

**DUMFRIES AND GALLOWAY
LOCAL BIODIVERSITY ACTION
PLAN (Second Edition)**

ENVIRONMENTAL REPORT

November 2007

Dumfries and Galloway



BIODIVERSITY
P a r t n e r s h i p

**DUMFRIES AND GALLOWAY
LOCAL BIODIVERSITY ACTION PLAN (Second Edition)**

SEA Environmental Report

SEA ENVIRONMENTAL REPORT – COVER NOTE

PART 1

To:

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or

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PART 2

An Environmental Report is attached for:

Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)

The Responsible Authority is:

**Dumfries and Galloway Council
(on behalf of Dumfries and Galloway Biodiversity Partnership)**

PART 3

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NON-TECHNICAL SUMMARY

1.1 Introduction

As part of the preparation of Dumfries and Galloway Local Biodiversity Action Plan (LBAP)(Second Edition), Dumfries and Galloway Council, on behalf of the Dumfries and Galloway Biodiversity Partnership, is carrying out a Strategic Environmental Assessment (SEA). SEA is a systematic method for considering the likely environmental effects of certain plans, programmes or strategies.

SEA is required by the Environmental Assessment (Scotland) Act 2005. To support the public consultation on the draft LBAP and the potential impacts of its implementation, an Environmental Report, which documents the SEA process and outcomes is required. This Non-technical Summary is also required to facilitate wider consultation.

Download the consultation draft of the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) and the full SEA document from [xxxxxx](#).

Comments on the draft LBAP and the SEA Environmental Report should be sent in writing, either online via the above website, by email to pe.biodiversity@dumgal.gov.uk or in hard copy to the address below, no later than 14 March 2008.

Consultation on Local Biodiversity Action Plan
Dumfries & Galloway Council
Planning & Environment
Newall Terrace
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1.2 Background

In June 1999 the Dumfries and Galloway Local Biodiversity Action Plan (LBAP) was published, containing 23 Local Habitat Action Plans and 19 Species Action Plans. A further 20 species action plans were published either in hard copy or electronic format in 2001 and 11 more in 2003, making a total of 50 local species action plans. A wide range of partners contributed to the preparation of the plan.

Up to May 2007 some 80 partner organisations including statutory agencies, voluntary organisations, community groups, and local businesses, along with numerous individuals, had contributed to actions from the LBAP. Progress against LBAP targets is monitored by a Biodiversity Officer, employed by Dumfries and Galloway Council with funding support from Scottish Natural Heritage. The Biodiversity Officer also assists with co-ordination of LBAP implementation projects and biodiversity awareness raising.

Implementation of the LBAP and the work programme of the Biodiversity Officer are overseen by a Steering Group consisting of representatives of the following partner organisations: Dumfries and Galloway Council, Scottish Natural Heritage, Scottish Environment Protection Agency, Scottish Government Rural Payments & Inspections Directorate, Scottish Enterprise Dumfries & Galloway, Forestry Commission Scotland, National Farmers Union Scotland, Solway Heritage, Dumfries &

Galloway Environmental Resources Centre, Galloway Fisheries Trust, RSPB, and Buccleuch Estates Ltd.

There is no statutory requirement for the Dumfries and Galloway LBAP, but since the first edition was written the context of biodiversity conservation in Scotland has changed with the publication of the Scottish Biodiversity Strategy and the Nature Conservation (Scotland) Act in 2004. The Strategy sets out the framework for biodiversity conservation in Scotland over the next 25 years. The Act places a duty on all local authorities and public bodies to further the conservation of biodiversity in carrying out their functions. The Dumfries and Galloway LBAP (Second Edition) should be seen as a key document for guiding local actions and contributing towards the fulfilment of both the national strategy and the statutory duty.

It is planned that the LBAP will cover the period 2008-2013 and applies to the area administered by Dumfries and Galloway Council and the marine environment up to 3 nautical miles offshore (or the border with England if closer). Its purpose is to provide a strategy that sets out the priorities for the conservation and enhancement of biodiversity in Dumfries and Galloway, and identify the key actions required by all relevant bodies.

1.3 Outline and objectives of Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

The Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) is intended as a working document to be used by a wide cross section of people to take positive steps to conserve and enhance biodiversity. The LBAP has been laid out with the following sections:

- **Background Issues** are large-scale issues that will exert a significant influence on all management for biodiversity during the lifetime of the plan.
- **Overall Aims** are the key outcomes that the LBAP hopes to achieve.
- **Central Action Plans** present overarching objectives that will result in significant benefits for all biodiversity across the whole of Dumfries and Galloway.
- **Local Habitat Action Plans** present detailed objectives for individual habitats. Whilst all areas of land in Dumfries and Galloway should fall within an action plan, some areas may fit several plans. Those habitats considered of greatest need of assistance are termed Local Priority Habitats.
- **Species Statements** provide guidance for the management of each of the species groups. Unlike the first edition of the LBAP, there are no detailed Species Action Plans, as the majority of species actions are best achieved through habitat objectives. However, the published Species Action Plans from the first edition are still available and will continue to be relevant for much of the lifetime of this second edition.

1.4 Relationship with other PPS and environmental protection objectives

Forty-three plans, programmes and strategies (PPS) and environmental protective objectives covering a wide range of subject areas were analysed during preparation of the draft Dumfries and Galloway Local Biodiversity Action Plan (Second Edition). The main findings of this analysis, which has affected the content of the draft LBAP, were as follows:

- **Biodiversity, flora and fauna** – Need to conserve biodiversity in protected areas but also facilitate connectivity across the landscape. Also need to highlight the important role that raising awareness of biodiversity plays in its conservation.
- **Human health** – Need to recognise that access to biodiversity can contribute to health and social targets and inequalities.
- **Soil** – Need to ensure that the critical environmental processes provided by soils are maintained.

- **Water** – Need to ensure that LBAP objectives do not contribute to the deterioration of water quality, and where possible enhance it.
- **Air** - Need to ensure that LBAP objectives do not contribute to the deterioration of air quality, and where possible enhance it.
- **Climatic factors** – Need to ensure that adaptation to likely climate change scenarios is incorporated into all LBAP objectives. Also need to incorporate objectives to mitigate climate change.
- **Material assets** – Need to ensure that LBAP objectives add to the material assets of the region, where this can be achieved sustainably.
- **Cultural heritage** – Need to protect, and where appropriate, enhance the historic environment.
- **Landscape** – Need to ensure that biodiversity contributes positively to landscapes.
- **Inter-relationships** – Need to ensure that the LBAP links with associated activities to further the sustainable development of the region.

1.5 Current State of the Environment and Environmental Problems

An analysis of the current state of the environment in Dumfries & Galloway identified the following environmental problems in the region:

- Continued loss of Biodiversity
- Habitat fragmentation
- Low biodiversity awareness amongst the public.
- Loss of genetic diversity and local distinctiveness.
- Uncoordinated collection, collation and use of biodiversity data.
- Increase in non-native invasive species.
- Reduced stocks of freshwater & marine fish.
- Freshwater acidification.
- Diffuse water pollution.
- Climate change.
- Missed opportunities for green tourism.

1.6 Likely evolution of the environment without the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

Without the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) it is considered that the likely future changes to the area will be as follows:

- **Biodiversity** conservation and enhancement would continue without an LBAP, but actions would be uncoordinated and effectiveness reduced.
- **Human Health:** A number of habitats play a role in the prevention and treatment of mental and physical illnesses. Without an LBAP the opportunity to maximise these benefits would be missed.
- **Soils:** Without an LBAP there will continue to be no regional coordination of soil biodiversity conservation.
- **Water:** Various habitats play important roles in the prevention, mitigation and treatment of water pollution. Without an LBAP there would be reduced opportunities to maximise these roles.
- **Air:** Biodiversity plays a minor role in the suppression of air pollutants, though lack of an LBAP would not have a significant impact.
- **Climatic Factors:** Various habitats, especially peatlands, play a significant role in carbon sequestration. Without an LBAP there would be no opportunity to maximise this role.
- **Material Assets:** There would be no net change to material assets without an LBAP.
- **Cultural Heritage:** There would be no net change to cultural heritage without an LBAP.
- **Landscape:** A number of habitats contribute to landscapes. Without an LBAP there would be fewer landscape enhancements.

- **Inter-relationships:** The LBAP is the only regional strategy that links biodiversity with other environmental issues. Without an LBAP these interrelationships would be weaker.

1.7 SEA Objectives

In the light of the environmental analysis carried out above (1.4, 1.5 & 1.6) the following SEA objectives were established. These were used as the basis for testing the extent to which the Overall Aims, Central Actions and Habitat Action Plan Objectives of the draft LBAP were likely to have a positive, neutral or negative environmental impact.

- To protect, maintain and enhance biodiversity.
- To protect and enhance human health.
- To reduce social exclusion.
- To protect and enhance the water environment including coastal and river systems.
- To safeguard soil quality, quantity and function.
- To maintain and improve air quality.
- To minimise emissions and maximise sequestration of greenhouse gases.
- To maximise the capacity of the landscape to adapt to climate change.
- To protect, and where appropriate, enhance or restore the historic environment.
- To improve understanding of the close inter-relationships between historic and natural environments.
- To conserve and enhance distinctive landscape characters and scenic value.
- To promote the sustainable use of natural resources and material assets.

1.8 Assessment of environmental effects.

The draft Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) was assessed against the SEA objectives by members of the Dumfries and Galloway Biodiversity Partnership at numerous meetings over the period from September 2005 to November 2007.

The result of this process means that there has been continual evolution of the LBAP, in parallel with the SEA. Environmental impacts have been continually assessed; negative impacts have been removed or minimised, whilst positive impacts have been maximised. This Environmental Report therefore contains no alternatives to the Local Biodiversity Action Plan, other than not preparing an LBAP at all, as the process of plan preparation effectively assessed and removed unsuitable alternatives at each step of its preparation.

Each LBAP Aim, Central Action and Habitat Action Plan was subject to individual scrutiny against the SEA Objectives and the results presented within a matrix. As the LBAP contains few aims, actions or objectives that are required to take place at specific locations within Dumfries & Galloway, the assessment results are generic. They do, however, highlight areas where potential issues are likely or may possibly to arise during implementation of the LBAP. Such issues have been addressed, either by modification of LBAP aims, actions or objectives, or by inclusion within the LBAP of generic guidance on appropriate mitigation that should be carried out during implementation.

1.9 Assessment summary

Summary of Assessment Findings

All LBAP Aims, Central Action and Habitat Action Plan Objectives were included in the assessment, the results of which are shown below according to the following key:

- ++ Likely to have a very positive environmental impact.
- + Likely to have a positive, though smaller environmental impact.
- 0 Likely to have no significant positive or negative environmental impact.

- ? May possibly have a negative impact without appropriate mitigation.
- Likely to have a negative impact.

LBAP Aims

| | Aim 1 | Aim 2 | Aim3 | Aim 4 | Aim 5 | Aim 6 | Overall Impact |
|-----------------------|-------|-------|------|-------|-------|-------|----------------|
| SEA Objectives | | | | | | | |
| Biodiversity | ++ | ++ | ++ | ++ | ++ | ++ | ++ |
| Human Health I | + | 0 | + | + | 0 | + | + |
| Human Health II | 0 | 0 | + | 0 | 0 | 0 | + |
| Water | ++ | ++ | ++ | ++ | ++ | + | ++ |
| Soil | + | ++ | + | ++ | + | 0 | + |
| Air | + | 0 | + | 0 | + | 0 | + |
| Climatic Factors I | ++ | 0 | + | + | + | + | + |
| Climatic Factors II | ++ | ++ | ++ | ++ | ++ | 0 | ++ |
| Cultural Heritage | ? | 0 | 0 | + | ? | + | 0 |
| Landscape | + | 0 | + | + | + | ++ | + |
| Material Assets | ? | ++ | + | + | 0 | 0 | + |
| Inter-relationships | ++ | + | + | 0 | ? | ++ | + |

LBAP Central Actions & Habitat Action Plan Objectives

| | Overall Impact of Central Actions | Overall Impact of Habitat Objectives |
|---------------------|-----------------------------------|--------------------------------------|
| Biodiversity | ++ | ++ |
| Human Health I | + | + |
| Human Health II | + | + |
| Water | ++ | ++ |
| Soil | + | + |
| Air | + | + |
| Climatic Factors I | + | + |
| Climatic Factors II | + | ++ |
| Cultural Heritage | + | + |
| Landscape | + | ++ |
| Material Assets | + | ++ |
| Inter-relationships | + | + |

Overall, the assessment showed very positive, positive or no impacts for all the LBAP Aims, Central Actions and Habitat Action Plan Objectives. No overall possible or likely overall impacts were identified. Even at a more detailed level, the assessment identified no likely negative impacts, only possible negative impacts. These were as follows:

- Aims and Habitat Action Plan objectives that include the expansion of various habitats, including woodlands and wetlands have the potential to damage cultural heritage, and to a lesser extent landscapes and material assets.
- Aims that encourage greater use of natural processes have the potential to damage cultural heritage.
- A Habitat Action Plan Objective that encourages more standing deadwood has the potential to increase the risk to human health from falling trees.

1.10 Measures envisaged for the prevention, reduction and offsetting of significant adverse effects

The possible adverse effects listed above will only apply during implementation at specific sites. As these sites have not yet been identified, guidance has been included in all relevant sections of the LBAP to prevent or reduce these effects.

1.11 Monitoring

The monitoring approach outlined below was established by the Dumfries & Galloway Biodiversity Steering Group. Although biodiversity actions may affect a wide range of other environmental variables, rarely is sufficiently detailed monitoring carried out to be able to distinguish between impacts related to biodiversity actions and impacts related to other factors. Therefore, it has not proven possible to identify a meaningful set of indicators for all the SEA objectives.

The proposed SEA monitoring activities are set out in Table 6

Table 6. Proposed SEA monitoring programme

| What is being monitored | Data source, frequency of monitoring | Timescale and responsibility |
|-------------------------|--|--|
| Biodiversity | Annual abundance of selected breeding birds (e.g. Hen Harrier Red Kite). | Monitored by Dumfries & Galloway Raptor Study Group/RSPB. |
| | Annual abundance of selected non-breeding waterbirds (e.g. Barnacle Goose). | Monthly winter counts by the Wetland Bird Survey/WWT/RSPB/JNCC. |
| | Abundance of breeding seabirds. | Full seabird surveys across Scotland every 15 years, augmented by annual surveys of a sample of colonies by JNCC/RSPB. |
| | Vascular plant diversity in selected 10km squares. | BSBI Atlas and local change data. |
| | Proportion of notified species populations in favourable condition on protected sites. | Reported every 6 years by SNH. |
| | Proportion of notified habitat area in favourable condition on protected sites. | Reported every 6 years by SNH. |
| Human Health | Annual number of visitors to nature reserves. | Annual counts by WWT/RSPB/SNH/Forestry Commission. |
| | Annual number of people involved in biodiversity recording. | Reported annually by Dumfries & Galloway Environmental Resources Centre. |
| | Number of registered Eco-Schools and levels of awards. | Continually monitored by Eco Schools Co-ordinator. |
| Water | Annual Salmonid counts in main rivers. | Reported annually by District Salmon Fisheries Boards/Galloway Fisheries Trust. |
| | Freshwater invertebrate diversity at selected sites. | Continually monitored by SEPA. |
| | Cetacean sightings. | Monitored annually by volunteer Cetacean Group/SeaWatch Foundation. |
| Soil | No soil indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Air | No air indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Climatic Factors | No climate indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Cultural Heritage | No soil indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Landscape | No landscape indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |

| What is being monitored | Data source, frequency of monitoring | Timescale and responsibility |
|--------------------------------|--|--|
| Material Assets | Annual Cockle stock assessment. | Monitored by Solway Shellfish Management Association/Freshwater Research Services. |
| Inter-relationships | No indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |

1.12 Next steps

Table 7 lists future milestones in the development of the PPS and its SEA, and the dates when these are expected to be completed.

Table 7. Anticipated plan-making and SEA milestones

| Expected date | Milestone |
|----------------------|---|
| xxxxx | Closing date for comments on draft Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) and associated SEA Environmental Report. |
| xxxxxx | Publication of Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) |

DUMFRIES AND GALLOWAY LOCAL BIODIVERSITY ACTION PLAN (Second Edition) ENVIRONMENTAL REPORT

Section A. INTRODUCTION

1. Purpose of this Environmental Report and key facts

As part of the preparation of Dumfries and Galloway Local Biodiversity Action Plan (Second Edition), Dumfries and Galloway Council, on behalf of the Dumfries and Galloway Biodiversity Partnership, is carrying out a Strategic Environmental Assessment (SEA). SEA is a systematic method for considering the likely environmental effects of certain plans, programmes or strategies (PPS). SEA aims to:

- integrate environmental factors into PPS preparation and decision-making;
- improve PPS and enhance environmental protection;
- increase public participation in decision making; and
- facilitate openness and transparency of decision-making.

SEA is required by the Environmental Assessment (Scotland) Act 2005. The key SEA stages are:

| | |
|-----------------------------|--|
| Screening | determining whether the PPS is likely to have significant environmental effects and whether an SEA is required |
| Scoping | deciding on the scope and level of detail of the Environmental Report, and the consultation period for the report – this is done in consultation with Scottish Natural Heritage, The Scottish Ministers (Historic Scotland) and the Scottish Environment Protection Agency |
| Environmental Report | publishing an Environmental Report on the PPS and its environmental effects, and consulting on that report |
| Adoption | providing information on: the adopted PPS; how consultation comments have been taken into account; and methods for monitoring the significant environmental effects of the implementation of the PPS |
| Monitoring | monitoring significant environmental effects in such a manner so as to also enable the Responsible Authority to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action. |

The purpose of this Environmental Report is to:

- provide information on Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)
- identify, describe and evaluate the likely significant effects of the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) and its reasonable alternatives;
- provide an early and effective opportunity for the Consultation Authorities and the public to offer views on any aspect of this Environmental Report.

The key facts relating to Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) are set out below.

- **Name of Responsible Authority:** Dumfries and Galloway Council
- **Title of PPS:** Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)
- **Subject:** Biodiversity
- **What prompted the PPS:** There is no statutory requirement for the Dumfries and Galloway Local Biodiversity Action Plan, but since the first edition was written the context of biodiversity conservation in Scotland has changed with the publication of the Scottish Biodiversity Strategy and the Nature Conservation (Scotland) Act in 2004. The Strategy sets out the framework for biodiversity conservation in Scotland over the next 25 years. The Act places a duty on all local authorities and public bodies to further the conservation of biodiversity in carrying out their functions. The Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) should be seen as a key document for guiding local actions and contributing towards the fulfilment of both the national strategy and the statutory duty.
- **Period covered by PPS:** 2008-2013
- **Frequency of updates:** Every 5-10 Years.
- **Area covered by PPS:** The area administered by Dumfries and Galloway Council and the marine environment up to 3 nautical miles offshore (or the border with England if closer).
- **Purpose and/or objectives of PPS:** The purpose of the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) is to provide a strategy that sets out the priorities for the conservation and enhancement of biodiversity in Dumfries and Galloway, and identify the key actions required by all relevant bodies.
- **Contact point:** Peter Norman
Biodiversity Officer
Dumfries and Galloway Council
Planning & Environment
Newall Terrace
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DG1 1LW
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2. SEA activities to date

The following table summarises SEA summaries to date in relation to the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

Table 1. SEA Activities to date

| SEA Action/Activity | When carried out | Notes (e.g. comment on data availability, particular issues or any advice from the Consultation Authorities that has now been taken into account) |
|---|-------------------------|---|
| Screening to determine whether the PPS is likely to have significant environmental effects | <i>Not required.</i> | |
| Outline and objectives of the PPS | March 2007 | Agreed by LBAP Steering Group |
| Scoping the consultation periods and the level of detail to be included in the Environmental Report | <i>March 2007</i> | Advice from Consultation Authorities: All aims, objectives and actions to be assessed. |
| Relationship with other PPS and environmental objectives | <i>April 2007</i> | |
| Environmental baseline established | <i>May 2007</i> | |
| Environmental problems identified | <i>May 2007</i> | |
| Assessment of future of area without the PPS | <i>May 2007</i> | |
| Alternatives considered | <i>May 2007</i> | |
| Environmental assessment methods established | <i>May 2007</i> | |
| Selection of PPS alternatives to be included in the environmental assessment | <i>May 2007</i> | |
| Identification of environmental problems that may persist after implementation and measures envisaged to prevent, reduce and offset any significant adverse effects | <i>Aug 2007</i> | |
| Monitoring methods proposed | <i>Sep 2007</i> | |
| Consultation timescales <ul style="list-style-type: none"> • Timescale for Consultation Authorities • Timescale for public | <i>Oct 2007</i> | |
| Notification/publicity action | | |

Section B. The Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) and context

1. Outline and objectives of Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes “an outline of the contents and main objectives of the plan or programme”. The purpose of this section is to explain the nature, contents, objectives and timescale of the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

In June 1999 the Dumfries and Galloway Local Biodiversity Action Plan (LBAP) was published, containing 23 Local Habitat Action Plans and 19 Species Action Plans. A further 20 species action plans were published either in hard copy or electronic format in 2001 and 11 more in 2003, making a total of 50 local species action plans. A wide range of partners contributed to the preparation of the plan.

Up to May 2007 some 80 partner organisations including statutory agencies, voluntary organisations, community groups, and local businesses, along with numerous individuals, had contributed to actions from the LBAP. Progress against LBAP targets is monitored by a Biodiversity Officer, employed by Dumfries and Galloway Council with funding support from Scottish Natural Heritage. The Biodiversity Officer also assists with co-ordination of LBAP implementation projects and biodiversity awareness raising.

Implementation of the LBAP and the work programme of the Biodiversity Officer are overseen by a Steering Group consisting of representatives of the following partner organisations: Dumfries and Galloway Council, Scottish Natural Heritage, Scottish Environment Protection Agency, Scottish Government Rural Payments & Inspections Directorate, Scottish Enterprise Dumfries & Galloway, Forestry Commission Scotland, National Farmers Union Scotland, Solway Heritage, Dumfries & Galloway Environmental Resources Centre, Galloway Fisheries Trust, RSPB, and Buccleuch Estates Ltd.

The Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) is intended as a working document to be used by a wide cross section of people to take positive steps to conserve and enhance biodiversity. However, different people will use it in different ways, and few will need to read the whole document. Rather it should be used as a tool to guide conservation action in those areas where the reader can make the greatest difference. For many people this might mean relatively small-scale improvements in the garden; for foresters, farmers, engineers and other land managers biodiversity improvements will affect greater areas of land; whilst planners and decision-makers will be able to build biodiversity into wider strategic issues. In order to assist with this, the LBAP has been laid out with the following sections:

- Background Issues are large-scale issues that will exert a significant influence on all management for biodiversity during the lifetime of the plan.
- Overall Aims are the results in key areas that we hope to achieve by implementation of the LBAP.

- Key Action Plans present overarching objectives that will, if implemented, result in significant benefits for all biodiversity across the whole of Dumfries and Galloway.
- Local Habitat Action Plans present detailed objectives for individual habitats. Semi-natural habitats are divided largely by ecological criteria, whilst highly-modified habitats are divided primarily by different land-uses. However, this is not a scientific classification. Whilst all areas of land in Dumfries and Galloway should fall within an action plan, some areas may fit several plans. Those habitats considered of greatest need of assistance are termed Local Priority Habitats.

Species Statements provide general guidance for the management of each of the species groups. Unlike the first edition of the LBAP, there are no detailed Species Action Plans, as the majority of species actions are best achieved through habitat objectives. However, the published Species Action Plans from the first edition are still available and will continue to be relevant for much of the lifetime of this second edition.

Background Issues

- Climate Change
- Continued Biodiversity Loss
- Environmental Inequalities
- Agricultural and Forestry Change
- Higher Priority for the Marine Environment
- Higher Standards of Water Quality

Overall Aims

- Biodiversity conserved, enhanced and re-created at the landscape and seascape scale.
- Genetic diversity conserved.
- Biodiversity incorporated into all relevant decision-making.
- Biodiversity awareness, understanding and engagement improved.
- Natural processes allowed to operate wherever practicable.
- Local distinctiveness enhanced.

Central Action Plans

- International and National Targets for Biodiversity
- Biodiversity Data
- Designated Sites
- Ancient Habitats

- Invasive Species
- Reintroduction and Translocation of Species
- Wildlife Tourism
- Geodiversity
- Related Strategies

It is expected that the final version of the Dumfries and Galloway local Biodiversity Action Plan (Second Edition) will be published in summer 2008.

2. Relationship with other PPS and environmental protection objectives

Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes an outline of the PPS relationships with other relevant PPS, and how environmental protection objectives have been taken into account in the PPS preparation. This section covers these issues and describes the policy context within which the PPS operates, and the constraints and targets that this context imposes on the PPS.

Table 2 summarises how the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) affects, and is affected by, other relevant PPS and environmental objectives. **Appendix A** shows a more detailed analysis.

Table 2. Relevant plans, programmes and strategies (PPS) and environmental protective objectives, and their relationship with the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|--|---|--|
| Biodiversity, flora & fauna | | |
| UN Convention on Biological Diversity 1992 | Conservation, sustainable use and equitable sharing of biodiversity and associated benefits. | <i>A key driver behind the LBAP. Essential that the LBAP is in line with all of the objectives of the Convention on Biological Diversity, and wherever possible identifies local actions that will contribute to them.</i> |
| EU Wild Birds Directive 1979 | Protection of certain habitats and species, including designation of Special Areas of Conservation. | <i>See below - Conservation (Natural Habitats & c.) Regulations (1994).</i> |
| EU Habitats Directive 1992 | Protection of certain birds and their habitats, including designation of Special protection Areas. | <i>See below - Conservation (Natural Habitats & c.) Regulations (1994).</i> |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|---|--|--|
| UK Biodiversity Action Plan 1994 | Conservation and enhancement of biodiversity, increase public awareness and contribute to global targets. | <i>A key driver behind the LBAP and it is essential that the LBAP is in line with all of the objectives of the UK Biodiversity Action Plan, and wherever possible identifies local actions that will contribute to them.</i> |
| Conservation (Natural Habitats & c.) Regulations 1994. | Transposes EU Wild Birds & Habitats Directives into UK law. | <i>A key piece of legislation for the LBAP. The habitats and species identified in the Regulations should be seen as the highest priority for biodiversity action, and all other actions should strengthen and support this network of protected sites and species.</i> |
| Nature Conservation (Scotland) Act 2004 | Duty for public bodies to further conservation and have regard to the Scottish Biodiversity Strategy. Modifies protection for Sites of Special Scientific Interest and certain species. | <i>A key piece of legislation for the LBAP, especially with regard to the 'Biodiversity Duty' and the Scottish Biodiversity Strategy. The LBAP should assist public bodies in Dumfries & Galloway comply with the 'Biodiversity Duty'.</i> |
| Scotland's Biodiversity: It's In Your Hands 2004 & Implementation Plans 2005-2007. | Conservation and enhancement of biodiversity for health, enjoyment & well-being of people. Actions to conserve and enhance biodiversity in rural, urban, marine, education, local and cross-cutting sectors. | <i>A key driver behind the LBAP and essential that the LBAP is in line with all of the objectives of the Scottish Biodiversity Strategy, and wherever possible identifies local actions that will contribute to them.</i> |
| A Five-Year Species Action Framework: Making a difference for Scotland's species 2007 | Focussed action for selected species in Scotland. | <i>The Framework highlights species where focused effort and resources may result in significant benefits, though recognises that benefits for most other species are likely to arise from habitat management and other actions. The LBAP should assist with implementation, where relevant.</i> |
| Solway Firth European Marine Site Scheme of Management 2000 | Provides guidance on the specific issues required to maintain the Solway Firth European Marine Site in favourable condition. | <i>Much of the guidance is relevant to Local Habitat Action Plans for coastal and marine habitats.</i> |
| River Bladnoch SAC Catchment management plan 2007 | Provides a framework for sustainable management of the River Bladnoch Special Area of Conservation. | <i>Much of the framework is relevant to Local Habitat Action Plans for freshwater and riparian habitats.</i> |
| Human Health | | |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|---|--|--|
| Improving health in Scotland 2003 | Improvement of health, especially for disadvantaged communities, through education, social justice, environment, employment & sport. | <i>Biodiversity improvements to the physical environment of Dumfries and Galloway have the potential to contribute to health benefits.</i> |
| Lifelong Learning Strategy for Scotland 2003 | Improving training and learning after school. | <i>There may be opportunities to supply high quality learning provision as part of LBAP objectives.</i> |
| Water | | |
| EU Water Framework Directive 2000 | Protection & enhancement of water quality in coastal, transitional, inland and groundwaters, ensuring good ecological status. | <i>See below - Water Environment and Water Services Act (2003).</i> |
| Water Environment & Water Services (Scotland) Act 2003 | Transposes EU water Framework into Scot's Law. Requires waterbodies to be in good ecological status. | <i>There are numerous opportunities for LBAP objectives to contribute to the requirements of the Act.</i> |
| Soil | | |
| No legislative or policy tool has specifically been developed in Scotland with the aim of soil protection. A Scottish Soil Strategy is expected in late 2007. | | |
| Air | | |
| Air Quality (Scotland) Regulations, 2000, and Air Quality (Scotland) (Amendment) Regulations, 2002 | Sets limits for Benzene, 1, 3 – butadiene, Carbon monoxide, Lead, Nitrogen dioxide, PM10, and Sulphur dioxide in the air. | <i>The LBAP is likely to have limited impact on levels of these pollutants in the air, but some habitats, particularly in urban areas can contribute to good air quality.</i> |
| Climatic Factors | | |
| UK Climate Change Programme 2006 | Reduction of CO2 emissions by 20% of 1990 levels by 2010. | <i>Certain objectives within the LBAP may result in emissions of greenhouse gases, but various biodiversity enhancements can assist with carbon sequestration targets. The LBAP should aim to minimise the former and maximise the latter.</i> |
| Changing Our Ways: Scotland's Climate Change Programme 2006 | Reduction of greenhouse gas emissions by 2.7MtC by 2010. | <i>As above.</i> |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|---|--|---|
| SPP6 Renewable Energy 2007 | Sets the planning framework to help ensure the delivery of Scottish Ministers' target of generating 40% of Scotland's electricity from renewable sources by 2020. | <i>The LBAP can provide generic guidance on the location, design and management of renewable energy schemes to benefit biodiversity</i> |
| Cultural Heritage | | |
| Passed to the Future 2002 | Provides a policy framework in managing the historic environment. | <i>The LBAP can demonstrate the links between biodiversity and the historic environment, and provide guidance on any areas of potential conflict.</i> |
| NPPG5 Archaeology and Planning 1994 | Provides planning policy guidance on archaeology. | <i>As above.</i> |
| NPPG18 Planning and the Historic Environment 1999 | Provides planning policy guidance on the built environment, with specific reference to Listed Buildings, Conservation Areas, and Historic Gardens & Designed Landscapes. | <i>As above.</i> |
| Scottish Historic Environment Policy I: Scotland's Historic Environment | Sets out Scottish Minister's strategic priorities for the historic environment. | <i>As above.</i> |
| Scottish Historic Environment Policy II: Scheduling: Protecting Scotland's Nationally Important Monuments | Sets out the policies and procedures for scheduling and protecting ancient monuments of national importance. | <i>As above.</i> |
| Landscape | | |
| Dumfries and Galloway Landscape Assessment 1995 | Classifies the region into 21 landscape types and provides guidance on managing landscape character and change within them. | <i>The LBAP can demonstrate the links between biodiversity and the landscape, and provide guidance on any areas of potential conflict.</i> |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|--|---|---|
| Fleet Valley, East Stewartry Coast & Nith Estuary: National Scenic Area management Strategies 2003 | Sets out objectives and actions to ensure that the scenic qualities of the 3 NSAs are retained and enhanced. | As above. |
| Material Assets | | |
| Land Reform (Scotland) Act 2005 | Lays out statutory requirements for public access to land & water and the community right to buy land. | <i>The requirements of the Act must be considered when setting LBAP objectives.</i> |
| A Forward Strategy for Scottish Agriculture: Next Steps 2006 | Sets out a framework to help create a strong and prosperous agriculture sector in Scotland, that is part of sustainable development, encompassing economic, social and environmental outputs. | <i>Consider the approaches outlined in the strategy when setting LBAP objectives, especially those for farmland Local Habitat Action Plans.</i> |
| Custodians for Change: Report of Agriculture & Environment Working Group 2002 | Presents a vision for Scottish agriculture to work with the public and government to deliver good, safe food and a high quality environment. | As above. |
| Scottish Forestry Strategy 2006 | Provides a framework for taking forestry through the first half of the 21 st century and beyond, focussing on key priorities. | <i>Consider the themes of the strategy when setting LBAP objectives, especially Local Habitat Action Plans for woods and forests.</i> |
| Galloway & Langholm/ Lockerbie Local Forestry Frameworks 2002 | Provides guidance on future forestry and woodland planting according to local interpretation of national and international guidance and commitments. | <i>Ensure that Forest Frameworks are taken into consideration when setting LBAP objectives.</i> |
| Dumfries and Galloway Structure Plan 1999 | Provides the framework that expresses the Planning Authority's view on development and land-use. | <i>LBAP objectives should be in line with Structure Plan policies, and wherever possible assist with the implementation of proposals and opportunities.</i> |
| Wigtown, Stewartry, Nithsdale and Annandale & Eskdale Local Plans 2006. | Identifies development opportunities and sets policies to exert a positive influence over land-use decisions. | <i>LBAP objectives should be in line with Local Plan policies, and wherever possible assist with the implementation of proposals and opportunities.</i> |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|--|---|---|
| Scottish Tourism: The Next Decade 2006 | Sets out requirements for tourism and associated sectors to keep Scottish tourism growing sustainably in a changing market. | <i>The LBAP is well positioned to contribute to several of the objectives of the plan.</i> |
| Dumfries and Galloway Shellfish Management plan 2001 | Sets the framework, in support of a Regulatory Order, for the sustainable management of cockle and mussel fishing in the Solway. | <i>Consider the themes of the strategy when setting LBAP objectives, especially Local Habitat Action Plans for marine and intertidal areas.</i> |
| Dumfries and Galloway Shoreline Management Plan 2005 | Identifies priorities for coastal defence management. Assesses coastal processes, likely changes and possible management action for the whole coastline. | <i>Consider the themes of the strategy when setting LBAP objectives, especially Local Habitat Action Plans for coastal areas.</i> |
| Inter-relationships | | |
| Johannesburg Declaration on Sustainable Development 2002. | Strengthening the pillars of sustainable development – economic development, social development and environmental protection. | <i>Ensure that LBAP objectives result in sustainable development, including an equitable sharing of benefits through society.</i> |
| Choosing Our Future – Scotland’s Sustainable Development Strategy 2005 | Provides the strategic framework for strategies on climate change, transport, renewable energy, energy efficiency, green jobs and biodiversity. Sets out the responses required to draw together the key issues in these areas. | <i>As above.</i> |
| NPPG14 Natural Heritage 1999 | Conserve, safeguard and enhance species & habitats, geological features, natural beauty & amenity, opportunities for enjoyment & learning. | <i>All LBAP objectives should be in line with NPPG14 conservation and protection guidance and wherever possible contribute to enhancement guidance.</i> |
| Natural Heritage Futures (all habitats) 2002 | A 25-year vision for integrated sustainable use of a range of habitats in Scotland. | <i>All of the Natural Heritage Futures objectives are relevant to the LBAP and there may be opportunities to assist in implementing many of them.</i> |

| Name of PPS / Environmental protection objective | Main requirements of PPS / Environmental protection objective | How it affects, or is affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) in terms of SEA issues* at Schedule 3 of the Environmental Assessment (Scotland) Act 2005 |
|--|---|---|
| Natural Heritage Futures: Wigtown Machars and Outer Solway; Western Southern Uplands and Inner Solway; Border Hills. | A 25-year vision for integrated sustainable use of natural heritage in the relevant areas, and the actions required to achieve it. | <i>As above.</i> |
| Seas the Opportunity: A Strategy for the Long Term Sustainability of Scotland's Coasts and Seas. | Aims to secure a vision of clean, healthy, safe, productive and biologically diverse marine and coastal environments, managed to meet the long term needs of nature and people. | <i>Consider the themes of the strategy when setting LBAP objectives, especially Local Habitat Action Plans for coastal and marine areas.</i> |
| Solway Firth Strategy 1998 | A voluntary framework to increase sustainable management for those who own, use and regulate the Solway Firth. | <i>As above.</i> |
| Annan Catchment Co-ordination Project 2002 | An agreed plan to protect, promote and enhance water quality and biodiversity in the catchment. | <i>There are close linkages between the Catchment Plan and the LBAP and many opportunities to achieve joint objectives.</i> |
| Dee-Ken Catchment Management Plan 2004 | An agreed plan to protect, promote and enhance water quality and biodiversity in the catchment. | <i>As above.</i> |
| River Nith Catchment Management Plan 2006 | Identifies appropriate ways to manage the catchment in a sustainable and holistic way to maintain water quality and biodiversity. | <i>As above.</i> |

Key points arising from this analysis are:

Biodiversity, flora and fauna – Need to conserve biodiversity in protected areas but also facilitate connectivity across the landscape. Also need to highlight the important role that raising awareness of biodiversity plays in its conservation.

Human health – Need to recognise that access to biodiversity can contribute to health and social targets and inequalities.

Soil – Need to ensure that the critical environmental processes provided by soils are maintained.

Water – Need to ensure that LBAP objectives do not contribute to the deterioration of water quality, and where possible enhance it.

Air - Need to ensure that LBAP objectives do not contribute to the deterioration of air quality, and where possible enhance it.

Climatic factors – Need to ensure that adaptation to likely climate change scenarios is incorporated into all LBAP objectives. Also incorporate objectives to mitigate

Material assets – Need to ensure that LBAP objectives add to the material assets of the region, where this can be achieved sustainably.

Cultural heritage – Need to protect, and where appropriate, enhance the historic environment.

Landscape – Need to ensure that biodiversity contributes positively to landscapes.

Inter-relationships – Need to ensure that the LBAP links with associated activities to further the sustainable development of the region.

3. Relevant aspects of the current state of the environment

Schedule 3 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes a description of “the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme”, and “the environmental characteristics of areas likely to be significantly affected”. This section aims to describe the environmental context within which the PPS operates and the constraints and targets that this context imposes on the PPS.

The following paragraphs describe the environment of area covered by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition):

3.1. Biodiversity, Flora & Fauna

Dumfries & Galloway has a high biodiversity in comparison to many other parts of the UK as a result of its geographical position, varied geology and landscape, low population density, and historically relatively low levels of urban and industrial development. However, in common with the rest of the UK, this biodiversity has declined, especially over the last century, mainly due to agricultural intensification and high levels of afforestation.

3.1.1 Designated Sites (Biological/Geological)

There are a large number of sites in Dumfries and Galloway that have received statutory designations because of their nature conservation and/or geological value. Within, or partly within, Dumfries and Galloway there are 7 Special Protection Areas, 17 Special Areas of Conservation, 5 Wetlands of International Importance, 97 Sites of Special Scientific Interest, 4 National Nature Reserves and 2 Local Nature Reserves.

Scottish Natural Heritage is currently undertaking Site Condition Monitoring on all SSSIs in the region. This assesses the state and trends of features for which the sites were designated. In 2006, the condition of notified features was as follows:

Unfavourable Declining: 27 features (14%)
Unfavourable No Change: 23 features (12%)
Unfavourable Recovering: 9 features (4.5%)
Favourable Maintained: 133 features (69.5%)

Current state & trends: Biodiversity on designated sites continues to decline, although the decline has slowed in recent years and there are some signs of a recovery of some sites.

Source: SNH website www.snh.org.uk/snhi

3.1.2 Area of Native Woodland

Native woodland is woodland where at least 50% of the canopy cover is site-native species. Semi-natural woodland is native woodland which is not obviously planted (e.g. it appears to have arisen mainly through natural regeneration). The total native woodland resource includes both semi-natural native woodland and planted native woodland.

Current state & trends: Detailed estimates of native woodland in Dumfries & Galloway are not available, but the area of broadleaved woodland in 1999 was 14,646ha. At least 2000ha of this was composed of non-native broadleaves, giving a maximum native woodland cover of around 12,646ha (or less than 2% of the total land area). However, the current trend is for increasing native woodland cover.

Source: National Inventory of Woodland and Trees: Dumfries & Galloway Region. Forestry Commission 1999.

3.1.3 Fish Stocks

Native freshwater fish stocks have been in decline since World War II. Monitoring concentrates on two species, Atlantic Salmon and Sea Trout. For rivers in the Solway area a total of 7705 Salmon and 1381 Sea Trout were caught in 2006.

Current state & trends: Although the statistics vary from year to year, the overall trend in recent years is for increasing numbers of Salmon but decreasing numbers of Sea Trout to be caught in the region's river.

Source: Scottish salmon and sea trout catches 2006, Fisheries Research Services.

3.1.4 Wetland Birds: Wintering Populations.

The Wetland Birds Survey is a long-running survey carried out by volunteers, co-ordinated by the Wildfowl and Wetlands Trust. Several inland waterbodies have been counted with varying regularity, but there is almost complete coverage of several larger sites over many years. Total birds (peak winter counts) are as follows:

| | 1993/94 | 1999/2000 | 2003/04 |
|----------------------------|---------|-----------|---------|
| Orchardton/Auchencairn Bay | n/a | 2,894 | 8,143 |
| Wigtown Bay | 11,450 | 15,643 | 15,867 |
| Solway Estuary | 141,629 | 152,698 | 141,029 |
| Loch Ken | 2,434 | 3,568 | 3,964 |
| R.Nith Keltonbank/Nunholm | n/a | 10,212 | 10,006 |
| Total | n/a | 185,015 | 179,009 |

Current state & trends: Detailed analysis of all counts relating to Dumfries and Galloway over the last 20 years suggests relatively stable, or even slightly increasing numbers of wintering waterfowl in Dumfries and Galloway, though there is some variation in trends for different species.

Source: The Wetland Bird Survey: Wildfowl and Wader Counts.

3.2. Human Health

Compared to the latest Scottish Health Survey (Scottish Executive 2005) the population of Dumfries and Galloway is healthier in many ways – including mental health and wellbeing – than

Scotland as a whole. However the population is ageing and there are pockets of deprivation: both these are risk factors for poor mental health.

3.2.1 Lifestyle and Wellbeing

The Dumfries and Galloway Lifestyle and Wellbeing Survey was carried out in 2006 involving 3252 residents of Dumfries and Galloway to investigate major health and lifestyle issues, and to identify trends based on the information from previous surveys. **Current state & trends:** Obesity doubled from 10% to 20% from 1995-2007, 37% of men have a waist shape that puts them at risk of heart disease, people are slightly less positive about mental/emotional health than in 2000, significant numbers of people drink alcohol hazardously, 60% of young women suffer from anxiety, there has been a reduction in passive smoking, there has been an increase in consumption of fruit and vegetables.

Source: Dumfries and Galloway Lifestyle and Wellbeing Report 2007.

3.2.2 Deprivation

The Scottish Index of Multiple Deprivation (SIMD) identifies small area concentrations of multiple deprivation across all of Scotland, allowing effective targeting of policies and funding where the aim is to wholly or partly tackle or take account of area concentrations of multiple deprivation. The first index, based on 31 indicators, was published in June 2004. The SIMD was updated for 2006 and now contains 37 indicators in seven domains: Current Income, Employment, Health, Education Skills and Training, Geographic Access to Services (including public transport travel times), Housing and Crime.

In 2006, of the 325 most deprived data zones in Scotland only 2 were in Dumfries and Galloway, and of the 651 most deprived zones only 6 were in Dumfries and Galloway. Of these, 3 are in north west Dumfries, 2 in Stranraer and the other is Whithorn. Other areas with relatively high levels of deprivation are to be found in Annan and Kirkcubbin.

Current state & trends: Whilst levels of deprivation are generally low in Dumfries and Galloway, a few areas have higher levels. There was little change between 2004 and 2006.

Source: Information supplied direct from Dumfries and Galloway Council.

3.3. Soil

There is little information on the state of soil quality for the whole of Scotland, or at a more detailed local scale. A Scottish soil monitoring system and soil strategy is currently in preparation as part of a commitment made in Scotland's climate change programme. This will help to provide trends in soils quality and provide a framework for soil protection.

Current state & trends: Not known.

3.4. Air

Dumfries and Galloway does not have a history of major air quality problems.

3.4.1 Air Quality

Region-wide monitoring of Benzene, 1,3-butadiene, Carbon monoxide, Lead, Nitrogen dioxide, PM10, and Sulphur dioxide is carried out by the Environmental Health Service of Dumfries and Galloway Council. It currently meets all standards, as defined in Air Quality (Scotland) Regulations, 2000, and Air Quality (Scotland) (Amendment) Regulations, 2002.

Current state & trends: The current overall state of air quality in Dumfries and Galloway is considered good and there are no perceived threats to this position in the future.

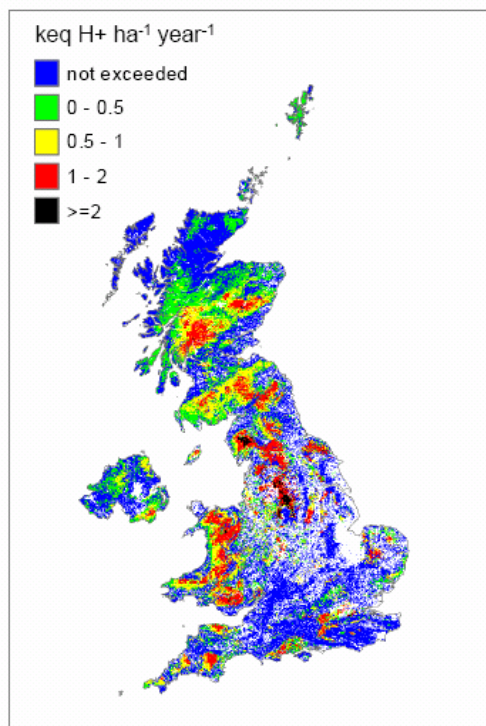
Source: Local Air Quality Management – Updating and Screening Assessment

2006, Dumfries and Galloway Council.

3.4.2 Exceedence of Critical Loads

A critical load is defined as the amount of a pollutant that an ecosystem can sustain without suffering adverse change. The Southern Uplands, and Galloway in particular, has been seriously affected by acidification caused by atmospheric sulphur and nitrogen. It is a granitic area which has been extensively planted with coniferous forest since the World War II. The history of several Galloway lochs has been investigated using sediment cores which preserve a record of past conditions, The conclusion is that some lochs were already acidic in 1800, but have become more so since 1940 as a result of industrial emissions, partly exacerbated by changes in land use.

Exceedence of acidity for terrestrial habitats 2002-04



Current state & trends: Though there have been improvements in recent years, acidification remains an environmental problem in Galloway.

Source: Centre for Ecology and Hydrology critical loads website www.critloads.ceh.ac.uk

3.5. Water

Dumfries & Galloway receives high levels of rainfall and therefore contains a high density of wetlands, including both flowing and still water types, as well as an extensive coastline. These waters are used for a variety of purposes including drinking water, power generation, fisheries, recreation and conservation. Groundwater is also important in some locations.

3.5.1 Watercourse Quality

Region-wide monitoring of watercourses is carried out by the Scottish Environment Protection Agency (SEPA). Rivers are classified according to their nutrient levels, aesthetics, biological quality, banksides, pH, Iron, Ammonia, Biological Oxygen Demand and Toxic Substances. In 2006 the total length of rivers was assessed as follows:

A1 Excellent 1141km

- A2 Good 1057km
- B Fair 342km
- C Poor 27km
- D Seriously polluted 6km

Current state & trends: The current overall state of watercourse quality in Dumfries and Galloway is considered good and the trend is improving. Diffuse pollution remains a problem in some locations.

Source: Data supplied direct by SEPA.

3.5.2 Coastal Water Quality

Region-wide monitoring of estuarine water quality is undertaken for the Bladnoch & Cree, Rough Firth & Auchencairn Bay, Luce Bay, Fleet, Dee and Inner Solway Estuaries. by the Scottish Environment Protection Agency (SEPA). Estuaries are classified according to their nutrient levels, aesthetics, biological quality, banksides, pH, Iron, Ammonia, Biological Oxygen Demand and Toxic Substances.

In 2006 the total areas within all estuaries were assessed as follows:

- Class A 246 square kms
- Class B 0.6 square kms
- Class C 0.2 square kms

Current state & trends: The overall state of estuarine water quality in Dumfries and Galloway is considered good. This position is stable.

Source: Data supplied direct by SEPA.

3.5.4 Bathing Waters

There are 5 designated bathing waters in Dumfries and Galloway at Southernness, Sandyhills, Rockcliffe, Brighthouse Bay and Carrick. These sites, and two non-designated waters at Mossyard and Loch Ken, are monitored for total coliforms, faecal coliforms and faecal streptococci by SEPA in line with standards laid out in the Bathing Water Directive. The following results were received for 2006:

| | EC Mandatory Standard 'Good' | EC Guideline Value 'Excellent' |
|-----------------|---------------------------------|-----------------------------------|
| Southernness | Pass | Pass |
| Sandyhills | Pass | Pass |
| Rockcliffe | Pass | Pass |
| Brighthouse Bay | Pass | Pass |
| Carrick | Pass | Pass |
| Lock Ken | Pass | Pass |
| Mossyard | Pass | Fail |

Current state & trends: Bathing water quality is considered good in Dumfries and Galloway. This has been an improving situation in recent years. (Note: Weather conditions are thought to have a significant bearing on this measure.)

Source: SEPA website www.sepa.org.uk

3.6. Climatic Factors

Met Office datasets have been analysed to assess climate trends in Scotland. The following results have been published for SW Scotland (Dumfries and Galloway & Strathclyde) in the period 1961-2004:

- Average annual temperature increase by 1.04C (all seasons)

| | |
|-----------------------------------|---|
| 24hr maximum temperature | increase by 1.25C (all seasons) |
| 24hr minimum temperature | increase by 1.06C (spring/summer) |
| Daily temperature range | increase by 0.23C (spring/summer) |
| Air frost | decrease by 27.7days (spring/summer/autumn) |
| Ground frost | decrease by 25.2days (spring/summer/winter) |
| Average precipitation | increase by 23.3% (winter) |
| Heavy rain | increase by 10.6days (winter) |
| Average annual rainfall intensity | increase by 7.8% |
| Snow cover | decrease by 40.7% (spring/autumn) |
| Sunshine hours | increase of 1.6% |
| Cloud cover | increase of 0.26% |

Current state & trends: In the last 40-50 years temperatures and rainfall have generally increased. It is predicted that this trend will continue, though there may be seasonal variations.

Source: Barnett, C., J. Hossell, M. Perry, C. Procter and G. Hughes (2006) A handbook of climate trends across Scotland. Scotland & Northern Ireland Forum for Environmental Research, Edinburgh.

3.7. Material Assets

Agriculture (73% of land area) and forestry (25% land area) are the dominant land uses in Dumfries & Galloway, jointly amounting to 8.87% of total employment. Other significant employment sectors include manufacturing (13.29%), construction (7.94%), wholesale & retail (15.19%), hotels & catering (6.58%), transport (6.71%), renting & business activities (7.49%), public administration (6.26%), education (5.72%) and health & social work (13.47%). Of these, only transport covers a significant land area.

Source: Five-Year Economic Development Strategy for Dumfries and Galloway 2003-2008.

3.7.1 Agriculture

The extent of agriculture was estimated as follows:

| | 2001 | 2006 |
|---------------------|----------|-----------|
| Arable | 65,620 | 69,656 |
| Grass over 5yrs old | 175,167 | 166,461 |
| Rough grazing | 187,134 | 187,023 |
| Total area | 27,921ha | 423,140ha |

Current state & trends: Farming is dominated by dairy farming and stock rearing, and this is likely to remain the principal agricultural land-use in the future, though there are likely to be continued amalgamation of smaller units.

Source: Scottish Agricultural Census June 2001 & June 2006. Scottish Executive.

3.7.2 Forestry

The level of afforestation that has taken place in Dumfries and Galloway over the last 50 years, makes it one of the most afforested areas in the UK. Statistics for the extent of plantation conifers in Dumfries and Galloway are available as follows:

| | |
|------|-----------|
| 1980 | 113,876ha |
| 1995 | 135,969ha |

Current state & trends: The rate of forestry expansion has slowed considerably in the last 10 years, with relatively little new planting. Harvesting is expected to double in the next 5 years.

Source: National Inventory of Woodland & Trees 1999. Forestry Commission.

3.7.3 Tourism & Recreation

Tourism is the one of the most important industries in Dumfries and Galloway in terms of the generation of income and jobs. Around 800,000 visitors are recorded each year. Revenue spending by tourists in 2002 was £182m. The natural heritage of Dumfries and Galloway is an increasingly recognised tourism product with scope for considerable development.

Current state & trends:

Source: Dumfries and Galloway Tourism Strategy 2001-2006.

3.7.4 Transport

There are more than 2,900 miles of public road in Dumfries and Galloway, which carry local, national and international traffic. Of these, the M74 provides a motorway link between Scotland and England and the A75 connects the motorway system with the Irish Sea ferry ports. It also links many towns and villages. Three rail lines link Dumfries and Galloway to the national network - the West Coast Main Line from Edinburgh and Glasgow to London via Lockerbie, the Nith Valley Line from Glasgow to Carlisle via Dumfries and the Stranraer to Glasgow line. There are regular ferry crossings to Northern Ireland, from Stranraer to Belfast and from Cairnryan to Larne. The joint port of Stranraer and Cairnryan is the second busiest ferry port in the UK and provides the shortest sea crossing between Scotland and Northern Ireland.

Current state & trends:

Source: Scottish Transport Statistics No. 21. 2002

3.7.5 Waste and Recycling

Current state & trends: In the year 2005/06 Dumfries and Galloway collected 102,379. Of this 10.3% was recycled and 0.1% composted. The trend is for increasing amounts of waste to be recycled or composted, but Dumfries and Galloway lagged well behind the national average of 24.4% in 2005/06.

Source: Waste Data Digest 7 (SEPA)

3.8. Cultural Heritage

3.8.1 Designated Sites

There are a large number of sites in Dumfries and Galloway that have received statutory designations because of their national importance for archaeology, historic or architectural importance. Within Dumfries and Galloway there are 932 Scheduled Ancient Monuments, 3,414 Listed Buildings, 38 Conservation areas and 20 Gardens and Designed Landscapes on the National inventory. Non statutory designations include approximately 17,671 land-based and 617 maritime sites on the Dumfries and Galloway Sites and Monuments Record.

There is currently no overall monitoring of the historic environment in Scotland, though Historic Scotland is in the process of undertaking an audit that will assist in identifying trends, problems and future issues. The first report is expected in 2008.

Current state & trends: Not known.

Source: Based on advice from Dumfries & Galloway Council Regional Archaeologist & Historic Scotland response to Scoping Report.

3.9. Landscape

3.9.1 Designated Sites

There are a several sites in Dumfries and Galloway that have received statutory designations because of their landscape value. Within Dumfries and Galloway there are 3 National Scenic Areas. Non-statutory landscape designations include 11 Regionally Scenic Areas. There is currently no monitoring of landscape quality in Dumfries and Galloway.

Current state & trends: Not known.

Source: Based on advice from Dumfries & Galloway Council Landscape Architect.

4. Environmental Problems

Schedule 3 paragraph 4 of the Environmental Assessment (Scotland) Act 2005 requires that the Environmental Report includes a description of existing environmental problems, in particular those relating to any areas of particular environmental importance. The purpose of this section is to explain how existing environmental problems will affect or be affected by the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition), and whether the LBAP is likely to aggravate, reduce or otherwise affect existing environmental problems.

Environmental problems were identified through discussions with members of the Dumfries and Galloway Biodiversity Steering Group and an analysis of the baseline data. Relevant environmental problems are summarised at **Table 3**.

Table 3. Environmental problems relevant to Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

| Problem | Supporting data | Implications |
|---|---|---|
| Continued loss of Biodiversity | Steering Group opinion, SNH Site Condition Monitoring & numerous other monitoring programmes. | This is the principal environmental problem to be addressed by the Dumfries & Galloway LBAP. |
| Habitat fragmentation | Published research & Steering Group opinion. | Wherever possible, LBAP objectives should link habitats and operate at a landscape scale. |
| Low biodiversity awareness amongst the public. | Steering Group opinion. | LBAP objectives can have a significant positive impact on this problem. |
| Loss of genetic diversity and local distinctiveness. | Steering Group opinion. | LBAP objectives can have a significant positive impact on this problem. |
| Uncoordinated collection, collation and use of biodiversity data. | Steering Group opinion. | LBAP objectives can have a significant positive impact on this problem. |
| Increase in non-native invasive species. | Published research & Steering Group opinion. | LBAP objectives can have a significant positive impact on this problem. |
| Reduced stocks of freshwater & marine fish. | Annual catch statistics, Steering Group opinion & anecdotal evidence. | Marine fish stocks are difficult to control at local level as the main impacts arise from national and international policy. Freshwater fish stocks can be positively influenced by habitat objectives in the |

| Problem | Supporting data | Implications |
|---|--|--|
| | | LBAP. |
| Freshwater acidification | CEH Critical Loads Monitoring. | Freshwater acidification is caused by activities that cannot be addressed by the LBAP, but LBAP objectives can be used to minimise its impacts. |
| Diffuse water pollution. | Published research & Steering Group opinion. | Diffuse pollution is caused by activities that cannot be addressed by the LBAP, but LBAP objectives can be used to minimise its impacts. |
| Climate change | Published research. | Although the LBAP cannot prevent climate change, all objectives should aim to minimise climate change and be well adapted to the levels of climate change that are now inevitable. |
| Missed opportunities for green tourism. | Steering Group opinion. | LBAP objectives can have a significant positive impact on this problem. |

5. Likely evolution of the environment without the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition).

Without the Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) it is considered that the likely future changes to the area will be as follows:

- **Biodiversity:** Biodiversity conservation and enhancement would continue without an LBAP, but actions would be uncoordinated and effectiveness reduced.
- **Human Health:** A number of habitats play a role in the prevention and treatment of mental and physical illnesses. Without an LBAP the opportunity to maximise these benefits would be missed.
- **Soils:** Without an LBAP there will continue to be no regional coordination of soil biodiversity conservation.
- **Water:** Various habitats play important roles in the prevention, mitigation and treatment of water pollution. Without an LBAP there would be reduced opportunities to maximise these roles.
- **Air:** Biodiversity plays a minor role in the suppression of air pollutants, though lack of an LBAP would not have a significant impact.
- **Climatic Factors:** Various habitats, especially peatlands, play a significant role in carbon sequestration. Without an LBAP there would be no opportunity to maximise this role.
- **Material Assets:** There would be no net change to material assets without an LBAP.
- **Cultural Heritage:** There would be no net change to cultural heritage without an LBAP.
- **Landscape:** A number of habitats contribute to landscapes. Without an LBAP there would be fewer landscape enhancements.
- **Inter-relationships:** The LBAP is the only regional strategy that links biodiversity with other environmental issues. Without an LBAP these interrelationships would be weaker.

6. SEA Objectives

In the light of the environmental analysis carried out in sections 2, 3 and 4 above, the following SEA objectives were established. These were used as the basis for testing the extent to which the Overall Aims, Central Actions and Habitat Action Plan Objectives of the draft LBAP were likely to have a positive, neutral or negative environmental impact.

Biodiversity, flora and fauna

To protect, maintain and enhance biodiversity.

Human Health

- I. To protect and enhance human health.
- II. To reduce social exclusion.

Water

To protect and enhance the water environment including coastal and river systems.

Soil

To safeguard soil quality, quantity and function.

Air

To maintain and improve air quality.

Climatic Factors

- I. To minimise emissions and maximise sequestration of greenhouse gases.
- II. To maximise the capacity of the landscape to adapt to climate change.

Cultural Heritage

To protect, and where appropriate, enhance or restore the historic environment.
To improve understanding of the close inter-relationships between historic and natural environments.

Landscape

To conserve and enhance distinctive landscape characters and scenic value.

Material Assets

To promote the sustainable use of natural resources and material assets.

Section C. Assessment of environmental effects and measures envisaged for prevention, reduction and offset of any significant adverse effects

This section of the Environmental report predicts and evaluates as far as possible the environmental effects of the Dumfries and Galloway Local Biodiversity Action Plan (second edition). The baseline information from the previous sections is applied to consider whether the LBAP is likely to have significant environmental effects (positive and negative).

1. Alternatives to which SEA was applied

The Dumfries and Galloway Local Biodiversity Action Plan (Second Edition) has been prepared under the guidance of the Dumfries and Galloway Biodiversity Partnership, led by the Dumfries & Galloway Biodiversity Steering Group. The Biodiversity Steering Group involves expertise in most of the SEA topic areas as follows:

- Biodiversity, flora and fauna – Scottish Natural Heritage, RSPB, Galloway Fisheries Trust, Farming & Wildlife Advisory Group.
- Water – Scottish Environment Protection Agency.
- Soil – Scottish Agricultural College, Scottish Environment Protection Agency.
- Air – Scottish Environment Protection Agency.
- Climatic Factors – Scottish Environment Protection Agency.
- Cultural Heritage – Dumfries & Galloway Council, Solway Heritage, National Trust for Scotland.
- Landscape – Dumfries & Galloway Council, Scottish Natural Heritage.
- Material Assets – Dumfries & Galloway Council, Scottish Government Rural Payments & Inspectorate Division, Forestry Commission Scotland, Scottish Agricultural College, Buccleuch Estates Ltd, Galloway Fisheries Trust.

The only topic area without representation on the Steering Group is therefore Human Health.

The second edition of the Dumfries & Galloway Local Biodiversity Action Plan was first discussed by the Steering Group on 6 September 2005. The draft plan and the SEA have been on the agenda at every subsequent Steering Group meeting (a total of eight meetings), and discussed at two meetings specifically arranged for this purpose. They have also been discussed by the wider Dumfries & Galloway Biodiversity Partnership at a total of seven meetings. Each of these has discussed draft sections of the LBAP, each covering particular topic areas. Further informal consultation with Biodiversity Partnership members has been undertaken between meetings. Modifications to the LBAP have been made at each stage.

The result of this process means that there has been continual evolution of the LBAP, in parallel with the SEA, over the last 26 months. Environmental impacts have been continually assessed; negative impacts have been removed or minimised, whilst positive impacts have been maximised. This Environmental Report therefore contains no alternatives to the Local Biodiversity Action Plan, other than not preparing an LBAP at all, as the process of plan preparation effectively assessed and removed unsuitable alternatives at each step of its preparation.

Discussions with the Consultation Authorities during the Scoping Stage of this Environmental Report have confirmed that it would now be inappropriate to reinvent alternatives to the LBAP,

when these alternatives have already been discussed and discounted during preparation of the LBAP.

2. Assessment methods

The Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) described above has been assessed against the range of environmental issues set out in Schedule 3 of the Environmental Assessment (Scotland) Act 2005. Comments from the Consultation Authorities (SNH, SEPA and The Scottish Ministers (Historic Scotland) have been taken into account regarding the methods, scope and level of detail in this Environmental Report.

The expert opinion of the Dumfries and Galloway Biodiversity Partnership Steering Group was the method used to determine the alternatives considered as part of this Strategic Environmental Assessment. Each LBAP Aim, Central Action and Habitat Action Plan was subject to individual scrutiny against the SEA Objectives and the results presented within a matrix.

As the LBAP contains few aims, actions or objectives that are required to take place at specific locations within Dumfries & Galloway, the assessment results are generic. They do, however, highlight areas where potential issues are likely or may possibly to arise during implementation of the LBAP. Such issues have been addressed, either by modification of LBAP aims, actions or objectives, or by inclusion within the LBAP of generic guidance on appropriate mitigation that should be carried out during implementation.

3. Assessment of PPS - summary

The Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) was assessed using the methods described above. A summary of the assessment findings is shown in **Table 4**, and the full findings are shown in **Appendix B**.

Table 4. Summary of Assessment Findings

All LBAP Aims, Central Action and Habitat Action Plan Objectives were included in the assessment, the results of which are shown below according to the following key:

- ++ Likely to have a very positive environmental impact.
- + Likely to have a positive, though smaller environmental impact.
- 0 Likely to have no significant positive or negative environmental impact.
- ? May possibly have a negative impact without appropriate mitigation.
- Likely to have a negative impact.

| LBAP Aims | | | | | | | |
|-----------------------|-------|-------|------|-------|-------|-------|----------------|
| | Aim 1 | Aim 2 | Aim3 | Aim 4 | Aim 5 | Aim 6 | Overall Impact |
| SEA Objectives | | | | | | | |
| Biodiversity | ++ | ++ | ++ | ++ | ++ | ++ | ++ |
| Human Health I | + | 0 | + | + | 0 | + | + |
| Human Health II | 0 | 0 | + | 0 | 0 | 0 | + |
| Water | ++ | ++ | ++ | ++ | ++ | + | ++ |
| Soil | + | ++ | + | ++ | + | 0 | + |
| Air | + | 0 | + | 0 | + | 0 | + |

| | | | | | | | |
|---------------------|----|----|----|----|----|----|----|
| Climatic Factors I | ++ | 0 | + | + | + | + | + |
| Climatic Factors II | ++ | ++ | ++ | ++ | ++ | 0 | ++ |
| Cultural Heritage | ? | 0 | 0 | + | ? | + | 0 |
| Landscape | + | 0 | + | + | + | ++ | + |
| Material Assets | ? | ++ | + | + | 0 | 0 | + |
| Inter-relationships | ++ | + | + | 0 | ? | ++ | + |

LBAP Central Actions & Habitat Action Plan Objectives

| | Overall Impact of Central Actions | Overall Impact of Habitat Objectives |
|---------------------|-----------------------------------|--------------------------------------|
| Biodiversity | ++ | ++ |
| Human Health I | + | + |
| Human Health II | + | + |
| Water | ++ | ++ |
| Soil | + | + |
| Air | + | + |
| Climatic Factors I | + | + |
| Climatic Factors II | + | ++ |
| Cultural Heritage | + | + |
| Landscape | + | ++ |
| Material Assets | + | ++ |
| Inter-relationships | + | + |

Overall, the assessment showed very positive, positive or no impacts for virtually all the LBAP Aims, Central Actions and Habitat Action Plan Objectives. No likely negative impacts were identified at all.

At the more detailed level of individual Aims, Central Actions and Habitat Action Plan objectives (see Appendix B), a small number of possible negative impacts were identified as follows:

- Aims and Habitat Action Plan objectives that include the expansion of various habitats, including woodlands and wetlands have the potential to damage cultural heritage, and to a lesser extent landscapes and material assets.
- Aims that encourage greater use of natural processes have the potential to damage cultural heritage.
- A Habitat Action Plan Objective that encourages more standing deadwood has the potential to increase the risk to human health from falling trees.

All impacts were deemed to be long-term and permanent, at least as far as can be foreseen. It was also considered to be the case that many were likely to be of a cumulative and synergistic nature. For example, Habitat Action Plan objectives to restore blanket bogs, expand native wet woods and create floodplain marshes are likely to provide greater total benefits for the water environment and for climatic factors than the sum of each individual action. Given the complex nature of these ecological links, which are likely to vary from site to site, and the place of the LBAP in the early stages of the decision-making process, no attempt was made to analyse cumulative and synergistic effects. Such matters are more appropriately assessed at later levels in the process, following more detailed identification of specific sites on which to implement LBAP actions.

4. Measures envisaged for the prevention, reduction and offsetting of significant adverse effects

Schedule 3 paragraph 7 of the Environmental Assessment (Scotland) Act 2005 requires an explanation of “the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.” **Table 5** sets out any environmental problems that are likely to remain on implementation of the PPS and summarises proposed measures for the prevention, reduction and offset of significant adverse effects.

Table 5. Measures envisaged for the prevention, reduction and offsetting of any possible significant adverse effects

| SEA issue | Existing problem? | Impact of PPS | Proposed measures for the reduction/prevention and offset of significant adverse effects |
|--|----------------------------|--|--|
| Human Health (Danger from falling timber) | Minor existing problem. | Habitat Action Plan Objective CP2 will increase standing dead trees and is therefore likely to increase risks from falling timber. | Provide mitigation guidance in Habitat Action Plan recommending that standing dead trees are not located in areas of high public use. |
| Cultural Heritage (Loss or damage to historic features) | Yes, but extent not known. | Aim 1 proposes re-creation of habitats at a landscape scale, which may increase loss or damage to historic features. | Include mitigation guidance in Aim 1 |
| Cultural Heritage (Loss or damage to historic features) | Yes, but extent not known. | Aim 5 proposes greater emphasis on natural processes, which may increase loss or damage to historic features. | Include mitigation guidance in Aim 5 |
| Cultural Heritage (Loss or damage to historic features) | Yes, but extent not known. | Habitat Action Plan Objectives RH1, LRB1, MA1, NWW1, NAW2, NOW2, NBW2 & FP1 propose expansion of habitats, which may increase loss or damage to historic features. | Include mitigation guidance in all relevant Habitat Action Plans that expansion should take place only in areas of low archaeological value. |
| Landscape (Loss or damage to significant landscape features) | Yes, but extent not known. | Habitat Action Plan Objective MA1 proposes creation of new floodplain grazing marsh, which may result in a significant landscape change. | Include mitigation guidance in the Habitat Action Plan for Marshes that creation |
| Material Assets (Loss of productive farmland and other material assets.) | Not significant. | Habitat Action Plan Objectives RH1, LRB1 & MA1 propose expansion of habitats, which may result in loss of productive farmland. | Include mitigation guidance in all relevant Habitat Action Plans that expansion should |

Section D. Monitoring

The monitoring approach outlined below was established by the Dumfries & Galloway Biodiversity Steering Group. Although biodiversity actions may affect a wide range of other environmental variables, rarely is sufficiently detailed monitoring carried out to be able to distinguish between impacts related to biodiversity actions and impacts related to other factors. Therefore, it has not proven possible to identify a meaningful set of indicators for all the SEA objectives.

The proposed SEA monitoring activities are set out in **Table 6**

Table 6. Proposed SEA monitoring programme

| What is being monitored | Data source, frequency of monitoring | Timescale and responsibility |
|-------------------------|--|--|
| Biodiversity | Annual abundance of selected breeding birds (e.g. Hen Harrier Red Kite). | Monitored by Dumfries & Galloway Raptor Study Group/RSPB. |
| | Annual abundance of selected non-breeding waterbirds (e.g. Barnacle Goose). | Monthly winter counts by the Wetland Bird Survey/WWT/RSPB/JNCC. |
| | Abundance of breeding seabirds. | Full seabird surveys across Scotland every 15 years, augmented by annual surveys of a sample of colonies by JNCC/RSPB. |
| | Vascular plant diversity in selected 10km squares. | BSBI Atlas and local change data. |
| | Proportion of notified species populations in favourable condition on protected sites. | Reported every 6 years by SNH. |
| | Proportion of notified habitat area in favourable condition on protected sites. | Reported every 6 years by SNH. |
| Human Health | Annual number of visitors to nature reserves. | Annual counts by WWT/RSPB/SNH/Forestry Commission. |
| | Annual number of people involved in biodiversity recording. | Reported annually by Dumfries & Galloway Environmental Resources Centre. |
| | Number of registered Eco-Schools and levels of awards. | Continually monitored by Eco Schools Co-ordinator. |
| Water | Annual Salmonid counts in main rivers. | Reported annually by District Salmon Fisheries Boards/Galloway Fisheries Trust. |
| | Freshwater invertebrate diversity at selected sites. | Continually monitored by SEPA. |
| | Cetacean sightings. | Monitored annually by volunteer Cetacean Group/SeaWatch Foundation. |
| Soil | No soil indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Air | No air indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Climatic Factors | No climate indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Cultural Heritage | No soil indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Landscape | No landscape indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |
| Material Assets | Annual Cockle stock assessment. | Monitored by Solway Shellfish Management Association/Freshwater Research Services. |
| Inter-relationships | No indicator currently available that is able to distinguish between impacts related to biodiversity action and other impacts. | |

Section E. Next steps

Table 7 lists future milestones in the development of the PPS and its SEA, and the dates when these are expected to be completed.

Table 7. Anticipated plan-making and SEA milestones

| Expected date | Milestone |
|---------------|---|
| xxxxx | Closing date for comments on draft Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) and associated SEA Environmental Report. |
| xxxxxxx | Publication of Dumfries & Galloway Local Biodiversity Action Plan (Second Edition) |