cross larger expanses of open ground than previously thought, although it should be noted that these observations relate primarily to Dormice on the European continent, and may not therefore be fully reflective of the behaviour of native British Dormice. It should also be noted that research undertaken by Bright in 1998 indicated that Dormice were more likely to cross open ground and gaps in habitat corridors in instances where food was scarce and the animals were forced to disperse more widely in order to forage. Notwithstanding this point, it certainly seems likely that open ground represents a hindrance to the movement of Dormice and a barrier to their effective dispersal. The severance of individual populations of Dormice may occur as a result of changes in farming practice such as the removal of hedgerows associated with the intensification of agriculture, or as a result of development or even as an inadvertent and unintended consequence of routine land management activities. Work undertaken by Bright & McPherson (2002) also showed that the intensive management of hedgerows associated with modern-day farming resulted in a significant degradation of what can otherwise be an abundant source of food (particularly in species-rich or ancient hedgerows) for Dormice due to the reduced availability of soft and hard mast fruits, insects flowers and buds. In addition to a general temporal reduction in food availability, intensive trimming and flailing of hedgerows was also found to lead to hedges becoming ‘’gappy’’, leading to severance of habitat corridors.

Diet

Despite being essentially omnivorous and utilising a variety of food sources including nuts, seeds, flowers, pollen, fruits, berries and insects (Bright & Morris, 2005), Dormice are thought to be heavily reliant on the sequential seasonal variation in the abundance of different food sources at different times of the year. Eden & Eden (2001) also found that high insect biomass was an important staple for Dormice at certain times of the year. In view of the above, the decline in traditional woodland and hedgerow management practices is thought to have contributed to pressure on Dormouse populations. These traditional management practices include the coppicing & pollarding of Hazel, and the control of rabbits and deer (which prevent the development of a food-rich shrub layer and retard coppice re-growth).

Lifecycle and Hibernation

Dormice hibernate during the winter period, and will also often go into a state of torpor during their active season if food supplies are short or if the temperature drops, in order to minimise energy expenditure. The hibernation nest for the winter

period is built either at or close to ground level, often within the stumps of coppice stools, and hibernation can therefore represent a relatively vulnerable period in the Dormouse lifecycle.

It has been speculated that recent humid and damp weather conditions, during both the summer and winter periods, may have also had an effect on Dormice by hindering breeding and foraging during summer months and leading to poor conditions for hibernation. Bright & Morris (1996) even suggest that warmer winters may be more of a problem for hibernating Dormice than cold winters, and although this idea is refuted by Eden & Eden (2003), who point out that the Dormouse has a *''chiefly southerly distribution in Europe and even occurs in Sicily and Corfu, where it seems well adapted to the Mediterranean climate''*, it seems at least possible that it is not the warmth of a winter that would cause difficulties for Dormice, rather the damp and humid conditions that might accompany it.

1.3 Legislation

Dormice are European Protected Species (EPS) under the Conservation (Natural Habitats &c) Regulations 1994 (as amended), which transpose European Directive 92/43/EEC *on the conservation of natural habitats and of wild fauna and flora* (the 'Habitats Directive') into UK law. The Dormouse is also a species fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended, in particular by the provisions of the Countryside and Rights of Way Act, 2000). Dormice are also a priority species under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

The abovementioned legislation means that *inter alia* activities that cause the disturbance of Dormice, or affect them in a number of other ways as specified in the legislation, can constitute an offence under the law in certain circumstances. Activities that could lead to an offence being committed, or are likely to lead to an offence being committed, can only therefore be carried out lawfully under a licence granted by Natural England. In respect of Dormouse surveys for the purposes of science, conservation or education, this licence normally takes the form of a personal licence held by a named individual supervising the relevant activities. In other circumstances such as a development project, it is the activity itself that requires a licence, upon which certain individuals will be named as those responsible for ensuring that the activity is carried out in an appropriate manner and in accordance with the method agreed by Natural England.

It should be noted at this juncture that all such activities carried out as part of this pilot study and feasibility assessment were either carried out by a licence holder or under their direct supervision. In most cases, the licence holder present was Dave Williams, Mammal Officer of Surrey Wildlife Trust. A specific extension to the licence was also obtained to allow the filming of the Dormice.

1.4 Initial Aspirations and Research Objectives

The original aspirations and objectives of this pilot study were tied closely to those of the National Dormouse Monitoring Programme (NDMP). A key strategic objective of the NDMP is to understand how Dormice use the nest boxes that are provided for them by volunteers as a means of both monitoring their numbers and providing them with nesting and breeding opportunities to supplement those naturally present.

The camera study aimed to support this objective by demonstrating proof of concept in terms of the value of undertaking this type of filming of Dormice in the wild, and providing additional information about the following:

- When a Dormouse starts to use a box and for how long;
- What type of materials it take into the box for nest building;
- What type of food it takes into the box;
- How often it goes in and out of the box during the course of one night/week/month/etc;
- When young Dormice emerge and for how long;
- Any predator activity around the box; and
- What other types of animal use the box preventing Dormouse occupancy.

This initial set of objectives provided a framework to begin collecting data for the camera study. Following the success of the pilot study, these original research objectives have since been developed and refined as a result of the learning process that has occurred and the gradual realisation of the scope of valuable data pertaining to Dormice that can be collected either by, or in combination with, the camera. The revised research objectives are set out below in **Section 4** following a discussion of the findings of the woodland camera pilot study.

2.0 METHODOLOGY

2.1 Overview

For the purposes of the woodland pilot study, a Dormouse nest box from Surrey Dormouse Group's regular monitoring programme that feeds into the NDMP was selected that was identified as being in use by a female and three young Dormice. The box concerned was located in a mature coppiced stool of Hazel *Corylus avellana*, and formed one of a series of nest boxes used to monitor a known Dormouse population.

A single infra-red camera was then set up on an adjacent tree, with a view facing directly on to the entrance hole of the Dormouse nest box. The camera was linked to a digital video recorder powered by 12 volt batteries and set up to record a 10 second video clip onto a memory card each time that motion was detected. The nest box was observed between September and October 2008, with data being extracted from the equipment periodically in the form of recording files downloaded onto a memory card.

The files of film clips were then watched by researchers. Those flagged up as being of interest were labelled, added to a log and saved. Those of no interest (for example where the camera had apparently been triggered by excessive wind) were archived to a separate area. The film clips recorded provide an accurate indication of the time at which certain activities were taking place at the nest box, and this information has been considered and discussed further below.

2.2 Methodological Constraints & Limitations

The two main methodological constraints encountered related to factors that placed additional time and manpower burdens upon the researchers, leading to a total estimate of volunteer man hours invested in the pilot study in the region of 148 hours.

In particular, the camera itself was found to be somewhat power-hungry and depleted its battery within a short space of time. Efforts were made to mitigate this problem by using a larger battery (the original car battery housed inside an old ammunition box was replaced with a larger 12v deep charge leisure battery used on private boats), and a mechanical timer was used to prevent the camera from drawing power from the battery during the hours of daylight when Dormice were highly unlikely to be active. Despite these measures, the life of the recording system could not be extended beyond 3-5 days before a replacement recharged battery was needed.

In addition to the above, the need to use larger leisure batteries weighing approximately 20kg each meant that a considerable effort was required to carry the battery to the test site (about one third of a mile) and return with the depleted battery. Although insufficient funds were available for the purposes of the pilot study, it is possible that the problem of the short battery life could be addressed by the addition of an external power source such as a solar panel ''trickle charger'' to top up the battery during the day.

In addition, up to 2,067 individual video clips were recorded each night due to the sensitivity of the camera in picking up background motion caused by a range of factors including insects and the wind. Sorting through the recorded clips and marking those of value was consequently a time consuming endeavour.

Other more minor difficulties encountered during the data gathering exercise included the relatively low resolution and recording rate (6.5 fps) and 1 second gap between clips afforded by the recorder that was used, that could not provide high quality seamless video clips. This could be improved if funds were obtained for a higher specification recorder that could provide improved frame rates, although it should be noted that this would further increase power demands on the battery.

3.0 RESULTS & DISCUSSION

3.1 Summary of Results

The pilot study succeeded in filming 54 consecutive nights/days of nest box activity, of which 33 nights had Dormouse footage. This was comprised of the following:

- 256 ten-second video film clips of Dormice including 19 of significant interest and a further 22 sections of stitched video clips of significant interest;
- 165 video clips of Wood Mice *Apodemus sylvaticus* using the box; and
- 4 video clips of Blue Tits *Cyanistes caeruleus* investigating the box.

Logs were kept of all activity recorded by the filming system, and these are included as **Appendix 1** to this report. The scope and potential research value of the data collected and observations made have been considered in **Sections 3.2 and 3.3** below.

3.2 Quantifiable Data

3.2.1 Activity

Following examination of the recorded video footage, it seems that the key piece of information that can be collected by the camera and is **measureable** may be the activity levels of the subject Dormouse. Once this can be successfully measured and described, relative levels of activity in the Dormice being studied can be compared with environmental or other ambient variables to investigate the relationships between these factors, and scrutinise the influence of these variables upon Dormouse behaviour and fitness. The potential variables that could be investigated to determine their influence on Dormouse behaviour are discussed further below.

Any units of measurement developed to describe activity levels are likely to be best defined in simplistic terms in order to minimise their susceptibility to influences other than those variables under test, and make it easier to apply appropriate controls. Units of measurement for activity could therefore be defined as ‘’numbers of trips from nest box’’, ‘’length of time spent away from nest box’’ (per night) or ‘’duration of bouts away from nest box’’ (individual bouts).

An immediate problem in pursuing this line of investigation is that levels of Dormouse activity may not necessary be positively correlated to the welfare/fitness of the animal under test. For example, a Dormouse may increase the frequency of its foraging bouts because it is taking advantage of favourable environmental conditions, or because food is scarce and it must make more trips to obtain sufficient food. It is possible however, that any relationships that are identified between Dormouse activity levels and any particular environmental variable will enable an inference to be made as to the likely positive/negative nature of that particular variable in respect of Dormouse welfare.

Summer Torpor

Information collected regarding activity levels could feasibly be supplemented with further data on whether the subject Dormouse has gone into a summer torpor (and how often, and for how long). It is commonly believed that Dormice enter ''summer torpor'' during their active season during particularly cool or wet periods (Bright *et al*, 2006) or when food supplies are low (Bright & Morris, 2005) in order to preserve energy supplies until conditions improve. Assuming that this is correct, it is reasonable to assume that increases in the incidence of summer torpor are an indication of unfavourable conditions for Dormice. It may be possible to monitor summer torpor using a camera placed in the lid of a nest box, although once the summer nest has been constructed the view is more than likely to be obscured.

A more effective option might be to utilise temperature probes both inside and outside of the nest box connected to a data logger. Such a set-up would enable the internal and external temperature of the nest box to be monitored and compared. Bright & Morris (2005) note that the temperature inside a nest box changes noticeably according to Dormouse activity, with the temperature increasing as the animal enters the box and then decreasing and levelling off as it enters summer torpor. This information is likely to be valuable in relating external ambient conditions to Dormouse welfare.

3.2.2 Environmental Variables

As mentioned above, combining the collation of Dormouse activity data concurrently with information relating to local environmental conditions would enable relationships between the two to be examined. It is likely that in order to achieve this, environmental data would need to be gathered **in conjunction with** that gathered by the camera.

Climatic/Weather Conditions

Figure 1 shows a line graph drawn to enable a crude ''wet finger in the air'' comparison to be made between a simplistic ''index of activity'' (number of Dormouse clips recorded per night), and several environmental variables obtained using data from a nearby weather station at RHS Wisley, approximately 9.28km away from the subject nest box over the course of September and October 2008. The environmental variables plotted include the minimum and maximum temperature recorded in each 24 hour period, wind speed and rainfall. The purpose of this **Figure 1** is not to attempt to establish any conclusive relationships between the variables that are plotted, but simply to scan for any obvious potential patterns between them that could be examined in further detail through more in depth fieldwork and data analysis.

Broadly speaking, it seems that the two major peaks in Dormouse activity (2 October and 5 October) and some of the more minor peaks (20 October and 26 October) may

loosely correspond with what appears likely to have been relatively 'adverse' damp and humid weather conditions. These peaks in activity seem to occur either during or shortly after periods of high rainfall, high windspeed, raised minimum (night time) temperatures and lowered maximum (daytime) temperatures.

The earlier peaks in activity occurring between 12 September and 25 September do not coincide quite as well with obvious changes in the other plotted variables, but nonetheless still seem to occur either during or shortly after peaks in minimum (night time) temperature and wind speed.

At this stage any inferences drawn from the scant data are highly speculative. However, it is possible that peaks in the number of Dormouse clips recorded are representative of the Dormouse making more frequent bouts to and from the nest box to forage during breaks in rain and/or bad weather. The Dormouse may also be naturally more active during warmer/milder nights (regardless of daytime temperature), or could be taking advantage of an increased abundance of available insect biomass following rainfall.

Light

Another relationship that was superficially examined during the course of this pilot study was the total length of time that the subject Dormouse spends out of the nest box each night as the year progresses, in relation to the total number of hours of darkness. The nocturnal habits of Dormice are generally believed to be a survival strategy whereby the species is adapted to exploit the cover of darkness when moving about in order to give protection from predators. With this in mind, the initial hypothesis formulated was that the Dormouse would make maximum use of whatever hours of darkness were available for undertaking activities such as foraging (etc) away from the relative safety of the nest box.

Figure 2 shows the first recorded emergence of the Dormouse from the nest box, and the last recorded re-entry of the Dormouse to the nest box in relation to the official times of sunset and sunrise during a short period from the 12 September to the 21 September. Initially, **Figure 2** shows that the Dormouse behaves as expected as the recorded emergence and re-entry times correspond closely with those of sunset and sunrise respectively. However, contrary to the initial hypothesis, as the available hours of darkness increase as the year progresses past summer solstice, the Dormouse begins to emerge later, and return to the nest box earlier.

Although the data is scant and relates to only one particular Dormouse potentially being influenced by any number of external factors, it is also possible that the pattern of behaviour recorded is typical of usual Dormouse activity. If indeed the pattern of behaviour witnessed is part of a typical annual trend, there are numerous potential explanations for why it should occur and it would be unsafe to make any firm inferences at this stage. For example, it is possible that the Dormouse was benefitting from an abundance of food and therefore did not need to risk spending so much time away from the safety of the box, that it had begun to reduce the length of its nocturnal activity in response to the onset of autumn and lower ambient

temperatures, or simply that the slight decrease recorded falls within the normal variation of Dormouse behaviour from night to night. Only further fieldwork and data analysis will enable firm conclusions to be drawn.

In addition to **Figure 2**, and the general effect of the number of hours of darkness upon Dormice, the effect of the lunar cycle was briefly considered. It is possible that cloudless nights with a full moon present an increased risk of predation to Dormice due to increased ambient light and more favourable hunting conditions for nocturnal hunters such as Barn Owl *Tyto alba* and domestic Cats *Felis catus*, or even from opportunistic predation from other mammals that may be active at night and consider taking a Dormouse such as Weasel *Mustela nivalis* or possibly even Brown Rat *Rattus norvegicus.* Although Bright & Morris (2005) state that Dormouse skulls form less than 1% of prey items found in owl pellets, Eden & Eden (2003) report known instances of Dormice being killed by Weasel and by Wood Mice, and one instance of a nest box being taken over by a Brown Rat, a species known to be an opportunistic omnivore that might consider taking a Dormouse.

Occurrences of a full moon during the camera survey were noted to occur on 15 September and 14 October. Whilst it is conceded that the occurrence of a full moon does not necessarily indicate a lighter night due to cloud and weather conditions, it does appear from **Figure 1** that these general periods do seem to coincide with lower levels of Dormouse activity. Further fieldwork to establish the effect of increased ambient light levels on Dormice could be carried out by combining the camera with a data logger and light meter, thus providing a means of accurately measuring light levels to compare against the activity level of the Dormouse.

Summary

In view of the discussion set out above, it would appear that the following environmental variables could usefully be collected alongside the activity data supplied by the camera to give further insight into factors affecting Dormouse biology and success in the wild:

- Temperature;
- Wind speed;
- Rainfall;
- Humidity;
- Light; and possibly also
- Noise.

In most cases, these variables would best be collected by a data logger connected to an appropriate sensor/meter, as this would enable account to be taken of localised variations that might otherwise compromise the accuracy of the research.

If collected as part of a wider systematic investigation, the variables listed above for consideration would enable conclusions to be drawn not just about the natural climatic changes that affect Dormice, but also (potentially) about how human activities may affect Dormice.

This information could be of considerable value to consultant ecologists advising developers on the implications of their development proposals for Dormice and helping them to comply with the legislation that protects them, by helping them to understand how certain activities may influence the variables that could affect Dormice. For example, very little published research is currently available regarding how activities that cause localised increases in noise, vibration, ambient light or the emission of fumes (etc) may affect Dormice. A greater understanding of these issues would help ecologists to ensure that the potential disturbance of Dormice as a result of development activity is identified and mitigated in accordance with the European and national legislation that protects Dormice, and help to indicate situations where a European Protected Species Licence may be required from Natural England before activities can proceed.

In addition to the above, it is likely that further insights can be gleaned by integrating the information collected by the camera and data logger with other information that is available and is collected through the normal course of monitoring a Dormouse site as part of the NDMP. Integrating the data in this way may help to explain why (for example) Dormice select certain nest boxes over others, and for what purposes (e.g. it may be found that Dormice select boxes with particular condition such as lack of ambient noise or higher night time temperatures/lower wind speeds as sites for the construction of a maternity nest). The spatial and temporal distribution of Dormice (and other species of small mammal) within a site that is ascertained during the normal course of monitoring could be related to environmental conditions in this way.

Hibernation Monitoring

The monitoring techniques described above, particularly those that require a data logger and sensors/meter could also potentially be applied to a Dormouse hibernation nest if one could be located early enough in the hibernation period. Further research into the hibernation requirements of Dormice is a stated requirement of the UK Biodiversity Action Plan for Dormice, and recording the precise conditions required for successful Dormouse hibernation might potentially lead to the development of designs for a new Dormouse hibernation box or similar artificial hibernacula in similar fashion to the way in which artificial hibernacula are sometimes provided for species of reptiles and amphibians. Summer nest boxes are currently provided for Dormice, but no such assistance is provided for hibernation, potentially the most vulnerable time in the Dormouse lifecycle.

3.2.3 Constraints to Quantitative Investigations

The overriding key constraint in respect of the analysis of the effects of changes in environmental variables on Dormice is likely to be the low sample sizes that be achieved using the equipment specified above, particularly in view of the significant demands on human resources and man hours. A single season of recordings of one Dormouse effectively represents a sample size of 1, and any form of robust statistical testing to establish correlations between variable and/or activity rates will require many samples.

Low sample sizes can restrict the types of analyses possible, and can impact on the potential to draw conclusions. Depending on experimental design and the amount of data recorded, fieldwork will be repeated either over several years, or at several different nest boxes (or preferably both) in order to collect sufficient sample sizes. The availability of sufficient volunteer labour is therefore likely to be a major limiting factor. One potential solution may be that the research methodology could be used as a template to enable other interested groups of volunteers to repeat the research elsewhere and contribute towards a collective body of data. With a well designed experiment and strict protocols for the extraction of data the potential for error will be reduced.,

Initially data is likely to be non-normal (due to low sample size). Therefore non-parametric statistical tests will be used to explore correlations (e.g. spearman rank correlation) and differences (e.g. Mann Whitney U & Kruskall Wallis) between dormouse activity data and the measured explanatory variables.

Dependent on the amount and nature of the data it is possible other more sophisticated statistical analyses (such as generalised linear modelling) could be used. Using repeated measures techniques it might be possible to address the issue of low sample sizes because the group of animals researched would act as their own experimental control, as the focus of the investigation would be the reaction of the same biological system to changing variables over time. The power of the analyses would be enhanced if the experimental model is employed at other sites across the country.

In addition to the above, it is also unknown at this stage whether or not the camera could be used to accurately identify individuals. If this transpires to be feasible then it would allow behaviour patterns to be associated with particular types of individual (males, females, mothers with dependent young, juveniles etc). Otherwise, variations between animals would remain an uncontrolled variable.

3.3 Qualitative Data / Incidental Observations

Behavioural Modes

It has been noted from the observation of the video footage gathered by the camera that it may be possible to categorise behavioural modes observed in Dormice recorded by the camera. Once assigned to categories, the length of time spent by Dormice exhibiting each behavioural mode could be monitored and related to other factors such as those described above.

Examples of this could be as follows:

- Vigilance behaviour (the Dormouse often spent a significant amount of time simply observing surroundings before and immediately after emerging from the nest box);
- Foraging (on several occasions the Dormouse was seen bringing Hazel nuts and Blackberries left for it into the nest box);
- Commuting (moving/jumping rapidly into nearby coppice stools/branches); and
- Nest building.

Some of these behaviour categories may not be demonstrated at the nest box, and multi-camera filming may provide a way of addressing this.

Although this approach may have some potential to become a quantitative project, it is most likely that the observations made will simply add an extra qualitative dimension to other investigations.

Species Interaction

As noted above, a Wood Mouse was recorded using the nest box contemporaneously with the young adult male Dormouse. As can be seen from **Appendix 1**, the first such period of cohabitation occurred between 28 September and 1 October, the second on 5 & 6 October, and the third between 14 October and 29 October. This third period of cohabitation saw a gradual increase in the level of Wood Mouse activity that coincided with a decrease in Dormouse activity, eventually resulting in the Dormouse appearing to become absent.

This observation is interesting in view of the fact that it has previously been believed that there was very little tolerance between Dormice and their main small mammal competitors occupying a similar ecological niche (Wood Mouse and Yellow-necked Mouse *Apodemus flavicollus*). In respect of the Wood Mouse, it has even been stated in the literature that this species would injure or even kill a Dormouse if encountered, particularly if it was in torpor (Eden & Eden, 2001 & 2003).

It would seem from the above camera observations that a competitive exclusion took place in which the Wood Mouse gradually displaced the Dormouse from the box over

a period of around a month. It is likely that, towards the latter part of October, the Dormouse would have been becoming less active and entering temporary bouts of torpor on a more frequent basis as a result of the lower temperature, making it less able to compete with the Wood Mouse and more vulnerable to any hostility. By the end of October the Dormouse may also have been in the process of constructing a ground-level hibernation nest elsewhere, and this may have hastened its departure.

If Wood Mice do indeed injure or kill Dormice, then the camera could potentially provide direct evidence of this at the individual (rather than metapopulation) level, essentially ''zooming in'' on the front line action where such species actually encounter one another. This footage can be combined with records from regular monitoring checks which will show the spatial distribution of each species encountered during the box checks. It appears from a brief examination of existing data from nest box checks in Surrey that different species often occur in ''clusters'' within a site, and as they are essentially competitors occupying similar ecological niches, these populations are likely to place natural pressures (or even perhaps natural limits) on each other. Investigating the rules that govern the spatial and temporal coexistence of these different species could well lead to information that is useful when attempting to manage a site specifically for the benefit of Dormice, and it may also shed light on the potential impact that may be exerted if populations of competitor species that are commonly associated with human activity and waste disposal increase (e.g. rats or mice).

Food Selection

During the course of the camera study, the subject Dormouse was seen to take both Hazel nuts and blackberries that were left nearby into the nest box. It is believed that this behaviour is previously unknown or at least uncommon in Dormice, and it is also believed that Dormice do not collect caches of nuts (Bright *et al*, 2006).

Notwithstanding this point, it would appear that the Dormouse chose to consume these items of food because they were both conveniently located and also familiar staple foods to the Dormouse. Standard ecological theory would suggest that Dormice (and indeed any other animal) are likely to select the optimum source of food that yields the greatest net benefit in terms of nutrition and calorific value, for the energy expended in obtaining it. This explains their taste for hazelnuts which, whilst taking up to 15 minutes each to open (Bright & Morris, 2005) yield a good return in terms of calories and are thought to be important for helping Dormice put on weight prior to hibernation.

Further to the above points however, Dormice appear to be somewhat bound by other constraints in terms of which food sources they may exploit. For example, Dormice lack a caecum (Eden & Eden, 2001) and consequently their digestive systems are ill-equipped for dealing with large amounts of green vegetation (Bright & Morris, 2005), and are believed to be incapable of tackling complex foods such as Oak acorns (*Quercus spp*). Familiarity is also likely to be a factor, as Eden & Eden (2001) describe an injured Dormouse brought into care from coastal scrub habitat,

which initially ignored hazelnuts put out for it until it eventually sampled one, after which it ignored the other foodstuffs that had previously been put out for it.

Much of the available literature indicates that the seasonal variation in the availability of different food sources is key to Dormouse survival, and that Dormice will exploit different food sources as they become available through the year. In particular, Bright *et al* (2006) list the main species thought to be of value to Dormice, and these include Hazel, Oak, Honeysuckle *Lonicera spp*, Bramble *Rubus spp*, Sycamore *Acer pseudoplatanus*, Ash *Fraxinus excelsior*, Wayfaring tree *Viburnum lantana*, Yew *Taxus baccata*, Hornbeam *Carpinus betulus*, Broom *Cytisus sp*, Sallow *Salix spp*, Birch *Betula spp*, Sweet Chestnut *Castanea sativa*, Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monogyna*, Conifers and a number of other species. Typically, habitats will comprise a varying composition of such species, which will bud, flower or fruit in succession and provide continuity in the supply of food available to Dormice (Bright & Morris, 2005).

Evidence also suggests that the availability of insect biomass may be of critical importance to Dormice at certain times of the year. Ticknell (1995) cited in Eden & Eden (2001) reports that faecal samples from Dormice indicate that at certain times of the year insects may form up to 80% of Dormouse diet, and Bright & Morris (2005) believe that insects are of crucial importance in high summer (from mid-June to mid-August). This is because the main tree flower season is over, but fruits have not yet become ripe and ready for eating. This is believed to lead to something of a scarcity of available food for Dormice. The likely reliance of Dormice on insect food at this time of year could potentially be a contributing factor towards their decline, as the decline in the abundance of insects and other invertebrates due to intensive agricultural practices and the use of pesticides has been known to have had adverse implications for other species, including farmland birds.

In view of the above, it is apparent that whilst a lot is known about the sources of food that are used by Dormice, less is known about which sources of food are of greatest benefit to Dormice at different times of the year and would be preferentially exploited if available (for example if two sources were available concurrently, which one would be selected), or those that could potentially be important ‘’gap fillers’’ in the Dormouse feeding calendar. This information could be exceedingly valuable for land managers seeking to enhance the value of their sites for Dormice, and for consultant ecologists seeking to prescribe an appropriate planting regime and mix of species to compensate for any loss of Dormouse habitat resulting from development activity or just to provide biodiversity enhancement. It could even be used to help develop a crude ‘’Habitat Suitability Index’’ for Dormice similar to that used in respect of Great Crested Newts *Tritarus cristatus* (Oldham *et al*, 2000), if supplemented with other data beyond that relating to food sources (e.g. natural nesting opportunity, habitat connectivity etc).

This important information could be collected through a simple food selection experiment using a camera to record which, of several seasonally available food sources of local provenance, a Dormouse will select if offered at a feeding station. The types of food offered could be rotated according to season, although any such experiment would need to be carefully planned and controlled to prevent encouraging

rival species from moving in on a Dormouse territory to exploit the food. Data from nest box monitoring could potentially be used to pick a location with lower populations of Wood Mouse and Yellow-Necked Mouse. This research could feasibly become quantitative if repeated in respect of several Dormice.

Food Availability

The food selection experiment described above may be taken a step further to test whether an abundance of food does in fact lead to a change in the level of Dormouse activity by providing such an abundance of food, and using the camera to monitor activity levels. This method could be statistically very powerful because the only altered variable would be food availability, as all other environmental variables would only be subject to natural changes. The results could give an indication as to whether increases or decreases in Dormouse activity are generally ‘’good’’ or ‘’bad’’. As with the suggested food selection experiment set out above, this suggestion would have to be carefully planned and executed to prevent adverse effects on the subject Dormice.

Nomadic Behaviour

Finally, it is apparent from the camera logs provided as **Appendix 1** that Dormice may vacate and return to a nest box on several occasions over the course of the active season. Eden & Eden (2001) also report large variations in the use of nest boxes across the sites that they monitor that are dependent upon a number of factors such as the availability of natural nest sites, habitat composition, the presence of predators, or even just the conditioning of the animals to use them.

Such nomadic behaviour may have implications for the accuracy of the nest box monitoring programmes undertaken by groups such as the Surrey Dormouse Group which feed into the NDMP, potentially resulting in either an over or underestimate of true Dormouse numbers (through double-counting animals moving between boxes or missing animals using natural nests). It is apparent that the camera is of great value in investigating this nomadic disposition of Dormice, as it can provide records of the use of any particular nest box accurate to within seconds. It is also possible that individual Dormice could be identified using the camera, either through the recording of diagnostic physical features, or through fur clipping (although the latter would require a specific extension to the standard Dormouse survey licence). If this is the case, a further level of analysis may be possible whereby behaviour patterns can be related to particular types of individual e.g. male, female, mothers with dependent young, juveniles etc.

4.0 RECOMMENDATIONS FOR ONGOING RESEARCH

4.1 Refined Strategic Research Objectives

Following the discussions set out above in this report, it is suggested that the initial research objectives for the camera project that are set out in **Section 1.4** above are developed in order to take the camera project forward.

A suggested new overarching strategic research objective is to support the aims of the UK Biodiversity Action Plan for Dormice, and the objectives of the National Dormouse Monitoring project by:

1. Gathering data to enhance the knowledge of Dormouse ecology, in particular in respect of how they are affected by both natural and anthropomorphic changes in environmental conditions;

2. Undertaking research into the variations of the seasonal food requirements of Dormice; and

3. Studying the spatial and temporal coexistence of Dormice with their main competitors and predators.

Further to these overarching strategic research objectives, a number of more detailed and specific research objectives have been developed to accompany particular proposals for further research. These are set out below in **Section 5.2**.

4.2 Future Studies

Following on from the discussion in **Section 4** of this report, Tables 1-5 below set out a number of potential avenues for further research for which the camera could potentially be employed. Final research projects could comprise a mixture of any of the proposals set out below.

Funding and human resources to undertake the potential research projects below is yet to be established. This is likely to rely in large part upon volunteer effort from members of the Surrey Dormouse Group, although it may also be possible to secure support from PTES, allied conservation groups or students of biological/ecological science seeking a subject for in depth study.

Table 1: Environmental Variables

Research Title	Is Dormouse Activity Affected by Environmental Variables?
Research Type	Potentially Quantitative Combination of camera and monitoring data used
Research Objectives	• To determine the main environmental variables that affect Dormouse activity; • To gather information regarding the way in which environmental changes can impact upon the conservation status of Dormice, in support of the National Dormouse Species Action Plan (www.ukbap.org.uk); and • To indicate how human activities could potentially affect Dormice, for the purposes of informing conservation and mitigation measures taken to counteract those effects that are adverse.
Outline Methodology	The camera can be used to develop an index of activity of the Dormouse/Dormice during any given period of time (per night, per month etc), which can then be compared with data gathered relating to ambient environmental conditions such as temperature, humidity, light, rainfall, noise etc, to determine their effect upon Dormouse activity. The index of activity itself will have to be defined using data that can be gathered from camera observations. For example, number of trips made from box, length of trips, percentage of available hours of darkness spent outside of box etc. This data could potentially be supplemented (see notes below) with temperature readings from inside the box itself, to determine whether or not the animal has gone into torpor. It is uncertain whether increases/decreases in activity represent positive/negative changes in pressures applied to Dormice. It is likely however that comparing the environmental data collected to the activity level will allow an inference to be made as to whether changes are positive or negative (e.g. very low temperature or very high humidity might indicate that the changes in activity recorded are negative). Data collected could be compared between many different nights recording, or between different individuals within the same wood (subject to funds and human resources) This method could potentially be extended to hibernation nests for the purposes of supporting UKBAP aspirations.

Notes	Although limited data on external environmental variables is available from weather monitoring stations etc, but the most effective method for gathering such environmental data would be combining camera observations with data logger and suitable instruments (subject to funding). Statistical testing is likely to be hindered by the small sample sizes that can be obtained by the camera (i.e. one Dormouse per camera per season). Data will therefore have to be gathered over time, or with the support of other volunteer groups, or statistical tests chosen to address small sample sizes.
Resources Required	Resources likely to be required per ''sample'' (defined as one complete set of observations for one Dormouse over one season): • Camera set-up as described above; • A data logger and associated probes/meters [optional] • In the region of 70 volunteer man hours per month.
Likely Costs	Costs are approximate and applicable to all four research proposals: Budget Implementation system: Infra red motion detect Camera & 10 fps video recorder £150 2 12v deep discharge batteries £140 Misc components (memory cards, cables, secure box) £100 Advanced System: 2 x infra red Camera & multi channel Recorder, 25 fps £400 4 x 12v deep discharge Batteries £280 Misc components (as above) £150 Monitor for setting up recorder/camera settings £60 Data Loggers Simple Temperature monitor £40 Dual Channel Logger with temperature probe £120 4 channel logger (temp x2, humidiy, light) – pro system £300 Additional temperature probes £15

Table 2: Food Selection and Abundance

Research Title	Which Seasonally Available Food Sources are of most Value to Dormice? Is Dormouse Activity Affected by Food Abundance?
Research Type	Primarily qualitative with the potential to become quantitative if repeated
Research Objectives	• To establish which of the various food sources that are available to Dormice in succession over the active season are of greater importance for Dormice; • To identify important ''gap filler'' food items for Dormice at certain times during the active season; • To determine the effect of food abundance on Dormouse activity; and • To develop recommendations for habitat maintenance and enhancement for Dormice.
Outline Methodology	Camera set up as described above previously, combined with an area used to offer food items to Dormice close to nest box. Local surrounds to be searched periodically for food items of value for Dormice according to the advice set out in Bright *et al* (2006) and Bright & Morris (2005), which will then be collected and made available to subject Dormouse
Notes	Control will be required to prevent endangering of Dormouse by encouraging competitors/predators.
Resources Required	• Camera set up as previously described; • Approximately 70 volunteer man hours per month.
Likely Costs	Multi channel recorder option with 2 cameras. Costs listed as above

Table 3: Behavioural Observations and Nomadic Tendency

Research Title	Observations of the Behavioural Changes of Dormice Investigation into the Nomadic Habits of Dormice
Research Type	Qualitative – Although behavioural mode classification could be combined with research into environmental variables as set out in Table 1 to determine how these affect time spent adopting each behaviour
Research Objectives	• To classify and describe behaviours witnessed in subject Dormice and to further understand how these are affected by external influences; • To obtain information on the nomadic tendency of Dormice in order to investigate its potential implications for the accuracy of Dormouse populations estimates carried out for the NDMP
Outline Methodology	Camera set up used to capture Dormice on film at nest box. Film examined to identify characteristic behavioural modes. Time spent in each mode measured throughout active season. Could potentially be combined with data relating to environmental variables as set out in Table 1 to determine whether behaviour changes are affected by these variables. Multi-camera filming may be more successful in capturing behaviour away from nest box.
Notes	Nomadic tendency could be better investigated in conjunction with fur clipping, although an extension to the standard survey licence would be required. It may also be beneficial to check subject nest boxes more frequently than once per month to obtain a more accurate record of the movements of subject animals, although effects upon the subject Dormice from the increase in disturbance would need to be considered.
Resources Required	• 1-2 camera set ups as described above; • Approximately 70 volunteer hours per month dependent upon number of cameras used
Likely Costs	Multi channel recorder and 2 camera set up as costed above

Table 4: Interactions with Other Species

Research Title	The Temporal and Spatial Coexistence of Dormice with other Small British Mammal/Rodent Species
Research Type	Qualitative – Could be combined with data from nest box monitoring programme showing the occupation of nest boxes on site by each species. For this purpose it may also be helpful to mark the location of individual boxes using GPS if possible.
Research Objectives	• To gather information regarding the interactions that occur between small rodent species and Dormice; • To relate the information gathered to the spatial and temporal distribution of these species across a site; • To inform management measures taken to enhance habitat for Dormice, and investigate whether anthropomorphic encouragement/discouragement of certain species may have a beneficial/adverse effect on Dormice.
Outline Methodology	Most likely that experiment will be run in conjunction with another investigation from Tables 1-3, and data will result from incidental observations. Evidence from the camera may be able to provide a causal link between spatial and/or temporal fluctuations between different species occupying nest boxes at a site (e.g. recorded killing/competitive exclusion etc)
Notes	This research could potentially shed light on whether putting up nest boxes is actually beneficial to Dormice, as Eden & Eden (2001) suggest that some predators may become habituated to raiding them.
Resources Required	• Camera set up as described above; • Standard data collected for site as part of NDMP; and • Approximately 70 volunteer man hours per month.
Likely Costs	Costs as listed above

4.3 Education

Notwithstanding the research potential of the camera project, the footage collected of Dormice is likely to be of considerable value in raising interest and awareness of these animals for the purposes of education and elevating the level of public support for their conservation. The use of nest box cameras for birds is currently common practice at many outdoor education centres and country parks and, subject to Natural England licensing requirements and the need to ensure the safety of the subject nest box from interference, a similar set up may be appropriate in respect of Dormice.

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FIGURE 1:

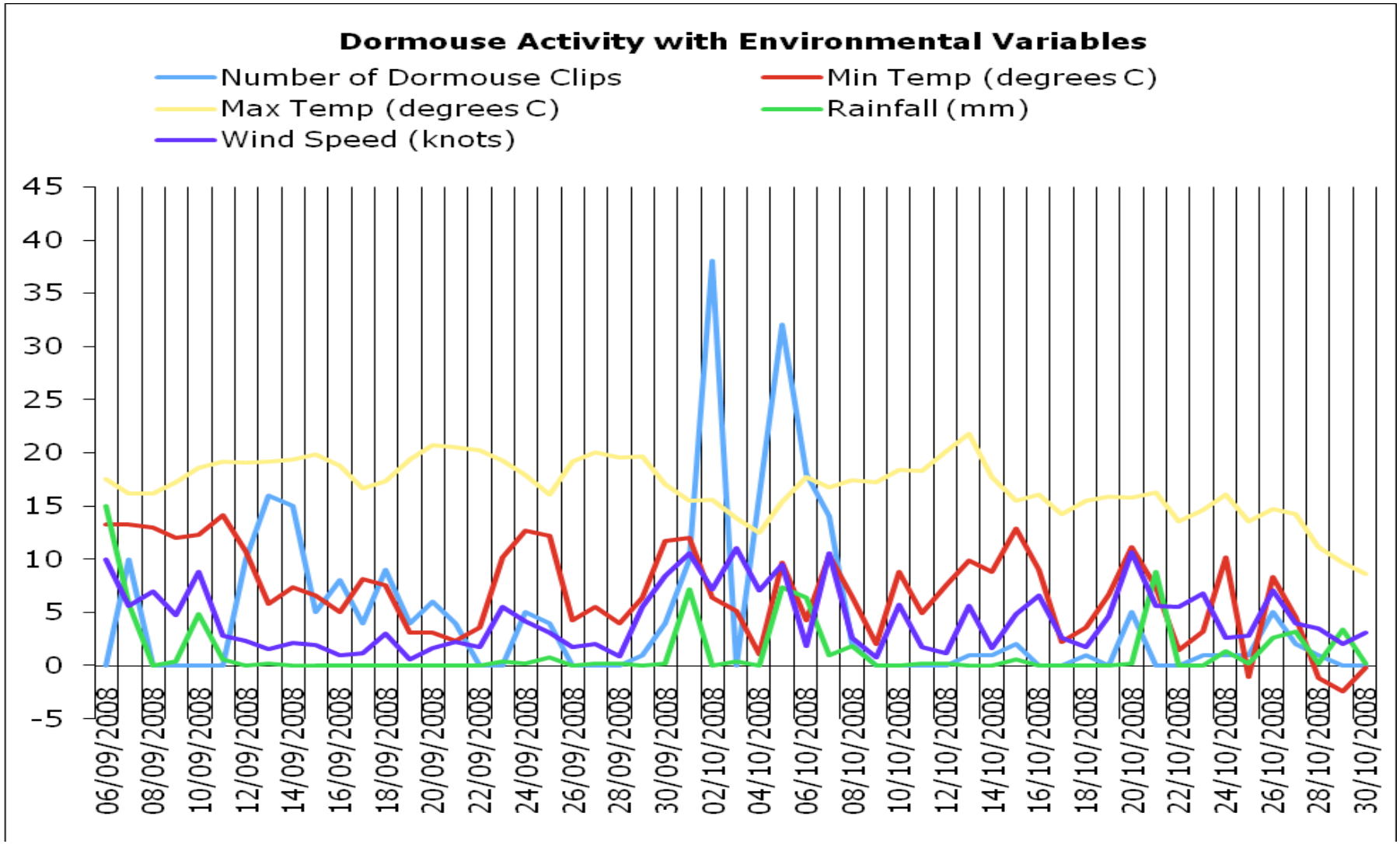
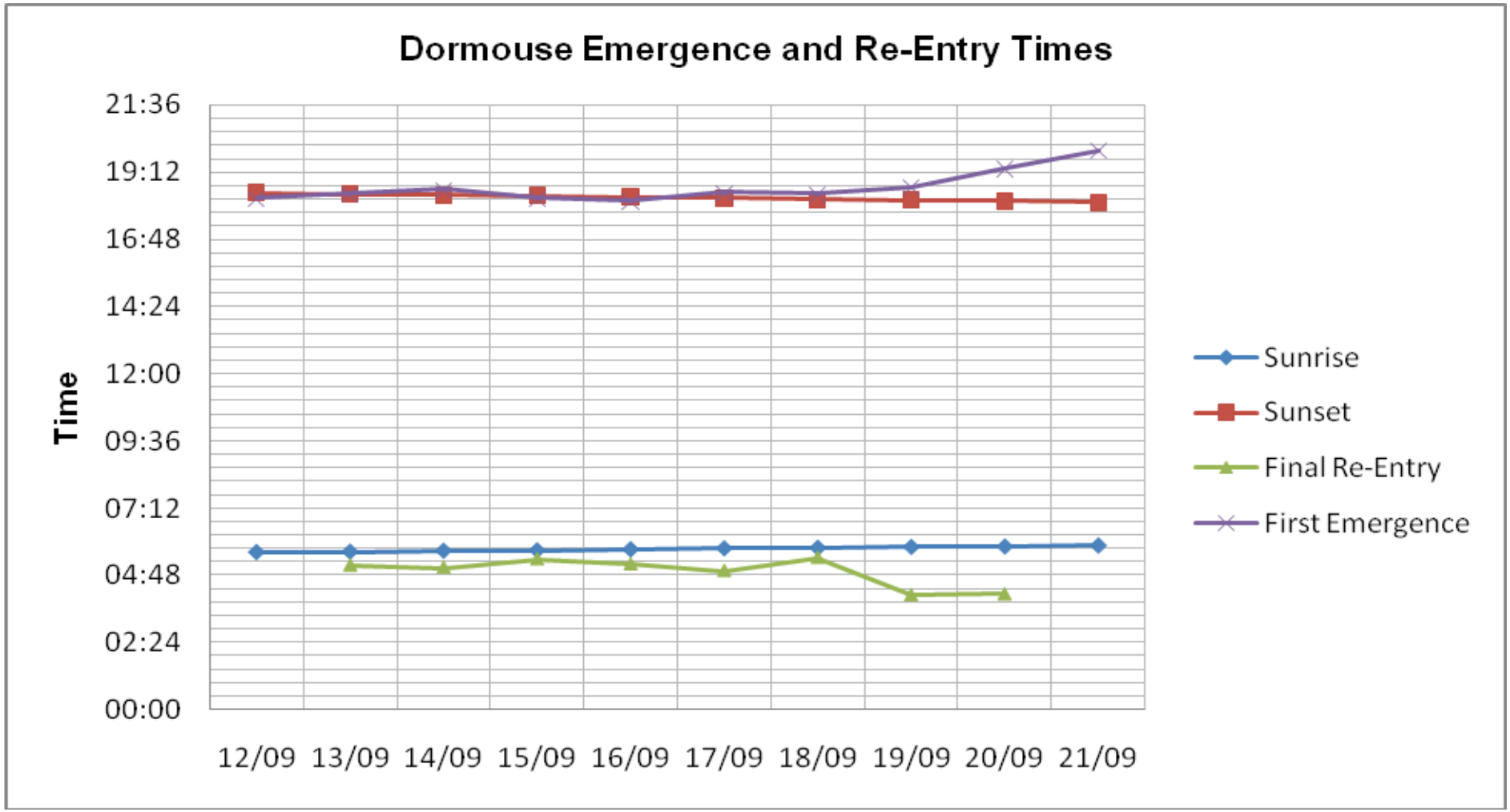

Dormouse Activity with Environmental Variables
Number of Dormouse Clips
Min Temp (degrees C)
Max Temp (degrees C)
Rainfall (mm)
Wind Speed (knots)
45
40
35
30
25
20
15
10
5
0
-5
06/09/2008
08/09/2008
10/09/2008
12/09/2008
14/09/2008
16/09/2008
18/09/2008
20/09/2008
22/09/2008
24/09/2008
26/09/2008
28/09/2008
30/09/2008
02/10/2008
04/10/2008
06/10/2008
08/10/2008
10/10/2008
12/10/2008
14/10/2008
16/10/2008
18/10/2008
20/10/2008
22/10/2008
24/10/2008
26/10/2008
28/10/2008
30/10/2008

FIGURE 2:


Dormouse Emergence and Re-Entry Times
Time
21:36
19:12
16:48
14:24
12:00
09:36
07:12
04:48
02:24
00:00
12/09
13/09
14/09
15/09
16/09
17/09
18/09
19/09
20/09
21/09
Sunrise
Sunset
Final Re-Entry
First Emergence

APPENDIX 1:

CAMERA PROJECT LOGS (CAMERA RECORDING LOG AND DAILY ACTIVITY LOGS)

CAMERA RECORDING LOG

Date	No. of dormouse files recorded	Total no. of files recorded	Time of first recording GMT	Time of last recording	Battery changed	Card changed	Comments
6/09	0	45	16:45	23:55	Leisure battery installed	1st card	
7/09	10	49	00:24	18:40		yes	Camera stopped recording at 16.40
8/09	0	16	09:04	17:16		yes	Camera stopped recording at 17.16
9/09	0	1	05:57	05:57			Camera failed
10/09	0	0	0	0			Camera failed
11/09	0	37	05:56	16:31		yes	Camera stopped recording at 16.31
12/09	10	115	12:52	23:53	Car battery installed	yes	
13/09	16	279	01:52	21:46			
14/09	15	337	04:38	21:00	Leisure battery installed	yes	

15/09	5	162	02:18	23:34			* full moon *
16/09	8	108	00:31	23:29		yes	
17/09	4 (3 BT)	239	01:46	23:47			
18/09	9	306	04:14	23:44			
19/09	4	225	00:08	22:59	Car battery installed	yes	
20/09	6	181	00:22	23:41	Leisure battery installed	yes	Monthly box check – juvenile male dormouse in box 13.5gms
21/09	4	300	00:01	23:08			
22/09	0	148	00:28	22:34		yes	
23/09	0	192	00:02	21:42			
24/09	5	170	00:55	23:57			
25/09	4	747	00:30	23:59		yes	
26/09	0	350	00:00	03:46			Battery finally had lost charge and stopped camera recording
27/09	0	53	11:44	23:38	Car battery installed	yes	
28/09	0 (4 WM)	218	01:06	23:09		yes	Woodmouse takes blackberry – see log
29/09	1	173	02:13	23:42	Leisure battery installed		
30/09	4 (9 WM)	696	04:32	23:15		yes	4 files DM, 9 files WM

01/10	10 (2 WM)	1406	00:05	21:35			Camera stopped recording at 21:35
02/10	38	864	00:49	23:56		yes	
03/10	0	165	02:01	07:01			Battery starts to fail at 03:20 (foggy screen), fails at 07:01
04/10	16	824	09:45	23:59	Car battery installed	yes	Two hazelnuts left on lower ledge
05/10	32 (9WM)	998	00:01	21:49	Leisure battery installed	yes	Two hazelnuts left on lower edge. Camera stopped recording at 21:49
06/10	18 (3 WM)	302	00:04	23:42			
07/10	14	868	00:02	23:38		yes	
08/10	2	184	00:09	23:48			
09/10	0	118	00:03	10:05			Battery fails by 09:01
10/10	0				Car battery installed	yes	Camera did not record any files
11/10	0						Camera did not record any files
12/10	0	2067	07:26	23:59	Leisure battery installed	yes	Camera was constantly recording, sensitivity settings had defaulted
13/10	1	598	00:00	23:50		yes	Camera was constantly recording, sensitivity settings had defaulted
14/10	1 (1 WM)	186	00:33	23:27			* Full Moon *
15/10	2 (1WM)	78	00:10	09:01	Car battery installed	yes	
16/10	0 (1 WM)	242	00:03	23:15			

17/10	0	116	07:23	23:11			
18/10	1 (2 WM)	247	00:34	23:05	Leisure battery installed	yes	Monthly box check – empty box, no dormouse or other occupants found.
19/10	0 (11WM)	602	03:15	23:57			
20/10	5 (22 WM)	991	00:00	23:43			Camera constantly recording
21/10	0 (6 WM)	323	00:09	12:07		yes	
22/10	0	60	00:49	14:32			Battery fails at 14:32
23/10	1 (9 WM)	541	06:40	23:50	Car battery installed	yes	
24/10	1 (19 WM, 1 BT)	166	00:01	23:51		yes	
25/10	1 (20 WM)	776	00:52	23:59			
26/10	5 (25 WM)	678	00:01	23:46	Leisure battery installed	yes	Battery fails 08:58 starts again at 12:08
27/10	2 (6 WM)	160	00:17	22:32			
28/10	1 (10 WM)	709	00:13	23:59		yes	
29/10	0 (5 WM)	633	00:00	22:14			
30/10	0	6	02:46	03:23	Kit removed from site		Camera failed at 03:23.Project finishes

DAILY ACTIVITY LOGS

Date: 7/09/2008

Location: Merrow Woods

Number of recorded mouse files: 10

Time of recording GMT 24hr	Mouse activity
02.50 (52)	Dormouse entering nest box
02.51 (16)	Dormouse back leg and tail going into box
04.26 (58)	Dormouse going into box
04.27 (53)	Dormouse nose poking out of box
04.28 (08)	Dormouse poking head out of box to look
04.28 (51)	Dormouse leaving box
04.40 (55)	Dormouse tail returning into box
04.44 (51)	Back half of dormouse returning to box
04.45 (54)	Dormouse tail returning into box
18:40(13)	Dormouse pokes head out of box

Date: 12/09/2008

Location: Merrow Woods

Number of recorded mouse files: 10

Time of recording GMT 24hr	Mouse activity
18.16(20) – 18.20(44) 10 clips	Dormouse starts to look out of box. Dormouse comes out of box and sits looking at the camera for a while then finally goes behind the tree branch.

Date: 13/09/2008

Location: Merrow Woods

Number of recorded mouse files: 16

Time of recording GMT 24hr	Mouse activity
05.01 (21)	Dormouse tail going into box
18.25(33) – 18.30(09) 11 clips	Dormouse sits in front of camera, looks around then jumps into canopy
21.45(18) – 21.46(16) 3 clips	Dormouse on box looking around. Mouse goes around the box, around the back of the tree and then into the box.
21.46(35)	Dormouse jumps up into canopy

Date: 14/09/2008

Location: Merrow Woods

Number of recorded mouse files: 15

Time of recording GMT 24hr	Mouse activity
05.05(13)	Dormouse bottom and tail going into box
18.35(20) - 18.38(36) 12 clips	Dormouse comes out of box, sits on wire looking towards camera. Then goes behind tree
19.46(12)	Dormouse returns and goes into box
19.46(32)	Dormouse leaves again

Date: 15 /09/2008

Location: Merrow Woods

Number of recorded mouse files: 5

Time of recording GMT 24hr	Mouse activity
05.23(03)	Dormouse climbs up tree that has camera attached climbs over camera
05.23(28)	Dormouse goes around the back of the tree with box and into box
18.13(07)	Dormouse comes half way out of box
18.13(26)	Dormouse tail poking out of box
18.16(16)	Dormouse completely out of box, has a look around then heads up tree

Date: 16 /09/2008

Location: Merrow Woods

Number of recorded mouse files: 8

Time of recording GMT 24hr	Mouse activity
05.12(35)	Dormouse tail going in
18.10(49) – 18.13(15) 7 clips	Dormouse pops head of out box, cautiously looks around. Chews on the box hole and looks up at camera then slowly leaves the hole, goes around the back of the box and climbs up the tree.

Date: 17/09/2008

Location: Merrow Woods

Number of recorded mouse files: 4 Dormouse 3 Blue Tit files

Time of recording GMT 24hr	Mouse activity
04.58(56)	Dormouse returns to box leaving tail hanging outside box
05.06 (54)	Dormouse tail still hanging outside box
05.07(12)	Dormouse pokes out nose briefly
06.42(36) -06.43(07) 3 clips	Blue tit lands on box, has a good look around and looks at the hole at back of box but does not try to enter.
18.28(01)	Dormouse leaves nest box

Date: 18 /09/2008

Location: Merrow Woods

Number of recorded mouse files: 9

Time of recording GMT 24hr	Mouse activity
04.58(49)	Dormouse comes down tree and back into box
04.59(40)	Dormouse leaves box
05.26(53)	Dormouse returns to box
18.25(19) – 18.37(38) 6 clips	Dormouse comes out of box hole and sits on the wire with its back to the camera, stays there looking out for a while and then leaves.

Date: 19/09/2008

Location: Merrow Woods

Number of recorded mouse files: 4

Time of recording GMT 24hr	Mouse activity
04.06(31)	Dormouse returning to box. Puts all for feet on the box entrance hole and forward rolls into box !!
18.40(05) -18:40(34) 2 clips	Dormouse comes out of box and sits on the wire away from the camera, then leaves
21.03(14)	Dormouse returns to box and forward rolls through the hole into box

Date: 20/09/2008

Location: Merrow Woods

Number of recorded mouse files: 6

Time of recording GMT 24hr	Mouse activity
00.22(39)	Dormouse comes out of nest box
04.08(29)	Dormouse returns to box
18.02957) - 18.03(43) 2 clips	Dormouse comes out of box slowly and looks around
19.20(00)	Dormouse tail around the back of tree and off again
22.32(01)	Dormouse comes back to box, climbing onto lid then out of camera range.

Date: 21 /09/2008

Location: Merrow Woods

Number of recorded mouse files: 4

Time of recording GMT 24hr	Mouse activity
19.58(34)	Dormouse leaves box
20.08(48) - 20.09(08) 2 clips	Dormouse comes down tree and back into box
20.09(33)	Dormouse behind tree with head looking around then jumps into canopy

Date: 24/09/2008

Location: Merrow Woods

Number of recorded mouse files: 5

Time of recording GMT 24hr	Mouse activity
01.49(48)	Dormouse returns after 2 nights away from box. It goes straight into box. It's back leg looks stiff and straight as it enters, as if it has a problem with it.
03.37(00)	Dormouse leaves the box
04.21(28)	Dormouse returns to the box and rolls in
18.16(21)- 18.16(46) 2 clips	Dormouse pokes his head out of box hole and looks around. He comes out and sits on the box wire facing away form the camera, then goes off.

Date: 25 /09/2008

Location: Merrow Woods

Number of recorded mouse files: 4

Time of recording GMT 24hr	Mouse activity
04.32(20)	Dormouse returns to nest box, looks like the left back leg is very stiff on entry to the box
18.18 (55)	Dormouse pokes head out of box hole
18.20(26)	Dormouse head looking down and maybe nibbling on box hole
18.23(04)	Dormouse slowly comes out of hole, cautiously

Date: 28/09/2008

Location: Merrow Woods

Number of recorded mouse files: 4 Wood mouse files

Time of recording GMT 24hr	Mouse activity
23:08(05) - 23:09(56) 4 clips	***Woodmouse*** **approaches from side and back of tree. Explores the tree from the bottom ledge, both front and back. Finds blackberry left there for him at front of bottom ledge, takes it in mouth and front paws and backs away to the rear of the ledge. Jumps up towards the upper ledge from the bottom ledge and back again, no sign of blackberry. Comes to front on lower ledge, foot goes in hole as passes and brings out a piece of honeysuckle. Goes to rear of tree on lower edge and goes off.**

Date: 29/09/2008

Location: Merrow Woods

Number of recorded mouse files: 1

Time of recording GMT 24hr	Mouse activity
04:36(38)	Dormouse enters box, rear leg still held out, but movement looks ok

Date: 30/09/2008

Location: Merrow Woods

Number of recorded mouse files: 4 Dormouse files; 9 Wood mouse files

Time of recording GMT 24hr	Mouse activity
18:56(15)	Dormouse enter box then half backs out
19:01(20)	Dormouse leaps from tree, enters box, then puts head out
19:20(35)	Woodmouse looks in box and leaves
21:09(35)	Dormouse enters box
21:10(53)	Dormouse leaves box
23:03(31) – 23:04(52) 5 clips	Woodmouse enters box, then looks out of box and leaves it, then jumps on top of box. It comes along bottom ledge to camera, then goes to back on top ledge before climbing down the far side of the box and leaving.
23:14(20) – 23:15(01) 3 clips	Woodmouse explores front wire, then goes in box. It comes out of the box on lower ledge, then explores by front wire before entering the box.

Date: 02/10/2008

Location: Merrow Woods

Number of recorded mouse files: 38

Time of recording GMT 24hr	Mouse activity
03:34(38)	Dormouse enters box (stiff back leg)
05:08(02)	Dormouse enters box
05:11(04) – 05:13(36) 3 clips	Dormouse head just out of box, head goes back in and out again, head stays out - quite still.
05:17(48) – 05:34(24) 17 clips	Dormouse out of box by far side, remains in this position for a while then moves on the lower ledge and puts head in box. Head comes out but dormouse stays by hole and keeps this position for about a minute before climbing part way into the hole. Dormouse climbs a bit further into the hole but again is still for about 3 minutes with only slight movements. Then moves to be almost in the box before a clip 5 minutes later shows the tail finally going in. (is the camera freezing? Total lack of movement over 10 secs in some cases looks strange)
18:10(19)	Dormouse tail out of box
18:40(05)	Dormouse mostly out of box, back to camera
18:44(13)	Dormouse climbs onto top of box, seems laboured
19:10(55)	Dormouse enters box (stiff back leg?), tail left out
19:30(03)- 19:30(49) 4 clips	Very agile dormouse goes above camera and leaps onto lower ledge. Goes part way into box and out again, swings around front wire back to ledge. It jumps off the front ledge to below the camera and goes round the back of the box tree. Finally tail seen to right of box tree and some movement between box and tree at the rear of the box
19:42(40)-19:42(57) 2 clips	Dormouse enters box from camera side and comes out again
20:13(22) – 20:16(16) 6 clips	Dormouse nose out then back in hole, then comes out (dangling back leg?). Hangs on box to rear for about a minute, back legs seem to be hanging, not gripping. It struggles to get on top of the box, then comes back down to ledge

Date: 04/10/2008

Location: Merrow Woods

Number of recorded mouse files: 16 **2 hazelnuts left on lower ledge**

Time of recording GMT 24hr	Mouse activity
17:45(20) – 17:48(13) 7 clips	Dormouse head out of box for about 2 minutes, then comes out of box hanging between hole and tree. Back leg slips? Still hanging between hole and tree
18:38(15)	Mouse (DM/WM?) runs down right hand side of tree
18:56(29) – 18:58(36) 3 clips	Dormouse comes along lower ledge, takes one hazelnut and puts it in hole, hanging part way in. Tail goes in hole, then dormouse comes out again and leaps onto tree at back
23:44(34) – 23:44(48) 2 clips	Dormouse takes second hazelnut from the front of the lower ledge, then goes round the back of the tree to lower ledge at rear. Goes halfway into hole.
23:47(42)	Dormouse enters box with something in it's mouth?
23:50(15)	Dormouse on right hand side of tree and leaps down
23:59(37)	Dormouse enters box

Date: 05/10/2008

Location: Merrow Woods

Number of recorded mouse files: 32 Dormouse: 9 Woodmouse

Time of recording GMT 24hr	Mouse activity 2 hazel nuts were left on lower ledge of box
00:03(14)	Dormouse leaves box, leaps to tree at rear
00:27(53)	Dormouse enters box
00:36(57) – 00:37(14) 2 clips	Dormouse head out of box, then leaves down right hand side of tree
00:47(54)	Dormouse enters box
00:54(26)	Mouse shape runs down right hand side of tree
01:08(23)	Dormouse enters box
01:52(40) – 1:52(57) 2 clips	Dormouse enters box, then puts head out as if about to leave

02:53(37) – 2:53(52) **2 clips**	**Woodmouse enters box, and then leaves**
02:54(43) – 02:55(20) **3 clips**	**Wood mouse tail enters box, then out again to front by camera, finally leave to rear on lower edge**
03:47(42) – 03:48(22) **2 clips**	**Dormouse enters round back of tree, then leaves by back of tree and downwards**
03:51(53)	**Dormouse enters box**
03:55(57)	**Dormouse enters box**
05:12(48)	**Woodmouse enters box**
05:14(04)	**Woodmouse leaves box and leaps to trees at rear**
05:22(22) -05:22(45) **2 clips**	**Woodmouse approaches from the camera side on lower ledge with something in it's mouth? Not seen to enter but slight movement visible in hole entrance**
17:59(07) – 17:59(47) **3 clips**	**Dormouse puts head out of hole and starts to leave box, then takes one hazelnut and returns into box**
18:18(03) – 18:19(53) **2 clips**	**Dormouse leaves box and goes round back of tree, tail still visible**
18:31(44) – 18:32(01) **2 clips**	**Dormouse returns round back of tree to top ledge. Possible mouse movement at the bottom of the far gap – but could be insect on near wire! Also note what looks like a spider on remaining hazelnut!**
19:02(48) – 19:05(18) **3 clips**	**Dormouse enters box but slow to get tail fully in**
19:21(15)	**Dormouse backs out of hole but then goes back in**
19:22(55)	**Dormouse tail goes into hole**
19:26(35)	**One dormouse goes into box, second dormouse appears round back of tree and then on top of box**
21:00(05)	**Dormouse starts to go into box, comes out, picks up second hazelnut and starts to go into box**
21:03(00) – 21:04(19) **3 clips**	**Dormouse comes out of box, carrying hazelnut and goes round back of tree. Then dormouse has head in box, backs out (no hazelnut) onto to front lower edge, then back halfway into box. Backs out of box and goes round back of tree**
21:34(39)- 21:34(56) **2 clips**	**Dormouse tail shows above camera, whiskers show then dormouse leaps onto top of box and down towards upper ledge. Dormouse comes to front along lower edge and leaps to camera tree**
Camera stopped recording at 21:49	

Date: 06/10/2008

Location: Merrow Woods

Number of recorded mouse files: 18 Dormouse files 3 Woodmouse files

Time of recording GMT 24hr	Mouse activity
00:04(17) – 00:05(06) 3 clips	Dormouse enters box. Dormouse leaves box searches lower edge and climbs to upper ledge, then on top of box and leaps up into tree
00:16(27) – 00:17(30) 2 clips	Dormouse enters box with something in it's mouth. Dormouse leaves box, goes round back of tree and leaps to far tree
00:26(06)	Dormouse tail goes (mostly) into box
00:26(28)	DM? leaps to far tree
03:56(11) – 03:56(51) 3 clips	Dormouse enters box, tail partly out. DM? leaps onto far tree and off again. Dormouse on right of box tree, jumps towards camera tree
04:06(06)	Dormouse enters box, tail still out
04:06(28)	DM? leaps to far tree and goes down it
05:15(27)	Dormouse enters box
18:07(54)	Dormouse leaves box – back leg ok?
19:08(34) – 19:08(52) 2 clips	Woodmouse enters box, then leaves box
20:07(30) – 20:08(42) 3 clips	Dormouse on front wire, goes into box. Dormouse out of box to rear of tree, leaps to far tree. Dormouse on front wire, goes past hole to rear of tree
20:13(53)	Dormouse leaves box goes to rear of tree
20:53(25)	Woodmouse enters box and leaves again to rear of tree

Date: 07/10/2008

Location: Merrow Woods

Number of recorded mouse files: 14 + 1 snail file

Time of recording GMT 24hr	Mouse activity
01:24(08)	Snail on box by hole
03:10(41)	Dormouse enters box, tail just out
03:10(59)	Dormouse on far tree and leaps down
03:35(00)	Dormouse enters box – stiff leg?
05:15(37) – 05:16(57) 3 clips	Dormouse half in/out of box, backs out slightly, then goes in further with tail out
05:17(42) – 05:18(06) 2 clips	Dormouse tail just out of hole, then goes in
18:25(46)	Dormouse leaves box
23:31(37)	Dormouse appears to be sitting on the camera
23:.32(40)	Dormouse seen jumping between trees
23:33(03) – 23:33(29) 2 clips	Dormouse goes back into box, tail left hanging outside
23:33(45)	Dormouse coming out if box, climbs up onto lid and goes off into woods

Date: 08/10/2008

Location: Merrow Woods

Number of recorded mouse files: 2

Time of recording GMT 24hr	Mouse activity
05:07(51)	Something furry sitting on the top of nest box, only just in view.
21:08(30)	Dormouse returning to nest box

Date: 13/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1

Time of recording GMT 24hr	Mouse activity
23.40(50)	Dormouse returning to nest box

Date: 14/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 Dormouse file 1 Woodmouse file

Time of recording GMT 24hr	Mouse activity
00:33(57)	Woodmouse leaving nest box
20.59(55)	Dormouse returns to nest box and then very quickly goes out again

Date: 15 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 2 Dormouse files: 1 Woodmouse file

Time of recording GMT 24hr	Mouse activity
00:10(06)	Woodmouse comes out of box and climbs up onto lid then heads off
05:08(51)	Dormouse entering box
05.09(12)	Dormouse tail flicking up at the bottom of camera screen.

Date: 16 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 woodmouse file

Time of recording GMT 24hr	Mouse activity
05:02(51)	Woodmouse leaving box

Date: 18 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 Dormouse file: 2 Woodmouse files

Time of recording GMT 24hr	Mouse activity
03:47(37)	Woodmouse climbing over box
04:58(42)	Woodmouse coming out of box
18:39(16)	Dormouse goes into box and then straight out again

Date: 19 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 11 Woodmouse files

Time of recording GMT 24hr	Mouse activity
04:27(22) – 04:27(54) 3 clips	Wood mouse enters the box, then looks around with head out and comes out of box again.
05:40(30)	Wood mouse leaves box, looks around and goes off.
19:11(36)	Wood mouse comes out of box
23:23(18) – 23:24(31) 4 clips	Wood mouse comes out of box, looks around and goes back into box
23:44(55) – 23:45(12) 2 clips	Wood mouse comes out of box

Date: 20/10/2008

Location: Merrow Woods

Number of recorded mouse files: 5 Dormouse, 22 Wood mouse

Time of recording GMT 24hr	Mouse activity
00:29(27)	Woodmouse looking around box and enters hole
01:15(35)	Woodmouse comes out of box and sits on the wire
03:41(52)	Dormouse enters box
04:54(47) – 05:00(55) 8 clips	Wood mouse pokes head out of box, comes out of box goes around box and back in. Pokes out head, leaves box, goes up onto lid and leaves.
05:24(31)	Wood mouse returns, looks around and starts to enter box
05:27	Wood mouse enters box
17:29(04) – 17:32(06) 5 clips	Flash of a tail in tree background. Wood mouse pokes head out of box, then in again then leaves box.
17:38(21) – 17:38(47)	Bits of nest sticking out of box hole and moving

2 clips	
17:39(28)	**Wood mouse pokes head out of box**
17:43(21)	**Wood mouse comes out of box**
17:44(42)	**Wood mouse sits on box wire and looks at camera**
19:21(11) – 19:21(57) **4 clips**	**Young dormouse with injured right back leg tries to pull itself into the box hole using front legs, it falls down beneath hole and tries again, fails again and sits underneath the hole for a couple of seconds and then disappears behind tree trunk.**

Date: 21 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 6 wood mouse files

Time of recording **GMT 24hr**	**Mouse activity**
03:22(39)	**Wood mouse enters the box. It forward rolls in using the same technique we have observed from a dormouse.**
03:25(51)	**Nest material poking out of box is moving**
04:18(37)	**Nesting materials poking out of box moving**
05:40(55)	**Wood mouse comes towards camera turns around and heads back to box hole and starts to enter.**
05:41(12)	**Nesting material poking out of box is moving**
05:43(05)	**Wood mouse by box, looks at camera and goes back into box hole.**

Date: 23/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 dormouse, 9 woodmouse files

Extra piece of wood placed on lower ledge at 06:40

Time of recording **GMT 24hr**	**Mouse activity**
17:28(02) – 17:28(24) **2 clips**	**Woodmouse leaves box to rear, then turns and re-enters box**
17:30(11) – 17:30(25) **2 clips**	**Woodmouse leaves box to rear, then turns and comes along ledge towards camera**

17:33(03)	**Woodmouse leaves box to rear**
17:43(15)	**Woodmouse leaves box, sits on wire facing camera**
17:50(24)	**Woodmouse leaves box, sits on wire facing camera**
23:32(41)	**Dormouse at rear of box, jumps on top of box, then down towards camera**
23:33(34) – 23:33(56) **2 clips**	**Woodmouse enters box, then pts head out, then back in**

Date: 24/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 dormouse, 19 woodmouse , 1 blue tit

Time of recording **GMT 24hr**	**Mouse activity**
01:54(23)	**Woodmouse leaves box via front wire**
04:52(04)	**Woodmouse tail enters box**
05:40(11)	**Woodmouse enters box**
05:49(07)	**Woodmouse enters box**
05:54(50)	**Woodmouse enters box**
11:15(58)	**Blue tit in front of camera**
17:25(00) – 17:25(17) **2 clips**	**Woodmouse leaves box to rear**
17:33(17)	**Woodmouse runs down right hand side of box tree. Fast and difficult to see**
17:49(14) – 17:49(28) **2 clips**	**Woodmouse puts head out of box, moves to front wire and jumps down tree**
17:51(27) – 17:51(41) **2 clips**	**Woodmouse leaves box onto front wire, then goes down tree**
18:55(25) – 18:56(41) **4 clips**	**Woodmouse comes down tree from top of box and explores the hole, then enters box. Comes out of box to front and starts up tree, finally enters box**
18:58(09)	**Woodmouse leaves box to rear**
22:01(30)	**Dormouse approaches from rear, examines hole and leaves to rear**

23:30(54)	**Woodmouse enters box**
23:51(15)	**Woodmouse leaves box to front and down tree**

Date: 25/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 dormouse, 20 woodmouse

Time of recording **GMT 24hr**	**Mouse activity**
04:28(58)	**Woodmouse enters box**
04:41(42)	**Woodmouse enters box**
05:25(09)	**Woodmouse enters box**
05:37(23) – 05:37(39) **2 clips**	**Woodmouse on lower ledge, moves towards camera, then goes to rear and enters box**
17:19(34) – 17:19(49) **2 clips**	**Woodmouse leaves box to rear, then by hole and leaving to rear**
17:29(41)	**Woodmouse part way out of box**
17:34(23)	**Woodmouse (?) behind box tree on right hand side, just below staple**
17:35(23)	**Woodmouse on front wire**
17:46(39)	**Woodmouse leaves box via front wire**
19:36(42)	**Dormouse comes from rear, examines box and jumps off to rear**
19:44(29) – 19:44(43) **2 clips**	**Woodmouse enters box from rear**
19:52(07) – 19:52(25) **2 clips**	**Woodmouse enters box, then leaves towards camera and down tree**
20:31(50)	**Woodmouse enters box**
21:14(00)	**Woodmouse on front wire, then goes down tree**
23:28(04)	**Woodmouse enters box from rear**
23:29(26) – 23:29(40) **2 clips**	**Woodmouse approaching box from right hand side of box tree, just visible at bottom of frame (need large screen to see it). Woodmouse enters box**

Date: 26/10/2008

Location: Merrow Woods

Number of recorded mouse files: 5 dormouse, 25 woodmouse

Time of recording GMT 24hr	Mouse activity
00:33(56)	Woodmouse enters box
01:00(00)	Woodmouse leaves box to rear, turns and comes to front
01:26(37)	Woodmouse leaves box to rear
02:09(14)	Woodmouse going down front of box tree
05:00(39) – 05:01(31) 3 clips	Woodmouse exploring, sitting on front wire, then enters box and leaves again down the tree
05:10(03) – 05:10(18) 2 clips	Woodmouse explores hole and enters box
05:15(16)	Woodmouse leaves box and goes down tree in front of camera
05:54(01) – 05:54(16) 2 clips	Woodmouse approaches from top of box, comes to front then enters box
05:55(01)	Woodmouse puts head out of box and back in again
06:00(33)	Woodmouse leaves box to rear
06:16(03)	Woodmouse enters box
17:25(28)	Woodmouse leaves box to front
19:36(46) – 19:37(34) 3 clips	Dormouse (?) at rear behind tree. Dormouse approaches from rear, examines hole, comes to front wire and goes down tree. Then leaps up into tree in front of camera
19:42(42)	Dormouse comes down right hand side of tree, along front wire then down tree
19:43(15)	Dormouse (?) by right hand side of box tree, low down – outline only. Need large screen to see it
20:07(02)	Woodmouse enters box from rear
20:08(16)	Woodmouse leaves box to rear
22:12(36) – 22:13(35) 3 clips	Woodmouse on top of box, enters box from rear, then leaves box and goes down tree to rear
23:19(26)	Woodmouse enters box from rear

23:45(20) – 23:45(57) **3 clips**	**Woodmouse leaves box to rear, goes on top of box, climbs down onto front wire, then goes to back of ledge**

Date: 27/10/2008

Location: Merrow Woods

Number of recorded mouse files: 2 dormouse, 6 woodmouse

Time of recording **GMT 24hr**	**Mouse activity**
00:17(20)- 00:17(56) **2 clips**	**Dormouse jumps onto front wire and down again, then back on front wire, round back of tree and to top of box**
05:30(34) – 05:31(25) **3 clips**	**Woodmouse enters box from rear, leaves box to rear and jumps on top of box. Woodmouse comes to front and goes down tree**
20:52(00) – 20:52(20) **2 clips**	**Woodmouse enters box from rear, then leaves box to rear and down tree**
21:21(35)	**Woodmouse by front wire, goes down tree**

Date: 28/10/2008

Location: Merrow Woods

Number of recorded mouse files: 1 dormouse, 10 woodmouse

Time of recording **GMT 24hr**	**Mouse activity**
00:13(36)	**Woodmouse at rear, jumps on top of box and comes to front**
01:06(22)	**Dormouse at rear, examines box, goes round back of tree to front wire and down**
01:58(58)	**Woodmouse enters box from rear**
02:13(01)	**Woodmouse tail showing on right hand side of box tree**
02:39(15)	**Woodmouse leaves box to rear and goes on top of box**
20:54(03)	**Woodmouse goes into box**
21:03(38)	**Woodmouse pokes head out of box**
21:44(17)	**Woodmouse comes out of box and goes down tree**

21:48(44)	**Woodmouse come back to the box**
21:49(01)	**Woodmouse goes into the box**
21:52(38)	**Woodmouse comes out, looks at camera and goes up tree**

Date: 29 /10/2008

Location: Merrow Woods

Number of recorded mouse files: 5 woodmouse

Time of recording **GMT 24hr**	**Mouse activity**
02:34(10)	**Woodmouse leaves box**
2:52(41)	**Woodmouse goes into box**
02:55(18)	**Woodmouse comes out, sits on wire and heads off into wood**
19.27(36)	**Woodmouse leaves box**
22:14(32)	**Woodmouse comes out of box, sits on wire looking at camera**