Scottish Environment LINK

The voice of Scotland's environment movement

# Briefing Paper from Biodiversity Task Force

**Biodiversity is the web of life in all its forms, from genetic diversity through species and habitats, to whole ecosystems. For a small country, Scotland's biodiversity is particularly rich and diverse.**

## Why does biodiversity matter?

The loss of wildlife is not just of importance to scientists and enthusiasts. The loss of genetic diversity, species, and damage to habitats and ecosystems affects us all, in many ways that we are only beginning to understand.

It sustains us and contributes to our quality of life by providing places to enjoy, relax in and learn from.

It also provides us with ecological services upon which our lives depend – services such as flood defence, clean water, healthy soils, and food.

Both of these contribute immensely to our economy and well-being.

## Quality Of Life

### Urban Greenspace

It has been shown that patients in hospital recover more quickly if they have access to green space, and emotional health is improved by easy access to green space and outdoors activities. Around 3000 people every week participate in gardening activities designed to benefit their health, well-being and life opportunities, through the 121 current projects in prisons, day centres, schools and hospitals.

Loss of greenspace and green belt in and around urban areas has severe impacts on local communities. Local Plan policies identify the extent of greenspace available to local communities and should include measures of protection. Of the 171 settlements in Scotland with more than 3,000 people, only 20% of the settlement area is covered by greenspace policies, 50% of which is greenbelt.

Pressures from development are high and greenspace and greenbelt continue to be lost. With the loss of natural habitats in the wider countryside, wildlife areas within the urban environment have become crucial to the survival of many increasingly rare species. For example, some post-industrial or "brownfield" sites can support as many rare and endangered insects as high quality ancient woodland.

In addition, climate change may mean that some species will need to move north. It has been suggested that urbanised central Scotland may be an obstacle to species moving from southern Scotland. The presence of well-planned and managed gardens, greenspace and greenbelt could provide routes through this area for both wildlife and people.

### Wildlife Habitats

Although large parts of Scotland have diverse, thriving wildlife, many species and habitats are in decline, across the lowlands and uplands. Some of these losses are well documented, but we know relatively little about marine species, terrestrial insects, and changes in genetic diversity.

In the marine environment, a robust network of Nationally Important Marine Areas (NIMAs) is needed to help buffer the impacts of climate change on our coasts and seas. A Scottish Marine Bill is needed to deliver:

- Proper protection for Scotland's marine wildlife, including identification, designation and protection for Nationally Important Marine Areas
- An effective new planning system for Scotland's seas
- A Marine Management Organisation to take charge of planning, licensing and enforcement at sea
- Clear targets to measure the recovery of our seas (Marine Ecosystem Objectives)

On land, much is being done to restore habitats, change farming and forestry practices to make them more wildlife-friendly, and involve the public in recording and practical management. However, we do not think that this is happening fast enough. Moreover, climate change is an additional stress for species, habitats and ecosystems already affected by loss, damage, fragmentation and non-native invasive species. This is a particular challenge in the uplands where high levels of grazing over the centuries have substantially reduced alpine plant communities and their ability to withstand further environmental change.

Habitats that are connected together are more likely to be robust to climate change and other pressures than isolated ones. Thus we believe much more emphasis needs to be placed on conservation at a larger scale, including creating "habitat networks", whilst still taking care of specialist species that need focussed and well planned conservation measures.

## Ecological Services

### Flood Defence

The key to flood prevention is in managing the whole water catchment and in working with natural river processes rather than against them. Traditional flood management constructs floodwalls or embankments to move water downstream to prevent inundation. These hard engineering solutions are perceived as tried and tested, easier and quicker to construct than undertaking large scale catchment management. By building ever higher walls and embankments, the problem is exacerbated and moving large quantities of water downstream causes flooding elsewhere. Furthermore, climate change is set to make the situation worse, and Scotland is likely to get wetter and stormier.

By conserving and restoring habitats throughout catchments, flooding events are mediated and can often be prevented. Not only is this much cheaper than artificial, "hard" flood defences, it can bring other benefits. While all the flood defences in Scotland to date have been designed with hard engineering solutions, moving to sustainable flood defences in future will lower flood risk to people and property further downstream, bring biodiversity benefits and will prove more economical in the longer term.

### Clean Water and Healthy Soils

Intensive agriculture and forestry, discharges from factories and sewage treatment works, and run off from artificial surfaces such as roads are all major contributors to water and soil pollution.

Intensive agriculture relies on high inputs of fertilisers and herbicides that can end up concentrated in the soil or adjacent watercourses and groundwater. In 2005 it was estimated that 384,000 tonnes of nitrogen from inorganic fertilizers and manures were applied to farmland (SEPA, 2006). This overloading of the soil means that it

becomes less biologically diverse. In aquatic systems, residues can remain in drinking water and impact on environments downstream. Eutrophication (an excess of nutrients) causes an increase in algal growth which can lead to higher costs for water treatment and potential health risks from toxic blue green algae.

Erosion and the loss of organic matter and nutrients from the soil results mainly from the drainage of peatlands, forestry operations and overgrazing. Aquatic life can be severely harmed by excessive silt resulting from soil and peatland erosion. These impacts will be compounded by climate change, if the forecasts of heavier rainfall, more landslides and stronger winds are accurate.

The decomposition of dung, carrion and dead vegetation is primarily carried out by fungi and terrestrial and aquatic invertebrates such as earthworms, true-flies, dung beetles and snails. This essential process ensures that our environment is not overburdened with waste, but to work, it requires healthy natural communities.

Intensive agriculture and development are also contributing to soil erosion. The annual amount of soil entering Scotland's river systems as a result of erosion has been estimated to be 900,000 tonnes , of which 88% is from agricultural land (SEPA, 2006). Not only does this soil loss damage freshwater and marine habitats, this precious resource is lost to agriculture.

## Economy and Well-being

Biodiversity is the foundation of Scotland's culture, economy and health. It provides many vital ecological services, which can be easily overlooked until they are damaged or lost. Most of these services would be costly or impossible to replace. Some examples:

- The total environmental services provided by Scotland's land, waters and sea out to a 12-mile limit amount has been estimated to around £17 billion per year, compared to a GDP of £60 billion (SEPA, 2002)
- Insects are responsible for the pollination of many crops in Scotland, the most significant being the soft fruit industry - the raspberry crop in Scotland alone is worth £52 million p.a.
- The Scottish whisky industry is worth over £2 billion a year and is founded on clean, unpolluted water.
- Scotland's ospreys attract £1.7 million of tourism related business, while whale watching and dolphins generate £2.7 million and £0.7 million respectively (TEF, 2002).
- Game fish such as salmon and trout contribute over £112 million to the Scottish economy. Aquatic invertebrates make an indirect contribution to this industry as a food source for the young fish in our rivers and streams.
- The Scottish offshore fishing industry depends largely on sustainable populations of herring and haddock stocks.
- Inshore "fisheries" for invertebrate animals such as shrimp, mussels, langoustine and lobsters make a vital contribution to the economy of coastal communities.

The Scottish Government's publication of a series of **biodiversity indicators** to which we have contributed will be useful in assessing changes in the status and trends of many aspects of Scotland's biodiversity, general environment and public attitudes. They will also help measure our progress towards the 2010 target to halt the loss of biodiversity.

This briefing was produced by members of the Biodiversity Task Force of Scottish Environment LINK and is supported by the following organisations:

Plantlife Scotland; Scottish Wildlife Trust; Mountaineering Council of Scotland; Buglife – the Invertebrate Conservation Trust; Butterfly Conservation Scotland; National Trust for Scotland; Royal Zoological Society of Scotland; Marine Conservation Society; RSPB Scotland; Woodland Trust Scotland; Scottish Native Woods, Scottish Allotments & Gardens Society.

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