

SEA ENVIRONMENTAL REPORT – COVER NOTE

PART 1

To:

SEA.gateway@scotland.gsi.gov.uk

or

SEA Gateway
Scottish Executive
Area 1 H (Bridge)
Victoria Quay
Edinburgh
EH6 6QQ

PART 2

An Environmental Report is attached for [name of PPS]:

The Orkney Local Biodiversity Action Plan

The Responsible Authority is:

Orkney Islands Council

PART 3

Contact name

Eileen Summers

Job Title

Policy Officer (Environment)

Contact address

Development Services
Council Offices
School Place
Kirkwall
Orkney
KW15 1NY

Contact tel. no

01856 873535

Contact email

eileen.summers@orkney.gov.uk

PART 4

Signature
(electronic
signature
is acceptable)

Date

11 February 2008

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1. NON-TECHNICAL SUMMARY

The purpose of the Strategic Environmental Assessment (SEA)

This Environmental Report presents the findings of a Strategic Environmental Assessment (SEA) of the **Orkney Local Biodiversity Action Plan (LBAP)**.

The purpose of SEA is to integrate environmental consideration into the Plan, and this is achieved in two ways:

1. SEA allows the potential environmental impacts of the Plan to be predicted and, where appropriate, these predictions can be used to inform the development of the policies in the Plan.
2. In setting out the predicted environmental impacts in this Environmental Report, the public and other stakeholders can give their view on the Strategy and its potential impacts.

A Scoping Report was initially produced which set out the proposed method and subject matter to be considered in the SEA. The Scoping Report also highlighted possible environmental problems and identified key aspects of the current state of the environment relevant to the LBAP and its relationships with other plans, programmes and strategies. This was submitted to the Scottish Executive to allow the consultation Authorities (Scottish Natural Heritage (SNH), the Scottish Environment Protection Agency (SEPA) and Historic Scotland) to provide comments and recommendations. These comments have been taken into account in the assessment and preparation of this Environmental Report.

Alternatives

Three alternative versions were initially considered for the Orkney Local Biodiversity Action Plan (**LBAP**). These alternatives are set out in **Table 1** below:

Table 1: The alternatives which were considered for the LBAP

Option	Overview
(a) Use the existing format for the LBAP with habitat definitions remaining similar, updating only the targets and actions and maintaining the 5-year monitoring cycle.	This alternative would maintain the current length and complexity of the LBAP, causing it to be time consuming to monitor and not easily compatible with the BARS system.
(b) Use the existing format for the LBAP with habitat definitions remaining similar but including additions from both terrestrial and marine elements of the Scottish Biodiversity List. Include new Species Action Plans, maintaining the 5 year monitoring cycle.	This alternative would maintain the current length and complexity of the LBAP, causing it to be time consuming to monitor and not easily compatible with the BARS system. Does bring the LBAP into line with the Scottish Biodiversity Strategy and uses the Scottish Biodiversity List.
(c) Complete overhaul of the introduction and habitat plans with only minor updates to the audit. The plan would consist of 2-3 ecosystems each comprising up to 4 habitats, each with targeted actions on Scottish Biodiversity List species. An ecosystem from both the terrestrial and marine environment would be compiled. The LBAP would be monitored on a 3-yearly basis.	Streamlining the LBAP would allow for more targeted action plans, with fewer actions to monitor. Equal action would be taken on the terrestrial and marine habitats and would include the focused gathering of data on species reliant on these ecosystems. The actions would be qualitative and would be able to be monitored using BARS.

SEA of the Orkney Local Biodiversity Action Plan: Methods and Results

Strategic Environmental Assessment was carried out of each alternative and the preferred option chosen to be taken forward was **Option (c)**.

Option (c) is considered to be best able to reflect the national trend, using the Scottish Biodiversity List and the resources which are locally available, in terms of staff and finance. The actions would be qualitative and could be monitored using BARS.

Options (a) and (b) both featured too many updates and forward progression in the 'biodiversity system'. There is a need to streamline the LBAP and bring it into line with the national and UK systems. It would be difficult to fit the current targets and actions into the BARS system for monitoring biodiversity action plans as they are qualitative rather than quantitative.

The Orkney Local Biodiversity Action Plan 2008-2011 features Habitat Action Plans for ten habitats – road verges, eutrophic standing waters, mesotrophic standing waters, coastal sand dunes, aeolianite, coastal vegetated shingle, the strandline, saltmarsh, seagrass meadows and saline lagoons. It sets out six objectives which together aim to protect and, where practicable, enhance biodiversity in the Orkney Islands and also to increase public awareness of, and involvement in, conserving biodiversity. A total of 43 actions are proposed which will promote the protection and, where possible, the enhancement of these habitats and their species. Many of the actions are designed to increase awareness of the value of biodiversity and its vulnerability to activities involving pollution, over exploitation and development. Other actions include promotion of selected habitats for inclusion as priorities for the new Rural Development Contracts Scheme or development of best practice relating to habitat restoration.

Assessment of the actions

The individual actions of each Habitat Action Plan have been assessed for their effect on the SEA issues and, overall, the impact of implementation of the Plan is predicted to be positive.

Mitigation

The SEA process identified two potential negative effects which may result from the proposed Plan. Mitigating measures have subsequently been proposed which are aimed at avoiding, reducing or offsetting predicted environmental impacts and existing problems. These are as follows:

Biodiversity, flora and fauna

Increasing areas of certain habitats could result in loss of other valued habitats.

Work on habitats to enhance them for specific species could have detrimental effects on other species reliant on the habitat.

The progress of the OLPAB will be monitored for unexpected adverse effects on other habitats and species. If adverse effects are found to occur the relevant LBAP action will be reassessed by the Steering Group and work on that action will be stopped.

Trial verge management schemes could result in poorer quality verges.

Any trials would be based on research into best management for conservation verges and it is anticipated that this would highlight the optimum management scheme.

Monitoring and Adoption

This Environmental Report sets out a list of proposed indicators which would be used to monitor the environmental effects of the Orkney Local Biodiversity Action Plan. Following adoption of the

final Strategy, a Post-Adoption SEA Statement will be produced which will set out the final monitoring framework. This will also provide information regarding how SEA and comments from the consultation have been taken into account in the final Strategy.

Consultation

Comments on this Environmental Report may be sent to the address below until 24 March 2008.

Development Services
Orkney Islands Council
Council Offices
School Place
Kirkwall
Orkney
KW15 1NY

Comments may also be submitted by email to eileen.summers@orkney.gov.uk

A copy of this Environmental Report and the draft Orkney Local Biodiversity Action Plan are both available to download at <http://www.orkney.gov.uk>

2. INTRODUCTION

Purpose of this Environmental Report and key facts

As part of the preparation of this review of the Orkney Local Biodiversity Action Plan, Orkney Islands Council is carrying out a Strategic Environmental Assessment (SEA). SEA is a systematic method for considering the likely environmental effects of certain Plans, Programmes and 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 the Orkney Local Biodiversity Action Plan
- identify, describe and evaluate the likely significant effects of the Plan and its reasonable alternatives; and
- provide an early and effective opportunity for the Consultation Authorities and the public to offer views on any aspect of this Environmental Report.

INTRODUCTION (cont)

The key facts relating to the Orkney Local Biodiversity Action Plan are set out in **Table 2** below.

Table 2: Key facts relating to the Orkney Local Biodiversity Action Plan

Name of Responsible Authority	Orkney Islands Council
Title of plan/programme	Orkney Local Biodiversity Action Plan
What prompted the plan	This is a revision of the Orkney Local Biodiversity Action Plan 2002-2007, which was prompted by the Convention on Biological Diversity 1992
Plan subject	The subject of the LBAP is the biodiversity of the Orkney Islands, the range of species and the habitats which support them. This revision includes updated action plans for ten selected habitats of the LBAP.
Period covered by plan	2008 - 2011
Frequency of updates	Three-yearly
Plan area	The county of Orkney and its territorial waters
Plan purpose and/or objectives	<p>The strategic planning objectives of the LBAP are:</p> <ol style="list-style-type: none"> 1. To maintain and where practicable, to enhance: <ul style="list-style-type: none"> • the overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems • internationally and nationally important and threatened species, habitats and ecosystems • species, habitats and managed ecosystems that are characteristic of Orkney or are perceived to be of local importance • the biodiversity of natural and semi-natural habitats there this has diminished over recent years 2. To increase public awareness of, and involvement in, conserving biodiversity; 3. To identify priorities for habitat and species conservation and to set realistic targets and timescales for these
	<p>Eileen Summers Policy Officer (Environment) Dept of Development Services Orkney Islands Council Council Offices School Place Kirkwall KW15 1NY Tel: 01856 873535 Email: eileen.summers@orkney.gov.uk</p>

SEA activities to date

Table 3 summarises the SEA activities to date in relation to The Orkney Local Biodiversity Action Plan.

Table 3: 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 (CAs) that has now been taken into account)
Screening to determine whether the PPS is likely to have significant environmental effects		Screening was not necessary in this case as the Strategy qualifies for SEA under Section 5 (3) (a) of the Environmental Assessment (Scotland) Act 2005.
Scoping the consultation periods and the level of detail to be included in the Environmental Report	<i>September 2006</i>	The Scoping Report was prepared following discussion between members of the Orkney Biodiversity Action Plan Steering Group
Outline and objectives of the LBAP	April 2007	These were agreed by the Steering Group
Relationships with other PPS and environmental objectives	September 2007	Feedback from the CAs following scoping helped with this.
Environmental baseline established	September 2007	This was based on advice presented in the SEA Toolkit and on previous SEA environmental baseline documents produced out by Orkney Islands Council
Environmental problems identified	April 2007	These were identified following informal discussion with the consultation authorities
Assessment of future of area without the PPS	January 2008	This was carried out after assessment of the plan, once the likely environmental effects of its actions had been ascertained.
Alternatives considered	April 2007	These were agreed by the Steering Group
Environmental assessment methods established	September 2007	These were based on advice presented in the SEA Toolkit and on previous SEA assessments carried out by Orkney Islands Council
Selection of PPS alternatives to be included in the environmental assessment	<i>September 2006 - October 2007</i>	These were agreed by the Steering Group
Identification of environmental problems that may persist after implementation and measures envisaged to prevent, reduce and offset any significant adverse effects	February 2008	These were identified following identification of any mitigating measures.
Monitoring methods proposed	October 2007	The individual members of the Steering Group suggested lists of data (metadata) which they or their organisations regularly collect and which would provide useful indicators.
Consultation timescales <ul style="list-style-type: none"> • Timescale for Consultation Authorities • Timescale for public 	February 2008	The consultation timescale for both Consultation Authorities and members of the public is six weeks
Notification/publicity action	14 February 2008	Consultation on the draft LBAP and its ER will be advertised in the local press.

3. CONTEXT

Outline and objectives of the Orkney Local Biodiversity Action Plan

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 Orkney Local Biodiversity Action Plan.

Strategic planning objectives

The **Orkney Local Biodiversity Action Plan** includes the following strategic planning objectives:

- To maintain and, where practicable, to enhance:
 - The overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;
 - Internationally and nationally important and threatened species, habitats and ecosystems;
 - Species, habitats and managed ecosystems that are characteristic of Orkney or are perceived to be of local importance; and
 - The biodiversity of natural and semi-natural habitats where this has diminished over recent decades.
- To increase public awareness of, and involvement in, conserving biodiversity.
- To identify priorities for habitat and species conservation in Orkney and to set idealistic targets and timescales for these.

Outline and content of Review of the Orkney Local Biodiversity Action Plan

The first Orkney Local Biodiversity Action Plan has reached the end of the 5-year plan period of 2002-2007. The Plan consisted of 59 habitats with actions and 30 species which were to be the subject of Species Actions Plans (SAP), however these SAPs were not written during the life of the first plan. A total of 459 actions were proposed for the 59 habitats and, of these, over half have been accomplished and a quarter has been deemed unfeasible, either because the lead partner has no remit to accomplish the action or the actions themselves are too broad. The remainder have become unattainable due to changes to the Common Agricultural Policy and introduction of the Water Framework Directive and other national programmes.

Changes have also taken place in the UK Biodiversity Planning Process whereby planning has been devolved to the four constituent countries and in 2004 Scotland published its Biodiversity Strategy, “Scotland’s Biodiversity It’s in Your Hands”. The objectives of this strategy are carried out through sets of Scottish Biodiversity Implementation Plans which are reviewed and updated on a 3-yearly basis. It was felt that this was a good time to revise the LBAP, to incorporate these changes and to evaluate the quality of the actions and the suitability of the actions to partners. The LBAP proposes to be a more streamlined action plan which will be more easily monitored and will take into account the national framework which includes the Scottish Biodiversity Strategy and Implementation Plans. It will focus on a series of habitats that can be linked into ecosystems and the Scottish Biodiversity List species will be integrated into the actions.

The LBAP 2008-2011 comprises three main sections:

1. An introduction to the Biodiversity Action Planning System in the UK and Scotland with particular reference to local context. This section has been updated to include

short introductions to the following factors which influence Biodiversity Action Planning in Scotland:

- Publication of the Scottish Biodiversity Plan
- Introduction of Scottish Biodiversity Implementation Plans
- Transposition into Scottish Law of the Water Framework Directive
- Transposition into Scottish Law of the Strategic Environmental Assessment Directive
- Introduction of The Nature Conservation (Scotland) Act 2004
- The Biodiversity Duty
- The Scottish Biodiversity List
- The Species Action Framework
- Planning and Biodiversity
- Changes to the Common Agricultural Policy
- The Scotland Rural Development Programme 2007-2013
- Links with the Orkney Biodiversity Records Centre

2. A section setting out the habitat definitions, targets and actions.
3. A Biodiversity Audit which formed part of the first plan and has not been changed.

Selection of the appropriate habitats for inclusion in the plan was carried out through a process of KT (Kepner-Tregoe) risk assessment analysis, ranking terrestrial and marine habitats against 10 criteria which reflect UK, national and local priorities. The ranked habitats were then assessed against a further set of criteria based on actual potential for action towards the habitat and resource implications. Following the second stage, ten habitats were chosen which represent three ecosystems:

Coastal ecosystem

Dunes
Aeolianite
The Strandline
Vegetated shingle
Saltmarsh
Saline lagoons
Seagrass (*Zostera*) meadows

Freshwater ecosystem

Eutrophic standing waters
Mesotrophic standing waters

Terrestrial ecosystem

Roadside verges

Once the ecosystems, targets, actions and species had been determined, the document was formatted with definitions. Use of the ecosystem approach will ensure that the work and focus does not operate in isolation from, or at the expense of, other habitats and species.

There are in total 43 actions, a significant proportion of which relate to raising awareness of the value and vulnerability of habitats and species through production of advice leaflets, e.g. relating to the biodiversity of road verges or the hazards of marine litter to wildlife; and the damage which can be caused by engineering works to fragile habitats such as saltmarsh and saline lagoons. Other actions will include providing guidance on restoration of habitats such as sand dunes and contributing to the forthcoming Orkney Islands Council Minerals Strategy. Links between the LBAP and River Basin Management Planning and the Rural Development Contracts will ensure that biodiversity issues are considered in both schemes.

The document will now go out for public consultation following which any proposed changes will be considered and measured against the focus of the LBAP, the resources required and available and the potential for significant effects.

The LBAP Steering Group is a partnership composed of representatives of Scottish Natural Heritage (SNH), Orkney Islands Council (OIC), the Scottish Environment Protection Agency (SEPA), the Scottish Government Rural Payments and Inspections Directorate (SGRPID), the Farming and Wildlife Advisory Group (FWAG), the Royal Society for the Protection of Birds (RSPB), the Scottish Agricultural College (SAC), the International Centre for Island Technology (ICIT) and a local ecologist.

The Orkney Local Biodiversity Action Plan may be accessed on the Council's website at:
<http://www.orkney.gov.uk>

Relationship with other Plans, Programmes and Strategies (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.

This information is summarised in **Table 4: Relevant plans, programmes and strategies (PPS) and environmental protection objectives, and their relationship with The Orkney Local Biodiversity Action Plan** which is presented as **Appendix A** to this Environmental Report.

These relevant plans, programmes and strategies are also listed below:

Convention on Biological Diversity 1992
Conservation of Wild Birds Directive
Conservation of Natural Habitats and of Wild Fauna and Flora Directive
The UN Framework Convention on Climate Change and its Kyoto Protocol
The Water Framework Directive
EU Sustainable Development Strategy 2001
Biodiversity: The UK Action Plan (1994)
Biodiversity: The UK Steering Group Report (1995)
UK Biodiversity Group Tranche 2 Action Plans
The Scottish Biodiversity Strategy
Scottish Biodiversity Implementation Plans 2005-2007
Scottish Biodiversity Implementation Plans 2008-2010
The Water Environment and Water Services (Scotland) Act 2003
The UK's Shared Framework for Sustainable Development 2005
Meeting the Needs, priorities, Needs, Actions and Targets for Sustainable Development in Scotland 2002
The National Waste Strategy (Scotland)
SPP1 The Planning System
SPP2 Economic Development
SPP7 Planning and Flooding and PAN61 Planning and Sustainable Urban Drainage Systems
NPPG10 Planning and Waste Management
NPPG13 Coastal Planning
NPPG14 Natural Heritage
Changing Our Ways, Scotland's Climate Change Programme (2006)
NPPG5 Archaeology and Planning
PAN 42 Archaeology – The Planning Process and Scheduled Monument Procedures
NPPG18 Planning and the Historic Environment
Scottish Historic Environment Policy 1 (Historic Scotland's policy for the sustainable management of the historic environment.)
Scottish Historic Environment Policy 2. Scheduling: protecting Scotland's nationally important monuments
Passed to the Future
Memorandum of Guidance on Listed Buildings and Conservation Areas, Historic Scotland 1998

Scottish Executive Marine & Coastal Strategy (2005)
The Rural Stewardship Scheme
The Common Agricultural Policy
The Scottish Rural Development Programme
SEPA's Policy 21, "Strategy for Implementing Actions under the UK Biodiversity Action Plan"
OIC Biodiversity Action Plan 2002
Biodiversity in Orkney: 1997 Audit
Biodiversity in Orkney 2001-02 Audit
A Smart, Successful Highlands and Islands, 2005
OIC Corporate Strategic Plan 2005 – 2008
OIC 2020 Community Plan (2003)
The Orkney Local Plan 2004 – 2007
Orkney Structure Plan
Orkney Outdoor Access Strategy
Orkney Environmental Strategy and Action Plan
Orkney & Shetland Area Waste Plan

Key points arising from this analysis include the requirement to:

- Identify actions which will help reverse the general trend of declining biodiversity
- Promote the protection of habitats and species which are listed under the Habitats and birds Directives
- Ensure that the actions promoted by the LBAP do not exacerbate the problem of climate change, and where possible will mitigate against its effects
- Promote actions which will help protect or restore the biological and chemical health of the water environment
- Produce a Biodiversity Action Plan which is compatible with the environmental, social and economic aspects of sustainable development
- Reflect and complement the overarching objectives set out in the UK and Scottish Biodiversity Plans
- Promote actions which are compatible with those identified in the Scottish Biodiversity Implementation Plans and which will contribute towards positive benefit to the biodiversity of Scotland and the UK as a whole
- Highlight the negative impact of waste on species and their habitats and promote further reduction, re-use, recycling or recovery of waste
- Integrate the conservation of biodiversity and habitats into the planning process
- Consider the potential for flooding and, where possible, support actions which will contribute to measures for improved flood management
- Consider issues which relate specifically to coastal habitats and refer to the relevant policy documents for guidance
- Consider the potential effects of the LBAP on all aspects of Orkney's historic environment
- Contribute to a better understanding of management issues in the marine environment
- Contribute to the Scotland Rural Development Programme through support for the Rural Development Contracts
- Follow on from the LBAP 2002-2007
- Contribute to the maintenance and enhancement of Orkney's natural heritage, which helps support the health and wellbeing of its communities

- Contribute to fulfilling the environmental objectives of Orkney 2020, the Community Plan
- Promote the environmental policies of the present Orkney Local Plan, contributing to its review and the subsequent development of the next Orkney Local Plan
- Fulfil the aim of the Orkney Environmental Strategy and Action Plan which is to *'conserve and enhance biological diversity within Orkney and to contribute to the conservation of national and global biodiversity'*
- Provide opportunities to increase understanding and awareness of Orkney's rich biodiversity
- Increase public awareness of the value and vulnerabilities of Orkney's biodiversity, and contribute to the promotion of enjoyment of the natural environment

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.

An **Environmental Baseline of the Orkney Islands** has been compiled and is presented as **Appendix B**. The information in the Environmental Baseline document is supplemented by:

- **Appendix BI** Distribution of the 10 LBAP Habitats Selected for Review 2008-2011
- **Appendix B2** Orkney Natural Heritage Sites
- **Appendix B3** UK Priority Habitats and Species
- **Appendix B4** Orkney Scheduled Ancient Monuments in the Care of Historic Scotland

Table 5 below presents a summary of the data collected and the relevant sources.

Table 5: Summary of data collected in compiling an environmental baseline of the Orkney Islands

DATA	SOURCE
Information on climate trends in Scotland. Factors which could cause sea level rise	SNIFFER, 'A handbook of climate trends across Scotland', 2006 Changing Our Ways, Scotland's Climate Change Programme, Scottish Executive 2006
Definition of saltmarsh habitat	Boorman, L Saltmarsh Review, JNCC Report No.334 2003
Information relating to energy transfer in saltmarsh ecosystems	Bell, M. et al. Energy and Ecosystems, Ecology Course Book, Open University 1996
Legislation relating to European Protected Species	SNH website: www.snh.gov.uk

Measures to protect species outwith designated areas	SNH website: www.snh.gov.uk
Information relating to RSPB reserves in Orkney	RSPB website: www.rspb.org.uk
List of statutory and non-statutory designated natural heritage sites	Scottish Natural Heritage (SNH) www.snh.gov.uk Orkney Islands Council Local Plan
Lists of Priority habitats and species in Orkney	Orkney Islands Council Local Biodiversity Action Plan
Water quality data (freshwater and coastal) and Groundwater quality data	Scottish Environment Protection Agency (SEPA)
Rainfall data for the Orkney Islands	SNIFFER, 'A handbook of climate trends across Scotland', 2006
Information on areas at risk of flooding	Indicative River and Coastal Flood Map (Scotland), SEPA, 2005
General information relating to Orkney soil types	SNH Review No 100, Orkney Landscape Character Assessment. Land use Consultants, Glasgow 1998
More detailed information relating to Orkney soil types	Soil and land capability for agriculture maps (Orkney and Shetland) mapsales@macaulay.ac.uk
Plans to establish a soil monitoring system	Changing Our Ways, Scotland's Climate Change Programme, Scottish Executive 2006
Data on Agricultural Land Use in Orkney during 2002 and 2005	Scottish Agricultural Census 2001 - 2006
Contaminated Land Inspection Strategy	Orkney Islands Council Department of Environmental Health
Geology of Orkney Sites designated for their geological interest	www.fettes.com/orkney/geology The Orkney Local Plan
Information on Landscape Character Assessment	Scottish Natural Heritage Review No 100, Orkney Landscape Character Assessment
Definition of the historic environment	SHEP 1 (Historic Scotland's policy for the sustainable management of the historic environment)
Lists of Scheduled Ancient Monuments and Listed Buildings Information on Conservation Areas	Orkney Islands Council Local Plan PASTMAP Historic Scotland, 2007 The Orkney Islands Council Structure Plan 2001
Population data	General Register Office for Scotland (GROS) Scotland's Census Results Online
General health of the populations of Orkney and Scotland Life expectancy of residents of the Orkney Islands over the period 2000-2005	Scottish Executive National Census 2001
Source of aggregates used in Orkney	Orkney Islands Council Roads Department

The following summarises the likely gaps and/or unreliability of the SEA baseline data, and how they were minimised:

- Appendix B1, Distribution of the 10 LBAP Habitats Selected for Review 2008-2011 has been compiled from information which is currently available and changes may have occurred since past surveys were carried out. The objectives for certain Habitat Action Plans in the LBAP 2008-2011 include determination of the distribution and/or condition of these habitats within Orkney. Data gathered during future habitat surveys will allow the baseline data for each habitat to be updated and we aim also to produce maps illustrating the distribution of each of the ten habitats throughout the Orkney Islands.
- Similarly, the list of Natural Heritage sites which is reproduced from the Orkney Local Plan 2004 may be incomplete, in particular for the Sites of Local Nature Conservation Importance. A review of these sites is underway and an updated list of sites, including more detailed explanations of the reasons for their designation will be included in the next Local Plan.
- Health data is fairly subjective and can only give an indication of peoples' perception of their own health. However, it is considered a useful indicator for the purposes of this report.

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 Orkney Biodiversity Action Plan, and whether the PPS is likely to aggravate, reduce or otherwise affect existing environmental problems.

Environmental problems were identified through discussions with Scottish Natural Heritage, the Scottish Environmental Protection Agency and Historic Scotland and an analysis of the baseline data. Relevant environmental problems are summarised in **Table 6**.

Table 6: Environmental problems relevant to the Orkney Local Biodiversity Action Plan

Problem	Supporting data (where available at this stage)	Implications for PPS
Changes to climates throughout the world due to increasing atmospheric levels of 'greenhouse' gases which include CO ₂	SNIFFER, 'A handbook of climate trends across Scotland', 2006 www.sniffer.org.uk	Climatic factors One of the habitats included in this review of the LBAP is Saltmarsh which represents a potential sink for carbon. The actions for this HAP aim to protect areas of saltmarsh in Orkney.

Problem	Supporting data (where available at this stage)	Implications for PPS
<p>Loss of biodiversity through loss and fragmentation of habitat.</p> <p>Increasing areas of certain habitats could result in loss of other valued habitats.</p> <p>Work on habitats to enhance them for specific species could have detrimental effects on other species reliant on the habitat.</p>		<p>Biodiversity, fauna & flora</p> <p>The actions proposed in the LBAP aim to protect vulnerable habitats and species and subsequently to increase biodiversity in Orkney.</p> <p>The progress of the OLPAB will be monitored for unexpected adverse effects on other habitats and species.</p>
<p>Pollution of watercourses</p> <p>Potential for increasing flood events due to global warming</p>	<p>Classification of freshwater watercourses in the Orkney Islands 2000-2006</p> <p>Indicative River and Coastal Flood Map (Scotland), SEPA, 2005.</p>	<p>Water</p> <p>The actions proposed in the LBAP aim to protect or restore water quality and to support schemes which will address the problem of flooding.</p>
<p>Erosion of soil</p>		<p>Soil</p> <p>The LBAP includes actions which aim to prevent erosion of soil. These will:</p> <ul style="list-style-type: none"> • protect saltmarsh vegetation and soil; • address flooding and associated soil erosion.
<p>There is a need to protect geology, in particular at sites which provide a good representation of Orkney's geological history</p>		<p>Geology</p> <p>The list of habitats featured in this review of the LBAP includes <i>Aeolianite</i>, a natural form of concrete or cemented dune sand.</p> <p>The actions for this HAP aim to protect outcrops of aeolianite in Orkney.</p>
<p>Loss of certain features of the Orkney landscape through changes in land</p>	<p>Environment Report for the SEA of the Renewable Planning</p>	<p>Landscape</p> <p>Landform and vegetation</p>

Problem	Supporting data (where available at this stage)	Implications for PPS
cover	Framework for Orkney 2005	cover contribute greatly to the Orkney landscape. The actions proposed by the LBAP seek to protect and preserve the diversity of land cover.
Damage to or loss of historic buildings or previously undiscovered archaeology		<p>Cultural heritage</p> <p>Cultural and built heritage will be considered in all proposed targets and actions.</p> <p>Archaeological finds frequently occur in coastal areas, largely as a result of coastal erosion. Dunes are particularly mobile landforms, especially where vegetation cover is breached. The actions of the LBAP aim to protect dunes and develop best practice on their restoration. Preservation of dune vegetation will help maintain protection of buried archaeological remains.</p>
Habitats that are of public interest have the potential to attract more resources and more targeted actions as they will increase public awareness potential at the expense of other habitats that are significant but not as valued or understood in public opinion		<p>Human health/population</p> <p>The LBAP aims to raise awareness of a range of habitats and species, including those that are not well known.</p>
Use of non-renewable resources, e.g. sand from dune systems.		<p>Material assets</p> <p>The LBAP includes actions which will promote the sustainable use of non-renewable resources.</p>

Likely evolution of the environment without the Orkney Local Biodiversity Action Plan 2008-2011

Without the update to the LBAP it is considered that the likely future changes to the area will be as described below:

Climatic factors

It is unlikely that the actions set out in the LBAP will have significant influence on climatic factors such as the level of greenhouse gases in the atmosphere, as only one of the 10 habitats under review, saltmarsh, could be described as a potential 'sink' for carbon and many of the areas of saltmarsh in Orkney are not extensive. However the larger saltmarsh areas represent valuable buffer zones, protecting adjacent land areas from the effects of flooding and the actions identified in the saltmarsh HAP aim to maintain and protect saltmarsh communities.

Indeed many of the actions of the LBAP are designed to protect or restore habitats which could come under increasing pressure should changes to the Orkney climate include, as predicted, increasing rainfall and storminess or rising sea levels. It is conceivable, therefore, that without the actions proposed by the LBAP, restorative and protective measures would not be devised for habitats such as sand dunes and coastal vegetated shingle, and further erosion and blow-outs would reduce the extent of these habitats and their effectiveness as forms of coastal defence.

Biodiversity, fauna & flora

The LBAP aims to raise awareness, both throughout the general public and within public bodies such as Orkney Islands Council, of the value and vulnerability of Orkney's natural habitats and the species which they support.

Furthermore, the LBAP Steering Group comprises representatives from the various environmental organisations and their participation in Biodiversity Action Planning ensures that the protection and enhancement of biodiversity feature prominently in their respective fields of work.

Without the plan there would be less appreciation of the diversity of species and habitats in Orkney and it is likely that more projects and development would be undertaken without consideration of their effects on biodiversity and incorporation of mitigation to avoid, reduce or offset any adverse effects.

Water

The aquatic environment is well represented in this review of the LBAP. Of the ten habitats featured, two are from the freshwater environment and a further seven are representative of aspects of the coastal environment.

Without the plan monitoring of watercourses would continue as this work forms part of SEPA's statutory duties under the Water Framework Directive. However issues relevant to the protection of habitats and species listed in the LBAP might not be incorporated into and addressed by River Basin Management Planning.

Also opportunities to highlight the vulnerability of habitats and species to damage from engineering works such as road or drainage projects might not occur.

Soil

Without the LBAP it is unlikely that there would be significant change to soils in Orkney. However in the Saltmarsh HAP, Action 2 *Raise awareness with appropriate agencies to ensure that road drainage works do not adversely affect saltmarsh* may help protect saltmarsh and its soil from damage and erosion.

Geology

There would be little, if any, change to the geology of Orkney without the LBAP as the Habitat Action Plan for aeolianite is the only part of the plan which relates to this SEA issue. However this HAP includes actions to identify areas where aeolianite is present and to include it in the forthcoming OIC Minerals Strategy and this should highlight its ecological value and alert developers to actions which could damage the habitat.

Landscape

Without the LBAP, projects which would not go ahead include the management of certain road verges as conservation verges and awareness-raising of the problem of marine litter. Flowering plants in the verges add to the attractiveness of the Orkney landscape, whereas litter along the strandline is unsightly and detracts from the value of the landscape.

Cultural heritage

Due to its use for human settlement and development such as kelp burning and fishing the coastal zone in Orkney tends to be rich in buried archaeological remains. LBAP actions which aim to maintain land cover, in particular behind mobile landforms such as dunes, help maintain cover over these remains, preventing their loss through land erosion. Without the LBAP, guidance would not be produced on best practice for the restoration of dune sites.

Population and human health

One of the main strands of this review of the LBAP is production of materials designed to raise awareness of the value Orkney's natural heritage and to encourage people to go out and enjoy the countryside. Without the plan these awareness raising projects would not be undertaken and the benefits to human health would be missed.

Material assets

In Orkney the construction and agricultural industries use significant quantities of sand and stone and, without careful planning and incorporation of mitigative measures, extraction of these resources generally results in considerable damage to and loss of habitats and species. Without the species information already contained in the LBAP 2002 and the further habitat distribution survey work proposed by this review of the plan, Orkney Islands Council would have much less information upon which to base its Minerals Strategy for sustainable use of these resources.

SEA Objectives

At the scoping stage the SEA issues which were initially scoped in were:

- Biodiversity, fauna and flora; Water; Soil; Landscape and Cultural heritage.

However following consultation with Historic Scotland, SEPA and SNH it was decided that the issues Climatic factors, Human health and Material assets should also be scoped in for consideration.

Following consideration of the actions proposed by the LBAP a further issue, Geology has also been scoped in, resulting in nine SEA issues in total.

A set of objectives has been identified which will be used as measures by which the environmental impacts of the Strategy may be assessed. These SEA objectives are presented in **Table 7** below.

Table 7: SEA Objectives

Objective	SEA issue	Indicators
Protect habitats which represent carbon storage systems	Climatic factors	<ul style="list-style-type: none"> Reported condition of SSSIs which include areas of saltmarsh
Protect, maintain and enhance biodiversity. Respect land form, natural processes and systems.	Biodiversity, fauna & flora	<ul style="list-style-type: none"> Achievement of LBAP targets and actions Reported condition of SSSIs Reported condition of SAC/SPA/Ramsar sites
Maintain and restore key ecological processes (e.g. hydrology, water quality, coastal processes).	Water	<ul style="list-style-type: none"> Indicators from WFD Number of abstraction licences
Safeguard soil quantity and quality	Soil	<ul style="list-style-type: none"> Reported condition of SSSIs, e.g. sites which include areas of saltmarsh
Protect sites which illustrate the geological heritage of the area	Geology	<ul style="list-style-type: none"> Reported condition of SSSIs
Conserve and enhance landscape character and scenic value of the area. Respect land form, natural processes and systems	Landscape	<ul style="list-style-type: none"> Public perception through questionnaire or canvassing
Prevent damage to and, where appropriate, enhance historic sites.	Cultural heritage	<ul style="list-style-type: none"> 'Coast watch' Numbers of reports of damage and loss from county archaeologist
Provide appropriate opportunities for people to come into contact with and learn about their natural heritage. Maintain the natural heritage of Orkney which is valued by its resident population and visitors alike	Human health and Population	<ul style="list-style-type: none"> Length of paths Number of new paths Census – life span of population
Promote sustainable use of natural resources and material assets.	Material assets	<ul style="list-style-type: none"> Number of appropriate policies/plans/strategies in place that take account of the LBAP

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

Alternatives to which SEA was applied

At the scoping stage of SEA, three alternatives were identified for the Orkney Local Biodiversity Action Plan. These were:

(a) Use the existing format for the LBAP with habitat definitions remaining similar, updating only the targets and actions and maintaining the 5-year monitoring cycle.

(b) Use the existing format for the LBAP with habitat definitions remaining similar but including additions from both terrestrial and marine elements of the Scottish Biodiversity List. Include new Species Action Plans, maintaining the 5 year monitoring cycle.

(c) Complete overhaul of the introduction and habitat plans with only minor updates to the audit. The plan would consist of 2-3 ecosystems each comprising up to 4 habitats, each with targeted actions on Scottish Biodiversity List species. An ecosystem from both the terrestrial and marine environment would be compiled. The LBAP would be monitored on a 3-yearly basis.

Assessment of reasonable alternatives to the Plan

The reasonable alternatives described above have also been assessed against the range of environmental issues set out in Schedule 3 of the Environmental Assessment (Scotland) Act 2005, using the **SEA objectives** which were identified in Table 7 as assessment criteria. Comments from the Consultation Authorities (Scottish Natural Heritage, the Scottish Environmental Protection Agency and The Scottish Ministers (Historic Scotland) have been taken into account regarding the methods, scope and level of detail in this Environmental Report.

Assessment was carried out by use of a matrix, whereby each alternative was assessed for its likely effect on the full set of SEA environmental issues. These environmental issues are: Climatic factors; Local air quality; Biodiversity, fauna and flora; Water; Soil; Geology; Landscape; Cultural heritage; Population and Human health and Material assets.

Table 8: Assessment of alternatives to the LBAP

	SEA ENVIRONMENTAL ISSUES									
	Climatic factors	Local air quality	Biodiversity	Water	Soil	Geology	Landscape	Cultural heritage	Population/ Human health	Material assets
Alternatives to the Orkney Local Biodiversity Action Plan 2008-2011										
(a) Use the existing format for the LBAP with habitat definitions remaining similar, updating only the targets and actions and maintaining the 5-year monitoring cycle.	✓/?	✓/?	✓	✓/?	✓/?	✓/?	✓/?	?	✓/?	✓/?
Comments: The aim is to produce an LBAP featuring SMART targets and actions which can be reported in BARS and which can contribute to national biodiversity monitoring. To update all habitats in the LBAP would result in a heavy work-load for a 3-year period and it is highly likely that many of the actions would not be implemented. It is difficult therefore to assess how successful such a plan would be in achieving positive impact for all the SEA issues.										
(b) Use the existing format for the LBAP with habitat definitions remaining similar but including additions from both terrestrial and marine elements of the Scottish Biodiversity List. Include new Species Action Plans, maintaining the 5 year monitoring cycle.	✓/?	✓/?	✓	✓/?	✓/?	✓/?	✓/?	?	✓/?	✓/?
Comments: This is an even more ambitious plan to undertake over a 3-year period as it includes production of new Species Action Plans. Again, it is highly likely that many of the actions would not be implemented. It is difficult therefore to assess how successful such a plan would be in achieving positive impact for all the SEA issues.										
(c) Complete overhaul of the introduction and a review of selected habitat plans with only minor updates to the audit if necessary. The plan would consist of 2-3 ecosystems each comprising up to 4 habitats, each with targeted actions on Scottish Biodiversity List species. An ecosystem from both the terrestrial and marine environment would be compiled. The LBAP would be monitored on a 3-yearly basis.	✓	□	✓	✓	✓	✓	✓	✓	✓	✓
Comments: By selecting up to 4 habitats from each of 2-3 ecosystems, implementation of the individual actions may well result in positive cumulative and synergistic effects across each ecosystem. Both terrestrial and marine ecosystems will benefit. This focused plan is more likely to be completed and to contribute positively to national biodiversity reporting.										

KEY TO SYMBOLS:

✓ = positive environmental effect; # = negative environmental effect; □ = no environmental effect; ? = effect uncertain

Summary of assessment of the three alternatives to the LBAP

It is assumed that all three alternatives would result in a measure of positive impact upon biodiversity as that is the overriding objective of a Biodiversity Action Plan.

For alternatives (a) and (b) their effect on the cultural heritage issue is assessed as unknown as any impact could only be predicted once the individual actions for each Habitat/Species Action Plan were known.

For alternatives (a) and (b) all of the Habitat Action Plans would be reviewed and updated so either alternative could result in a measure of positive impact on all of the remaining SEA environmental issues. However this outcome would not be certain as, given the large number of actions which a complete re-write of the plan would involve, it is possible that, as has happened in the current plan, only a proportion of the actions would be carried out, for example due to financial or staffing constraints. Therefore the predicted impact on these issues is assessed as positive or uncertain.

Alternative (c) proposes a review of a limited number of Habitat Action Plans featuring both terrestrial and marine habitats. Each Habitat Action Plan would contain approximately four actions, these targeted at species from the Scottish Biodiversity List. As is the case for the Scottish Biodiversity Implementation Plans the plan would be monitored on a 3-yearly basis. Following a rigorous selection process, ten habitats have been chosen: road verges; eutrophic standing waters; mesotrophic standing waters; sand dunes; aeolianite; vegetated shingle; the strandline; saltmarsh; seagrass meadow and saline lagoons. These habitats represent three ecosystems: boundary features; the coastal environment and the freshwater environment. The number of actions proposed is considered to be achievable within the three-year period of the plan and, as they will target current environmental problems in the Orkney Islands, they are predicted to result in positive impact on the SEA environmental issues which are relevant to the area. It is important also to construct a plan whose actions and benefits/disbenefits can be monitored and the actions in alternative (c) are designed to be qualitative so will be compatible with the BARS monitoring system.

Framework used to assess the Orkney Local Biodiversity Action Plan

Assessment of the Orkney Local Biodiversity Action Plan high level Objectives

The high level objectives of the LBAP have been assessed against the range of environmental issues set out in Schedule 3 of the Environmental Assessment (Scotland) Act 2005, using the **SEA objectives** which were identified in **Table 8** as assessment criteria. The assessment is set out in **Table 9** below.

Table 9: Assessment of the Orkney Local Biodiversity Action Plan high level objectives

	ASSESSMENT CRITERIA								
High level objectives of the Orkney Local Biodiversity Action Plan	Climatic factors	Biodiversity	Water	Soil	Geology	Landscape	Cultural heritage	Population/ Human health	Material assets
1. To maintain and, where practicable, to enhance the overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems	✓	✓	✓	✓	□	✓	✓/?	✓	□
Comments: Overall the effect would be positive in both terrestrial and aquatic ecosystems. The natural landscape would also benefit. Positive effect anticipated on cultural heritage where actions protect and preserve land cover, otherwise effect uncertain. Provides pleasant surroundings for people to live in.									
2. To maintain and, where practicable, to enhance internationally and nationally important and threatened species, habitats and ecosystems	✓	✓	✓	✓	□	✓	✓/?	✓	□
Comments: Overall the effect would be positive in both terrestrial and aquatic ecosystems. The natural landscape would also benefit. Positive effect anticipated on cultural heritage where actions protect and preserve land cover, otherwise effect uncertain. Provides pleasant surroundings for people to live in.									
3. To maintain and, where practicable, to enhance species, habitats and managed ecosystems that are characteristic of Orkney or are perceived to be of local importance	□	✓	✓	✓	✓	✓	✓/?	✓	□
Comments: Overall the effect would be positive in both terrestrial and aquatic ecosystems. The natural landscape would also benefit. Positive impact on aeolianite, a locally important form of sandstone. Positive effect anticipated on cultural heritage where actions protect and preserve land cover, otherwise effect uncertain. Provides pleasant surroundings for people to live in.									
4. To maintain and, where practicable, to enhance the biodiversity of natural and semi-natural habitats where this has diminished over the recent decades	□	✓	✓	✓	□	✓	✓/?	✓	□
Comments: Overall the effect would be positive in both terrestrial and aquatic ecosystems. The natural landscape would also benefit. Positive effect anticipated on cultural heritage where actions protect and preserve land cover, otherwise effect uncertain. Provides pleasant surroundings for people to live in.									
5. To increase public awareness of, and involvement in, conserving biodiversity	□	✓/?	□	□	□	□	□	✓	□
Comments: Positive impact on human health/population as people get out and about and become involved in biodiversity projects. Positive impact also on biodiversity provided adequate advice is made available to people wishing to undertake conservation projects in order to avoid introduction of inappropriate species.									

	ASSESSMENT CRITERIA								
High level objectives of the Orkney Local Biodiversity Action Plan	Climatic factors	Biodiversity	Water	Soil	Geology	Landscape	Cultural heritage	Population/ Human health	Material assets
6. To identify priorities for habitat and species conservation in Orkney and set realistic targets and timescales for these	□	✓	✓	□	□	□	□	□	✓
Comments: Overall the effect would be positive in both terrestrial and aquatic ecosystems. Positive benefit also to the natural heritage of Orkney in general which represents a material asset, for example to its tourism industry.									

KEY TO SYMBOLS:

✓ = positive environmental effect; # = negative environmental effect; □ = no environmental effect; ? = effect uncertain

Assessment of the individual component parts of the preferred Orkney Local Biodiversity Action Plan

Assessments of the individual actions of the preferred Orkney Local Biodiversity Action Plan (alternative (c)) were carried out using a framework similar to that used above.

The results of these assessments are set out in **Table 10** which is presented as **Appendix C**.

Assessment of alternatives - cumulative and synergistic effects

This section summarises the predicted impacts on the SEA environmental issues of the actions which have been selected to make up the Orkney Local Biodiversity Action Plan, and which will now go forward for consultation.

Climatic Factors

At the scoping stage, none of the targets and actions proposed by the LBAP were considered likely to result in significant impact upon emissions of carbon dioxide, so initially *Climatic Factors* was scoped out. However, assessment of the LBAP has highlighted links between a number of Habitat Action Plans (HAPs) and the environmental changes which the Orkney Islands might experience in years to come should the predicted changes to our climate occur. Possible climatic changes in this area include sea level rise, increased storminess and an increase in annual rainfall.

Within the coastal HAPs, a number of the actions aim to increase protection of, or promote restoration of, coastal habitats such as sand dunes, coastal vegetated shingle and saltmarsh. Implementation of these actions will help maintain the protective barriers and buffer zones which they form between the marine environment and the terrestrial environment.

Similarly, the Mesotrophic and Eutrophic Standing Water HAPs include the actions “*Implement River Basin Management Plan*” and “*Ensure LBAP and River Basin Management Plan are linked*” which will promote measures designed to mitigate against the effects of flooding.

Further, relatively minor positive impact on climatic factors was identified from the actions designed to protect saltmarsh, a habitat which represents a storage area for carbon.

Biodiversity, Flora and Fauna

The actions proposed by this review of the LBAP were designed with the aim of furthering the conservation of biodiversity, and assessment of the individual actions has confirmed that implementation of the Plan will result in positive effect on biodiversity, fauna and flora. Only two actions highlighted uncertainty in environmental impact on this issue, these were:

- The Road Verges HAP, where the outcome of Action 3 *Trial conservation verge management schemes* was judged to be either positive or uncertain in the short term. This is to be expected as the purpose of a trial scheme is to eliminate negative options, however, in this case it is anticipated that Action 2 *Undertake research into best management for conservation verges* will help inform Action 3.
- The Seagrass Meadow HAP, where the outcome of Action1 *Reduce sewage-related nutrients in the Oyce in Finstown* are unknown. Assessment highlighted the fact that if conditions are presently favourable for *Zostera* growth, it is possible that a reduction in sewage-related nutrients may have a negative impact on its growth in the future.

Positive impact is predicted to result from actions which include continuing to raise awareness within the community of the value of biodiversity and its vulnerability to factors such as over-exploitation, damage from engineering works, habitat loss or pollutants. As the Orkney Islands are predominantly rural and feature wide areas which are, or have been, intensively farmed, further significant benefit is anticipated from the active promotion of four habitats (Saltmarsh, Saline Lagoon, and Mesotrophic and Eutrophic Standing Waters) as ‘Local Priorities’ in the Rural Development Contract Scheme

Water

Positive impact from implementation of a number of HAPs is anticipated on the water environment, for example in relation to eutrophic and mesotrophic standing waters the LBAP will be linked to River Basin Management Planning, and both these habitats along with saline lagoons will be promoted as Local priorities for Rural Development contracts; These schemes are both designed to address the problems of diffuse pollution and flooding. Similarly actions which prevent erosion of soil into watercourses will address the threat of smothering in aquatic habitats, e.g. brown trout spawning redds.

In many cases opportunities for positive secondary impact have been identified - for example, actions which will help preserve or restore coastal landform such as dunes

or vegetated shingle may help maintain protection to water features such as freshwater ponds or dune slacks which are located behind the coast.

Actions designed to address flooding include promotion of habitats for inclusion as priorities in the Rural Development Contracts, and ensuring that the LBAP becomes linked to River Basin Management Planning.

Soil

Positive impact on soil was identified in the actions of a number of HAPs:

- By having a readily-available formalised seed mix for road verges, bare earth can be quickly seeded following engineering works, minimising the risk of soil erosion by water;
- The HAPs for eutrophic and mesotrophic standing waters feature actions which will ensure that the LBAP and River Basin Management Planning are linked. One of the issues to be addressed is flooding, which is also a major cause of soil erosion, in particular from the banks of ditches and streams.
- Protection of coastal landforms such as dunes and vegetated shingle will help protect the land behind from coastal erosion.
- Protection of aeolianite will preserve its overlying soil and the plant communities it supports.

Geology

The actions proposed for protection of Aeolianite will result in positive impact on this aspect of Orkney's geology.

Landscape

Most of the HAPs will result in positive impact on landscape as a landscape featuring a diverse range of landcover types is more attractive than a species-poor landscape. Actions which promote awareness-raising of the law regarding dumping in dunes and the benefit of removing marine litter from the strandline will also have a positive impact on the landscape of Orkney.

Cultural Heritage

A number of actions will have secondary positive impact on the cultural heritage SEA issue. The World Heritage Site is enhanced by colourful natural-looking verges and by drawing people's attention to them the Rangers add to the visitor experience at the site. The Lochs of Harray and Stenness are a Eutrophic Standing water and saline lagoon respectively and both providing an attractive backdrop to the historic setting of the Ring of Brodgar, the Stones of Stenness and Maeshowe.

Actions which maintain or restore land cover on dunes, saltmarsh and coastal vegetated shingle will also maintain the continued protection of buried archaeological remains.

The only source of uncertainty was where the LBAP will be linked to Rural Development Contracts. Until further information becomes available about the

individual schemes it is not possible to assess what their impact on cultural heritage interests would be.

Human Health and Population

The production of information leaflets which aim to raise awareness of the value of biodiversity, e.g. on road verges, promotes and encourages human enjoyment of the natural heritage. Actions to protect and monitor the health of eutrophic and mesotrophic standing waters protects public water supplies, e.g. from the dangers of toxic algal blooms.

Actions to raise awareness of the law relating to dumping rubbish on dunes and to clear up marine litter from the strandline reduces the risk of injury to people out walking along the coast. People are also more likely to enjoy going out for a walk in attractive surroundings.

Material Assets

The trout fisheries of certain eutrophic and mesotrophic lochs represent a material asset to the economy of Orkney and actions which benefit these habitats will help maintain these fisheries.

Sand and shingle are both material assets and the actions which support production of a Minerals Strategy will contribute to more sustainable use of these resources.

The action which supports recycling of plastics in order to reduce the amount of plastics in marine litter will promote the recovery and reuse of plastics as a material asset.

Assessment of the Cumulative impact of the Orkney Local Biodiversity Action Plan

In this section of the Environmental Report the cumulative effect of the selected plan would usually be assessed by displaying all effects in a matrix and calculating the net effect from the numbers of positive, negative and uncertain effects. However, as Table 10 indicates it is quite clear that the overall cumulative effect of this plan is predicted to be positive.

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 11** 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 11: Measures envisaged for the prevention, reduction and offsetting of any significant adverse effects

Issue/Impact identified in ER	Mitigation Measure	Lead Authority	Proposed timescale
<p>Increasing areas of certain habitats could result in loss of other valued habitats.</p> <p>Work on habitats to enhance them for specific species could have detrimental effects on other species reliant on the habitat.</p>	<p>The progress of the OLPAB will be monitored for unexpected adverse effects on other habitats and species. If adverse effects are found to occur the relevant LBAP action will be reassessed by the Steering Group and work on that action will be stopped.</p>	<p>SNH</p>	<p>2009-2011</p>
<p>Trial verge management schemes could result in poorer quality verges</p>	<p>Any trials would be based on research into best management for conservation verges and it is anticipated that this would highlight the optimum management scheme.</p>	<p>SNH/OIC</p>	<p>2008-2011</p>
<p>RDC schemes relating to Eutrophic Standing Waters and Mesotrophic Standing Waters could include excavation work, e.g. to construct wetland schemes.</p>	<p>Agents acting for applicants to the RDC scheme will be advised that any project relating to either of these HAPs which is likely to include excavation should be assessed for its potential to impact upon the historic environment, in particular in the vicinity of scheduled ancient monuments or with regard to the possible presence of undiscovered archaeological remains. If evidence suggests that negative impact would be likely, then advice should be sought from either Historic Scotland or the Orkney Archaeological Trust.</p>	<p>OIC</p>	<p>2008-2011</p>

Cumulative effects with other Plans, Programmes and Strategies

Should negative impact become apparent, these are issues which may be addressed through SEA of appropriate strategies by the application of mitigative measures through a partnership approach, in order to prevent, reduce or offset significant adverse effects.

5. Monitoring

The monitoring approach was established through:

- following advice and suggestions previously received from the Consultation Authorities, and
- examination of the problems and aspects of the LBAP which could have negative environmental effects.

The proposed SEA monitoring activities are set out in **Table 12 below**.

Table 12: Proposed SEA monitoring programme for the Orkney Biodiversity Local Action Plan

SEA issue	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
Climatic factors	Number of applications for RDC schemes involving management of saltmarsh		Annual SNH/ SGRPID
Climatic factors	Weather data (wind speed)		Annual OIC
Biodiversity	Reported damage to protected sites (SAC, SPA, SSSI)	Information regarding protected sites in Orkney will be distributed to relevant OIC departments, e.g. Roads Department, Engineering Services.	Annual SNH
Biodiversity	Number of successful licence applications for derogations of the Habitats Directive to disturb European Protected		Annual SNH and SGRPID

SEA issue	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
	Species (otter)		
Biodiversity	Achievement of LBAP targets through implementation of actions set out in each Habitat Action Plan		Annual OIC
Biodiversity	Data from the Beached Bird Survey (corpses picked up from strandline)		Annual RSPB
Biodiversity	Data from the survey of SLNCIs (to provide improved baseline data)		RSPB/FWAG
Biodiversity	Wetland Bird Survey (WEBs)		Annual RSPB
Biodiversity	Mute swan survey		Annual RSPB
Biodiversity	Wader survey data (to provide improved baseline data)		RSPB 2006/07
Biodiversity	Site condition monitoring – Sites monitored each year will vary – historical records would be useful to reference as baseline data		Annual SNH
Water	Water quality data from routine monitoring of watercourses in Orkney		Annual SEPA
Water	Number of abstraction licences		Annual SEPA

SEA issue	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
Water	Number of applications for RDC schemes involving management of eutrophic or mesotrophic standing waters or saline lagoons		Annual SNH/ SGRPID
Soil	Suspended solids data from routine monitoring of watercourses in Orkney		Annual SEPA
Geology	Number of applications for RDC schemes involving management of aeolianite		Annual SNH/ SGRPID
Landscape	Site condition monitoring – different types of site are monitored each year		Annual SNH
Cultural heritage	Uptake of road verge leaflets from World Heritage Site		Annual Historic Scotland
Cultural heritage	Reported damage to historic sites due to implementation of LBAP actions	The relevant LBAP action will be reassessed by the LBAP Steering Group and mitigative measures will be discussed with Historic Scotland	Annual OIC
Human Health	Life expectancy trends in Orkney		Annual OIC
Human Health	Length of paths and number of new paths in Orkney		Annual OIC
Population	Population trends in Orkney Islands		Annual OIC

SEA issue	Data source, frequency of monitoring	Summary of proposed remedial action (if information is available)	Timescale and responsibility
Material assets	Quantities of plastics despatched for recycling		Annual OIC
Material assets	Achievement of LBAP targets through implementation of actions set out in each Habitat Action Plan		Annual OIC
Material assets	Number of appropriate plans/policies/strategies that take account of the LBAP		Annual OIC

6. Next steps

Table 13 lists future milestones in the development of the PPS and its SEA, and the dates when these are expected to be completed.

Table 13: Anticipated plan-making and SEA milestones

Expected date	Milestone
11 February 2008	Environmental Report consultation period commences
24 March 2008	Consultation deadline
26 March 2008	Meeting to approve Orkney Local Biodiversity Action Plan
April 2008	Publication of Orkney Local Biodiversity Action Plan
April 2008	Post adoption SEA statement