



S C O T T I S H  
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# **Towards a strategy for Scotland's biodiversity:**

## **Biodiversity Matters!**

Strategy Proposals

February 2003  
Paper 2003/5

Scottish Executive Environment Group

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# **Towards a strategy for Scotland's biodiversity: Biodiversity Matters!**

**Proposed strategy prepared by the Scottish Biodiversity Forum  
February 2003**



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## Executive Summary

This is a proposed strategy for the protection and enhancement of Scotland's biodiversity resource. It is also a strategy for Scotland's people to encourage their understanding and enjoyment of biodiversity and their contribution towards its conservation.

Caring for our rich and varied natural heritage of plants and animals, habitats, soils and waters is not just the responsibility of government, its agencies, local authorities and environmental charities – it is a job for everyone. The conservation of our natural resources adds to the colour and diversity of our lives and their effective stewardship is vital in creating a sustainable future.

The draft strategy has been developed by the Scottish Biodiversity Forum at the request of the Deputy Minister for the Environment, Allan Wilson MSP. Many organisations and individuals have contributed to its development through a series of workshops and seminars. Ownership of the strategy stretches far beyond the Forum and the Executive, and we hope will in time reach out to every citizen of Scotland. The Forum has already consulted widely and now offers its recommendations to the Scottish Executive.

The Forum will continue its work in developing a suite of action plans and indicators collaboratively with the purpose of delivering the strategy objectives and measuring its progress.

The strategy lays down a clear 25-year vision for biodiversity in Scotland:

**Scotland is a nation where the conservation and enhancement of biodiversity underpins all decision making and practice to ensure the environment is sustained for its people.**

In achieving this vision we will aim to:

- **Halt the loss of Scotland's biodiversity and continue to reverse previous losses by targeted action for species and habitats**
- **Raise awareness of the many benefits of biodiversity by significantly increasing the number and range of people contributing to its conservation and enhancement**

Action for biodiversity in Scotland is founded on 3 key principles:

- **Provision of a framework for action**
- **Promoting the conservation, enhancement and sustainable use of Scotland's biodiversity by placing people at the heart of the strategy**
- **Gathering, developing and applying the best available knowledge to assist people in understanding, caring for, enjoying and making wise use of Scotland's biodiversity**

*The biodiversity strategy should be a strategy for people. It has to be understood by Scotland's people, reflecting their concerns. It is as much about our quality of life as it is about other species in our world. It is about getting the balance right. I believe that we must make the link between biodiversity and people, encourage their appreciation and raise their awareness. That is how we will make the difference.*

**Allan Wilson MSP,  
Deputy Environment  
Minister**

*"It wouldn't be the same without the wildflowers and the butterflies on the croft, not at all the same. They're as important to me as the TV"*

**Bella Macrae, Crofter,  
Strathglass**

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## 1. Introducing Biodiversity Matters

### 1.1 What is it all about?

Biological diversity, biodiversity for short, is the term given to the variety of living things on our earth. The biodiversity around us today is the result of millions of years of complex interactions, natural processes and increasingly of our influence on the natural environment.

Biodiversity matters to the sustainable future of Scotland's people and our economy. It matters not only to scientists and those involved in conservation but to everyone who lives in, works in and visits Scotland. Maintaining Scotland's biodiversity is vital to our future quality of life. The elements of this living resource perform services vital to the quality of the air that we breathe, the water that we drink and the soils we cultivate for forestry and food production. It provides the settings for leisure activities and the waters that service our industries. It is this natural capital which if we look after it, will allow us to adapt to changing local and global conditions in the future.

*'Biodiversity is the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems'*

**Convention on Biological Diversity**

### 1.2 Why does Scotland need a biodiversity strategy?

Considerable work has been carried out for the conservation of biodiversity. As a result of this strategy we wish to extend this action more widely in an integrated way to accelerate progress in biodiversity conservation.

#### 1.2.1 Biodiversity is fundamental to Sustainable Development

The diversity of life is at the centre of Scotland's natural resources. The state of Scotland's biodiversity is a key measure of our success in achieving a sustainable way of life and its conservation and enhancement is an insurance policy for our future. People and the choices they make at all levels are the key to maintaining this natural asset. Too few of us understand its worth or its fragility. We take the natural world around us for granted, sometimes ignoring its degradation in pursuit of short-term objectives without proper assessment of the risks to our long-term future.

Conserving and enhancing Scotland's biodiversity must go hand in hand with meeting the social and economic needs of Scotland's people. *Biodiversity in Scotland: Progress Report<sup>1</sup>* recognised that biodiversity has become more important but that much more needs to be done to make biodiversity a more central part of sustainable development in Scotland. The livelihoods of many of our rural and coastal communities are reliant upon the sustainable use of natural resources, both on land and at sea. Action for biodiversity must be integrated and delivered as part of sustainable development, enabling recognisable benefits for biodiversity to be delivered across the board. This integration is needed at the highest level within Scotland but must also be reflected locally.

Individuals and organisations must be made aware of their impacts and the consequences of non-action and be encouraged to find a balance between their own needs and the environment. Inevitably there will be difficult decisions but we must ensure that such decisions are based on the best available knowledge and should seek out synergies between environmental, economic and social gains and objectives.

*'Just as every decision and action is targeted at closing the opportunity gap, so too will all our work be judged against how well we conserve and sustain the environment that our children will inherit from us. Scotland is a land of many riches; our natural resources and the talents of our people. Our responsibility to future generations is to conserve, protect and harness all those resources'*

**Jack McConnell, First Minister, April 2002**

<sup>1</sup> Biodiversity in Scotland: Progress Report (2002) Mary-Ann Smythe, RSK-ERA Ltd. Scottish Executive

*The Scottish Executive's Sustainable Development policy 'Meeting the Needs'<sup>2</sup> explains sustainable development in terms of:*

- *Having regard for others and the lives they lead, their health and quality of life*
- *Minimising the impact of our actions, reducing resource use and pollution, caring about the source of goods and services*
- *Living within the capacity of the planet, efficient use of resources, reducing waste and recovering what is useful*

All of these elements are essential to the future of our biodiversity. We must develop a greater appreciation of the social and economic benefits of the natural resource. We need to ensure that we all understand our impacts on the natural heritage and attach greater value to the opportunities it offers.

### **1.2.1.1 Business and Biodiversity**

In its commitment to sustainable development the business sector is becoming more aware of its role and potential in promoting and protecting our biodiversity resource. It cannot afford to ignore the growing public concern. Many enterprises call upon natural resources as part of their business, either directly such as pharmaceutical companies or indirectly e.g. the use of freshwater. It is to a company's direct benefit to consider what improvements it can make to Scotland's biodiversity, often at little or no cost by recognising and integrating action for biodiversity with its other activities. Business interests can also take positive steps within and outwith their organisations to promote biodiversity, thus securing further commercial advantage and a reputation for environment responsibility.

They can contribute by analysing all their operations to reduce their impact upon biodiversity, including their management of any land they hold, the biodiversity impacts of their supply chain, working in partnership with local communities, staff and suppliers. There is a need to ensure that guidance and advice is easily accessible and is integrated with other sustainable development advice and guidance. Enterprises need guidance that is considerate of the existing pressures on businesses particularly SMEs, and offers practical and relevant opportunities.

### **1.2.2 Our quality of life depends upon healthy biodiversity**

The quality of life for many people in Scotland, and sometimes their livelihoods, are already being affected by the loss of biodiversity. Both our psychological and physical well being can benefit from access to and involvement with the natural world around us. From the highest mountains to the local park biodiversity is an intimate part of our world and all Scotland's people should have access to these benefits. Human activities are placing increasing demands upon Scotland's natural resources. If we do not understand and manage this relationship then we may lose the opportunity not only to access the natural capital that exists within Scotland, but the benefits of the services that are currently carried out within the natural environment.

*Biological diversity...is the foundation upon which human civilisations have been built. Its conservation is a prerequisite for sustainable development and, as such, constitutes one of the greatest challenges of the modern era.*

**Hamdallah Zedan,  
CBD Executive  
Secretary**

*A company quickly recognises that there is no dividing line between biodiversity conservation and what a company is trying to achieve through a standard environmental management system because both are integral to overall protection of the environment.*

**Earthwatch**

*This concept of biodiversity embraces all living things, from the tiniest garden ant to the Caledonian granny pine.*

*Biodiversity is everywhere, in window box and wildwood, in roadside and rainforest, in snowfield and seaside and sky. It is part of the natural heritage we have all inherited. In Scotland we have a bountiful share of this richness; but we must not take it for granted. We depend on biodiversity for our quality of life. What we don't save now, our children and grandchildren will have to pay for, later.*

**Magnus Magnusson  
KBE**

<sup>2</sup> *Meeting the Needs...Priorities, Actions and Targets for sustainable development in Scotland* (2002) Scottish Executive Environment Group Paper 2002/14

### 1.2.3 Scotland's Wealth of Biodiversity

For its relatively small size, Scotland possesses an intricate mosaic of habitats that is particularly unusual. This rich tapestry of land, freshwater and sea, strewn with lochs, mountains, forests and moorland is reflected in the species that live here. Scotland is internationally famous for its **native pinewoods, Atlantic oakwoods, bryophytes and lichens, its raised and blanket bog, its wild coastline and seas, machair grassland and peatlands.**

Although there are few species and habitats biologically unique to Scotland, some have their UK, European or global stronghold here. Many are at the edge of their range, adapted to Scottish conditions and may consequently be genetically different to populations of the same species elsewhere. This diversity is important for adaptation to changes, such as in climate, for both biodiversity and people. We have a special responsibility for species such as **Scottish primrose, Atlantic salmon and the Gannet.**

Scotland has a long history of interest in and understanding of its natural heritage. Its landscapes and seascapes are culturally important to its people. Whilst acknowledging this we must recognise that there remains much unknown about our biodiversity, particularly about our marine ecosystems and the soil.

A report<sup>4</sup> prepared by members of the Scottish Biodiversity Forum describes the present status of and trends in Scotland's biodiversity, in terms of habitats, species and genetic resources.

The report estimates that there may be **90,000 species** in the terrestrial, freshwater and near shore marine environments of Scotland. Our overall species resource is remarkable more for its unique grouping of species and their adaptation to local conditions, than for either the sheer number or rarity of the individual species concerned.

The **mountain regions** contribute to Scotland's visual and ecological distinctiveness with arctic alpine species represented alongside coastal and lowland species. Whilst the **blanket bog** that cloaks much of the Scottish uplands is at its best in the Flow Country of Caithness & Sutherland. These bogs represent perhaps 1/7<sup>th</sup> of the world resource. Scotland retains one of the richest surviving European concentrations of **raised bog**, supporting an especially rich diversity of invertebrates and dense populations of **breeding waders**. Scotland's **heather moorlands** and their **red grouse** are distinctive and remarkable for their beauty and their economic value. Our **native pinewoods** host several globally threatened plants and animals.

**Fresh waters** including some 28,000 standing waters, over 50,000km of flowing waters and 220km of canals cover more than 2% of the land surface. These provide habitats for threatened species such as the **Atlantic salmon**, the **freshwater pearl mussel**, the **osprey** and the **water vole**. The over riding importance of Scotland's **lochs** in terms of biodiversity is their scale, their range of habitats and species and their high quality. Scotland is the principal location in the UK for **mesotrophic lochs**, moderately nutrient rich with the most diverse range of plants of any standing waters. The shallow waters of Scotland's **ponds and pools** are home to a wide variety of species including rare ones such as the **medicinal leech, northern blue damselfly and great**

*Scotland's nature is at the heart of our common wealth as a nation. It is valuable for its own sake: comprising the rocks, soils, water and biodiversity of plants and animals that for our outstanding natural inheritance.*

**Sam Galbraith, MSP**  
**The Nature of Scotland<sup>3</sup>**

*We must always recognise that conservation is a social activity, expressing social values. Biodiversity is valuable in its own right, but it is also part of our heritage. It is the product of interaction between landscape, nature and people down the millennia. It has been the inspiration of artists and poets as well as the delight of naturalists. The biodiversity of Scotland is a part of Scotland's Scottishness. Conserving it is a cultural priority.*

**Sir Martin Holdgate**

<sup>3</sup> *The Nature of Scotland: A policy statement* (2001) Scottish Executive

<sup>4</sup> *Towards a strategy for Scotland's biodiversity: Scotland's Biodiversity Resource & Trends* (2003) Usher, M (Ed) SBF, Scottish Executive

**crested newt.** Apart from the Insh Marshes on the Spey (the UK's largest continuous area of base poor fen) Scotland's **wetlands** are generally relatively small remnant habitats compared with our rivers and lochs.

The **seas** around Scotland account for 53%<sup>5</sup> of its total area and support a rich and varied wildlife. The North Atlantic Drift brings warm water to the west coast and cold sub-arctic waters reach down to the Northern Isles drawing together northern and southern marine species. The range of exposures to currents and wave action and the varied geology make Scotland's **marine environment** and **coastal habitats** among the most diverse in the world. This diversity is of immense value to our industries and our people and deserves to be protected.

#### 1.2.4 Our Biodiversity is under threat

For many centuries man's activities have altered the land with consequent impacts on wildlife and habitats. The felling of the ancient Caledonian forests, or the reclamation of foreshore along our firths and estuaries are two significant examples.

Today man has the capacity to impact on biodiversity at a speed and scale never before seen. New farm policy (driven by the EU) can lead to wholesale changes to the farmed landscape, with consequent winners and losers. Many of the species of greatest conservation concern are those which require particular habitats which are now scarce, or types of land management which are in decline. The message is clear, the future of biodiversity conservation is linked with how the people of Scotland manage their activities. There are already good examples to demonstrate support for biodiversity from land managers. These are good examples demonstrating biodiversity's positive response to good land management practice. Such good practice needs to be encouraged and replicated.

Reversing declines in our farmland birds and wildflowers, improving the condition of semi natural habitats such as grasslands and woodlands and bringing biodiversity to the doorstep in our urban centres will require effort from us all.

Added to this are the processes surrounding climate change, such as sea level rise and coastal erosion, or the accidental introduction of non-native species which compete with our native biodiversity.

Managing the impacts of climate change on biodiversity requires a strategic approach, allowing species to adapt by providing space to migrate across the landscape, and regularly reviewing priorities based on changes in populations and habitats. Biodiversity action may offer opportunities to limit human-induced greenhouse gas emissions. These could include measures sequestering carbon in crops or soils, through woodland planting or the conservation of peatlands and other carbon 'sinks'. This will require greater strategic coherence between biodiversity, land use and climate change policies.

#### 1.2.5 Scotland has an international obligation

<sup>5</sup> Taking area of sea within 12 mile territorial sea limit

<sup>6</sup> Natural Heritage Trends (2001) Scottish Natural Heritage

<sup>7</sup> Action for Scotland's Biodiversity (2000) Scottish Biodiversity Group, Scottish Executive

*Those who contemplate  
the beauty of the earth  
find reserves of strength  
that will endure as long  
as life lasts. There is  
symbolic as well as actual  
beauty in the migration of  
birds, the ebb and flow of  
tides, the folded bud ready  
for spring.*

**Rachel Carson**

Conservation agencies and NGOs have been active in assessing the impacts upon our natural heritage. Publications such as SNH's **Natural Heritage Trends**<sup>6</sup> and The Scottish Biodiversity Groups **Action for Scotland's Biodiversity**<sup>7</sup> provide more detailed assessment and analysis of the threats to our biodiversity.

At the Earth Summit on Sustainable Development in 1992 the UK Government signed up to a number of agreements including the Convention on Biological Diversity (CBD). The stated objectives of the CBD are:

- The conservation of biological diversity
- The sustainable use of its components
- The equitable sharing of the benefits arising out of the utilisation of genetic resources
- Research and monitoring programmes and exchanges of information
- Education, training & awareness

Strategies put in place since 1992 as part of the CBD and endorsed by the UK Government take this forward in specific areas, for example, the Global Strategy for Plant Conservation. A planned approach has been started in the UK with the UK Biodiversity Action Plan which identifies those species and habitats most at risk and in need of action to improve their status or condition. Considerable work by a wide range of stakeholders has helped identify the actions required and these are contained within the UK BAP Species and Habitat Action Plans. This process provides clear priorities and targets against which progress can be measured but requires co-ordination and management in Scotland.

Scotland's First Minister joined other UK Ministers in Johannesburg to reconfirm their commitment to this convention.

### 1.3 What has been achieved so far?

Scotland plays an important role in providing support to biodiversity initiatives around the world. This support is provided, for example, through the active contributions of Scottish institutions (Universities, Botanic Gardens and other research organisations), the provision of information or training and formal education.

Under the UK Biodiversity Action Plan, to which the Scottish Executive is committed, habitat and species action plans have been drawn up for 41 habitats and 226 species of particular conservation concern which occur (or have occurred) in Scotland. Over a third of these have more than 50% of their UK population present here. For species on the brink of extinction this specific targeted action is vital for their survival in the short term.

Real progress has been made through the efforts of a wide range of stakeholders; corncrakes, native pinewoods and otters are all showing signs of recovery along with a number of other species and habitats. But the overarching objectives of the UK Biodiversity Action Plan cannot be met by targeting individual species and habitats alone, unfortunately a significant number remain in decline. A broader approach to action for biodiversity is required.

**The Convention on Biological Diversity (CBD)** was signed by 150 government leaders, including the UK, at the 1992 Rio Earth Summit, and is dedicated to promoting biodiversity in the context of sustainable development. Further information on the Convention can be found at [www.conbio.org.uk](http://www.conbio.org.uk)

**Biodiversity: The UK Action Plan** was published in 1994 to map out the UK's contribution to the CBD. For further information visit [www.ukbap.org.uk](http://www.ukbap.org.uk)

Local action is already underway. Biodiversity Officers across Scotland's 32 local authorities are working through Local Biodiversity Partnerships to implement local biodiversity action plans. Local Biodiversity Action Plans (LBAPs) were developed as a tool for stimulating effective local action for national priorities identified in the UK Biodiversity Action Plan, as well as for species and habitats valued or threatened in local areas of Scotland. These local groups will continue to require support and guidance if they are to encourage focussed biodiversity awareness and action.

Environmental change is continuous and the natural world is perpetually adapting to new circumstances and conditions. A strategy for Scotland's biodiversity is needed to consolidate action taken through the UK Biodiversity Action Plan and local plans and under a range of other initiatives to date. It provides a framework within which action towards the targets outlined in the UK BAP Species and Habitat Action Plans relevant to Scotland may be more readily achieved.

The designation of Scotland's most special places continues to be essential to their effective protection and management. The Natura 2000 and SSSI networks are an important focus for the conservation of biodiversity. Statutory protected areas should be complemented by policies designed to promote biodiversity throughout the countryside, as well as in our towns and cities and by locally identified wildlife sites. We should aim to promote the natural heritage alongside the economic and recreational activities that sustain our communities in both terrestrial and marine environments. The Scottish Executive is developing a network of well-managed marine protected areas aimed at safeguarding threatened and declining species, habitats and ecosystem functions. A comprehensive study of Scotland's marine environment and marine resources will help to identify what pressures the marine resource is facing and what the best mechanisms for protecting nationally important interests might be.

## **2. Making Biodiversity Matter: The Strategy**

### **2.1 Strategy purpose and vision**

This strategy provides a framework for those who live in, work in, and visit Scotland, to gain an understanding of and to conserve and enhance our natural resources, to improve our quality of life and work together towards a sustainable future.

It aims to stimulate action and raise awareness of biodiversity for a wider audience. The strategy will enable us to further develop and better report Scotland's contribution to the Convention on Biological Diversity and the UK Biodiversity Action Plan. Ultimately the strategy will assist Scotland in reaching its vision.

*Scotland is a nation where the conservation and enhancement of biodiversity underpins all decision making and practice to ensure that the environment is sustained for its people*

*The process of Local Biodiversity Action Plans in Scotland is widely recognised as one of the outstanding successes of the biodiversity initiative in the UK - a remarkable achievement that reflects the significance of biodiversity to Scottish life. It shows that the message of biodiversity has come a long way from the 'Earth Summit' in Rio to local authorities and the people of Scotland.*

**A Flying Start: Local Biodiversity Action in Scotland**

## 2.2 Aims

The key overarching aim of the strategy is to facilitate real change on the ground to conserve and enhance Scotland's biodiversity.

In delivering the strategy and working towards the vision we will aim:

- To halt the loss of Scotland's biodiversity and to continue to reverse previous losses by targeted action for species and habitats.
- To raise awareness of the many benefits of biodiversity by significantly increasing the number and range of people contributing to its conservation and enhancement

## 2.3 Strategy Principles

To achieve this the resources available must be directed to opportunities likely to yield the greatest benefits, and three key strategic principles offer significant possibilities for effective action:

2.3.1 Providing the framework for biodiversity action in Scotland	2.3.2 Promoting the conservation, enhancement and sustainable use of Scotland's biodiversity by placing people at the heart of the strategy	2.3.3 Gathering, developing and applying the best available existing and new knowledge to assist people in understanding, caring for, enjoying and making wise use of Scotland's biodiversity
<ul style="list-style-type: none"> <li>• Develop integrated public policies and strategies that further the conservation and sustainable use of natural resources</li> <li>• Achieve greater resource and delivery efficiency for biodiversity action</li> <li>• Manage Scotland's use of resources in a way that considers the natural functioning of ecosystems so their future health is maintained and enhanced.</li> <li>• Work together towards targets identified in the UK Biodiversity Action Plan</li> <li>• Further develop partnership working and collaboration needed to promote initiatives, raise the profile of biodiversity and access funding</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthen the links between people and their natural environment through improved and appropriate biodiversity action, communication and interpretation.</li> <li>• Raise awareness and ownership of the values of biodiversity and the impacts (both negative and positive) that individuals can affect</li> <li>• Encourage and empower people and partnerships to seek appropriate solutions to local biodiversity issues</li> <li>• Cultivate an appreciation of the social and economic benefits of healthy biodiversity resource</li> </ul>	<ul style="list-style-type: none"> <li>• Co-ordinate and target research on the biodiversity resource and peoples interaction with it.</li> <li>• Make existing knowledge and information more accessible to people</li> <li>• Utilise the best available knowledge to inform decisions, identify priorities for action and ensure value for money</li> <li>• Survey and monitor Scotland's biodiversity resource</li> </ul>

### 2.3.1 Providing the framework for biodiversity action in Scotland;

UK, national and local biodiversity objectives should be further integrated with other strategies and policies that have influence over our natural heritage. This document is a first step towards such integration but further work will be required from all sectors. Some policy areas, such as planning, agriculture and forestry are already making progress; other sectors need to understand the relevance of biodiversity more clearly and take appropriate action. Biodiversity must become more central to Scotland's sustainable development agenda and should be utilised as a fundamental measure of its success.

The planning system has a key role in delivering a better environment; both on land and at sea. National planning and advice, particularly NPPG 14<sup>8</sup> and PAN 60<sup>9</sup>, set development planning within the context of good environmental stewardship. We recognise the need for houses, roads and other infrastructure development, but society also demands that the natural heritage enjoy effective protection. These safeguards aspire to "accord the planning system a key role in the protection of the natural environment and the maintenance of biodiversity." However, the potential for conflict between development and natural heritage interests is real. Early consultation and full disclosure of likely impacts as part of the Environment Impact Assessment (EIA) process are important ways of resolving any potential conflicts of interest that do arise.

Gaps in policies and strategies that may jeopardise biodiversity require further exploration. For example, little is known about the biodiversity of our soils or the impacts of changing land management techniques upon it. Farm and forestry policies are key to encouraging the sympathetic management of the countryside where much of our biodiversity occurs. Further integrating the needs of biodiversity into these sectors will continue to be a vital goal.

Environmental concern is not solely the province of land managers. Nor in our education system is it only for school, college and university science departments; it is possible to think about our natural world in other areas of the curriculum. The formal education system in Scotland has a substantial role to play in raising levels of understanding and awareness about our natural environment and the impacts upon it. These opportunities should be explored further.

Many of our biodiversity achievements so far have been based on good partnership working. Working together to develop projects and initiatives can ensure the best outcomes possible for biodiversity. Partnership projects at all levels are likely to have a higher public profile and attract funding from other partners and bodies. Further development of partnership and collaborative working is needed. Local Biodiversity Partnerships provide the framework for this at the local and community level but more needs to be done to integrate local and national working.

Those involved in the biodiversity process in Scotland must work together more closely towards targets identified in the UK Biodiversity Action Plan. The success of many UK Biodiversity Action Plans for individual species depend on support from many public bodies, corporate organisations and

**The Trunk Roads Biodiversity Action Plan (TRBAP)**<sup>1</sup> is a good example of integration of biodiversity into other policies. It provides biodiversity guidance or those involved in the routing, design and construction of our trunk road network in Scotland. The current review of the TRBAP will offer further guidance and will be applicable to other similar areas of the transport network

#### **Tapestry of Life**

Members of the Scottish Biodiversity Forum in association with Learning Teaching Scotland developed a teaching resource based upon biodiversity and devised to match the modes of Standard Grade English. Where publicised the resource is well received but support for the publication has been limited within the education sector.

<sup>8</sup> *Natural Heritage National Policy Planning Guidance No 14 (1999) Scottish Executive*

<sup>9</sup> *Planning for Natural Heritage Planning Advice Note 60 (2000) Scottish Executive*

private individuals. Broader action at a habitat scale needs to be co-ordinated to benefit a number of related species and habitats resulting in an efficient use of resources and a better chance of success.

### 2.3.2 Promoting the conservation, enhancement and sustainable use of Scotland's biodiversity by placing people at the heart of the strategy

Modern society's relationship with the environment is critical. The sustainable use of biodiversity can offer opportunities for enterprise and innovation, the Flora Celtica<sup>10</sup> report highlighted the wide range of uses that can be made of these natural resources. Biodiversity needs to link with people's life values; economic and social security, home, family, wellbeing and the future. Individuals and organisations must recognise that their use of natural resources impacts upon biodiversity and that this use must be maintained within sustainable limits. This is reliant upon a wider understanding and appreciation of the value of biodiversity and the ways in which it enriches our lives. Ensuring that biodiversity targets are met, is a measure of what constitutes Sustainable Development. Raising awareness, enthusiasm and commitment for biodiversity among the people of Scotland is therefore a key strategic issue.

Environmental concern is sometimes seen as the realm of a specialist group but a recent study shows that around 80% of the public are concerned at the loss of wildlife.<sup>11</sup>

Involvement with biodiversity in our local environment brings benefits in terms of both our psychological and our physical wellbeing, and can aid convalescence. Childhood experiences are a powerful influence on how people react to nature and open spaces in adulthood, so the provision of opportunities for children to interact freely with biodiversity in a safe and robust environment is vital.

Deprived areas are often characterised by the poor quality of the environment that people live in and greater social and economic barriers to involvement. We all need the confidence to contribute and to know that our involvement matters. Guidance and encouragement should be provided so that individuals and groups feel they can make an impact and a genuine contribution. Local biodiversity activity needs to be sustained and developed and greater support and encouragement should be provided for volunteer groups undertaking environmental work. This offers enhanced opportunities to deliver many of the social inclusion, health and education benefits other policy areas seek.

These messages need to be explained in appropriate language for a target audience, reducing the complexity of the message, and demystifying the subject for a range of audiences. Biodiversity does not only relate to species and habitats in exotic locations around the globe; it is relevant to everyday life in the areas in which we live and work. Many organisations are currently involved in a wide range of initiatives communicating and teaching about our natural surroundings. Environmental educators and communicators have a key role here, starting with what people already know and value and encouraging them to discover the part they can play. Co-ordination is required to reinforce key messages and critical evaluation and refinement of communication techniques is an ongoing requirement. We can learn from

*Scotland's natural heritage offers opportunities for us all. Better understanding of our biodiversity enables everyone to become involved in its care. But it also allows us all to enjoy the pleasures of the natural world while taking a responsible approach to the impacts our own behaviour may have.*

**Sarah Boyack**  
**Action for Scotland's Biodiversity**

**The Physical Activity Task Force report<sup>12</sup>** calls for a greater push to get all sections of Scotland's population to adopt a more physically active and healthy lifestyle. Biodiversity provides opportunities for all groups to become involved.

*"My walking group has noticed things in our environment that otherwise we would have known nothing about. Life seems richer because of this."*

**Inga Grant,**  
**Volunteer, Health Walks Around Alloa**

<sup>10</sup> Flora Celtica: Sustainable Development of Scottish Plants (2001) Scottish Executive

<sup>11</sup> Scottish Public Opinion Survey (2001) Scottish Executive

<sup>12</sup> A strategy for physical activity (2002) Physical Activity Task Force

other sectors that do it well. We should be aware that our consumer choices have an effect far beyond the local environment. Certification and accreditation based on biodiversity for sustainably produced products only has the potential to add value or influence consumer choice in a market where consumers are both informed and concerned. For example, buying hardwoods products displaying the “forest stewardship council” sticker at the local DIY store helps to sustain an ethical supply chain which in turn touches the lives and livelihoods of people on other continents in a positive way. This should be a target audience as part of a wider communication strategy.

We should listen to what people want from their local environment and address this in promoting biodiversity action. A feeling of ownership and involvement empowers people to take pride in and to defend their local environment. Local Biodiversity Partnerships in association with other organisations and groups must continue to have a key role in raising awareness and developing local ownership of biodiversity for communities and businesses.

### 2.3.3 Gathering, developing and applying the best available existing and new knowledge to assist people in understanding, caring for, enjoying and making wise use of Scotland’s biodiversity

A considerable amount of research has been carried out on the biodiversity resource in Scotland but there are still some significant gaps in our knowledge. This is particularly true of the marine environment in general and also for some groups of organisms, such as fungi, lichens and invertebrates. Even less is known about genetic variability. These knowledge gaps should be clearly identified and addressed in a systematic way.

The targeting and co-ordination of research is vital if we are to have access to the right information to achieve our objectives. The SBF Biodiversity Research Strategy<sup>14</sup> lays out research priorities for biodiversity in Scotland and should be pursued as a key part of the Biodiversity Strategy. The Research Strategy focuses on the ecological aspects of biodiversity but more also needs to be known about the value of biodiversity both socially and economically.

There is a long established tradition in Scotland of observing and monitoring the natural world around us. Records for some species go back many decades, so for those plants or animals, it is possible to map their changing distribution over time. Research institutes, government agencies, natural history societies and individual recorders all play a key role in collecting this raw data. So much is known as a result of these observations. But for those outside the biodiversity circle, it is difficult to get ready access to these data. The National Biodiversity Network (NBN) currently in development was recently set up to overcome these difficulties. The NBN will become a reliable and comprehensive source of biodiversity information for all that require to use the service..

Knowledge needs to be more accessible and more widely distributed through more effective dissemination of research results, exchange of

*'The finest language is mostly made up of simple, unimposing words...signs of something unspeakably great and beautiful'*  
**George Eliot (1819-1880)**

*At least 2,000 statutory and voluntary organisations and societies and over 60,000 individuals (70% of whom are volunteers) currently hold biodiversity information for the UK*  
**Biological Recording in the United Kingdom<sup>13</sup>**

To search the NBN, visit [www.searchnbn.net](http://www.searchnbn.net). To find out more about LRC activities throughout Scotland, visit [www.briscc@btvcv.org.uk](mailto:www.briscc@btvcv.org.uk)

<sup>13</sup> Burnett, J. Copp, C. Harding, P. (1995) Biological Recording in the United Kingdom: Present practice & Future Development. Summary Report. Department of the Environment, London

<sup>14</sup> Scottish Biodiversity Forum Research Strategy 2002-3 (2002) Scottish Biodiversity Forum / Scottish Executive.

experience, good practice and partnership working. It is not clear to people where information about our natural heritage can be found. Information sources should answer these questions, delivering information at a global, national, local and personal scale. Guidance needs to be developed in appropriate form to offer opportunities for different groups and organisations to contribute. This needs to include educational resources for both formal and informal training through colleges and training bodies. We aim to help create a culture where everyone has the desire and the opportunity to develop their knowledge about the natural world around them.

### 3. Contributing to Biodiversity Protection & Enhancement

All sectors can contribute to the conservation and enhancement of biodiversity, through their actions and their choices. Implementation plans are being developed in wide consultation and will detail the actions that we will take to meet the objectives of this strategy. The following paragraphs outline the roles we all have to play in taking action and will be the basis of our three implementation plans: Rural, Urban and Marine.

#### 3.1 Scotland's countryside

##### 3.1.1 Sustainable Rural Development

Many highly valued Scottish landscapes and habitats have evolved through low intensity, mixed land management activities. Sustainable land use maintains biodiversity, (including genetic diversity of domestic stock, plant varieties and races) and the functions it serves; including the maintenance of soil fertility, production of food, nutrient cycling and water quality. Biodiversity is vital, in both social and economic terms, to rural communities, industries, consumers and society generally.

Sustainable development will involve trade offs to balance social, economic and environmental needs. Activities such as mineral extraction, energy installations, new housing, roads and other infrastructure all have impacts upon our biodiversity. We will work to minimise negative impacts and we must make the most of the skills and potential of Scotland's land managers in maintaining and enhancing our countryside. We need to value biodiversity, and the role of good land management in its future.

Practices in rural land management are changing, and awareness of the importance of species and habitats and their conservation is continuing to increase amongst land managers and policy makers.

Many of the objectives of recent land use strategies are synonymous with the aims of the biodiversity strategy and with thinking on integrated land use and community involvement but pressures on our rural biodiversity still exist. Increased nutrient levels in freshwater, under and over grazing, changes in agricultural practices, woodland management, recreation pressures and moorland management have all impacted upon the health of our biodiversity. Biodiversity should be further integrated into all policies in the rural environment to provide the framework to resolve the drivers behind many of these actions and encourage the restoration or re-creation of habitats where appropriate.

The delivery of real biodiversity benefits will require action at the landscape scale whereby the management of individual land holdings contributes to the delivery of sustainable development across the rural environment. Rural interests should work more closely together in considering the need for balanced landscapes and ecosystems. The LBAPs offer a strong base for an integrated approach to delivery of local environmental priorities.

Much is already being done across rural Scotland to promote sustainable rural development but rural businesses must be economic if they are to survive, a particular issue at present with many struggling to make a return on their products.

*"My life is all the richer for living and working in rural Scotland, by managing the natural resources to provide an economical return for the Estate. My family, friends and I enjoy the full benefits of this diverse environment"*

**Jim Grant,  
Gamekeeper,  
Angus**

Only a limited number of land managers will be able or prepared to subsidise biodiversity action at their own expense. Economic and social concerns are the central drivers for biodiversity conservation. Most of what can be achieved is for the 'public good' and non-direct market benefits such as enhanced landscape and scenery and their value to other industries such as tourism and other rural products, should be acknowledged and encouraged.

Biodiversity needs to be established as central to the agenda of sustainable rural land use, economic and rural policy and the principle of sustainable use should be applied to all businesses that utilise Scotland's natural resources.

### 3.1.2 Farming

Past agricultural policies and support mechanisms have been a major influence on our countryside. Some of these policies are no longer sustainable in either agricultural or environmental terms, and more recent agricultural policy has begun to shift the emphasis from solely food production to a more multi-functional agriculture. The current agri-environment scheme (Rural Stewardship Scheme) includes action to benefit biodiversity with priority habitats and species as objectives used in the assessment of applications. This gives focus both to national and local biodiversity priorities but the scheme is competitive and when a farmer applies there is no guarantee of success. The SBF is keen to see more opportunities for farmers and crofters to support the conservation and enhancement of biodiversity.

This desire to change direction is clearly signalled in A Forward Strategy for Scottish Agriculture<sup>15</sup>. If farming is to meet this challenging vision, clear and consistent messages need to come from Scotland's government.

Other related sectors are following suit and lifting the environment up their agendas. The agro-chemical industry is undertaking a 'Voluntary Initiative' and in this context it has developed its own biodiversity strategy to help target chemical use and minimise impacts on farmland biodiversity.

'Custodians of Change'<sup>16</sup>, the report of the Agriculture and Environment Working Group, identifies biodiversity and habitat protection, along with diffuse pollution to water and landscape change, as an environmental priority for Scottish agriculture in the next 5-10 years. In particular the report calls for a focus on the implementation of the Local Biodiversity Action Plans. Land management contracts are proposed as a whole farm system of support, which recognises the farm as a multi-functional business delivering a range of economic, environmental and social benefits. This approach should continue to be pursued as a non competitive support scheme based on good farming practice as a minimum requirement. This offers greater scope for co-operative action over a much wider geographical area.

The Scottish Executive should seek opportunities to utilise all available mechanisms within the EU Rural Development Regulation to support sustainable agriculture and ensure the best outcomes for both rural communities and the environment.

**A Forward Strategy for Scottish Agriculture** offers a vision of '*...a prosperous farming industry, one of Scotland's success stories, which benefits all the people of Scotland [and] should... be a leading player in the protection and enhancement of our environment*

<sup>15</sup> A Forward Strategy for Scottish Agriculture (2001) Scottish Executive

<sup>16</sup> Custodians of Change: Report of Agriculture and Environment Working Group (2002) Scottish Executive

### 3.1.3 Forestry and Woodland Management

Woodland cover accounts for 17 % of the Scottish land area, and only about 10% of this area is classed as semi-natural native woodlands. These are the most valuable for biodiversity, and are most in need of protection. Even though many of our plantations are less biodiversity-rich, their scale and distribution are allowing a number of species to increase their range, e.g. the recent discovery of the Caledonian Sac Spider in a maturing pine plantation about 80 km away from areas where it was previously recorded<sup>17</sup>.

As with all species whose natural range is restricted because of their strong dependence on particular habitats, many woodland species have suffered because of woodland fragmentation and the demise of traditional management methods. Heavy grazing has also led to a lack of regeneration and in some cases a loss of species diversity.

The management of Scotland's woods has changed over the past decade, as a result of initiatives and international agreements stemming from the Rio Earth Summit and subsequent developments within Europe. These have helped develop the concept of sustainable forest management<sup>18</sup>, now underpinned by the UK Forest Standard<sup>19</sup>, independent certification of forests and the product labelling.

The Scottish contribution to sustainable forestry is set out in the Scottish Forestry Strategy<sup>20</sup>. To achieve its vision it is necessary to ensure that Scotland's trees, woods and forests make a *'positive contribution to the environment'*. This includes improving the management of semi-natural woodlands and extending and enhancing native woodlands, improving deer management, developing more mixed forests and increasing the diversity of the farmed landscape. Through improving riparian habitats and other activities this contribution will also aid the recovery of acidified rivers and lochs. All of these actions contribute to Scotland's biodiversity, but the first two, in particular, will directly contribute towards the delivery of the targets of the native woodland Habitat Action Plans, and the Action Plans for related species.

At the first meeting of the Scottish Forestry Forum in 2002 it was reported that significant progress had been made against the Strategy<sup>21</sup>. However there are still significant challenges yet to be addressed, particularly given the long term nature of forestry and the time required to re-build natural functioning systems. These challenges will form key elements in the development of strategic action plans for biodiversity in Scotland, which will assist in the delivery of the aims of this strategy.

### 3.1.4 The Freshwater Environment

The freshwater environment is inextricably linked to the land and its management. Its high quality is essential for drinking water and for many industrial processes, such as the production of whisky. Rural businesses and land uses should aim to minimise their impacts upon these freshwater resources (both in quality and quantity) and enhance them where possible.

A Scotland....  
*'renowned as a land of  
fine trees, woods and  
forests which strengthens  
the economy, which  
enrich the natural  
environment and which  
people enjoy and value'*  
**Forests for Scotland:  
The Scottish Forestry  
Strategy**

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<sup>17</sup> Usher, in prep

<sup>18</sup> Sustainable Forestry - the UK programme (1994). HMSO. London

<sup>19</sup> The UK Forestry Standard (1998, revised 2001). Forestry Commission. Edinburgh

<sup>20</sup> Forests for Scotland: The Scottish Forestry Strategy (2000). Scottish Executive.

<sup>21</sup> Delivering the Scottish Forestry Strategy (2002) Scottish Executive

The EU Water Framework Directive, along with other policies such as the Nitrates Directive, will give Scotland the opportunity to promote sustainable use of our natural water resources through catchment management. Targets for water quality will be based not only on the chemical composition of the water but also on its biodiversity. Several of Scotland's rivers are recognised under the EU Habitats Directive, where they support habitats and species of particular importance. Here, special measures may be required to safeguard interests features like the Atlantic salmon, the freshwater pearl mussel, otter and lamprey.

The freshwater sector of the aquaculture industry has a role to play in practising and promoting best management practice of fish farms. Similarly the management of angling and netting fisheries should be based upon the principles of sustainable use and contribute to maintaining both the environmental and economic importance of this resource.

Riparian vegetation provides essential habitat for many rare species such as the water vole but also protects river banks from erosion and contributes to the freshwater food chain of important species such as salmon. Bankside vegetation strips can also provide a buffer to reduce diffuse pollution (such as agricultural run-off or forestry fertilisers) from entering watercourses. Agri-environment schemes will continue to play an important role in encouraging the re-establishment of riparian vegetation and the creation of artificial wetlands. Many species are reliant upon this habitat and the restoration and re-creation of wetlands and their sustainable management will be vital to the future of these species and others further along the food chain.

Increasingly, we recognise the importance of wetland systems in regulating flooding and erosion. Initiatives like SEPA's Habitat Enhancement Initiative and WWF's Wild Rivers Project encourage a more natural approach to managing rivers: avoiding artificial culverts and straightening, which can increase erosion; and re-creating natural floodplains, to reduce downstream flood risk in urban areas. These measures will provide valuable wildlife habitat as well as being economically positive.

### 3.1.5 Leisure and Quality of life

Scotland's moorland, mountains, forests, farmland and coasts are a substantial asset to Scotland's tourism industry. 90% of visitors to Scotland rate beautiful scenery as one of the reasons they come here and images of our natural heritage abound in tourist brochures and marketing campaigns. Some tourism businesses are specialists dedicated to wildlife tourism, showing visitors' Scotland's wildlife at first hand, but sustainable tourism should be the goal of all in an industry reliant upon the maintenance and enhancement of a high quality environment. This must include the management of any negative impacts of increasing visitor pressure.

Scotland's landscape is also the setting of many outdoor pursuits, for example walking, sport shooting, golfing, wildlife watching, mountaineering, horse riding and angling. People rely on a healthy environment in pursuing these pastimes but they also have an impact upon that environment. Those involved, including organisations governing these pastimes should be encouraged to consider how they could minimise these impacts and make the most of biodiversity. The Access Code developed under the Land Reform Act will provide guidance to minimise the impacts of access in the countryside and disturbance to wildlife.

**Catchment Management:** a process whereby all activities within the catchment of a river or loch are considered in relation to their impact on each other and on the quality and quantity of surface and groundwater.

*"Sustainable tourism is a key driver of economic activity across Scotland and sustains many small businesses and remote rural and island communities. It is the richness and diversity of Scotland's landscape, habitats, species and culture that contributes significantly to Scotland's quality tourism product"*  
**Peter Lederer**  
**VisitScotland**

The good management and sustainable use of our biodiversity for sporting interest i.e. the harvesting of quarry species such as grouse, deer or salmon brings significant landscape, biodiversity and economic benefits to rural Scotland. In many remote areas it may be the only financially viable opportunity for land use. Recreation is not confined to the forests, mountains and coasts. Considerable numbers of people escape the city to the surrounding countryside to relax and pursue their chosen pastimes. Providing a diverse rural environment in around cities in particular can make a real difference to our quality of life.

Biodiversity interests need to work with tourism and other recreational/sporting interests to conserve the environment for the benefit of the local community and Scotland's visitors. Such bodies also have a role in raising awareness of Scotland's biodiversity, developing imaginative communication programmes and encouraging conservation of the environment.

### **3.1.6 Knowledge and Information**

Raising awareness of the benefits of a healthy and diverse rural environment among a wide audience is key. Our biodiversity provides enjoyment and inspiration to many but more people need to develop a sense of responsibility for and ownership of its future. Countryside workers such as countryside rangers, NGO staff and others play a vital role in offering inspiration and share their knowledge to a wide audience.

Incorporating biodiversity into formal education and informal training needs for both land managers and the wider public at all levels creates increased capacity and confidence. With potentially greater access to the countryside people need to understand their surroundings, its management and the impacts they may have upon biodiversity.

Development of more co-ordinated systems to deliver consistent, clear advice and guidance to land managers on both terrestrial and aquatic biodiversity is required. Business and environmental advice should be integrated, linking resource efficiency, waste management and the environment clearly together. A Farm Business Advice and Skills (FBAS) Task Group involving key stakeholders has been set up to develop a national strategy for delivering effective whole farm business advice. Scottish Biodiversity Forum members including Local Biodiversity officers, Farming and Wildlife Advisory Group and Scottish Agricultural College advisors will all have a key role to play in implementing this.

We require a clearer understanding of the biodiversity resource that exists in rural areas and the biodiversity, social and economic interactions that take place if biodiversity is to underpin decision-making. Further co-ordination and integration of biodiversity into research programmes relating to all aspects of land management is vital. Understanding more fully is fundamental to any decision making. It is important that the results of such research are communicated clearly and constructively to a variety of audiences. Public understanding is vital to building support.

## **3.2 Scotland's Built Environment**

### **3.2.1 The built environment for biodiversity and people**

Many people who live in Scotland's built up areas (90% of us) have little or no access to functional green spaces and our rich biodiversity resource. The problems are well known. A lack of quality green space, especially in densely populated urban areas, means that people (including our children) are deprived of the opportunity to experience nature at first hand. Many urban green spaces are of low quality and are uninviting and threatening places to visit. Unmanaged vacant land blights many former industrial areas, especially in west central Scotland, degrading the quality of life, deterring investment and squandering the opportunity to enhance the existing biodiversity resource.

Although much of Scotland's urban green space is currently a liability, it also has huge potential. The challenge of unlocking that potential has not been tackled in a concerted way to date. Previous initiatives have all been at too small a scale or with inadequate involvement of the local communities. However, the *Greenspace for Communities* initiative aims to capitalise on that potential by transforming the environment and quality of life in and around our settlements. It will encourage community participation and ownership; enhance biodiversity, use green space to encourage healthy lifestyles and foster understanding and appreciation of the environment. Initiatives for greenspace should adopt biodiversity objectives, and establish demonstration sites in urban areas to show people what can be achieved locally.

The associated *Fresh Futures* grants programme funded by the New Opportunities Fund is delivering working projects that demonstrate sustainable development in practice, with a focus on better and more welcoming green spaces, and communities which adopt more sustainable practices in waste, energy and travel. The programme is to be extended from February 2003 under the title "Transforming your Space" with funding to improve local environments.

Our encounters with nature are not just confined to formal green spaces. Riverbanks, tree-lined avenues, hedgerows, business premises and private gardens all provide the opportunity to experience nature at first hand. These areas too are a vital part of the urban biodiversity resource.

### 3.2.2 Land Management and Planning

The strategic planning and development control functions exercised by local government recognise the importance of biodiversity by seeking to protect the existing green space resource and requiring adequate environmental provision to be made when new developments are planned. Community planning also offers further opportunity for biodiversity to be given its appropriate place in the scheme of things.

However, greater priority needs to be attached to people's need for high quality green space and the integration of biodiversity into the built environment within policies and budgets of local authorities and other agencies. There is also a requirement for the development and dissemination of good practice advice, high standards and innovation in all aspects of land managed on behalf of the community. The design and management of urban green space is vital. The creation of a uniform landscape consisting of mown grass with a few trees is unappealing to many people and to wildlife. Action for biodiversity offers an alternative, more creative solution and its management may also prove to be less expensive.

The Cumnock Area Schools Environment Project is a 3-year partnership initiative between RSPB Scotland, Scottish Natural Heritage and East Ayrshire Council, with funding assistance from the Heritage Lottery Fund. The project is promoting environmental education in East Ayrshire using the area's biodiversity assets. This is a priority area for this work as it includes some of Scotland's best upland habitats and is the focus for much of the country's opencast coal mining activity whose legacy has left a despoiled landscape.

Biodiversity remains a key consideration in the environmental assessment process and developers should be mandated to maximise opportunities for biodiversity enhancement in restoration schemes and the redevelopment of brownfield sites.

Many of Scotland's settlements are located by the sea or on rivers, and linear green spaces following river valleys or the coast often form the backbone of green access and habitat networks. For these areas to be of most civic benefit, they should be connected to formal parks and other open areas effectively creating multi-functional networks.

### **3.2.3 Biodiversity – helping to create a vibrant economy**

A high quality, green environment can attract inward investment and businesses relocating from other areas of the country. Enterprise agencies should be encouraged to incorporate a stronger biodiversity message into the advice they provide on sustainable development for business enterprises, highlighting the economic benefits of developing an enviable environmental setting for their workplace.

Quality of environment can also have an impact on people's choice of location for living and affects residents' quality of life and sense of place. The same is true of visitors to our cities. Tourism is one of Scotland's largest business sectors and an important part of our economy. Environmental quality is a key factor in determining where people spend their leisure time.

Urban areas have impacts beyond their boundaries, particularly in terms of air and water pollution, carried out into the surrounding areas. Businesses can contribute considerably to reduction of these impacts through effective environmental management and engaging the wholehearted participation of their employees in making these systems work.

### **3.2.4 Biodiversity – it's everyone's concern**

An intimate relationship exists between people and nature, but many have lost touch in our increasingly urbanised society. So we must reconnect the majority of our citizens with nature and demonstrate the life-enhancing qualities that biodiversity can have. Nature must feel close at hand, ideally no more than a ten minute walk from where we live. If green spaces within settlements can be linked to the open countryside, then so much the better. However, for many, particularly in deprived inner city areas, these facilities do not currently exist and more resource is required to create them.

The value of accessible green space to health and quality of life in urban environments is demonstrable. Hospital patients recover quicker with a garden view and urban residents lead more fulfilling lives where the opportunity exists to grow their own food, garden for wildlife or walk in green and pleasant surroundings. Initiatives such as BTCVs Green Gym are providing practical opportunities for health benefits for body and soul! With Scotland's citizens topping the health league tables for all the wrong reasons – heart attacks, strokes, poor diet and lack of exercise – initiatives such as this provide an opportunity to reverse our armchair culture and give our citizens more of a stake in their local environment.

Volunteers are already making an impact in their action for biodiversity and should be further encouraged. Allotments, city farms, community gardens and urban woodlands provide opportunities for engagement with nature, but these facilities are not universally available. Greater understanding is required of the barriers, both economic and social, to people's involvement

I went to the health centre & saw the Green Gym advertised and thought 'Wow!', two things with one stone - getting a bit healthier and conserving the countryside as well.  
**BTCV Scotland Green Gym Volunteer**

in their local environment and how these might be tackled. Involvement with green projects could be the first step back into the mainstream for those who currently feel socially excluded.

The Local Biodiversity Officer network has already delivered a great deal of local biodiversity benefit to the local community through action on the ground. Biodiversity gains will be further enhanced by sustaining initiatives such as Gardens for Wildlife, the Scottish Golf Course Wildlife initiative and through business and biodiversity projects.

School grounds have the potential to be ideal “outdoor classrooms”. They provide the opportunity for children to explore what they see around them and for their teachers to create links with the sustainable development elements in the curriculum and lifelong learning programmes. Perhaps there is also the need for community environmental education centres where the good work undertaken by teachers can be further developed in a more informal setting.

The garden is a miracle. Every year I let a bit go wild just for the pleasure of seeing the nature struggling away to get itself sorted. The roses look bonny, but it's the thistles that bring the goldfinches  
**Davy Macdonald,  
retired postman,  
Kiltarlity**

### 3.2.5 Knowing the resource

Green space ranges in extent between 10% and 40% in a real extent of the area of the major Scottish towns and cities but little is known about the qualitative attributes such as composition, wildlife, connectivity, tranquillity and accessibility.

Our inventory of Scotland's urban biodiversity is far from complete. There is also little information on how people use green space within settlements. To make better use of the resource, we need a clearer understanding of the distribution of habitats and species that thrive in these environments and how best to manage them. There are existing schemes to share data on wildlife, such as the National Biodiversity Network and local record centres. Many of these record centres are located in our major towns and cities. A key objective of the strategy is to create universal access to data and information about the biodiversity resource and make it immediately accessible to all who want to use it.

### 3.3 Scotland's maritime environment

Scotland's coasts and seas support a profusion of biodiversity. It comprises one of our greater biodiversity assets. In early spring, our traditional machair grasslands and sand-dune systems are nesting habitat for high densities of wading birds. Coastal heathlands support many bird, insect and plant species. Millions of seabirds nest in dramatic colonies on cliff edges, and seals come ashore to breed on rocky or sandy beaches. These seabirds and seals depend, in turn, on our rich marine habitats, which are diverse as any in the world. Underwater rocks support fringing kelp forests which shelter a myriad of algae and animals and provide vital nursery grounds for valuable fish. Sandy or muddy sediments, close to shore and offshore, provide a refuge for many fish and invertebrates, including commercially valuable prawns and scallops. The meeting of warm and cold currents in the seas off Scotland brings together both northern and southern species, but too few people have the opportunity to experience and appreciate the colourful and fascinating creatures that live here.

Coastal areas are a focus for industry and other human activities, and support significant human communities. These all impact on marine biodiversity, through pollution and disturbance, but these impacts can be

managed and minimised once the value of this biodiversity is fully appreciated. For example, biodiversity's role in breaking down wastes, helping to regulate climate, and binding sediments for coastal defence, as well as in supporting the sustainable harvest of fish and shellfish. Applying the principles of integrated coastal zone management and environmental impact assessment will allow controlled and responsible development of the coastal zone to continue.

Many coastal communities harvest wild fish and shellfish, and the sheltered inshore waters of the west coast and islands are home to a thriving aquaculture industry. The waters' reputation for cleanliness can add market value to Scottish fish products, but that requires stringent measures to be in place to ensure that cleanliness is maintained. Residents and visitors alike enjoy coasts as places to visit, and by doing so support rural economies. Sustainably managed marine and coastal tourism and recreation present great opportunities for economic, social and environmental benefits, but tourism businesses and tourists must accept their responsibility to prevent localised deterioration of biodiversity. Future development of the coast needs to be managed at a regional level within a national integrated framework for sustainability.

The seas are an important source of fossil fuels, and they have the potential to produce huge quantities of clean, renewable energy through harnessing the power of waves, tides and wind. They are also important for lifeline ferry and port links which are vital for the economic development of rural and island communities. Marine areas have suffered greatly from the over exploitation of finite natural resources, often using damaging methods that would not be tolerated on land. Technical developments to overcome these problems are deserving of support. Managing marine and coastal areas so that they are sustainable in the long term requires a much clearer understanding of the diversity and dynamics of marine ecosystems. It will mean striking a balance between the economic and social needs of people and the maintenance of healthy natural systems. Future approaches to management need to bring harvesting and marine development into line with the carrying capacity of the marine environment; to base management on a much broader ecosystem approach.

### **3.3.1 The framework for action**

Policies promoting better-coordinated marine planning and management need to be pursued at Scottish, UK and European levels. There is widespread support at all levels for an 'ecosystem-based approach' to marine management. This will involve stakeholders in setting management objectives, and bringing decision-making closer to affected areas. It should acknowledge the overall capacity of the environment, the way harvesting affects other species, and the effect of non-native species, primarily through discharges of ballast water from ships. Biodiversity is an important indicator of the success of policies relating to resource management at sea and should be integrated into strategies across the sector.

The UK's Marine Stewardship Reports will assess progress towards the objective of conserving and where possible enhancing and restoring marine biodiversity. The Scottish Executive is also involved in the DEFRA-led Review of Marine Nature Conservation, which is piloting a regional seas approach in the Irish Sea. The EU Marine Thematic Strategy will guide the

co-ordination of a range of marine activities with the needs of maritime biodiversity.

The Scottish Coastal Forum is developing<sup>22</sup> a strategy for management of the coast which must have regard for biodiversity and the natural heritage amongst its objectives. It should aim to safeguard the high quality environment while providing social and economic opportunities. Local partnerships will continue to be important in the maritime environment, although their role may change as new management frameworks develop. We will build on the experience already gained in SACs, Firths and elsewhere to inform the integrated management of all maritime areas.

River basin planning under the Water Framework Directive will set objectives for the ecological status of coastal and transitional waters, and guide engineering changes and diffuse pollution management to ensure it is delivered. The Water Environment and Water Services (Scotland) Bill will require SEPA to characterise and monitor in a coherent and comprehensive way all surface and ground-waters in Scotland by 2004. This will involve identifying the significant pressures and impacts upon coastal and territorial waters. The designation of Marine Environmental High Risk Areas bring sensitive sea areas to the attention of mariners.

### 3.3.2 Fisheries and aquaculture

The sustainable harvesting of marine living resources can be a legitimate use of biodiversity. Fish stocks are an important part of our marine biodiversity and a component of the marine food chain. Reform of the Common Fisheries Policy has now recognised that fisheries need to be managed on an ecosystem basis. It is in the interests of fishermen and supporting coastal communities to ensure the longevity of this resource. We must take into consideration ecosystem changes caused by the removal of biomass, impacts on target species populations, direct impacts on habitats and non target species. Environmental Assessment, both at a strategic-level and for individual developments, allows people to have a say in the directions maritime development will take; it could have a key role in aquaculture and fishing where up until now it has not been widely employed.

The Ministerial Working Group for Aquaculture Strategic Framework for Scottish Aquaculture<sup>23</sup> will guide the development of the industry and, in conjunction with other recent changes, govern decisions on the future siting, design and quantity of cultivation. These decisions must consider impacts upon our biodiversity. Providing a framework for spatial planning in coastal areas offshore will be necessary to address the future needs of the marine renewables industries, as well as aquaculture in balance with the conservation and enhancement of biodiversity.

The framework governing inshore fisheries is being reviewed. A number of initiatives are underway to develop more effective stakeholder involvement in inshore fisheries. In Scotland a number of partnerships aim to manage inshore fisheries on an integrated basis. Other coastal partnerships, such as those in the Firths, have led to common ownership of shared management difficulties. Proposals to extend development planning to include maritime

The [aquaculture] industry should work in harmony with nature, managing and minimising transient environmental impacts, including deleterious impacts on landscape and scenery, while preventing cumulative long term or irreversible changes to ecological systems  
Environmental principle in *A Strategic Framework for Scottish Aquaculture*

<sup>22</sup> The Scottish Coastal Forum is leading in the development of the Coastal Strategy.

For more information visit [www.scotland.gov.uk/environment/coastalforum](http://www.scotland.gov.uk/environment/coastalforum)

<sup>23</sup> Strategic Framework for Scottish Aquaculture (in prep) Scottish Executive

developments will allow local participation in development decisions. A draft strategy is anticipated which should take due consideration of biodiversity conservation in its objectives.

### **3.3.3 Putting people at the centre: building the base of support and encouraging individual action**

Key to involving people is improved communications, awareness and involvement. Collaboration at the national level on marine biodiversity and its sustainable use should include representation from all interests including marine industries, transport, planning, conservation and research establishments. A key task should be to raise awareness of stakeholders involved in marine and coastal environments, including development agencies, and the representative bodies of fishermen, fish farmers and scuba divers, on the importance and fragility of this resource. Broadening the base for support of biodiversity should be the key principle in building a stronger foundation over the long term for the needs of marine biodiversity. Support springs ultimately from a personal enjoyment and understanding and there are many opportunities for encouraging involvement. The coastal environment offers a unique educational resource for those with local access but more innovative approaches are needed for the interpretation of deeper marine environments. If good environmental management and benefits for biodiversity are to be used as a marketing tool for marine produce the fisheries industries and conservation organisations must work together to raise awareness of biodiversity and the value of sustainable fisheries management among consumers.

### **3.3.4 Managing data and information**

Marine biodiversity is relatively poorly understood. Natura sites will be monitored, but every effort should also be made, as resources allow, to extend baseline inventory and survey coverage to provide better understanding of species and habitat distributions. Research is needed to elucidate the impacts on marine biodiversity of different harvesting methods, new built developments, and interactions between farmed and wild species. Outputs from research of this kind should inform judgements about the limits of acceptable environmental change. Individuals can help in biological recording along coasts and at sea, by making available observations through record centres.

## **4. Action for biodiversity**

### **4.1 The Agenda for Action**

The following bullet points provide a summary of strategic directions for the biodiversity strategy. This can be considered as an overarching agenda for the range of more detailed actions, which are being developed in consultation by the Scottish Biodiversity Forum. These will form implementation plans and will ensure that international biodiversity commitments are fulfilled. They will involve the whole range of stakeholders in their implementation. **To achieve and maintain the aims of this strategy all relevant stakeholders must:**

- 1. Ensure that all sectors of Scottish society are made aware of the importance of biodiversity and of the action they can take to conserve it through the provision of relevant and properly targeted information and advice.**
- 2. Place biodiversity at the heart of Government in Scotland, as a key component of the Executive's stated commitment to sustainable development and through the development of policies and strategies integrating biodiversity**
- 3. Ensure that every section of local and national government fulfils its responsibilities to further the conservation of biodiversity.**
- 4. Monitor and deliver the actions and outcomes identified in the UK Species and Habitat Action Plans relevant to Scotland**
- 5. Encourage the Local Biodiversity Action Plan network and ensure it has adequate resources and information to support the delivery of national biodiversity objectives and to facilitate action by local people.**
- 6. Engage and support the business sector in integrating biodiversity conservation and enhancement into their approach to sustainable development both in Scotland and internationally .**
- 7. Ensure that the education system is utilised in raising awareness of biodiversity and encouraging involvement.**
- 8 . Encourage active community involvement in biodiversity conservation and enhancement through volunteering and enjoyment of wildlife and green space**
- 9. Ensure sufficient research, biological monitoring and survey work is undertaken to determine the status of, conserve and enhance Scotland's biodiversity resource and to assess progress against the species and habitat targets set out in action plans and against other biodiversity indicators.**
- 10. Put in place mechanisms to ensure that the SBF is informed and organised in such a way as to monitor and report progress on the strategy implementation and the state of Scotland's biodiversity.**

### **4.2 Implementation**

The strategy outlines the approach that we propose to take in conserving and enhancing Scotland's biodiversity. Detailed implementation plans are being developed for each sector: rural, urban and marine in consultation by the Scottish Biodiversity Forum to cover:

- On-going actions which contribute to the implementation of the strategy

and the UK BAP

- The specific new actions required to implement the strategy and the resources required;
- Who will be responsible for those actions (stakeholders);
- Timescales on which they will be completed;
- How progress on these actions will be measured (indicators);
- How that progress will be reported, and by whom
- A programme of review for the strategy

Actions and targets for biodiversity have already been created in the UK Biodiversity Action Plan, in species and habitat action plans and other documents produced to guide action. A co-ordinated approach is needed to assess these and identify the action required to achieve our objectives in Scotland.

### **4.3 Monitoring Scotland's biodiversity resource**

We need feedback on the impacts of our actions in terms of changes in biodiversity. Monitoring is important across the board to assess positive biodiversity progress and negative impacts. Sectors such as business (including rural businesses such as agriculture) require feedback on their progress and tangible performance indicators should be developed.

Monitoring Scotland's biodiversity and its changes will enable us to understand the success of the strategy and our actions. We need to be clear about how to monitor most effectively and to feed into the UK Biodiversity Action Plan monitoring programme so that Scotland may report its progress.

The strategy needs indicators to enable measurement of progress and proper reporting. The SBF Action Plan & Science Working Group have developed candidate ecological indicators<sup>24</sup> and further work to develop relevant social indicators is in progress. We expect to consult upon these in 2003.

### **4.4 Strategy Review**

The strategy review process will be complementary to the existing reporting cycle already adopted for reporting progress on the UK Biodiversity Action Plan and to Scottish Ministers and the Scottish Parliament. An initial report of progress in Scotland was produced last year<sup>25</sup> and an interim report, assessing the initial progress of the strategy will be produced in 2007. A full report against the primary targets should be made to Ministers and the Scottish Parliament in 2010.

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<sup>24</sup> Developing Candidate Indicators of the State of Scotland's Biodiversity (2003) Scottish Biodiversity Forum, Scottish Executive

<sup>25</sup> Biodiversity in Scotland: progress Report (2002) Scottish Executive

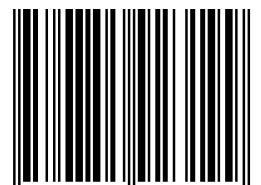


Small changes in the way we perform everyday tasks can have huge impacts on Scotland's environment.

Walking short distances rather than using the car, or being careful not to overfill the kettle are just two positive steps we can all take.

This butterfly represents the beauty and fragility of Scotland's environment. The motif will be utilised extensively by the Scottish Executive and its partners in their efforts to persuade people they can do a little to change a lot.

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