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Sectoral and Cross-Sectoral Integration of Biodiversity in United Kingdom

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1. Introduction

United Kingdom reported[1] that implementing the country biodiversity strategies is a cross-government responsibility, with leadership from all departments to their stakeholders. To halt biodiversity loss, the strategies seek to make biodiversity part of the mainstream of policies and incorporate the relevant UK BAP targets at the country level. Many actions are being taken at a variety of levels, and often in a cross-cutting manner. The basis for much of this is a statutory requirement on public bodies to take account of biodiversity conservation when undertaking their functions. This chapter also provides information on how the UK is bringing biodiversity considerations into decision making, by all sectors, thereby making mainstreaming a reality. The report does not try to be comprehensive, rather the text should be regarded as illustrative of the sorts of approach that are being taken across the UK; local solutions are being found to local problems within the context of broader policies being used as necessary. In some cases a sectoral approach is being used, in others a cross-cutting approach.

The UK government and the devolved administrations have adopted a shared vision for biodiversity conservation, as stated in 'Conserving Biodiversity – the UK Approach', Defra, 2007 (http://www.defra.gov.uk/wildlife-countryside/pdfs/biodiversity/ConBioUK-Oct2007.pdf):

"Our vision is that in our countryside, towns and seas, living things and their habitats are part of healthy, functioning ecosystems; we value our natural environment, a concern for biodiversity is embedded in policies and decisions, and more people enjoy, understand and act to improve the natural world around them."

Achievement of this vision requires a holistic approach to conservation which recognises interdependencies and uses a variety of current and emerging schemes and policy instruments. Work to embed consideration of biodiversity and ecosystem services is being taken forward through the biodiversity and environment strategies of each of the four countries of the UK and through the statutory conservation bodies as the main delivery agents.

2. UK Country Integration Strategies

Implementing the strategies is a cross-government responsibility, with leadership from all departments to their stakeholders. To halt biodiversity loss, the strategies seek to make biodiversity part of the mainstream of policies and incorporate the relevant UK BAP targets at the country level. Many actions are being taken at a variety of levels, and often in a cross-cutting manner. The basis for much of this is a statutory requirement on public bodies to take account of biodiversity conservation when undertaking their functions. The strategies emphasise that healthy, thriving and diverse ecosystems are essential to everybody's quality of life and well-being. The information below is a summary of the current situation in each country – much more is being done than there is space available to report.

[1] United Kingdom (2009). Fourth National Report to the United Nations Convention on Biological Diversity, 18 May 2009, 136 pp.

England

The biodiversity strategy for England is divided into a number of workstreams to address sectoral and cross-sectoral issues: agriculture; woodlands and forestry; water and wetlands; towns, cities and development; coasts; marine; climate change adaptation; local and regional; economics and funding; business and biodiversity; education and public understanding (http://www.defra.gov.uk/wildlife-countryside/pdf/biodiversity/biostrategy.pdf).

In addition, guidance has been issued to local authorities and other public bodies on how to implement the statutory duty to take account of biodiversity when undertaking their functions. It is available from http://www.defra.gov.uk/wildlife-countryside/biodiversity/key-docs.htm#la.

At the local government level, a new biodiversity indicator was adopted in 2008 as part of a new streamlined performance framework for local authorities in England. The backbone of the new framework is a set of 198 national indicators. The national indicator set reflects the key priorities agreed between central and local government on which improved outcomes are expected to be delivered.

To reflect the importance which is attached to conservation of biodiversity, a biodiversity indicator ("NI 197") has been included in this tightly focused national indicator set. This will measure the proportion of Local Sites in positive management in each local authority area. Local Sites are sites of substantive nature conservation value. There are over 37,000 such sites in England and they play an important role in conservation outside statutorily protected sites. In measuring the proportion of Local Sites which are in positive management, the indicator relates to the influence that local authorities have on Local Sites management systems, including through working effectively in partnership. This was chosen as the best proxy for overall local authority performance on biodiversity conservation. More information can be found at: http://www.defra.gov.uk/environment/localgovindicators/ni197.htm.

Local authorities in England will begin to report their performance against this set of indicators from April 2009 and outcomes will be published annually through the new system of Comprehensive Area Assessment.

Scotland

Scotland's Biodiversity Strategy was published in 2004 www.scotland.gov.uk/Resource/Doc/25954/0014583.pdf. Scotland is committed to an ecosystem based approach to delivering and mainstreaming biodiversity conservation and has recently restructured the delivery mechanisms to achieve this. Five ecosystem groups covering upland; woodland; marine and coastal; freshwater and wetland; and lowland and farming have been established. These groups include experts from government bodies as well as NGOs.

The Nature Conservation (Scotland) Act 2004 revised nature conservation legislation in Scotland with the overall aim of protecting wildlife. For the first time in Scotland, the Act placed on public bodies a duty to further the conservation of biodiversity, as well as modernising the system for protecting Scotland's most precious areas for biodiversity (Sites of Special Scientific Interest) and strengthening the

laws against wildlife crime. Guidance on the implementation of the duty is available at www.biodiversityscotland.gov.uk/pageType2.php?id=19&type=2&navID=59.

The Scottish Government and the Convention of Scottish Local Authorities have agreed on a package of measures to deliver for the people of Scotland, including the development of 15 National Outcomes. One of these outcomes is that "*we value and enjoy our built and natural environment and protect it and enhance it for future generations.*" This must be addressed in each local authority's Single Outcome Agreement which sets out how they plan to meet the full range of outcomes.

The Scotland Rural Development Programme is a £1.6 billion programme (over 2007-2013) of economic, environmental and social measures designed to develop rural Scotland over the next six years. Individuals and groups may seek support to help deliver the Government's strategic objectives in rural Scotland. Packages within the programme include measures to further the protection and enhancement of biodiversity and landscapes. Some of these measures can be over a wide scale.

Planning for biodiversity delivery in Scotland is now being conducted within the framework of an ecosystem approach. Five Ecosystem Groups, reflecting the principal broad ecosystems found in Scotland, are preparing delivery plans that aim to reduce the pressures on ecosystem functions and processes, as well as habitats and species. These plans will take account of the services these ecosystems provide to people as well as how the ecosystems work. Two further groups provide advice and direction on science and people and communications issues, and the LBAP network is represented on all the groups. The Action Coordination Group oversees delivery across the structure and reports to the strategic Scottish Biodiversity Committee chaired by the Scottish Environment Minister.

The Species Action Framework sets out a strategic approach to species management in Scotland. The Framework identifies 32 species as a high priority for funding over a five year period, focusing on those where we expect significant gains to overall biodiversity. As well as species requiring conservation action, the list includes non-native species which are having a negative impact on biodiversity, and the reintroduction of European beaver (*Castor fiber*); a species which has been extinct in Scotland for about 400 years. A Habitat Action Framework is being developed.

Wales

The Wales Environment Strategy is supported by an Action Plan, linked to the Wales Biodiversity Framework http://www.biodiversitywales.org.uk/about_the_wbp-17.aspx

The second Wales Environment Strategy Action Plan 2008-11 sets out 41 actions in 10 categories – including biodiversity – which recognize the long term nature of environmental action and change. The Plan is supported by indicators and progress reports, against outcomes.

http://wales.gov.uk/topics/environmentcountryside/epq/envstratforwales/?lang=en

The Wales Biodiversity Partnership (WBP) steers and co-ordinates the implementation of the UK BAP in Wales. They provide guidance and support the 24 Local Biodiversity Action Plan Partnerships as well as monitoring and reporting on progress, using the Biodiversity Action Reporting System. The Partnership

has initiated a number of measures aimed at encouraging and enabling public sector bodies to take action to improve biodiversity and helps access funding.

To fully implement the Natural Environment and Rural Communities Act (2006) Biodiversity Duty, Habitats Regulations and other biodiversity related legislation, WBP have produced biodiversity checklists for local and public authority staff on how to take account of biodiversity in their operational activities. A series of high-profile workshops were hosted by the Welsh Assembly Government Minister for the Environment, Sustainability & Housing at Local Records Centres in 2008. The aim was to increase integration of biodiversity into policy and decision making. The workshops were followed by a WBP visit to 'biodiversity champions' in each local authority and National Park to conduct a baseline assessment and agree a series of actions designed to ensure compliance and raise the profile of biodiversity.

Northern Ireland

The Northern Ireland biodiversity strategy http://www.ehsni.gov.uk/nibs2002.pdf is based on the publication "Recommendations to Government for a Biodiversity Strategy", which includes 76 recommendations divided into groupings: implementation / delivery groups on peatlands; uplands; agricultural systems/farmland birds; freshwater and wetlands; coasts and marine.

Progress on the NI strategy is monitored by the NI Biodiversity Group which has recommended that Biodiversity Implementation Plans (BIPs) be developed by each Government Department. These BIPs record practical policy and operational actions which encourage biodiversity.

The Department of the Environment (DOE) is also introducing legislation to review the Wildlife Order (NI) 1985 including introducing a statutory biodiversity duty for all public bodies. It is hoped to have this legislation in place by the summer of 2010 together with related guidance material.

Addressing threats to biodiversity

The following text provides some examples of how the UK is bringing biodiversity considerations into decision making, by all sectors, thereby making mainstreaming a reality. It does not try to be comprehensive, rather the text below should be regarded as illustrative of the sorts of approach that are being taken across the UK; local solutions are being found to local problems within the context of broader policies being used as necessary. In some cases a sectoral approach is being used, in others a cross-cutting approach.

3. Agriculture

The reform of the Common Agricultural Policy (CAP), agreed in June 2003, was a major breakthrough as it reduced the environmental impact of agriculture by removing an incentive to intensify production. The new CAP also required farmers to comply with the environmental standards under the cross compliance regulations in order to receive the subsidy payment (the Single Farm Payment).

There are three aspects to cross compliance:

- Specific European legal requirements, known as Statutory Management Requirements (SMRs);

- Domestic legal requirements requiring the land to be kept in Good Agricultural and Environmental Condition (GAEC) which must be set out according to the framework drawn up by the Commission;

- Requirements to maintain a level of permanent pasture not included in the crop rotation for 5 years or more.

The UK has fully implemented cross-compliance and made effective use of the Commission's framework for Good Agricultural and Environmental Condition. This includes standards to prevent overgrazing and damaging supplementary feeding practices on semi-natural areas, control of injurious and invasive weeds, protection of hedgerows and watercourses including through protection zones (buffer strips), standards to improve the management of soils and reduce the risk of loss of sediment and pollutants to watercourses, and support for a breadth of existing environmental legislation such as the Environmental Impact Assessment Regulations. Equally important has been supporting farmers to change their farming methods to conserve biodiversity through agri-environment schemes.

The revision of the Rural Development Plan has led to greater targeting of Welsh Agri-environment and land management schemes to deliver environmental priorities, in particular, climate change and enhancing biodiversity. The new agri-environment scheme is presently out at consultation with a view to implementing the new schemes by 2012. In the meantime, interim improvements have been put in place within existing schemes such as Special Sites targeting and Species Packages.

In England, where 70% of the land area is farmed, the Environmental Stewardship Scheme is a key lever to help embed biodiversity considerations. It was launched in 2005 and provides funding and advice to farmers and other land managers in England to deliver effective environmental management of their land, including a reverse of losses in farmland features of value to wildlife. By the end of 2008, over five million hectares of farmland were in the scheme, with just under one million hectares still in the closed schemes (Countryside Stewardship and Environmentally Sensitive Areas). Information about the scheme and associated guidance can be found at http://www.naturalengland.org.uk/ourwork/farming/funding/es/default.aspx.

In October 2007, following a review, Defra introduced revised heather and grass burning regulations together with a revised voluntary Code aimed at maximising the benefits of responsible burning and reducing risks. Moorland owners and gamekeepers have strongly supported the new Code. Consequently, the area of moorland in England affected by inappropriate burning has dropped from 101,000 ha in 2006 to 30,000 ha in May 2008. A Heather and Grass Burning Code was launched in Wales in May 2008 which requires landowners to prepare a burning plan for their hill land. Burning without a plan or outside the times in the plan is treated as a breach of Cross Compliance measures.

One of the most frequent problems encountered on pasture land which is managed both for agricultural and conservation purposes is getting the amount, timing and type of grazing to match the conservation outcomes desired. Regulatory response to overgrazing has targeted both the owners of damaged SSSIs, and those in receipt of livestock subsidy payments through cross-compliance requirements to avoid overgrazing of semi-natural habitats. Incentive payments to reduce stocking levels and to restore upland vegetation, particularly on moorland, have been part of agri-environment

schemes since the late 1980s. In England the use of tightly focused agri-environment scheme agreements on SSSIs, backed up by regulation, has reduced the area of land affected by overgrazing from 205,700 ha of SSSI land, to 64,300 ha.

It's not just overgrazing that's a problem though. In some areas, undergrazing is the major issue. Driven by both the condition of many SSSIs and UK BAP targets, the re-introduction of grazing is being encouraged on previously undergrazed sites, particularly through agri-environment schemes. Several projects, such as the Grazing Animals Project, are also encouraging the use of traditional breeds, helping to achieve not only the right kind of grazing, but also helping to boost the declining numbers of native breeds of cattle and sheep.

Red deer is a keystone species in upland and woodland ecosystems in Scotland and grazing by deer and livestock plays an important role in maintaining many important habitats. However, too much, or too little, grazing can present problems. Currently 312 features on designated sites are assessed as being at risk from grazing and trampling impacts. A programme of action to address these impacts through a combination of monitoring advice, incentives and regulation is underway across a suite of sites to address 211 of these features.

4. Woodlands

Ancient woodlands (continuously wooded since before 1600) are one of the most diverse habitats in the UK in terms of species richness. Around half of England's woodland (circa 500,000 ha) is either native or ancient. Government policy (see http://www.forestry.gov.uk/Keepersoftime) on protecting and sustainably managing this habitat was published in 2005. It aims to prevent further loss; improve ecological condition; conserve rare and priority species, and increase opportunities for enterprise and employment. Forestry Commission England and Natural England are helping to deliver this policy by employing a "whole-woodland" approach to tackle the threats faced by this woodland and managing it in a manner that is sensitive to nature. Funding is available from the Forestry Commission England under the England Woodland Grants scheme to improve woodland condition. The Commission are also consulting on their draft new practice guide for woodland managers '*Managing ancient and native woodland*'.

One of the big negative pressures on woodlands is grazing as a result of high deer populations. The Deer Initiative http://www.thedeerinitiative.co.uk/, facilitates research on deer population sizes and investigates how reducing deer numbers affects woodland condition. Condition data is obtained via a sample of SSSIs that are monitored in various target regions.

Scotland's forests are home to some of its most special wildlife and plants. The Forestry Commission's Scottish Forestry Strategy gives priority to managing woodland for the benefit of biodiversity and the Commission is closely involved in a range of projects to achieve that. In particular, the Commission is a partner in projects to increase the number of capercaillie (*Tetrao urogallus*) and black grouse (*Lyrurus tetrix*) living and breeding in its forests. One such project, in which FCS worked with Scottish Natural Heritage, Royal Society for the Protection of Birds, Highland Birchwoods, Forest Research, the Scottish Government, the Cairngorms National Park Authority, and more than 30 private forest owners under a

five-year European LIFE funded project, resulted in capercaillie having their most successful breeding season for 14 years in the summer of 2006.

Woodland ecosystems constitute a significant proportion of Scotland's biodiversity. Over time many woods have become fragmented as land has been cleared for agriculture or lost to development. As woodlands become isolated, the ecosystems they support are less resilient, and less able to recover from disturbance and external threats. This is because the less mobile woodland specialist plants and animals cannot move between isolated woodland patches. Forest Research, working with the Local Authorities of Edinburgh and the Lothians, Scottish Natural Heritage and Forestry Commission Scotland have used landscape ecology modelling techniques to produce a forest habitat network for the region. The resulting maps will be used by planners and developers to identify priority areas for managing woodlands, and areas to target for new planting. In particular, the work has identified opportunities for woodland to be incorporated within areas designated for development so that existing habitat can be linked. In the future these woodlands will provide habitat for biodiversity, reduce stress, pollution, and noise for urban communities, and offer opportunities for education, relaxation and recreation.

5. Marine and Coastal

A Marine and Coastal Access Bill is currently being debated in Parliament. This contains an integrated set of complementary proposals for a new approach to the management of activities in English, Welsh and UK offshore waters. Part 5 of the Bill provides for the designation and effective protection of a new type of marine protected area, to be called Marine Conservation Zones (MCZs). These can be used to conserve habitats and species of national importance, and will help to create an ecologically coherent network of sites around the UK. MCZs will have clear conservation objectives and will be protected through a series of duties placed on public authorities. Other provisions in the Bill, dealing with marine planning, licensing, the creation of a new Marine Management Organisation and Inshore Fisheries and Conservation Authorities, and improved enforcement powers, will also help to the improve the management and conservation of marine biodiversity. Defra is establishing, with the Environment Agency, targets to recreate habitats lost due to coastal squeeze through flood and coastal erosion risk management.

Scotland's marine area is of great environmental, social and economic value both nationally and internationally. The Scottish Government is committed to ensuring that Scotland's marine and coastal environment is *'clean, healthy, safe, productive and biologically diverse'* and managed to meet the long-term needs of nature and people. This includes managing seas sustainably to protect their rich biological diversity but also to ensure they continue to provide economic, social and other benefits for people and communities. The Scottish Government is committed to the sustainable use and protection of this important marine resource, and the Scottish Marine Bill consultation in 2008 offered a historic opportunity for people and organisations with an interest in marine issues to come together to help shape the future management of Scotland's marine environment.

In Northern Ireland, the Department of Environment is taking forward a Marine Bill and hopes to consult on policy proposals towards the end of 2009. As in England and Wales, the Bill will include provisions for the designation and effective protection of Marine Conservation Zones.

6. Water and Wetlands

Many waters within Natura 2000 sites, Ramsar sites and SSSIs are Water Framework Directive (WFD) 'water bodies'. These include rivers, lakes, canals, transitional and coastal waters. Environmental objectives will be set for 'water bodies' to achieve the aim of good status. WFD requires action to be taken on, for example, diffuse pollution from agriculture and on invasive species, so there will be wider biodiversity dividends for river catchments.

The Environment Agency (EA) and the Scottish Environment Protection Agency (SEPA) are developing River Basin Management Plans for each River Basin District. The plans will contain measures for meeting the objectives of 'water bodies' and 'protected areas'. Although the Water Framework Directive does not require measures to be operational until 2012, the UK is already taking action to improve biodiversity in designated conservation sites.

The Water Environment and Water Services (Scotland) Act 2003 (implementing the EU Water Framework Directive) introduced a new approach to protecting the quality of fresh water across whole "river basins" or catchment areas. The Scottish Environment Protection Agency (SEPA) is taking the lead in implementing this new approach in Scotland, working closely with many stakeholders whose activities directly affect rivers and lochs to identify and manage risks to the water environment. SEPA's monitoring of fresh water includes ecological parameters to ensure protection for the natural environment alongside rivers, burns and lochs. They also consider which key invasive species to include in their monitoring systems. SEPA published Significant Water Management Issues Reports in October 2007 for two of Scotland's River Basin Districts, the Solway and Tweed, which highlight a range of significant pressures on fresh water in these areas. Much of the action to manage these will benefit biodiversity.

Since 1994 Government has identified 132 water bodies in England e.g. rivers, as Sensitive Areas. In these areas the Environment Agency found that discharges from sewage treatment works were having or were likely to have an adverse effect on the ecosystem and water quality. Water companies are providing more stringent treatment at relevant sewage treatment works to improve and protect the environment of these areas.

Since April 2006 the England Catchment Sensitive Farming Delivery Initiative has been encouraging farmers to take voluntary action to tackle diffuse water pollution. It has an extensive programme of advice delivered by officers and specialist contractors, through individual farm visits and farmer workshops and also provides some capital grants.

A new vision for wetland creation in England for the next 50 years was published in 2008. It includes a map showing where wetlands could be created, or existing ones restored, and supporting literature on the importance of wetlands and their benefits to wider society. More information can be found at http://www.wetlandvision.org.uk/.

Water and sewerage companies are also taking forward commitments on biodiversity conservation. In the five year period ending in 2009, almost £500m of investment has brought benefits to over 170 water and wetland protected sites damaged by sewage pollution and over-utilisation of water. Water and

sewerage companies are drawing up their business plans for the next five-year period. They have received advice on statutory obligations associated with biodiversity conservation.

7. Air quality

UK Government and devolved administrations are taking a range of actions to address the effects of poor air quality on human health and ecosystems. Due to trans-boundary nature of many of the pollutants involved, action at the international level is vital. Principal legislative drivers are the EU National Emission Ceilings Directive (NECD) and the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP) Gothenburg Protocol. Both set annual emission ceilings for 2010 for four pollutants: sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia. The UK is expected to meet its targets for all pollutants except nitrogen oxides; leading to significant improvements in acidification, eutrophication and ground-level ozone.

The European Commission has started the preparatory work for a legislative proposal to revise the NECD. The new proposal will likely include a set of tighter emission ceilings to be met by 2020 for the four pollutants already regulated and a new ceiling for the primary emissions of fine particulate matter ($PM_{2.5}$). The Gothenburg Protocol is currently being reviewed and discussions on revisions have commenced. The proposal is due for agreement in 2009.

On a national scale, the Air Quality Strategy http://www.defra.gov.uk/environment/airquality/strategy/index.htm for England, Wales and Northern Ireland, published in 2007, set out a number of objectives and target values for the protection of vegetation and ecosystems.

8. Invasive Non-Native Species

The GB invasive non-native species framework strategy was launched in May 2008. The UK was amongst the first in Europe to have a comprehensive strategy on this very significant biodiversity threat. Invasive non-native species like Japanese knotweed (*Fallopia japonica*) and grey squirrels (*Sciurus carolinensis*) can impact on native species and habitats in a number of ways: by preying on native wildlife, competing for food and territory, transmitting disease, and degrading habitat.

This strategy is based on internationally agreed advice and principles, and has received widespread support from stakeholders. Its core premise is that agreed under the Convention on Biological Diversity: of firstly seeking to prevent introductions; then swift action against those that are found early; and, finally, effective longer-term management of those that are already established. However, as acknowledged in the strategy, no system will be completely watertight because there is so much scope for invasive species to be introduced deliberately or accidentally through global trade and travel.

Work is in hand to make further use of existing regulatory powers to control what may be released or sold and voluntary advice has also been developed, for example the Horticultural Code of Practice on Helping to Prevent the Spread of Invasive Non-Native Species (2005) (http://www.defra.gov.uk/wildlife-countryside/pdf/wildlife-manage/non-native/non-nativecop.pdf), but the scope for additional regulation needs to be balanced against the burdens it would impose. Success will also depend on

other approaches such as changing behaviours, and improving understanding of the risks and the need for action against such species. A GB Non-native Species Risk Analysis Panel is now fully functional and issues concerning implementing the rapid response concept and media and communications are being examined through working groups. Work has also begun in developing a national non-native species database.

The plant health regime is a good example of an existing robust line of defence against the introduction of invasive non-native plant pests and the strategy will lay the foundation for better protection of UK native wildlife in general. An aim of the strategy is to back up preventative measures with arrangements to instigate appropriate control actions much sooner in future. This could involve a range of bodies whose interests or responsibilities are relevant and may therefore be resourced in a number of ways. However, early action is more likely to succeed, will cost significantly less and will minimise any potential harm to native wildlife and habitats.

The strategy therefore provides a high level framework for all activities concerning invasive non-native species. It addresses the more *ad hoc* approach of the past which was identified by the GB Policy Review Group as a significant weakness to be overcome. The examples below show how a more strategic approach to preventing the spread of invasive non-native species (as promoted by the Strategy) is being implemented.

The Tweed Invasives Project is a programme to control invasive, non-native plants throughout the 3,000 square miles of the River Tweed Catchment, primarily focusing on giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed. The project is coordinated by the Tweed Forum in partnership with public bodies, local farmers, landowners, fishing and community groups. The project acts as a point of contact for the public to report sightings of the plants, and also offers advice, training and practical support for controlling them. Over the past five years it has made huge progress, and landscapes in the lower reaches of the Tweed catchment which used to be dominated by invasive plants have been restored to a more natural ecosystem with native plants and trees. The project is considered to be a blueprint for sustainable, long-term control of invasive species and a model of effective partnership working.

The first phase of the Hebridean Mink Project was successful in controlling mink in the Uists and a second phase costing £2.5 million over five years has expanded the project into Lewis and Harris. The aim is to prevent mink (*Neovison vison*) from becoming re-established in the Uists, where they are responsible for predating internationally important populations of breeding birds. European hedgehogs (*Erinaceus europaeus*), introduced to the Uists in 1974, are another significant predator of ground nesting birds. In 2007 the objectives of the Uist Wader Project were expanded to include removing all hedgehogs from North Uist and Benbecula and to significantly reduce the population of hedgehogs in South Uist with a view to complete removal.

Over the next three years £1.3 million will be spent on the Saving Scotland's Red Squirrels project. The project will develop habitats for red squirrels (*Sciurus vulgaris*) and establish a line of control to prevent the population of introduced grey squirrels spreading north into the red squirrel's stronghold in the Highlands.

Wales has an Invasive Non-Native Species (INNS) working group comprised of all the major agencies which began in 2008 to facilitate the implementation of the INNS Framework Strategy for Great Britain. A site survey, to plan for the eradication of the African clawed toad (*Xenopus laevis*) from the only site in Wales, is scheduled for May 2009. Topmouth gudgeon (*Pseudorasbora parva*) sites will also be surveyed at that time, with actions to be decided upon receipt of the results.

Following on from the Invasive Species in Ireland Report the Northern Ireland Environment Agency (NIEA), in partnership with the National Parks and Wildlife Service, Dublin (NPWS), jointly initiated the 'Invasive Species in Ireland Project' in 2006 to address the issues on an island of Ireland context. Work is in hand to make further use of regulatory powers to control what may be released or sold in Northern Ireland. The review of The Wildlife Order (NI) 1985 in 2008 proposed many significant changes specifically relating to non-native species. The review proposed to give the department the power to ban the sale of high risk species. The project provides a high level of framework for all activities concerning non-native species and provides a focal point for activities, expertise and information.

9. Infrastructure development

In 2005 Government published Planning Policy Statement (PPS) 9: Biodiversity and Geological Conservation and a linked legal Circular (Office of the Deputy Prime Minister Circular 06/2005/Defra Circular 01/2005). This makes clear that planning policies in England should aim to maintain and enhance, restore or add to biodiversity interests. A good practice guide to support the policy statement was issued in 2006; which includes practical examples of how local authorities can plan positively for biodiversity. A copy of the policy statement and associated guidance is available from http://www.communities.gov.uk/publications/planningandbuilding/pps9; and http://www.communities.gov.uk/publications/planningandbuilding/planningbiodiversity.

Defra continues to feed biodiversity and other considerations into the development of National Policy Statements (NPS) that Government departments are preparing on the need for major infrastructure developments in relevant sectors e.g. transport, energy, water and waste. These will be the primary consideration for the new Infrastructure Planning Commission in considering applications for new projects and will therefore be very significant documents which will determine the pattern of infrastructure development in England over the next 15 years or so.

Consultations are underway for flagship “eco-towns” across the country. They are expected to be examples of sustainable design that will encourage and enable residents to live within environmental limits. Amongst other things, they should have strategies for conserving local biodiversity. This should include proposals for the management of local ecosystems, including, where appropriate, the restoration of degraded habitats or the creation of replacement habitats.

Standardised guidance on the development of local wildlife site systems has been completed and placed on the Wales Biodiversity Partnership website http://www.biodiversitywales.org.uk/content/uploads/documents/Guidance%20Legislation/WS%20Guidance%20FinalWeb%20ver_Oct%2008Web.pdf. The guidelines are applied to a site to evaluate its value by assessing rarity, size, naturalness/typicalness and diversity with secondary considerations including; position in ecological unit, potential value, fragility and educational/social value. Planning authorities,

utilities, statutory agencies and other relevant bodies can then be informed of location and interest of the site and act accordingly.

Scotland's planning system is undergoing the most significant modernisation in over 60 years. The Planning etc. (Scotland) Act 2006 is a landmark piece of legislation. The changes introduced by the Act are substantial and work is underway to implement the provisions of the Planning Act. The Scottish Government's overall aim is to create a more efficient process to enable sustainable economic growth for Scotland. As part of the commitment to proportionate and practical planning policies, the Scottish Government is rationalising national planning policy by replacing the current series of Scottish Planning Policy notes and the National Planning Policy Guidance series with a single statement of Scottish Planning Policy. The consolidated Scottish Planning Policy will provide a shorter, clearer and more focused statement of national planning policy, including on biodiversity, replacing the existing National Planning Policy Guidance publication on Natural Heritage.

10. Climate Change

Parliament passed a Climate Change Act in 2008 (http://www.opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1), making the UK the first country in the world to have a legally binding long term framework to cut CO_2 emissions and adapt to climate change. A similar Bill is currently in the midst of the legislative process in Scotland. The Act creates a new approach to managing and responding to climate change in the UK through setting ambitious targets, taking powers to help achieve them, strengthening the institutional framework, and establishing clear and regular accountability to the UK Parliament and devolved legislatures. The statutory UK risk assessment will help set priorities for adaptation programmes, and to make sure that other policies reflect the potential risks and opportunities posed by climate change. An Adaptation Policy Framework draws together information about what the Government is already doing, and why, and setting out how the UK will move forward. Defra has also published practical guidance on climate change adaptation. In October 2008 the UK government created a Department of Energy and Climate Change with a seat in the cabinet, giving greater political focus to solving the challenges of climate change and energy supply.

The England Biodiversity Strategy seeks to ensure biodiversity considerations become embedded in all main sectors of public policy and has just published '*Climate Change Adaptation Principles – Conserving Biodiversity in a Changing Climate*'. This builds on guidance for conservation practitioners '*Conserving Biodiversity in a Changing Climate - Building Capacity to Adapt*' published in 2007. The Climate Change Adaptation Principles will help people managing conservation work to plan what actions they need to take now to help the natural world adapt to climate change. There are 5 main groupings which all include a number of principles, each giving more detail on what the conservation actions might be. These are:

- Take practical action now;
- Maintain and increase ecological resilience;
- Accommodate change;
- Integrate action across partners and sectors;
- Develop knowledge and plan strategically.

The Scottish Biodiversity Strategy also considers the impacts of climate change on biodiversity and highlights the need to maximize the connections between habitats and minimise the barriers to movement and dispersal.

11. Public Engagement

Engaging people and encouraging behavioural change is a shared action across the Country Partnerships.

In England, Natural England - as the delivery body for the England Biodiversity Strategy, is engaged on a programme of work with the objective that people are inspired to value and conserve the natural environment. This includes through leading major campaigns, for example, to raise awareness and understanding of the marine environment, and to understand the links between health and the natural environment.

In England, a Defra campaign is in preparation to advocate the benefits of conservation volunteering, to be launched later in 2009. Work by volunteers is important in taking forward many biodiversity objectives and is a good example of pro-biodiversity behaviour. There is scope to provide a more coherent position on the benefits of volunteering, make opportunities more easily accessible and to increase the number of people choosing to do volunteering which benefits biodiversity.

Defra provides financial support to an annual conference of environmental communications professionals, to support sharing of ideas and best practice about how to best engage the public, to support the sector in this aims generally.

The British Broadcasting Corporation (BBC) "Breathing Spaces" initiative aims, through television, radio and other media, to get one million more people actively engaged in activities to conserve wildlife. Schools are being encouraged to participate. More information is at http://www.bbc.co.uk/breathingplaces/.

The Wales Biodiversity Partnership has organized a dedicated nine days of local and national awareness action and events every year since 2002. This initiative is known as Wales Biodiversity Week; see http://www.biodiversitywales.org.uk/wbw-121.aspx.

Through Local Plan Partnerships, there is an opportunity for all sectors of the community to contribute to biodiversity action, with dedicated initiatives and support. A calendar of events is constantly updated; see http://www.biodiversitywales.org.uk/whats_on-4.aspx.

Over several years, the Wales Biodiversity Partnership and the Countryside Council for Wales, have worked with Arena Network to support small to medium sized businesses to recognize biodiversity in their sourcing of materials and production processes. A dedicated website and advisor offer help to businesses to integrate biodiversity into environmental management standards. http://www.businessbiodiversitywales.co.uk/english/index.asp

Scotland has a suite of biodiversity indicators, 5 of which are aimed at increasing public engagement. These are:

- Attitudes to biodiversity;

- Extent and composition of greenspace;
- Involvement in biodiversity conservation;
- Visits to the outdoors;
- Membership of biodiversity organizations.

They are monitored by SNH http://gateway.snh.gov.uk/pls/htmldb_cagdb1/snhlive.tai_disp_template_pkg.display_std_page?p_type_id=2&p_cat_id=2&p_topic_id=50&p_class=nnrs. The SNH website also has a biodiversity communications toolkit to help organizations promote biodiversity www.snh.org.uk/biodiversitycommstoolkit/index.html. A dedicated People and Communications Group has responsibility for promoting biodiversity conservation and engaging the public. The group is currently developing a strategy to encourage greater community engagement with biodiversity.

Scottish Biodiversity Week http://www.snh.org.uk/biodiversityweek/default.asp is an annual programme of events to promote public awareness and involvement in biodiversity conservation and celebrate International Biodiversity Day in May. First run in 2001, Biodiversity Week has grown and now has its own website, events calendar, photo competition and awards scheme.

Scotland's Biodiversity Communications Toolkit http://www.snh.org.uk/biodiversitycommstoolkit/index.html is an online resource to help organisations communicate about biodiversity with a clear and consistent voice. The toolkit provides key messages, facts and figures and guidance on how to use the media.

The Scottish Marine Wildlife Watching Code, launched in 2006, gives guidance for everyone who watches marine wildlife around Scotland to maximise their enjoyment while minimising disturbance to marine biodiversity. The Code is aimed at wildlife watchers on the sea, in the sea, and on the coast. By increasing their understanding of marine wildlife, it is hoped that people will be aware of how their behaviour affects the animals they have seen and reduces their impacts on marine biodiversity.

Botanic gardens and open access plant collections provide a great opportunity for public engagement; to inform the sectors of the public about international policy issues and how they relate to biodiversity and plants generally. For example, The Great Plant Hunt http://www.greatplanthunt.org/, developed by the Royal Botanic Gardens Kew and commissioned and funded by the Wellcome Trust, encourages children to explore the natural world and join other schools in the biggest ever school science project.

12. Evidence

A sound evidence base is essential to support effective conservation of biodiversity in the UK. Research and associated monitoring is required to:

- assess the current status and trends in biodiversity;
- understand the value of biodiversity and ecosystem services;
- understand the reasons for unfavourable status and decline in biodiversity;
- assess future vulnerability;
- and identify effective remedial measures and strategies;
- assess the outcomes and effectiveness of policy; and
- innovate in the way we collect, manage and use evidence to support policy and action.

In a nation as small as the UK, there are common strategic research and survey requirements across national boundaries. The UK Biodiversity Partnership will help to identify where collaboration at a UK level delivers the evidence base in the most efficient and cost effective way. Where appropriate, research and surveillance will be co-ordinated at a UK level in partnership between the four country administrations, the respective country agencies, the Joint Nature Conservation Committee (JNCC) and the UK Research Councils. In some cases, alignment and funding may be sought with European projects.

Understanding the current status and trends in biodiversity requires continuing support for, and development of, existing monitoring schemes covering major components of biodiversity such as breeding birds, butterflies, bats, cetaceans, and plants, together with periodic habitat surveys and biological recording, as part of a coherent UK monitoring framework and linking to international systems and integrating long-term observations of environmental change. Site condition will remain an important monitoring requirement and innovation may help this to be increasingly integrated with other surveillance activities. Further targeted efforts need to be made to fill knowledge gaps for priority species and habitats. While individual projects will be organised at a range of scales from local to international, to be most effective and efficient, they need to be co-ordinated at a UK level. This understanding will help the UK contribute to work programmes under the CBD such as forest biodiversity, biodiversity and climate change, and targets such as the Global Strategy for Plant Conservation, to produce working lists, assessments of conservation status and protocols for conservation.

In the marine environment, novel approaches will be required to close major gaps in knowledge on the location, extent and status of species, and habitats and human impacts. Survey work is difficult and expensive, requiring collaboration with agencies and industries operating in the marine environment. Climate change must be considered in the design of the marine protected network for UK waters.

Work to improve the quality and relevance of indicators will need to continue in order to allow assessment of biodiversity targets at country, UK and European scales and enable the UK to meet international reporting requirements. The UK is working to address weaknesses in the indicator frameworks relating to ecosystem services, ecosystem integrity and resilience, and genetic diversity. It is possible that soil biological indicators could give a front-line view of the impacts of land management on soil functioning. However, not enough is yet known on the relationship between soil biological community structure and functions to interpret changes in land management. Methods of monitoring soil biology are developing at a rapid rate, meaning that large robust datasets have yet to be assembled. A priority is, therefore, to undertake research and development on methods to quantify soil biodiversity and on linking structure to function in relation to the response of soil to environmental pressures.