TRACKING Mammals PARTNERSHIP

Steering Group meeting

10th June 2008

Partners updates

This paper is a collation of updates sent by the different partners. The names are those of the delegates that will attend the meeting.

1. **Bat Conservation Trust** (Amy Coyte, Karen Haysom, Philip Briggs)

1.1 *Trends from core surveys*

Four species currently show increasing trends (greater horseshoe, lesser horseshoe, Natterer's bat and common pipistrelle), five species show stable trends (whiskered/Brandt's, Daubenton's bat, soprano pipistrelle and brown long-eared bat) and two species show unclear trends (noctule and serotine). For the remaining six UK species we have insufficient data at present to enable trend analysis.

1.2 *Bechstein's project*

We are now into the second year of this project which for the first time will establish baseline distribution data across the entire range of this elusive species in England and Wales. In 2008, bat groups took part in Cornwall, Oxfordshire, Surrey and South Wales. In 2009, the surveys are being repeated in Cornwall, Oxfordshire and Surrey (due to poor weather in 2008); new surveys are being carried out in Devon, Dorset and Kent; and woodlands are being identified in Somerset and Gwent for surveying in 2010.

1.3 *Bats as indicators*

In May 2008 bats were established as indicator species in the UK biodiversity indicators. The bat indicator was based on a composite trend of six widespread bat species, based on summer field surveys, colony counts and winter hibernation counts from the National Bat Monitoring Programme. In 2009 the indicator was revised using 2008 data for publication in April/May.

In 2008 BCT completed the final report for the EEA European indicator project "Streamlining European 2010 Biodiversity Indicators (SEBI 2010): Developing a methodology for using bats as indicator species; and testing the usability of GBIF data for use in 2010 biodiversity indicators". This contract involved gathering information on bat surveillance programmes operating in countries across Europe, assessing the suitability of the data they provide for inclusion in an indicator and proposing a methodology. The report has received positive feedback from the EEA contract manager and the informal network of advisors to the project. It is hoped that the links built during this contract will have benefits not only for the potential production of a European indicator in the future, but also for the NBMP because presently there are few direct links between the programme and its European counterparts.

1.4 *Welsh Agri-Environment Scheme monitoring project*

A consortium bid led by RSPB (partners RSPB, BCT, Butterfly Conservation, Plantlife, Wildlife Trusts Wales) for the species monitoring lot of a multidisciplinary programme which covers all the principle Welsh agri-environment schemes, species monitoring, various environmental measures such as water quality, and ecosystem function was awarded in late 2008. This partnership previously worked together on a desk-study of Tir Gofal earlier in the year.

The lot 2 bid includes a large bat survey component for 3 or 4 years. Five new BCT staff posts have been created in Wales (a senior researcher / project manager employed for 3 years and four seasonal field assistants each year). The project will also enhance the ability of the NBMP to provide Wales trends for

several species for which sample size is below that required for country level reporting and contribute to BCT's delivery for BAP species, through improving the understanding of how Welsh AES schemes perform.

1.5 *BICCO-NET: the biodiversity impacts of climate change observation network*

This project aims to develop a cost-effective process for collating, analysing and providing rapid web-based feedback of evidence of climate induced trends in the abundance and distribution of native and non-native species, and in the extent and condition of semi-natural habitats. The project partners for this 36 month project are BTO (project lead), CEH, University of Durham, BCT, Rothamsted, Forest Research and Plantlife.

The project is focused on data collation and advice provision drawing on core survey data held by participants (Common plant survey, intensive forest monitoring, Rothamsted aerial invertebrate survey, Butterfly monitoring scheme, Breeding Bird Survey/Common Bird Census, Wetland Bird Survey and National Bat Monitoring Programme). The project will deliver a website, collation of key climate change monitoring datasets, identification of monitoring gaps, alert systems for climate change sensitive species, and policy recommendations.

1.6 *Aquatic Conservation paper*

A paper entitled "Daubenton's bat distribution along rivers – developing and testing a predictive model" has been accepted for publication in Aquatic Conservation. This is based on analysis of NBMP Waterway Survey data alongside EA River Habitat Survey data which looked at correlations between Daubenton's bat activity and river habitat characteristics.

2. **Countryside Council for Wales** (Liz Halliwell)
   - Continue to co-ordinate the lesser horseshoe bat monitoring programme for Wales and contributing to greater horseshoe bat colony count programme in Wales.
   - Automated bat counters project aims to develop a counting system that can be rolled at a wider range of horseshoe bat roosts.
   - Water voles key sites monitoring programme continuing in Wales and new project has been looking to extend to regional key sites.
   - Contributing towards project by Dan Forman (Swansea University) to develop a novel infrared monitoring system for otters.
   - Contributing towards Otter Survey of Wales being undertaken this year.
   - SSSI and SAC monitoring being undertaken for LHB, GHB, barbastelle bat, mixed assemblages, otter and water voles.

3. **The Deer Initiative** (Timothy Hopwell)

3.1 *New appointments*
   - Tim Hopwell – Evidence Manager (TMP Representative)
   - Greg Jones – Central Region Deer Liaison Officer (Replaces David Jam)
   - Alastair Boston – Northern Region Deer Liaison Officer (Cumbria, North Lancs)
   - Ed Dyson – Policy Manager

3.2 *Projects*
   - Continuation of the Deer vehicle collisions project. Increased GIS analysis to include, risk by county / district, identification of hotspots and the relationship to traffic flow and road density. Investigation into the suitability of the data for use in analysis of presence and absence by species. The database is now reaching around 50,000 records.
   - Continuation of Thermal Imaging surveys. Routes and sightings are now recorded using GPS and collated into a central database. Some sites are continuing to be recorded year on year to produce trends.
   - Investigation has taken place into the suitability of Distance sampling for population density estimates.

- Development of a Woodland Deer Impact training course based on the methodology developed by Dr Arnold Cooke. The DI continues to carry out Impact assessments on SSSI and other sites and these are now starting to be collated into a spatial database.
- Development of a mapping project to look at the presence and absence of deer species at different scales, their connectivity and links to Impacts. Collation of base dataset for use in this project. Investigation of its potential for density mapping and other GIS based projects.
- Collation of other Deer Initiative interests and activities into GIS datasets where appropriate. This included Deer management groups, management infrastructure and management agreements.
- The DI continues to produce and develop best practice guides covering a wide range of subjects related to the management of wild deer.

4. **Defra Biodiversity Evidence Programme** (Mark Stevenson)

4.1 *Recent activities*

The following research projects have been let and are either complete or underway. Further details (including final reports) are available by typing the project code into the search facility on the Defra science website http://randd.defra.gov.uk/)

- WC0742. Wind turbines: Determining the risk to bat populations – Phase 1
- WM0315. Determining the extent and 'humaneness' of the use of snares in England and Wales
- WM0316. Exclusions for resolving urban badger damage problems: development of a refined decision support tool
- WM0318. Developing approaches to evaluate and mitigate the environmental impact of wild boar
- WM0408. Towards practical application of emerging fertility control technologies for wildlife management
- WC0708. Ongoing support for the development of the National Biodiversity Network
- WM0319. Sustainable management of deer: establishment of density thresholds and identification of suitable methods of control for urban areas.
- WM0405. Devising a modelling tool for invasive species in real landscapes

The UK Biodiversity Indicators were updated in 2008. They are published on the JNCC website www.jncc.gov.uk/biyp. Mammal data are used in indicators 1c (on populations of bats), 3 (on UK priority species) and 11 (on invasive species).

4.2 *Planned activities*

The following research projects are planned or are in the process of being let:

- Determining the risks to bats from wind turbines. Phase 2. Competition in progress.
- Understanding the extent and nature of conflicts between European Protected Species on mammal, and assessing the effectiveness of mitigation measures.

The projects listed above fall within the Biodiversity Evidence Programme. There are also a range of evidence activities within Defra Animal Health Programme. Most of these activities are focussed on understanding risks to human and animal health (e.g. the emerging risk of tick-borne zoonoses under the influence of changing climate and deer populations in the UK - SE4105).

5. **Environment Agency** (Jo-Anne Pitt)

5.1 *Otter surveillance programme*

We have a 5 year collaborative project established with Cardiff University (led by Dr Liz Chadwick) to continue the investigation of otter deaths in England and Wales through detailed post mortem examination of any carcasses collected, and analysis of liver tissues for PCBs and organo-chlorine pesticides (the chemical analysis is undertaken by the EA's National Laboratory Service). We are currently receiving in the region of 160 carcasses each year from across England and Wales. Results from earlier phases of this work have been published as EA Science reports and are available online.

5.2 *Otter Survey of England and Wales*

The national otter survey is being repeated this year (2009) across England and Wales. We are managing this project in-house, but the majority of surveys are being undertaken by experienced contractors.

6. **Food and Environment Research Agency** (Dave Cowan)
   - CSL is no longer and we are now the Food and Environment Research Agency (Fera).
   - Last year we published the interim EHCS report for 2003-04 online in July 2008 but it is currently not available for m the Defra website.

7. **The Mammal Society** (Marina Pacheco, Phoebe Carter, Simon Poulton)

7.1 *Harvest mouse distribution and status in UK and the role of citizen science – Phase I*
   - Collaboration between TMS and WildCRU with laboratory analysis by Waterford Institute of Technology (WIT).
   - Funded by PTES and NE.
   - Phase I of a three-phase project, proposed to run for eight years.
   - Workshop for stakeholders held in Spring 2008 from which a stakeholder database was constructed.
   - TMS undertook a volunteer-based pilot of three methods on 25 transects distributed around England and Wales. Three methods were compared; a) harvest mouse nest searches, b) live trapping and c) bait-tubes to collect faeces for DNA identification. Two transect lengths (100m and 200m) were compared.
   - WildCRU undertook a "single-researcher" pilot in three counties on 24 transects. Two methods were compared; a) nest searches and b) live-trapping. All transects were 200m in length allowing two additional factors (on-ground v above-ground trap placement and field margin v roadside location) to be tested.
   - Results are currently being analysed.

7.2 *Pilot for Standardised Hedgehog Survey Method*
   - Standard field method (devised by Dr Nigel Reeve) for a national volunteer-based survey.
   - Based around five monthly visits (May to September) to a 1km² square.
   - Within each square an approximate 1km transect, divided into ten 100m sections) is walked for approximately one hour after dusk. During the walk in each section, any sounds of hedgehog activity are confirmed with a spotlight. At the end of each section the volunteer pauses for four minutes to listen for and confirm any other hedgehog activity.
   - Other crepuscular species are recorded.
   - Currently, 70 volunteers have expressed an interest although May results are only just being returned.

7.3 *National Small Mammal Monitoring Scheme (proposed project)*
   - Planned for launch in September 2009, this will be a volunteer-based scheme covering the whole of UK and ROI.
   - Volunteers to be allocated tetrads (or 1km² squares) through TMS's network of Regional Organisers. Within each tetrad, volunteers will use a variety of methods, all based on 100m transects with ten sections to standardise the data collected. Methods will include field-sign searches, bait-tubes (and possibly hair-tubes) and live trapping.
   - The first field season is expected to run from October to December and will be launched with harvest mouse as the flagship species.

8. **National Biodiversity Network Trust** (Trevor James)

8.1 The NBN Gateway is currently being updated about every month. At the last update (28th May 2009) it held just under 40 million records. 101 datasets contain at least some mammal data, although some of these are incidental records in datasets focused on other groups. Many local records centres have recently been uploading mammal data, as a result of funding from Natural England etc.

8.2 Active development work is being undertaken of an on-line recording toolkit for use by third parties, developed as a contribution to the OPAL Project, led by Imperial College.

8.3 Development of the Gateway is also under way to enable the Gateway to handle 'habitat data' – data related to boundary polygons – also being funded under the OPAL Project.

8.4 A key concern at present is the quality of some data on the Gateway, and ways to improve this. Improvements to the way that the Gateway handles data are planned to assist this. The NBN Trust is also developing an automated tool (the NBN Validator) that will help organisations check their data before submission. Use of the Gateway as a tool to get datasets checked before final upload (using Validation level of access for named people) may be promoted.

8.5 Related to the quality of data is the issue of the flow of data from field recorders to the Gateway and on to users. The NBN Trust is working with others to consider recommended best practice over the flow of data – preferred routes, capacity to handle information, verification procedures etc. There is no one complete answer to this.

9. **People's Trust for Endangered Species** (Jill Nelson, David Wembridge)

9.1 *Living with Mammals*

'Living with Mammals' has run annually since 2003, producing distribution data and effort-based indices of mammal abundance. An analysis of the first five years' data (2003-2007) looked at overall species abundance with respect to habitat variables describing the type of site, its geographic location and surrounding habitat, as well as observation time. Differences between different types of sites are highly significant, with gardens and wasteland scoring highly (figure 1). Site features such as the presence of fruits/berries and structures such as ponds, woodpiles and bird-, bat- or hedgehog boxes also had a significant positive effect on species abundance. (Mean score is a function of both species number and the number of individuals recorded.)

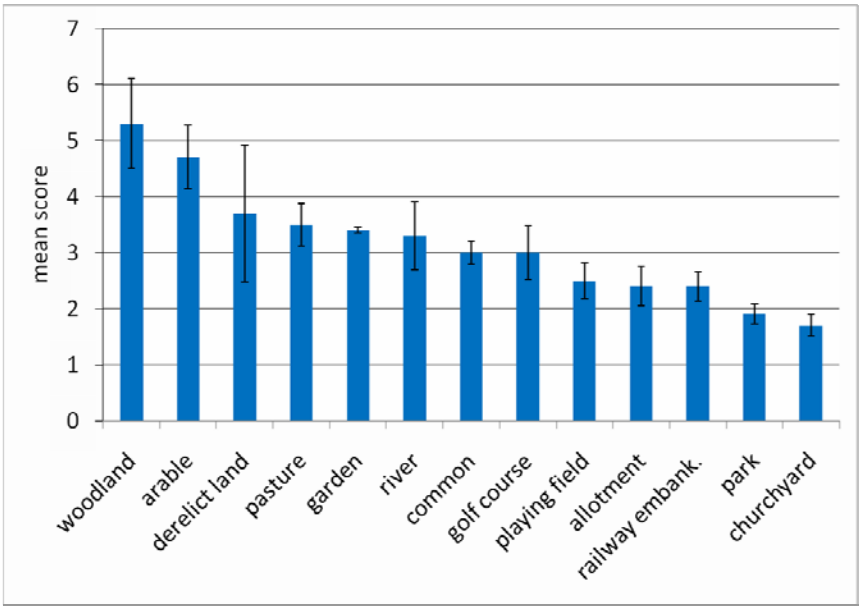


Figure 1 – Species abundance at different types of site (in total about 1900 separate sites with gardens making up about 80 percent).

Trend analyses of species data haven't been carried yet; indications for hedgehog (figure 2, red squares) and bat species (blue diamonds) are shown below.

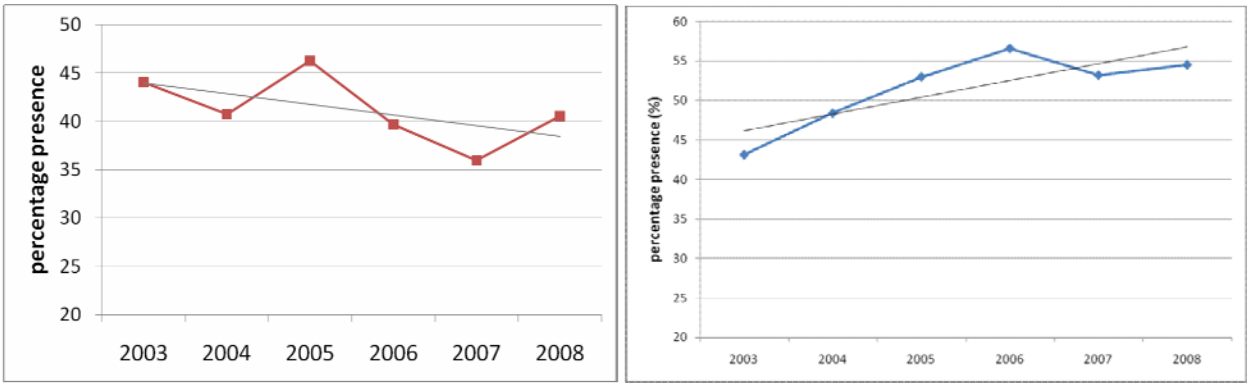


Figure 2 – proportion of sites recording hedgehog (left) and bats (right), from sightings and/or signs.

9.2 *Mammals on Roads*

This is very much 'stop press' – a preliminary analysis of the most recent data (up to 2008) has been carried out. Mean counts per 100km in England of hedgehog (red squares) and badger (blue diamonds) are shown below:

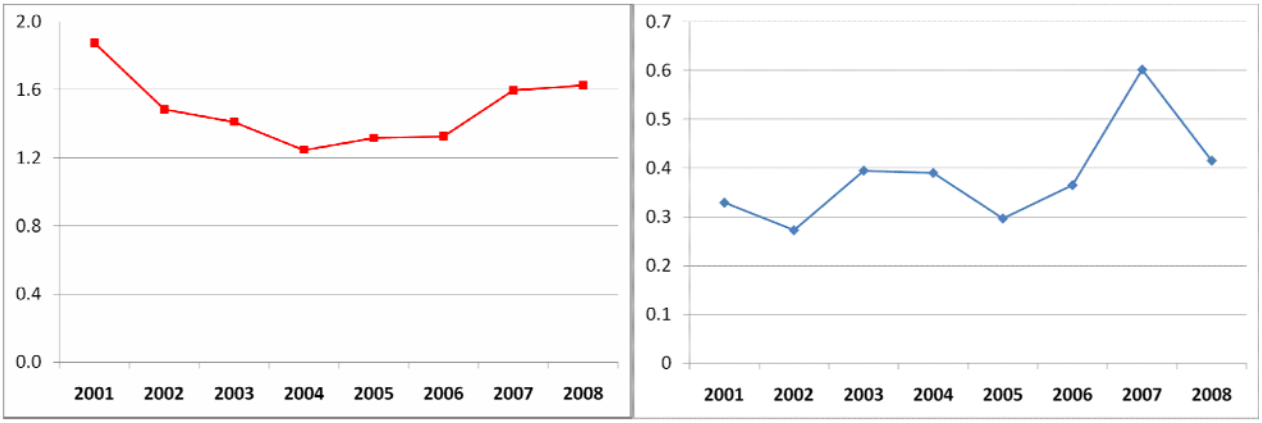
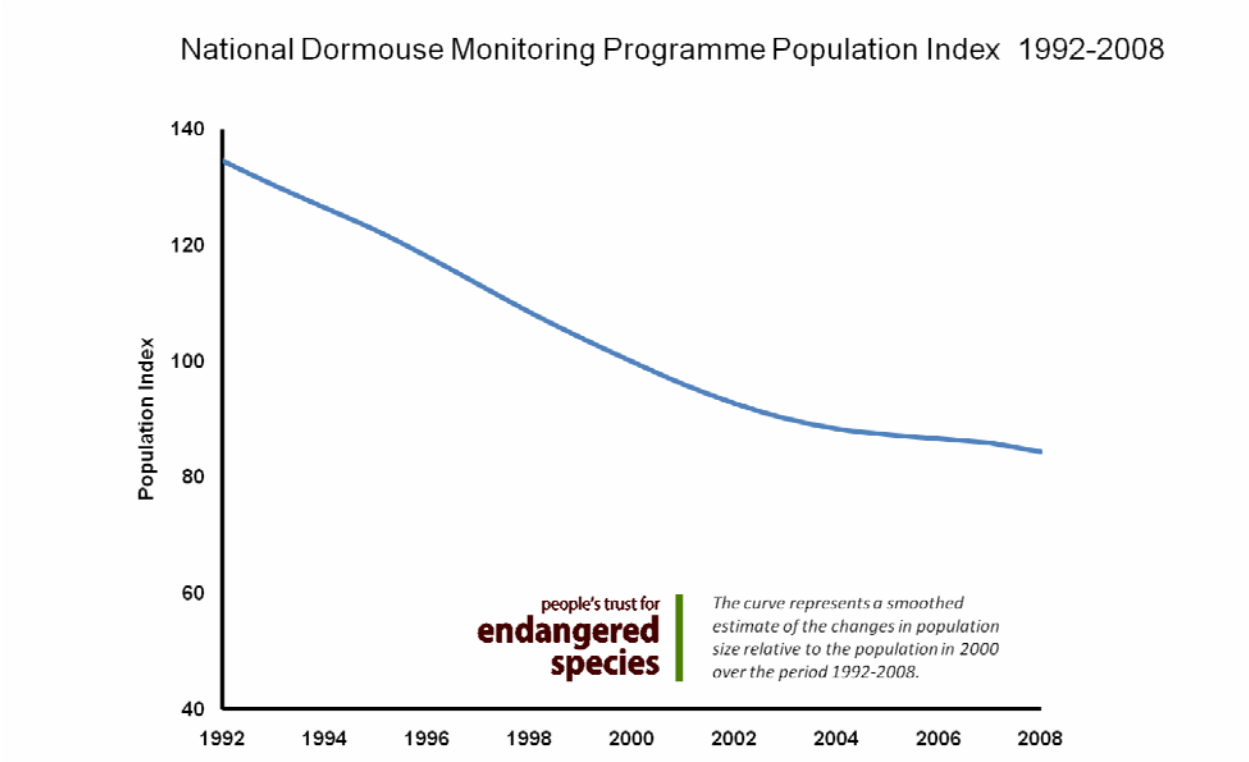


Figure 3 – counts /100km in England of hedgehog (left) and badger (right)

9.3 *National Dormouse Monitoring Project Data Analysis 2009*

An analysis of data up to 2008 shows that although dormice are still threatened, the decline appears less marked in recent years.



Overall the index shows a decline in dormouse numbers of 39% between 1992 (the first year with sufficient records for analysis) and 2008. However, whilst the decline between1992-2002 was 31%, between 2002 and 2008 it was 9%, indicating a less drastic decline over the last six years.

10. **Scottish Natural Heritage** (Rob Raynor)

10.1 *Mountain hares*

An SNH-led programme of research is underway to develop a cost effective method of assessing mountain hare abundance using pellet counts that can be undertaken by non-specialists. This study is being taken forward through a partnership comprising the Macaulay Landuse Research Institute, G&WCT and SNH.

SNH Commissioned Report 287*: The conservation status and management of mountain hares* identified a series of research priorities relating to this species, of which this study is the second to be taken forward, see http://www.snh.org.uk/pdfs/publications/commissioned_reports/287.pdf

The approach being trialled involves the use of dung clearance plots to derive density by calibrating dung accumulation rates with capture-recapture density estimates. This method has been evaluated and is widely used to assess snowshoe hare *Lepus americanus* abundance in North America. There is evidence *(*Newey *et al.* 2003*)* that dung standing crop counts are strongly associated with mountain hare capture-recapture density estimates on heather moorland in Scotland. The present study began last winter and further fieldwork will be undertaken over the forthcoming autumn and winter. The final report is due in 2010.

This study follows the questionnaire-based distribution survey undertaken by the same organisations in 2007, involving gamekeepers/land managers. See SNH Commissioned Report 278: *The distribution of Mountain Hare (Lepus timidus) in Scotland (2006/07)* for the full report, see: http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%20No278.pdf

10.2 *Otters*

The last national otter survey of Scotland was commissioned by SNH and undertaken in 2003/04. See http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%20No211.pdf

This survey included both otter SAC's and wider countryside sites (previously used VWT survey sites). The next survey is scheduled for 2011 and will cover the 44 SAC's only. However, as these designated sites include the entire catchments of the rivers Spey, Dee, Tay and Tweed, plus several other extensive SAC's, the survey will still provide good coverage of a large proportion of Scotland.

10.3 *American mink*

This project is to detect mink for purely management purposes and not to provide population/trend information. SNH in partnership with the Scottish Wildlife Trust, four local fisheries trusts in the NW Highlands, WildCRU, Aberdeen University and Forestry Commission Scotland have recently started work on establishing a coast to coast mink monitoring (and control) zone across the NW Highlands from the Dornoch Firth to Loch Broom. This 'cordon sanitaire' relies on a network of mink rafts which will be operated by a combination of fisheries staff, gamekeepers, volunteers and a Project Officer. It follows a survey of mink in the north of Scotland undertaken by WildCRU in 2008 and a subsequent report providing recommendations for management. The area encompassed by this cordon sanitaire, plus the rest of mainland Scotland to the north of it, is currently considered to be free of mink and is believed to be the only area left on mainland Britain that has yet to be colonised by the species. The intention is to maintain this zone of monitoring indefinitely and implement systematic control to the south of it.

11. **Welsh Assembly Government** (Nigel Sharp)

WAG is not one of the major players in the TMP in terms of carrying out monitoring or collation of work produced by armies of volunteers.

WAG is funding three years of monitoring work for the agrienvironment scheme Tir Gofal to start in 2009. This monitoring will take place on a sample of agreement and non-agreement sites within target areas and will include the following mammals:

- Bats: greater horseshoe, Daubentons, lesser horseshoe, noctule and pipistrelle.
- Water vole
- Brown hare.

WAG continues to provide funding under its Environment Research Programme for the UK Cetacean Strandings Investigation Programme which is co-ordinated by the Zoological Society of London. The current funding has been kept at previous levels and will be re-negotiated in 2010. A total of 207 animals were reported for the Welsh coast: 1 bottlenose dolphin, 13 common dolphin, 1 common/striped dolphin, 78

harbour porpoise, 1 long-finned pilot whale, 33 unidentified cetaceans and 80 grey seals. The 2008 annual report is available on www.strandings.com.

12. **The Wildlife Trusts** (Simone Bullion)

12.1 *Hazel dormouse*

Sussex Dormouse Recorders Network has been recently established to target additional sites for new NDMPs (based on a nut hunt). They hope to double the amount of NDMP sites in Sussex from 9 sites to 18 sites during the next few years.

Suffolk Wildlife Trust: three year Countdown 2010 project 'Reconnecting Suffolk's Farmland' with dormouse as one of the target species. The project takes a landscape scale approach to the problem of habitat fragmentation by seeking opportunities to establish networks needed for declining farmland species to disperse and recolonise. In winter 08/09 800m of new hedgerow was planted (4 new hedges, 3 gapped up) between known dormouse sites and two new NDMSs were added to the 5 original sites. Landowners are being given management advice and support to help with forthcoming HLS applications.

Somerset Wildlife Trust: Carrying out dormouse surveys using nest tubes as part of their Mendip Hills Living Landscapes Project 2008/09

12.2 *Mid-Wales squirrel project*

The project is run by the Mid-Wales Red Squirrel Partnership which consists of members from the following organisations and interested individuals: Forestry Commission Wales, Brecknock Wildlife Trust, Wildlife Trust of South & West Wales, Carmarthenshire County Council, Ceredigion County Council, Powys County Council, Countryside Council for Wales, Select For (Private Forestry Managers). Two Wildlife Trusts are involved, and Brecknock Wildlife Trust host the project finances.

The long-term aim of the partnership is to safeguard the mid-Wales red squirrels, the most genetically diverse, and possibly the largest population in Wales. Most of the work to date has focused on live trapping to try and find out more about the red squirrel population, its numbers, distribution and use of the forest- whilst simultaneously working with forest owners and managers to try and secure more favourable forest management and raising awareness.

12.3 *Tir Gofal Monitoring Project – Brown hare and water vole*

The Tir Gofal Monitoring Project is a large project under contract from the Welsh Assembly Government (WAG), with the aim of looking at the ability of its flagship agri-environment scheme, Tir Gofal, to deliver benefit for a number of priority species.

The project began with a desktop study to look at the theoretical potential of the scheme to deliver benefit. This was undertaken by a consortium, led by the RSPB and also involving Wildlife Trusts Wales, Bat Conservation Trust, Butterfly Conservation and Plantlife. Wildlife Trusts Wales looked at terrestrial mammals, specifically Brown Hare and Water Vole. The report was published in 2008: the consortium is now leading a 3 year study to compare Tir Gofal and control farms across Wales to assess how the scheme is impacting priority species across Wales. Again, Wildlife Trusts Wales are monitoring terrestrial mammals. They have a full-time field ecologist, Vaughn Matthews, in post (since April 2009). He will be looking at water vole and brown hare monitoring on farms across Wales for the next 3 years.

12.4 *Brown Hare*

Lancashire Wildlife Trust: Brown hare survey which covers Lancashire, Greater Manchester and North Merseyside. This undertakes training events for volunteer surveyors and the submission of records to LWT on record cards, more detailed site surveys, or via the website. These are collated periodically into reports on Brown Hare populations though coverage is not systematic, the last report being 05/06.

12.5 *Water vole*

The Northwest Lowlands Water Vole Project is the culmination of 4 years work at a regional level under the guidance of the Water for Wildlife Programme. It is a partnership project involving The Wildlife Trust for Lancashire, Manchester and North Merseyside; The Cheshire Wildlife Trust; EA; Greater Manchester Ecology Unit; FWAG; United Utilities; and the four Biodiversity Groups for Lancashire, Greater Manchester, Merseyside and Cheshire. The Project aims to gather evidence by surveying to allow the northwest to be recognised as an area of national importance for water vole conservation. It also aims to ensure that current water vole populations within the Project area are enhanced by targeted habitat improvement works. The Project is funded by SITA Trust; Esmée Fairbairn Foundation; Greater Manchester Ecology Unit; United Utilities; EA; Restore UK; Chester Zoo; Halton, Macclesfield and Vale Royal Borough Councils; and Opticron.

Suffolk Mink Control Project, coordinated by Suffolk Wildlife Trust, has been running since 2002 and there are now a total of 385 landowners with mink traps and rafts throughout Suffolk's river catchments. A total of 1734 mink are known to have been trapped so far with 371 trapped in 2008. To illustrate the success of the project, water vole surveys of the River Deben shows how populations have recovered from 40% occupancy in 2003 to 80% occupancy in 2006 (last recorded at this level in 1997).

The Berks, Bucks and Oxon Wildlife Trust: The Water Vole Recovery Project focuses its activities including, surveying and monitoring of water voles, development and co-ordination of mink control and the provision of habitat management and enhancement advice within local key areas. The Project also uses these areas to produce alert maps which are provided to Local Authorities so that planners can identify the location of water voles vulnerable to development pressures.

12.6 *Otter*

Otter surveys being carried out by a number of Trusts, including Sussex and Suffolk.

12.7 Harvest mouse

Suffolk Wildlife Trust harvest mouse project is funded by PTES. Building on the success of the Suffolk Barn Owl Project, with 800 boxes erected across the county occupied by 200 nesting pairs, we are using barn owls to detect the presence of harvest mice. Owl pellets are being collected from the nest boxes by the licensed monitors and these are analysed to see if harvest mice have been eaten (along with other species of mammal). When they appear in a pellet, field surveys in that locality are undertaken to see if we can find harvest mice nests. Landowners also receive specific habitat management advice. To date, harvest mice in pellets have been reported in 8 out of 23 locations. Over 60 volunteers have been trained in pellet analysis.