

English Nature's Research Programme 2005/2006

English Nature Research Reports



working today
for nature tomorrow

English Nature Research Reports

Number 668

English Nature's Research Programme 2005/2006

Compiled by W D Hebden
Edited by J J Hopkins

You may reproduce as many additional copies of
this report as you like, provided such copies stipulate that
copyright remains with English Nature,
Northminster House, Peterborough PE1 1UA

ISSN 0967-876X
© Copyright English Nature 2005

Contents

1.	Introduction	7
2.	English Nature's Research Programme	17
2.1	Climate change	17
2.2	Coastal processes	18
2.3	Diffuse pollution	18
2.4	Earth heritage.....	19
2.5	Habitat and area survey	21
2.6	Habitat management	24
2.7	Hydrology.....	26
2.8	Impact studies	27
2.9	Invasive exotic species	30
2.10	Landscape ecology and restoration.....	31
2.11	Natural Heritage Information Systems.....	32
2.12	Public Access.....	33
2.13	Remote Sensing and Telemetry	34
2.14	Risk Assessment	34
2.15	Site survey	34
2.16	Socio-economics	38
2.17	Species Survey and Research	40
2.18	Strategic science	48
Annex 1	Publications produced by English Nature staff since April 2004.....	49

Research Information Note

1. Introduction

English Nature has a complex range of statutory duties, ranging from operational activities relating to protected sites, habitats and species, to advice to government on nature conservation policy, particularly for major sectors such as agriculture and fisheries. We also develop our own response to longer term issues such as sustainable development and climate change. As a consequence our portfolio of commissioned science research is diverse, and constantly being adapted to take account of new conservation issues, and opportunities for improved conservation actions due to new scientific developments, such as DNA sequencing.

Presented here is the research programme for the financial year 2005-6, with projects classified according to the research themes we recognise in our planning process.

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, reflecting their importance to our work. Significant in this regard is work relating to statutory sites, for which we have very specific responsibilities, as well as our major contribution to work upon the habitats and species which the UK Biodiversity Action Plan focuses upon as a priority. Some areas of spend are ones where very little work has been done so far, and where investment could 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.

In recent years we have become aware of the need for us to take a longer term approach to research and development. Here we report on a programme of strategic science which we have been developing.

Classification of our research under topics is not a straightforward process. Some of our research is narrowly focussed and easily classified. 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.

A significant role for English Nature is the dissemination of the evidence on which conservation decisions are taken and these projects are included under the relevant headings.

This is the final research register to be produced by English Nature. From October 2006 English Nature will be amalgamated with the Landscape Access and Recreation Division of the Countryside Agency, and Defra's Rural Development Service, to form a new integrated environmental organisation to be known as Natural England. The Science, Research and Evidence-base will be fundamental to the success of Natural England, and our expectation is that the range of R&D commissioned and undertaken by Natural England will broaden. Natural England's Director for Science and Evidence will be Dr Andy Clements (currently English Nature's Director for Protected Areas), and I wish him every success in this key role.

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

Climate change

Climate change is one of the most important challenges facing nature conservation. Climate is one of the most important factors influencing plant and animal distribution, and research is required to understand more clearly the way in which climate change may impact on the distribution and abundance of wildlife. We particularly lack information about how the freshwater environment might be affected by climate change, and are seeking to address this through work jointly funded with others.

Coastal processes

There is 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 awareness has been stimulated by observed sea level change, and Government's reassessment of the cost-benefit of engineered coastal defences. Research has 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 and on designated sites.

Earth heritage

English Nature has significant statutory duties relating to the conservation of geological and geomorphological heritage, one of our most distinctive public sector roles. Our current research work is focussed on techniques for protection and management of Earth heritage sites, the economic value of our geological heritage, and the interpretation of geological information to promote conservation plans and actions.

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 often at county or Natural Area level.

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.

Hydrology

Water and wetlands are a highly managed and heavily exploited resource in England. We need to respond to a wide range of policies and to site related casework. Understanding hydrology is also a key element of planning and delivering habitat restoration.

Impact studies

Commercial and other exploitation of natural systems, for example fisheries and peat extraction, often has complex impacts upon ecosystems. Other pressures emerge due to development regulated by planning legislation. 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

Invasive exotic plants, animals and micro-organisms, particularly diseases, have had a profound effect upon terrestrial and aquatic systems in England. Our current focus is upon methods for the control and eradication of species which are already established.

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 how we might manage areas of land and sea with low human impacts.

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

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 on 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 affected by nature conservation activities increases we need to develop more efficient ways of monitoring changes to them. Remote sensing methodologies have the potential to make significant contributions to survey and monitoring work required to monitor the effectiveness of such schemes.

Risk assessment

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 quantify 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. Rapid progress in development of risk assessment means that in future all our impact studies may have a risk assessment component, and risk assessment may be deleted as a discrete research topic.

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 generally reflects local operational need. In some cases survey forms part of work intended to clarify specific site impacts related to diffuse pollution, coastal processes and Earth heritage and these projects are listed under these more specific headings.

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 economic and other policy instruments. In recent years we have put particular emphasis upon the economic aspects of environment friendly farming.

Species survey and research

English Nature has significant responsibilities for species conservation, particularly those protected by national and international legislation and agreements. In addition there are species in the UK Biodiversity Action Plan covered by English Nature's Species Recovery Programme where positive action is being taken. We therefore have a significant requirement for survey and monitoring of these species as well as studies into the ecology of the species required to ensure their conservation needs are met. For some animals, particularly birds, this area of work is most appropriately carried out by studies of communities of species and this work is also included here.

Strategic science

Much of our work is driven very directly by our statutory responsibilities relating to sites, habitats and species of conservation importance, and our duty to provide policy advice to government and others. However, we have become increasingly aware of a need to develop a more strategic programme of work which will establish new principles on which to base conservation decisions and actions.

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.
4. The cost of the work during 2005/2006 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 2004.

I would like to thank all those organisations and individuals who have contributed to English Nature's research effort over the past 15 years, as contractors, consultants, research managers and partners. Your efforts in maintaining action for nature through sound scientific information have ensured that English Nature has built a strong reputation, and provide a firm base for the future success of Natural England. Thank you all for your help.

A handwritten signature in black ink that reads "Keith Duff". The signature is written in a cursive style with a long horizontal stroke at the end.

Dr Keith Duff
Chief Scientist

February 2006

Address of English Nature's Specialist Support Teams

English Nature
Northminster House
Peterborough PE1 1UA
Telephone (switchboard): (01733) 455000

Direct Telephone Lines

Environmental Impacts	(01733) 455203
Maritime	(01733) 455226
Terrestrial Wildlife	(01733) 455260

Addresses of English Nature's Local Area Teams

Bedfordshire and Cambridgeshire	Ham Lane House Ham Lane Nene Park Orton Waterville Peterborough PE2 5UR Telephone: (01733) 405850
Cheshire to Lancashire	Pier House Wallgate Wigan Lancs WN3 4AL Telephone: (01942) 820342
Cornwall and Isles of Scilly	Trevint House Strangways Villas Truro Cornwall TR1 2PA Telephone: (01872) 265710
Cumbria	Juniper House Murley Moss Oxenholme Road Kendal Cumbria LA9 7RL Telephone: (01539) 792800

Devon	Level 2 Renslade House Bonhay Road Exeter Devon EX4 3AW Telephone: (01392) 889770
Dorset	Slepe Farm Arne Wareham Dorset BH20 5BN Telephone: (01929) 557450
Eastern Area	The Maltings Wharf Road Grantham Lincolnshire NG31 6BH Telephone: (01476) 584800
Essex, Hertfordshire and London	Harbour House Hythe Quay Colchester Essex CO2 8JF Telephone: (01206) 796666
Hampshire & Isle of Wight	1 Southampton Road Lyndhurst Hampshire SO43 7BU Telephone: (02380) 286410
Herefordshire and Worcestershire	Bronsil House Eastnor Nr Ledbury Herefordshire HR8 1EP Telephone: (01531) 638500
Humber to Pennines	Bullring House Northgate Wakefield West Yorkshire WF1 3BJ Telephone: (01924) 334500
Kent	The Countryside Management Centre Coldharbour Farm Wye Ashford Kent TN25 5DB Telephone: (01233) 812525

Norfolk	60 Bracondale Norwich Norfolk NR1 2BE Telephone: (01603) 598400
North and East Yorkshire	Genesis Building 1 Science Park University Road Heslington York YO10 5ZQ Telephone: (01904) 435500
North Mercia	Attingham Park Shrewsbury Shropshire SY4 4TW Telephone: (01743) 282000
Northumbria	Stocksfield Hall Stocksfield Northumberland NE43 7TN Telephone: (01661) 845500
Peak District and Derbyshire	Endcliffe Deepdale Business Park Ashford Road Bakewell Derbyshire DE45 1GT Telephone: (01629) 816640
Somerset and Gloucestershire	Roughmoor Bishop's Hull Taunton Somerset TA1 5AA Telephone: (01823) 283211
Suffolk	Regent House 110 Northgate Street Bury St Edmunds Suffolk IP33 1HP Telephone: (01284) 762218
Sussex and Surrey	Phoenix House 32-33 North Street Lewes East Sussex BN7 2PH Telephone: (01273) 476595

Thames and Chilterns

Foxhold House
Thornford Road
Crookham Common
Thatcham
Berkshire RG19 8EL
Telephone: (01635) 268881

Wiltshire

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

2. English Nature's Research Programme

2.1 Climate change

PRINCE

Contractor	Environment Agency	Completion	31/12/05
Officer	S Clarke, Environmental Impacts Team	Cost	£5,000
Description			
Research into implications of climate change for freshwater conservation objectives.			

Climate change site monitoring network

Contractor	Centre for Ecology and Hydrology	Completion	31/07/08
Officer	M Harley, Environmental Impacts Team	Cost	£17,000
Description			
A Defra-led, inter-agency climate impact monitoring project, with outputs to feed into development of English Nature's climate change monitoring strategy for protected sites.			

Climate change, biodiversity and regional policy development

Contractor	Environmental Change Institute, Oxford	Completion	30/06/07
Officer	M Harley, Environmental Impacts Team	Cost	£5,000
Description			
The first phase of a climate change, biodiversity and regional policy project which will underpin a policy programme for each region.			

MONARCH 3

Contractor	Environmental Change Institute, Oxford	Completion	31/03/06
Officer	M Harley, Environmental Impacts Team	Cost	£83,200
Description			
The final phase of the MONARCH project which has carried out a series of modelling studies on the effects of climate change upon biodiversity in Britain, including both habitats and species.			

Climate change impact research

Contractor	Tyndall Centre, University of East Anglia	Completion	31/03/08
Officer	M Harley, Environmental Impacts Team	Cost	£4,400
Description			
Co-funded PhD studentships on the role of nature conservation in mitigating climate change and on the interaction between climate change, biodiversity and agri-environment policy.			

Regional climate change project

Contractor	Oxford University	Completion	31/10/05
Officer	M Harley, Environmental Impacts Team	Cost	£10,000

Description

To produce a series of short reports/leaflets for each English region which identifies regionally relevant climate change issues, and interprets the latest work on impact mitigation and adaptation to regional policy.

2.2 Coastal processes

Designing a sustainable and ecologically resilient coastline in Norfolk, Suffolk and Devon

Contractor	Tyndall Centre and CSERGE, University of East Anglia	Completion	31/03/06
Officer	S Rees, Maritime Team	Cost	£10,000

Description

Development of methodologies to assist the design of a sustainable and resilient coastline in three trial areas, with a particular focus on stakeholder involvement.

2.3 Diffuse pollution

Pesticide effects on aquatic ecosystems

Contractor	Environment Agency	Completion	31/12/08
Officer	A Burn, Environmental Impacts Team	Cost	£10,000

Description

An Environment Agency led project to establish whether the use of agricultural pesticides under field conditions is associated with measurable adverse effects on aquatic invertebrates and plants. This will enable the development of an appropriate risk-based monitoring strategy for pesticides in surface waters and provide field-base evidence on whether the way that pesticides are currently used and approved is sufficiently precautionary.

The application of biomarkers and other biological effects tools to assess the state of European Marine Sites

Contractor	University of Plymouth	Completion	31/03/08
Officer	M Coyle and S Brockington, Environmental Impacts Team and Maritime Team	Cost	£40,000

Description

To test the applicability of using a suite of biomarkers and other biological effects methods to inform marine site management and impact assessment.

Integrated Pollution Prevention and Control (IPPC) call off contract

Contractor	Centre for Ecology and Hydrology	Completion	31/03/06
Officer	M Coyle, Environmental Impacts Team	Cost	£20,000

Description

A call-off contract for technical expertise to inform English Nature's statutory advice. The contract is used primarily for IPPC casework, but also to inform the Environment Agency Review of Consents and ad-hoc casework.

Assessing the risk posed to wading birds from toxic contamination of estuarine SPAs

Contractor	Centre for Ecology and Hydrology	Completion	28/02/06
Officer	M Taylor, Somerset and Gloucestershire Team	Cost	£20,000

Description

The development of a methodology for carrying out assessments of the risks posed by persistent toxic substances to wading birds, on contaminated SPAs. Probabilistic risk assessment techniques will be used. The overall objective is to evaluate how useful the method could be in relation to the assessment of discharges and other relevant plans and projects under the Habitats Regulations and also in the context of condition assessment.

River Lugg, Herefordshire, catchment wet weather sediment mobilization study

Contractor	Environment Agency, Wales	Completion	31/03/06
Officer	H Stace, Herefordshire and Worcestershire Team	Cost	£10,000

Description

To investigate the routes for eroded soil to be transported into the River Lugg. This study will form part of the Diffuse Agricultural Pollution Mitigation Strategy for the Lugg catchment.

2.4 Earth heritage

Minerals and Nature Conservation Forum action plan

Contractor	Various	Completion	31/03/08
Officer	N Bennett, Environmental Impacts Team	Cost	£10,000

Description

Work jointly commissioned by English Nature, the QPA and SAMSA to explore methodologies and best practice in the role the minerals industry can play in delivering geological and wildlife conservation.

Geological/geomorphological conservation: a guide to good practice

Contractor	Status Design	Completion	31/12/05
Officer	C Prosser, Environmental Impacts Team	Cost	£32,800

Description

To design and publish a guide to good practice in geological and geomorphological site management.

Local Geodiversity Action Plans

Contractor	Various	Completion	31/03/06
Officer	J Larwood, Environmental Impacts Team	Cost	£25,000

Description

Preparation of Local Geodiversity Action Plans and dissemination of their content.

Social and economic value of geological conservation

Contractor	University of Wales, Aberystwyth	Completion	30/06/05
Officer	C Prosser & J Burney, Environmental Impacts Team	Cost	£4,000

Description

A PhD research project exploring and describing the social and economic value of geological conservation. To demonstrate, through use of case studies and economic valuation techniques, the value of geological conservation to local communities.

Regionally Important Geological and Geomorphological Sites (RIGS) support

Contractor	UK RIGS	Completion	31/03/06
Officer	J Larwood, Environmental Impacts Team	Cost	£15,000

Description

To support strategic development of RIGS through contributory funding for Project Officer, RIGS website, newsletter and the annual RIGS Conference.

Jurassic Coast World Heritage Site

Contractor	Dorset County Council	Completion	31/03/06
Officer	J Larwood, Environmental Impacts Team	Cost	£3,000

Description

To contribute towards Jurassic Coast World Heritage Site monitoring including development of the monitoring methodology.

Cave conservation advice contract

Contractor	Limestone Research Group	Completion	31/03/06
Officer	J Stewart, Peak District and Derbyshire Team	Cost	£1,800

Description

Call off contract with scientific specialist on karst and cave conservation and hydrology. The output is advice to conservation delivery staff on specific casework and management issues.

2.5 Habitat and area survey

Dorset marine habitat survey

Contractor	K Collins, Southampton University	Completion	28/02/06
Officer	R Waldock, Dorset Team	Cost	£4,000

Description

Survey of *Sabellaria* reefs and *Zostera* beds in Weymouth Bay and Swanage Bay, Dorset.

Opportunity map for Wetland Habitat Action Plans

Contractor	White Young Green	Completion	30/09/05
Officer	R Meade, Environmental Impacts Team	Cost	£29,300

Description

A prioritized list of high-opportunity sites to be acquired and/or managed for wetland habitat restoration or creation under reviews of the Wetland Habitat Action Plans.

Inventory of lowland raised bog sites to support Lowland Raised Bog Habitat Action Plan revision

Contractor	Faber Maunsell	Completion	30/09/05
Officer	R Meade, Environmental Impacts Team	Cost	£11,700

Description

List and maps of Lowland Raised Bogs prepared to inform the ongoing Review of the Lowland Raised Bog Habitat Action Plan.

Water-crowfoot *Ranunculus* in lowland chalk streams: natural drivers and anthropogenic impacts

Contractor	University of Stirling	Completion	31/03/06
Officer	S Clarke, Environmental Impacts Team	Cost	£5,000

Description

To investigate the factors controlling the presence and abundance of Water-crowfoot *Ranunculus* vegetation in lowland chalk streams.

Water Framework Directive - testing river basin management

Contractor	Halcrow Group Ltd	Completion	31/08/05
Officer	D Withrington, Environmental Impacts Team	Cost	£12,000

Description

To prepare a pilot, GIS based, river basin management plan for the River Ribble, using existing biodiversity information.

Stakeholder workshop on designation of SACs beyond the 0-12 miles offshore limit

Contractor	S Gubbay	Completion	30/09/05
Officer	L Jones, Maritime Team	Cost	£10,000

Description

A workshop to determine whether there are existing data sets available from other organizations which can be fed into the work to select SACs within the 0-12 mile offshore zone.

Lake Common Standards Monitoring

Contractor	Various	Completion	31/12/06
Officer	S Clarke, Environmental Impacts Team	Cost	£40,000

Description

Condition monitoring of SSSI and SAC lakes.

County Wildlife Site unimproved grassland project

Contractor	Suffolk Wildlife Trust	Completion	31/12/05
Officer	A Collins, Suffolk Team	Cost	£3,000

Description

A rolling programme of site survey and monitoring to assess the condition of unimproved lowland grassland sites which have been assigned County Wildlife Site status in Suffolk. The programme aims to survey about 80 sites per year, and provide follow-up management advice.

Cumbria Tarn survey

Contractor	Cumbria Wildlife Trust	Completion	31/01/06
Officer	M Robinson, Cumbria Team	Cost	£5,000

Description

Survey and review of biota of tarns in Cumbria.

Seasearch

Contractor	C Wood, Marine Conservation Society	Completion	28/02/06
Officer	A Moffat, Maritime Team	Cost	£37,775

Description

Contribution to the Seasearch national programme which coordinates the work of volunteer divers in the survey of marine habitats and species.

Devon SeaSearch

Contractor	S Sharrock, Marine Conservation Society	Completion	31/03/06
Officer	L Heape, Devon Team	Cost	£3,000

Description

A habitat and species survey of marine habitats in Devon including seagrass *Zostera* beds.

Meres and Mosses NVC survey, Phase III

Contractor	Whild Associates	Completion	31/03/06
Officer	C Hogarth, North Mercia	Cost	£10,000

Description

Completion of a programme of NVC survey for Meres and Mosses SSSIs within Staffordshire and Shropshire. This information is to be used to address management issues, assess condition, and strengthen conservation objectives.

Chasmophytic vegetation survey

Contractor	A Orange, Museum of Wales	Completion	31/12/05
Officer	A Crowle, Terrestrial Wildlife Team	Cost	£5,700

Description

To establish the range and importance of chasmophytic plant communities at a number of sites across England.

The European context of British lowland grasslands

Contractor	Dr J Rodwell	Completion	31/03/07
Officer	V Morgan, Terrestrial Wildlife Team	Cost	£10,000

Description

To assess the European conservation significance of priority British lowland grasslands and describe how they fit into a wider European context. To compile information about contacts and relevant projects in other parts of Europe. To identify key gaps in knowledge and conservation action in Europe.

***Sabellaria spinulosa* reef surveys in The Wash**

Contractor	Eastern Sea Fisheries Joint Committee	Completion	30/11/05
Officer	C Donnelly, Eastern Area Team	Cost	£7,500

Description

Contribution to Eastern Sea Fisheries Joint Committee (ESFJC) surveys of *Sabellaria spinulosa* reefs in The Wash.

Moorland habitat condition assessment

Contractor	J Frith	Completion	31/03/06
Officer	T Rice, Peak District and Derbyshire Team	Cost	£9,000

Description

To carry out moorland condition assessments in the Peak District and Derbyshire according to JNCC common standards.

Peak District lead rakes survey

Contractor	Peak District National Park Authority	Completion	31/03/06
Officer	J Stewart, Peak District and Derbyshire Team	Cost	£5,000

Description

To improve knowledge of the nature conservation value of the lead rake resource in the Peak District. In 05/06 the survey will concentrate on the Wensley and Hucklow/Eyam area.

Hereford and Worcester open water SSSI surveys

Contractor	R Lansdown	Completion	31/10/05
Officer	H Ward, Herefordshire and Worcestershire Team	Cost	£3,000

Description

Aquatic macrophyte survey, including NVC and SSSI lake type information, of Hereford and Worcestershire open water SSSIs which is required to enable condition assessments to be carried out and to aid writing of conservation objectives.

2.6 Habitat management

Fen and bog call-off advice contract

Contractor	Department of Animal & Plant Sciences, University of Sheffield	Completion	31/03/06
Officer	R Meade, Environmental Impacts Team	Cost	£5,000

Description

To provide expert advice on fen and bog management issues as required by local teams.

Limestone Country Project – ecological research

Contractor	Newcastle University	Completion	31/03/07
Officer	P Evans, North & East Yorkshire Team	Cost	£25,000

Description

To assess the impact of grazing management regimes on a range of habitats, in particular comparing grazing systems utilizing native upland cattle breeds with those comprising principally sheep. To provide practical advice on the relative conservation benefits of the different grazing livestock.

Investigation into the effects of burning and burning rotations on bryophyte communities in the North York Moors

Contractor	J Burch, York University	Completion	31/12/06
Officer	D Clayden, North & East Yorkshire Team	Cost	£2,000

Description

Continuation of work investigating bryophyte community composition and diversity in upland heathland on the North York Moors in relation to heather canopy age and the effects of burning.

Invertebrate management, Chippenham Fen NNR

Contractor	D Lott, Stenus Research	Completion	24/02/06
Officer	K Warrington, Suffolk Team	Cost	£5,000

Description

Research to investigate whether grazing or mechanical management is more beneficial to invertebrate populations at Chippenham Fen NNR.

The effects of a mixed grazing regime on sand dune vegetation at Branton Burrows SAC, Devon

Contractor	RPS Ecology	Completion	30/6/05
Officer	J Diamond, Devon Team	Cost	£5,000

Description

To provide evidence of the effects of grazing on sand dune vegetation at Branton Burrows SAC.

Lower Derwent Valley drainage and hay cutting experiments

Contractor	Environment Agency	Completion	31/03/06
Officer	S Woolven, North & East Yorkshire Team	Cost	£5,000

Description

Experimental work to assess the impact of drainage and hay cutting on the ecology of the Lower Derwent Valley, North Yorkshire.

The impact of organic manures on semi-natural grasslands

Contractor	Consortium led by Institute of Grassland and Environmental Research	Completion	31/03/10
Officer	R Jefferson, Terrestrial Wildlife Team	Cost	£10,000

Description

To 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 fertilizers and other slow-release fertilizers can substitute for farmyard manure.

Influence of livestock experience and breed on foraging behaviour in unimproved grasslands and impact on biodiversity

Contractor	Institute of Grassland and Environmental Research	Completion	31/01/07
Officer	R Jefferson, Terrestrial Wildlife Team	Cost	£10,000

Description

To determine the influence of livestock breed and experience during rearing on subsequent foraging behaviour and, in turn, the effects of any differences in foraging behaviour on the structure and biodiversity interests of semi-natural grassland.

Sustainable Arable Farming for an Improved Environment (SAFFIE)

Contractor	Consortium led by CPA/ADAS	Completion	30/04/06
Officer	A Burn, Environmental Impacts Team	Cost	£10,000

Description

To evaluate various methods for enhancing farmland biodiversity by integrating novel habitat management approaches in the crop and non-cropped margins. Improved understanding of interactions will lead to increases in invertebrate and weed seed abundance, and their availability will be of benefit to farmland birds and compensate for some of the effects of pesticide use.

International workshop on Highly Protected Marine Sites

Contractor	Various	Completion	31/07/05
Officer	K Bull, Maritime Team	Cost	£15,000

Description

Production of reports and manuals, which explain the scientific principles of Highly Protected Marine Sites.

Ecological structure, function and designation of marine SACs

Contractor	University of Liverpool	Completion	31/03/06
Officer	L Jones, Maritime Team	Cost	£100,000

Description

To produce a methodology that will allow the incorporation of ecological structure and function into the process for designation of Marine SACs.

Biodiversity opportunities in Shoreline Management Plans – SMP Cell 11 North west coast

Contractor	Environment Agency	Completion	30/04/06
Officer	S Rees, Maritime Team and R Critchley, Cheshire to Lancashire Team	Cost	£10,000

Description

Project to inform development of sustainable policies and identify biodiversity opportunities within the framework of Shoreline Management Plans and other relevant plans.

2.7 Hydrology

Hydrology and hydrogeology call off contract

Contractor	S Bennett and BGS/CEH	Completion	31/03/06
Officer	H Schutten, Environmental Impacts Team	Cost	£5,000

Description

To provide technical hydrological and hydro-geological advice and information to English Nature's operational staff and hydro-ecological specialists.

SSSI river specific flow criteria

Contractor	CEH Wallingford	Completion	31/03/06
Officer	H Schutten, Environmental Impacts Team	Cost	£16,800

Description

To set up basic hydrological monitoring and reporting on Natura 2000 sites and SSSIs. The objective is to establish baseline patterns of water behaviour against which change can be judged.

Development of eco-hydrological guidelines for dune habitats – Phase 1

Contractor	Dr A Davy, University of East Anglia	Completion	31/12/05
Officer	J McNish, Maritime Team	Cost	£8,895

Description

A review and evaluation of information on the eco-hydrology of dune habitats in order to assess how far it is currently possible to identify their water supply mechanisms and preferred regimes for water and nutrients. The report will present a preliminary conceptual framework for 'how dune habitats work' and draws heavily on research and case studies from Western Europe.

River Lathkill hydrological research

Contractor	Limestone Research Group	Completion	28/02/07
Officer	B Le Bas, Peak District and Derbyshire Team	Cost	£3,500

Description

Research into the hydrological functionality of the River Lathkill and the Lathkill Dale NNR to inform management decisions.

2.8 Impact studies

South West network of marine 'no take zones' (Finding Sanctuary)

Contractor	South West Food and Drink	Completion	31/03/08
Officer	C Davis, Devon Team	Cost	£30,000

Description

Research to investigate if it is possible to increase marine biodiversity, whilst improving the sustainability of local fish stocks, by developing a network of fishery closures in inshore waters of the South West England.

East of England PSA delivery plan

Contractor	Land Use Consultants	Completion	31/03/06
Officer	N George, Essex, Hertfordshire and London Team	Cost	£23,000

Description

A plan to identify actions and remedies to address meeting PSA targets regarding the condition of SSSIs across the region.

A preliminary examination of the vegetation history of moorland in North England

Contractor	University of Gloucester	Completion	31/03/06
Officer	A Crowle, Terrestrial Wildlife Team	Cost	£28,876

Description

To take peat samples from several sites in the North of England with the aim of identifying changes in vegetation composition and the likely timing and impact of burning and atmospheric deposition.

Site characterization of selected European Marine Sites

Contractor	Marine Biological Association	Completion	31/12/05
Officer	M Coyle, Environmental Impacts Team	Cost	£30,000

Description

To evaluate the physical, chemical and biological quality of two Natura 2000 sites in order to inform appropriate assessments under the Environment Agency Review of Consents. These reports will also be used to inform the water quality aspects of condition assessments.

Monitoring the effects of the Lundy Island ‘no take zone’

Contractor	Marine Biological Association	Completion	31/05/06
Officer	C Davis, Devon Team	Cost	£15,000

Description

To develop a site-specific monitoring programme, using an existing monitoring protocol and to provide costings for implementing the detailed monitoring programme, over an initial period of 3 years.

Transport policy research

Contractor	Countryside Agency	Completion	31/03/06
Officer	D Markham, Environmental Impacts Team	Cost	£5,000

Description

Research into aspects of transport policy including climate change, air quality, road pricing, techniques for valuing the environment and roadside verges.

Impact of moorings on seagrass *Zostera* beds found within the Salcombe Estuary, Devon

Contractor	Plymouth University	Completion	31/03/06
Officer	L Heape, Devon Team	Cost	£6,500

Description

Information on the effects swing moorings are having on the seagrass beds in Salcombe Estuary and a model to enable future predictions of the impacts of moorings in this or other locations.

Impact of agricultural operations on soil ecosystem processes and soil biodiversity – a review

Contractor	Elm Farm Research Centre	Completion	28/02/06
Officer	I Alexander, Terrestrial Wildlife Team	Cost	£10,000

Description

To review our present knowledge of how different agricultural practices impact on ecosystem function of soil and soil biodiversity.

Cumulative Impacts of Development Stage 2

Contractor	Land Use Consultants	Completion	31/07/05
Officer	I Smith, Environmental Impacts Team	Cost	£5,000

Description

Continuation of work carried out in 1994-5. This stage will assess further potential sources of data, and develop a generic approach to revealing and assessing the significance of cumulative, direct and indirect, impacts on terrestrial biodiversity.

Inland transport advice contract

Contractor	TRL Ltd	Completion	31/03/06
Officer	D Markham, Environmental Impacts Team	Cost	£15,000

Description

To provide specialist advice on technical aspects of transport policy and planning including Regional Transport Strategies, Local Transport Plans and individual schemes.

Transport 2000

Contractor	Transport 2000	Completion	31/03/06
Officer	D Markham, Environmental Impacts Team	Cost	£5,000

Description

To support the work of Transport 2000 and enable English Nature to access to its information, research material and regular national and regional round table meetings.

Local Authorities Handbook

Contractor	David Tyldesley Associates	Completion	31/03/06
Officer	J Price, Environmental Impacts Team	Cost	£4,000

Description

Revision of handbook to include interpretation of new policy, and make an intranet version available.

Planning casework advice to Area Teams and NATs

Contractor	David Tyldesley Associates; Land Use Consultants	Completion	31/03/06
Officer	J Price, Environmental Impacts Team	Cost	£10,000

Description

A framework contract to provide technical advice on planning casework as requested by staff.

Establishing reference conditions in lakes

Contractor	University of Stirling/University College London	Completion	31/03/06
Officer	S Clarke, Environmental Impacts Team	Cost	£5,000

Description

To determine 'reference' conditions to inform conservation objective setting, for a range of SSSI/SAC lakes using historic botanical records and palaeolimnology. To develop techniques for establishing 'favourable condition' of lake plant communities.

Cockle suction dredge study Part II

Contractor	J Addison, CEFAS	Completion	31/03/06
Officer	C Donnelly, Eastern Area Team	Cost	£15,000

Description

The second stage of this study is to analyse data from The Wash to investigate whether there is any evidence of adverse site-specific effects of cockle suction dredging.

2.9 Invasive exotic species

Japanese knotweed *Fallopia japonica* control

Contractor	Cornwall College	Completion	31/03/06
Officer	B Tonkin, Cornwall and Isles of Scilly Team	Cost	£4,000

Description

To establish the viability of using the grass *Miscanthus* spp or other fast growing grasses as a biological control of japanese knotweed, and establish the mechanisms by which this control takes place.

Control of the non-native amphibian clawed-toad *Xenopus laevis*

Contractor	University of Bristol	Completion	31/01/06
Officer	J Foster, Terrestrial Wildlife Team	Cost	£10,000

Description

To undertake control efforts at a site near Scunthorpe, where clawed-toad *Xenopus laevis* has become established. To undertake research on pathogen load, diet, and population status in order to assess the risks to native species.

2.10 Landscape ecology and restoration

Ennerdale Valley case study

Contractor	National Trust	Completion	30/06/06
Officer	S Webb, Cumbria Team	Cost	£5,000

Description

The project will research the benefits or problems with adopting a more hands off management style in the Ennerdale Valley, Cumbria, including the use of extensive cattle grazing.

Fresh woods and pastures new: rewilding and the role of large herbivores

Contractor	Sussex Wildlife Trust	Completion	31/03/07
Officer	K Kirby, Terrestrial Wildlife Team	Cost	£4,850

Description

To explore the application of naturalistic grazing regimes for managing future landscapes for conservation.

Minerals legacy

Contractor	Land Use Consultants	Completion	31/03/06
Officer	N Bennett, Environmental Impacts Team	Cost	£34,700

Description

Research into the distribution of disused minerals extraction sites and their importance for both nature conservation and local communities.

Freshwater environment trends

Contractor	In-house	Completion	28/02/06
Officer	A Burn, Environmental Impacts Team	Cost	£15,000

Description

To prepare a publication, well illustrated with examples, which details the current trends in and state of the freshwater environment, to support the investment now being sought to restore and recreate freshwater habitats.

A water and wetlands vision for England

Contractor	RSPB	Completion	31/12/05
Officer	A Burn, Environmental Impacts Team	Cost	£5,000

Description

To provide a visual interpretation of the scale and location of new and restored water and wetland habitats.

2.11 Natural Heritage Information Systems

Upland Habitat Inventory

Contractor	ADAS and Exygesis Ltd	Completion	31/03/06
Officer	A Crowle, Terrestrial Wildlife Team	Cost	£45,000

Description

To continue the development and refinement of the Upland Habitat Inventory, including incorporation of Defra Commons survey data and addition of digitized NVC data from sources outside of English Nature.

Exe estuary partnership

Contractor	Devon County Council	Completion	31/03/06
Officer	C Davis, Devon Team	Cost	£10,000

Description

Production of 'state of nature' GIS to support the potential development of a Habitats Regulation 34 management scheme for the Exe Estuary, Devon.

Support to Suffolk Biological Records Centre

Contractor	Suffolk Biological Records Centre	Completion	31/03/06
Officer	R Rafe, Suffolk Team	Cost	£11,000

Description

Support to Suffolk Biological Records Centre in its county role of collating, managing and releasing biological data.

Ancient Woodland Inventory (AWI)

Contractor	Landmark	Completion	31/03/07
Officer	E Goldberg, Terrestrial Wildlife Team	Cost	£70,000

Description

To update the Ancient Woodland Inventory (AWI) site boundaries through comparison with the National Inventory of Woodland and Trees and develop its use of the AWI as part of the ancient woodland monitoring programme.

Wood-pasture and Parkland Information System

Contractor	Forestry Commission	Completion	31/03/06
Officer	R Isted, Terrestrial Wildlife Team	Cost	£5,000

Description

To update the Wood-pasture and Parkland Information System to ensure compatibility with Recorder v6 software and to continue to populate the system.

Maritime cliff and slope inventory

Contractor	Geodata Institute	Completion	31/12/05
Officer	S Rees, Maritime Team	Cost	£6,700

Description

Development of an electronic inventory of data on maritime cliff habitats by collating information collected in previous survey programmes.

2.12 Public Access

Open access in Bowland – people and hen harrier monitoring project

Contractor	C Dentigh, Lancashire County Council	Completion	30/09/05
Officer	J Hickling, Cheshire to Lancashire Team	Cost	£12,000

Description

To monitor the recreational usage of certain parts of Bowland Fells SPA, after implementation of Part 1 of the Countryside and Rights of Way Act, and in particular the possible effect upon the breeding behaviour of hen harriers.

Stour and Orwell estuaries project - bird disturbance

Contractor	Suffolk Coast and Heaths Unit	Completion	31/12/06
Officer	J Jackson, Suffolk Team	Cost	£4,000

Description

To assess the impact of recreational disturbance on birds of the Stour and Orwell estuaries.

Thames Basin Heaths SPA site visitor survey

Contractor	Durwyn Liley, Footprint Ecology	Completion	31/10/05
Officer	K Payne, Thames and Chilterns Team	Cost	£17,600

Description

To question visitors to sites within the Thames Basin Heaths SPA to find out where they have come from, why they visit the sites and where they go on the sites.

Thames Basin Heaths site quality survey

Contractor	Durwyn Liley, Footprint Ecology	Completion	31/10/05
Officer	K Payne, Thames and Chilterns Team	Cost	£17,600

Description

To ascertain the quality of the landscape and provision of Thames Basin Heaths that draws visitors to the sites.

Recreation and tourism policy

Contractor	Countryside Agency	Completion	31/03/06
Officer	D Markham, Environmental Impacts Team	Cost	£10,500

Description

Research to inform the development of a joint policy on tourism/recreation with the Countryside Agency and Rural Development Service.

2.13 Remote sensing and telemetry

Extent and condition of lowland raised bogs from remote sensing

Contractor	Capita Symonds	Completion	31/03/06
Officer	R Meade, Environmental Impacts Team	Cost	£38,700

Description

Survey using remote sensing to assess the extent and quality of lowland raised bogs, using categories linked to JNCC Common Standards Monitoring standards.

2.14 Risk assessment

Risks of hybridization between Atlantic salmon and brown trout as a result of trout stocking

Contractor	N Giles, Environment Agency	Completion	31/08/05
Officer	D Fraser, Environmental Impacts Team	Cost	£5,000

Description

To determine the risks to Atlantic salmon from breeding with stocked brown trout in order to further inform SAC trout stocking policy.

2.15 Site survey

Veteran tree mapping at Windsor Great Park

Contractor	Mosaic Mapping	Completion	28/02/06
Officer	S King, Thames and Chilterns Team	Cost	£2,500

Description

To GPS map, digitally photograph and tag the dead wood features within Windsor Great Park SSSI.

Habitat survey of Avon Valley Marsh Warbler SSSI, Worcestershire

Contractor	Just Ecology	Completion	31/08/05
Officer	A Watson, Herefordshire and Worcestershire Team	Cost	£10,500

Description

Habitat survey of Avon Valley Marsh Warbler SSSI to aid assessment of habitat value.

Habitat survey of Hartlebury Common SSSI, Worcestershire

Contractor	K Stephen	Completion	31/08/05
Officer	J Bingham, Herefordshire and Worcestershire Team	Cost	£1,200

Description

Habitat survey of Hartlebury Common SSSI to enable targeting of heathland restoration.

Habitat surveys of wet grassland SSSIs, Herefordshire

Contractor	K Stephen	Completion	31/12/05
Officer	P Baskeyfield, Herefordshire and Worcestershire Team	Cost	£3,000

Description

NVC survey of selected SSSIs to assist in preparing conservation objectives and undertaking condition assessment; assessment of wet grassland pSSSI.

Habitat surveys of wet grassland SSSIs, Worcestershire

Contractor	K Stephen	Completion	31/12/05
Officer	H Ward, Herefordshire and Worcestershire Team	Cost	£3,000

Description

NVC survey of selected SSSIs to assist in preparing conservation objectives and undertaking condition assessment.

Habitat surveys of woodland and grassland SSSIs, Herefordshire

Contractor	A Foulds	Completion	31/12/05
Officer	P Baskeyfield, Herefordshire and Worcestershire Team	Cost	£2,500

Description

NVC survey of selected SSSIs to assist in preparing conservation objectives and undertaking condition assessment.

National Vegetation Classification (NVC) survey of Shapwick Heath NNR

Contractor	Bangor Ecological Surveys	Completion	31/10/05
Officer	S Parker, Somerset and Gloucestershire Team	Cost	£6,000

Description

A repeat NVC survey of Shapwick Heath NNR.

National Vegetation Classification (NVC) survey of Somerset Levels and Moors NNR

Contractor	Bangor Ecological Surveys	Completion	31/10/05
Officer	S Cross, Somerset and Gloucestershire Team	Cost	£6,000

Description

A repeat NVC survey of Somerset Levels and Moors NNR.

Biological survey of the inter-tidal sediments of Solent Maritime SAC

Contractor	Environment and Resource Technology Ltd	Completion	31/01/06
Officer	C Pirie, Hampshire and Isle of Wight Team	Cost	£47,000

Description

A faunal survey of the littoral sediment habitats of the Solent Maritime SAC. This information will act as a baseline for future management and condition monitoring of the SAC and its component SSSIs.

Survey of the littoral sea caves of South Wight Maritime candidate SAC

Contractor	Seascope, Pelagial with I Tittley	Completion	31/12/05
Officer	C Pirie, Hampshire and Isle of Wight Team	Cost	£10,000

Description

To compile a comprehensive inventory of the intertidal caves of South Wight candidate SAC, providing basic information regarding location, size, tidal height and substrate.

Chesil & the Fleet SAC, vegetation survey

Contractor	G Groom and K Crowther	Completion	31/12/05
Officer	R Waldoock, Dorset Team	Cost	£10,000

Description

A survey of the shingle beach vegetation of Chesil and the Fleet SAC, Dorset.

Chesil & the Fleet SAC inter-tidal habitat survey

Contractor	EMU Ltd	Completion	31/12/05
Officer	R Waldoock, Dorset Team	Cost	£10,000

Description

A survey of the inter-tidal zone of Chesil & the Fleet SAC, Dorset.

Eggardon & Luccas SSSI, vegetation survey

Contractor	Dorset Environmental Records Centre	Completion	30/09/05
Officer	S Cooch, Dorset Team	Cost	£2,195

Description

A survey of the vegetation of Eggardon & Luccas SSSI, Dorset.

Drakenorth SSSI, vegetation survey

Contractor	Phil Wilson	Completion	31/10/05
Officer	S Burton, Dorset Team	Cost	£5,000

Description

A survey of the vegetation of Drakenorth SSSI, Dorset

The natural history of Brampton Wood SSSI

Contractor	Hunts Flora and Fauna Society	Completion	31/12/05
Officer	P Stroh, Bedfordshire and Cambridgeshire Team	Cost	£2,000

Description

Collation of ecological information for Brampton Wood SSSI.

National Vegetation Classification (NVC) survey of Fowlmere Watercress Beds SSSI

Contractor	S Lambert	Completion	31/12/05
Officer	D Radley, Bedfordshire and Cambridgeshire Team	Cost	£1,200

Description

An NVC survey of Fowlmere Watercress Beds SSSI, to inform water management on the site.

Isles of Scilly seagrass *Zostera* survey

Contractor	K Cook, Coral Cay Sub-Aqua Club	Completion	31/03/07
Officer	R Covey, Cornwall and Isles of Scilly Team	Cost	£3,000

Description

Undertaking monitoring of the health and extent of sub-tidal seagrass *Zostera* beds in the Isles of Scilly Marine SAC.

Conservation objective production and monitoring of SSSIs in Humber to Pennines

Contractor	Patrick Waring	Completion	31/12/06
Officer	B Fleming, Humber to Pennines, Team	Cost	£10,000

Description

To produce conservation objectives for SSSIs in the Humber to Pennines' area and to carry out subsequent condition assessment.

Acoustic and biological survey of Eddystone Reef

Contractor	Seastar Survey	Completion	31/03/06
Officer	L Jones, Maritime Team	Cost	£100,000

Description

A survey to record and characterize reef habitat at Eddystone Reef, Cornwall.

Acoustic and biological survey of sand bank habitat in the outer Thames Estuary

Contractor	EMU Ltd	Completion	31/03/06
Officer	L Jones, Maritime Team	Cost	£100,000

Description

A survey to record and characterize sub-tidal sandbank habitat in the outer Thames Estuary.

2.16 Socio-economics

Water Framework Directive – Collaborative Economic Research Programme

Contractor	Various	Completion	31/03/09
Officer	S Gabrynowicz, Environmental Impacts Team	Cost	£10,000

Description

An economic analysis to support the development of River Basin Management Plans as required under the Water Framework Directive (WFD) is required. English Nature is co-funding a research programme with a range of organizations to develop and apply a methodology and process to assess costs and benefits of options in River Basin Management.

Using a planning gain supplement for nature conservation purposes

Contractor	Entec UK Ltd	Completion	31/07/05
Officer	S Gabrynowicz, Environmental Impacts Team	Cost	£22,900

Description

The 'Review of Housing Supply – Delivering Stability: Securing our Future Housing Needs' (the 'Barker Report') recommended that Section 106 agreements under the Town and Country Planning Act 1990 be scaled back and a Planning Gain Supplement (PGS) be introduced to compensate for a reduced Section 106 contribution. The objective of this project is to assess the potential risks and opportunities for nature conservation associated with these recommendations.

The economics of extensive livestock

Contractor	ADAS	Completion	31/08/05
Officer	G Dobson, North Mercia Team	Cost	£41,321

Description

To assess the impact on the livestock sector of the decoupling of agricultural support from production, especially in relation to extensive grazing systems.

Healthiness and quality of beef produced from traditional and modern breeds reared on species-rich, unimproved grasslands

Contractor	Prof Wood, University of Bristol	Completion	31/03/08
Officer	P Evans, North & East Yorkshire Team	Cost	£8,000

Description

Research to identify the role of unimproved biodiverse pastures and traditional breeds in achieving high levels of healthiness and quality in beef. A major aim of the project is to establish the basis for a grass-fed brand for beef with particular emphasis on biodiverse pastures and the use of traditional breeds.

Limestone Country Project – economic research

Contractor	Askham Bryan College, York	Completion	31/03/07
Officer	P Evans, North & East Yorkshire Team	Cost	£7,500

Description

To gain an understanding of the likely impacts of sustainable conservation management on the socio economic status of farms involved in the Limestone Country Project. These farms are changing from an essentially subsidy driven sheep system to a mixed grazing system, utilizing native cattle breeds, which aims to target a premium market.

Costing the Biodiversity Action Plan Habitat and Species Action Plans

Contractor	GHK Consulting Ltd	Completion	31/03/06
Officer	J Harlow, Environmental Impacts Team	Cost	£14,600

Description

To carry out preparatory work and make recommendations to enable costings to be provided for revised targets for Habitat Action Plans (HAPs), and to prepare costings for Species Action Plans (SAPs) under the UK Biodiversity Action Plan. This work will build on past costings exercises and will develop the methodology previously used. The revised estimates will feed into decisions concerning future biodiversity funding and policies.

Economic Values Evidence Project

Contractor	GHK Consulting Ltd	Completion	31/03/06
Officer	J Burney, Environmental Impacts Team	Cost	£20,000

Description

To continue developing the evidence base regarding the economic value of nature conservation and best practice environmental management.

Wash fishing industry sector analysis

Contractor	David Symes	Completion	31/03/06
Officer	C Donnelly, Eastern Area Team	Cost	£3,200

Description

Research to gain a better understanding of the Wash fishing industry to assist our relationship with the industry and inform the forthcoming public inquiry into mussel lays.

Wyre Forest wood fuel market development – stage 3

Contractor	Marches Wood Energy Network Ltd	Completion	31/03/06
Officer	M July, Herefordshire and Worcestershire Team	Cost	£1,500

Description

To identify how local wood fuel market capacity can be integrated with sustainable forestry management of Wyre Forest SSSI/NNR.

2.17 Species survey and research

Marches deer project

Contractor	The Deer Initiative	Completion	31/03/06
Officer	M July, Herefordshire and Worcestershire Team	Cost	£15,000

Description

To identify policy development and implementation requirements for the sustainable management of wild deer populations, based upon trial approaches in four Deer Management Group areas in Shropshire, Herefordshire and Worcestershire.

Botanical survey of rare plants on Bolt Head to Bolt Tail SSSI

Contractor	P Wilson	Completion	31/10/05
Officer	S Dunsford, Devon Team	Cost	£1,000

Description

A plant survey of the Bolt Head to Bolt Tail SSSI. To ensure sufficient information is available for the future monitoring of the condition of the rare plant assemblage of the SSSI.

Breeding bird survey of Shapwick Heath NNR

Contractor	D Chown	Completion	31/10/05
Officer	S Parker, Somerset and Gloucestershire Team	Cost	£6,000

Description

The final year of a three year breeding bird survey of Shapwick Heath NNR.

Pearl bordered fritillary project – Oswestry Character Area SSSIs

Contractor	Butterfly Conservation	Completion	31/12/05
Officer	C Hogarth, North Mercia	Cost	£1,500

Description

An assessment of the status of pearl bordered fritillary *Boloria euphrosyne* within the SSSIs of the Oswestry Uplands Character Area and relate this to management works on these sites. Areas of unoccupied suitable habitat will be assessed for suitability as reintroduction sites.

Drakenorth SSSI, invertebrate survey

Contractor	Martin Drake	Completion	31/10/05
Officer	S Burton, Dorset Team	Cost	£5,000

Description

A survey of the invertebrates of Drakenorth SSSI, Dorset.

Survey of exposed river sediment invertebrates, River Eden SAC

Contractor	Stephen Hewitt	Completion	31/03/06
Officer	M Robinson, Cumbria Team	Cost	£3,000

Description

A continued survey project to identify important exposed river sediments for invertebrate assemblages.

Chines cliff invertebrate survey

Contractor	Buglife	Completion	31/03/06
Officer	S Rees, Maritime Team	Cost	£1,500

Description

To carry out invertebrate survey of coastal cliff vegetation. This will be compiled with other data on invertebrates to improve the understanding of coastal cliff ecosystems and feed into the Maritime Cliff inventory for England.

Hamford Water and Cone Estuary NNR breeding bird survey

Contractor	CJT Ecology	Completion	30/09/05
Officer	I Black, Essex, Hertfordshire and London Team	Cost	£1,600

Description

Survey of breeding birds at Hamford Water and Cone Estuary NNRs.

All of a buzz in the Gateway

Contractor	Buglife	Completion	31/03/06
Officer	N Fuller, Essex, Hertfordshire and London Team	Cost	£10,000

Description

Survey to identify important invertebrate populations in the Thames Gateway area and recommend action to support their conservation.

Breeding and wintering bird survey of Berry Fen SSSI and Cam Washes SSSI

Contractor	British Trust for Ornithology	Completion	31/03/06
Officer	P Stroh, Bedfordshire and Cambridgeshire Team	Cost	£5,000

Description

To obtain up-to-date bird survey data for Berry Fen SSSI and Cam Washes SSSI.

Cornwall bryophyte survey

Contractor	D Holyoake	Completion	31/03/06
Officer	B Tonkin, Cornwall and Isles of Scilly Team	Cost	£15,000

Description

To monitor and survey bryophytes throughout Cornwall, and provide casework and conservation advice.

Dorset SeaSearch

Contractor	Dorset Wildlife Trust	Completion	30/09/05
Officer	R Waldock, Dorset Team	Cost	£1,000

Description

Using volunteer divers to carry out survey of BAP species in seas off the Dorset coast.

Behavioural study of barbastelle bats *Barbastella barbastellus* at Paston Great Barn SSSI/SAC

Contractor	Bat Conservation Trust	Completion	30/04/06
Officer	A Murray, Norfolk Team	Cost	£5,500

Description

To monitor the breeding success and habitat preferences of barbastelle bats within Paston Great Barn SSSI/SAC.

Hestercombe house bat tracking

Contractor	G Billington, Greena Ecological Consultancy	Completion	30/09/05
Officer	L Tucker, Somerset and Gloucestershire Team	Cost	£15,000

Description

To establish foraging areas and the location of subsidiary roosts of the Lesser Horseshoe Bats at Hestercombe House SSSI/SAC.

Crayfish survey – Staffordshire, West Midlands and Warwickshire SSSIs

Contractor	Scott Wilson	Completion	30/11/05
Officer	S Wilson, North Mercia Team	Cost	£12,000

Description

To provide current information on the size and status of the crayfish population of Stowe Pool and Walk Mill Clay Pit SSSI and Ensor's Pool SSSI/SAC. To compare the results of this survey with those of previous surveys to give an indication of the trends in crayfish population size, structure and health status at these sites. To provide information on the size and health status of the crayfish population at Chasewater to determine whether a re-notification of the SSSI should be based on its crayfish interest.

Stiperstones to Long Mynd survey of lapwing and curlew

Contractor	Upper Onny Wildlife Group	Completion	30/12/05
Officer	T Wall, North Mercia Team	Cost	£1,000

Description

To undertake a survey of lapwing and curlew in an area of the South Shropshire Hills. The intention is to use the findings from this survey to i) influence targeting of Environmental Stewardship and ii) use these species as 'flagships' for unimproved wet grassland habitat as part of a landscape scale approach to habitat protection, restoration and creation within the South Shropshire Hills.

North Pennines (Northumberland) monitoring of inbye bird populations

Contractor	K Shepherd	Completion	31/10/05
Officer	J Barrett, Northumbria Team	Cost	£6,000

Description

To monitor and assess the condition of bird populations on inbye land of upland SSSIs within Northumberland.

Diptera survey of Castle Hill, Helmsley, North Yorkshire

Contractor	A Godfrey, West Yorkshire	Completion	31/12/06
Officer	D Clayden, North & East Yorkshire Team	Cost	£3,000

Description

Diptera survey of the wider Castle Hill area, which appears to be part of a very important parkland system with outstanding ancient tree invertebrates.

Review of the saproxylic invertebrates in the ‘ancient tree hulks’ at Duncombe Park NNR, North Yorkshire

Contractor	Dr K Alexander	Completion	31/12/06
Officer	D Clayden, North & East Yorkshire Team	Cost	£2,000

Description

The importance of both Duncombe Park NNR/SSSI and Castle Hill SSSI is well known for its saproxylic invertebrate populations. This work is to reappraise the Duncombe Park populations, including some resurvey, to compare with data for the wider Castle Hill area including 400+ ancient tree hulks recently discovered in nearby conifer plantations.

Benacre bird survey

Contractor	Dr D J Pearson	Completion	30/06/05
Officer	A Burrows, Suffolk Team	Cost	£4,000

Description

A five year rolling programme to monitor the Benacre SPA for breeding birds.

The monitoring of breeding Annex 1 bird species on the Thames Basin Heaths SPA

Contractor	2 J's Ecology	Completion	31/10/07
Officer	V Burley, Thames and Chilterns Team	Cost	£5,000

Description

To record and monitor the number of breeding territories of wood lark, nightjar and Dartford warblers on the Thames Basin Heaths SPA.

Bat monitoring at Ebernoe Common SAC

Contractor	D Hill & F Greenaway	Completion	31/03/06
Officer	L Hutchby, Sussex and Surrey Team	Cost	£5,000

Description

To provide the necessary equipment and travel costs for continuing the monitoring of roost and habitat-use by Barbastelle and Bechstein's Bats at Ebernoe Common SSSI.

South West London waterbodies SPA integrity research (Waterfowl Project)

Contractor	Edward Grey Institute of Field Ornithology, Oxford University	Completion	31/03/07
Officer	R Hobbs, Sussex and Surrey Team	Cost	£10,000

Description

Research to investigate and record the various uses made by wintering wildfowl of each of the designated waterbodies in south west London, and record their movements to, and use of, habitats outside the SPA e.g. for nocturnal feeding etc.

Sandy river flies (Exposed Riverine Sediment Diptera)

Contractor	Buglife	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£10,000

Description

Survey and autecological work on three flies listed as priority species under the UK Biodiversity Action Plan, and survey work on Exposed Riverine Sediment assemblages.

UK Biodiversity Action Plan water beetles

Contractor	Aquatic Coleoptera Conservation Trust	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£7,500

Description

To undertake autecological studies and survey of a number of water beetles listed as priority species under the UK Biodiversity Action Plan.

Invertebrate assemblages of brackish and saline habitats

Contractor	RSPB	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£6,300

Description

To undertake a survey on brackish habitats to further determine its interest for both UK Biodiversity Action Plan priority species and in terms of invertebrate assemblages.

Water beetle surveys in East Anglia

Contractor	Aquatic Coleoptera Conservation Trust	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£4,000

Description

To undertake four surveys to locate UK Biodiversity Action Plan priority water beetles and other rare water beetles.

Southern damselfly *Coenagrion mercuriale* survey

Contractor	British Dragonfly Society	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£13,000

Description

To carry out a comprehensive survey of Southern damselfly *Coenagrion mercuriale*, including population counts, to help inform conservation objectives.

Inventory of key dragonfly sites in Devon

Contractor	British Dragonfly Society	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£2,000

Description

To re-survey key dragonfly sites in Devon, including SSSIs and sites with UK Biodiversity Action Plan priority species.

Survey of the hoverfly *Eristalis cryptarum* in Dartmoor

Contractor	Dartmoor National Park	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£2,100

Description

Survey to provide a more comprehensive picture on the range of the hoverfly species *Eristalis cryptarum*, which is listed as a priority species in the UK Biodiversity Action Plan.

Field assessment of completed great crested newt *Triturus cristatus* mitigation projects

Contractor	University of Kent	Completion	30/09/05
Officer	J Foster, Terrestrial Wildlife Team	Cost	£18,000

Description

To evaluate the response of great crested newt *Triturus cristatus* populations to mitigation projects completed at least 5 years ago, and to recommend amendments to good practice in mitigation.

Great crested newt *Triturus cristatus* population assessment measures

Contractor	University of Kent	Completion	30/09/05
Officer	J Foster, Terrestrial Wildlife Team	Cost	£7,255

Description

To investigate and compare standard survey methods for the assessment of great crested newt *Triturus cristatus* population status, and to make recommendations for amendments to good practice.

Marine turtle database

Contractor	Marine Environmental Monitoring	Completion	31/03/06
Officer	J Foster, Terrestrial Wildlife Team	Cost	£1,600

Description

To collate records of marine turtles off the English coast, to update the national database, and to provide a report on findings.

Atlantic Salmon Arc Project (ASAP)

Contractor	Westcountry Rivers Trust	Completion	31/03/06
Officer	D Fraser, Environmental Impacts Team	Cost	£6,000

Description

To identify genetic markers for salmon which can be used to i) determine which river a salmon has come from when the salmon is at sea and ii) identify sub-stocks within river catchments, to enable these to be managed appropriately.

Translocation of vendace *Coregonus albula* to safe refuge locations

Contractor	Alex A Lyle	Completion	31/03/06
Officer	D Fraser, Environmental Impacts Team	Cost	£10,000

Description

To translocate vendace *Coregonus albula* from one of its two threatened locations, Derwent water in Cumbria, to two safe locations.

Wild Trout Trust advisory visits

Contractor	Wild Trout Trust	Completion	31/03/06
Officer	D Fraser, Environmental Impacts Team	Cost	£4,000

Description

To enable the Wild Trout Trust to provide advice to fisheries to improve or establish conditions for wild brown trout where benefits can also be realised for rivering BAP species and habitat.

Common Skate *Dipurus batis* study

Contractor	The Shark Trust	Completion	30/09/05
Officer	D Suddaby, Maritime Team	Cost	£8,000

Description

Research to support conservation and management of Common Skate in English waters.

Biology and husbandry of pink Sea-fan *Eunicella verrucosa* in captivity

Contractor	Zoological Society of London	Completion	31/03/06
Officer	V Copley, Maritime Team	Cost	£3,000

Description

To set up two identical holding systems for Pink Sea-fan *Eunicella verrucosa* (at The Deep and ZSL): undertake trials into diet, growth rates and water quality parameters and establish optimum husbandry conditions.

Pink sea-fan *Eunicella verrucosa* survey and awareness training

Contractor	Marine Conservation Society	Completion	31/03/06
Officer	V Copley, Maritime Team	Cost	£7,000

Description

Survey of Pink Sea-fan *Eunicella verrucosa* around the South West peninsula. To produce a status report and material for use in marine visitor centres to raise awareness of the species and its reef habitat.

Study into easternmost known population of Pink Sea-fan *Eunicella verrucosa*: Worbarrow Bay

Contractor	Dorset Wildlife Trust	Completion	31/03/06
Officer	V Copley, Maritime Team	Cost	£3,000

Description

To investigate the status of the Pink Sea-fan *Eunicella verrucosa* at its most easterly known location by monitoring growth rates, recruitment and mortality and general health of the population.

Sunset cup coral *Leptopsammia pruvotii*

Contractor	Robert Irving	Completion	31/03/07
Officer	C Davis, Maritime Team	Cost	£6,040

Description

Survey of Sunset cup coral *Leptopsammia pruvotii* in Dorset, Devon and Cornwall.

Distribution and abundance of breeding common seal in The Wash

Contractor	D Thompson, Sea Mammal Research Unit (SMRU)	Completion	30/11/05
Officer	C Donnelly, Eastern Area Team	Cost	£4,500

Description

A breeding survey of common seal in The Wash. The survey will provide data on pup production, important breeding areas and is a more sensitive indicator of changes in the seal population than moult counts.

The Wash seabird survey

Contractor	Wildfowl and Wetlands Trust	Completion	30/06/06
Officer	C Donnelly, Eastern Area Team	Cost	£30,000

Description

Survey of The Wash wintering seabirds by aerial survey, focusing on eider duck.

2.18 Strategic science

Invertebrate assemblages

Contractor	Dr D Lott	Completion	31/03/06
Officer	J Webb, Terrestrial Wildlife Team	Cost	£30,000

Description

The setting up of a prototype system for classifying invertebrates into habitat assemblages.

Ecosystem processes at the landscape scale

Contractor	UKPopNet, University of York	Completion	31/03/07
Officer	K Charman, Head Office	Cost	£100,000

Description

UKPopNet is a consortium of five leading Universities and the Centre for Ecology and Hydrology. Its objectives are to examine the effects of biodiversity change on the sustainability of ecosystems, landscapes and livelihoods, and to consider what strategies we should employ to mitigate these effects.

The use of an evidence-based approach in nature conservation

Contractor	A Pullin, Birmingham University	Completion	31/03/07
Officer	K Charman, Head Office	Cost	£110,000

Description

We have established a working partnership with the Centre for Evidence-based Conservation to explore and develop the evidence-based approach for nature conservation. If, as seems likely from preliminary work, the approach proves valid and useful we plan to work with other organizations to carry the concept forward.

Annex 1 Publications produced by English Nature staff since April 2004

Books published by English Nature, or by commercial publishers for English Nature

BROWN, A.F., & GRICE, P.V. 2005. *Birds in England*. London: Poyser/A & C Black.

CARTER, I., & WHITLOW, G. 2004. *Red kites in the Chilterns*. English Nature/Chilterns Conservation Board.

MEADE, R. (Ed.). 2005. *Proceedings of the Peterborough Remote Sensing Workshop, 30 September 2004*. Peterborough: English Nature.

Other books to which English Nature staff contributed

BROWN, A. 2004. The Bittern *Botaurus stellaris*: booming from the reed bed. In: Anonymous, ed. *Celebrating the Bird's Directive*, 28. Luxembourg: European Commission.

CHINERY, M. 2005. *Collins complete British insects*. London: Harper Collins.

CROWLE, A. 2004. The wildlife importance of the uplands. In: P. ANDERSON, ed. *Upland ecology, tourism and access*. Proceedings of the 18th conference of the Institute of Ecology and Environmental Management. Buxton, 25-27 November 2003. Winchester: IEEM.

CROWLE, A. 2004. Favourable conditions in the English uplands. In: P. ANDERSON, ed. *Upland ecology, tourism and access*. Proceedings of the 18th conference of the Institute of Ecology and Environmental Management. Buxton, 25-27 November 2003. Winchester: IEEM.

HICKLING, J.W. 2004. Lancashire: Setting the scene. In: M. EDMUNDS, G. MORRIES & T. MITCHAM, eds. *Wildlife in Lancashire*, 1-15.

JOHNSON, B.J., & KIRBY K.J. 2004 Potential impacts of genetically modified trees on biodiversity of forestry plantations: a global perspective. In: S.H. STRAUSS & H.D. BRADSHAW, eds. *The bioengineered forest*, 190-207. Washington: RFF Press.

KIRBY, K.J. 2004. Balancing site-based protection versus landscape-scale measures in English woodland. In: R. Smithers, ed. *Landscape ecology of woodland and trees*, 263-270. Cirencester: IALE(UK).

KIRBY, K.J. 2004. British woodland – an historical perspective. In: C. QUINE, R. SHORE & R. TROUT, eds. *Managing woodlands and their mammals*, 3-7. Edinburgh: Forestry Commission.

KIRBY, K.J. 2004. Changes in the composition of Wytham Woods (southern England), 1974- 2002, in stands of different origins and past treatment. In: O. HONNAY., K. VERHEYEN., B. BOSSUYT., & M. HERMY, eds. *Forest biodiversity: lesson from history for conservation*, 193-203. Wallingford: CABI Publishing.

McGAVIN, G. 2005. *Pocket Nature Guide, Insects*. London: Dorling Kindersley.

PROSSER, C.D. 2004. Geological and landscape conservation – funding at last. *In: M.A. PARKS, ed. 2004. Natural and cultural landscapes – the geological foundation*. 179-182. Proceedings of a conference 9-11 September 2002, Dublin Castle, Ireland. Dublin: Royal Irish Academy.

REBANE, M. 2004. Requirements for the design of management tools from an applied management perspective. *In: BECK et al., eds. Sustainable use and conservation of biological diversity - A challenge for society*, 73-75. Proceedings of the International Symposium Berlin, 1-4 December 2003. Bonn: PT-DLR Environmental Research and Technology.

TAYLOR, I., & SUTCLIFFE, J. 2004. Status, legislation and protection. *In: D. LANG, ed. Britain's orchids*, 113-115. Old Basing: English Nature and Wildguides.

TAYLOR, I. & SUTCLIFFE, J. 2004. Conservation in action. *In: D. LANG, ed. Britain's orchids*, 166-172. Old Basing: English Nature and Wildguides.

Papers by English Nature staff in non-refereed journals

BATES, S. 2004. Nature Maps: vision for wild landscapes. *ECOS*, 25 (3/4), 55-58.

BURNEY, J., & COSGROVE, A. 2004. Sustainable development – the only way forward. *House* (Houses of Parliament Magazine), July 2004.

[COURT, I.R., IRVING, P.V.,] & CARTER, I. 2004. Status and productivity of peregrine falcons in the Yorkshire Dales between 1978 and 2002. *British Birds*, 97, 456-463

JEFFERSON, R. 2004. Insects and fleshy fruits. *British Wildlife*, 16 (2), 95-103

KEY, R.S. 2004. Recruiting and training the next generation of field naturalists - Invertebrate workshop. *Bulletin of the Yorkshire Naturalists' Union*, 41. (Supplement), 52-57.

KEY, R.S. 2005. Lincolnshire natural history in 2003 - beetles. *The Lincolnshire Naturalist*, 26 (1), 51-56.

KEY, R.S. 2004. Questions & answers. (Interview on work as English Nature invertebrate biologist.). *Bulletin of the Royal Entomological Society*. 28, 32-35.

KIRBY, K.J. 2004 Rewilding and the role of large herbivores. *Ecos*, 25, 59-62

KIRBY, K.J., ROBERTSON, H.J., & ISTEAD, R. 2004. Fresh woods and pastures new. *Ecos*, 25, 26-33.

MURPHY, M. 2004. Face Lift improves science research. *Earth Heritage*, 22, 12-13.

PROSSER, C.D. 2004. Decision at Black Rock. *Earth Heritage*, 22, 23.

PROSSER, C.D. 2004. New planning policy statement leaves scope for more emphasis on geology. *Earth Heritage*, 23, 17-18.

WETHERELL, A. 2004. Linking...geology and biodiversity. *Earth Heritage*, 22, 20-21.

WETHERELL, A. 2004. Change of focus for conserving soft sediments. *Earth Heritage*, 22, 22.

WETHERELL, A. 2004. Protecting tufa with new techniques. *Earth Heritage*, 22, 8-9.

WOOTON, S., and others. 2004. The status of the cirl bunting in Britain and the Channel Islands in 2003. *British Birds*, 97, 376-384.

Short notes by English Nature staff in non-refereed journals

BROTHERTON, P., & SWITZER, D. 2004. BARS launch is in sight. *Biodiversity News*. July 2004

COX, J.H.S. 2004. Gorse clearance trials for restoration of calcareous grassland. *British Wildlife*, 15 (5), 328-329.

EVANS, D.H. 2004. Devon Quarry reports lead the way. *Earth Heritage*, 22, 5.

GIBSON, C. 2004. Canvey Wick – a model of Sustainable Development. *Talk of the Thames*, Autumn/Winter 2004, 8.

GIBSON, C. 2004. A dynamic future for the Essex coast. *Essex Chronicle*, June 2004.

LARWOOD, J. 2004. How to mind the LGAP. *Earth Heritage*, 22, 6.

LEACH, S. J. 2005. Book review: Edwards, B. & Pearman, D.A. (2004). Dorset Rare Plants Register. An account of the rare, scarce and declining plants of Dorset. *Watsonia*, 25: 323-324.

PHILLIPS, D., FOSTER, J. 2004. Reptiles: guidelines for developers. *Nature's Place*. Issue 30.

PROSSER, C.D. 2004. Getting involved with the aggregates industry. *Earth Heritage*, 22, 3.

PROSSER, C.D. 2004. Progress on stone supply planning. *Earth Heritage*, 22, 5.

PROSSER, C.D. 2005. Improving our view of the past. *Earth Heritage*, 23, 3.

RAFE, R. 2005. Little brown birds in trouble (tree sparrow and corn bunting in decline in Suffolk). *Suffolk Wildlife Trust "Wildlife"*, 27-29.

ROBERTSON, H. 2005. Traditional orchards: going, going coming back? *Nature's Place*, 30, 6-7.

TOWNLEY, H. 2004. Broadening horizons. *Earth Heritage*, 23, 5.

Publications by non-English Nature staff from English Nature contracts

ALEXANDER, K.N.A., & BUTLER, J.E. 2004. Is the US concept of old growth relevant to the cultural landscapes of Europe? A UK perspective. *In: O. HONNAY, B. BOSSUYT & M. HERMY, eds. Forest biodiversity lessons from history for conservation*, 233-246. Wallingford: CABI Publishing.

GOVE, B., and others. 2004. Does pesticide spray drift and fertiliser overspread have impacts on the ground flora of ancient woodland margins? *In: R SMITHERS, ed. Landscape ecology of trees and forests*, 27-34. Cirencester: IALE(UK).

PARSONS, S.M., & CATTO, C.M.C. 2005. *Behavioural study of Barbastelle bats Barbastella barbastellus at Paston Great Barn February 2004-February 2005*. Bat Conservation Trust.

PIPER, R., & COMPTON, S.G. 2004. Notes on the UK distribution, ecology and rearing of *Cryptocephalus nitidulus* (L.) (Col., Chrysomelidae). *Entomologists Monthly Magazine*, 140, 267-271.

SAGE, R.B., LUDORF, C., & ROBERTSON, P.A. 2004. The ground flora of ancient semi-natural woodlands in pheasant release pens in England. *Biological Conservation*, 122, 243-252.

SMITH, M., & BUNCE, R.G.H. 2004. Veteran trees in the landscape: a methodology for assessing landscape features with special reference to two ancient landscapes. *In: R SMITHERS, ed. Landscape ecology of trees and forests*, 168-175. Cirencester: IALE(UK).

WATKINS, C., LAVERS, C., & HOWARD, R. 2004. The use of dendrochronology to evaluate dead wood habitats and management priorities for the ancient oaks of Sherwood Forest. *In: O. HONNAY, K. B. BOSSUYT & M. HERMY, eds. Forest biodiversity lessons from history for conservation*, 247-253. Wallingford: CABI Publishing.

Plantlife 2005. *Lichens and elm trees*. Salisbury: Plantlife.

BAP Species dossiers available from www.plantlife.org.uk:-

Deptford Pink *Dianthus armeria* summary and dossier (Plantlife, 2004)

Juniper *Juniperus communis* dossier parts 1 and 2 (Plantlife, 2004)

Meadow Clary *Salvia pratensis* (Plantlife, 2004)

Shore Dock *Rumex rupestris* dossier (Plantlife, 2004)

Tower Mustard *Arabis glabra* summary and dossier (Plantlife, 2004)

Veilwort *Pallavicina lyelli* (Plantlife, 2004)

Baltic bog moss *Sphagnum balticum* summary and dossier (Plantlife, 2004)

Churchyard Lecanactis *Lecanographa grumulosa* (Plantlife, 2004)

Refereed publications produced by English Nature staff since April 2004

CARTER, I., & NEWBERY, P. 2004. Re-introduction as a tool for recovery of farmland birds. *Ibis* 146, supplement 2, 239-249.

[COMPTON, S.G.,] KEY, R.S., & KEY, R.J.D. 2004. Lundy cabbage population peaks -- are they driven by rabbits and myxomatosis? *Ann. Rep. Lundy Field Soc.*, 53, 50-56.

CORNEY, P. and others 2004. The effect of landscape-scale environmental drivers on the vegetation composition of British woodlands. *Biological Conservation* 120, 491-505.

[EDGAR, P.E., GRIFFITHS, R.A.,] & FOSTER, J.P. 2005. Evaluation of translocation as a tool for mitigating development threats to great crested newts *Triturus cristatus* in England, 1990-2001. *Biological Conservation*, 122, 45-52.

FOSTER, J.P., [& BEEBEE, T.J.C.] 2004. Research as a tool to inform amphibian conservation policy in the UK. *The Herpetological Journal*, 14, 209-214.

GIBSON, C. 2004. Wildlife and conservation review of 2003. *Essex Naturalist*, 21, 27-41.

[GIBSON, D.J.,] & TAYLOR, I. 2005. Biological flora of the British Isles. *Festuca longifolia* Thuill. (*F. glauca* auct. Non Vill., *F. glauca* var. *caesia* (SM.) Howarth, *F. caesia* Sm.). *Journal of Ecology*, 93, 214-226.

GRICE, P. and others. 2004. Science into policy: the role of research in the development of a recovery plan for farmland birds in England. *Ibis* 146, supplement 2, 239-249.

HICKLING, J.W. 2004. Sea Life. In: M. EDMUNDS, G. MORRIES & T. MITCHAM, eds. *Wildlife in Lancashire*, 32-39.

HOLE, D.G. and others. 2005. Does organic farming benefit biodiversity? *Biological Conservation*, 122, 113-130.

JOHNSON, B.R. 2004. Is changing cropping systems the most important issue for GM crops? In: B. BRECKLING & R. VERHOEVEN, eds. *Risk hazard damage - specification of criteria to assess environmental impacts of genetically modified organisms.*: Naturschutz und Biologische Vielfalt, Heft 1.

KIRBY, K.J. 2004. A model of a natural wooded landscape in Britain driven by large-herbivore activity. *Forestry*, 77, 405-420.

McMULLEN, J.A., BARBER, K.E., & JOHNSON, B. 2004. A paleoecological perspective of vegetation succession on raised bog microforms. *Ecological Monographs*, 74, 45-77.

[PULLIN, A.S.] and others. 2004. Do conservation managers use scientific evidence to support their decision-making? *Biological Conservation*, 119, 245-252.

[RINGWOOD, Z., HILL, J.] & GIBSON, C. 2004. Conservation management of *Gortyna borelii lunata* (Lepidoptera: Noctuidae) in the United Kingdom. *Journal of Insect Conservation*, 8, 173-183.

[SMITH, R.K.] and others. 2004. Conservation of European hares *Lepus europaeus* in Britain: is increasing habitat heterogeneity in farmland the answer? *Journal of Applied Ecology*, 41, 1092-1102.

[SWETNAM, R.D.] and others. 2005. Designing lowland landscapes for farmland birds: scenario testing with GIS. *Computers, Environment & Urban Systems*, 29, 275-296.

[THORNTON, P.D.] and others. 2004. Preliminary comparison of four anaesthetic techniques in badgers *Meles meles*. *Veterinary Anaesthesia and Analgesia*, 32, 40-47.

[VICKERY, J.A.] and others. 2004. The role of agri-environment schemes and farm management practices in reversing the decline of farmland birds in England. *Biological Conservation*, 119, 19-39.

[VICKERY, J.A., EVANS, A.D.,] GRICE, P.V., [AEBISCHER, N.J., & BRAND-HARDY, R.,] eds. 2004. Ecology and conservation of lowland farmland birds II: the road to recovery. *Ibis*, 146, supplement 2, 1-258.

WAKE, H. 2005. Oil refineries: a review of their ecological impacts on the aquatic environment. *Estuarine, Coastal and Shelf Science*, 62, 131-140.

[WILSON, A. M.] and others. 2005. Changes in the numbers of breeding waders on lowland wet grasslands in England and Wales between 1982 and 2002. *Bird Study*, 52, 55-69.

[WOOTON, S.] and others. 2004. The status of the curlew in Britain and the Channel Islands in 2003. *British Birds*, 97, 376-384.

English Nature research reports 2004/2005

ALEXANDER, K.N.A., DRAKE, C.M., LOTT, D.A., & WEBB, J.R. 2005. Invertebrate assemblages on English SSSIs. *English Nature Research Reports*, No. 618.

BAMBER, R.N., EVANS, N.J., & CHIMONIDES, P.J. 2004. Moulton Marsh saline lagoon survey, The Wash, Lincolnshire. *English Nature Research Reports*, No. 588.

BEALEY, C. & COX, J. 2004. Validation Network project: a pilot study. *English Nature Research Reports*, No. 596.

BUREK, C., & POTTER, J. 2004. Local Geodiversity Action Plans - Sharing Good Practice workshop, Peterborough, 2003. *English Nature Research Reports*, No. 601.

BURKE, M., & TOTTERDELL, B. 2004. The National Biodiversity Network Southwest Pilot Project. *English Nature Research Reports*, No. 617.

DALTON, H., RAVAIOLI, F., DOODY, P., & PATER, C., ed. 2004. Identifying biodiversity opportunities to inform SMP Review: Sheringham to Lowestoft; North Kent Coast; East Kent Coast; Folkestone to Selsey Bill; and Solent and Poole Bay Natural Areas. *English Nature Research Reports*, No. 565.

- FERRY, B., & BECK, D. 2004. Dungeness before 1960: the landscape and the people. *English Nature Research Reports*, No. 571.
- FOSTER-SMITH, R.L., & WHITE, W.H. 2004. *Sabellaria spinulosa* reef in The Wash and North Norfolk Coast cSAC and its approaches. Part I: mapping techniques and ecological assessment. *English Nature Research Reports*, No. 545.
- FOSTER-SMITH, R.L., & HENDRICK, V.J. 2004. *Sabellaria spinulosa* reef in The Wash and North Norfolk cSAC and its approaches. Part III: summary of knowledge, recommended monitoring strategies and outstanding research requirements. *English Nature Research Reports*, No. 543.
- FOSTER-SMITH, R.L. 2004. *Sabellaria spinulosa* reef in The Wash and North Norfolk cSAC and its approaches. Part II: fine scale mapping of the spatial and temporal distribution of reefs and the development of techniques for monitoring condition. *English Nature Research Reports*, No. 544.
- GOVE, B., and others. 2004. The impacts of pesticide spray drift and fertiliser over-spread on the ground flora of ancient woodland. *English Nature Research Reports*, No. 614.
- HALL, J. 2004. Phoenix House Therapeutic Conservation Programme: underpinning theory. *English Nature Research Reports*, No. 611.
- HAWLEY, G., and others. 2004. Nutrient enrichment of basin fens: options for remediation. *English Nature Research Reports*, No. 610.
- HEBDEN, W.D., comp., & HOPKINS, J.J., ed. 2004. English Nature's research programme 2004/2005. *English Nature Research Reports*, No. 615.
- HUMPHRIES, R.N., & DONNELLY, L. 2004. Geological conservation benefits for biodiversity. *English Nature Research Reports*, No. 561
- JEFFRIES, P., & MCLAIN, L. 2005. Synonymy between *Battarrea phalloides* and *B. stevenii*. *English Nature Research Reports*, No. 625.
- KELLY, G. 2004. Literature/archive search for information relating to pool frogs *Rana lessonae* in East Anglia. *English Nature Research Reports*, No. 480.
- Land Use Consultants. 2004. The effectiveness of Environmental Impact Assessment (EIA) for uncultivated land and semi-natural areas. *English Nature Research Reports*, No. 605.
- MARRABLE, C.J. 2004. Ashdown Forest Grazing Action Plan. *English Nature Research Report*, No. 602.
- ROSE, R.J., & CLARKE, R.T. 2005. Urban impacts on Dorset heathlands: analysis of the heathland visitor questionnaire survey and heathland fires incidence data sets. *English Nature Research Reports*, No. 624.
- ROSS, S., BEALEY, C., & COX, J. 2004. Validation Network Project: lowland calcareous grasslands: *Bromus erectus* (CG3) grassland. *English Nature Research Reports*, No. 609.

STEBBING, P.D., & FRASER, D. 2004. Evaluation of the capacity of pheromones for control of invasive non-native crayfish. Part 2. *English Nature Research Reports*, No. 633.

THOMPSON, R., PEACE, A., & POULSOM, E. 2004. A judgement-based method to identify overgrazing in English upland native woodland. *English Nature Research Reports*, 621.

UNDERHILL-DAY, J.C. 2005. A literature review of urban effects on lowland heaths and their wildlife. *English Nature Research Reports*, 623.

A full listing of *English Nature Research Reports* can be found on our website at: www.english-nature.org.uk.

Copies of reports can be obtained from English Nature's Enquiry Service, Peterborough. Tel: 01733 455100 / 455101 / 455102, Fax: 01733 455103, email: enquiries@english-nature.org.uk.



Research Information Note

English Nature Research Reports, No. 668

Title: English Nature's Research Programme 2005/2006

Report Authors: W D Hebden and J J Hopkins Date: Nov 2005

Keywords: Research, Biodiversity, Earth heritage, Habitats, Information systems, Socio-economics, Species, survey.

Introduction

This report contains the compilation of research planned to be funded by English Nature in financial year 2005/06, including research projects in which English Nature is funding partner. The report also contains a listing of publications by English Nature staff and publications by others arising from completed English Nature funded research in 2004/05.

What was done

Information on each proposed project was compiled including project title, name of English Nature project officer, completion data, cost and a brief description of the project. Projects are grouped under one of 18 programme headings.

Results and conclusions

The projects are listed individually under the relevant heading.

English Nature's viewpoint

English Nature seeks to promote and where appropriate fund applied research which is relevant to our conservation work whether it be to inform local action to safeguard important sites, advice to government and others on conservation policy, or longer term development of strategic ideas which underpin conservation action.

Further information

English Nature Research Reports and their *Research Information Notes* are available to download from our website: www.english-nature.org.uk

For a printed copy of the full report, or for information on other publications on this subject, please contact the Enquiry Service on 01733 455100/101/102 or e-mail enquiries@english-nature.org.uk



English Nature is the Government agency that champions the conservation of wildlife and geology throughout England.

This is one of a range of publications published by:
External Relations Team
English Nature
Northminster House
Peterborough PE1 1UA

www.english-nature.org.uk

© English Nature 2002/3

Cover printed on Character Express, post consumer waste paper, ECF.

ISSN 0967-876X

Cover designed and printed by Status Design & Advertising, 2M, 5M, 5M.

You may reproduce as many copies of this report as you like, provided such copies stipulate that copyright remains with English Nature, Northminster House, Peterborough PE1 1UA

If this report contains any Ordnance Survey material, then you are responsible for ensuring you have a license from Ordnance Survey to cover such reproduction.

Front cover photographs:
Top left: Using a home-made moth trap.
Peter Wakely/English Nature 17,396
Middle left: Co, experiment at Roudsea Wood and Mosses NNR, Lancashire.
Peter Wakely/English Nature 21,792
Bottom left: Radio tracking a hare on Pawlett Hams, Somerset.
Paul Glendell/English Nature 23,020
Main: Identifying moths caught in a moth trap at Ham Wall NNR, Somerset.
Paul Glendell/English Nature 24,888



Awarded for excellence