

*SNH Research and
Development Strategy*

**Action Plans
2007-2012**

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This document contains the 15 Action Plans through which SNH will deliver its Research and Development Strategy 2007–2012.

Within the Strategy there are five high level programme areas:

- **Involving Scotland's people**
- **Climate change**
- **Sustainable management**
- **Scotland's natural diversity**
- **Reporting and data.**

Each action plan is allocated to one of these areas as shown in the table below:

Involving Scotland's people

1. Understanding, involvement and commitment
2. Recreation
3. Towns and cities

Climate change

4. Responding to climate change
5. Developing renewable energy

Sustainable management

6. Rural land use
7. Fresh waters and wetlands
8. Coasts and seas
9. Tourism
10. Planning for sustainable Use

Scotland's natural diversity

11. Protected Areas
12. Biodiversity
13. Geodiversity
14. Landscape

Reporting and data

15. Trends and indicators

Scope of the action plans

Each Action Plan indicates the broad level of funding provisionally allocated to the work programme area.

The action plans list the research priorities identified in the relevant programme area of the strategy; for example, within the Tourism action plan:

Research Priority 9.3 – Evaluating the nature and significance of tourism's impact upon the natural heritage.

Below each priority a table is presented which indicates: the project areas or individual projects already in progress, those starting in 2007/08, and those planned to be taken forward over the 5 year period.

Co-ordination of research work across the 15 work programme areas of the Strategy will ensure that there is integration of effort. Links between programme areas within the strategy are indicated.

SNH undertakes research with partner organisations, notably within the Scottish Executive family, local authorities, universities and a wide range of other bodies in the public, private and voluntary sectors. During the plan period the anticipated gross value of SNH's research programme each year will be £5.5 million, with around 25% of this figure derived from partnership funding.

SNH is a publicly funded body and the financial projections provided within this document are indicative and may vary during the plan period. Similarly, research priorities set out in the action plans will be reviewed regularly to ensure their continued relevance.

Sustainable management

Programme Area 6 Rural Land Use

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£300K	£320K	£320K	£320K	£320K



Programme areas derived from the research and development strategy with indicative annual funding levels.

Research Priority 5.4 – Modelling potential scenarios for renewable energy development and its cumulative impact on the natural heritage



Within each programme area the research priorities are listed in numerical order.

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
Baseline surveys in support of Joint Working on deer These are surveys of the impacts of deer on natural heritage features on sites which have been selected as Sites for Assessment under the Joint Working arrangements between SNH, DCS, FCS and the SE,	●	●	●	●	●	11



Projects already running or scheduled to start in 2007/08. ● indicates the number of years a project will run, and links to other programme areas within the strategy. In this case, the project links with Programme Area 11.

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
The potential for the expansion of floodplain forests, grasslands and wetlands in Scotland This work will explore the potential for wetland restoration and how this can best be achieved.		●			6, 10



Work areas or projects which are planned to take place in future years.

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£180k	£200k	£230k	£250k	£300k

Research Priority 1.1 – Reviewing and, where necessary, building the evidence base on the economic, environmental, health and social benefits of the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08
 No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>People's health and the natural heritage This work will look at the role of the natural heritage in supporting individual and community health and well-being. This will include individual activity and mental health, and the benefits to community health of high quality environments and community activities.</p>	●				2, 3, 9, 14, 15
<p>The natural heritage as an economic driver Research has tended to focus on the employment and economic value derived from the environment and its use for enjoyment and tourism. This work will look at the importance of the natural heritage and quality of life in attracting inward investment to particular areas, and build on earlier work done on greenspace issues.</p>		●			2, 3, 9, 14, 15
<p>Environmental and social impacts of volunteering Most assessments of volunteering have focused on economic impact. This work will look at environmental and social impacts, factor these into calculations of the economic value of volunteering, and establish outcome measures.</p>	●				2, 3, 9, 14, 15

Research Priority 1.2 – Improving our understanding of key target audiences, their information needs and the factors that influence their involvement with the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Developing a framework for evaluating the outcomes of community involvement in the natural heritage</i> A framework for evaluating outcomes delivered by community involvement in understanding and looking after the local natural heritage would greatly help in showing the benefits and justifying future investment. This project will develop an outcome based framework for evaluating such activities, and review opportunities and approaches to its use across the sector.</p>	●	●	●			2, 3, 9
<p><i>Understanding, communication and involvement – action research programme</i> Many projects aim to communicate the value of the natural heritage, and encourage involvement in its care and management – but how do we know if a project is successful? This project will develop a framework for investigating factors that lead to successful communication and involvement projects, and make recommendations on approaches that achieve increased understanding and involvement, particularly amongst under-represented groups.</p>	●	●	●			2, 3, 9
<p><i>Investigating the roots of involvement</i> Research to date on volunteering has tended to focus more on the ways in which people are involved rather than on the people who are volunteering. This continuing study is developing a better understanding of the factors that underpin involvement in natural heritage activity, the ways in which people get involved, and how their involvement develops over time.</p>	●					2, 3, 9

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Involving under-represented groups in the natural heritage Many people care about the natural heritage but do not get involved in looking after it. This work will look at the needs and characteristics of this large group, particularly children and young people, and identify the best ways of communicating with them in order to secure their involvement.</p>	●	●			2, 3, 12, 14
<p>Encouraging positive behaviour by people Future communications in SNH will encourage positive behaviour by people, particularly consumers, land-based professionals, land managers and decision makers. This work will look at the drivers for, and barriers to, positive environmental behaviour, and develop strategies and approaches to addressing these.</p>	●	●			2, 3, 4, 6, 14
<p>Public attitude and engagement survey Monitoring the effectiveness of SNH work on communications and learning will require regular information about people's attitudes and their involvement with the natural heritage. This work will collect information on this subject through public opinion survey.</p>		●		●	2, 15
<p>The information needs of different people Providing the right information to the right people at the right time is important. This work will look at the information needs of key audiences and inform the future development of the SNH website.</p>	●				2, 3, 12, 14, 15

Research Priority 1.3 – Identifying the most effective ways of involving people in looking after the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Looking after your local natural heritage</i> People volunteer to look after the natural heritage in a range of settings – in special places (such as National Nature Reserves [NNRs]), in their local area or in their workplaces. This work will look at the reasons and motivation behind involvement in these settings and at the benefits that are generated.</p>		●	●		2, 3, 9
<p><i>The use of volunteers in biological recording</i> This work will look at the effectiveness of various approaches to involving people in recording aspects of the natural heritage. This will include initiatives such as Big Birdwatch, appeals for information on sightings of particular species, and more formal involvement in biological recording.</p>		●			7, 11, 12, 13, 15
<p><i>The natural heritage in community learning and development</i> Work was carried out in 2005/06 and 2006/07 on the inclusion of natural heritage issues in community learning and development. This work will review progress made since 2006/07 on developing stronger links with community learning and development.</p>			●		2, 3

Research Priority 1.4 – Identifying more effective means of interpreting and communicating the special qualities of Scotland’s natural heritage to a range of audiences

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Evaluating recent technological developments Developments in information and communication technology can be used to improve site-based interpretation and wider communications to key target audiences. This work will review recent and potential future developments and identify possible implications for SNH’s work.</p>			●		2, 3, 9
<p>Evaluating the costs and benefits of different interpretation techniques Interpretation and other types of communication can be expensive and can fail if the wrong messages and techniques are used. This work will look at the costs and benefits of different techniques and their effectiveness in awareness raising and enhancing enjoyment.</p>			●		2, 3, 9
<p>Interpreting at a landscape scale Much interpretation is carried out at site level, such as nature reserves and castles. This work will investigate people’s understanding of landscape by examining how they read landscapes, what information they look for and how best to provide this information.</p>	●	●			2, 9, 14

Research Priority 1.5 – Developing effective ways of supporting outdoor learning and first-hand experience of the natural heritage, and of reinforcing the role of this and sustainable development education in the 3–18 Curriculum

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work area	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Supporting outdoor learning through action research The benefits of first-hand learning about the natural heritage are increasingly being recognised in delivering <i>A Curriculum for Excellence</i> and the <i>Scottish Biodiversity Strategy</i>. This partnership project will build on collaborative work undertaken through the Outdoor Connections programme.</p>	●	●	●	●		2, 3, 12
<p>Developing biodiversity education in schools The Scottish Biodiversity Strategy identifies several actions for developing biodiversity education in schools, particularly in relation to the Eco-schools biodiversity module. This work will evaluate current biodiversity education provision and identify future needs and opportunities.</p>	●					2, 3, 12
<p>Effectiveness of support for teachers in delivering first-hand experiences Supporting teachers in ways that help them deliver first-hand experiences of the natural heritage is an important challenge. This work will identify the most effective ways of supporting teachers (e.g. training, CPD, materials) and develop appropriate guidance which can then be promoted through the new TeachingSpace website.</p>	●					2, 3, 12

Work planned from 2008 onwards

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Evaluating the effectiveness of SNH's communications SNH invests about £2 million per year in communications and it is important to show that this investment is effective. This work will evaluate the effectiveness of key campaigns and promotional products, particularly in reaching new audiences.</p>		●				
<p>Baseline research on key environmental issues A stronger focus on communications is a priority for SNH and this will involve a more campaigning approach on some issues. This work will provide baseline information and monitoring for new corporate campaigns and initiatives.</p>			●	●	●	2, 4, 8, 9, 11, 12, 14
<p>Improving internal communications Improving internal communications is an agreed priority for SNH. This work will identify barriers, opportunities and approaches to improved internal communications (learning from approaches used by other organisations and including internal Sharing Good Practice).</p>		●	●			
<p>Developing new campaigns New promotional campaigns and initiatives will require the development of appropriate messages, branding and materials. This work will involve research into the types of messages, branding and materials that are appropriate for each new campaign.</p>			●	●	●	2, 4, 8, 9, 11, 12, 14

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£300k	£320k	£320k	£320k	£320k

Research Priority 2.1 – Supporting the implementation of the access legislation

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Evaluating the Scottish Outdoor Access Code (SOAC) booklet SNH has a duty to keep the SOAC under review. This study will evaluate the main SOAC booklet (published in 2005) to assess the effectiveness of the product, its design and usability to inform decisions on the format and production of any future edition.</p>	●					1
<p>Monitoring the effectiveness of the SOAC mass media campaign This project evaluates the effectiveness of TV and radio adverts used to promote the SOAC, and is timed to coincide with each campaign wave. This will enable SNH to target the resources available to effectively promote messages about responsible access to the key audiences identified in the access education programme.</p>	●	●	●			1
<p>Monitoring of responsible behaviour among recreation users and land managers A baseline study of responsible behaviour was undertaken prior to the introduction of the new access legislation and the SOAC. This study is monitoring changes in awareness, attitudes and actions among recreational users and land managers against the baseline, to assist SNH with its duty to keep the SOAC under review and assess the effectiveness of the access education programme.</p>	●					1, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of the future role of Paths for All Partnership (PFAP) in delivering the benefits of paths</p> <p>This study will review mechanisms for the existing delivery of paths and examine the support needs of access authorities and key partners. It will help determine the future role for SNH and PFAP beyond 2009.</p>	●					3
<p>National overview of core paths plans</p> <p>Local and National Park Authorities are currently preparing core paths plans for their Area which will, on adoption, be submitted to Ministers. This project will assist the Scottish Executive to establish a map-based system for collating access authorities' core paths plans. The system will help the Executive to monitor the success of the access legislation.</p>	●					
<p>Access and the planning system: minimising impacts and maximising opportunities</p> <p>This study will identify good practice approaches to protecting and enhancing public access within planned developments. The work will involve selected local authorities and will inform the preparation of good practice guidance for planners and developers. It will support the implementation of the access legislation, assisting people to enjoy the outdoors and pursue open-air recreation.</p>	●					3, 10

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Evaluating the effectiveness of the SOAC promotion and education programme</p> <p>SNH has a duty to publicise and promote understanding of the SOAC. This work will continue to monitor levels of awareness and responsible behaviour among key audiences.</p>	●	●	●	●	1
<p>Encourage good practice approaches to access planning and delivery by access authorities and partners</p> <p>Access Strategies, Core Paths Plans and Local Access Forums are key elements of access planning framework which underpin the implementation of the access legislation. This work will review current experience and practice among access authorities to inform the development of good practice.</p>	●	●	●		3

Research Priority 2.2 – Understanding participation, demand and benefits of access and recreation

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Scottish recreation survey This eight year study monitors participation in, and attitudes towards, outdoor recreation amongst Scotland's adult population, providing SNH with long term trend information on participation levels, attitudes and patterns of use of the outdoors for enjoyment.</p>	●	●	●	●	●	1, 3, 9, 15
<p>Review of factors influencing future demand for outdoor recreation Encouraging increased public participation in outdoor recreation for all groups in society is central to the work of SNH, but the actions we take should be based on a better understanding of environmental, social and demographic changes and their implications for outdoor recreation. This study will identify factors which influence future use and apply these drivers to current levels and patterns of use. This project will inform further areas of research and provide an assessment of how future changes may influence how people use their leisure time.</p>	●					1, 3, 9
<p>Methodology for assessing recreational use of marine and coastal areas Recreational use of any marine and coastal area invariably involves a broad mix of activities undertaken by the full spectrum of participants, from local residents to day visitors and tourists. Researching such complexity to obtain a comprehensive understanding of the levels and patterns of use, participants' attitudes and the pressures and issues arising is equally challenging. This study will devise a methodology, which can be applied in the future to any given marine and coastal area, to capture user information relevant to the sustainable management of recreation in the area.</p>	●					8, 9

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Visitor facilities on selected National Nature Reserves – audience research to inform planning and provision</p> <p>A key purpose of NNRs is to provide opportunities for people to visit, understand and enjoy these special places. This study is using a variety of different survey and facilitation techniques to provide information to help evaluate, plan and improve existing facilities in order to meet agreed 'Management for People' standards and to broaden the profile of visitors to NNRs.</p>	●					9, 11
<p>Cairnsmore of Fleet and proposed Merrick NNR visitor survey</p> <p>This visitor study is evaluating the current provision of visitor facilities for Cairnsmore of Fleet NNR and the proposed Merrick NNR. Visitors and the local community are being surveyed to gather information which will inform the redevelopment of the access and interpretation facilities in a way which will enhance the visitor experience.</p>	●	●				9, 11

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring the use of key recreational facilities Managed recreational facilities serve a wide range of recreation needs and provide important opportunities for increasing understanding and enjoyment of the natural heritage. This work will involve surveys of the use of facilities such as country parks and National Nature Reserves to assess levels of use and the views and attitudes of users.</p>		●	●		1, 3, 9, 11, 15
<p>Monitoring participation in specific recreational activities This work will involve detailed surveys of participation in activities such as cycling, horse riding and inland water recreation, to measure levels of participation and attitudes of users.</p>		●	●	●	1, 3, 9, 15
<p>Increasing participation in outdoor recreation across all sectors of society This area of work will explore the factors which influence demand and participation in outdoor recreation and seek a better understanding of the motivations and barriers to participation by under-represented sectors of society.</p>	●	●	●		1, 3, 9
<p>Understanding the benefits of participation in outdoor recreation The important contribution that outdoor recreation can make to a range of economic and social objectives is being increasingly recognised. This work will seek further evidence to help quantify and evaluate these benefits.</p>		●	●		1, 3, 9

Research Priority 2.3 – Assessing and managing the effects of access and recreation

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessment of recreational impacts on Lochs Kinord and Davan, Muir of Dinnet NNR</p> <p>This study will employ a methodology developed earlier to assess the levels of waterborne and shoreline access that will be compatible with nature conservation requirements on the Dinnet lochs. The assessment will help SNH develop guidance for the public on responsible access on and around the lochs.</p>	●	●				11
<p>Visitor monitoring manual</p> <p>SNH published a <i>Visitor Monitoring Manual</i> in 1993. This project will review the significant developments in visitor monitoring techniques since then and use this to produce text for a revised and updated edition of the manual to be published in 2008.</p>	●					
<p>Path construction trials and demonstrations</p> <p>This partnership project with the PFAP will establish paths at demonstration sites in north and central Scotland, using a range of different surfacing materials, and monitor and evaluate their use and condition. The results will help SNH update guidance on path construction and maintenance.</p>	●	●				3

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Understanding and managing the effects of access</p> <p>All recreation has the potential to put pressure on the locations in which it occurs. This work will assist SNH's understanding of the impacts of recreation on land management, the natural and cultural heritage, and other recreational activities to inform the resolution and management of conflicts where these occur.</p>	●	●	●	●	11, 12, 13
<p>Developing good practice in access provision and management</p> <p>SNH has worked with partners over the years to develop a range of guidance on technical aspects of access provision and management. This work will continue to review and refresh existing guidance and develop further good practice.</p>	●		●		

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£100k	£120k	£130k	£145k	£160k

Research Priority 3.1 – Developing techniques for creating, managing, and evaluating green networks which combine habitat corridors, access routes and the sustainable management of urban areas

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Urban green infrastructure: role, function and opportunities for enhancement</p> <p>This study will review the role of urban green infrastructure in creating more sustainable urban environments and will identify approaches to creating and enhancing these areas, both for the natural heritage and people.</p>	●	●				4, 10, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The role of functional green networks</p> <p>This research will review the role of functional green networks in environmental resource management including climate, water, air, energy and tranquillity, and will examine good practice in enhancing this role.</p>	●				4, 10, 14
<p>Travel and green networks</p> <p>This research will investigate whether well planned green networks, which support habitat corridors, can encourage more sustainable travel behaviour including travel to greenspace, recreational opportunities and for other purposes.</p>	●	●			10
<p>Open space audits</p> <p>Scottish planning policy and guidance promotes the preparation of open space audits and strategies. This study will review the scope and content of these.</p>		●			1, 2, 10, 14

Research Priority 3.2 – Investigating the state of Scotland’s greenspace and its links to quality of life, including health and well-being, and the development of more sustainable communities

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Greenspace and quality of life – demonstrating the links</p> <p>This research is developing and strengthening the evidence base on the quality of life benefits associated with greenspace and community involvement in greenspace regeneration.</p>	●					1, 2
<p>The state of Scotland’s greenspace</p> <p>The research will contribute to the preparation and publication of a state of Scotland’s greenspace report in 2009. This will include information on the quantity, accessibility and quality of greenspace, and on people’s perceptions of their local greenspaces.</p>	●	●	●			1, 2, 10, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The Greenspace and Quality of Life research partnership</p> <p>This will build on the recently completed ‘demonstrating the links’ project. The research will support the development of policy and practice to realise the potential of the links between greenspace and the quality of life.</p>	●	●			1, 2

Research Priority 3.3 – Investigating the relationship between greenspace and economic well-being, its role in land values and image, and the role of regenerating degraded urban landscapes in attracting investment

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Greenspace management and the local economy</i> The study will investigate the role of greenspace management in supporting local economic well being including through training and employment opportunities</p>	●				
<p><i>Impacts of greenspace improvements</i> This research will assess the impact of greenspace improvement, including the temporary greening of currently vacant sites, which await investment decisions.</p>	●	●			
<p><i>Tourism and greenspaces</i> This work will explore the role of greenspaces and green networks in tourism. It will also examine related impacts on economic and social well being.</p>	●	●			2, 9

Research Priority 3.4 – Appraising the impacts of settlement expansion on the natural heritage and developing approaches to managing development and urban design which can achieve a 'best fit' with natural heritage interests

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Urbanisation and the natural heritage – opportunities and threats. This research will identify key threats and opportunities related to land use change in and around Scotland's towns and cities, and examine management strategies to minimise adverse impacts.</p>	●	●				10, 12, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Innovative and good practice design of green networks This work will assess opportunities for innovative design to integrate functional green networks, habitat networks and the built environment. Good practice in greenspace design associated with different types of development will be reviewed and this will contribute to the production of guidance in support of standards associated with the Scottish Planning Policy.</p>	●				10, 12

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£100k	£120k	£150k	£170k	£200k

Research Priority 4.1 – Ensuring that there is adequate knowledge on the species, habitats, ecosystems and landscapes of conservation concern, to inform the development of suitable adaptive management strategies

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	links to other programmes
<p>UK Marine Climate Change Impacts Partnership (MCCIP) SNH will continue its involvement in, and support of, the UK MCCIP. The primary goal of the Partnership is to provide sound scientific advice on climate change issues in relation to the marine environment through the pooling of resources from a diverse range of partners. This advice will help decision makers in the challenging task of mitigating and adapting to these changes.</p>	●	●	●			8
<p>Saltmarsh responses to climate change: SNH PhD studentship UK climate change scenarios predict increasing sea levels and, potentially, increased storm frequency and wave heights. Such changes could cause significant modification and, potentially, loss of coastal saltmarsh habitat. This project is examining the saltmarshes of the Inner Solway in detail, establishing their likely responses to changing climate, and suggesting appropriate management approaches.</p>	●					8

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Climate change, land management and erosion of organic soils (Phase 1) The important role that soils play in the context of climate change is now widely recognised. However, there are gaps in understanding the processes involved in the physical degradation of organic soil and its relationship with climate change, which this project will seek to address.</p>	●	●				6, 13
<p>Role of conservation genetics in protecting rare plants vulnerable to climate change: NERC CASE PhD studentship: This project is using novel molecular techniques to determine the viability of rare plant populations which are vulnerable to climate change. The work aims to determine the likelihood of protected areas having sufficient genetic variability of target rare plants, and to estimate the effective size of rare plant populations needed to sustain genetic variability.</p>	●					12
<p>Environmental change network (ECN) – biodiversity site at Creag Meagaidh In 2006 SNH commissioned the installation of an Automatic Weather Station (AWS) at Creag Meagaidh National Nature Reserve. This was done with the aim of establishing a long-term monitoring site in a montane/alpine location and contributing to the UK-wide Environmental Change Network (ECN). This project will ensure the continued maintenance of the AWS and the collection of data on vegetation, birds and frog spawn following UK ECN targeted monitoring protocols.</p>	●	●	●			11, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Environmental Change Network (ECN) – Cairngorms site</i> The project contributes to the monitoring of environmental change in the Cairngorms as part of the UK-wide ECN, and is especially significant as a high altitude site. The ECN was set up to detect and understand environmental change through the collection and analysis of long-term, high quality data on a variety of environmental and biological variables. There are currently plans to modify and extend the ECN to enable ‘targeted monitoring’ of atmospheric pollution and climate change impacts on biodiversity.</p>	●	●	●	●	●	11, 15
<p><i>Autecological studies of key upland plant species in the context of climate change</i> Knowledge of key autecological characteristics of the species that make up upland plant communities is a prerequisite for attempting to predict how these will respond to climate change. Some of this information is available from a variety of sources. This project will collate the information that exists, and identify gaps where further information is required.</p>	●	●	●	●	●	6, 12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Identification of species, habitats and ecosystems most sensitive to climate change in a Scottish context</p> <p>Climate change is likely to have a significant effect on a range of Scotland's biodiversity. In many cases, adaptation will need to be considered in order to reduce any negative impacts. There are considerable resource implications in the implementation of some adaptation actions. This project will help identify priorities by identifying those species, habitats and ecosystems most sensitive to climate change.</p>	●	●	●	●	●	6, 7, 8, 12
<p>Climate change and its consequences for snowbed vegetation</p> <p>Snowbed habitats are at high risk due to climate change. These habitats support a specialist assemblage of mosses, liverworts, lichens and a few vascular plants which are virtually confined to the snowbed habitat. There is evidence from annual observations of snow-patches in the Highlands that the extent of prolonged snow-lie has decreased in the last 20 years. This study will build upon earlier monitoring of snowbed communities to develop a long-term monitoring network to detect and quantify the impacts of climate change.</p>	●	●	●	●	●	6, 12

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring of climate change and effects on terrestrial biodiversity</p> <p>A multi-partner 'targeted monitoring' project is being developed which will involve the further development of a network of automatic weather stations (AWS) and biodiversity monitoring sites across Scotland (potentially on some National Nature Reserves). This has implications for an extension to the existing Environmental Change Network (ECN).</p>	●	●	●	●	11, 15
<p>Use of molecular tools to assess changes in fungal diversity and community structure</p> <p>Modern molecular techniques to measure fungal diversity and community structure are now rapid, cost effective and ideally suited to detect changes in this environmentally sensitive and diverse group of species. The project would supplement the existing ECN/ 'targeted monitoring' protocols.</p>	●	●	●	●	12, 13, 15
<p>Identification and assessment of potential indirect impacts of climate change on the natural heritage in Scotland, with proposals for adaptation</p> <p>This would examine the effects of changing human land-use and land management patterns resulting from climate change (e.g. changes in types of crops, effects of increased biomass crops, changes in recreational use etc.) on biodiversity, landscape and recreation.</p>		●			2, 5, 6, 7, 8, 9, 12, 14

Research Priority 4.2 – Predicting and assessing the potential for range shifts for species moving as a result of climate change (including the assessment and design of habitat networks)

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Identification of species extinction risk through climate induced habitat changes: SNH PhD studentship</p> <p>The project will deliver advice concerning the potential loss of species or contraction of ranges for a number of key habitat types within Scotland. Habitat management strategies will be identified which will enable the persistence of species threatened by climate induced habitat and potential range changes.</p>	●	●	●			6, 12
<p>The long march – spatial adaptation to climate change</p> <p>There is a developing consensus that one of the chief ways we can improve the prospects for our countryside and biodiversity is to create landscapes, where networks of many types enable species to adapt to changing environments by moving into more favourable areas. This project seeks to make an assessment of the most important ‘pinch-points’ in Scotland (such as the Central Belt) to establish whether a range of mobile species will be able to move through the landscape.</p>	●	●	●			6, 12

Research Priority 4.3 – Applying the unique knowledge and experience of SNH in contributing to realistic models and exploring practical adaptive management options for species and habitats, particularly those that are most vulnerable and threatened

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>A framework for managing protected habitats and geomorphological features around the coast of Scotland in response to climate change</p> <p>This project will investigate the potential effects of climate change on coastal habitats and geomorphological features, within designated sites in Scotland, over the next 100 years. The work will result in specific recommendations for management of the sites included within the study as well as the development of a decision-making framework which can be applied more widely to designated sites around the coast of Scotland.</p>	●	●	●		8, 11, 12, 13
<p>A framework for managing protected habitats and species in the Scottish uplands in response to climate change</p> <p>The design of this project will be based on the equivalent coastal project (above). The ultimate aim will be to produce recommendations and a decision-making framework relating to the management of designated upland sites affected by climate change.</p>		●	●	●	6, 12, 13
<p>Exploration of practical habitat and species management issues relating to climate change</p> <p>This will include: the estimation of time scales for the management/ creation of different types of habitat in key areas, the development of land management practices to increase the permeability of land uses to biodiversity, and the control of spreading of invasive species.</p>		●			6, 7, 8, 11, 12
<p>Feasibility study of the translocation of species in order to establish populations in new, more northerly and/or montane locations</p> <p>This project examines one specific potential adaptation tool, conservation translocation, which may be required in exceptional circumstances for some priority species.</p>		●			6, 7, 8, 12

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Development of landscape-scale plans which incorporate adaptation measures to address biodiversity issues arising from climate change</p> <p>Initial phases may involve pilot studies in specific areas with the aim of using ecological and management guidance collated from related projects.</p>			●	●	3, 6, 7, 8, 10, 12
<p>Risk analysis for Scotland's designated sites and a review of current conservation targets</p> <p>This work will concentrate primarily on Natura sites and SSSIs. Data derived from the SCM programme, and an investigation of the current understanding of how species and habitats may respond to climate change, will be used to analyse risks to conservation targets (i.e. favourable condition).</p>	●	●	●	●	6, 7, 11, 12, 15

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£20k	£40k	£40k	£80k	£80k

Research Priority 5.1 – Improving understanding of the interaction of windfarms with landscapes, habitats and species, and the benefits of any habitat management undertaken as mitigation

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Quantification of avoidance factors for birds at windfarms Assessing bird mortality as a result of colliding with wind turbines is an essential part of the Environmental Impact Assessment process for a windfarm. Good estimates of avoidance factors – the proportion of birds which successfully take avoiding action – are an important component of such assessments. These studies will review and validate information from windfarm monitoring studies and make recommendations on avoidance rates which can be used with assurance by SNH and developers.</p>	●	●	●			12
<p>Displacement of bird populations at operational windfarms These studies will examine displacement impacts of operational windfarms on bird communities at onshore and offshore windfarms. This continues an existing project undertaken in conjunction with RSPB, which is focusing on upland breeding bird communities, comparing windfarm sites with comparable ‘control’ sites.</p>	●	●	●	●	●	12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Advice to local authorities on natural heritage sensitivities</p> <p>Revised planning guidance on renewable energy will be published during 2007, with an expectation that local authorities should be more proactive in planning for renewables. Further analysis may be required in order that SNH can offer best advice to local authorities on natural heritage sensitivities.</p>	●					11, 12, 14
<p>Renewable energy developments and recreation</p> <p>This work will review changes in patterns of recreational activities due to renewable energy installations, including potential increases in recreational use due to new tracks or features of interest or decreases in use due to the area being perceived as less attractive. The project will make recommendations on how to assess the recreational impact of new renewables proposals.</p>	●	●				2

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Guidance on mitigation and habitat management for windfarms</p> <p>This project would review examples of good practice in windfarm development to date, both in securing mitigation of biodiversity impacts and in improving habitats (and wildlife) adjacent to windfarms. The output would be published guidance to prospective developers on mitigation and habitat management.</p>	●	●			12
<p>Floating tracks on peat – a best practice guide for windfarm developments</p> <p>This work will review successes and failures in floating tracks on peat, both modern and historical. It will not be confined to renewable energy projects, though this would be the main target audience. It will focus on track design and construction methods rather than identification of routes.</p>	●	●			10, 13

Research Priority 5.2 – Evaluating potential interactions between renewables and marine, coastal and freshwater wildlife and habitats, including the effects of construction and energy absorption

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Monitoring of behavioural interactions between marine animals and marine renewable devices</i></p> <p>Following the preparation of a marine renewables Strategic Environmental Assessment by the Scottish Executive in 2007, it is clear that collision between tidal turbines and cetaceans/other sea mammals is a risk which cannot be discounted. Better information is needed on this. While the examination should be funded through industry sources, SNH would expect to be a partner.</p>	●	●			8, 12

Research Priority 5.3 – Understanding how to encourage low-impact energy micro-generation

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Microgeneration and the natural heritage This project will review microgeneration installations with a view to identifying circumstances or thresholds of scale at which natural heritage issues warrant detailed consideration by SNH or the consent authority.</p>	●				3, 14

Research Priority 5.4 – Modelling potential scenarios for renewable energy development and its cumulative impact on the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessing the cumulative impact of small scale hydro schemes in Scotland</p> <p>This project will assess the cumulative impact of small scale hydro schemes in Scotland. Both SNH and the Fisheries (Electricity) Committee are becoming increasingly concerned about the number of small-scale run-of-river hydro schemes which are now being proposed or are under construction within some river catchments. This project will define the thresholds and criteria against which cumulative impacts should be judged acceptable or not.</p>	●					7, 10, 12
<p>Assessing cumulative effects of wind farms on bird populations: SNH PhD studentship</p> <p>This PhD study will bring together information on impacts on birds from Environmental Statements and monitoring studies in order to review where, and for what species, potential cumulative impacts may become significant as the level of windfarm development increases.</p>	●	●				12

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The natural heritage and biomass energy production</p> <p>This project would consider possible scenarios for the development of biomass energy, including energy crops and biofuels, and assess the overall associated relationships with the natural heritage. The aim would be to identify any natural heritage constraints which might restrict the overall scale and types of development of biomass energy, including any locational guidance needed to direct biofuel and energy crop production to the most appropriate areas.</p>		●			7, 10, 12
<p>Monitoring the cumulative impact of windfarms</p> <p>This project would collate monitoring information from individual sites, and supplement it with selective monitoring of impacts on landscape, habitats and species, in order to provide an overview of the impacts of the first ten years of windfarm development.</p>		●			

Research Priority 5.5 – Understanding the impact of biomass crops on biodiversity and developing good practice guidance on the development of environmentally sensitive energy crops

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Evaluating the environmental implications of growing new energy crops</i></p> <p>This project will review the environmental impacts of growing new energy crops and will identify management practices which enhance biodiversity, protect soil and water resources, and secure landscape diversity, taking account of the greenhouse gas emissions attributable to different management practices. The project will lead to best practice guidance to complement SNH's policy statement on 'Biomass Energy and the Natural Heritage'.</p>	●				6, 12, 14

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£300k	£320k	£320k	£320k	£320k

Research Priority 6.1 – Assessing favourable conservation status of habitats and species listed under the EC Habitats Directive in the wider countryside, and providing an overview of habitats and species

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Uplands inventory This project will build on previous surveys by SNH and partner organisations. It will improve our understanding of the extent and conservation status of important upland habitats, some of which we still poorly know in the wider countryside.</p>		●	●	●	
<p>Evaluation of the influences of land use changes on Favourable Conservation Status (FCS) Land use change, whether linked to changes in subsidy regime, agricultural technology, other land uses or climate change will have impacts on FCS which need to be clarified through research and survey. As part of wider work we will develop a suite of FCS spatial assessments of the habitat or species likely to be critically influenced by these factors.</p>		●	●	●	

Research Priority 6.2 – Expanding, reviewing and improving our present information base of habitats and species with a view to providing targeted assessment of their conservation value

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Baseline surveys in support of Joint Working on deer</p> <p>These are surveys of the impacts of deer on natural heritage features on sites which have been selected as Sites for Assessment under the Joint Working arrangements between SNH, DCS, FCS and the SE.</p>	●	●	●	●	●	11
<p>Monitoring of moorland fringe biodiversity – Galloway Forest Park</p> <p>Restructuring within the Galloway Forest Park is creating large areas of ‘moorland fringe’ – buffer areas between open hill ground and the hard edge of the conifer forest. This work is focused around the edges of the Merrick-Kells SSSI/SAC and aims to increase biodiversity, improve landscapes, and facilitate habitat linkages between areas of open hill. This project will investigate the success of introducing this moorland fringe concept.</p>	●	●	●			11,12
<p>Causes of die back in juniper population at Glen Artney Wood to inform future management proposals</p> <p>Glen Artney juniper wood is an important Special Area of Conservation (SAC) for juniper in Tayside. The site has recently begun to show quite marked dieback of mature juniper bushes. This project seeks to identify the cause of the problem.</p>	●					11, 12

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Causes and impacts of changes in extent of invasive species This study will investigate changes in the distribution and extent of invasive species, such as bracken, in response to land use change.</p>	●	●	●		4, 11

Research Priority 6.3 – Assessing the value of agricultural and agri-environmental advice, practice and incentives to the natural heritage outcomes, and improving our advice to deliver outcome-related management

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Advice to support the application of the Rural Development Programme (RDP) for Scotland 2007-13</p> <p>This project will be to develop guidance materials in support of the implementation of the new RDP.</p>	●					
<p>The socio-economic consequence of SNH expenditure in rural development</p> <p>This work seeks to quantify socio-economic elements of SNH spend in the countryside.</p>	●					11
<p>Assessing likely changes in biodiversity as a result of CAP reform</p> <p>This project seeks to understand the natural heritage, land management, community and economic changes which are likely to occur in agriculture as a result of the reforms to agricultural support mechanisms.</p>	●					12
<p>The socio-economic value of the natural heritage of Scotland</p> <p>This project will demonstrate the importance of protecting and enhancing Scotland's habitats, species, and landscapes from social and economic, as well as environmental, perspectives.</p>	●					9, 11, 12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Improving habitat provision for birds in intensive grassland areas Much of the farmed land in Scotland is relatively intensively managed grassland, which does or could support Biodiversity Action Plan farmland bird species. Most research work on birds on lowland farmland has been undertaken in arable systems, but it is increasingly important to develop habitat management options to make grassland areas more hospitable to wildlife, especially birds. This work will inform advice to farmers and management prescriptions in Land Management Contracts.</p>	●	●				12
<p>Monitoring the environmental impacts of CAP reform SEERAD will be undertaking a comprehensive monitoring programme of the reforms of the CAP. This will include wider policy issues of assessing the social and economic impacts of CAP reform. SNH's contribution to the monitoring programme will ensure that a robust analysis of the environmental impacts is included in the overall monitoring.</p>	●					12
<p>Black grouse and cattle grazing project Black grouse is a conservation priority species, and currently declining. This project will provide demonstration and guidance on managing upland heathland and forest plantations, using native breeds of cattle for the benefit of black grouse, in Argyll.</p>	●	●	●			12
<p>Impacts of eutrophication on waders and wildfowl on the Ythan Estuary, Aberdeenshire The numbers and distribution of waders and wildfowl on the Ythan estuary, Aberdeenshire, will be monitored and related to the abundance of green algae. This is linked to agricultural nutrient enrichment and the functioning of the Nitrate Vulnerable Zone.</p>	●					11, 12

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Identifying the natural heritage benefits delivered by existing agri-environment schemes and organic farming</p> <p>SNH needs to develop an improved evidence base for links between agri-environment schemes and natural heritage outcomes. This contributes to the development of guidance for future agri-environment support schemes.</p>	●	●			12
<p>Identifying the impacts of agricultural regulation and policies on the natural heritage</p> <p>Policy instruments include cross-compliance, GAEC (good agricultural and environmental conditions), modulation, European Regional Policy and recent fundamental shifts in agricultural support. This work is needed to support advice and policy development relating to agriculture and rural land use and development.</p>		●	●		12
<p>Land use management at a natural heritage scale</p> <p>This work will develop approaches to agricultural management based on natural heritage scales (e.g. ecological, landscape, catchment) rather than based solely on the existing pattern of holdings. This will explore integrated planning and collaborative working at landscape scales or with groups of farms.</p>		●			10, 12, 14
<p>Identifying the characteristics and benefits of High Nature Value Farming (HNVF) in a Scottish context</p> <p>HNVF is a European concept with links to LFA areas and other designations in Scotland. This work will develop definitions, assess status and develop policy and management advice.</p>	●				
<p>Understanding the links between natural heritage outcomes and rural development</p> <p>This work will clarify the relationship between natural heritage programmes in economic and social factors in rural land management. It will also assist in the development of rural development programmes, including costing the delivery of natural heritage outcomes within a wider socio-economic context.</p>	●	●			2, 9
<p>Investigating the biodiversity and landscape impacts of large scale growing of biomass crops within agricultural systems</p> <p>This work will assess wider natural heritage impacts of energy crops in farmland, including willow, miscanthus and oil seed rape, wheat and straw as an industrial fuel. It will also develop advice for farmers, advisers and agencies.</p>		●	●		5, 12

Research priority 6.4 – Developing conservation frameworks for priority habitats in order to target conservation management

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Implementation of the Peatlands of Caithness and Sutherland management strategy</p> <p>This project will help to establish of Peatland Forum to oversee implementation of the Peatland Strategy. This will encourage partners to take forward key elements of the Strategy through the drafting of a costed action plan.</p>	●	●				11, 12, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Providing guidance for ecological spatial planning</p> <p>There is much interest in spatial planning for ecological outcomes, but no practical authoritative guidance to allow its use within Scotland's planning structures. This work will provide such guidance, covering issues including scale, connectivity, extent, timescales and condition.</p>	●	●	●		4, 7, 10, 11, 14,
<p>Development of strategic large scale plans for the natural heritage</p> <p>Linked to the ecological spatial planning guidance development, we will develop some specific plans on issues for which SNH has primary responsibility. The first step in this work will be to agree the priorities for such planning – this would include Habitats Directive Article 10 – for example developing a plan for Caledonian pinewoods, or BAP priorities.</p>		●	●		11, 12

Research priority 6.5 – Reviewing and critically assessing timing and methods of habitat management, particularly grazing and muirburn

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Development of a fire behaviour prediction system for vegetation fires in the UK</i></p> <p>This is a partnership project led by the Fire and Rescue Services (FRS) and including SNH, National Parks, FCS, MoD, landowners and a variety of other interested parties. The objective of the project is to develop a predictive tool for the management of wildfire in the UK and for facilitating good practice by those who work with fire in semi-natural vegetation.</p>	●					12
<p><i>Investigation of the role of deer trampling on blanket bog vegetation</i></p> <p>This work will inform joint agency working on sites where there are concerns about negative impacts due to herbivores on blanket bog. The study will improve our understanding of the extent to which deer, as opposed to other herbivores or other biotic and abiotic factors, can be responsible for negative impacts on blanket bog.</p>	●	●	●			11, 12

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The balance of carbon sequestration/carbon emissions linked to peatland and other organic soils Peatlands and other upland organic soils are key stores of carbon, and their impact in meeting climate change targets is very significant. Management activities can alter the balance between carbon sequestration and emission, and this work area will explore this to analyse current trends and propose management changes to reduce emissions.</p>	●	●			4, 5
<p>Defining appropriate grazing levels This work will identify the nature and pattern of grazing levels (maximum, minimum and variations over time) which delivers natural heritage, rural development and animal welfare objectives for a variety of habitats. It will include the development of decision support tools to inform herbivore management and also includes assessing alternatives such as cutting or burning.</p>	●	●			11, 12
<p>Developing best practice for the use of cattle as a conservation tool The use of cattle to manage semi-natural sites for natural heritage purposes has been studied for some time but we still lack the definitive guidance set at a level suitable for a range of purposes from the cattle manager to policy makers and the designers of incentive schemes.</p>		●	●		11, 12
<p>Improving methods for peatland restoration Peatland restoration is widely undertaken and has assumed a greater urgency given the potential loss of peatlands as carbon sinks. This work will develop and test improvements in restoration practice aimed at reducing cost and time and improving effectiveness.</p>	●	●			11
<p>The impact of muirburn on breeding birds Climate change is likely to influence some aspects of the breeding biology of upland birds, particularly timing of nesting. This work will assess current and likely changes and compare these with current muirburn practices, leading if necessary to amended advice on the timing and practice of muirburn.</p>	●	●	●		4, 12

Research priority 6.6 – Modelling the development of ecosystem/habitat networks to improve linkages and overall biodiversity interest of fragmented rural/upland landscapes (notably moorland–forest interface, lowland–arable systems)

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Fragmentation of key habitats and sites – assessing the problem and recommending solutions</i></p> <p>Fragmentation and isolation of species and their habitats is acknowledged as a key threat to biodiversity, especially in the face of climate change. This project will use the BEETLE (biological and environmental evaluation tools for landscape ecology) modelling approach to analyse a range of key designated sites. It will assess the degree of fragmentation and map the best (simplest, most effective and most feasible) land use changes to reduce fragmentation and isolation.</p>	●					4, 11
<p><i>Modelling the impacts of forest restructuring in Loch Lomond and the Trossachs National Park on red and grey squirrel populations</i></p> <p>The National Park supports populations of grey and red squirrel. The percentage of broadleaved species is likely to increase considerably over the next 25 years. This project aims to predict the implications of this change on populations of grey and red squirrels with the aim of informing management of these species and their habitats to prevent further spread of grey squirrel throughout the Park.</p>	●					11, 12

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>To provide effective user friendly ecological network planning tools</p> <p>The spatial modelling of ecological networks is now a well established tool but still one that requires specialist GIS and ecological knowledge. This work area will, with partners, develop an effective desktop tool suitable for straightforward ecological network modelling, and make it available to SNH Areas, partners and private sector users.</p>	●	●	●		4
<p>Meeting the data needs of ecological modelling</p> <p>The wider use of ecological network modelling and planning requires better data – data which cover a wider range of species or species groups (so more sophisticated questions can be asked). This work area will identify key autecological, land cover and 'habitat potential' data requirements, and co-ordinate with partners to collect and assure the quality of data.</p>	●	●	●	●	

Research Priority 6.7 – Developing a flexible approach to managing upland areas at scales ranging from catchments to individual estates

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Translating national objectives and spatial planning into regional, local or estate priorities</p> <p>National natural heritage objectives and plans have different relevance to different regions or local areas in the uplands. This work area will explore ways in which we can simplify and prioritise objectives and help decision-makers apply these specifically to certain areas.</p>		●	●		12
<p>Supporting collaborative planning and management in the uplands</p> <p>Many of SNH's ambitions for the uplands need to be delivered collaboratively over wide areas – deer management, catchment management and flood risk reduction, as well as rural development and landscape objectives. This work area will develop guidance and demonstration of effective approaches to such collaboration.</p>		●	●		10, 11, 14
<p>Improving our understanding of the role of mosaic and edge habitats in delivering upland objectives</p> <p>Mosaic and edge habitats are poorly understood in terms of their ecological role. Land management in the uplands has tended to simplify habitat and species distributions and richness. This work area seeks to establish and provide guidance on management solutions to restore their extent and functions.</p>	●	●			12

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£100k	£120k	£120k	£120k	£120k

Research Priority 7.1 – Assessing favourable conservation status of habitats and species listed under the EC Habitats Directive in the wider countryside, and providing an overview of habitats and species

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The potential for the expansion of floodplain forests, grasslands and wetlands in Scotland</p> <p>This work will explore the potential for wetland restoration and how this can best be achieved.</p>		●			6, 10
<p>Freshwater inventory</p> <p>This project will build on existing work to improve understanding of the extent and conservation status of important freshwater habitats and species across Scotland. The results will help in making assessments of favourable conservation status and in developing management strategies.</p>	●	●	●		1, 4, 12, 15
<p>Diversity of lamprey species in Scotland</p> <p>The genetic diversity of lamprey species in Scotland remains unknown. This project will establish the diversity of lampreys at a selection of sites, both to aid in assessments of favourable conservation status and in the preparation of action plans that may be needed during the control of any <i>Gyrodactylus salaris</i> outbreak.</p>		●			11, 12

Research Priority 7.2 – Expanding, renewing and improving our present information base on freshwater and wetland habitats and species, leading to targeted action and/or assessments of their conservation value

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessments of the current status of Arctic charr, ancestral trout populations and fishless lochs in Scotland</p> <p>There is a considerable amount of information available on the status of these three important conservation priorities, all of which are covered by the SSSI selection guidelines. However, published and unpublished information needs to be brought together to review the current status of these features and to highlight information gaps.</p>	●					4, 12
<p>LIFE+ lake restoration project: bid development</p> <p>The new EU LIFE+ funding programme will run from 2007, giving an opportunity to secure funds for large-scale, practical work on lake restoration at various sites across the UK. This project forms the first step in the process: securing expertise to co-ordinate, develop and submit a LIFE+ bid to improve the status of SAC lakes on behalf of the UK conservation and environment agencies.</p>	●					11
<p>Eradication of crayfish from the North Esk catchment</p> <p>Signal crayfish have been introduced to ponds in the North Esk catchment, but investigations suggest that they have not yet escaped into the adjacent river system. An eradication programme is under way using biocides to kill crayfish. This project will monitor the success of previous treatments and subsequent outcomes.</p>	●	●	●			12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Compaction and fire as management tools on lowland raised bogs</p> <p>Fire and compaction have been considered as damaging activities on lowland raised bogs. However, they may be cost-effective management tools for preventing trees and rank heather revegetating these sites. This project will review research and information on burning of peatlands and its effect on <i>Sphagnum</i>, and compile a good-practice guide for burning and compaction on bogs with the aim of maintaining sites in favourable condition.</p>	●					6
<p>Demonstration of applying SERCON 2 to river conservation evaluation</p> <p>SERCON (System for Evaluating Rivers for Conservation) is a technique for assessing the conservation value of rivers. The project aims to demonstrate the value of SERCON 2 in identifying rivers important for nature conservation, and to provide case studies to show how limited data can be used to create simple SERCON assessments for specific topic areas. The outputs will be used to produce the text for an illustrated booklet to publicise the new version of SERCON, as well as providing the information needed for a business case in support of software development.</p>	●					1, 11, 12, 15
<p>Project officer in water resource management</p> <p>The uptake of good practice by farmers is important to protect and enhance the water environment in Scotland. This project will encourage this by funding a post that will provide advice and training to existing agricultural services and support the delivery of the Diffuse Pollution Regulations and Nitrate Vulnerable Zones.</p>	●	●	●	●		1, 6, 10

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Water quality monitoring at Loch Leven SPA/Ramsar /SSSI/NNR</p> <p>Water quality and ecological information has been collected at Loch Leven for about 40 years, producing one of the most important long-term limnological datasets in the world. This project will support the continued collection of this information for its use in monitoring the success of the catchment management plan and improved understanding of lake processes.</p>	●	●				1, 4, 6, 10, 11, 15
<p>Translocation of spurling</p> <p>The rare fish Spurling (<i>Osmerus eperlanus</i>) breeds in the lower River Cree, Dumfries and Galloway; however the population is vulnerable and a local priority in the LBAP. This project will explore options in relation to the reintroduction of this fish</p>	●	●				12
<p>The biodiversity of gravel-bed rivers in Scotland: a 3-dimensional perspective</p> <p>Active gravel-bed rivers represent a unique and important habitat, whose biota rely on natural processes of erosion, sediment transport and deposition. However, in many places these river systems are under threat from inappropriate river engineering and management activities, and to a lesser extent from agricultural pollution. The project will investigate the extent, characteristics and importance of hyporheic habitats more widely in Scotland, and will explore the factors that are likely to be important in their conservation and management.</p>	●	●				12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Water quality and hydrology in the Round Loch of Glenhead, with particular reference to dissolved organic matter and benthic diatom distribution</i></p> <p>This project is concerned with monitoring a peaty upland loch (Round Loch of Glenhead (SW Scotland)) and to relate seasonal changes in water supply and coloured dissolved organic matter (CDOM) to benthic diatom distributions. The results of this study will provide a valuable source of information relevant to land management in the Scottish uplands, particularly with respect to understanding climate change scenarios.</p>	●					4

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>River conservation evaluation in Scotland No systematic assessments have been undertaken of the conservation value of Scottish rivers, other than those required for the Habitats Directive. This work will address this shortfall in knowledge by applying SERCON 2 (System for Evaluating Rivers for Conservation) to a suite of rivers in Scotland</p>	●	●	●		1, 11, 12, 15
<p>Determining the status of important standing waters in Scotland This work will focus on lochs where there is insufficient information for management purposes. The outputs will assist FCS assessments in the wider countryside as well as those under the lakes Habitat Action Plan.</p>	●	●			11
<p>Phosphate load and source apportionment study in Loch Leven This project will undertake a phosphate load and source apportionment study in Loch Leven to establish total and key inputs of phosphate, particularly from diffuse sources. This will enable SNH and partners to establish whether we are on target to ensure ecological recovery of the loch and to influence policy and practice so as to target the main sources of pollution.</p>	●				6, 10, 11
<p>Extend the current SNIFFER wetlands project This work will extend the wetlands inventory project by collecting ground-truth data for non-designated sites across Scotland.</p>	●				4, 6, 15
<p>The spread of reeds and Phalaris onto fen sites This work will address a widespread problem recorded during Site Condition Monitoring, by investigating why reeds and <i>Phalaris</i> are spreading into fens, and seeking ways of abating the spread.</p>	●	●	●		1

Research Priority 7.3 – Improving understanding of the ecological requirements of species important for conservation

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The ability of non-salmonid species of conservation concern to traverse fish passes</p> <p>Non-salmonid fish (especially lampreys and eels) are rarely able to use fish passes designed for migratory salmonids. This work will assist SNH staff in responding to casework (e.g. hydropower developments) by examining fish-pass efficiency and proposing improvements.</p>			●	●	5, 12
<p>The effective population size of the Loch Lomond dwarf lamprey population</p> <p>Recent work has demonstrated that this unique form of river lamprey may be in decline. This work will estimate the population size of dwarf lamprey based on assessments of genetic diversity.</p>	●				11, 12
<p>The water quality requirements of freshwater pearl mussels</p> <p>Elevated levels of nutrients and suspended solids have been implicated in some pearl mussel SACs not being in favourable condition. This work will seek to improve understanding of the water quality requirements of pearl mussel, thereby assisting programmes of management and restoration.</p>	●	●			1, 12

Research Priority 7.4 – Investigating links between ecology and hydromorphology in rivers and lochs, to help improve assessments under the Habitats Directive and the Water Framework Directive

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Review of hydrological monitoring on Scottish lowland wetlands</i> This project will assess whether current hydrological data collection is effective and recommend the most cost effective means of future data collection. The results of the work will inform a strategy for future hydrological monitoring and advice to land managers.</p>	●					6
<p><i>Survey of freshwater pearl mussel on the River Kerry (Wester Ross) and correlation of results with geomorphological information</i> The River Kerry SAC is one of the most important sites for freshwater pearl mussel in Scotland. This project will determine the present distribution and abundance of pearl mussel and relate this to the geomorphological assessment undertaken by SNH in 2005. The results of the work will improve our understanding of the way in which pearl mussel distribution is influenced by fluvial geomorphology.</p>	●					1, 5, 12

Work planned from 2008 onwards
 timeline (•)

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The Lake Habitat Survey (LHS), phase 3 Assessing the conservation status of lochs requires at least a basic assessment of physical habitat features as well as biological and water quality attributes. The draft methodology developed and refined in phases 1 and 2, will now be developed to take LHS into operational practice.</p>	•	•	•		
<p>The benefits of river restoration projects to aquatic ecosystems SNH has supported river restoration initiatives in Scotland for many years, principally through grant-aiding the River Restoration Centre. With the Water Framework Directive placing emphasis on maintaining and improving 'ecological status' it is timely to evaluate the effectiveness of river restoration in bringing ecological benefits.</p>	•	•	•	•	10, 12
<p>Scottish ecohydrological guidelines Relationships between hydrology and morphology and the ecology of freshwaters are under increasing scrutiny, given the relevance of 'hydromorphology' to the Water Framework Directive. This work will review the present state of knowledge and provide guidance for SNH staff and others for use in practical freshwater management.</p>		•	•	•	10, 12

Research Priority 8.1 Mapping of seabed habitats and biological communities (biotopes) principally within marine designated areas

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£340k	£355k	£370k	£385k	£400k

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>A survey of LBAP habitats around the coast of the Isle of Arran and the Cumbraes</p> <p>This project will fund a Marine Nature Conservation Review (MNCR) phase 2 inventory survey of maerl and seagrass beds in the Arran and Cumbrae area, determine the extent of these habitats, and record the visual evidence of any impacts. The survey will help inform the Local Biodiversity Action Plan and contribute to UK Habitat Action Plans (HAPs) for both maerl and seagrass. Enhanced knowledge of these habitats will contribute directly to the work of the Scottish Sustainable Marine Environment Initiative (SSMEI) spatial planning pilot being undertaken in the Firth of Clyde.</p>	●					12
<p>Broadscale mapping of SACs at North Rona and Luce Bay</p> <p>In order that a comprehensive management plan can be developed for marine SACs it is essential to obtain an estimate of the geographic distribution and extent of the habitats and their associated biological communities. Biotope mapping has yet to be undertaken at the SACs at North Rona and Luce Bay. The mapping work will inform management of the sites, provide valuable information on habitats of international conservation concern, and form the basis for any future SCM programmes.</p>	●	●	●			11

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Broadscale biotope mapping surveys of the Sound of Barra</p> <p>The primary focus of this project is to establish a defensible and coherent boundary for the Sound of Barra for potential consideration as an SAC. The proposed area will be based on the occurrence of Annex I habitats: sandbanks which are slightly covered by seawater at all times, and Reefs. Habitat information will be combined with Annex II species data collected for seal populations within this area. This project will also carry out broadscale habitat/biotope surveys to inform the future development of conservation objectives, monitoring programmes and management schemes for the Sound of Barra, including the previously identified pSAC area. This work is a continuation of the programme of surveys already completed for the other marine SACs.</p>	●					

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Broadscale mapping of Moray Firth SAC</p> <p>Mapping of this SAC was initiated in 2004, focusing on inshore areas. Further mapping is required to complete coverage of the entire SAC.</p>		●	●		11
<p>Analysis of gaps in marine survey effort around Scotland</p> <p>This assessment will contribute directly to Task 7.3a of the Scottish Biodiversity Strategy Marine Biodiversity Implementation Plan, which requires SNH and partners to undertake a review of current knowledge of marine biodiversity in Scotland, to 12 nautical miles, identify gaps in knowledge and suggest the most appropriate means of filling these.</p>	●				12

Research Priority 8.2 – Assessing favourable conservation status of habitats and species listed under the EC Habitats Directive in the wider countryside, and providing an overview of habitats and species

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Harbour seal survey of Northern Isles and other key areas</p> <p>A survey of harbour seals in 2006 has revealed a dramatic decline in numbers in the Northern Isles, but because of the irregular surveys in the past it is difficult to establish whether this is a real decline or an unusually low count. In order for the significance of this decline to be confirmed or otherwise it is essential to undertake a follow-up survey in 2007. The results of this survey will be used to devise possible mitigation measures for the recovery of the seal population.</p>	●					12, 15
<p>Survey of white-beaked dolphins in the Minch</p> <p>The Minch has always been considered a stronghold of the white-beaked dolphin, but its current status there is uncertain. This project, to which SNH is contributing, will establish whether its distribution and relative abundance has altered in recent years, as well as collecting baseline data that will be of value in future conservation management of this poorly studied species.</p>	●					

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Remote survey of saltmarsh and cliff habitats</p> <p>Mapping of plant communities in saltmarsh and cliff habitats within designated areas in Scotland is limited, yet it is important to assist site management, particularly in relation to casework. This research will use remote techniques, augmented by ground truth data, to prepare maps of vegetation within such sites.</p>	●	●			11, 12

Research Priority 8.3 – Investigating the impacts of aquaculture developments, including cumulative effects, on species and habitats of conservation importance

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>SNH contribution to the Scottish Aquaculture Research Forum (SARF). SARF was established in 2004 as a consequence of the Strategic Review of Scottish Aquaculture. Its principal aim is to fund and direct research relevant to the Scottish aquaculture industry and its management. This contribution will ensure continued SNH representation on the SARF board, maintaining our influence on SARF’s research programme including the promotion of research topics relevant to the natural heritage. SARF research will lead to improved management of the aquaculture industry in Scotland including, specifically, better understanding of the nature and significance of environmental impacts and options for avoiding or minimising these.</p>	●	●	●	●	●	

Research Priority 8.4 – Determining the quality and potential extent of any new statutory marine sites, notably in relation to a possible first Coastal and Marine National Park

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Baseline mapping of Coastal and Marine National Parks (CMNPs) The seabed encompassed by any Coastal and Marine National Park will need to be mapped to enable site management, understanding and promotion. The nature and cost of the work to be done are speculative at this stage, as this will depend upon the area of the site chosen, its remoteness and the availability of mapping already undertaken.</p>	●	●	●	●		10, 11
<p>A review of relevant international experience of Coastal and Marine National Parks (CMNPs). This project will review relevant experience and best practice from marine and coastal areas, both nationally and internationally, and so help foster good practice in the establishment and management of a CMNP in Scotland. The research will provide a better understanding of the lessons learned through the planning and management of marine protected areas and related initiatives worldwide. This will be of general interest but will, specifically, guide and inform SNH and the Scottish Executive staff in their work in developing Scotland's first CMNP.</p>	●					10, 11

Research Priority 8.5 – Contributing to an understanding of the impacts of civil engineering operations, boat disturbance and acoustic survey techniques upon cetacean health, behaviour and distribution

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Distribution, abundance and population structure of bottlenose dolphins in Scottish waters</i></p> <p>Although the bottlenose dolphin population within the Moray Firth SAC is well studied, much less is known about the distribution and movement of dolphins beyond this area. This project, led by the Scottish Executive, will collate historical records and observations from continuing surveys to establish, more clearly, the full distribution, abundance and population structure of this species around the Scottish coastline. The information provided will be of particular value in developing future management approaches to the species and the activities that threaten it.</p>	●					12

Research Priority 8.6 – Contributing to an understanding of fisheries impacts, focusing on specific fishery activities and their impact on species and habitats

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessment of mobile gear fishing impacts on SAC features within the Firth of Lorn.</p> <p>This project will determine, through desk study, modelling and field survey, the extent and significance of the interaction between mobile fishing gears (especially scallop dredges) and the rocky reefs in the Firth of Lorn SAC. The results of the research, which is being co-funded by the Scottish Executive, will facilitate future management of the SAC and the fishing activity therein.</p>	●					11, 12

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Scallop fisheries studies</p> <p>Various projects are planned to improve the understanding of interactions between scallop fisheries and natural heritage interests and the management of these. Specific studies include a demonstration project on spatially based management measures in the Clyde scallop fishery, a contribution to relevant SeaFAR (Sea Fisheries Advisory and Reference Group) action plan projects, and continuing research at Firth of Lorn SAC.</p>	●	●	●		

Research Priority 8.7 – Assisting in the development of marine spatial planning mechanisms

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Firth of Clyde Forum. This contribution will help ensure continuity of the Firth of Clyde Forum. This is an Integrated Coastal Zone Management partnership, which supports and encourages local authorities, statutory agencies, NGOs, businesses and communities to adopt integrated and long-term approaches to the way they use and manage the Firth and its coast. Funding will enable progression of core work, including delivery of awareness raising events and an annual conference, production and distribution of newsletters and maintenance of a website, as well as the completion of a range of partnership projects.</p>	●					10
<p>Achieving natural heritage objectives through the development and implementation of a system of marine spatial planning in Scotland This project will review different models of marine spatial planning (MSP) with potential to deliver benefits for Scotland's coastal and marine natural heritage. Results will inform the Scottish Executive considerations of a marine spatial planning system for Scotland and help to ensure that whatever system of MSP is adopted is capable of achieving natural heritage objectives as well as economic and social ones.</p>	●					10

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Assessment of spatial distribution and intensity of activities affecting the maritime natural heritage on Scotland's coastline and seas</i></p> <p>This project will use GIS to map the distribution and intensity of principal activities affecting Scotland's maritime natural heritage, based on available data. This information can then be used in future management plans for sensitive sites as well as in any future marine spatial planning system that might be introduced.</p>	●	●	●		10

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£40k	£40k	£40k	£80k	£80k

Research Priority 9.1 – Determining how best to meet tourism’s demand for information on the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Natural heritage information – priorities for guiding the sustainable development of tourism</p> <p>Targetted and relevant information from a range of sources is essential to providing a high quality visitor experience. In association with partners involved in the national tourism strategy this work will identify the most cost-effective ways in which SNH information and publications can contribute to national initiatives for tourism marketing and industry training.</p>	●	●				1, 2

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The application of natural heritage information to destination development</p> <p>The use of information about the natural heritage within a destination varies. Through pilot studies with partners in individual Area Tourism Partnerships this work will provide guidance on methods for development and use of natural heritage information in destination development.</p>		●	●	●	1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 15

Research Priority 9.2 – Identifying new opportunities for tourism which are mutually supportive of the natural heritage.

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Development of sustainable tourism in coastal and marine environments</p> <p>Scotland's rich coastal and marine environments are an increasingly important attraction to visitors seeking holidays far removed from the traditional beach holiday. This demand offers opportunities and challenges for coastal communities and the natural heritage. Reviewing current knowledge and international guidance the work will identify a model and required actions for the establishment of sustainable coastal tourism.</p>	●			●	●	11, 12, 13, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The role of tourism in supporting Scotland's natural diversity</p> <p>Incorporating tourism within conservation programmes offers benefits for the visitor, local economy and care for the natural heritage. There is a need for guidance on how to achieve the most from opportunities raised by initiatives such as the Species action Framework, National Nature Reserves and protected landscapes.</p>	●	●	●	●	11, 12, 13, 14
<p>City-break tourism and the natural heritage</p> <p>City-break tourism is the fastest growing sector of the market. This research will explore the role of understanding and enjoyment of the natural heritage in making memorable visits to Scotland's cities.</p>	●				1, 3
<p>UK and European public support for developing natural heritage related tourism – a best practice review.</p> <p>This review will analyse UK and European experience in promoting natural heritage tourism through programmes such as LEADER and LIFE. The work will be based on selected case studies examined in the light of the national tourism strategy objectives.</p>	●	●	●		1, 2, 6, 11, 12, 13, 14

Research Priority 9.3 – Evaluating the nature and significance of tourism’s impact upon the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Scottish tourism – a review of the role of the natural heritage in its sustainable development to 2015.</p> <p>Scotland aims to be the most sustainable tourism destination in Europe by 2015 and to increase tourism revenues by 50% over the same time period. A key question for research is how SNH and partners can ensure the compatibility of these objectives.</p>		●	●	●	●	

Research Priority 9.4 – Understanding the relationship between the socio-economic value of the natural heritage and tourism

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Establishing a valuation of the natural heritage to tourism</p> <p>Tourist interests, expectations and travel patterns continue to change rapidly. A large number of policy areas, including rural diversification, transport and tourism, benefit from an understanding of the value of the natural heritage to tourism gained through research, including visitor attitude surveys and environmental economic study.</p>	●	●	●	●	6, 10, 15
<p>The value of volunteering and community based natural heritage projects to tourism</p> <p>'Tourism is everyone's business' is an often stated fact highlighting the wide range of factors influencing visitor satisfaction. This research will provide evidence of the value of community based projects to tourism.</p>	●	●			10, 12

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£20k	£40k	£40k	£40k	£40k

Research Priority 10.1 – Research to underpin guidance which helps SNH to engage effectively with the planning system to benefit natural heritage interests

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Review of best practice in planning and development for natural heritage interests</i> This work will build on research done previously, to help inform SNH’s inputs to the proposed revision of the Scottish Executive’s Planning Advice Note (PAN60) on Planning for the Natural Heritage.</p>		●				

Research Priority 10.2 – Promoting natural heritage interests through capacity-building and awareness-raising for local authority planners and other external partners

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of planning authority engagement and capacity in natural heritage management This project will identify the skills and knowledge needs of local authority planners on natural heritage issues, and develop an action plan to meet those needs.</p>	●					1

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of river engineering operations and their effects on SACs and other natural heritage interests This proposal is intended to help inform the production of guidance for competent authorities on how to apply the new regulations for such casework.</p>	●				6

Research Priority 10.3 – Reviewing the performance and outcomes of SNH’s responses to planning consultations

Projects continuing from previous years and new projects commencing in 2007/08

Work area	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of SNH’s role in development planning casework</p> <p>This will guide SNH’s future handling of planning casework. With external scrutiny, an independent review will examine: SNH’s current role in, and procedures for, the handling of planning casework; and the nature and effectiveness of SNH’s consultation responses</p>	●					
<p>Review of the different arrangements for planning in Scotland’s two National Park areas</p> <p>This proposed review will build on previous research to evaluate the effectiveness of the legislative regimes for planning and development in the Cairngorms and Loch Lomond and Trossachs National Parks.</p>		●				11

Research Priority 10.4 – Examining specific aspects of the planning system to consider ways in which natural heritage interests could benefit

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of guidance and good practice on Strategic Environmental Assessment (SEA) SNH will review the natural heritage benefits gained through SEA, and consider how its handling of SEA consultations can be improved to enhance these benefits.</p>	●				
<p>Research on issues arising from the Transport (Scotland) Bill This proposal will help to identify ways in which natural heritage benefits can be secured in the planning and development of transport infrastructure proposals.</p>	●				
<p>Review of community planning and natural heritage interests Research will be undertaken to consider how best to obtain natural heritage benefits through the community planning process.</p>		●			1

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£860k	£680k	£600k	£480k	£450k

Research Priority 11.1 – The Site Condition Monitoring Programme – monitoring a proportion of 5,500 natural features in SSSIs between 2006 and 2012

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
Site Condition Monitoring of amphibians This work will assess the condition of amphibians on designated sites.	●	●	●	●		6, 12, 15
Site Condition Monitoring of birds This work will assess the condition of birds on designated sites.	●	●	●	●	●	4, 6, 8, 12, 15
Site Condition Monitoring of riverine invertebrates This work will assess the condition of riverine invertebrates on designated sites.	●	●	●		●	6, 7, 8, 12, 15
Site Condition Monitoring of fish in standing waters This work will assess the condition of fish in standing waters on designated sites.	●	●	●		●	6, 7, 12, 15
Site Condition Monitoring of fish in running waters This work will assess the condition of fish in running waters on designated sites.	●	●	●		●	6, 7, 12, 15
Site Condition Monitoring of freshwater lochs This work will assess the condition of freshwater lochs on designated sites.	●	●	●			6, 7, 12, 15
Site Condition Monitoring of vascular plants This work will assess the condition of vascular plants on designated sites.	●	●	●	●		6, 12, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Site Condition Monitoring of bottlenose dolphin This work will assess the condition of bottlenose dolphins on designated sites.</p>	●	●	●	●	●	8, 12, 15
<p>Site Condition Monitoring of marine communities This work will assess the condition of marine communities on designated sites.</p>	●	●	●	●	●	8, 12, 15
<p>Site Condition Monitoring – locally let Area contracts These monitoring programmes will apply the JNCC Common Standards Monitoring guidance to provide an assessment of the condition of a range of habitats and species within designated sites in Scotland. The monitoring will also identify management and other activities which are having an effect on these habitats and species. This may require discussion with the land owners/managers and remedial action put in place.</p>	●	●	●	●	●	6, 12, 15
<p>Knapdale Lochs SPA black-throated diver breeding success survey Factors affecting the distribution and breeding success of black-throated divers within Knapdale Lochs Special Protection Area (SPA) are poorly understood. This survey will increase understanding of the birds' usage of the SPA, and assist SNH's responses to development proposals which could directly affect the site. It will also help to gauge the success of rafts deployed as artificial nesting platforms.</p>	●	●				10, 12, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Distribution of barnacle geese on the Solway Firth</p> <p>This project is monitoring the distribution of barnacle geese and other large wildfowl on land close to the Scottish side of the Solway Firth. The monitoring will map the range of the birds and provide an indication of the total barnacle goose population using the Solway. Incidents of goose scaring and disturbance which may affect goose distribution will be recorded for discussion at the local goose management group.</p>	●	●				2, 6, 12, 15
<p>Survey of winter aggregations of inshore waterbirds</p> <p>This project is a continuing survey of key sites in inshore waters where aggregations of waterbirds are known to occur. The surveys will provide essential information for identifying and defining potential sites for consideration as a suite of marine Natura sites (SPAs) in Scottish waters.</p>	●					8, 12, 15
<p>Native woodland inventory for Scotland: site condition monitoring</p> <p>Forestry Commission Scotland is currently undertaking a native woodland inventory for Scotland. This will collect a range of data on woodland attributes from semi-natural woodlands. These data will be used for the assessment of the condition of woodland features on designated sites for Site Condition Monitoring purposes.</p>	●	●	●			6, 12, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring of raptors on upland Special Protection Areas in Strathclyde and Ayrshire</p> <p>Monitoring of raptors on upland SPAs in Strathclyde and Ayrshire has been carried out annually for a number of years. This is vital to maintain a proper understanding of the fluctuations in these breeding populations that may vary significantly in response to factors such as illegal persecution, variations in climate and prey abundance. This information will be used for Site Condition Monitoring and to assess potential impacts of land-use changes and developments on these sites.</p>	●					6, 10, 12, 15
<p>Repeat monitoring of the 'unfavourable-declining' horse mussel (<i>Modiolus modiolus</i>) biogenic reef feature of Lochs Duich Long and Alsh Special Area of Conservation</p> <p>The Lochs Duich, Long and Alsh SAC has been reported as unfavourable-declining, on the basis of a reduction in abundance of live horse mussels identified during Site Condition Monitoring in 2004. This follow-up monitoring is to confirm status of the declining horse mussel bed through detailed mapping, to identify potential causes and possible remedial management approaches. The project will also map and monitor an additional horse mussel bed to establish an appropriate baseline for the next cycle of SCM.</p>	●					6, 12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Survey of breeding ringed plover on the Firth of Forth SSSI</p> <p>The first results from Site Condition Monitoring indicated a steep decline in breeding ringed plover within this site. This survey will concentrate on core breeding areas to establish the current population and identify the likely reasons for the decline in population and/or productivity. This information will be used to complete a condition assessment for the second cycle of SCM.</p>	●					2, 6, 8, 10, 12, 15
<p>Site Condition Monitoring of breeding golden plover on Moorfoot Hills SSSI</p> <p>This monitoring programme is to provide a repeat assessment of the condition of the breeding golden plover population on Moorfoot Hills SSSI for Site Condition Monitoring purposes. The monitoring will also identify management and other activities which are having an effect on the birds, which may require discussion with the land owners/managers and remedial action put in place.</p>	●					2, 6, 8, 10, 12, 15
<p>Feeding distribution of wintering waterfowl on the Inner Clyde Special Protection Area</p> <p>This survey repeats work which was last carried out in winter 1999-2000. The current project will give details of feeding distribution of waterfowl at low tide that will permit detailed assessment of the spatial location of the SPA/SSSI interest features and more meaningful appraisal of potential impacts such as developments or disturbance.</p>	●					2, 6, 8, 10, 12, 15

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Site Condition Monitoring of non-vascular plants This work will assess the condition of fungi, lichen, liverwort and moss species or assemblages on designated sites.</p>	●	●			6, 12, 15
<p>Site Condition Monitoring of terrestrial invertebrates This work will assess the condition of insects and spiders on designated sites.</p>	●	●			4, 6, 12, 15
<p>Site Condition Monitoring of mammals This work will assess the condition of seal and other populations on designated sites.</p>	●	●			2, 6, 8, 12, 15
<p>Site Condition Monitoring of upland habitats This work will assess the condition of upland heath, grassland and associated habitats on designated sites.</p>	●	●			4, 6, 12, 15
<p>Site Condition Monitoring of lowland grasslands This work will assess the condition of lowland grassland habitats on designated sites.</p>	●	●			6, 12, 15
<p>Site Condition Monitoring of lowland heath This work will assess the condition of lowland wet and dry heath habitats on designated sites.</p>	●	●			6, 12, 15
<p>Site Condition Monitoring of wetlands This work will assess the condition of fen, marsh and swamp habitats on designated sites.</p>	●	●			6, 12, 15
<p>Site Condition Monitoring of coastal habitats This work will assess the condition and activities for habitats such as coastal heath, sand dune systems and vegetated sea cliffs on designated sites.</p>	●	●			8, 12, 15
<p>Site Condition Monitoring of earth science features This work will assess the condition of hard rock geological and geomorphology natural features on designated sites.</p>	●	●			6, 13

Research Priority 11.2 – The Natural Care Programme – developing improved or innovative management techniques for habitats and species based on research outcomes

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Orkney Hen Harrier Scheme – managed rough grassland for prey abundance</i></p> <p>The Orkney Hen Harrier Natural Care Scheme aims to reverse the decline in breeding success of hen harriers in Orkney, mainly by creating habitats for prey species outside the Special Protection Area and improving moorland management within the designated area itself. The objective of this survey is to identify vegetation changes as a result of management changes and its effect on prey abundance in areas managed as rough grassland.</p>	●	●	●			6, 12
<p><i>Hydrological studies to support the Grampian lowland bogs Natural Care scheme</i></p> <p>Hydrological studies are required to support the Grampian Lowland Bog Scheme by accommodating the entry of the sites into the Scheme. The work will also study the effectiveness of positive management undertaken through the Scheme, and to identify any adjustment required to achieve favourable condition.</p>	●	●	●			6, 12

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessing the effect of legal predator control on breeding bird species in moorland/upland areas</p> <p>Payments for legal predator control are available under five Natural Care schemes. Because of a number of confounding effects, there is no conclusive evidence to suggest that legal predator control contributes to improved ground nesting bird productivity. This project will assess whether legal predator control affects the breeding success of ground nesting birds of uplands and moorlands within the scheme areas. The results of the survey will be used to determine whether SNH should be continuing to offer payments for legal predator control.</p>	●	●				6, 12
<p>Monitoring outcome-led management under the East Scotland grassland management scheme</p> <p>The East Areas grassland management scheme provides opportunities to learn from, and share experiences of, a range of management issues across a number of designated sites. The project will consider the practicalities of incorporating management approaches supported through the Scheme into the farm business, including profitability and labour requirements, and at how these factors affect the ecological changes resulting from management under the Scheme.</p>	●	●	●			6, 12
<p>Monitoring of the Loch of Strathbeg goose management scheme</p> <p>The objective of this survey is to assess the success of the Loch of Strathbeg Goose Management Scheme in terms of the number of scheme fields used by the geese and the proportion of the local goose population supported.</p>	●					6, 12

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring of the effectiveness of Natural Care Schemes in restoring habitats or species to favourable condition</p> <p>Research projects to be let assessing the effectiveness of individual Natural Care schemes, or the Natural Care Programme as a whole, in delivering conservation targets. This will include dissemination of lessons learnt.</p>	●	●	●	●	6, 7
<p>Monitoring the effectiveness of Land Management Contract prescriptions in restoring habitats or species on designated sites to favourable condition</p> <p>Either SNH alone, or in partnership with SEERAD/Forestry Commission Scotland, research projects will be let to assess the effectiveness of LMCs in delivering conservation targets on designated sites.</p>				●	6, 7, 12

Research Priority 11.3 – The NNR Programme – undertaking research, survey and monitoring to ensure all NNRs meet minimum standards and that the 16 spotlight NNRs meet advanced standards by March 2009, including developing best-practice models in the management of protected areas and community and public involvement in natural heritage management

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Vegetation monitoring of Rum Natura habitats</i> It is predicted that the Natura vegetation communities on Rum will change in response to the changes in management practice, principally reduced grazing pressure and tree planting, brought about through the Habitat Restoration Project. The monitoring will repeat baseline surveys which were established prior to the management change, to judge the success of the changes made in improving the condition of the Natura habitats and biodiversity on the island generally.</p>	●					6, 12
<p><i>Manx shearwater breeding success on Rum NNR – detailed monitoring and analysis</i> Rum hosts a large colony of breeding Manx shearwater, at 100,000 pairs it is of international importance, with around 30% of the world population. This project will establish a methodology that will result in a better understanding of the breeding success of the Rum colony and those factors that influence breeding success. This will allow for a quantitative assessment of the overall impact of predation, flooding and food availability on breeding success and thus better inform future management decisions.</p>	●	●				6, 8, 12, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Ecological monitoring on the Keen of Hamar Special Area of Conservation/National Nature Reserve</p> <p>The Keen of Hamar SAC/NNR, Shetland, supports the largest area of serpentine debris habitat in north-west Europe, together with areas of closed serpentine heath growing on drift-derived soils. These debris habitats support a unique flora. This project will repeat a full survey of the site to determine whether changes identified in more limited surveys are mirrored across the rest of the site and whether observed declines are a cause for concern requiring remedial actions.</p>	●					8, 12, 15
<p>Nature Reserves assurance scheme – feasibility Study</p> <p>Several rural management sectors have developed quality assurance or accreditation schemes (eg UK Woodland Assurance Standard) as a mark of ‘best practice’. No universally agreed system for nature reserves exists at present. This project will undertake a feasibility study exploring the potential to develop either a quality assurance or an accreditation scheme for nature reserves.</p>	●					6
<p>National Nature Reserve planning</p> <p>National Nature Reserves are managed according to an agreed management plan. The target in SNH's Corporate Plan is for all NNRs to have a Reserve Plan by the end of 2008/09. This project will support staff in producing key documents, such as Reserve Story and Proposals, and to plan and implement public consultations in advance of finalising the plans.</p>	●					6

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Collation and digitising of habitat, species and earth science records on National Nature Reserves</p> <p>This project will capture a range of information related to NNRs which is held in various media at the present time, and transferred to an electronic format. The records will then be readily available through the National Biodiversity Network and NNR-Scotland internet sites.</p>	●	●			12
<p>Monitoring the effectiveness of management practices on National Nature Reserves in maintaining or enhancing habitats and species populations.</p> <p>This work will audit the current management activity on NNRs to ensure best practice is being implemented. The results of this project will be widely publicised through written publications and advice notes, demonstration days and/or workshops for land managers.</p>	●	●	●	●	1, 6
<p>Exploration of best practice to maximise wildlife experiences for people visiting National Nature Reserves</p> <p>This project will explore interpretation and other techniques to enhance people's wildlife experience from around the world. The results of the work will then be implemented as appropriate at individual Reserves or through other media.</p>	●	●	●	●	1, 2, 9
<p>Evaluation of current practice in encouraging community and volunteer involvement in National Nature Reserve management</p> <p>This work will draw together current practice in engaging local communities and volunteers on NNRs, with a view to determining its effectiveness. Practices of other nature conservation management bodies will also be considered to develop guidance on best practice for reserve staff and a wider audience.</p>	●	●	●	●	1
<p>Appraisal of the contribution which National Nature Reserves make to their local economy</p> <p>This work will investigate the contribution which NNRs currently make to their local economy through visitor spend in shops, accommodation, employment, contract work and other business opportunities. This should provide a framework for individual Reserves to take account of their contribution to the local economy as management practice and infrastructure provision is examined through the Management Plan review process.</p>	●	●	●	●	1

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£1,320k	£1,280k	£1,240k	£1,170k	£1,090k

Research Priority 12.1 – Focusing particular research effort on species which are listed in the Species Action Framework, and for those SBS Implementation Plans, Habitat and Species Action Plans for which SNH is the lead

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Marine turtle research and recording programme The proposed programme of work aims to ensure continued and improved marine turtle recording in UK waters, including recording of accidental bycatch (marine turtles are on Annex IV of the Habitats Directive), and an investigation of potential habitat use by foraging leatherback turtles off NW Scotland during summer.</p>	●	●	●			8, 15
<p>Survey of deep freshwater pearl mussel populations One of the principal reasons for the decline in freshwater pearl mussel has been pressure from (now illegal) pearl fishing. Pearl fishing often took place by pearl fishermen wading in shallow water. Anecdotal accounts indicate that important pearl mussel populations remain in water too deep for safe wading. This project will use video cameras operated from the surface to survey deep water areas of rivers for freshwater pearl mussels. The resulting information will allow better targeting of any future management actions or subsequent SCUBA monitoring effort.</p>	●					7, 15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Scottish wildcat survey Scotland supports the UK population of the Scottish wildcat. It is fully protected under current UK domestic legislation, and is listed on Annex II of the Habitats Directive. However, little is known of the distribution or range of this species since the last survey conducted in 1983–1987. Work is urgently required to review the information available on wildcat, and to provide updated information on its distribution.</p>	●	●				15
<p>Importance of soil fungi for the sustainability of machair grassland (PhD CASE studentship) The roots of virtually all plant species found in machair grassland contain symbiotic mycorrhizal fungi. The diversity of mycorrhizal fungi has been shown to be an important determinant of plant community diversity, biomass and nutrition. Nothing is known about the role of mycorrhizal fungi in the sustainability and dynamics of machair grassland. This project aims to investigate the functional diversity of mycorrhizal fungi in these systems and their response to different land management practices.</p>	●	●	●			8

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Modelling and mapping the extent and bryophyte diversity of Atlantic bryophyte-rich dwarf-shrub heaths in the uplands</p> <p>The work will look at environmental and management factors determining the distribution of Atlantic bryophyte-rich dwarf-shrub heaths and quantify the extent and diversity of the best remaining stands.</p>	●	●			
<p>Distribution of important water vole habitat in West Sutherland and the East Sutherland and Caithness peatlands</p> <p>This work will aim to confirm strong anecdotal evidence identifying certain geographical areas as holding potentially important water vole populations ahead of the American mink invasion front.</p>	●				
<p>Improve the management and conservation of freshwater pearl mussel SACs and SSSIs</p> <p>Surveys will be undertaken on a number of rivers and their tributaries for freshwater pearl mussel and associated salmonid populations. These surveys will underpin continuing efforts at maintaining or restoring this species in Scotland.</p>	●	●	●		7, 11

Research Priority 12.2 – Setting habitats and species in the wider context for assessing whether they are at favourable conservation status

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Surveys of scarce breeding birds (SCARABBS species): 2007-2010 Most of these species are scarce breeders and rely on targeted survey work to estimate population sizes. Surveys are needed to provide the basis on which many sites are selected for designation (especially under Natura legislation), and for understanding both site-based and national population trends.</p>	●	●	●	●		15
<p>Pilot field surveys of short-eared owls The short-eared owl (<i>Asio flammeus</i>) is listed on Annex 1 of the EC Wild Birds Directive as a species considered vulnerable in Europe and for which suitable areas should be identified for classification as Special Protection Areas (SPAs). This project aims to develop survey techniques for short-eared owls to allow accurate estimates of populations on designated sites. In due course this will enable a national survey to provide a context for these sites.</p>	●					
<p>Monitoring of breeding hen harriers on Glen App and Galloway Moors SPA SNH is responsible for the regular monitoring of sites, to ensure that the features for which the sites have been selected are not deteriorating or suffering significant disturbance. This project aims to monitor the status of hen harriers on SPAs where available evidence suggests they are declining, and to monitor breeding populations of harriers on areas of existing Moorland Natural Care Schemes.</p>	●	●	●			11

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Review of the current status of powan (<i>Coregonus lavaretus L.</i>) in Scotland</p> <p>The powan, a fish of the coregonid family, closely related to the salmonids, is commonly described as a 'glacial relict' species. Powan are under pressure from the combined effects of eutrophication, new species introductions and climate change. This project will clarify the current status of powan and assist in developing conservation management strategies.</p>	●					7
<p>Status of the adder (<i>Vipera berus</i>) in Scotland</p> <p>The adder is the only native snake in Scotland and recent evidence suggests that the population is in decline. A survey conducted by SNH in 1992 indicated evidence of a decline in adder abundance over the previous 10 years and established a network of 16 sites for future monitoring. This project will repeat the 1992 survey and provide urgent information to detect any change in adder status over time.</p>	●					
<p>Butterfly Monitoring Scheme</p> <p>For almost 30 years, the Butterfly Monitoring Scheme (BMS) has contributed to an understanding of habitat and climate issues. The existing scheme is based on designated sites yet the wider countryside is increasingly important. This project will develop and test a methodology that is scientifically robust but can be carried out by volunteers for the extension of the scheme to the countryside in general. It will also develop a database of butterfly abundance data to detect trends in species and groups of species by habitat and land-use type.</p>	●	●	●	●	●	15

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Primula scotica</i> survey in Caithness and Sutherland</p> <p>The aim of this survey is to obtain up to date information on the population of the Scottish primrose (<i>Primula scotica</i>) in Caithness and Sutherland. The survey will record <i>P. scotica</i> colony location, population size and flowering rate at all 24 sites in Caithness and 31 sites in Sutherland at which <i>P. scotica</i> has been recorded previously.</p>	●	●			

Research Priority 12.3 – Supporting programmes of species recovery for rare or threatened species

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>RSPB Scotland/Scottish Natural Heritage red kite reintroduction programme</p> <p>In 2006 there were 86 breeding pairs of red kites in Scotland, comprising 41 pairs in northern Scotland, 28 in central Scotland, and 17 in Dumfries and Galloway. All three Scottish red kite release areas are now considered to have self-sustaining red kite populations. This project aims to maintain the monitoring programme that is under way and to enhance further the implementation of the red kite conservation work programme.</p>	●	●	●			

Research Priority 12.4 – Investigating ways of controlling or eradicating invasive alien species, managing species conflicts and studying species for sustainable use (especially those which are candidates for the Species Action Framework)

Projects continuing from previous years and new projects commencing in 2007/08

Work planned from 2008 onwards

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Assessment of mountain hare distribution and level of harvest</i> This project will provide up to date information on the distribution of mountain hares in Scotland, together with an estimate of the level of harvest of mountain hares and with supporting information on the reasons for control.</p>	●	●	●			10
<p><i>Evaluating current best practice in controlling or eradicating invasive alien species in aquatic habitats</i> There is growing evidence world-wide that alien species constitute a major threat to native biota and habitats in aquatic ecosystems. The impacts of alien species on native biodiversity include displacement of indigenous species through competition or predation, structural damage to aquatic habitats, and loss of genetic integrity. The aim of this project is to review the characteristics of alien species considered to pose the greatest threat to aquatic ecosystems, and to collate current best practice in the UK and elsewhere for their control or eradication.</p>	●					4, 7, 8, 11
<p><i>Mink eradication in the Western Isles</i> This is the second phase of the Hebridean Mink Project. The objectives are to eradicate American mink from Lewis and Harris, monitor the Uists to ensure that American mink have been eradicated, assess the effects of mink removal on the status of protected bird species and fish species, and promote greater awareness of the importance of Natura 2000 and the threat posed by invasive non-native species.</p>	●	●	●			11

Other areas of work planned from 2008 onwards

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Effect of Gyrodactylus salaris control measures on species of conservation importance</p> <p>The development of new control measures for <i>Gyrodactylus salaris</i> through chemical treatments has identified a number of areas where further information is required if treatment measures are to avoid damage to non-target species.</p>			●			7
<p>Control of the alien species Epilobium brunnescens (New Zealand willowherb)</p> <p>This work will investigate whether practical control measures for New Zealand willowherb are compatible with wider conservation aims.</p>			●			
<p>Assessment of the distribution and status of Habitats Directive Annex V mustelids</p> <p>This project will assess the range of the pine marten and will also provide a review of all confirmed polecat records in Scotland since 1990.</p>		●				
<p>Assessing the potential impact of introduced signal crayfish on Annex II species in Scottish rivers</p> <p>The risk of signal crayfish entering rivers which contain freshwater pearl mussel is high. This work will assess the impact of crayfish on Annex II species such as freshwater pearl mussel or lamprey.</p>		●	●			7, 11
<p>Assessing the impact of honeybees on native bees (Colletes spp. and Bombus spp.)</p> <p>There is evidence that honeybees have a negative impact on native insects, but this possibility has not been investigated in Scotland.</p>		●	●	●		

Research Priority 12.5 – Developing an understanding of the overall extent of Scotland's biodiversity and of any specialised management needs

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Survey of EBLV in bats The project aims to determine the extent of EBLV2 antibody prevalence in bats in Scotland (primarily Daubenton's) and to determine the extent of EBLV2 infection.</p>	●	●				
<p>BARS Project Officer The Biodiversity Action Reporting System (BARS) is an online information system that supports the planning, monitoring and reporting requirements of national and local Biodiversity Action Plans (BAPs). This project will provide support for the roll-out and completion of the development of the BARS information system.</p>	●					
<p>Biodiversity and habitat audit Ayrshire By providing spatial baseline data on the extent and distribution of biodiversity priority habitats in Ayrshire, this project will contribute to the Scottish Biodiversity Strategy objective of halting the loss of biodiversity. It will provide a dataset to support decision making processes of public bodies operating in Ayrshire, enabling them to fulfil their biodiversity duty and to maintain and improve biodiversity at a local and regional level.</p>	●					15

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Developing management guidelines for chough on Islay</p> <p>This project will apply the results of population ecology studies to produce management strategies for a protected species of conservation concern, the red-billed chough <i>Pyrrhocorax pyrrhocorax</i> in Scotland. The outputs will help effective management of a flagship population, advance general understanding of population processes, and demonstrate how these goals can be successfully integrated.</p>	●					11

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Develop long-term deadwood management plans for saproxylic (insects, lower plants, fungi.)</p> <p>There are many endangered species in Scotland which depend on dead wood. This will be a consultation exercise with voluntary and academic sectors in partnership with FCS, RSPB and private estates to develop best-practice guidance for long-term deadwood management.</p>	●	●	●		

Research Priority 12.6 – Contributing to work on ecological functioning in marine and freshwater ecosystems, and the effectiveness of habitat networks

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Survey of prey availability to otters (<i>Lutra lutra</i>) and relationship to otter populations in Yell Sound Coast SAC</p> <p>Yell Sound coast has been identified for its populations of otters and common seals. Recent observations have led to concerns about a possible decline in otter populations. Noting a high incidence of crab in otter spraints across this geographic area. A survey will be undertaken to record fish species from targeted sites combined with observational data on otters.</p>	●					11
<p>Conservation of Atlantic salmon in Scotland – EU LIFE project</p> <p>This project has been funded by the European Commission LIFE Scheme. The work aims to safeguard and maintain the abundance and diversity of wild populations of Atlantic salmon (<i>Salmo salar</i>) in Scotland through the significant improvement of freshwater habitats, the development of management guidelines, and the promotion and demonstration of best practice in removal of key threats through joint working and partnership.</p>	●	●	●			7, 11
<p>Monitoring ecosystem health and environmental change using seabird guano chemistry</p> <p>This studentship builds on existing pilot research to develop fully the utility of seabird guano chemistry as an environmental monitoring tool will focus on changes in diet and trophic relationships of selected seabird species; anthropogenic pollutant levels, particularly 'diffuse' pollutants; and develop records of historical variations in these using new environmental archives.</p>	●	●				4

Research Priority 12.7 – Developing an understanding of the conservation and management needs of the natural heritage at the habitat, species, and genetic levels

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring of genetic trends in restored small cow-wheat populations The populations of small cow-wheat are small and isolated and the species is an annual. This combination of circumstances leads to rapid genetic drift and populations with low variation. Measures have been put in place to reverse this trend and this project will assess the success of these. The study will establish the fate of donor genotypes in modified populations of small cow-wheat and measure the effect of change on seed production and recruitment.</p>	●	●	●			
<p>Investigation into causes of breeding failure in black-throated divers in Loch Maree SPA Loch Maree has been classified as an SPA for its breeding black-throated divers since 1994. It is the single most important site in the UK for this rare species, supporting 10 territories and regularly having between seven and nine breeding pairs (6% of the UK population). This project aims to identify and quantify the cause(s) of breeding failure at the egg and very early chick stage amongst the Loch Maree SPA black-throated diver population and to develop management prescriptions to address these causes.</p>	●	●	●			11

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Whooper swan distribution and habitat use of Black Cart floodplain</p> <p>The whooper swan population of the Black Cart floodplain, centred on the Black Cart SPA, is under continuing pressure from encroaching development and has also been the subject of recent debate regarding the potential collision risk with aircraft from nearby Glasgow Airport. This project will determine the numbers of whooper swans over-wintering in the Black Cart floodplain, investigate the use of habitat within the floodplain for feeding and roosting; and investigate the movement of swans within the floodplain.</p>	●	●				11
<p>An assessment of key factors influencing raptors in Scotland</p> <p>Recent research on the golden eagle has shown the potential of using national data sets which describe the breeding distribution of a raptor species, in combination with habitat and land use data, to identify key constraints on the population. This project will identify environmental correlates of changes in abundance and distribution and constraints on populations, appraise current monitoring and make recommendations for future requirements of hen harrier, peregrine, merlin and buzzard.</p>	●					

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring and diagnosis of the Arctic skua population decline on the Northern Isles</p> <p>Arctic skuas are a rare and declining breeding species in the UK and a feature of many designated sites in the Northern Isles, where 86% of the UK population breed. The rate of annual decline is such that Arctic skua qualified for red listing in 2002. This project will monitor the Arctic skua population and diagnose the causes of change. It will test the hypothesis that neither sandeel abundance nor proximity and density of great skuas will have any significant effects on Arctic skua demography or population trends.</p>	●					15
<p>Studies of breeding common gulls at Tips of Corsemaul and Tom Mor SPA and SSSI. Studies of nesting patterns and breeding success at Edinglassie</p> <p>The Tips of Corsemaul and Tom Mor was notified as an SSSI and classified as an SPA in 2000 for its nationally and internationally important common gull colony. Counts carried out in 2003 recorded a significant decline in the colony. Studies of nesting patterns and breeding success were carried out in one part of the site (Invermarkie) in 2004-5. Further studies of productivity are required to determine how hatching and fledging rates on Edinglassie compare with those on Invermarkie.</p>	●	●				11

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessment of the translocation of great crested newts at Gartcosh, North Lanarkshire</p> <p>This project will determine the success of the translocation of great crested newt as part of the Gartcosh Investment Park development. New habitats have been created and translocation of a large population of newts is under way at the site. This is the largest project of this type that has been carried out in Scotland. The project will study the ecological processes involved and help to develop best-practice guidelines.</p>	●	●				7

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Developing a biodiversity toolkit for planners</p> <p>This work will create an on-line 'tool box' and a variety of tools to assist development control planners and forward planning to the benefit of biodiversity, over a range of situations within the planning process.</p>	●				

Research Priority 12.8 – Evaluating options for species recovery including the development and testing of suitable methodologies

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Scottish Red Squirrel conservation strategy Scotland is the stronghold for the red squirrel in the UK. However, the identification of squirrel poxvirus in the Scottish Borders has raised, the risk to red squirrels from the spread of grey squirrels and their associated pressures and disease. This project will investigate the mode of disease transmission and the potential for vaccination of red squirrels. It will also investigate the use of currently available fertility controls (GnRH) for reducing grey squirrel populations and minimising the competition pressure on red squirrel priority areas.</p>	●	●				
<p>Implementation of the Scottish Squirrel Action Plan: squirrelpox virus research The Scottish Squirrel Action Plan identified disease as one of the major threats to red squirrel conservation. Grey squirrels are known to carry the squirrelpox virus which is invariably fatal to red squirrels. At present, little is known of the epidemiology or transmission of the virus and, consequently, there are no preventative measures available. This research aims to provide information for red squirrel conservation, specifically the mode of transmission and the potential for vaccine development.</p>	●	●	●			
<p>Developing species recovery techniques for terrestrial invertebrates Research, survey and monitoring to underpin the achievement of management targets for insect species included in the SNH Species Framework and for the relevant BAP species</p>	●	●	●	●	●	

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Monitoring the success of reintroducing freshwater pearl mussel in the Cairngorms National Park</p> <p>In 2005-06, The Cairngorms National Park Authority (CNPA) commissioned a pearl mussel reintroduction project in the catchments of the rivers Dee and Spey. The work involved the translocation of adult mussels from sites elsewhere in the catchments of two streams, and was designed to investigate whether or not this restoration technique might be used more widely in other suitable rivers. This project will monitor the condition and reproductive success of transferred mussels at both sites, and develop a long-term monitoring strategy.</p>	●					7
<p>Monitoring the white-tailed eagle population in Scotland</p> <p>Following two reintroduction projects, there were 32 territorial pairs of white-tailed eagles in 2004. There are encouraging signs that the population is beginning to expand at an increasing rate. This project will monitor the location and breeding success of existing pairs, and search areas of suitable but unoccupied habitat for new pairs. Dispersal, range expansion and population demography will be monitored to help assess the status and prospects for the still-vulnerable Scottish population.</p>	●					

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£80k	£80k	£80k	£80k	£80k

Research Priority 13.1 – To improve knowledge and evaluation of geodiversity in designated areas and the wider countryside to aid planning for sustainable management, use and enjoyment

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Lochaber geodiversity audit and action plan Geoparks offer a significant opportunity to promote geoconservation and regional sustainable development. This research will contribute to a partnership study to produce a geodiversity audit and action plan for Lochaber Geopark. It will include an investigation of the links between geology, landforms, soils, biodiversity and landscape.</p>	●	●				1, 9, 10, 14

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Strategic assessment of the value and state of Scotland's geodiversity and development of a national policy framework This project will undertake a strategic assessment of the value and state of Scotland's geodiversity. It will establish a basis and justification for a national policy framework for geodiversity. Outputs will include guidance to assist local authorities and other decision-makers integrate geodiversity with key national policy and planning guidance.</p>	●	●			10, 14, 15
<p>Earth science site documentation The Earth Science Site Documentation Report series provides key information to assist SNH staff undertake site casework and management. Site reports for all non-notified GCR sites will be completed. There will also be a rolling programme to update existing site information on geological SSSIs, and to include soil information where this is relevant to site management.</p>		●	●	●	

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>The Scottish Soil Strategy, the Scottish soil monitoring system and the European Soil Framework Directive</p> <p>There is growing and significant co-ordination of soil protection in Scotland through the development of European and national soil policies. This research will focus on key natural heritage requirements and critical knowledge gaps to help develop a better understanding of the role of soil and soil biodiversity.</p>		●	●	●	
<p>Development of soil guidance to support planning and other casework activities</p> <p>This research will develop advice and guidance for the sustainable management of soil resources. It will, where appropriate, update and revise existing SNH guidance, or adapt guidance and best practice from other sources (e.g NE/CCW and the results of UK and EU soil research programmes).</p>		●	●		
<p>Development of geology guidance to support planning and other casework activities</p> <p>This research will develop advice and guidance for the sustainable management of Scottish geodiversity resources. It will, where appropriate, update and revise SNH guidance, or adapt guidance from other sources (e.g NE/CCW).</p>		●	●		
<p>Local geodiversity audits and geodiversity action plans</p> <p>This research will contribute to partnership work on local geodiversity audits and action plans, particularly for Scotland's Geoparks and National Parks. It will include investigations of the links between geology, landforms, soils, biodiversity and landscape.</p>		●	●	●	1, 9, 10
<p>Research to support geotourism in Scotland</p> <p>Geotourism is an effective means of raising awareness of geoconservation issues. This research will explore ways of supporting the educational element of geotourism.</p>		●	●	●	1, 2, 9

Research Priority 13.2 – To undertake evaluation which will enhance the effectiveness of the Scottish Fossil Code

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Evaluating the effectiveness of the Scottish Fossil Code</i> The Scottish Fossil Code will be published in 2008. This research will evaluate its effectiveness.</p>		●	●	●	1

Research Priority 13.3 – To assess the nature conservation value of soils to achieve a greater understanding of the functional links between soils and biodiversity

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Evaluation and identification of unique microflora from rare soils: CASE PhD studentship This studentship will investigate the character and distinctiveness of rare soils and their microflora. It will identify, using metagenomics, if there are keystone functions associated with microbial species in rare soils.</p>	●	●	●			12
<p>Resilience of acid organic soils to anthropogenic nitrogen deposition: SNH PhD studentship This studentship is investigating N deposition impacts on the functioning of <i>Sphagnum</i> and thus the accumulation and integrity of peat, especially under different climatic constraints.</p>	●	●				4, 6

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Functional indicators of soil conservation value SNH has developed and tested a methodology to evaluate, from existing soil maps, the conservation value of soils. With additional information expected from the SEERAD Soil Research Programme, this methodology and its derived functional indicators of soil conservation value will be transposed into practical tools for SNH staff. This will contribute to a better assessment of the occurrence of soils of high conservation value in SSSIs, and will help to inform the delivery of favourable conservation status (FCS) and the role of soils in habitat restoration and management.</p>		●	●	●	6, 12
<p>Understanding the consequences of threats to the natural heritage interests of soils This research will develop a range of advice and guidance for mitigation of impacts of climate change on soil and soil biodiversity conservation interests. It will also identify best practice and the means to promote best practice for sustainable soil management for targeted habitats and the wider countryside.</p>			●	●	4, 6

Research Priority 13.4 – To develop an understanding of the sensitivity and responses of dynamic environments and soils to changes in climate, sea-level and land-use

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Effects of grazing pressure on erosion and vegetation condition, Trotternish Ridge cSAC, Skye</p> <p>This ongoing study is using an established series of permanent grazing exclosures. It aims to assess the longer term (>10yr) effects of excluding wild and domestic herbivores, to provide practical guidance on vegetation management and erosion control in the context of the EC Habitats Directive requirement to maintain 'favourable condition', and to add to our understanding of the links between vegetation dynamics, slope processes and erosion of mineral soils in the uplands.</p>	●	●	●	●		6
<p>Climate change, land management and erosion of organic soils</p> <p>This partnership study will provide evidence-based information on the extent of organic soil degradation in Scotland and Northern Ireland and the processes involved. It will quantify relationships between biotic and abiotic factors that control degradation of organic soil resources, and will provide guidelines for sustainable management and restoration of soil under pressures arising from climate change.</p>	●	●				4, 6
<p>Peat erosion and the management of peatland habitats</p> <p>Scotland's peatlands are an internationally important habitat and an important carbon store. This project will analyse historical and current patterns of peat erosion at a range of individual sites, and cross-analyse and test the sensitivity of attributes known to influence erosion. The results will be used to evaluate proposed site condition assessment and management options.</p>	●	●				4, 6

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Assessment of the rates and causes of change in Scotland's beaches and dunes: Phase 2</p> <p>This study involves photogrammetric and field surveys of key designated beach and dune systems to determine their geomorphological evolution in recent decades, and the factors responsible for observed changes. The results will help to inform the management of protected geomorphological features and their associated habitats.</p>	●					4, 8
<p>Dornoch Firth geomorphology</p> <p>This study involves photogrammetric and field surveys of the Dornoch Firth sand dune systems to determine their geomorphological evolution in recent decades and the factors responsible for observed changes. The results will help to inform the management of these features and their associated habitats.</p>	●					4, 8
<p>Coastal flooding in Scotland: a scoping study</p> <p>This partnership study will scope out the issues relating to coastal flood risk in Scotland and make initial recommendations as to how these risks can be managed in the future.</p>	●					4, 8

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Understanding the geomorphological responses of coastal landforms and process systems in a changing environment</p> <p>This research will investigate the likely geomorphological responses of coastal landform and process systems to the changing energy and sediment movement patterns that may follow from sea-level rise and climate change. It will help to inform the adaptive management of protected geomorphological features and habitats.</p>		●	●	●	4, 8
<p>Assessment of terrain sensitivity in the uplands</p> <p>Recently completed research has developed a model of terrain sensitivity based on robust techniques for measuring applied physical stress on the vegetation and regolith. This new study will provide a wider validation of the model and its implications for erosion risk assessment. It will help to identify fragile upland habitats and inform the management of sites of high conservation value.</p>		●	●		4, 6
<p>Geomorphological sensitivity assessment of river systems</p> <p>This research will support the development of sustainable flood management based on understanding river geomorphology processes and sedimentary records of floodplain histories.</p>			●	●	4, 7

Indicative allocation	2007/08 £160k	2008/09 £160k	2009/10 £160k	2010/11 £160k	2011/12 £160k
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Research Priority 14.1 – Research to underpin the management and possible review of landscape designations

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	Links to other programmes
<p>Special qualities of National Scenic Areas. This work will identify and analyse the particular and special qualities of the landscapes that occur in National Scenic Areas.</p>	●				11

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>National Scenic Area management plans It is currently recommended that local authorities should undertake management plans for National Scenic Areas in their jurisdiction. Research is needed into how best to achieve this, with the result of producing good-practice guidance.</p>		●			11

Research Priority 14.2 – Assessing the values attributed to, and associated with, Scotland's landscapes

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>National overview of Scotland's landscapes This will be a straightforward classification and description of Scotland's landscapes, complementing the more detailed national programme of landscape character assessments. It will be used to raise awareness of landscape and facilitate public involvement in landscape matters.</p>	●					1

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>People's attitudes and perceptions of landscape This is an ongoing area of work. SNH can contribute by focusing on the practical and policy aspects of the public's perceptions of landscape and changes to the landscape, and by exploring possible links with related studies.</p>		●			1, 2, 9, 10
<p>Natural and cultural landscapes: exploring diversity The links between the various aspects of landscape are complex. The European Landscape Convention signals a need to explore these in new ways; for example, looking at the cultural and geodiversity areas in greater detail.</p>				●	1, 13
<p>Increasing understanding of, and commitment to, Scotland's landscapes Following the national overview of Scotland's landscapes, further work to increase wider appreciation of, and commitment to, all landscapes, (not just designated areas) may be required. Considerations of social and economic values and worth should be investigated.</p>			●		1, 2, 3, 9, 10

Research Priority 14.3 – Developing the landscape character approach and other strategic planning techniques for landscape. This will help compliance with the European Landscape Convention and its requirement to establish landscape quality objectives

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Support for the Scottish Landscape Forum The provision of secretariat and other forms of support for the Scottish Landscape Forum is an important area of work for SNH in fulfilling its landscape advisory role in Scotland.</p>	●				
<p>Guidance on local and regional capacity studies for wind energy. The increasing number of wind farms, built and proposed, has raised the issue of cumulative impacts. Several local authorities have used capacity studies to devise relevant strategies and policy; these require analysis to help develop best-practice guidance.</p>		●			5
<p>Reviews of approaches and methods in strategic planning for landscape There are several potential projects under this broad heading, including work on achieving benefit from agri-environment schemes, and the benefits of urban green infrastructure. This work will focus on how to identify the limits of acceptable change.</p>			●		5, 10

Research Priority 14.4 – Developing landscape monitoring techniques

Projects continuing from previous years and new projects commencing in 2007/08

No projects in this category

Work planned from 2008 onwards

Work area	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p><i>Literature review of landscape monitoring methods</i> There has been little direct monitoring in Scotland of the success of landscape policies and advice. As a first stage in moving towards any future monitoring programme, a review of current methods is required.</p>		●			15

Indicative allocation	2007/08	2008/09	2009/10	2010/11	2011/12
	£80k	£125k	£160k	£200k	£200k

Research Priority 15.1 – Develop a suite of natural heritage indicators

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Indicators Indicators provide a succinct overview of the changing state of the natural heritage and are used to track the degree to which policy objectives are being met. An initial indicator development phase will be largely complete in 2007/08. Continuation of this work, by SNH and with partners, will address the need to: a) improve the definition and resolution of some indicators; b) update the indicator time series; and c) address new policy needs.</p>	●	●	●	●	●	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Research Priority 15.2 – Audit of natural heritage change

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Countryside Survey The multi-partner Countryside Survey (which started in 1978) provides a factual account of the changing state of the countryside for Scotland and throughout the UK. The trend series at national, country and regional scales includes habitat extent and condition, soil properties and freshwater status. Scottish and UK indicators of habitat condition rely upon the Countryside Survey, as does land cover analysis at UK and European scales. The next survey round will take place mainly in 2007, with completion in 2010/11.</p>	●	●	●	●	●	6, 7, 12, 14

Research Priority 15.3 – Trends in the natural heritage

Projects continuing from previous years and new projects commencing in 2007/08

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Trends</p> <p>The natural heritage trends project aims to quantify the changing state of the natural heritage according to biological, earth and landscape components. It covers all of Scotland, from within settlements to the remotest places, from mountain to coast, in fresh waters and the surrounding seas. The requirement is to expand natural heritage trends reporting through thematic accounts towards reporting on the state of the natural heritage by 2010. It is hoped to initiate a Loch Lomond and Trossachs natural heritage audit in 2007 and consider requirements for other park areas, notably marine, as they develop.</p>	●	●	●	●	●	3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14

Research Priority 15.4 – Reviewing societal trends

Project title and short description	2007/08	2008/09	2009/10	2010/11	2011/12	Links to other programmes
<p>Society Health, enjoyment and quality of life are intimately bound up with physical, social and economic circumstances. The natural environment, where people live daily or visit for relaxation and recreation, can contribute greatly to overall well-being. Social trends examine the interaction between people and the natural heritage, and the degree to which it provides a safe, accessible and pleasant setting for a good quality of life in Scotland. Societal trends seek to quantify, for example, patterns of recreation, people's views and attitudes, and how the natural heritage relates to environmental justice and health.</p>	●	●	●	●	●	1, 2, 3, 9

