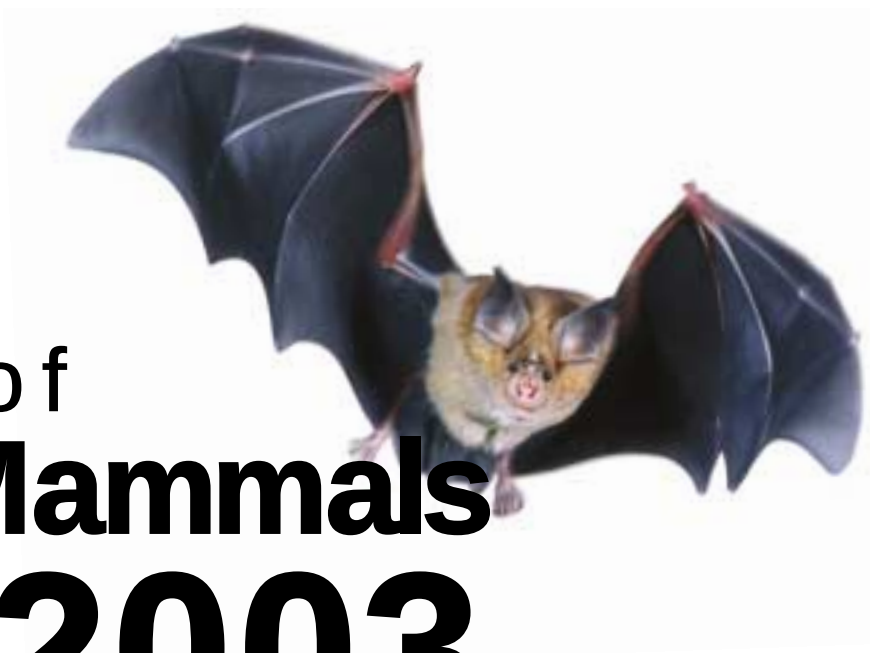

The State of Britain's Mammals 2003

The Second of the Annual Updates following the publication of *'Britain's Mammals: The Challenge for Conservation'* in 2001

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WILDCRU
WILDLIFE CONSERVATION RESEARCH UNIT

Mammals Trust UK

Summary

1 Of the 15 mammal Species Action Plans (SAPs) only six, during the 2002 reporting round, were reported as either achieving targets or being on schedule (and for all but one of these species, other targets in the plan were 1) behind schedule; 2) no progress had been made; or 3) progress could not be assessed). For almost half (seven) of the plans there was still insufficient knowledge of the species and its population trends; lack of funding was considered to be a major constraint to achieving targets in eight of the 15 plans.

2 Some SAPs are costing considerably more than anticipated, others are not implementing actions although funds appear to be available; the otter SAP has cost over £1.5M.

3 Progress towards SAP actions is variable between species. In this update we chose to focus on one that is looking like a success story: the dormouse, and two others (the harbour porpoise and the greater horseshoe bat) for which successful conservation is more problematic and largely dependent on policy changes.

- Dormouse: Considerable effort has gone into the dormouse SAP (all 18 actions have been enacted and are ongoing). There is a systematic national monitoring scheme in place and reintroductions, at least so far, appear to be successful.
- Harbour porpoise: Fifteen of the 17 actions in the porpoise SAP have been enacted. However, even of those that have been enacted significant policy change remains to be seen. Special Areas of Conservation (SACs) have been proposed but not yet endorsed. Similarly, while the EC is making sweeping proposals for reforms to the Common Fisheries Policy (CFP), we do not known whether these will be accepted and implemented.
- Greater horseshoe bat: Eight of the ten greater horseshoe bat actions have been enacted and considerable progress has been made. A network of SACs has been proposed, and uptake of the Countryside Stewardship Scheme by a number of farms goes some way to addressing the gap in protective legislation, which leaves foraging habitat and landscape corridors unprotected.

4 The Tracking Mammals Partnership has been set up, launch date May 2003. Over 20 organisations are involved. The aim is to provide a co-ordinated approach to systematic monitoring of all British mammals. It is hoped that data on species population trends and distribution changes will eventually be able to be linked with data on habitat change, climate etc.

5 Surveys in the Tracking Mammals Partnership include, amongst others, the National Bat Monitoring Programme, Mammals on Roads, Living with Mammals, Garden Mammal surveys, the Breeding Bird Survey for Mammals and the Great British Deer Survey.

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Cornwall Wildlife Trust has trained volunteers to carry out a countywide survey of water shrews.

6 Volunteers are extremely important for large-scale monitoring projects and can make significant time-savings to some tasks at a more local level.

7 Government is currently reviewing agri-environment schemes in England, along with several other schemes and policies that could have significant impacts on mammal conservation. A two-year pilot 'Broad and Shallow' agri-environment scheme requiring farmers to undertake simple environmental management activities is due to be launched in 2005-6.

8 The Hunting Bill, having received an overwhelming majority in the House of Commons, is currently at the Committee Stage. If the bill is passed, hare coursing and hunting deer with dogs will be banned, and hunting foxes with dogs will be strictly regulated.

9 So far, almost 4,000 seals have been reported dead around the UK coast in the latest phocine distemper virus epidemic. The good news for seals is that new legislation that came into force in September 2002 prohibits killing or injuring seals anywhere in Scotland or in Scottish waters.

10 Restoration is increasingly accepted as an essential part of conservation. Local reintroductions of water voles carried out over the last two or three years are showing signs of success; more are planned for the coming year. A proposed reintroduction of pine martens to England, however, is on hold and is the subject of considerable debate.

11 Reintroduction of beavers to Scotland is also a controversial subject and, while experimental studies are ongoing in England, the reintroduction project in Scotland is still awaiting a decision by Ministers.

12 Two years after its launch, Mammals Trust UK has made considerable progress in interesting and involving the wider community in its work; mammal monitoring surveys have been continued and expanded, a second successful conference held, proceedings of the first conference published and a website set up. MTUK has raised significant funding for research, some conducted by members of the advisory group, and some by people from the wider mammal community.

Preface

FOLLOWING THE publication, in spring 2001 of our report, *Britain's Mammals: The Challenge for Conservation*, Mammals Trust UK invited us in 2002 to write an update of the main developments of the ensuing year. Now, a year later, they have repeated that invitation and this publication represents the second such annual update on *The State of Britain's Mammals*. While it would be premature to say that two publications constitute a series, as an embryo-series these snapshots of progress already reveal exciting times in the conservation of British mammals.

Although Britain's mammals have always been blessed by the attentions of a dedicated group of enthusiasts, both professional and amateur, the fruits of the efforts of these stalwarts simply could not compete with the torrent of information that has for decades become available annually on birds. Indeed, we were inspired to undertake these annual updates by the quality of the BTO and RSPB's reports on '*The State of the Nation's Birds*'. Historically, this difference in knowledge of birds and mammals has been explicable by several good reasons, and some bad ones too! The good reasons include the fact that mammals are more difficult than birds – many of them are nocturnal, shy, cryptic, hidden either deep in vegetation and burrows, or high in the night sky or beneath the water. Happily, with more and more enthusiasts being trained in the necessary fieldcraft, and with the advent of ever more ingenious technological gadgetry – from bat-detectors to molecular techniques – mammalian private lives are becoming more accessible.

As we expounded at length in our original report, there are also unnecessary and regrettable reasons why too little is known about Britain's mammals, and particularly about trends in their numbers and distribution. Foremost amongst these sources of regret has been the absence of a statistically robust national scheme for monitoring mammal numbers. While there is still a long way to go, this year has seen real progress towards remedying that deficit, with advances in the Tracking Mammals Partnership, and this is very much due to the tireless efforts of Jessa Battersby and Ian McLean of the JNCC (as reported on page 8). It may still be some years off (although as linked endeavours, bat-watchers are well ahead, and whale watchers busily at work), but our hope is that one day the pages of future annual reports such as this will be replete with graphs showing annual trends in the populations of many wild mammal species – keeping the nation's finger firmly on the pulse of their numbers whether they be thriving or declining, and whether asset or pest.

Wild mammals in Britain are fascinating, and the emerging story of their adaptations is thrilling in its intricacy. Their relationships with people are diverse and complicated, and this guarantees that their management and conservation will remain a testing challenge. Nonetheless, if this annual update serves no other purpose it certainly demonstrates colourfully a selection of the exciting issues that have been topical in the last 12 months. As before, from the smorgasbord of British mammals, we have chosen to savour in detail progress with just three. Last year we focused on water voles, red squirrels and small dolphins; this year the choice is dormice, the greater horseshoe bat and the harbour porpoise – earth, wind and water as it were. The fourth element, fire, is, perhaps, provided by two contentious issues in current British mammal conservation and management – restoration and hunting with dogs, respectively. Alongside these, we have chosen to delve into other recurrent issues such as farming and wildlife, mammal monitoring, progress with the BAP process, and invasive species. In this short précis we have no aspirations to completeness – the choice of material has been dictated by what struck us as interesting.

Similarly, and as in our original report, the invitation we received from Mammals Trust UK was to present our views, not theirs, and so the perspective presented here is a personal one, although greatly enriched by advice from many specialists who have helped us unstintingly. We hope that readers finding their appetite whetted by this year's update will follow up some issues in the full report, which remains available as *Britain's Mammals: The Challenge for Conservation* from www.wildcru.org and www.mtuk.org. While preparing this update we re-read the 2001 report, and concluded, sometimes with pleasure and sometimes with regret, that three years after it was compiled much of it still applies. Nonetheless, this year has seen Mammals Trust UK mature as a substantial and useful force (see page 18) within the family of mammal conservation organisations, and we both congratulate them and thank them for the invitation to publish this update.

David Macdonald and Fran Tattersall

Acknowledgements

WHILE WE take full responsibility for any errors that survive in this document, we are grateful that the efforts of many colleagues have made them fewer than they might have been! In particular, we have benefited greatly from the advice of Jessa Battersby (JNCC), Johnny Birks (VWT), Paul Bright (RHNC), Roo Campbell (WildCRU), Colin Catto (BCT), Laurent Duverge (VWT), James Diamond (EN), Rob Deaville (IoZ), Peter Evans (Sea Watch), Paul Jepson (IoZ), Paul Johnson (WildCRU), Martin Longley (EN), Ant Maddock (JNCC), David Manley (ISAH), Will Manley (RAC), Tony Mitchell-Jones (EN), Chris Newman (WildCRU), Hugh Rose (BDS), Stephen Rossiter (QM), Gilly Sargent (BCT), Rob Strachan (WildCRU), Roger Trout (FC), Duncan Williams (DEFRA) and Richard Young (CSL). We also warmly acknowledge the support and tolerance of Valerie Keeble and her staff, including Sophie Stafford, who designed this report. This year, through the happy intervention of Fran's daughter, Isabella, who chose to be born during the gestation of this report, we had to rely heavily on the input of Lauren Harrington, for which we are very grateful.




Have the BAPs Progressed?

LAST YEAR we pointed out that some mammal Species Action Plan targets were formulated in ways that made it difficult to measure progress towards targets. One major difficulty was, and is, that there was insufficient information with which to assess progress. For example, despite improvements in technology and techniques, the UK's cetaceans remain poorly known, with little prospect of a significant improvement in our understanding of their conservation status in the near future. Bats are a similarly difficult species to monitor, but they are incorporated into the new Tracking Mammals Partnership (see page 8). Nevertheless, reviewing and reporting on progress is a key element in individual SAPs and the overall UK Biodiversity Action Plan, and is the responsibility of Lead Partners. Reporting takes place on a three-year cycle, and the second round took place in 2002, using an innovative on-line reporting system. A summary of the results for mammals is shown in the table below.

Can the red squirrel survive in the UK?

ASSESSING PROGRESS towards targets is one thing, but what about those species for which, having been assessed, it is clear targets are not being met? We highlighted two of these last year – the water vole and the red squirrel. Water vole captive breeding and reintroduction projects are continuing apace (see page 16) and, supported by mink eradication programmes and improved legal protection, this species has a fighting chance of recovery. However, attempts to secure a long-term future for the red squirrel in the UK are still facing seemingly insurmountable difficulties.

At the heart of the problem is that for the red squirrel to prosper it seems certain that grey squirrels must be removed, which at the present time would necessitate killing them – an extremely difficult, costly and highly controversial operation. Indeed, even the red squirrel SAP does not suggest attempting widespread eradication of greys, although actions include research into methods of control and prevention of expansion into areas occupied by reds. Reports of the presence of grey squirrels on the Isle of Wight (hitherto a red squirrel sanctuary) highlight just how vulnerable the red squirrel is, even on island sites that are currently grey-free. In those sites where it is decided to act against greys – and they need to be chosen thoughtfully – action will have to be intensive and prolonged. This is a thorny issue to grasp, but one which a revised SAP must surely face head on.

Without radical and widespread action to control grey squirrels, the red seems certain to disappear from the UK.

SAP progress

Summary results of the 2002 reporting round on SAP progress by Lead Partners. Full details are available from http://www.ukbap.org.uk/asp/2002_main.asp

Species	Trend
Baleen whales	Unknown
Toothed whales	Unknown
Small dolphins	Unknown
Harbour porpoise	Unknown
Brown hare	Stable
Otter	Increasing
Hazel dormouse	Declining
Red squirrel	Declining
Water vole	Declining
Greater horseshoe bat	Increasing
Lesser horseshoe bat	Increasing[c]
Pipistrelle bats	Stable
Barbastelle bat	Unknown
Bechstein`s bat	Unknown
Greater mouse-eared bat	Lost

[a] 1 = insufficient and no suitable research programme in place;
2 = insufficient but research currently underway;
3 = sufficient to make some impact but more research needed

How much are the SAPs costing?

A 2002 REPORT to DEFRA[1] compared predicted and actual costs of implementing 17 SAPs, including those for two mammals, the otter and the red squirrel. Taking inflation into account, actual costs over the five years from 1996/97 to 2000/01 were higher than anticipated for 10 of these, and lower for five; there was insufficient information to assess the costs of two.

Implementing the otter SAP has cost at least £1,639,557, more than double the expected £611,589; £1,150,000 of the actual costs resulted largely from monitoring and survey work undertaken by the Wildlife Trust's acclaimed Otters And Rivers Project, with considerable funding from landfill tax credits and water companies. The future of the otter looks bright, and the species is rapidly returning to many sites from which it had been lost for several decades, including many urban areas[2]. By comparison, implementing the red squirrel SAP was theoretically costed at £1,160,180, but thus far only £794,582 has been reported spent. Some of this discrepancy can be explained by missing records, but the report suggests that there has also been less expenditure on habitat creation and management than initially anticipated. Among the actions not yet implemented are the creation or maintenance of 2000 ha of conifer reserves in Wales, and, crucially, attempts to prevent expansion of grey squirrels into key areas occupied by reds. It seems likely that, even to maintain current populations of red squirrels, let alone enhance or reintroduce them (as the SAP aims to do), will require considerably more expenditure.

The successful otter SAP has cost at least £1,639,557 to date.

Status of knowledge[a]	Progress on targets	Main factor causing loss or decline[b]	Most significant constraints	Lead Partner
2	No data	Various inc. fisheries bycatch,collision with boats, human disturbance, pollution	Baseline survey needed/ Poor knowledge/Lack of understanding of threats	JNCC
2	No data	Various inc. fisheries bycatch,human disturbance, declining prey, pollution	Poor knowledge/Lack of understanding of threats	JNCC
2	No data	Fisheries bycatch	Policy/Monitoring required /Funding	JNCC
2	No data	Fisheries bycatch	Policy/Funding/Monitoring required	JNCC
3	T1 achieved, T2 no progress	Habitat loss	Policy/Agricultural schemes	Game Conservancy Trust & Mammal Society
3	T1 achieved, T2, T3 some progress	Road kills	Increasing habitat fragmentation/Legislation	Environment Agency & Wildlife Trusts
3	T1, T2 on schedule, T3 exceeded	Habitat loss	Funding	Wildlife Trusts & English Nature
3	T1, T2 behind schedule	Spread of grey squirrel	Funding/Habitat management/Public perception of grey squirrel control	UK Red Squirrel Group
3	T1, T2, T3 behind schedule	Predation by American mink	Funding/Policy	UK Water Vole Steering Group
3	T1 achieved, T2 ahead of schedule	Habitat loss	Habitat management	English Nature & Countryside Council for Wales
3	T1, T2 on schedule, T3 unknown	No data	Funding/Habitat management	Bat Conservation Trust
3	T1-T4 on schedule, T3 unknown	Habitat loss (loss of trees)	Funding/Lack of local authority involvement	Bat Conservation Trust
1	Unknown	Habitat loss (loss of trees)	Poor knowledge/Habitat management/No best practice guidelines	Bat Conservation Trust
2	Unknown	Habitat loss (loss of trees)	Funding/Poor knowledge/ Monitoring techniques	Bat Conservation Trust
1	No progress	N/A	No extant populations found/No recolonisation[d]	English Nature

[b] Only those factors ranked 1 (Highest threat) listed, for additional threats see website
[c] but decreasing in England
[d] but see page 16




BAP Species: Hazel Dormouse

OVER THE PAST 120 years, the elusive hazel dormouse has disappeared from at least half of its once widespread British range, especially in northern England. Even in the south of the country, where conditions are more favourable, dormice are no longer present at 70% of sites where they were known in the late 19th century. Their decline is linked primarily with the loss and fragmentation of woodland, and changes in management (such as the cessation of coppicing) of those that remain. Several aspects of the dormouse's life cycle are weather dependent (hibernation, for example), and climate change is a threat, especially for populations at the northern edge of their range[3]. The isolated nature of many populations makes them highly vulnerable to extinction.

The dormouse has been on English Nature's Species Recovery Programme since 1992. The Species Action Plan aims to maintain and enhance dormouse populations in all counties where they still occur, and to re-establish self-sustaining populations in at least five counties where they have been lost. All 18 actions listed in the plan have been completed and are ongoing.

Highlights include:

- Widespread and ongoing reintroductions to North Yorkshire, Cambridgeshire, Cheshire, Suffolk, Warwickshire, Bedfordshire, Staffordshire and Nottinghamshire[4]; all but one of the reintroductions have been successful with populations in many cases now spreading to adjacent woodlands.
- The National Dormouse Monitoring Programme[3] providing a reliable annual estimate of dormouse abundance.
- Two national surveys for dormouse-gnawed hazelnuts in 1993 and 2002.
- Two surveys of dormice in Wales[5,6].

Current research is focussing on habitats in which the ecology of the dormouse is less known, such as hedgerows and conifers.

Dormice are monitored at some 150 sites as part of the National Dormouse Monitoring Programme, which since 1993 has been run by Dr Pat Morris and subsequently by Dr Paul Bright, Royal Holloway, University of London, and PTES. With appropriate statistical techniques to accommodate annual variations and changes in sites, these data indicate that there has been a national population decline of about 18% since 1991. The decline is much greater in northern England, suggesting that some of the historic factors that have led to long-term declines are still operating.

Dormice in hedgerows

A RECENT REPORT[8] from Royal Holloway, University of London, has confirmed that hedgerows can provide a valuable habitat for dormice. However, numbers of hedgerows in the British countryside have declined massively over the past century, and those that remain tend to be mechanically cut every year, greatly reducing the availability of fruit and nuts to dormice. Using nesting tubes to indicate presence or absence, researchers found that dormice were no longer present in 64% of 59 hedgerow sites where they were recorded in the mid-1970s, and were most likely to have disappeared from those that were intensively managed. Measures of nest abundance in 50 randomly selected hedgerow sites in southern England and Wales were similar to those previously reported in woodland, and abundance was highest in the widest, most shrub-diverse hedges. The report's authors recommend that hedgerows be cut only every three years, and that some hedges on each farm be left uncut for at least seven to ten years, with coppicing or laying to restore those that become gappy.

Scientists at Royal Holloway, University of London, have been investigating the link between declines in dormouse populations and changes in the climate.

Dormice in conifer woods

COPPICE AND MIXED broad-leaved woodland are usually considered typical dormouse habitats, but dormice are also known to use conifers. Until recently almost nothing was known about this aspect of their ecology, although there was anecdotal evidence of population crashes following conifer removal operations to restore planted ancient woodlands to their semi-natural character. The Forestry Commission's Woodland Ecology Branch has begun monitoring nest boxes at 21 sites in England and Wales, mainly coniferous blocks within ancient woodlands. Radio-tracking work at one such site has shown that dormice make active use of conifers, weaving day and breeding nests from conifer needles on the lower branches of the trees. Hibernation nests were found beneath the conifers and on ride-sides. Trials are continuing to test the effect of alternative conifer removal methods.

The hazel dormouse SAP

ELEMENTS OF the actions will be ongoing indefinitely, but have been completed in the sense that an effective mechanism for action is in place, and the action is up-to-date.

Action	Planned	Ongoing	Completed
Ensure that PPG9 planning guidance is taken into account by Highway Authorities and Local Authorities.		●	●
Identify sites supporting dormice and provide advice on appropriate management to land managers.		●	●
Use grant-aid and incentive schemes (e.g. Woodland Grant Scheme) to encourage sensitive habitat management.		●	●
Manage woodlands and hedgerows to maintain current populations and prevent further habitat fragmentation.		●	
Continue the reintroduction programme (see above). Reinforce populations in at least 3 other counties where they are scattered (e.g. Bedfordshire, Northamptonshire and Berkshire).		●	●
Establish by 1996 a co-ordinated programme of captive breeding to support reintroduction, including research into the long term survival of captive bred individuals.		●	●
Publish a new conservation manual in 1995.			●
Support training in dormouse conservation for land managers and advisers.		●	●
Continue research into dormouse ecology, with particular emphasis on the ecology of dormice in hedgerows or conifer sites, analysis of existing population data, hibernation requirements, and the effects of isolation on populations.		●	●
Promote research on methods of conserving dormice that are consistent with various silviculture systems.	●	●	
Maintain and extend the National Dormouse Monitoring Scheme to 25 counties, with a view to assessing the long-term effects of site management and successional development.		●	●
Repeat at 5-10 year intervals surveys of sites identified in the Great Nut Hunt of 1993, to provide data on changes in distribution and abundance.		●	●
Carry out a survey of dormice in Wales to assess range and habitat use and identify necessary conservation measures.			●
Encourage research on the ecology and conservation of dormice in an international context.		●	●
Pass information gathered during survey and monitoring to JNCC in order that it can be incorporated in a national database and contribute to the maintenance of an up-to-date Red List.			●
Ensure that landowners, agencies and local authorities are aware of dormouse requirements, especially the impact woodland and hedgerow management may have, and the effects of habitat fragmentation.		●	
Ensure continued public awareness of this species as a key indicator of desirable woodland and hedge conditions.		●	●




Monitoring Britain's Mammals: The Tracking Mammals Partnership

THE GOAL OF a coordinated national mammal monitoring scheme, which has been a repeated priority of our reports, is to be brought a few steps closer with the announcement of the Tracking Mammals Partnership in May 2003.

The Tracking Mammals Partnership is a collaborative initiative, comprising over 20 organisations involved with mammal conservation, management and research. It aims to provide a co-ordinated approach to the monitoring of all resident British mammal species and to provide a cohesive framework for the various mammal organisations in the UK. It also aims to raise public awareness of the status of British mammals – particularly those in need of more detailed monitoring and management – and of the importance of surveillance and monitoring (in all areas, including the built environment). The network plans to obtain baseline data on the distribution and relative abundance of all resident British mammals, and then to assess population trends and distribution changes, to agreed levels of precision.

By standardising survey and data collection methods, the Partnership will greatly aid comparison of data collected in different surveys, and their subsequent analysis and interpretation. Importantly, the network also hopes to provide the ability to link information on mammals with that obtained from other surveys, such as habitat, climate, or pollutants. The eventual aim is to provide an integrated monitoring network across the UK giving not only distribution, abundance and population trend information on British mammals but also links to the possible causes of change. The Partnership will report regularly on the changing status of UK mammals, via publications and the internet, concentrating on easy-to-understand, summary national and regional statistics.

The Central Science Laboratory is conducting a study of hedgehog population abundance by nocturnal spotlight surveys of hedgehog foraging habitats, such as pasture fields and amenity grassland. Results from five study areas (1,000 km) in the Midlands and southwest England suggest that hedgehog abundance in these rural areas is extremely low, with most populations restricted to villages and other suburban habitats.

Members of the Tracking Mammals Partnership

MEMBERSHIP CURRENTLY comprises: The Bat Conservation Trust, Bristol University, British Trust for Ornithology, Countryside Council for Wales, British Deer Society (also representing Deer Commission for Scotland, Deer Initiative for England and Welsh Deer Initiative), Central Science Laboratory, English Nature, Environment Agency, Environment and Heritage Service (Northern Ireland), Forestry Commission, Game Conservancy Trust (also representing British Association for Shooting and Conservation), Joint Nature Conservation Committee, The Mammal Society, People's Trust for Endangered Species, Royal Holloway University of London, Scottish Natural Heritage, The Wildlife Trusts, WildCRU (Oxford University) and DEFRA.

TRACKING Mammals PARTNERSHIP

Ongoing surveys, and pilot surveillance projects, currently under the auspices of the network include:

- The National Bat Monitoring Programme (Bat Conservation Trust (BCT), funded by JNCC) – an established programme providing population trend data on several bat species.
- The Winter Mammal Monitoring Project (British Trust for Ornithology (BTO), The Mammal Society, funded by DEFRA) – a two year pilot project assessing the use of winter sightings and sign transect methods in determining trends and abundance of some of the more common mammal species.
- Mammals on Roads (Royal Holloway, University of London (RHUL), MTUK, additional funding from JNCC) – a four year pilot project (see box on page 9)
- Garden Mammal surveys (including The Mammal Society's Mammals in Gardens, BTO's Garden Bird Watch) – several pilot surveys underway or planned to assess mammal populations in private gardens.
- Living with Mammals (RHUL, MTUK) – pilot project beginning April 2003 to monitor mammals in the built environment throughout the UK.
- The Breeding Bird Survey for mammals (BTO) – an established survey scheme for birds, which is also providing some useful data on a number of mammal species.
- The Mammal Monitoring Project at Wytham Woods (WildCRU, Oxford University) – an umbrella project to monitor all mammal populations in this woodland, by working with volunteer teams.

Volunteer training and validation

A NUMBER OF charitable organisations working to conserve mammals provide training courses in mammal identification. The BCT has trained over 3,000 people in areas ranging from using bat detectors and surveying to leading bat walks and caring for bats, while over 2000 people have passed through The Mammal Society's 'Look Out for Mammals' courses, which provide training in general mammal identification. Identification of marine species is particularly problematic, and the Sea Watch Foundation offers training courses covering survey techniques, identification skills and conservation issues affecting marine mammals; an identification guide is now available on video[9]. A number of organisations cater for environmental professionals, including the Mammal Society, the BCT, and the BDS. These and other organisations provide opportunities to contribute to national and local mammal surveys and, as such, provide a hugely important service for mammal monitoring.

Volunteers can make a difference! The WildCRU, Oxford University, has been training volunteers to help with mammal monitoring at Wytham Woods since 1999[10]. Researchers assessed the accuracy and efficiency with which 155 volunteers performed some standard monitoring tasks. Volunteers brought considerable time-savings to many tasks (eg. setting and checking traps), compared with a single professional researcher, but took longer for more skilled jobs (eg. weighing, marking and sexing small mammals). Accuracy increased with training.

- The Dormouse Monitoring Programme (RHUL and PTES, funded by English Nature (EN) and PTES) – (see page 6).
- The Great British Deer Survey (British Deer Society (BDS)) – a pilot project to monitor deer distribution and density at a national level should be underway by 2004.
- The National Game Bag Census (Game Conservancy Trust (GCT)) – a long-term scheme analysing data on mammals collected by gamekeepers to contribute to monitoring of populations trends of some of the more difficult species such as stoat and weasel.

Volunteers from the HSBC learn how to set live Longworth traps as part of the mammal monitoring in Wytham Woods.

Mammals on Roads Survey

MANY MAMMALS die on Britain's roads each year, and for some, particularly recovering species like otters, this can be a serious problem[11]. However, counts of carcasses along roads may, with the right statistical treatment, provide an index of abundance, especially for some of the commoner species. The Mammals on Roads survey builds on Mammals Trust UK's survey of hedgehogs on roads in 2001, which recorded over 10,000 sightings in 2,200 journeys longer than 20 miles. Should this work find a link between road casualties and population size, survey data from several years will be required to assess changes in abundance, particularly for species like hedgehogs, whose population cycles and trends are poorly known.




BAP Species: Harbour Porpoise

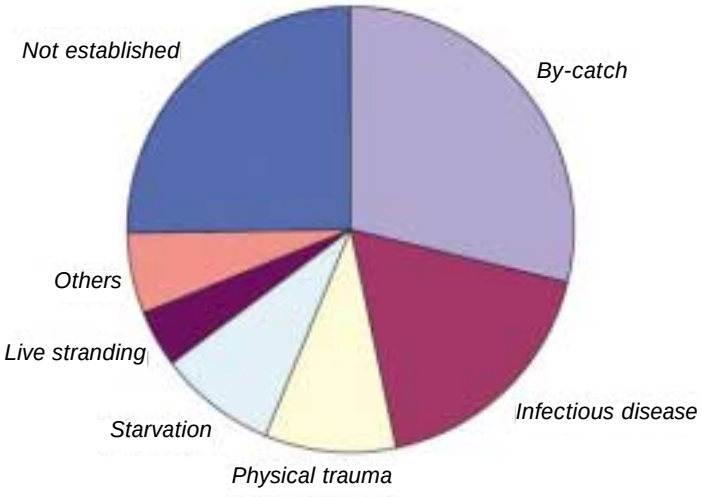
SOME 190,000 harbour porpoises are estimated to be present in the North Sea[12], making it one of the most abundant cetacean species in British waters. However, the population appears to have declined in the 1970s and early 1980s, especially in the southernmost North Sea and the English Channel. Monitoring at coastal locations in southwest England showed consistently low numbers until the mid 1990s, and, although there has been some indication of an increase since then, this remains unverified. Incidental by-catch continues to account for the deaths of thousands of porpoises every year, and high levels of infectious diseases and parasites have been linked with exposure to immunosuppressive pollutants such as polychlorinated biphenyls (PCBs)[13] and heavy metals[14]. Increased vessel traffic in coastal waters and declining fishing stocks also threaten this slow-breeding species.

The Species Action Plan aims to maintain the current range and abundance, and ensure that no anthropogenic factors inhibit a return to waters previously occupied. Large-scale monitoring of harbour porpoises, as with all cetaceans, is technically problematic and costly, and thus it is difficult to gauge progress towards these targets, but it seems likely that anthropogenic factors, such as pollution and fisheries activities, continue to inhibit their recovery.

Seventeen actions are proposed in the plan, of which two have not yet been enacted. Among those actions successfully implemented are:

- Analysis of distribution data with a view to selection of areas for SAC status.
- Completion of research into causes of mortality in stranded porpoises (and other cetaceans).
- Production of guidelines aimed at minimising disturbance from seismic surveys, whale watching operations and recreation at sea.

The EU Habitats and Species Directive requires signatories to designate a network of Special Areas of Conservation to protect sites important to Annex II species, which include harbour porpoise. Deciding on SAC selection criteria for this wide-ranging species has been difficult, delaying designation. However, a number of sites have now been proposed; these await endorsement by CCW, JNCC and DEFRA prior to potential designation by the UK government.



Causes of death in harbour porpoise. The Institute of Zoology's Poseidon database of marine mammal tissue and strandings in the British Isles holds some 1768 records for harbour porpoises, including 437 post mortems carried out between 1990 and 1999. Although there are potential biases in the detection rate of certain causes of death, these data established bycatch as the major cause, followed by infectious disease.

The porpoise by-catch

THE LARGEST CETACEAN bycatch in UK waters is of harbour porpoises caught in bottom-set gill nets. In 1997, the bycatch on the Celtic shelf was estimated at some 2,200 porpoises per year, and more than 4,400 are thought to be killed annually in the North Sea[16]. One possible means of reducing this bycatch is the use of 'pingers', which emit an intermittent signal and are attached to fishing gear to try to warn porpoises of the presence of the net, and to deter them from the vicinity. There is some uncertainty about their effectiveness. However, a series of recommendations is under review, and signatories of ASCOBANS (The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas) have agreed that bycatch must be reduced where annual levels exceed 1.7% of the estimated population size[17]. The ASCOBANS Advisory Committee is due to meet in April 2003 prior to the 4th ASCOBANS Meeting of the Parties in August.

Reform of EU Fisheries Policy

PROPOSALS FOR REFORM of the European Commission's Common Fisheries Policy (CFP) in 2003 have, for the first time, addressed wider marine environment and conservation issues. The EC has adopted a strategy to make environmental protection a more central part of the CFP, with an action plan that includes measures to protect non-target species (including harbour porpoises), habitats and ecosystems from fishing activities. Mitigation of bycatch is specifically addressed; proposed measures include restrictions on the use of certain fishing gear, the use of acoustic deterrent devices, and on board observation and monitoring of incidental catches.

In December 2002, 33 dolphins and porpoises were washed up dead on the beaches of southwest England. Several of them showed signs of entanglement in fishing nets. Early January 2003 saw a further 40 strandings of mainly common dolphins, but also porpoises and at least one striped dolphin. By-catch was again the presumed reason for this. Sadly, the dolphins that wash up represent just a small fraction of those killed, as most carcasses sink at sea.

The harbour porpoise SAP

ELEMENTS OF the actions will be ongoing indefinitely, but have been completed in the sense that an effective mechanism for action is in place, and the action is up-to-date (e.g. some elements of the research programme are completed, others are ongoing or planned).

Action	Planned	Ongoing	Completed
Extend the ASCOBANS boundary to include the Western Approaches and the Irish Sea through a bilateral treaty with the Republic of Ireland and agreement of ASCOBANS Parties.		●	
Seek to improve coastal water quality by reducing the discharge of substances which are toxic, persistent and liable to bioaccumulate.		●	
Continue the duty on sea fisheries regulators to take account of potential wider impacts on wildlife and habitats when deciding fishery management measures.		●	
Consider, in the light of research, the possible need to monitor and control gill nets and other set net fisheries.		●	
Continue to introduce agreed codes of conduct to reduce disturbance from acoustic sources and physical pressures.		●	
Review existing UK marine site protection to determine how it might be improved. If appropriate, introduce additional protection and emergency designation to benefit the species.		●	●
Work with fisheries to reduce and avoid by-catches in active and passive gear.		●	
Introduce codes of practice to reduce disturbance from whale-watching.		●	●
Expand research on the areas frequented by harbour porpoise to identify waters that may qualify for further protection as SACs or Marine Nature Reserves.		●	●
Establish long-term research on population and conservation needs of all small cetaceans in UK waters, co-ordinated through ASCOBANS.		●	●
Subject to the results of research, introduce regular monitoring of UK population and reporting of by-catches of small cetaceans.			
Seek to minimise the by-catch of small cetaceans by promoting research into fishing gear and other possible mechanisms.		●	●
Promote research into the causes of death of the harbour porpoise within UK waters to determine the context and need for future conservation action.		●	●
Incorporate information gathered during survey and monitoring of this species in a national database and contribute to the maintenance of an up-to-date Red List.			
Consider the need to encourage fishermen to report sightings and by-catches through an awareness programme.		●	
Encourage international exchange of information to assess and, if appropriate, reduce by-catches.		●	
Continue to publicise reporting schemes for strandings and live-sightings.		●	




Countryside Issues

ALTHOUGH ISSUES like foxhunting hit the headlines, the most important influences on British mammal conservation continue to emanate from Brussels in the form of farming and fisheries policies. Common Agricultural Policy (CAP) reforms have yet to materialise, but in July 2002 the EC published further proposals, including some important changes in the nature and delivery of support given to farmers and others. Among those potentially significant for mammal conservation are an overall increase in funding for agri-environment measures, compulsory long-term non-rotational set-aside on arable land, and the creation of a single decoupled (i.e. independent from production) payment per farm linked to other factors including environmental standards ('cross-compliance'). However, although the EC would like to introduce these changes with effect from January 2004, strong resistance from some Member States continues to defer significant reform.

Pesticides and mammals

A RECENT REPORT to the RSPCA[20] highlighted the potential impact of agri-chemicals on wild mammal welfare and populations, and revealed an alarming lack of field or laboratory research in this area. Of particular concern are the direct and indirect effects of insecticides on insectivores, secondary rodenticides poisoning in carnivores, and the possibility that modern chemicals believed to be non-toxic have adverse effects on mammalian endocrine systems (hormones) and development.

In the year since its creation, the Department for Environment, Food and Rural Affairs (DEFRA) has begun a number of welcome initiatives that should benefit mammals, within a wider framework of biodiversity conservation. In October 2002, DEFRA launched a strategy ('Working with the Grain of Nature: a Biodiversity Strategy for England'), seeking to ensure biodiversity considerations become embedded in public policy and including a series of actions that will be taken by the government and its partners to make biodiversity a fundamental consideration in key sectors including agriculture and woodland. In response to the 'Curry report' , DEFRA has launched a two-year pilot 'Broad and Shallow' agri-environment scheme, to be rolled out in 2005-06. Farmers taking part in the scheme have to identify important environmental features and areas on their farm, and make a commitment to carry out simple environmental management activities selected from a wide-ranging list.

A long-awaited review of the agri-environment schemes in England is underway, as are reviews of the Farm Woodland Premium Scheme and Woodland Grant Scheme. DEFRA has also announced a consultation paper to improve the protection of wildlife under a streamlined planning process. The changes proposed in this overdue update to PPG 9 (Planning Policy Guidance – Nature Conservation 1994) aim to ensure that protected species are fully taken into account before planning permission is granted, removing the need for DEFRA to issue a separate licence to disturb protected species after permission has been granted. A review of non-native species policy was published in February 2003[19]; however, DEFRA still does not have a policy regarding wild boar.

During the 2001/2002 hind culling season, a trial culling incentive initiative was launched by SNH. Flat rate payments were offered to selected estates for each red or sika deer hind shot over the average annual cull with the intention of achieving a sustained reduction in the deer population in ecologically sensitive areas. However, the BDS, the Association of Deer Management Groups (DMGs) and local DMGs, whilst strongly in support of the scheme in principle, criticised it for poor management, lack of forward planning, and adverse impacts on neighbouring estates.

Pup mortality among grey seals in Scotland may have been affected by PDV.

Phocine Distemper Virus and increased protection for Scottish seals

ON THE 13th August 2002, Phocine Distemper Virus (PDV) infection was identified in five common seals found in the Wash on the eastern coast of England. This disease ravaged seal populations in the North Sea in 1988, killing some 18,000 common seals in Europe. Fears of a repeat in 2002/3[27] were confirmed, and as of 21st January 2003, 3,907 seals had been reported dead around the coasts of the UK. Updated status reports are available at http://smub.st-and.ac.uk. The Institute of Zoology, London, is co-ordinating the response to PDV in the UK, and the national seal helpline (08712 447 999) can be used to report dead or sick seals.

New legislation to protect seals in Scotland came into force in September 2002 for a period of one year. The Conservation of Seals (Scotland) Order 2002 prohibits the killing, injuring or taking of common seals anywhere in Scotland or in Scottish waters, and the killing, injuring or taking of grey seals in a defined area within the Moray Firth.

Fox hunting and its regulation

FOXHUNTING WAS back in the news in 2002/03, when it became a pivotal issue for the 'Countryside March' by organisations campaigning, amongst other things, to retain the right to hunt wild mammals with dogs. According to a September 2002 Telegraph/YouGov poll[21], of 1,997 electors across Great Britain, half of those polled believed fox hunting should be criminalized, while 48% favoured tighter regulations or keeping the status quo. However, 70% of people surveyed said foxes should be controlled, and only 25% said that hunting with dogs was more cruel than snaring, shooting or trapping, suggesting some confusion over how best to manage foxes. The first report from the Inspectorate to the Commissioners of the Independent Supervisory Authority On Hunting (ISAH)[22] is expected in the spring of 2003.

Any effort to introduce an element of quantitative science into the debate on fox hunting is commendable, and a step in this direction was taken in work carried out by the University of Bristol[23], which reported that fox numbers, estimated through faecal counts at 160 sites, did not increase over 2001 when foxhunting was suspended due to Foot and Mouth disease. However, many complications make unclear the extent to which these observations support the hypothesis that fox hunting does not affect fox numbers, particularly because of the general truth that non-significant statistical results cannot in isolation be used to suppport a null hypothesis[24].

The Hunting Bill[25], which seeks to prevent all cruelty associated with hunting with dogs, was published in December 2002 and backed in the House of Commons by 368 votes to 155. Under the Hunting Bill hare coursing and hunting deer with dogs would be banned; hunting foxes with dogs would be subject to strict licensing procedures. When this report went to print, the Bill was at the Committee Stage, during which it is given detailed consideration by MPs[26].



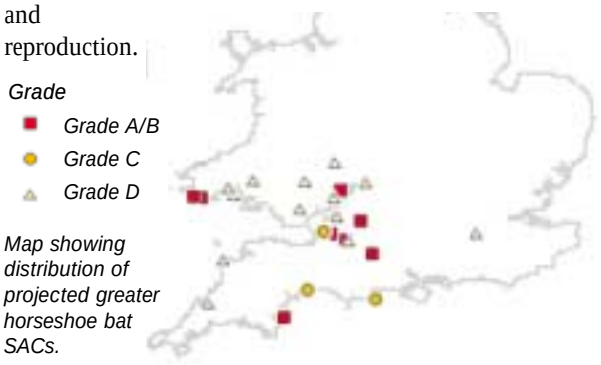

BAP Species: Greater Horseshoe Bat

GREATER HORSESHOE bats are one of the UK's least numerous mammals, with a population estimated at only 4,000–6,000. Between the 1950s and the 1980s, they have disappeared from half of their former British range, and are now confined to south-west England and south Wales. Of at least 66 previously known nursery colonies, fewer than 20 now remain. Changes in management of agricultural land leading to a loss of foraging areas, capping of underground hibernacula, and exposure to toxic timber preservatives, have all contributed to this decline. The species has been in English Nature's Species Recovery Programme since 1991.

The greater horseshoe bat Species Action Plan aims to maintain all existing maternity roosts and associated hibernation sites, and to increase the current population by 25% by 2010. These targets seem likely to be met: there have been no significant site losses since 1995, and all maternity and hibernation sites monitored since 1995 appear to have increased. Considerable work has been carried out towards achieving these targets, with eight of ten actions enacted. For example:

SACs for greater horseshoe bats

THE GREATER horseshoe bat is one of only eight mammal species for which Natura 2000 candidate Special Areas of Conservation have been proposed. An extensive network of sites has been proposed to cover the geographical range of the species and to provide both summer and winter roosts, focusing particularly on sites with the largest populations and the best representation of features required for survival (including over-wintering) and reproduction.

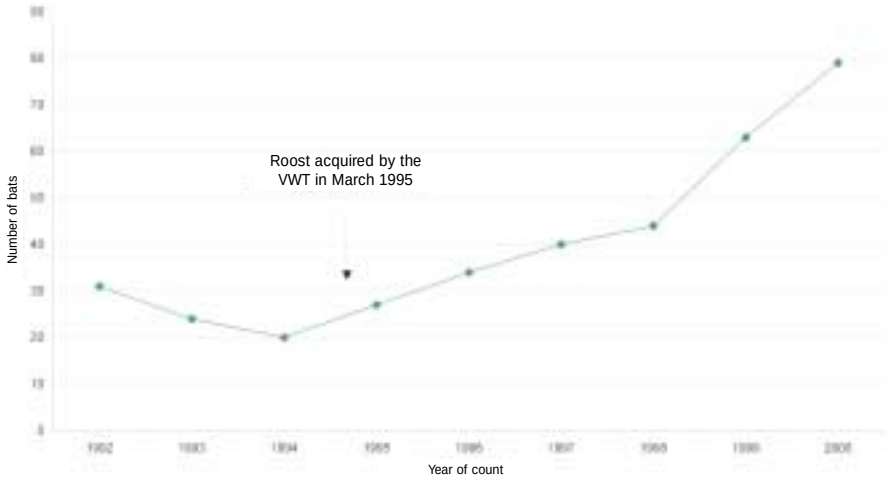


Map showing distribution of projected greater horseshoe bat SACs.

Horseshoe bat roosts can be enhanced by reducing levels of disturbance and light within and around the building, and by extending the range of temperature and humidity conditions available to the bats. Such improvements (carried out by The Vincent Wildlife Trust) lead to increased colony size due to raised productivity and recruitment. By providing conditions suitable for hibernation (i.e. cool and humid) within or close to maternity roosts, it is possible to provide the bats with protection in a single site year round.

- Eight candidate SACs have been identified
- Advisory leaflets have been prepared to help disseminate advice about land management for the bats[28]
- A number of roosting sites have been purchased by conservation organisations and are managed as nature reserves, including the largest greater horseshoe bat roosting site in Europe; 14 maternity sites are protected as SSSIs
- There has been research into foraging habitat requirements, roosting requirements and the genetics of the species

Counts of immature Greater Horseshoes at High Marks Barn, 1992–2000



Action to protect greater horseshoe bats is largely site-specific and species-oriented – thus, although it protects hibernating and roosting sites, and prohibits killing or disturbing the bats themselves, it does not protect important foraging habitats and landscape corridors. This problem is general to many species and highlights the potential importance of agri-environment schemes in delivering suitable protection and management within the wider countryside.

Roost count data from greater horseshoe bat reserves, provided by the Vincent Wildlife Trust. The population at this site has been steadily increasing in response to management of the site and surrounding areas.

Greater horseshoe bats and the Countryside Stewardship Scheme

ALTHOUGH NOT specifically identified as a conservation mechanism with respect to the greater horseshoe bat SAP, agri-environment schemes, such as the Countryside Stewardship Scheme (a 10-year land management scheme administered by DEFRA), can be a valuable way to "encourage favourable habitat management…". A number of management prescriptions that regularly feature in Countryside Stewardship Scheme agreements can benefit greater horseshoe bats. These include hedge trimming, laying and replanting to produce sheltered flight paths for foraging bats, reducing or eliminating chemical inputs to maximise invertebrate prey, and grazing permanent pasture with cattle and horses, the dung of which is favoured by *Geotrupes* and *Aphodius* beetles (important prey species for greater horseshoe bats).

Since 1998, English Nature's Greater Horseshoe Bat Project has visited and advised 122 land managers covering some 9,572 hectares of land around key maternity and hibernation sites in Devon and Somerset. As a result, 35 of these farms, have entered into Countryside Stewardship Scheme agreements involving habitat improvements for the bats. Extensive support has also been given to partner organisations to improve their management advice, resulting in a further 28 agreements.

Cartons from Riverford Farm, an organic milk producer operating around the largest greater horseshoe bat roost in the UK, feature a simple message for consumers to illustrate the link between extensive agriculture and providing insect prey for the bats. The farm has entered into the Countryside Stewardship Scheme with specific measures to benefit bats.

The greater horseshoe SAP

ELEMENTS OF the actions will be ongoing indefinitely, but have been completed in the sense that an effective mechanism for action is in place, and the action is up-to-date.

Action	Planned	Ongoing	Complete
Consider the obligations of the Habitats Directive and Agreement on the Conservation of Bats in Europe, and seek to develop appropriate policies on wider habitat conservation for bats.		●	
Consider statutory protection for roost sites not already covered, and seek to ensure that consideration is given to key areas, or population centres, in respect of planning and land-use strategies.		●	
Following further research to identify precise ecological requirements of this species, encourage favourable habitat management (aiming for up to 4 km around each roost), seeking to implement these through voluntary or informal agreements.		●	●
Continue to implement the current advisory mechanisms for roost sites.		●	●
Prepare and distribute advice on the management of foraging areas by the year 2000.			●
Seek to maintain the current level of research into the ecology and conservation requirements of this species, identifying further areas of research as necessary. This should include studies on the population genetics and feeding requirements of the species.		●	●
Promote research to assess the importance of sites used by small numbers of bats and develop and implement a strategy for their conservation. Investigate the rate of loss of minor sites and their importance to the population structure.	●		
Identify key areas or population centres for this species.			●
Develop and implement a systematic recording scheme to standardise population estimates between sites and between years.			
Pass information gathered during survey and monitoring of this species to JNCC in order that it can be incorporated in a national database and contribute to the maintenance of an up-to-date Red List.			




Restoration

BRITAIN'S MAMMALS face threats from habitat loss and degradation, direct persecution and introduced exotics. Restoration aims actively to reverse such deterioration or losses, and often seeks to achieve this by means of reintroductions[29]. The reintroduction of mammals, whether local translocations or restoration of nationally extirpated species, seems highly desirable to speed the repair of the UK's damaged mammal fauna. Nonetheless, it constitutes meddling with ecosystems in a major way and should be approached cautiously with regard to both biological and human dimensions. A serious commitment to conservation, especially radical, large-scale restoration, will require significant investment. It should become mandatory that business compensates for irreducible damage and government should encourage this, together with explorations of novel funds such as the Heritage Lottery Fund.

Stop Press! Extinct bat found alive in UK

After officially being declared extinct over 10 years ago a young greater mouse-eared bat was found hibernating in Sussex in December 2002. The Sussex Bat Group plans to carry out extensive surveys in the local area in summer 2003 to determine whether greater mouse-eared bats are indeed still living and breeding in England[33].

Reintroducing water voles – an update

LAST YEAR we reported on reintroductions of water voles to the Kennet & Avon Canal near Bath and the Wetland Centre at Barnes, London. In 2001, 147 animals were released at the Wetland Centre. Trapping in April 2002 suggested 75% mortality over-winter – this seems high, but is comparable to that recorded in natural populations in Oxford, Norfolk and Sussex. There was no significant difference in the survival rates of translocated wild-caught water voles and captive-bred animals. Forty more captive-bred animals were released in spring 2002, and breeding was first noted in late June. Live trapping in October 2002 revealed a population of 180 individuals distributed across the site. Most individuals captured had good adult weights (180–330g) for over-wintering. Monitoring will continue in the spring to assess winter survival and colony distribution.

Extensive restoration of the Kennet and Avon Canal since 1997 meant that the many water vole colonies that occurred along its length had to be taken into captivity and released after the work was completed. During the relining and reconstruction of the canal, vegetated margins and suitable banks for burrowing were created for water voles. Between 1999 and 2001, 45 translocated, and 20 captive-bred, water voles were released into these newly-created canal banks. At least three colonies have been re-established with interchange of individuals between them, so their long-term survival is looking good.

Following the success at Barnes, a colony of 200 captive-bred water voles was released into Bedfont Lakes Country Park near Heathrow Airport in July 2002; monitoring during spring 2003 will establish how successful the project has been.

New reintroduction projects planned during 2003 include a site near Kempton Park, London as part of the London Biodiversity Action Plan for water voles, and a site near Avonmouth that is managed by the Hawk and Owl Trust. Another reintroduction is due to take place using animals bred at Bristol Zoo. All of these projects will be carefully monitored by various partners to provide valuable information on how reintroduction may be used as a recovery tool for this imperilled rodent.

The water voles at the Wetland Centre have become a popular attraction with visitors. A special 'Vole Trail' can be followed to learn more about these intriguing animals. A team led by WildCRU is monitoring the progress of this introduced population as part of a wider project to refine guidelines for water vole restoration.

Pine marten reintroduction

FOLLOWING A RECENT PTES consultation with other conservation bodies and the general public, proposals for a reintroduction of pine marten to southern England are on hold, pending a JNCC publication clarifying IUCN guidelines on reintroductions. Debate centres around whether viable populations exist outside Scotland, and if so what factors continue to prevent their expansion and whether there are any truly suitable reintroduction sites in England. Extensive analysis of sites where pine martens might be reintroduced carried out by Bright & Smithson (2001)[30] does suggest that suitable habitats exist in southern England. The research also suggests that areas where pine martens occurred in the past in England would have been unlikely to provide habitats of sufficient quality to allow formerly beleaguered populations to recover. A recent analysis by Birks et al. however suggests that breeding dens may be in short supply in England; habitat improvements (including provision of artificial natal den boxes in the short-term and increased availability of arboreal cavities in large, old trees in the medium- and long-term) are recommended[31]. Pine martens will however den and produce their kits in a wide variety of sites e.g. rabbit burrows, rock crevices and piles of brash, so it is not clear whether marten populations even in England would be significantly limited by the availability of den sites.

European beaver – back in Britain

EUROPEAN BEAVERS were once present throughout wooded areas of Britain, and survived in Scotland until about 400 years ago. By the beginning of the 20th century only remnants of the beaver's once extensive distribution remained, but legal protection and extensive reintroduction programmes have succeeded in re-establishing the species in much of its original range. From past experience in Europe, the prognosis for successful establishment of a population of beavers in Britain is good.

Following proposals from a Steering Committee, in March 2000 the SNH board agreed to proceed with a trial release to see how beavers operate under current land management practices in Scotland (SNH, 2000). The 1,500ha release site is in the 7,000ha Knapdale Forest, at the top of the Kintyre peninsula in Argyll, owned by Forest Enterprise. Knapdale was selected because its geography (a narrow isthmus, and no major river) will slow or prevent dispersal; there are few areas of potential conflict with people; and local SNH and FE wardens and a visitor centre are already present. However, the project requires final approval from the Scottish Executive, which has been considering the proposal since January 2002[32].

A unique experiment in landscape restoration has just begun in Kent. Five European beavers, brought over from Telemark, Norway, were released into a 35ha fenland reserve, where it is hoped that they will act as 'natural habitat managers', increasing the area of relict fen through their coppicing and damming behaviour. Oxford University's WildCRU is monitoring the welfare and behaviour of the beavers, and their impact on vegetation and hydrology. The beavers were transferred from their quarantine facilities to holding pens on site in June 2002 and on the 3rd February 2003, were released from their holding pens. Pre-release vegetation surveys and site mapping have been completed and the radio-tracking of the released beavers continues.




MTUK Second Annual Update, April 03

APRIL 2003 sees the second anniversary of the launch of MTUK and, once again, we are delighted that Professor David Macdonald and Dr Fran Tattersall, assisted by Lauren Harrington, accepted our invitation to write this second annual update to our founding publication, *Britain's Mammals: The Challenge for Conservation.* In preparing this document, they have consulted widely with their colleagues in other universities, the Statutory Nature Conservation Agencies and voluntary groups.

During the past year, we have continued our efforts to interest the wider community in our work. Our Hedgehogs on Roads survey was carried out during 2002 for a second year with wide public support (see page 9). This time, it was renamed the Mammals on Roads survey to reflect the developing scope of the project (the JNCC contributed significant funding to this project). Plans to carry out a complementary survey to begin to monitor mammals in the built environment during 2003 are underway.

Our annual spring conference was held jointly with The Wildlife Trusts at the Royal Agricultural College at Cirencester in February, with the aim of bringing together all those working on the conservation of dormice. Proceedings from our 2001 and 2002 conferences on reintroductions and alien species have now been published[34]. A new website with video clips and animal sounds is now live, www.mtuk.org, and we hope that this will prove a valuable learning resource in addition to promoting the organisation and its aims.

MTUK Student Projects

- Lauren Alexander participated in the National Key Sites for Water Voles project, under the direction of Dr Paul Bright, Royal Holloway, University of London
- Kelly Edmunds worked on myxomatosis under the direction of Dr Diana Bell of the University of East Anglia
- Dorothea Pio worked on tracking pipistrelles in Aberdeenshire under the direction of Professor Paul Racey, University of Aberdeen
- James Cook worked on the welfare and behaviour of European beaver during a release project in Kent, under the direction of Dr Fran Tattersall, University of Oxford

MTUK Current Projects

- The Dorset Wildlife Trust received funding to track hares in Dorset and to advise landowners on their conservation
- The Surrey Wildlife Trust is surveying dormice in the county
- Richard Grogan of Wight Wildlife is surveying for red squirrels and dormice on the Isle of Wight to assess the effect of defragmentation measures
- Dr Susan Swift of Aberdeen University is developing heated bat boxes as alternative roosts for nursery colonies
- The Monkey Sanctuary in Looe, Cornwall received a grant to protect a colony of lesser horseshoe bats
- Dr David Hill, University of Sussex, is using synthesised social calls to assess the distribution of Bechstein's bats in an SSSI in West Sussex
- Scottish Natural Heritage and MTUK are identifying priority woodlands for red squirrel conservation across Scotland
- Prof Gareth Jones, Bristol University, has received funding to study use of landscape and habitat by the lesser horseshoe bat
- The Wiltshire Wildlife Trust is monitoring the current status and distribution of water voles and mink in the county to promote and recommend suitable habitat management and enhancement work for water voles
- The Sussex Otters and Rivers Project aims to confirm the current status of the water shrew in Sussex and identify habitat preferences

UK Mammal Projects originally funded by PTES, now MTUK

- Management and analysis of the National Dormouse Key Sites Monitoring database (with EN and Royal Holloway)
- Co-ordination of the National Dormouse Reintroduction Programme (with EN and Royal Holloway)
- Reintroduction of water voles to Bedfont Lakes Country Park, southwest London
- Health screening of water voles prior to reintroduction
- Development of a Key Sites for Water Voles programme (with RSPB, EN, EA and Royal Holloway)
- Awareness of water voles project in Derbyshire
- Modelling of mink, water vole interaction to inform future mink control programmes (with WildCRU)
- Provision of dormouse nest boxes in Somerset
- Classification of specimens as a future research tool at Edinburgh Museums
- Population genetics of barbastelle bats at the University of Surrey
- Provision of bat boxes to the Merseyside Bat Group
- Preliminary work on the tracking of elusive mammals, particularly mustelids
- Studies into the ecology of coastal otters

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Mammals Trust UK

Mammals Trust UK is dedicated to working in partnership with voluntary organisations, wildlife experts, government and industry to conserve wild mammals and their habitats throughout the British Isles.

Our Aims

- To raise funds for research and practical conservation based on sound scientific understanding.
- To increase public awareness, bring together all with an interest in mammal conservation and share knowledge.
- To create opportunities for people to participate actively in mammal monitoring and conservation projects across the UK.
- To manage key conservation sites to protect them for the future and to create opportunities for education, recreation and enjoyment of our natural heritage.

Fundraising and grant making

Mammals Trust UK raises funds from a variety of sources, including individual supporters, trusts and industry. An Advisory Group advises on conservation policy issues and the work to be funded and comprises representatives of the following voluntary organisations: The People's Trust for Endangered Species, The Bat Conservation Trust, The Mammal Society, The National Federation of Badger Groups, The British Hedgehog Preservation Society, The Wildlife Trusts, English Nature, Scottish Natural Heritage, The Countryside Council for Wales, The Environment and Heritage Service, Northern Ireland, and the Joint Nature Conservation Committee. They are joined by Professor Paul Racey, Regius Professor of Natural History at the University of Aberdeen, Professor David Macdonald, Director of the Wildlife Conservation Research Unit at the University of Oxford and Dr Pat Morris of Royal Holloway, University of London.

Mammals Trust UK is administered as a restricted fund of the People's Trust for Endangered Species (PTES), registered charity no. 274206. Chairman Professor John Beddington, Chief Executive Dr Valerie Keeble

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The Wildlife Conservation Research Unit

The WildCRU's mission is to undertake original research on aspects of fundamental biology relevant to solving practical problems of wildlife conservation and environmental management.

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Copies of Britain's Mammals: the Challenge for Conservation and further copies of this publication can be obtained by contacting Mammals Trust UK at the address and phone number above.