



English Nature's research programme 2000/2001

No. 408 - English Nature Research Reports



working today
for nature tomorrow

English Nature Research Reports

No. 408

**English Nature's Research
Programme 2000/2001**

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Edited by J J Hopkins

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English Nature Research Programme 2000/2001

Introduction

The research and development undertaken by English Nature is driven by a wide range of policy and operational needs, and is therefore diverse. In our approach to planning and executing research we use a topic based approach, with the topics reflecting important areas where research and development is required to meet our needs. These topics are not of equal weight in terms of their current spend. A small number of them account for a significant part of our total research and development spend, and reflect the areas of work where we have previously focussed our spend on research and development. They are in a sense mature science areas, and it is likely that in some cases we will gradually reduce our spending on these. Conversely, some areas of spend are ones where very little work has been done so far, and where spend is likely to increase in the future. These include topics, such as Public Access and Invasive Exotic Species, where historically our research activities have been limited, but where there are now major new policy and operational needs to be met. Other areas, specifically relating to Remote Sensing and Risk Assessment, are where we aim to improve conservation practice.

Classification of our research is not a straightforward issue. Some of our research is focussed upon a narrow goal. In other cases, research may cover a number of aspects. For example, in the case of widespread species and habitats, studies of status and ecology are often separated. However, in the case of rare habitats and species, which may occur at very few sites, survey, ecological studies and even management activities are often most efficiently carried out in a single contract. Projects are therefore classified here into the topics they most closely fit, but many have relevance under other headings, particularly those relating to surveys.

In this register, the projects are grouped under the following headings:

Climate change

It is now broadly accepted that our climate is changing, despite uncertainties about the precise degree to which it is due to anthropogenic impacts. Climate is one of the most important factors influencing plant and animal distribution, and therefore work is required to understand more clearly the way in which climate change may impact on the distribution and abundance of wildlife. We also need to improve our understanding of how changing patterns of land use will impact on wildlife.

Coastal processes

Over the past ten years there has been a growing recognition of the importance of natural processes of erosion and deposition in the maintenance of coastal biodiversity and Earth heritage. Some of this work has been stimulated by observed sea level change, and Government's reassessment of the cost-benefit of engineered coastal defences. In addition, the coast is a preferred area for certain specific types of development, particularly relating to recreation and transport infrastructure. Significant research has therefore been commissioned to allow English Nature to respond to these policy and operational needs.

Diffuse pollution

Pesticides, other synthetic chemicals, and nutrients are now widespread in the biosphere. Their effects upon wildlife are predominantly adverse. Research continues to be required to allow our advice to Government to be formulated. Research is also required to allow us to understand better the local effects of diffuse pollution, not least in aquatic systems.

Earth heritage

English Nature has significant statutory duties relating to the conservation of geological and geomorphological heritage, and we have recently updated our strategy for Earth heritage conservation. Current research relates largely to the identification and protection of Earth heritage sites. In the future, work relating to the methods of site protection, the value of Earth heritage in the interpretation of contemporary environmental change, and also the role of rocks and landforms as the template of biodiversity is likely to be developed.

Habitat and area survey

Included here are single habitat surveys aimed at determining the biodiversity resource in England, and also combined habitat and species survey covering discrete geographical areas.

Habitat management

A significant proportion of our statutory and advisory work is aimed at the management of habitats. Even in the case of rare species, habitat management is often the conservation action required. A range of studies are programmed to explore the science of current conservation management practice. Further work is being developed to promote new management methods using innovative machinery and novel management approaches.

Hydrology

Water and wetlands are a highly managed and heavily exploited resource in England. We need to respond to a wide range of policy proposals and to site related casework. Understanding hydrology is also a key element of planning and delivering habitat restoration, particularly in flood plains where new methods of management are being explored as a response to flooding in recent years.

Impact studies

Commercial and other exploitation of natural systems, for example fisheries and peat extraction, often has complex impacts upon ecosystems. Research is therefore required into the ways in which some of the interactions operate, so that opportunities for amelioration can be identified.

Invasive exotic species

This is a new topic. Invasive exotic plants, animals and micro-organisms, particularly diseases, have had a profound effect upon both terrestrial and aquatic systems in England. Our current focus is upon methods for the control and eradication of species which are already established. This may require follow up on selected species where currently there

are no effective control strategies. In 2001 DETR is proposing a review of current policy, and this may identify other research needs.

Landscape ecology and restoration

Effective biodiversity conservation requires action at a range of geographical scales. Traditional conservation practice has placed heavy emphasis upon site based activity. Our research aims to understand how larger scale processes such as dispersal and colonisation influence biodiversity, and also to integrate these and other findings into tangible plans for action at a landscape scale.

Natural heritage information systems

Collecting information about habitat, species and earth heritage features is a very large part of our science activity. Included here are projects which invest in the information systems required to effectively store and utilise the information collected.

Public access

This is a new topic. In 2001 English Nature acquired a responsibility to advise Government on the ecological impacts of access rights to open land under the Countryside and Rights of Way Act. This is an issue which we have had limited past advisory responsibilities, and research is required to ensure that our advice is based on sound current knowledge.

Remote sensing and telemetry

As the area covered by protected sites increases, we need to develop more efficient ways of monitoring changes to them. Aerial photography continues to be an important technique, and part of our research spend covers the acquisition of such photography. Increasingly, we are investigating the potential for remote sensing methodologies to make significant contributions to survey and monitoring work. Projects this year include developmental work in the marine environment.

Risk assessment

This is a new topic. The way in which science is used in public policy and similar contexts has become increasingly controversial in recent years. The outcome has been a recognition that often science cannot predict precisely, but that it can identify the risks and uncertainties associated with a series of options. In contexts such as pesticide use, health, and industrial plant design and management, a more structured approach to such risk analysis has developed, and we are investigating ways in which these might be adapted to natural heritage conservation.

Site survey

In order to inform site specific conservation, we need up to date information on the distribution and abundance of species and habitats within individual sites. Work in this area is largely carried out through the commissioning of external specialists, and reflects local need.

Socio-economics

Understanding the way in which social and economic factors drive impacts on natural heritage conservation is a valuable adjunct to natural science studies, not least in the formulation of advice on economics and other policy instruments.

Species recovery projects

The English Nature Species Recovery Programme aims to secure a future for England's most threatened wildlife. The mechanism for delivering these goals is ultimately through planned practical action. However, survey, ecological research, monitoring and the development of new conservation methods, such as genetic analysis and breeding in captivity to boost native populations, form a significant part of the work.

Species survey

Not all species of interest to English Nature and others are covered by the species recovery programme, and a range of additional species research is included in our programme.

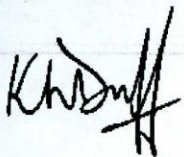
It should be noted that many of our projects aim to meet a range of objectives and therefore this classification should only be seen as indicative of the main objective of a given project.

The information for each entry is laid out as follows:

1. The project title is listed.
2. The contractor is named immediately beneath the project title. Work may be done in-house, via an independent consultant, or via an external organisation.
3. The project end date is given.
3. The cost of the work during 2000/2001 is shown.
5. The English Nature officer responsible for managing the project is identified, followed by the team managing the work.

We have also included within this document listings of publications produced by English Nature staff since April 1999.

I would like to thank all those organisations and individuals who have contributed to English Nature's research effort, as contractors, consultants, research managers and partners. Your efforts in maintaining action for nature through sound scientific information are valued greatly. Thank you all for your help.

A handwritten signature in black ink, appearing to read 'K L Duff', written in a cursive style.

Dr K L Duff
Chief Scientist

March 2001

Address of English Nature's Specialist Support Teams

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Maritime	(01733) 455226
Strategic Development & Reporting (SDRT)	(01733) 455118
Species Recovery Programme	(01733) 455266
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Addresses of English Nature's Local Area Teams

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Humber to Pennines	Bullring House Northgate Wakefield West Yorkshire WF1 1HD Telephone: (01924) 334500
Kent	The Countryside Management Centre Coldharbour Farm Wye Ashford Kent TN25 5DB Telephone: (01233) 812525
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Crookham Common
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Herefordshire HR8 1EP
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Shropshire SY4 4TW
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Wiltshire

Prince Maurice Court
Hambleton Avenue
Devizes
Wiltshire SN10 2RT
Telephone: (01380) 726344

English Nature's Research Programme For 2000/2001

Climate change

Climate change

Environmental Change Institute, Oxford University
M Harley, EIT

January, 2001
£ 48,013

The project, which is funded by a consortium of bodies, is an important first step towards understanding the complex interactions between climate change and nature conservation. It aims to evaluate impacts on a broad range of species and on selected geological features in terrestrial, freshwater, coastal and marine environments.

Coastal processes

Assessment of bird impact on developing saltmarsh at Tollesbury managed retreat site

L Brown
C Reid, Essex, Herts & London

September, 2000
£ 5,125

Determination of bird use at managed retreat site, including determination of diet and feeding rate, and assessment of impact on invertebrate populations.

Dibden Bay geomorphological advice

Posford Duvivier
R Morris, Maritime

July, 2000
£ 4,112

A review of the modelling and engineering proposals for Dibden Bay, to provide evaluation and advice on the long-term implications of the proposals.

Estuaries research programme

H R Wallingford
T Collins, Maritime

March, 2001
£ 13,500

The Estuary Research Programme was established in response to the need for methods to predict changes to estuary functioning. The predictive methods are needed to enable statutory bodies to make management decisions to comply with UK legislation and EC Directives.

Geomorphological casework advice

University of Newcastle
T Collins, Maritime

March, 2002
£ 25,000

Technical advice on coastal processes and ways of defining favourable conservation status for whole estuary systems. This work is necessary to provide advice for Regulation 33 packages for Marine Special Areas of Conservation and Special Protection Areas required under the Habitats Regulations.

Monitoring silt disposal, Titchmarsh Marina

Read Survey
I Black, Essex, Herts & London

March, 2001
£ 2,585

Trial monitoring of settling time, consolidation rates and loss/gain of deposited dredgings within a banded area of eroded saltmarsh, to investigate possibility of re-creation using this method.

North York Moors Heritage Coast

North York Moors National Park Authority
D Clayden, North & East Yorks

March, 2002
£ 2,500

An integrated project with a number of partners to deliver biodiversity and other targets along the Heritage Coast.

Southern North Sea sediment transport study

Consortium
C Pater, Maritime

March, 2002
£ 24,000

The purpose of the study is to obtain an improved understanding of the southern North Sea sediment transport system, and its impact on the East coast of England between Flamborough Head and the River Thames.

Sustainable coastal wetlands

Environment Agency
T Collins, Maritime

March, 2001
£ 10,000

Contribution to Environment Agency "Sustainable Coastal Wetlands" project based on Essex estuaries. This links research projects, practical habitat recreation and enhancement, and pilot management to integrate conservation and economic activity on low lying coasts.

Tamar Estuaries Management Plan 2000 and Plymouth Sound and estuaries SAC plan

Plymouth City Council
J Crix, Devon

October, 2000
£ 5,000

Produce a draft plan for public consultation, undertake public consultations, and produce the final version of Tamar Estuaries Management Plan 2000.

Tamar reedbed

University of Newcastle/Environment Agency
W Smyth, Cornwall

May, 2000
£ 1,500

Feasibility study and impact assessment for Cotehele managed retreat proposal.

Teign estuary management plan

Teignbridge District Council
J Crix, Devon

March, 2001
£ 2,000

A contribution to the core costs of the Teign Estuary Project Officer, to take forward the implementation phase and progress the following projects - restoration of saline lagoons; intertidal biotope mapping; reedbed survey.

Diffuse pollution

Analysis of Red kite carcasses for Rodenticides

CEH Monks Wood
I Carter, Uplands

April, 2000
£ 3,500

Determine the extent of secondary rodenticide poisoning in reintroduced Red kites in England during the past six years.

Digitisation of SSSI catchments

Institute of Hydrology
C Mainstone, EIT

March, 2001
£ 1,500

Generate a digital network of catchment boundaries for aquatic SSSIs, with a view to applying it to a range of national datasets on pollution risk for prioritisation purposes.

Eutrophication and fish health in Slapton Ley

School of Biological Sciences (Dr R Wilson)
S Day, Devon

March, 2003
£ 1,500

Assess the contribution of Slapton and Blacklawton sewage treatment works to phosphate concentrations in the Lower and Higher Leys, and any potential benefits of phosphate reduction to the flora and fauna of the SSSI.

Investigation of pollution incidents in Knotflow Caves

Professor J Gunn, University of Huddersfield
A Hurst, Peak District & Derbys

March, 2002
£ 1,763

Investigate potential pollution in caves in part of a geological SSSI, Upper Lathkill Dale.

Redgrave and Lopham fens

University of Sheffield
R Meade, EIT

March, 2001
£ 1,700

Advice will be given on the possible effects of diffuse agricultural enrichment, if present, on this internationally important fen.

Spray drift from use of Asulam

INTELISYS Ltd/Manchester University
A Burn, EIT

November, 2000
£ 22,447

Continuation of work to determine the risks to non-target flow of aerial application of Asulam, to enable refinement of current advice on buffer zones for aerial spraying. Jointly funded with SNH.

Water protection zones

CEH Monks Wood
C Mainstone, EIT

March, 2001
£ 6,000

Assess diffuse agricultural loads of phosphorus and particulates to the River Lugg, and analyse control options.

Earth heritage

Birling Gap geomorphological advice

Halcrow Group Ltd
T Collins, Maritime

August, 2000
£ 18,000

Research and advice on the impacts of coastal defence works at Birling Gap on coastal processes, land forms and cliff recession. To produce and present a technical proof of evidence at the public inquiry.

Distribution of archaic peat in England

Department of Animal & Plant Sciences, University of
Sheffield
R Meade, EIT

March, 2002
£ 12,664

An inventory of lowland peatlands in England was compiled as part of English Nature's Lowland Peatland Programme. It excluded sites which had been irrevocably damaged, for example by agriculture and forestry. If peat extraction is to continue in England it must occur on sites where no damage is done to resources of nature conservation or archaeology. This expanded inventory will inform such future decisions.

Dorset World Heritage project

Dorset County Council
A King, EIT

March, 2001
£ 10,000

Coordinate and assist input of nature conservation objectives (in this case geological aspects) into the application and management plan for proposed East Devon - Dorset Coast World Heritage Site.

Mineralogical sites of northern England

British Geological Survey
M Murphy, EIT

November, 2000
£ 2,500

Compilation of data on the current condition of mineral sites in northern England and on the usage and threats to the sites, to provide more effective management of sites.

Mineralogical sites of south-west England

Dr R F Symes and Dr C Sparrow
M Murphy, EIT

February, 2001
£ 2,400

Compilation of data on the current condition of mineral sites in south-western England and on the usage and threats to those sites, to provide more effective management of sites.

Specialist Advisor - Karst/Cave Conservation

Professor J Gunn, University of Huddersfield
J Stewart, Peak District & Derbys

March, 2001
£ 2,100

Provide the Peak District and Derbyshire Team of English Nature with specialist conservation advice on karst/cave conservation, especially in relation to geological SSSIs.

Habitat and area survey

Conservation assessment of *Sabellaria alveolata* reefs on the east Irish sea coast

Dr N Cutts, Institute of Estuarine & Coastal Studies,
University of Hull
C Lumb, Cumbria

September, 2001
£ 10,000

Undertake baseline mapping, condition evaluation and conservation assessment of the honeycomb worm *Sabellaria alveolata* reefs on the east Irish sea coast.

Contribution to Hampshire & Isle of Wight Habitat Survey

Hampshire Wildlife Trust
R Wright, Hants & Isle of Wight

October, 2000
£ 5,500

This project aims to identify Sites of Importance for Nature Conservation [SINCs] in Hampshire. Criteria for SINC selection have been developed and agreed by EN, Hampshire County Council and Hampshire Wildlife Trust.

County wildlife sites and biodiversity

Norfolk Wildlife Trust
K McNaught, Norfolk

March, 2002
£ 8,000

Analysis of BAP actions in relation to County Wildlife Sites and communications with landowners, to promote positive action and integration of work with other agencies. Identifying County Wildlife Sites of special importance to BAP and targeting advice and practical help.

Culm grassland study

Plymouth University
D Hazlehurst, Cornwall

September, 2000
£ 1,500

Botanical survey of five Cornish culm grassland SSSIs, to complete the characterisation of the culm natural area, to enable us to recreate culm grassland on former sites.

Derbyshire Biodiversity Action Officer

Derbyshire Wildlife Trust
R Catchpole, Peak District & Derbys

March, 2003
£ 5,000

Assist implementation of Local Biodiversity Action Plans in Derbyshire, including ecological survey work, habitat and species action plan production, implementation of actions and liaison with partners in the biodiversity process.

Dorset neutral grassland inventory

Dorset Environmental Records Centre
N Squirrel, Dorset

March, 2001
£ 1,000

Digitise the boundary of all semi-natural neutral grassland within SSSIs in Dorset, to complete the Neutral Grassland Inventory.

EU significance of British woodland

Unit of Vegetation Science, Lancaster University
K Kirby, Lowlands

August, 2000
£ 2,000

Provide an assessment of the distribution of Annex 1 woodland types across Europe (and as far as it can be ascertained related BAP priority woodland types) with a commentary on the relative significance of the British examples.

Exe Estuary Ditch survey

N F Stewart
S Bates, Devon

October, 2000
£ 3,820

Survey of ditch flora on Exminster marshes which is within the Exe Estuary SSSI and SPA. The ditch flora and fauna is one of the nationally importance features at this SSSI.

Fen inventory for strategic planning

Department of Animal & Plant Sciences, University of
Sheffield
R Meade, EIT

November, 2001
£ 17,410

Provide an inventory of fen types in England which will inform the selection and designation of sites, and their suitability for management and contribution to HAP targets.

Grassland survey, North Somerset/Banes

Avon Wildlife Trust
B Greenwood, Somerset

October, 2000
£ 5,000

Through survey work, identify grasslands of SSSI and SNCI quality in North Somerset/Banes area.

Investigation into distribution and extent of ross worm *Sabellaria spinulosa* reefs in Swanage Bay

Dorset Wildlife Trust and Durlston Marine Project
V Copley, Dorset

March, 2001
£ 5,000

Map extent of *Sabellaria spinulosa* reefs in Swanage Bay from remote sensing methods. Provide ground truthing information from diver and video observations. Provide interpretative material to promote and inform public and decision makers of interest of this habitat.

Investigation into the distribution and extent of *Sabellaria alveolata* reefs in West Dorset

Charmouth Heritage Coast Centre
V Copley, Dorset

March, 2001
£ 2,000

Identify effective means of mapping *Sabellaria* reefs, including comparison of ground versus remote/aerial data. Provide a baseline map of distribution and extent of *Sabellaria* in West Dorset. Investigate management measures which might be appropriate. Make recommendations for production of interpretative material.

Limestone Pavement condition database

Various
S Webb, Cumbria

February, 2001
£ 1,000

Provide updates and infill missing data on the UK limestone pavement database.

Littoral sediment sampling

Plymouth Marine Laboratory, Centre for Coastal and
Marine Sciences
R Covey, Cornwall

January, 2001
£ 3,567

Undertake sediment sampling using published methods, to establish monitoring sites and baseline values for the following attributes: extent of sandflats, sediment character, species composition and sand communities.

Lowland grassland sample survey

Wessex Environmental Associates
H Robertson, Lowlands

March, 2002
£ 10,000

Assess the changing status of the lowland grassland resource in the UK, including a final report detailing the results of the sample survey. This project will enable the Country Agencies to report on BAP action plan targets for lowland grassland habitats. Work in 2000/01 is concentrating on the production of condition assessment protocols for a range of non-SSSI lowland grassland types. These protocols will be used in the sample survey in year 3.

Lowland parkland and wood-pasture information system

Environmental Information Management Ltd & Blue Bag
Ltd
R Key, Lowlands

March, 2002
£ 6,000

Provide a web-based, information source on the biological, landscape, historical and cultural conservation values of Lowland parkland and wood-pasture sites in Britain. This is being done as an adjunct to the National Biodiversity Network and connects NBN data with external non-biological information sources for the first time

Lowland wood pasture survey, Staffordshire

Staffordshire Wildlife Trust
G J Walker, West Midlands

January, 2001
£ 5,500

Complete a survey of Staffordshire Wood pastures and parklands. To develop and compare approaches used in the survey with those in other counties, and to make recommendations on best survey methods.

Lyme Bay reefs project

Devon Wildlife Trust
J Crix, Devon

March, 2004
£ 5,000

Carry out extensive surveys of three reef systems within Lyme Bay, to determine current conservation status of the communities they support, and the work with relevant organisations and individuals to develop seabed management proposals.

Maritime cliff and slope inventory

University of Southampton
S Rees, Maritime

January, 2001
£ 30,000

Phase 1 of a 3-year project to develop a GIS-based inventory for holding existing and new information on the Maritime cliff and slope resource in England. This will help to implement the Maritime cliff and slope Habitat Action Plan (HAP) and will link into the National Biodiversity Network (NBN).

Measuring changes in biodiversity in British woodland

Centre for Ecology and Hydrology
K Kirby, Lowlands

March, 2001
£ 10,000

Data from woodland surveys in 1971 will be analysed to assess its value as a baseline for determining long-term woodland changes across a range of types and geographic areas. The data considered will include both ground flora and tree and shrub information.

Mediterranean temporary ponds in the UK, their status, ecology and management

University of Plymouth, Department of Biological
Sciences
J Clitherow, Cornwall

March, 2002
£ 6,500

Documentation of the extent and location of Mediterranean Temporary Ponds and associated still water habitats on The Lizard and New Forest heaths.

North Norfolk heath and mire survey

Cambridge University
A Millar, Norfolk

October, 2000
£ 2,090

New flight of aerial photographs of North Norfolk heath and mire sites, to enable SAC and SSSI objective setting and inform management and monitoring plans. Joint English Nature and Norfolk Wildlife Trust project.

North Yorkshire Local Biodiversity Action Plan

North York Moors County Council
S Woolven, North & East Yorks

March, 2002
£ 11,500

Continuation of work to develop a county local biodiversity action plan, incorporating work on sites of importance for nature conservation.

Northumberland Audit

Northumberland County Council
J Barrett, Northumbria

December, 2000
£ 6,250

Production of a habitat survey for south east Northumberland. To inform future casework and management/protection policies.

NVC survey of SSSIs in Humber to Pennines team

Bullens
D Ramsay, Humber to Pennines

March, 2001
£ 20,000

Second year of 3 year project to provide NVC survey for all SSSIs in the Humber to Pennines Team.

NVC survey of woods in Wiltshire

Wessex Environment
P Cashman, Wiltshire

August, 2001
£ 6,000

Provide the mapped extent of National Vegetation Community types (NVC) at 1:10,000 scale for selected SSSIs in Wiltshire.

Regional biodiversity audit

In-house
J Barrett, Northumbria

February, 2001
£ 12,000

Production of regional biodiversity audit by North East Biodiversity Forum.

***Sabellaria spinulosa* reef distribution in the Wash**

Eastern Sea Fisheries Trust Committee
I Paterson, East Midlands

January, 2001
£ 15,000

Establish the temporal and spatial distribution of *Sabellaria spinulosa* in the Wash - North Norfolk coast site using remote sensing techniques. To identify any interactions between *S. spinulosa* and fisheries in the Wash.

***Sabellaria spinulosa* reef investigative study**

North Western & North Wales Sea Fisheries Committee
H Johnston, Cumbria

To be decided
£ 5,000

Review the historic status and check the present status of ross worm *Sabellaria spinulosa* reefs in Morecambe Bay.

Wood-pasture surveys - lessons from Wildlife Trust surveys

Staffordshire Wildlife Trust
K Kirby, Lowlands

March, 2001
£ 5,000

Staffordshire Wildlife Trust are carrying out a survey of wood-pasture sites in their county. As part of the final report they will draw together lessons and experience and compare with that from selected other county trust surveys.

Habitat Management

Assessment of structure at Langley Wood NNR

J Cox
D Burton, Wiltshire

March, 2001
£ 2,500

Assess structure of a woodland in minimum intervention management. To provide data on native tree species, age, and loss amount of dead wood and ground flora.

Contribution to Hampshire grazing project Year 2

Hampshire County Council
B Proctor/R Ekins, Hants & Isle of Wight

October, 2000
£ 22,000

Develop, coordinate and promote sustainable grazing management systems within Hampshire, to facilitate the positive management of important wildlife sites and traditional landscapes, to achieve conservation, landscape and rural objectives.

Developing a series of minimum intervention sites in English woodland

Dr R Tittensor
K Kirby, Lowlands

March, 2002
£ 12,000

During 1999 work was carried out to develop the rationale for a series of minimum intervention sites across the ecological and geographic range of English woodland, and a preliminary set of candidate sites was developed. During the current year this list will be developed, and baseline monitoring will be carried out in selected sites.

Development of LIFE bid for North York Moors

North York Moors National Park Authority
D Clayden, North & East Yorks

October, 2000
£ 3,000

Develop a major LIFE nature bid for enhancement work on the large North York Moors SSSI, SPA and pSAC.

Ecologically sustainable grazing management of lowland semi-natural grassland

Institute of Grassland and Environmental Research
R G Jefferson, Lowlands

October, 2004
£ 10,000

Identify optimum grazing management for semi-natural grassland based on sward structure criteria, to enhance and maintain ecological value and to quantify the impact of this management on the growth of commercial beef cattle. The project will provide information that will underpin grazing management practices on protected sites and in agri-environment scheme agreements.

Experimental investigation of bracken control, Langley Wood NNR

Wessex Environmental Associates / John Hooper
D Burton, Wiltshire

March, 2003
£ 2,000

Experiment to study the control of bracken in Langley Wood NNR by pigs, in comparison with Asulam spraying and rolling. The experiment will also study the recovery of bracken after treatment and the regeneration of ground flora.

Fenn's Moss vegetation change

K Horton
J L Daniels, West Midlands

March, 2002
£ 2,000

An assessment of the cover of key species, to measure the extent of recolonisation and vegetation change in the light of reclamation management. To assess site condition and future work requirements.

Flamborough Head SAC

In-house
D Leach, North & East Yorks

March, 2002
£ 20,500

Coordination and development of the management scheme and other work at this important maritime site.

Forum for the Application of Conservation Techniques

Various
J Bacon, Lowlands

To be decided
£ 74,000

Multiple objectives for different parts of the project include: a) Develop and drive inter-organisational liaison on practical land management issues; b) Develop and run the Grazing Animal project for 'landscape' scale conservation; c) Assist development of rural/countryside industries; and d) Develop improved and new techniques and machinery for conservation management through the ENPACT Project.

Hay meadow analysis on SSSI sites

ADAS Consulting Ltd
A Hurst, Peak District & Derbys

March, 2001
£ 2,600

Analysis of hay samples from SSSI sites for nutritional quality and mineral content.

Humberhead Peatlands NNR biodiversity management scoping project

Penny Anderson Associates
T Kohler, Humber to Pennines

July, 2000
£ 4,000

Assess the impact of management on the biodiversity of the NNR.

Implementation of Cotswold Water Park Biodiversity Action Plan

Dr S Pickering, Cotswold Water Park Society
H Ward, Three Counties

March, 2002
£ 13,000

Promote and implement the Cotswold Water Park Biodiversity Action Plan.

Montane heath restoration in the Lake District

Rigby Jerram
J Johnston, Cumbria

March, 2010
£ 2,250

Determine maximum rate of recovery of montane heath; help inform definition of favourable condition of montane heath in the Lake District; and demonstrate the effects of three different grazing regimes on montane vegetation.

Moorland management, Long Mynd

National Trust
A C Hearle, West Midlands

February, 2001
£ 3,000

Monitoring and assessment including: Heather condition and consumptions survey; condition of flushes and dwarf-shrub heath; recovery of heather cuts and burns; stocking levels and supplementary feeding practice. Review of management plans for heather and bracken.

Production of Site Management Statements and Management Prescriptions in the New Forest and Isle of Wight

Ms J Barneveld
R Wright, Hants & Isle of Wight

March, 2001
£ 18,067

Produce agreed Site Management Statements for the private owner/occupiers in the cSAC, as a basis for Wildlife Enhancement Scheme (WES) agreements, for habitat restoration within the New Forest cSAC. To complete SAC-wide coverage for the evolving SAC Management Plan as required under the EU LIFE II programme.

Restoration of replanted ancient woodland

Forest Enterprise
K Kirby, Lowlands

December, 2000
£ 6,000

Forest Enterprise has large areas of replanted ancient woodland and are committed to restoring substantial areas of this to native broadleaves. English Nature is making a contribution to survey work on their estate to identify the areas where such restoration will make the biggest contribution to delivering BAP targets.

Specialist advice contract for New Forest SAC Management Plan

N Sanderson
R Wright, Hants & Isle of Wight

March, 2001
£ 5,000

Provide specialist advice on technical matters relating to compilation of the New Forest SAC Management Plan, as required under the EU LIFE II programme.

The impact of organic manures on semi-natural grasslands

Consortium led by Institute of Grasslands and
Environmental Research
R G Jefferson, Lowlands

March, 2005
£ 10,000

Determine optimum rates of farmyard manure application to semi-natural meadows through the conduct of experimental research in the field. To test whether equivalent nutrient supply by inorganic fertilisers and other slow-release fertilisers can substitute for farmyard manure. The results of this work will be used to develop best conservation management practices.

Hydrology

Effects of drain management on Solway Mosses cSAC

Dr J Labadz, Nottingham Trent University
M Robinson, Cumbria

February, 2001
£ 4,000

Ascertain the contribution each drain is having on transport of water from Solway Mosses cSAC. To assess the effect cessation of drain management and drain blocking would have on adjacent farmland.

Effects of grazing and burning on Dartmoor soils and hydrology

University of Plymouth
S Bates, Devon

March, 2001
£ 2,000

Assess changes in hydrology and soil organic carbon signatures as a result of the degradation pressures caused by grazing and burning.

Fenn's Moss discharge flow measurement

K Gilman
J L Daniels, West Midlands

March, 2002
£ 3,000

Measure water-flows leaving the main exits from this site, to provide data to counter local concerns about restoration management of the Moss. To install v-notch weirs and chart recorders at 5 locations on main outflows, and analyse data.

Hell Kettles nutrient enrichment

University of Durham
S Hedley, Northumbria

June, 2000
£ 2,000

Hydrological and chemical study at Hell Kettles SSSI, in particular sediment core obtaining and analysis, to inform future management policy.

Hydrological research on the River Lathkill

Professor J Gunn, University of Huddersfield
B Le Bas, Peak District & Derbys

March, 2001
£ 5,700

Provide background information on the causes of low flows in the River Lathkill part of the Lathkill Dale SSSI, which is part of the Derbyshire Dales NNR, the Peak District Dales candidate SAC, and the Peak District Dales Woodlands candidate SAC. To research the invertebrate populations of the river to compare the river's invertebrate ecology in permanent flow and low flow stretches.

Hydrological survey (assessment of implications of NNR management), Fens & Whixall Mosses NNR

K Gilman
J L Daniels, West Midlands

May, 2000
£ 2,620

Provide an assessment of the effect of both past and proposed EN/CCW management operations at Fens & Whixall Mosses NNR upon water levels within and below the peat body, flow volumes within the adjacent land drainage system, and surface water flooding on both the NNR and adjacent land.

Meres and Mosses project

ECUS
C Walker, West Midlands

October, 2000
£ 20,864

A study of the meres and mosses and their catchments which will encompass wetland sites notified as SSSIs within the Meres and Mosses Natural Area. For each site, or complex of wetlands, the project will produce a range of information on ecological characteristics, hydrology, land use, issues affecting water quality, ownership, and suggestions for further research.

Ombrotrophic peatland drainage

University of Plymouth
R Meade, EIT

March, 2002
£ 2,200

The wetness and maturity of a raised bog surface is reflected in the species composition of its testate amoeba fauna. The phenomenon is being developed as a condition assessment tool for contemporary bog surfaces, by reference to what is found fossilised in peat strata.

Restoration Scheme, Water budget study, Stodmarsh NNR

Cranfield University
P Burnham and C Newbold, Kent and EIT

March, 2003
£ 10,000

Investigate and quantify the water budget for future sustainability of turf-fields restoration area, with special regard to summer period.

Topographic survey, Wangford Warren SSSI

Middle Fen and Mere IDB
N Sibbett, Suffolk

February, 2001
£ 1,500

Plot the levels of degraded wetland, to help plan water level management.

Water framework directive

IEEP
D Withrington, EIT

March, 2001
£ 15,000

Provision of specialist advice on the implementation of the new EU Directive and its application within the UK.

Wedholme Flow hydrological study

Nottingham Trent University
R Meade, EIT

March, 2001
£ 7,000

The hydrology of Wedholme Flow is complex, with evidence of subsurface flow, modified by the position of sub-peat mineral ridges. The project aims to express differences in the wetness and cracking of land emerging from or next to peat extraction in hydrological terms.

Wise use of floodplains

Various (RSPB Life Project)
J Burney, EIT

March, 2002
£ 2,500

Contribution to RSPB Life project on appraisal methods for the EU Water Framework Directive.

Impact studies

Dispersant impact study

A D Little
N Hailey, Maritime

September, 2000
£ 2,600

Review impacts of dispersants in the marine environment, to inform all concerned in meeting decisions on their use during oil spill response, in order to minimise impacts on nature conservation interests.

Dynamics, resource utilisation and management of mussel beds in Morecambe Bay

North Western & North Wales Sea Fisheries Committee
C Lumb, Cumbria

February, 2001
£ 10,000

Investigate the natural dynamics and exploitation by man and wildlife of intertidal and subtidal mussels around Foulney Island, Morecambe Bay, and assess the implications for the management of the European marine site.

Endocrine Disruptors in European Marine Sites

CEFAS
A Burn, EIT

May, 2000
£ 3,000

Determine potential risk to European marine sites and to marine BAP species and habitats of endocrine disruptors, based on current knowledge.

Fal sustainable water access study

John Pattison Associates Ltd
R Covey, Cornwall

January, 2001
£ 3,000

Develop slipway and jetty plans which will enable water access without long-term habitat loss.

Fisheries casework advice

Dr S J Lockwood
P Knapman, Maritime

March, 2001
£ 6,000

Provide technical advice on fisheries related matters to English Nature's fisheries liaison officer.

Investigation into the extent of bait collection and its impacts on features of conservation interest for birds within the Solent & Poole Bay Natural Area

S Fowler, The Nature Conservation Bureau
A Gordon, Hants & Isle of Wight

February, 2001
£ 6,545

Identify and map the extent and location of commercial and non-commercial bait collection within the Solent Maritime cSAC and Poole Harbour cSAC. Compare bait collection areas with location of features of conservation interest, and identify the impacts of bait collection, focussing specifically on impacts to bird interest features.

Marine water quality

IECS
A Burn, EIT

December, 2000
£ 15,000

Determine the effects on wildfowl and wader populations in coastal and estuarine SPAs, of reductions in nutrient and organic enrichment following implementation of clean-ups, under Waste Water and Bathing Water Directives.

Monitoring of raised water level area grasslands, Somerset Levels and Moors

Ecological Surveys (Bangor) January, 2003
M Jones, Somerset £ 4,180

Continued monitoring of the effects of high winter water levels on botanically important flood pastures and fen meadow communities.

Review of extant planning permissions on SSSIs

Symonds Group Ltd November, 2000
N Bennett/J Finnie, SDRT £ 40,000

Identify all extant planning permissions on or near SSSIs, and review their likely impact should they be exercised.

Sheep dip disposal

Durham University March, 2001
A Burn, EIT £ 37,000

Joint funding with CCW. To determine risks to invertebrates and dependent bird populations as a result of sheep dip disposal on to land. To improve advice given to competent authorities during consultations over disposal under Freshwater Regulations.

St. Ives sea bird study

Cornwall Sea Fisheries Committee February, 2001
R Covey, Cornwall £ 7,000

Develop fisheries management of St. Ives Bay to ensure general sustainability, and in particular, to reduce seabird mortality.

Stour estuary wildfowling review

British Trust for Ornithology June, 2000
R Morris, Maritime £ 5,500

Evaluate current wildfowling levels in relation to bird usage. To develop possible models for sustainable wildfowling on the Stour estuary.

Tees estuary management plan

Industry Nature Conservation Association February, 2001
M Leakey, Northumbria £ 5,800

Support and implementation of Tees estuary management plan.

Wedholme Flow drainage and peat cutting

Dr T Dargie
R Meade, EIT

March, 2001
£ 10,000

Wedholme Flow supports a patchwork of vegetation, its condition depending on its drainage and peat cutting history. An analysis of the variation within the vegetation will identify differences in the potential of areas emerging from or close to peat extraction and help to explain these in hydrological terms.

Wedholme Flow surface contours

University of Southampton
R Meade, EIT

March, 2001
£ 4,000

Wedholme Flow is a raised bog, and early Ordnance Survey maps indicate the presence of a central dome. The study of relative heights of contemporaneous strata in the peat may reveal whether there has been recent shrinkage attributable to drainage and peat cutting.

Invasive exotic species

Bullfrog work

Froglife
B Banks, Kent

May, 2000
£ 3,500

Eradication of American bullfrogs (*Rana catesbeiana*), to include production of information leaflet, and report on methodology, and survey of other locations.

Problem exotic species management

Professor Rob Marris, University of Liverpool
J Hopkins, SDRT

October, 2002
£ 20,000

Compilation of current knowledge concerning the management and control of those introduced species which cause damage to biodiversity in Britain. A methodology for decision making about management will be developed, and species specific data found will be published on web pages.

Spartina action plan

Centre for Ecology and Hydrology
I Pearson, Hants & Isle of Wight

February, 2001
£ 5,795

Establish the true identity of the *Spartina glabra*-like plants previously recorded at Hythe on Southampton Water. Establish the current distribution of *Spartina x townsendii* between Hythe and the Esso Fawley Refinery on Southampton Water.

Landscape ecology and restoration

An investigation into the priority habitat features for Greater horseshoe bats using the Bryanston SSSI, Dorset

Conservation Consultancy/DERC
J A Stobart, Dorset

March, 2001
£ 3,000

Identify, prioritise and map important habitat features within study area. Identify, prioritise and map potential habitat enhancement measures within study area. Provide conservation advice, targeted specifically at planning authorities, for the protection and management of important habitat features.

Contribution to Forest Friendly Farming Project Phase 1

New Forest Committee
R Wright, Hants & Isle of Wight

December, 2000
£ 6,000

Secure sustainable land management which maintains the special qualities of the New Forest by developing, coordinating and promoting projects which support the traditional practice of farming and commoning within the New Forest Heritage Area.

Contribution to the Eastern Yar project, Isle of Wight

Island 2000 Trust
A Gordon, Hants & Isle of Wight

November, 2001
£ 5,000

The project aims to demonstrate the restoration of an entire river system from source to sea. It will also demonstrate how different 'degrees' of river restoration in different land use areas can tie in a whole system that is sustainable. Within this context, we can show how the ability to only partially restore some reaches should not jeopardise sustainability of the system as a whole.

Delivery of Fens HAP, restoring favourable condition at the Flits NNR

Various
H Stace, Three Counties

March, 2001
£ 10,000

Analysis of NVC survey carried out in Autumn 1999, to provide baseline data prior to major management works, including major programme of scrub control, ditch management and review of grazing regime.

Gaywood Valley restoration

Land Use Consultants
A Millar, Norfolk

October, 2000
£ 3,000

Production of full feasibility study with costed design options and implementation plan for the restoration of Leziate, Sugor and Derby Fens SSSI, linking fragmented sections and securing creation of new habitats in the Gayward Valley as a significant contribution to wetland and heathland habitat BAP targets.

Lakes of conservation importance

Various
D Withrington, EIT

March, 2001
£ 29,000

Produce a prioritised list of lakes requiring restoration, and undertake urgent feasibility studies on four SSSI lakes.

New Wilderness Woodland

Countryside Council for Wales
K Kirby, Lowlands

June, 2001
£ 5,500

This is an inter-agency project involving CA, CCW and SNH, looking at the potential for developing new woods through natural regeneration as part of new 'wilderness' type landscapes.

PhD studentship to research monitoring methodology and the effects of habitat fragmentation and isolation on saproxylic invertebrates

Dr A Pullin, University of Birmingham
R Key, Lowlands

March, 2002
£ 13,930

Develop non-invasive survey methodology techniques for the monitoring of saproxylic invertebrates listed in BAP, and to use the methodology to examine the effects of barriers to dispersal, habitat fragmentation and isolation on the viability of populations of saproxylic invertebrates in Lowland Parkland and Wood-pasture.

Ponds for People project and pond management handbook

Ponds Conservation Trust
M Drake, Lowlands

March, 2002
£ 10,000

Publish The Ponds Book. Implement the first stage of the Ponds for People Project which aims to create or restore 250 ponds in the north-east of England, to make a landscape scale impact on species recovery.

Regenerating raised bog on cut-over peatlands

Department of Animal & Plant Sciences, University of
Sheffield
R Meade, EIT

March, 2005

£ 4,520

Cessation of peat extraction on SACs, SSSIs and other designated sites will leave various types of surface for rehabilitation of raised bog. This project will test recent hypotheses about rehabilitation techniques involving resoaking and introduction of nurse plant species on internationally important peatlands.

Restoration of calcareous grasslands in Torbay

Torbay Coast & Countryside Trust
D Appleton, Devon

March, 2002

£ 3,000

Return Torbay's prime calcareous and coastal grassland to favourable condition, and reduce scrub cover by 10% across Torbay by 2002. Provide suitable conditions for the recovery of a wide range of species associated with calcareous grassland.

Restoration of lakes

Institute of Freshwater Ecology
C Newbold, EIT

April, 2000

£ 6,000

Factors affecting the ecology of Esthwaite Water, Derwent Water, and Bassenthwaite are being researched. The need for restoration will be assessed, the feasibility of restoration will be explored, and the type of restoration required will be discussed.

Reversing fragmentation - landscape scale approach

Forest Research
K Kirby, Lowlands

March, 2001

£ 26,000

Identifying where new woodland would best be created to help reverse past fragmentation requires good knowledge of the distribution and character of existing woodland across the country. This project will combine existing data-sets, principally the National Inventory of Woodland and Trees and the Ancient Woodland Inventory, to describe and analyse variations in woodland pattern by Natural Areas.

River Went wet grassland feasibility study

ESL
T Kohler, Humber to Pennines

July, 2000

£ 2,500

Assess possibilities for wet grassland recreation along the River Went, South Yorkshire.

Rivers Biodiversity Action Plan, Southwest Shropshire

Shropshire FWAG
A C Hearle, West Midlands

January, 2001
£ 2,000

To raise awareness of biodiversity on farms within the target river catchments (Teme, Clun, Orny), especially about riparian and riverine wildlife habitats, and to integrate conservation management for BAP species into routine farm work. To raise awareness of environmental problems and the links with agricultural practices. To promote the benefits (both to wildlife and agriculture) of best practice management.

Severn and Avon Vales wetland re-creation project

Dr B Smith
P Holmes, Three Counties

July, 2003
£ 15,000

Following identification of 18 zones within which wetland re-creation could occur, to deliver wetland re-creation through partnership development, acquisition of finance and working with landowners.

Wear Valley HLF bid development

In-house
A Carter, Northumbria

March, 2001
£ 9,000

Technical development of bid to HLF for habitat and landscape improvements in Wear Valley.

Woolhope Prime Biodiversity Area development

Herefordshire Nature Trust
C Pagendam, Three Counties

December, 2000
£ 4,000

Produce a targeted habitat conservation management and restoration vision for the Woolhope Dome and costing for delivery via the Wye Valley AONB and partners.

Natural Heritage Information Systems

Digitisation of Phase 2 survey maps

Exegesis
I Slater, Cumbria

March, 2001
£ 2,000

Digitise all NVC survey maps and other Phase 2 survey information for SSSIs in Cumbria.

Dorset bird records

Dorset Environmental Records Centre
I Alexander, Dorset

March, 2001
£ 2,000

Dorset Bird Club members collect thousands of bird records every year which are lost to the conservation movement, because they are not stored in a retrievable way. This project aims to establish a mechanism for entering bird records on the Dorset Environmental Records Centre database.

ERCCIS service level agreement

Environmental Records Centre, Cornwall Wildlife Trust
J Clitherow, Cornwall

March, 2001
£ 10,000

Contribution towards running costs and Recorder support, for the Environment Records Centre for Cornwall and the Isles of Scilly (ERCCIS).

Hereford Biological Records Centre development

C Copp
D Heaver, Three Counties

March, 2001
£ 9,000

Creation of an NBN compliant development plan for County Records Centre.

MarLIN

Marine Biological Association
D Laffoley, Maritime

March, 2001
£ 50,000

Develop and implement three years of research under the MarLIN project, to underpin the information requirements of the UK Biodiversity Action Plan (BAP) and the Habitats Directive on the sensitivity and vulnerability of marine wildlife. Also to make the information available on the World Wide Web.

Suffolk Biological Records Centre (SBRC)

Somerset Environmental Records Centre
R Rafe, Suffolk

March, 2001
£ 8,000

Contribution to the SBRC partnership. SBRC partnership have let contract to develop business plan for SBRC; through SERC. Partnership funding also cover ongoing running costs of SBRC.

Threatened plant database

BSBI
S Leach, Somerset

October, 2001
£ 10,000

Initiate and develop, as an NBN pilot project, and to provide a model for future initiatives, a database for threatened vascular plants.

Worcestershire Biological Records Centre development

Somerset Environmental Records Centre
D Heaver, Three Counties

March, 2001
£ 7,000

Creation of an NBN linked development plan for County Records Centre.

Public Access

Access to the countryside and bird conservation: A strategic framework for research

Dr D Liley
G Bathe, EIT

January, 2001
£ 5,400

English Nature was given new statutory responsibilities, to advise government on the ecological effects of new public rights of access to open land, under the Countryside and Rights of Way Act 2000. Relevant scientific information to support such advice is known to be scattered and possibly incomplete, and a review is proposed to draw together current knowledge and identify gaps.

Remote sensing and telemetry

Air photography of Morecambe Bay European marine site

Lancaster City Council
H Johnston, Cumbria

August, 2000
£ 2,000

Acquire orthorectified colour air photography of Morecambe Bay European marine site, to support baseline assessment, condition monitoring, investigative studies and casework.

Air photography of Sandscale Haws NNR and pSAC

Lancaster City Council
J Lusardi, Cumbria

August, 2000
£ 2,000

Acquire orthorectified colour air photographs of the Sandscale Haws NNR and proposed cSAC extension.

Digital camera and lower plants monitoring

Royal Botanical Gardens, Kew
R Porley, Lowlands

April, 2001
£ 2,000

Develop and apply innovative techniques for monitoring lower plants.

Isles of Scilly aerial photography

Geographic Information Group
R Covey, Cornwall

February, 2001
£ 2,000

Digitisation of existing aerial photos from Isles of Scilly.

Remote sensing methods development for marine SAC monitoring

Environment Agency - National Centre for Environmental
Data and Surveillance
E Murray, SDRT

April, 2003
£ 25,000

To assess the reliability of two remote sensing systems to monitor changes in vegetation distribution and coastal habitat morphology. This will be achieved by using CASI (Compact Airborne Spectrographic Imager) and LIDAR (Light Image Detection and Ranging) repeatedly over 3 years and critically analyse observed changes

Risk assessment

Risk assessment methods

Dr A Hart, Central Science Laboratory, York
A Burn/J Burt, EIT

March, 2001
£ 30,000

In recent years there has been rapid development of techniques of risk assessment in contexts such as health and safety and pesticide evaluation, particularly to underpin public policy decisions. An investigation of how these methods might be adapted to wildlife conservation will be carried out and further development work identified.

Site survey

Ashton Court SSSI invertebrate survey

Mr D Boyce
B Greenwood, Somerset

March, 2001
£ 3,000

Further establish the composition of specialist deadwood invertebrate fauna found at this SSSI, to assist in the formulation of appropriate management.

Avon Gorge survey and monitoring

Bristol City Council
B Greenwood, Somerset

February, 2001
£ 3,000

Establish the status of rare plants in the Gorge, and monitor management works to establish its effectiveness.

Baseline NVC and condition survey, mapping and digitisation of saltmarshes in the Duddon Estuary SPA and part cSAC

G Skelcher
J Lusardi, Cumbria

November, 2000
£ 2,000

Prepare digital maps of the saltmarsh habitats in the Duddon Estuary, showing the distribution of NVC communities and their condition, particularly in respect of sward structure and height.

Baseline survey of Annex 1 pioneer saltmarsh in the Solway Firth European marine site

University of Northumbria
K Sampson, Cumbria

December, 2000
£ 3,000

Undertake a baseline survey of Annex 1 pioneer saltmarsh habitat, to inform condition monitoring of the cSAC habitat, and the available grazing for SPA bird interests.

Berwickshire and North Northumberland coast European marine site implementation officer

Northumberland County Council
S Coles, Northumbria

March, 2001
£ 25,000

Enable employment of an implementation officer who will initially oversee completion, production and promotion of the European marine site scheme of management.

Bird interest study of Mersey Estuary SPA

Liverpool Museum and Mr G Thomason
N George, North West

December, 2000
£ 2,000

Prepare a series of maps indicating key bird sites within and around the periphery of the Mersey Estuary SPA. Indicate the existing coverage of WeBS core counts and low tide counts (and any other key bird censuses) within and around the periphery of the Mersey Estuary SPA.

Bird interest study of Dee Estuary SPA

C Wells
N George, North West

December, 2000
£ 2,000

Prepare a series of maps indicating key bird sites within and around the periphery of the Dee Estuary SPA. Indicate the existing coverage of Wetland Bird survey (WeBS) core counts and low tide counts (and any other key bird censuses) within and around the periphery of the Dee Estuary SPA.

Bird interest study of Ribble and Alt Estuaries SPA

Liverpool Museum
N George, North West

December, 2000
£ 2,000

Prepare a series of maps indicating key bird sites within and around the periphery of the Ribble and Alt Estuaries SPA. Indicate the existing coverage of WeBS core counts and low tide counts (and any other key bird censuses) within and around the periphery of the Ribble and Alt Estuaries SPA.

Bird survey, Benacre NNR

D Pearson
A Burrows, Suffolk

November, 2000
£ 3,300

Full breeding bird survey of the Benacre NNR; to form the baseline for measuring future change.

Botanical monitoring, Widdybank Fell

Rigby Jerram
C McCarty, Northumbria

February, 2001
£ 2,000

Determine any changes in distribution and abundance of important species in the floristically-rich flush systems at Widdybank Fell. To relate the above to past and current management and inform future management policy.

Botanical survey of Wilbraham Fen & Orwell Clunch Pit SSSIs

S Lambert
D Radley, Beds, Cambs & Northants

November, 2000
£ 2,004

Carry out a botanical survey of Wilbraham Fen SSSI to provide information on its current botanical interest to inform decisions about, and to determine the success of, future management. Carry out a botanical survey of Orwell Glebe land, which lies immediately adjacent to Orwell Clunch Pit SSSI, to provide information on its current botanical interest and to assess whether it meets current SSSI criteria using the published guidelines.

Cannock Chase Biodiversity Action Plan

Staffordshire County Council
G J Walker, West Midlands

March, 2001
£ 1,000

Invertebrate survey and management recommendations for Cannock Chase SSSI.

Castle Hill SSSI, invertebrate survey of parkland

Entotax
D Clayden, North & East Yorks

March, 2001
£ 2,000

Continuation of invertebrate survey and assessment of veteran trees and dead wood at this important North Yorkshire site.

Clarepool Moss peat survey

Nichol Jones Lomax
C Hogarth, West Midlands

June, 2001
£ 2,000

Survey to establish and map the extent of the peat body, to provide a basis for management of the site under a Section 15 agreement.

Contribution to Isle of Wight Estuaries project

Isle of Wight Council
C Lambert, Hants & Isle of Wight

September, 2000
£ 3,000

Develop and implement the Management Plans of the Medina and Yar Estuaries on the Isle of Wight. Promote the sustainable management of these estuaries and in particular Habitat Directive and BAP priorities.

Digitisation of NVC maps for the North Pennine SSSIs Moorhouse and Cross Fell and Appleby Fells

Salford GIS
K Milnes, Cumbria

November, 2000
£ 3,200

Transfer hard-copy NVC maps of these cSAC sites to the Map-Info GIS system in digitised form. This will facilitate interrogation of the database, and assist with priority work such as setting of conservation objectives, monitoring condition and identifying areas to target for positive management.

Ensor's Pool crayfish survey

David Rogers Associates
J A Irving, West Midlands

November, 2000
£ 2,000

Repeat survey of white-clawed crayfish at Ensor's Pool which is listed as a cSAC, to assess the current status of the population.

Exmoor heaths NVC survey

Rigby Jerram
P F Ulf-Hansen, Somerset

November, 2000
£ 1,400

Map vegetation communities of parts of the Exmoor Heaths candidate Special Area of Conservation, to facilitate better management.

Exmoor woodlands lichen survey

V J Giavarini
P F Ulf-Hansen, Somerset

December, 2001
£ 2,000

Survey lichens in woodlands not previously surveyed, and make management recommendations to conserve the lower plant communities present.

Fal and Helford intertidal monitoring

Spalding Associates
R Covey, Cornwall

March, 2001
£ 2,000

Survey and map saltmarsh plant communities within these estuaries.

Fal and Helford project officer

Cornwall County Council
R Covey, Cornwall

November, 2000
£ 12,000

Maintenance of post of Estuary/SAC officer, to produce and consult on SAC management scheme.

Falmouth cSAC

Geographic Information Group
R Covey, Cornwall

March, 2001
£ 5,000

Survey and map saltmarsh plant communities within these estuaries.

Invertebrate survey on Ainsdale and Birkdale Hills LNR

Liverpool Museum, Entomology Department
S Brown, North West

March, 2001
£ 2,000

Survey invertebrates on this sand dune LNR establishing species lists by habitat type. This work links into broader survey work on the Sefton coast and the North Wales coast being carried out by Liverpool Museum. Species records for this site are limited to some groups and historically patchy. This survey will give good baseline data.

Leven canal survey

Institute of Fisheries, Hull University
S Christian, North & East Yorks

October, 2000
£ 2,000

Survey of fish populations within the Leven canal, with recommendations as to ways of recovering the fish community.

Lichen monitoring, Bovey Valley woodlands

Myconova
P Page, Devon

August, 2000
£ 1,952

Maintain the important lichen communities in the candidate SAC, and carry out long-term monitoring to assess their condition and the effectiveness of current management.

Lichen surveys

Dr O Gilbert
A Carter and S Hedley, Northumbria

June, 2000
£ 1,014

Evaluation of current lichenological interest of Monks Wood SSSI and Shipley & Great Woods SSSI. To inform future management policies and identify and protect important host trees.

Mapping and evaluation of bird feeding and roosting areas within the Duddon Estuary SPA

Salford GIS
J Lusardi, Cumbria

January, 2001
£ 25,000

Map and assess the key areas used by feeding and roosting birds within and immediately adjacent to the Duddon Estuary SPA, to inform the European marine site management scheme and land-use planning.

Martin Down NNR NVC survey

Wessex Environmental Associates
L Smith, Wiltshire

September, 2000
£ 1,700

Carry out a vegetation survey, including scrub communities, of Martin Down. Make management recommendations based on the results of the survey to help guide revision of Martin Down management plan.

Monitoring Black veined moth and Late spider orchid

R V Russell
D Maylam, Kent

October, 2000
£ 2,500

Carry out butterfly consensus on Wye NNR, record details of Late spider orchid, and monitor to EN guidelines. Record flight numbers of Silver spotted skipper.

Motley Meadows NVC survey

Ecology First
T M Coleshaw, West Midlands

September, 2000
£ 1,680

Undertake a full NVC survey of Motley Meadows NNR, to provide an assessment of the effects of management over the period since implementation of the management plan. To report on the success of the management and highlight any environmental changes.

Norfolk Valley fen survey

Norfolk Wildlife Trust
A Millar, Norfolk

November, 2000
£ 1,200

New NVC surveys at Buxton Heath and Halt Lowes (Norfolk Valley Fen SAC sites) subject to restoration under Tomorrows Heathland Heritage programme. Surveys will provide monitoring baseline and enable conservation objectives to be set.

North Norfolk coast, grazing marsh survey

Ecological Services Ltd
P Lambley, Norfolk

December, 2000
£ 5,000

Survey of grazing marshes in North Norfolk for NVC production of maps, descriptions of sites and target notes.

NVC survey of Dee Estuary

Dr T C Dargie
N George, North West

January, 2001
£ 13,000

Undertake a systematic study of saltmarsh and associated habitats within the Dee Estuary SSSI/SPA/Ramsar site including Red Rocks SSSI.

Poole Harbour reedbed survey and compilation of site dossier

K Cook
J A Stobart, Dorset

March, 2001
£ 2,000

Undertake a standardised survey of the Poole Harbour reedbeds with reference to hydrology and current management. To establish fixed point photographic monitoring on key sites. To provide recommendations for future monitoring and management. To combine standardised site dossiers to include survey results, management history, species records and management recommendations.

Poole Harbour SPA - Review of baseline measures for assessing favourable condition

Dorset Environmental Records Centre
J A Stobart, Dorset

March, 2001
£ 2,000

Recommend baseline values for the SPA Regulation 33 favourable condition measures, identify requirements for further research, and provide available data in assessable format.

Production of a management plan for Clints Quarry, Moota cSAC

D Bentley
E Donnison, Cumbria

December, 2000
£ 1,960

Survey the terrestrial habitat on the site and put forward recommendation for habitat improvements.

Production of Mexico Towans NVC report and maps

Cornwall County Council, Hayle-Gwithian Countryside
Service
A McDouall, Cornwall

December, 2000
£ 3,333

Continue the current programme of surveys and monitoring by carrying out NVC survey of Mexico and Common Towans, and producing hand coloured NVC maps.

Restoration of rock and boulder habitat off Scoble Point within the Salcombe-Kingsbridge estuary

South Hams District Council
J Crix, Devon

To be decided
£ 2,500

Restore Scoble Point reef within the Salcombe Kingsbridge SSSI into favourable condition. Undertake monitoring of the site to advise on its condition.

River habitat survey of Upper River Eden

CEH Dorset and Fluvial Environment Services Ltd
M Robinson, Cumbria

February, 2001
£ 7,000

Survey three tributaries and the main channel of the upper River Eden (part of R. Eden cSAC), using the standard River Habitat Survey. To enter the information onto RHS database for targetting habitat management, survey work, etc.

River Wensum

Environment Agency/University of Leicester
C Newbold, EIT

March, 2001
£ 2,000

The project will attempt to explain the rationale for the distribution of macrophytes within the River Wensum. The key parameters considered are flow, sediment levels, phosphate-phosphorus, total phosphorous and nitrate nitrogen. In addition, the effect of sediment depth and structure/composition of the sediment on the root biomass of macrophytes will be researched.

Scoping survey of sea walls in North Kent marshes

Carter Ecological Ltd
L Solly, Kent

September, 2000
£ 4,500

Field survey to identify botanical interest on SSSI and Ramsar sites.

Seagrass mapping, Isles of Scilly and Plymouth Sound

Coral Cay Sub Aqua Club
R Covey, Cornwall

December, 2000
£ 5,000

Undertake seagrass *Zostera* monitoring using published methods, in the Isles of Scilly, and to establish baseline values for selected sites in Plymouth Sound and adjoining estuaries.

SSSI Validation survey - Hamps and Manifold Valleys and Dove Valley and Biggin Dale SSSIs

J Frith
M Butcher, Peak District & Derbys

December, 2000
£ 2,890

Record and analyse the nature conservation interest of certain units in the above SSSIs against SSSI criteria features.

Survey of Asby Complex

G Skelcher
S Webb, Cumbria

October, 2000
£ 2,000

Provide a NVC survey of the limestone habitats within the Asby Complex cSAC, Cumbria.

Survey of Cromford canal

Scott Wilson Kirkpatrick
R Catchpole, Peak District & Derbys

February, 2001
£ 14,553

Map the aquatic vegetation and undertake a hydrochemical analysis of the water of the Cromford Canal SSSI.

Survey of Sunbiggin Tarn and Fen

P Kelly
S Webb, Cumbria

October, 2000
£ 2,000

Provide a NVC survey of the Sunbiggin Tarn and Sunbiggin Fen areas. Both are part of the Asby Complex cSAC, Cumbria.

Survey of the Border Mires, Cumbria

Rigby Jerram
S Webb, Cumbria

February, 2001
£ 4,000

Provide a NVC survey of the high quality active blanket bogs within the Border Mires cSAC, Cumbria.

Survey of the lichens of woodlands in Geltsdale and Glendue Fells SSSIs

N Sanderson
K Milnes, Cumbria

March, 2001
£ 1,500

Geltsdale and Glendue Fells SSSI had several blocks of woodland for which ad hoc records exist indicating a diverse lichen flora with some uncommon species. The objective of this work is to undertake a more systematic survey in order for us to evaluate more fully the importance of the lichen flora of these woods.

Tintagel cSAC, Phase 1

Environmental Consultants (CTNC) Ltd
D Hazlehurst, Cornwall

March, 2001
£ 5,000

Carry out NVC survey of the Tintagel-Marsland-Clovelly cSAC.

Veteran tree and dead wood survey of Dixton Wood cSAC

Mosaic Mapping
D Heaver, Three Counties

March, 2001
£ 1,050

Veteran tree positioning and tree characterisation in cSAC wood.

Socio economics

Audit feasibility study for the development of an agri-environment land management service in Cornwall

ADAS	January, 2001
J Clitherow, Cornwall	£ 19,115

Increase the area of all habitats under active management, in particular, woodland, inland and coastal heath and grassland, to ensure their long-term favourable condition.

Classification of land to reflect the environmental value and farming conditions of upland grazing land

Cranfield University and University of Reading	December, 2001
S Hooper, Uplands	£ 30,000

Develop indicators for use in administering the Rural Development Regulation which will reliably and robustly distinguish land in the English uplands according to its differing stock carrying capacities, biodiversity value or other relevant characteristics, in relation to the new Hill Farm Allowance scheme.

Common Fisheries Policy advice

University of Hull/NRC Europe Ltd	March, 2001
P Knapman, Maritime	£ 14,000

Provide English Nature's fisheries officer with advice on the socio-economic and scientific aspects of EU and UK fisheries policy

Development of sustainable development biodiversity tests

Stanger Science and Environmental	March, 2001
H Sisman, EIT	£ 3,700

Develop biodiversity tests for English Nature's six priority sectors, to inform our sector analyses and relations with business.

Habitat accounts phase 3

Centre for Ecology and Hydrology	March, 2001
J Burney, EIT	£ 15,000

Continue with programme to establish stock, change and condition accounts for BAP broad habitats, using Countryside Survey 2000 (CS2000) and other data sets.

Intelligence gathering on sectoral strategies

Crane Environmental Ltd
H Sisman, EIT

March, 2001
£ 2,000

Update the sector analysis "Domestic, commercial and industrial development of land", inform our priority actions, and make recommendations for businesses to pursue for a partnership.

Lower Clyst landowner survey report

Environment Agency
S Bates, Devon

March, 2001
£ 1,000

Gain an understanding of landowners' expectations and aspirations and gauge their receptiveness and commitment to environmental enhancements, with a view to developing a list of environmental options for each holding.

National Trust "Valuing our Environment" study

ERM/LUC/System 3/Segal Quince Wicksteed
J Burney, EIT

March, 2001
£ 5,000

Contribution to National Trust's research programme evaluating the influence of landscape quality on visitor numbers in Cumbria and Northumbria.

Public participation

University College London
J Burney, EIT

June, 2002
£ 4,000

"CASE" PhD studentship on the potential use of participation processes within English Nature.

Trade negotiations

International Centre for Trade and Sustainable
Development
J Burney, EIT

March, 2001
£ 3,000

Provide timely briefings on the state of trade negotiations in agriculture.

Using sustainable development to inform BAP, SAC's and SSSIs

Environmental Resource Management
H Sisman, EIT

March, 2002
£ 10,000

Facilitate the integration of sustainable development, as defined by "A better quality of life", into our work programme to reinforce the message that biodiversity is a key test of sustainable development.

Valuation methods

University of East Anglia
J Burney, EIT

January, 2001
£ 4,000

Continuation of work on the monetary and social value of protecting nature and ecosystems, and consideration of economic instruments.

Species Recovery Projects

Barberry Carpet Moth *Pareulype berberata* recovery in Gloucestershire

Gloucestershire BAP project officer
C Pagendam, Three Counties

December, 2000
£ 1,000

Survey of historic locations of the food plant (barberry) to assess status, health and conservation issues, as a basis for recovery plan implementation for the barberry carpet moth.

Bog hoverfly *Eristalis cryptarum* survey

J Perrett
M Drake, Lowlands

January, 2001
£ 2,986

Survey sites on Dartmoor, Somerset and New Forest, make observations on the oviposition and feeding behaviour of adults and attempt to locate and rear larvae.

Carex muricata subspecies *muricata*

M Foley, Lancaster University
I Taylor, Cumbria

April, 2001
£ 1,000

Draw up a report on the population dynamics and taxonomy of the species and complete population assessments.

Conservation ecology of beetles of the genus *Cryptocephalus*

Dr S G Compton, University of Leeds
R Key, Lowlands

March, 2002
£ 9,210

Undertake applied autecological research (including subcontracted survey for populations on which to work) on the ecology of five species of 'pot' beetle in the genus *Cryptocephalus* to inform habitat management and translocation initiatives under BAP.

Conservation ecology of the Tansy beetle *Chrysolina graminis*

Dr G Oxford, University of York
R Key, Lowlands

March, 2002
£ 1,000

Ascertain the population dynamics and conservation ecology of the Tansy beetle *Chrysolina graminis* in the Vale of York and to inform the Environment Agency in their river management for sites with this species.

Creeping marshwort *Apium repens*

Oxfordshire Rare Plants Group
J Sutcliffe, Lowlands

April, 2001
£ 1,180

Monitor sites of Creeping marshwort and liaise with relevant organisations.

Crucifix ground beetle *Panagaeus crux-major* survey and monitoring

Entotax Ltd
R Key, Lowlands

March, 2002
£ 2,300

Survey for additional populations of the species and research its ecological requirements. Project to be subsumed into the 'Coordination of BAP Ground beetle projects in England' project in future.

Desmoulins snail survey

I Killeen
S Rothera, Norfolk

August, 2000
£ 2,000

Survey of Thompson Common for this species protected under the BAP and listed on Annex II of the Habitats Directive.

Dormouse monitoring at Monks Wood and Eversden Wood

H Hillier
C Pugsley-Hill, Beds, Cambs & Northants

November, 2000
£ 1,436

Identify if the woods support populations of dormice, by the monitoring of boxes and tubes each month June-October 2000, using the methodology outlined by The National Dormouse Monitoring Scheme.

Dormouse project, Shropshire

Shropshire County Council
A C Hearle, West Midlands

January, 2001
£ 4,000

Maintain and increase dormouse populations in Shropshire by advising on programmes of woodland and hedgerow management and linkage of woodland sites; increase awareness and understanding of dormouse habitat requirements amongst land managers; design and implementation of woodland and agri-environment incentive schemes to incorporate national and local BAP targets for dormice.

Dormouse project, Warwickshire

Dr S Bodnar
J A Irving, West Midlands

March, 2001
£ 1,500

Maintain and increase dormouse populations in Warwickshire by initiating programmes of woodland and hedgerow management; promoting linkage of woodlands; and increasing understanding of habitat and management requirement of dormice among land managers.

Dormouse site inventory

Royal Holloway, University of London
A J Mitchell-Jones, Lowlands

To be decided
£ 8,000

Gather site-related data on the current occurrence of the dormouse in England and Wales. This objective will contribute to the delivery of Action 5.2.1 in the published Action Plan. Provide an organised dataset suitable for distribution to local records centres, planning authorities and other appropriate organisations.

Dotted bee-fly *Bombylius discolor* survey

D Gibbs
M Drake, Lowlands

January, 2001
£ 1,706

Survey sites in the known geographic range to establish current status, and make observations on oviposition behaviour at selected strong colonies, with the aim of establishing host bees and micro-habitat conditions needed by the host and the fly.

Feasibility of the reintroduction of the pool frog *Rana lessonae* to England

Various
J Foster, Lowlands

December, 2000
£ 4,000

Investigate the feasibility of reintroducing the pool frog to England, should its native status be demonstrated; studies to include population viability analysis, habitat management guidelines and reintroduction methods.

Fen orchid *Liparis lueslii*

Norfolk Wildlife Trust
R Handley, Norfolk

April, 2001
£ 3,115

Study the autecology of the species, to retain the current populations and monitor transplanted seedlings.

Fen violet *Viola persicifolia*

Centre for Ecology and Hydrology
J Sutcliffe, Lowlands

April, 2001
£ 4,402

Monitor extant populations in Cambridgeshire and Oxfordshire.

Fenland rare plants

T Pankhurst and R Lansdown
J Sutcliffe, Lowlands

April, 2003
£ 10,000

Continue research into the autecology and re-introduction programmes of Fen ragwort and Ribbon-leaved Water plantain; to monitor Fen violet.

Fiery clearwing

T Rouse
B Banks, Kent

December, 2000
£ 2,800

Monitor known populations and survey potential habitats in North Kent, Sussex and Hampshire.

Foraging and habitat requirements of the Lesser horseshoe bat

C Williams, Cornwall College
A J Mitchell-Jones, Lowlands

June, 2000
£ 2,000

The proposed project will focus particularly on the food resources exploited by the bats at different times of the year and determine where they obtain these resources. Information about the ecology of significant prey items will then provide information about the management requirements for foraging areas around roosts.

Genetic studies of the pool frog *Rana lessonae*

Sussex University
J Foster, Lowlands

December, 2000
£ 5,000

Investigate the genetic identity of preserved 19th century specimens of the pool frog, and compare with recent specimens, in order to establish the likelihood of the native status of this species.

Habitat management and survey for the natterjack toad

Herpetological Conservation Trust
J Foster, Lowlands

March, 2001
£ 9,000

Assess the habitat management requirements at the c.40 natterjack toads sites in England, and to progress management on a selection of these. Undertake survey to improve knowledge of status and reintroduction opportunities.

Habitat management and survey for the sand lizard

Herpetological Conservation Trust
J Foster, Lowlands

March, 2001
£ 4,500

Undertake further survey for the sand lizard, to identify potential reintroduction sites and to assess the status of previous reintroductions. Undertake habitat management at a selection of sites to enhance populations and to create linkage between isolated habitat patches.

Habitat management for White-clawed crayfish

Scott Wilson Resource Consultants
M Robinson, Cumbria

February, 2001
£ 3,000

Advise a range of waterbody managers of the habitat requirements of White-clawed crayfish.

Habitat use by the fly *Doros profuges*

C Plant
M Drake, Lowlands

December, 2000
£ 1,800

Observe the behaviour of adults to determine the habitat features used and oviposition sites, and identify the larval host.

Heath Tiger beetle *Cicindela sylvatica* survey

T Allen
R Key, Lowlands

March, 2001
£ 1,500

Survey for populations of Heath tiger beetle and, if successful, to undertake ecological observations to elucidate their conservation needs. Project to be subsumed into the 'Coordination of BAP Ground beetle projects in England' project in future.

Hedgehog fungus *Hericium erinaceum* fungi survey

University of Wales, Cardiff
C Borges, Essex, Herts & London

March, 2003
£ 6,000

Review of existing data, assessments of genetic diversity of UK populations, and guidance on management techniques to maintain and enhance communities.

Hedgerows and Biodiversity : Formulating management for Dormice

Royal Holloway, University of London
A J Mitchell-Jones, Lowlands

June, 2001
£ 8,860

This project will determine the type of hedgerow management needed to sustain dormice resident in hedgerows and to promote dispersal between woodlands. An important output will be the production of practical management guidelines for wide distribution, that would greatly benefit the dormouse and the host of biodiversity that it represents. This project thus links closely to the hedgerow Habitat Action Plan (HAP).

***Hericium* species**

Cardiff University
C Borges, Essex, Herts & London

April, 2003
£ 6,000

Investigate the ecology ex-situ cultivation and translocation techniques for species of the genus *Hericium*, a BAP priority species listed on Schedule 8 of the Wildlife & Countryside Act. This project will also include Oak polypore.

High Brown fritillary *Argynnis adippe* on Dartmoor

Dartmoor National Park Authority
S Bates, Devon

December, 2000
£ 1,500

Monitor the current state of colonies and assess the priorities for habitat management. Meet target ID of Dartmoor SAP and progress towards targets 1A & 1B. Progress actions 20,21 and 22 of national action plan produced by Butterfly Conservation.

Hydrological requirements of Desmoulin's whorl snail *Vertigo moulinsiana*

Dr P Tattersfield
M Drake, Lowlands

December, 2001
£ 8,550

Determine the water levels and humidity requirements of this Annex II snail at three of the SACs for which it is a feature, with the aim of providing firm guidance on conservation objectives and management needs.

Isle of Wight Red squirrel project

Hampshire and Isle of Wight Wildlife Trust
A J Mitchell-Jones, Lowlands

June, 2000
£ 1,450

Using the results of previous research and working with English Nature, the Island Council Ecologist, Countryside Management Service, AONB Team, FE and FA, approach landowners in priority areas to persuade them to extend woodland, change current management practices and improve or create linkages.

Key sites for water voles: development of management plans

People's Trust for Endangered Species
A J Mitchell-Jones, Lowlands

February, 2001
£ 10,500

Building on a previous project to identify and characterise key sites for water voles, this project will assist owners of such sites to develop appropriate management plans to maintain or enhance water vole populations.

Ladybird spider project

Dr P Merret, I Hughes, Mrs A Binding, A Williams
R Key, Lowlands

March, 2003
£ 3,815

Survey for additional sites for the ladybird spider, to monitor the population of the only known colony, and to undertake captive rearing and establishment trials for the species pending a re-introduction project. Also to undertake large and small scale habitat management for the species at its only known site.

Lady's slipper *Cypripedium calceolus* orchid

P Kelly, Lancaster University
I Taylor, Cumbria

April, 2001
£ 2,000

Investigate the mycorrhizal relationships of *Cypripedium calceolus*.

Lagoon sandworm *Armandia cirrhosa*

Natural History Museum
P Gilliland, Maritime

March, 2001
£ 13,100

Assess the status of *Armandia cirrhosa* population in the Fleet/Portland, including whether could provide source of material for translocation, and environmental requirements.

Lundy cabbage *Coincya wrightii* project

University of Leeds (Dr S G Compton) & Ropeworks Ltd
(A Tillotson)
R Key, Lowlands

March, 2003
£ 9,240

Research the conservation ecology of the complex of endemic species of invertebrates associated with Lundy cabbage as well as the cabbage itself, and their vulnerability to competition from invasive alien species and grazing by domestic and feral herbivores.

Medicinal leech *Hirudo medicinalis* research and survey in Cumbria

RSPB
E Donnison, Cumbria

October, 2000
£ 2,000

Carry out further survey work to identify the distribution of the medicinal leech (*Hirudo medicinalis*) in South Cumbria, and to undertake population studies to ascertain the size and viability of known populations.

Medicinal leech *Hirudo medicinalis*

Romney Marsh Countryside Project
B Banks, Kent

March, 2001
£ 3,000

Survey of diet and breeding habits of the medicinal leech at Romney Marsh.

Monitoring Fen raft spider *Dolomedes plantarius* at Redgrave and Lopham Fen NNR

Dr H Smith
M Drake, Lowlands

February, 2001
£ 3,610

Continue standard monitoring of the spider and devise a new protocol for a simpler but robust method that can be undertaken by volunteers.

Monitoring of the diving beetle *Laccophilus poecilus*

P Hodge
M Drake, Lowlands

August, 2001
£ 1,053

Monitor the single known site for this BAP water beetle and survey sites with old records.

Oblong woodsia *Woodsia ilvensis*

Royal Botanical Gardens, Kew
R Cooke, SDRT

April, 2001
£ 2,000

Ex-situ propagation and re-introduction into England.

Orchids

Royal Botanical Gardens, Kew
I Taylor, Cumbria

April, 2001
£ 5,000

Continue work on orchid micro-propagation to include work on *Cypripedium* and *Liparis*.

Otter survey of England

Environment Agency and Wildlife Trusts
A J Mitchell-Jones, Lowlands
July, 2001
£ 8,000

Repeat a national sampling survey for the otter, using a standard methodology which will allow direct comparison with previous surveys. Gather associated data on the presence of mink and significant physical or vegetational changes to the standard sampling sites.

Otters and Rivers project, Derbyshire Wildlife Trust

Derbyshire Wildlife Trust
R Catchpole, Peak District & Derbys
March, 2001
£ 6,000

Assist the Wildlife Trust's Otters and Rivers project, with particular reference to work on water voles and otters.

PhD on Southern damselfly *Coenagrion mercuriale*

Liverpool University
M Drake, Lowlands
October, 2000
£ 1,000

PhD to investigate the autecology of the adults and larvae in heathland systems in England and Wales, to inform management advice and conservation objectives.

Preparation of sand lizard *Lacerta agilis* site inventory

Herpetological Conservation Trust
J Foster, Lowlands
June, 2001
£ 5,000

Prepare a digital inventory of known sand lizard sites, with habitat attributes, primarily for use in BAP and planning work.

Radio tracking study of Greater horseshoe bats *Rhinolophus ferrumequinum* at Mells, Somerset

G Billington
R Corns, D Villis, Somerset
August, 2000
£ 6,500

Identify areas used for feeding by the Mells colony of Greater horseshoe bats. This will be used to target Stewardship WES scheme in the area.

Red squirrel Recovery Programme 1999/2002

Forest Enterprise
A J Mitchell-Jones, Lowlands
March, 2002
£ 20,000

The overall aim of the recovery project is to stabilise then expand the population of Red squirrels in Thetford Forest, and ensure that the population is then maintained at a favourable conservation status.

Restoration of the hover-fly *Callicera spinolae* in East Anglia

Dr G Rotheray
M Drake, Lowlands

January, 2002
£ 2,598

Continue survey for new colonies of larvae and adults of the fly, establish artificial rot-holes at one site with a strong colony, and produce an awareness and management leaflet and a detailed recovery plan that can be implemented locally.

Re-survey for the crane-fly *Lipsothrix nigristigma*

A Godfrey
M Drake, Lowlands

December, 2000
£ 1,925

Survey sites where the fly has been recorded and other potential sites, collecting environmental variables that will indicate requirements, and search for early stages.

River Eden salmon tracking project

Environment Agency
A Stewart, Cumbria

March, 2001
£ 1,000

Determine movements and distributions of Atlantic salmon in the River Eden in relation to run timing. Partnership project with Environment Agency, MAFF and Eden Rivers Trust.

Roseate tern Species Recovery Programme for the Isles of Scilly

Channel Seabirds Research Group
J Clitherow, Cornwall

December, 2002
£ 4,000

Encourage the return of breeding Roseate terns to the Isles of Scilly.

Species Recovery Programme

Various
D Stone, SDRT

To be decided
£ 600,000

English Nature's Species Recovery Programme is intended to ensure a future for England's most threatened wildlife. A significant proportion of this work is therefore directed towards practical conservation actions. However, the development of a sound science base for this work has been important to the success of the programme, and this forms a significant part of the costs of the work. Our level of knowledge of the individual species varies considerably and depending upon the species the scientific work required to support species recovery routinely includes survey, monitoring and autecological studies, particularly studies of how habitat features influence species viability. Less routinely, work planned to investigate species genetics, particularly using DNA analysis, breeding in captivity to supplement critically endangered animal populations, storage of higher and lower plant materials to avoid risks of complete extinction in the wild and also veterinary and chemical studies so that causes of mortality can be interpreted.

A list of those species which are currently the subject of research are listed at Appendix 1 along with the name of English Nature's contact.

Species Recovery Programme : Dormouse

People's Trust for Endangered Species	March, 2003
A J Mitchell-Jones, Lowlands	£ 6,225

The objectives of the Species Recovery Programme for the dormouse are to deliver the Biodiversity Action Plan targets for the species. These are to maintain and enhance dormouse populations in all the counties where they still occur and re-establish self-sustaining populations in at least five counties where they have been lost.

Species Recovery Programme : Veterinary pathology project

Institute of Zoology	March, 2002
A J Mitchell-Jones, Lowlands	£ 20,000

Provide a veterinary pathology service for English Nature's Species Recovery Programme.

Stinking hawkbeard *Crepis foetida*

Royal Holloway University of London	March, 2001
B Banks, Kent	£ 3,800

Monitoring populations at Dungeness and Rye and historical survey of land management at Dungeness, especially the use of the site by grazing animals.

Survey and autecological study of the Lesser silver water beetle *Hydrochara caraboides*

David Boyle	March, 2002
M Jones, Somerset	£ 4,000

Survey and autecological study of the Lesser silver water beetle during the different stages of its life cycle.

Survey and autecology of *Cryptocephalus exiguus*

Natural History Museum (H Mendel) and Mrs Annette Binding	March, 2002
R Key, Lowlands	£ 2,600

Attempt to re-discover a population of this species at its only known site and to survey for additional populations and research its ecological requirements. Future work will be subsumed in a larger project.

Survey and autecology of Pashford pot beetle *Pachytychius haematocephalus*

Dr J Denton, Dr T Warne and P Hodge
A Gordon, Lowlands

March, 2001
£ 1,000

Determine the distribution of the weevil on Gilkicker Fort Bank and along the shingle along the north shore of the Solent, and make ecological observation to inform the species' conservation. This was in response to a development proposal which may result in destruction of a significant proportion of what was thought to be the only location for the species in England. Future work will be subsumed in a larger project.

Survey for Dung beetle *Aphodius niger*

B Pinchen
I Davidson-Watts, Hants & Isle of Wight

October, 2000
£ 1,500

Ascertain the ecological requirements of this species across the seasons.

Survey for freshwater snail *Valvata macrostoma*

Dr M Willing
M Drake, Lowlands

October, 2000
£ 1,267

Complete a survey for this rare snail in ditch systems in the Avon Valley (Hants/Wilts) to help inform EA biodiversity plans and ESA projects.

Survey for Noble chafer *Gnorimus nobilis*

People's Trust for Endangered Species
R Key, Lowlands

March, 2001
£ 3,000

Research former records and current distribution of the Noble chafer in order to conserve any extant population that may be found.

Survey for Gilkicker's Weevil *Pachytychius haematocephalus*

Dr J S Denton and P J Hodge
A Gordon, Hants & Isle of Wight

September, 2000
£ 2,132

Survey and map the distribution of *Pachytychius haematocephalus* on the Gilkicker Fort banks, Gosport, Hampshire, around Gilkicker Fort and Point and sites where similar habitat may occur along the Solent coast.

Survey for Ground beetle *Tachys edmondsi*

S A Williams
I Davidson-Watts, Hants & Isle of Wight

September, 2000
£ 1,200

Identify locations of this very rare invertebrate and increase knowledge of its ecological requirements.

Survey into Shrill carder bee *Bombus sylvarum* in South Essex

P Harvey
E Steer, Essex, Herts & London

November, 2000
£ 3,600

Survey a site where Shrill carder bee populations are very high and investigate nest habits and forage range.

Threatened "tooth" or stipitate hydroid fungi

Various
C Borges, Essex, Herts & London

April, 2001
£ 5,000

To investigate priority BAP species of "tooth fungus" using appropriate methods.

Tooth fungi *Stipitate hydroid* research

P Marren
C Borges, Essex, Herts & London

December, 2000
£ 2,400

Summary of ecological requirements of *Stipitate hydroid* fungi (or "tooth fungi"), assessment of threats, best management practices, relationships with vascular plants and recommendation of selection criteria for important sites.

Violet click beetle *Limoniscus violaceus* project

Dr P Skidmore, P Whithead, Capability Landscapes (Mr M Frater)
R Key, Lowlands

March, 2003
£ 2,887

Survey for additional sites for the Violet click beetle in Lowland Parkland and Wood-pasture sites in southern England, and to research artificial methods of augmenting wild populations of the species by the construction of 'artificial hollow trees'.

Water vole survey

Cornwall Wildlife Trust
D Hazlehurst, Cornwall

October, 2000
£ 2,500

Appoint a water vole project officer to achieve various objectives.

White-clawed crayfish survey, River Dove

Dr D Rogers
M Butcher, Peak District & Derbys

September, 2000
£ 7,800

Assess the status of the native white-clawed crayfish in the River Dove part of the Dove Valley and Biggin Dale SSSI and Peak District Dales candidate SAC.

Winter feeding studies on Greater horseshoe bats

R D Ransome
A J Mitchell-Jones, Lowlands

September, 2000
£ 3,000

Relate the extent of winter feeding by Greater horseshoe bats of different ages and sexes to climatic data. Analyse the winter diet to identify the main insect groups exploited and relate these to foraging habitats. Use this data to prepare environmental prescriptions for land around key hibernacula.

Species survey

Breckland biodiversity species

The Brecklands Countryside Project/Suffolk County
Council
S Rothera, Norfolk

March, 2001
£ 5,000

Analyse the habitat and species BAP priorities for the Breckland Natural Area, and identify and implement an agreed programme of practical site management works to deliver BAP priorities.

Bryophytes monitoring and survey

D T Holyoak
B Tonkin, Cornwall

March, 2001
£ 6,000

Monitoring and survey of important bryophytes in Cornwall

Bumble bee Biodiversity Action Plan

Various
B Banks, Kent

March, 2001
£ 3,000

Creating habitat for bumble bees by harvesting red clover seed and operating a schedule of planting clover seed.

Coordination of BAP Ground beetle projects in England

D Boyce
R Key, Lowlands

March, 2003
£ 12,000

Overview project to progress BAP targets of all (32) BAP-listed ground beetles in England, including funds for sub-contracting work on individual sub-projects on individual species or groups of species.

Dartmoor bird survey

Dartmoor National Park Authority
S Bates, Devon

March, 2001
£ 1,000

Provide detailed information on bird populations at Dartmoor, updating the last survey which took place over 20 years ago. This will produce management recommendations to improve conditions for threatened species and meet two local BAP targets.

Delivery of the Devon primrose *Primula* Biodiversity Action Plan

Devon County Council
D Appleton, Devon

October, 2002
£ 2,500

Deliver the Devon BAP for primroses, and as a consequence, raise awareness of the need to value and conserve characteristic and common place elements of Devon's wildlife.

DNA studies

Dr M Gay and R Cown, Royal Botanic Gardens, Kew
I Taylor, Cumbria

April, 2003
£ 10,000

Undertake DNA analysis to answer genetic questions relating to a prioritised list of higher plants, with a view to incorporating the knowledge into BAP planning.

Dorset marine mammals project

Durlston Marine Project
V Copley, Dorset

March, 2003
£ 3,000

Investigate distribution and frequency of marine mammals sightings in Dorset. Investigate factors which might effect the above. Promote awareness amongst coastal users by providing sightings network. Produce appropriate interpretative material.

Endemic English lavender *Limonium* taxa

BSBI/National Trust
S Leach, Somerset

April, 2001
£ 2,000

Develop mini Action Plans for the various taxa, and support training events, workshops and publicity, carry out fieldwork in under-recorded areas.

Ex situ conservation of bryophytes

Royal Botanical Gardens, Kew
R Porley, Lowlands

April, 2003
£ 17,000

Research and establish a method for the ex situ storage of bryophytes.

Eyebright *Euphrasia* species

Interagency and Edinburgh University
I Taylor, Cumbria

April, 2003
£ 3,000

Provide detailed research on six endemic UK species of eyebright *Euphrasia* species

Genetic taxonomy of purported UK endemic species

Dr S G Compton, University of Leeds
R Key, Lowlands

March, 2002
£ 6,000

Determine the true taxonomic status of species of invertebrate purported to be endemic to the UK (and thus automatically included on BAP) by DNA examination and multivariate analysis of morphological characteristics. Research to date has already shown two supposed endemics not to be good species.

Hatfield Moors nightjar project

P Palmer
P Clement, SDRT

September, 2000
£ 14,000

Ascertain nesting, roosting and feeding behaviour of nightjars, via radio-telemetry, to facilitate protection, management and monitoring of SPA.

Invertebrate site boundaries

Tullie House Museum
E Donnison, Cumbria

January, 2001
£ 1,800

Pull together invertebrate species records into areas of land of importance for invertebrates, and assess which fall within designated sites and which do not.

Little tern project, Cleveland

INCA
M Leakey, Northumbria

December, 2000
£ 2,000

Determine any changes in abundance in little tern colonies in Cleveland, including provision of wardening and site protection measures.

Little tern survey

Kent Wildlife Trust
D Pound, Kent

December, 2000
£ 1,000

Survey the Little tern including condition of breeding and feeding areas including locations, bird use and behaviour, and disturbance factors

Metalliferous sites and molecular analysis of moss *Ditrichum*

F Rumsey, Natural History Museum
R Porley, Lowlands
April, 2001
£ 1,500

To investigate taxonomy of priority BAP species in the genus *Ditrichum*, using appropriate analysis.

Millennium seedbank

S Alton, Royal Botanic Gardens, Kew
I Taylor, Cumbria
April, 2001
£ 15,000

To concentrate, now the seedbank has been established at Wakehurst Place, on collecting seeds of biogeographical importance.

Native oyster *Ostrea edulis*

University of Hull
P Knapman, Maritime
March, 2001
£ 5,000

Scope the requirements of the UK BAP species action plan for the Native Oyster.

Oak polypore

Dr P Roberts
C Borges, Essex, Herts & London
April, 2003
£ 3,000

Investigate the ecology, including ex-situ cultivation and translocation techniques of Oak polypore, a BAP priority species listed on Schedule 8 of the Wildlife & Countryside Act.

Oak polypore fungi *Buglossoporus pulvinus* survey

P Roberts
C Borges, Essex, Herts & London
December, 2000
£ 3,000

Determination of current distribution and status of Oak Polypore, proposals for proper management and protection of sites, and provision of information to owners and managers of sites.

Paludinella littorina

Malogological Services
P Gilliland, Maritime
March, 2001
£ 4,750

Survey to provide a comprehensive picture of the species' true distribution and more informed conservation and management for the species.

Pennyroyal *Mentha pulegium*

Royal Botanical Gardens, Kew
R Porley, Lowlands

April, 2001
£ 1,000

Collect samples of Pennyroyal for molecular analysis with a view to establishing native status.

Population biology and autecology of Stoneworts

University of East Anglia
R Handley, Norfolk

September, 2003
£ 1,000

Continuation of 3 year research project funded as Ph.D studentship by NERC and the Broads Authority at University of East Anglia. Research study into population biology and autecology of a number of stonewort species. The project will examine factors limiting stonewort distribution, and increase understanding of stonewort contribution to whole lake processes.

Potamogeton compressus

University of East Anglia
R Handley, Norfolk

July, 2001
£ 12,000

One year MSc studentship. Undertake research and survey work to establish habitat preferences and autecological understanding of *P. compressus*. Propagate material to augment natural populations; reintroduce and introduce to selected sites; establish management prescriptions.

***Potamogeton compressus* survey**

Whild Associates
C Walker, West Midlands

December, 2001
£ 4,800

Establish the status of *P. compressus* in England and report on the abundance of the species at each extant locality.

Project to monitor underground sites for bats at Knock Fell Caverns, Cumbria

G Billington
E Donnison, Cumbria

March, 2001
£ 2,300

Monitoring of cave entrances to ascertain bat activity at different times of the year.

Pygmy rush *Juncus pygmaeus* on The Lizard

R Fitzgerald
R Lawman, Cornwall

April, 2001
£ 2,000

Draw up a report on the historical data and extant sites for this species; revisit "old" sites and advise on management requirements and possible restoration/re-introduction sites.

Pygmy rush *Juncus pygmaeus* survey - The Lizard

Lady Rosemary Fitzgerald
R Lawman, Cornwall

August, 2000
£ 2,040

Survey to establish the current sites for this species, to record any current or potential threats, and to recommend appropriate management remedies.

Research on habitat management for BAP-listed saproxylic invertebrates

Dr O Cheeseman, CABI Bioscience
R Key, Lowlands

March, 2002
£ 20,000

Research the conservation needs of the nine species of saproxylic beetle listed under the UK BAP and also to research more generally, the conservation implications of interactions between invertebrates, fungi and abiotic factors in veteran trees in Lowland Parkland and Wood-pasture.

Review of the effectiveness of gull culling for conservation

Just Ecology
J Holmes, Uplands

July, 2000
£ 11,166

Provide an up to date summary of the scientific context for controlling gulls for nature conservation purposes, in order to inform the assessment of licence applications and advise on best practice to nature reserve managers.

Sand dune mosses (*Bryum* spp.)

Natural History Museum
R Porley, Lowlands

April, 2003
£ 3,000

Collate relevant data on six *Bryum* species and carry out survey on targeted sites.

Scilly Seabird Survey

RSPB
A F Brown, Uplands

March, 2001
£ 10,000

Estimate, using repeatable methodologies, the numbers of breeding Storm Petrels and Manx Shearwaters on the Isles of Scilly. The surveys form part of Seabird 2000 and the RSPB/Statutory Agencies SCARRABS survey programme.

Studies on Whorl snail *Vertigo* species

I Killeen
M Drake, Lowlands

December, 2001
£ 15,000

Four separate projects will investigate separate issues on four of the Whorl snail *Vertigo* snails species. A monitoring protocol and baseline will be produced for *V. moulinsiana* at its five SACs. *V. angustior* will be mapped in detail at Fordon Common pSAC, and *V. geyeri* at Sunbiggin Tarn SSSI. *V. genesii* will be surveyed at sites close to its only English cSAC on Widdybank Fell.

Suffolk Naturalists' Society Conference

Suffolk Naturalists' Society
A Collins, Suffolk

October, 2000
£ 2,000

Sponsorship of conference to stimulate debate about "species reintroduction" as a management technique.

Survey and autecology of the Scarlet malachite beetle *Malachius aeneus*

P Hodge and T Allen
R Key, Lowlands

March, 2001
£ 1,500

Survey for previously undiscovered populations of the Scarlet malachite beetle and, if successful, to undertake ecological observations to inform conservation management for the species.

Survey of Shield bug *Geotomus puncticollis*

Dr P Kirby
R Key, Lowlands

March, 2001
£ 1,368

Ascertain the distribution of the Shield bug (*Geotomus puncticollis*) in Cornwall and the Isles of Scilly, in order to inform statutory site protection to accommodate this species, which is not known to occur on any SSSI.

Survey of Sorbus spp and other rare plants of the Wye valley

L Houston
D Heaver, Three Counties

March, 2002
£ 2,500

Survey work on a site of rare, endemic Whitebeams and other critical taxa on cliffs.

The role of agricultural intensification in the decline of the Turtle Dove

Game Conservancy Trust
P Grice, Uplands

March, 2001
£ 10,284

Assess the role of agricultural intensification in the decline of the Turtle Dove in England and identify appropriate remedial measures.

Turtle doves

Game Conservancy Trust
A Burn, EIT

February, 2001
£ 2,000

The objective is to identify the factors behind the decline in this species, in order to enable firmer advice on methods for its recovery. Food availability, and pesticide use, are factors being considered.

Upper Thurne macrophyte survey

Jane Harris Ecological Consultant
R Handley, Norfolk

October, 2000
£ 9,000

Aquatic plant survey of the broads and channels of the Upper Thurne area, to provide baseline ecological data on the distribution and abundance of macrophytes and charophytes.

Water parsnip survey

Romney Marsh Countryside Project
B Banks, Kent

March, 2001
£ 3,000

To document locations within Romney Marsh.

Waxcap *Hygrocybe* Grasslands Research

S Evans/M Rothero
C Borges, Essex, Herts & London

December, 2000
£ 4,425

Collation of current waxcap grassland fungi data and records, summary of known ecological requirements, recommendation of appropriate protection measures and of sample selection criteria for important sites.

Yorkshire dales species

Yorkshire Dales National Park Authority
R Wilson, North & East Yorks

March, 2003
£ 3,000

A joint project with the Park Authority and the RSPB to develop and implement Species Action Plans.

**APPENDIX 1: LIST OF SPECIES RECOVERY PROGRAMME TAXA
THE CURRENT SUBJECT OF RESEARCH AND DEVELOPMENT**

HIGHER TAXON	SPECIES	EN CONTACT
Amphibian	<i>Bufo calamita</i>	Jim Foster, Lowlands
	<i>Rana lessonae</i>	Jim Foster, Lowlands
Annelid	<i>Hirudo medicinalis</i>	Martin Drake, Lowlands
Ant	<i>Eurdeon nostras</i>	David Sheppard, Lowlands
	<i>Formica candida</i>	David Sheppard, Lowlands
	<i>Formica exsecta</i>	David Sheppard, Lowlands
	<i>Formica pratensis</i>	David Sheppard, Lowlands
Bee	<i>Bombus sylvarum</i>	David Sheppard, Lowlands
	<i>Osmia parietina</i>	David Sheppard, Lowlands
Beetle	<i>Ampedus nigerrimus</i>	Roger Key, Lowlands
	<i>Ampedus ruficeps</i>	Roger Key, Lowlands
	<i>Ampedus rufipennis</i>	Roger Key, Lowlands
	<i>Aphodius niger</i>	Roger Key, Lowlands
	<i>Byctiscus populi</i>	Roger Key, Lowlands
	<i>Cathormlocerus britannicus</i>	Roger Key, Lowlands
	<i>Chrysolina graminis</i>	Roger Key, Lowlands
	<i>Cicindela sylvatica</i>	Roger Key, Lowlands
	<i>Cryptocephalus coryli</i>	Roger Key, Lowlands
	<i>Cryptocephalus decemmaculatus</i>	Roger Key, Lowlands
	<i>Cryptocephalus exiquus</i>	Roger Key, Lowlands
	<i>Cryptocephalus nitidulus</i>	Roger Key, Lowlands
	<i>Cryptocephalus primarius</i>	Roger Key, Lowlands
	<i>Cryptocephalus sexpunctatus</i>	Roger Key, Lowlands
	<i>Dryophorns curticalia</i>	Roger Key, Lowlands
	<i>Donacia bicolor</i>	Roger Key, Lowlands
	<i>Elater ferrugineus</i>	Roger Key, Lowlands

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Eucnemis capucina</i>	Roger Key, Lowlands
	<i>Gastraliws immarginatus</i>	Roger Key, Lowlands
	<i>Gnorimus nobilis</i>	Roger Key, Lowlands
	<i>Gnorimus variabilis</i>	Roger Key, Lowlands
	<i>Hydrochara caraboides</i>	Martin Drake, Lowlands
	<i>Hyperbaeus flavipes</i>	Roger Key, Lowlands
	<i>Lacon quercus</i>	Roger Key, Lowlands
	<i>Lucanus cervus</i>	Roger Key, Lowlands
	<i>Megapenthes lugens</i>	Roger Key, Lowlands
	<i>Pachytychius haematocephalus</i>	Roger Key, Lowlands
	<i>Panagaeus crux-major</i>	Roger Key, Lowlands
	<i>Procas granulicollis</i>	Roger Key, Lowlands
	<i>Psylliodes luridipennis</i>	Roger Key, Lowlands
	<i>Rhynchaerus testaceus</i>	Roger Key, Lowlands
	<i>Tachys edmondsi</i>	Roger Key, Lowlands
Bird	<i>Alauda arvensis</i>	Phil Grice, Uplands
	<i>Botaurus stellaris</i>	Phil Grice, Uplands
	<i>Burhinus oedicnemus</i>	Phil Grice, Uplands
	<i>Circus aeruginosus</i>	Phil Grice, Uplands
	<i>Circus pygargus</i>	Phil Grice, Uplands
	<i>Crex crex</i>	Phil Grice, Uplands
	<i>Emberiza cirulus</i>	Phil Grice, Uplands
	<i>Milvus milvus</i>	Phil Grice, Uplands
	<i>Passer montanus</i>	Phil Grice, Uplands

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Tetrao tetrix</i>	Phil Grice, Uplands
Butterfly	<i>Argynnis adippe</i>	David Sheppard, Lowlands
	<i>Boloria euphrosyne</i>	David Sheppard, Lowlands
	<i>Eurodryas aurinia</i>	David Sheppard, Lowlands
	<i>Hesperia comma</i>	David Sheppard, Lowlands
	<i>Lycaena dispar</i>	David Sheppard, Lowlands
	<i>Maculinea arion</i>	David Sheppard, Lowlands
	<i>Mellicta athalia</i>	David Sheppard, Lowlands
Coral	<i>Eunicella verrucosa</i>	Roger Covey, Maritime
Cricket	<i>Decticus verrucivorus</i>	David Sheppard, Lowlands
	<i>Gryllotalpa gryllotalpa</i>	David Sheppard, Lowlands
	<i>Gryllus campestris</i>	David Sheppard, Lowlands
Crustacean	<i>Austropotamobius pallipes</i>	Chris Mainstone, EIT
	<i>Triops cancriformis</i>	Martin Drake, Lowlands
Damselfly	<i>Coenagrion mercuriale</i>	Martin Drake, Lowlands
Fish	<i>Alosa alosa</i>	Chris Mainstone, EIT
	<i>Alosa fallax</i>	Chris Mainstone, EIT
	<i>Cobitis taenia</i>	Chris Mainstone, EIT
	<i>Salmo salar</i>	Chris Mainstone, EIT
Fly	<i>Asilus crabroniformis</i>	Martin Drake, Lowlands
	<i>Bombylius discolor</i>	Martin Drake, Lowlands
	<i>Bombylius minor</i>	Martin Drake, Lowlands
	<i>Callicera spinolae</i>	Martin Drake, Lowlands
	<i>Chrysotoxum octomaculatum</i>	Martin Drake, Lowlands
	<i>Doros profuges</i>	Martin Drake, Lowlands
	<i>Dorycera graminum</i>	Martin Drake, Lowlands
	<i>Eristalis cryptarum</i>	Martin Drake, Lowlands
	<i>Lipsothrix nigristigma</i>	Martin Drake, Lowlands

HIGHER TAXON	SPECIES	EN CONTACT
Fungi	<i>Boletus pseudoregius</i>	Carl Borges, Essex, Herts & London
	<i>Boletus regius</i>	Carl Borges, Essex, Herts & London
	<i>Grouped plan for tooth fungi</i>	Carl Borges, Essex, Herts & London
	<i>Hericium coralloides</i>	Carl Borges, Essex, Herts & London
	<i>Hericium erinaceum</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum aurantiacum</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum caeruleum</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum concrescens</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum ferrugineum</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum mirabile</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum peckii</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum scrobiculatum</i>	Carl Borges, Essex, Herts & London
	<i>Hydnellum spongiospies</i>	Carl Borges, Essex, Herts & London
	<i>Phellodon confluens</i>	Carl Borges, Essex, Herts & London
	<i>Phellodon melaleucus</i>	Carl Borges, Essex, Herts & London
	<i>Phellodon tomentosus</i>	Carl Borges, Essex, Herts & London
	<i>Poronia punctata</i>	Carl Borges, Essex, Herts & London
	<i>Sarcodon glaucopus</i>	Carl Borges, Essex, Herts & London

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Sarcodon imbricatus</i>	Carl Borges, Essex, Herts & London
	<i>Sarcodon scabrosus</i>	Carl Borges, Essex, Herts & London
Lichen	<i>Calicium corynellum</i>	Peter Lambley, Norfolk
	<i>Collema dichotomum</i>	Peter Lambley, Norfolk
Liverwort	<i>Cephaloziella nicholsonii</i>	Ron Porley, Lowlands
	<i>Lejeunea mandonii</i>	Ron Porley, Lowlands
	<i>Marsupella profunda</i>	Ron Porley, Lowlands
	<i>Petalophyllum ralfsii</i>	Ron Porley, Lowlands
Mammal	<i>Arvicola terrestris</i>	Tony Mitchell-Jones, Lowlands
	<i>Barbastella barbastellus</i>	Tony Mitchell-Jones, Lowlands
	<i>Lutra lutra</i>	Tony Mitchell-Jones, Lowlands
	<i>Muscardinus avellanarius</i>	Tony Mitchell-Jones, Lowlands
	<i>Myotis bechsteinii</i>	Tony Mitchell-Jones, Lowlands
	<i>Pipistrellus pipistrellus</i>	Tony Mitchell-Jones, Lowlands
	<i>Rhinolophus ferrumequinum</i>	Tony Mitchell-Jones, Lowlands
	<i>Rhinolophus hipposideros</i>	Tony Mitchell-Jones, Lowlands
	<i>Sciurus vulgaris</i>	Tony Mitchell-Jones, Lowlands
Mollusc	<i>Catinella arenaria</i>	Martin Drake, Lowlands
	<i>Margaritifera margaritifera</i>	Martin Drake, Lowlands
	<i>Pseudanodonta complanata</i>	Martin Drake, Lowlands
	<i>Valvata macrostoma</i>	Martin Drake, Lowlands

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Vertigo angustior</i>	Martin Drake, Lowlands
	<i>Vertigo moulinsiana</i>	Martin Drake, Lowlands
Moss	<i>Didymodon glaucus</i>	Ron Porley, Lowlands
	<i>Ditrichum cornubicum</i>	Ron Porley, Lowlands
	<i>Orthodontium gracile</i>	Ron Porley, Lowlands
	<i>Weissia multicapsularis</i>	Ron Porley, Lowlands
Moth	<i>Bembecia chrysidiformis</i>	David Sheppard, Lowlands
	<i>Coscinia cribraria bivittata</i>	David Sheppard, Lowlands
	<i>Eustroma reticulata</i>	David Sheppard, Lowlands
	<i>Hydrelia sylvata</i>	David Sheppard, Lowlands
	<i>Idaea dilutaria</i>	David Sheppard, Lowlands
	<i>Idaea ochrata cantiata</i>	David Sheppard, Lowlands
	<i>Pareulype berberata</i>	David Sheppard, Lowlands
	<i>Siona lineata</i>	David Sheppard, Lowlands
	<i>Thalera fimbralis</i>	David Sheppard, Lowlands
Reptile	<i>Lacerta agilis</i>	Jim Foster, Lowlands
Spider	<i>Dolomedes plantarius</i>	Martin Drake, Lowlands
	<i>Eresus sandaliatus</i>	Roger Key, Lowlands
Stonewort	<i>Chara canescens</i>	Jill Sutcliffe, Lowlands
	<i>Lamprothamnium papulosum</i>	Jill Sutcliffe, Lowlands
	<i>Tolypella intricata</i>	Jill Sutcliffe, Lowlands
True bug	<i>Cicadetta montana</i>	David Sheppard, Lowlands
Vascular plant	<i>Agrostemma githago</i>	Jill Sutcliffe, Lowlands
	<i>Ajuga chamaepitys</i>	Jill Sutcliffe, Lowlands
	<i>Alisma gramineum</i>	Jill Sutcliffe, Lowlands
	<i>Apium repens</i>	Jill Sutcliffe, Lowlands
	<i>Arabis glabra</i>	Jill Sutcliffe, Lowlands
	<i>Carex depauperata</i>	Jill Sutcliffe, Lowlands
	<i>Carex muricata ssp muricata</i>	Jill Sutcliffe, Lowlands

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Centaurea cyanus</i>	Jill Sutcliffe, Lowlands
	<i>Coincya wrightii</i>	Jill Sutcliffe, Lowlands
	<i>Crepis foetida</i>	Jill Sutcliffe, Lowlands
	<i>Cyperus fuscus</i>	Jill Sutcliffe, Lowlands
	<i>Cypripedium calceolus</i>	Jill Sutcliffe, Lowlands
	<i>Damasonium alisma</i>	Jill Sutcliffe, Lowlands
	<i>Dianthus armeria</i>	Jill Sutcliffe, Lowlands
	<i>Filago gallica</i>	Jill Sutcliffe, Lowlands
	<i>Filago lutescens</i>	Jill Sutcliffe, Lowlands
	<i>Filago pyramidata</i>	Jill Sutcliffe, Lowlands
	<i>Fumaria occidentalis</i>	Jill Sutcliffe, Lowlands
	<i>Fumaria purpurea</i>	Jill Sutcliffe, Lowlands
	<i>Galeopsis angustifolia</i>	Jill Sutcliffe, Lowlands
	<i>Galium tricornerutum</i>	Jill Sutcliffe, Lowlands
	<i>Himantoglossum hircinum</i>	Jill Sutcliffe, Lowlands
	<i>Juniperus communis</i>	Jill Sutcliffe, Lowlands
	<i>Liparis loeselii</i>	Jill Sutcliffe, Lowlands
	<i>Luronium natans</i>	Jill Sutcliffe, Lowlands
	<i>Lycopodiella inundata</i>	Jill Sutcliffe, Lowlands
	<i>Melampyrum arvense</i>	Jill Sutcliffe, Lowlands
	<i>Ophrys holoserica</i>	Jill Sutcliffe, Lowlands
	<i>Pilularia globulifera</i>	Jill Sutcliffe, Lowlands
	<i>Populus nigra</i>	Jill Sutcliffe, Lowlands
	<i>Ranunculus tripartitus</i>	Jill Sutcliffe, Lowlands
	<i>Rumex rupestris</i>	Jill Sutcliffe, Lowlands
	<i>Saxifraga hirculus</i>	Jill Sutcliffe, Lowlands
	<i>Scandix pecten-veneris</i>	Jill Sutcliffe, Lowlands
	<i>Schoenoplectus triqueter</i>	Jill Sutcliffe, Lowlands

HIGHER TAXON	SPECIES	EN CONTACT
	<i>Senecio paludosus</i>	Jill Sutcliffe, Lowlands
	<i>Stachys germanica</i>	Jill Sutcliffe, Lowlands
	<i>Thlaspi perfoliatum</i>	Jill Sutcliffe, Lowlands
	<i>Viola persicifolia</i>	Jill Sutcliffe, Lowlands
	<i>Woodsia ilvensis</i>	Jill Sutcliffe, Lowlands
Worm	<i>Hirudo medicinalis</i>	Martin Drake, Lowlands

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