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Scottish Biodiversity Strategy/Forum structures, 2010 biodiversity targets, challenges for biodiversity in rural Scotland

The working group structures for biodiversity work in Scotland have recently been reviewed and amended. The key drivers behind these changes are to:

- integrate devolved UK BAP with new SBS Implementation Plans
- facilitate an ecosystem approach
- enable greater efficiency and streamlining
- allow a clear focus on delivery of targets and outcomes

The new structures comprise a top tier Scottish Biodiversity Committee chaired by the Environment Minister, a Biodiversity Action Coordination Group, 5 Ecosystem Groups, a Science Group, and a People and Communications Group. Collectively, these groups are charged with planning, coordinating delivery and reporting on the full range of biodiversity work in Scotland and doing this within the framework of an ecosystem approach.

The top level biodiversity target for 2010, originating from the European Union, is "halting the loss of biodiversity by the year 2010". Beneath this lie a collection of more specific objectives (8) and targets (28) which have been adopted for Scotland. Progress in 2010 will need to be assessed against this full range of targets.

It is proposed that some of the key challenges for biodiversity in lowland and upland rural Scotland include:

- Achieving appropriate grazing regimes
- Changing agricultural practices
- Management of land for field sports
- Afforestation
- Adapting to climate change
- Public access and recreation

Most of these topics will be addressed in more detail by other contributors to the Forum.

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Biodiversity and ecosystem services

The concept of ecosystem services has brought a new dimension to debates about sustainable development by highlighting the important links between biodiversity, ecological processes and human well-being. It is also a valuable idea because it is encouraging people to think more deeply about how we value the benefits that nature provides, the role that biodiversity plays, and whether critical limits exist in the relation to the output of these services. However, although the concept is now being taken up widely by the science and policy communities, it is not always easy to apply it in an operational context.

The aim of this presentation is to reflect on the different approaches that can be used to characterise and assess ecosystem services, and particularly the role that biodiversity plays in their generation. The widely used 'habitats perspective' is compared with one that employs the service itself to define the system of interest, and advantages and disadvantages of each are considered in relation to a third, which takes a more 'place-based' perspective. It is argued that, while there is no 'best' approach, it is helpful to distinguish between these different ways of framing ecosystem services if science is to more fully support the needs of those making policy or management decisions, and particularly to identify the critical role that biodiversity plays.

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Biodiversity awareness and involvement in Scotland

A key Scottish Biodiversity Strategy objective is to increase awareness, understanding and enjoyment of biodiversity, and engage many more people in conservation and enhancement. There was therefore a need for an accurate measurement of current attitudes towards and engagement with biodiversity, with an emphasis on the key Carers Doers audience segments identified in previous research.

A total of 1006 10-minute telephone interviews were conducted with a nationally representative sample of the Scottish population during January 2009.

Audience segments show significantly more Carers Doers since 2006, 33% up from 26%. A new segment also emerges, Non-Carers Doers (not interested but undertaking activities).

Spontaneous awareness of biodiversity is 57%, but only 42% give a spontaneous definition and only 17% provide the full definition.

There has been a cooling of views for the key engagement indicator E1 Attitudes to Biodiversity in terms of interest and concern for biodiversity loss. Relevance, however, holds its own. Why? Are some activities becoming 'part of life', making people forget why they do them (biodiversity)? Are current economic issues forcing biodiversity down the priority list?

Overall, the majority say they value biodiversity because of three main areas of concern: 1) for the countryside/wildlife, 2) for the environment/the planet/being green, and 3) in order to keep Scotland beautiful.

People are interested in increasing their involvement, but more are 'slightly' rather than 'very' interested. In terms of future actions, however, encouragingly only 11% say they will do nothing in 2009. Highest mentions of what will be done include: recycling/reduce household rubbish (52%), walking more (25%), buying green products and services (22%), getting out into the natural environment more (17%) and wildlife gardening (16%).

Given other current worries, the finding that people do more than they are perhaps consciously aware of and that time/priorities remain the main barrier, means that future biodiversity communications need to be about reinforcing the good things people do now and educating them about easy things to do in the future.

A wider set of key engagement indicators will now be set for future waves of research, which are relevant to biodiversity stakeholders and applicable to the actions that will be taken in order to drive and improve measures in the future.

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Management for Biodiversity by NGOs

The wellbeing of much of Scotland's biodiversity is determined by the activities of environmental NGOs, and in particular by the interactions between these voluntary sector bodies, ecological scientists, statutory agencies, government and the private sector. This presentation illustrates how these interactions, often complex and sometimes contentious, have generated positive conservation outcomes in terms of:

1. Wildlife legislation: how the introduction of legal protection for wild birds has influenced their ecological status.
2. The status of threatened species: how corncrake conservation in Scotland has progressed from research, to dedicated conservation management, to mainstream agricultural funding – and how the species has responded.
3. Habitat management: how NGOs have influenced, and practiced, land management to generate biodiversity, wider environmental and socioeconomic benefits.

Biodiversity conservation faces new and considerable challenges. To respond effectively, these interactions must be understood and optimised by all, and innovations must develop and extend current successes.

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Conservation in protected areas and the wider countryside

The Millennium Ecosystem Assessment confirmed that ecosystems across the globe have been altered more rapidly in the past 50 years than at any comparable period in human history. In April 2002, the Parties to the United Nations Convention on Biological Diversity made a commitment to reduce the rate of biodiversity loss by 2010. Biodiversity targets have been endorsed by the World Summit on Sustainable Development and incorporated into the Millennium Development Goals to end poverty by 2015. At the 2001 Gothenburg Summit, the European Union (EU) pledged to halt biodiversity decline. However, the 'Message from Malahide' EU Stakeholders' Conference on Biodiversity in 2004 concluded that rapid biodiversity loss continued to threaten economic and social progress.

European "see-by-2010" indicators (SEBI 2010), to be published on World Biodiversity Day, 22 May, will include results for the UK. Scotland's biodiversity indicators, published by the Scottish Government in November 2007 for Scotland's Biodiversity Strategy, are maintained and updated by Scottish Natural Heritage. With reference to the latest results on protected areas, in the wider countryside and surrounding seas, the presentation will show how Scotland contributes to the global framework of indicators for charting biodiversity progress.

Looking ahead, surveillance for a range of inter-related requirements will be considered, including: the conservation of habitats and species of European importance (Habitats and Birds Directives); biodiversity assessment and 2010 reporting (Scottish Biodiversity Strategy); biodiversity outcomes from rural policy (Scottish Rural Development Programme); investigating climate change responses (SNH Corporate Strategy); informing National and Area Profiles (National Performance Framework); the Marine Strategy Framework Directive; and the UK Marine Monitoring and Assessment Strategy (UKMMAS) vision for clean, safe, healthy, productive and biologically diverse oceans and seas.

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Managing conflicting goals in the uplands: consequences for biodiversity

The uplands are a conservation priority, yet many land uses compete with biodiversity objectives. For example, overgrazing by sheep, often coupled with muirburn by sporting estates, has had deleterious effects on 'iconic' heather-dominated moors. Although economic activity is an important component of many ecosystems, there is increasing recognition of the value of wider ecosystem goods and services that the uplands provide (sequestration of carbon, purification of water, aesthetic, etc). However, the imbalance in the apparent market value of these services can lead to conflicts between local economic objectives and the resilience of ecosystems to serve regional, national and global objectives. Here, we explore the potential conflicts among upland ecosystem services and the implications this may have for the sustainable management of the uplands. We attempt to identify the synergies, trade-offs and conflicts between objectives, recognising that how to make such comparisons is still in its infancy.

Using examples of current conflicts among ecosystem services, we illustrate: a) that often conflicts represent a tension between different ecosystem services; b) achieving objectives for non-market or large scale services depends on local management; and c) developing sustainable ecosystem management will depend on engaging with local practitioners and understanding the trade-offs among market and non-market services, at appropriate scales. In order to achieve this, a participatory approach needs to be adopted that provides a flexible adaptive framework which can both accommodate differences in objectives and priorities and be inclusive as to stakeholder involvement at local, regional, and national scales. This recognises that national objectives can only be achieved through local actions, and often that setting priorities will be at local scales. Thus, whilst enhancing biodiversity is always a goal, it may be necessary to accept that, after considering both the market and non-market benefits derived from a range of ecosystem services, biodiversity targets may need, in some cases, to be less ambitious. This would make for a much more realistic approach to conservation.

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Farmland biodiversity: where do we go from here?

Where are we now?: In Scotland, as in the rest of the EU, it is clear that halting biodiversity loss on farmland by 2010 will not be achieved. It is also clear that, despite the emphasis on farmland biodiversity within the Scottish Rural Development Programme (SRDP), without further major changes to the way that Common Agricultural Policy (CAP) support is targeted, Scottish farmland biodiversity will continue to decline. For example, at best, nature conservation designations cover only a minority of Scotland's existing extent of High Nature Value (HNV) farmland and do not target areas of high farmland biodiversity potential within intensively-managed lowland landscapes. In addition, not only is the level of funds available in Pillar 2 of the CAP (the main funding route to support biodiversity-oriented actions on farms) unlikely to increase markedly, but also a focus on other environmental concerns is increasing competition for these already limited funds.

Where are we heading? Farmers, their farming systems, and individual farming practices are needed to maintain and improve conditions for habitats and species of farmland biodiversity concern. However, the amount of income that farmers can obtain from the CAP and market sources will continue to drive farm management decisions and the overall viability of each farm. Hence, the overall amount of income obtainable from Scottish HNV livestock grazing systems is likely to remain low, and such farmers will continue to be under pressure to either intensify (to increase overall income levels) or abandon farming practices altogether (to reduce their overall costs and maximise the level of support payments they retain as income). Conversely, on the more intensive, and hence biodiversity-poor, grassland and arable farming systems, a greater proportion of income coming from agricultural production will result in a desire to keep any biodiversity actions away from the productive areas of farmland. Hence the marked increase in habitat diversity which is required to increase biodiversity in and around such farms is unlikely to occur.

What more needs to be done? Landscape simplification is the key driver of farmland biodiversity declines, but it is also clear that this cannot be addressed at the scale required solely by using agri-environment schemes within the SRDP. However, landscape simplification could be addressed and the available limited Pillar 2 funds used more effectively, if all farmers were required to do more in order to qualify for Pillar 1 support. In this way, the onus could be put on all farmers to achieve a minimum level of appropriate habitat diversity and/or management at the farm scale in order to qualify for their single farm payment. Such an approach would potentially increase (at no extra cost) the general underlying biodiversity value of the more intensified farmland and increase the probability of any additional agri-environment actions within those areas achieving their biodiversity goals. It would also mean that funds would be available to implement additional HNV farming-specific support measures, without which Scotland's HNV farming systems, and their associated biodiversity value, are unlikely to survive into the future.

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Integrating biodiversity in SRDP

The Scotland Rural Development Programme is a £1.6bn package of government support measures targeted at the rural sector. It brings together many elements of previous schemes under one umbrella, and can therefore be seen as an ambitious integrating mechanism.

In this presentation, I will consider what is meant by integration, and the aspiration within SRDP to bring biodiversity support out of its specialist 'ghetto', and integrate it with mechanisms to support other public benefits from the rural sector.

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Integrating Biodiversity Objectives In Planning

The planning system has fantastic potential to deliver significant gains for biodiversity conservation. And it is true to say that there are some excellent examples of what can be achieved. However, it is also widely recognised that, in many instances, the planning system has not realised its full potential and that, in many situations, much more could be done to protect and enhance both important and common place biodiversity.

This presentation will briefly explore some of the key legislation and policy, identifying where there may be current strengths and weaknesses in 'top-down' government requirements and guidance. Perhaps more significantly though, the presentation will also look at some of the real barriers to biodiversity conservation as they may be encountered by practitioners operating at the 'coal face' within the planning system - that is the planners and applicants actually using it. Suggestions will be made to address some of these barriers, including how we may create an exciting vision for what can be achieved for biodiversity conservation, so that people can better understand what can be achieved and are therefore inspired and motivated to deliver it. Finally, details will be provided of a new Web Based Biodiversity Toolkit aimed at those using the planning system, that will hopefully help create such inspiring vision and lead to more imaginative and ambitious projects in the future.

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Habitat Networks: linking across scales and land-uses

Scottish Government policy places a duty of care on land managers to protect species and their habitats and sets an objective to maintain and enhance biodiversity. The current concern over biodiversity loss of managed designated sites and across the wider landscape has prompted discussion, research, and development of habitat network decision support (DS) tools to consider biodiversity management at the landscape scale. This tool analyses functional connectivity of different types of habitat within the landscape matrix, and provides planners with a mechanism to examine the current extent of habitat networks (Humphrey et al. 2008). In addition, it has allowed land-use change scenarios to be assessed, helping to improve decision making.

Although originally developed for use in forest planning (Ray and Moseley, 2007), the technique has been adopted more widely (Moseley and Smith, 2008). Current interest from local authorities, government agencies, NGOs and Forestry Commission Scotland show how the habitat network DS tool has provided a 'social hook' to demonstrate the value and accessibility of green space provision, for people and biodiversity, across the central lowlands of Scotland (Moseley, 2009).

In 2002, the UK Government and the devolved administrations made a commitment to significantly reduce global, regional and national rates of biodiversity loss by 2010. At a European level, the UK has agreed to monitor and publish information on 18 indicators showing changes in biodiversity in the landscape through time. One of these indicators will monitor functional connectivity at the landscape scale, and is based on the landscape habitat network modelling tools (BEETLE) developed in Scotland and Wales to underpin land-use planning (Watts *et al.*, 2008). The habitat network approach therefore provides tools that are scaleable to specific needs and available data. From national biodiversity monitoring needs to assessing local access of green space provision, the tools provide a DS focus for planners and interested parties to discuss options.

Climate change is expected to have a major impact on biodiversity, and on society, and Forestry Commission Scotland policy favours the development of habitat networks to reduce fragmentation for woodland species (Ray, 2008). Habitat network DS tools are being used to understand how species might move through landscapes with different degrees of fragmentation in response to climatic drivers. This will help prioritise land-use change decisions, and also show where small adjustments can bring large biodiversity benefits through a reduction in habitat fragmentation.

Blennow and Persson (2008) have shown that adaptation policy implementation works efficiently when 3 factors combine: 1) accessible and comprehensive information is provided, 2) legislation or a change in policy occurs, and 3) incentives to encourage change are made available. We believe that the spatial habitat network DS tool provides a mechanism for discussion between partners interested and concerned about land use change, and we anticipate that the approach is focussing attention on the need for policy and incentives for adaptive policy implementation in Scotland.

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**Collaborative approaches to delivering biodiversity objectives:
keeping it simple**

For too many people, collaboration to deliver nature conservation objectives is all about raising awareness – usually about the existence of something precious that needs to be protected. In order to do so, a specialist has to be brought in to explain how to do it, or a small team to develop an “action plan”. This is a top down-technocratic-micromanagement approach to nature conservation. It is negative, exclusive, and often intimidating to those who already work closely with nature. Furthermore, even where it works in terms of influencing behaviour and practice, it may not be effective in terms of delivering overall and wider biodiversity objectives.

We need a radical shift to a much more positive, more flexible and simpler approach, which emphasises opportunity, rewards innovation, and respects the values of non-specialists. That is quite simply good management and good politics, and is well known to those who work on the ground. We also need to focus more on the big picture and less on micro-management – to allow for the dynamism of nature. To some degree, a stronger emphasis on ecosystem services will help – but we also need to pay more respect to what people want: deer, squirrels, birds, butterflies and wildflowers. Taken together with ecosystem services, that is pretty much what we all want and need.

There is nothing particularly new here. Many of the people I have talked to over the last few years agree with this, but there remains a fear of a radical shift of emphasis and approach, and a weight of statutory responsibilities which allows little room for redirection of resources – the vast majority of which go to site, habitat, and species protection. We need a strong steer from SNH and government if such a shift is to take place.

These issues are discussed in relation to a range of opportunities for collaboration, including Biodiversity Action Plans, Single Outcome Agreements, Scottish Rural Development Programme, National Parks, and Biosphere Reserves