

A Joint Agency



# Strategy for Wild Deer in Scotland

Environmental Report  
and Socio-Economic Assessment Report

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The Scottish  
Government

A Joint Agency

# Strategy for Wild Deer in Scotland

Environmental Report  
and Socio-Economic Assessment Report



## **Assessment of potential effects of the Strategy**

This document comprises Annexes 6 and 7 of the consultation draft of the Strategy for Wild Deer in Scotland:

### **Annex 6: Environmental Report of Strategic Environmental Assessment**

Annex 6 is an Environmental Report in terms of the Environmental Assessment (Scotland) Act 2006 and contains the information required of an Environmental Report under that legislation. It has been prepared by Envirocentre and Collingwood Environmental Planning in conjunction with the Deer Commission for Scotland. The Non-Technical Summary of the Environmental Report is also contained in the draft strategy document as Annex 5.

### **Annex 7: Report of Socio-Economic Assessment**

Annex 7 is a separate report of a non-statutory assessment of potential socio-economic effects of the strategy. Although it is not a statutory requirement DCS has chosen to carry out an assessment of potential socio-economic effects to accompany the SEA. It has been prepared by the Deer Commission for Scotland.

Both annexes are intended to provide a summary of the assessment results to give an overview of likely effects. More details of the assessment of individual parts of the strategy are available as technical appendices to Annexes 6 and 7 (available as separate documents).

## **Consultation on Assessment Reports**

Both Annexes are published to inform consultation on the Draft Strategy for Wild Deer. They are intended to highlight at a strategic level, where the strategy may have significant effects on the environment, economy and society in order that those effects can be managed – to mitigate negative effects and maximise positive effects. Consultation on the Environmental Report is part of the statutory SEA process. Comments on the assessment process and results are encouraged and more details on consultation arrangements are given in the draft strategy.

### **Responses should be sent to:**

**consultation@dcs.gov.uk**

**or**

**Strategy for Wild Deer Consultation**

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**Annex 6**

# **Environmental Report**

**from the**  
**Strategic Environmental Assessment (SEA)**

**of the Joint Agency**

## **Draft Strategy** **for Wild Deer in Scotland**

**November 2007**

The Non-Technical Summary and Environmental Report were prepared by EnviroCentre, in partnership with Collingwood Environmental Planning, on behalf of the Deer Commission for Scotland.

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# list of acronyms

<b>AA</b>	<b>Appropriate Assessment</b>
<b>AGLV</b>	<b>Area of Great Landscape Value</b>
<b>ATV</b>	<b>All Terrain Vehicle</b>
<b>DCS</b>	<b>Deer Commission for Scotland</b>
<b>EIA</b>	<b>Environmental Impact Assessment</b>
<b>GHG</b>	<b>Greenhouse Gas</b>
<b>GIS</b>	<b>Geographical Information Systems</b>
<b>NSA</b>	<b>National Scenic Area</b>
<b>PPS</b>	<b>Plan, Programme or Strategy</b>
<b>RTA</b>	<b>Road Traffic Accident</b>
<b>SAM</b>	<b>Scheduled Ancient Monument</b>
<b>SEA</b>	<b>Strategic Environmental Assessment</b>
<b>SEPA</b>	<b>Scottish Environment Protection Agency</b>
<b>SINC</b>	<b>Site of Importance for Nature Conservation</b>
<b>SNH</b>	<b>Scottish Natural Heritage</b>
<b>SSSI</b>	<b>Site of Special Scientific Interest</b>
<b>UN</b>	<b>United Nations</b>

# 1 : non-technical summary of the environmental report

## 1.1 Introduction

The Strategic Environmental Assessment (SEA) of the draft Strategy for Wild Deer in Scotland (the Strategy) has been carried out by EnviroCentre, in partnership with Collingwood Environmental Planning, and on behalf of the Deer Commission for Scotland (DCS). An SEA is required for the Strategy under the European Community SEA Directive (2001/42/EC) and the Environmental Assessment (Scotland) Act 2005. The SEA has been carried out alongside the development of the Strategy and seeks to ensure that the Strategy contributes positively to the high level of environmental protection now expected by the Scottish Government. The SEA seeks to ensure that potential significant effects on the environment of implementing the Strategy, and of reasonable alternatives, are identified, described, evaluated and taken into account before the Strategy is adopted.

To support the public consultation on the draft Strategy and the potential effects on the environment of its implementation, an Environmental Report, which documents the SEA process and outcomes, is required under the SEA legislation. This Non-Technical Summary of the Environmental Report is also required to facilitate wider consultation.

## 1.2 Consultation on the draft Strategy

The three-month consultation period on the draft Strategy is from:  
**Monday 5th November to Friday 1st February, 2008**

Responses to the consultation on the draft Strategy and its potential effects on the environmental should be sent to: [consultation@dcs.gov.uk](mailto:consultation@dcs.gov.uk) OR

**Strategy for Wild Deer Consultation  
Deer Commission for Scotland**

**Great Glen House, Leachkin Road, Inverness IV3 8NW**

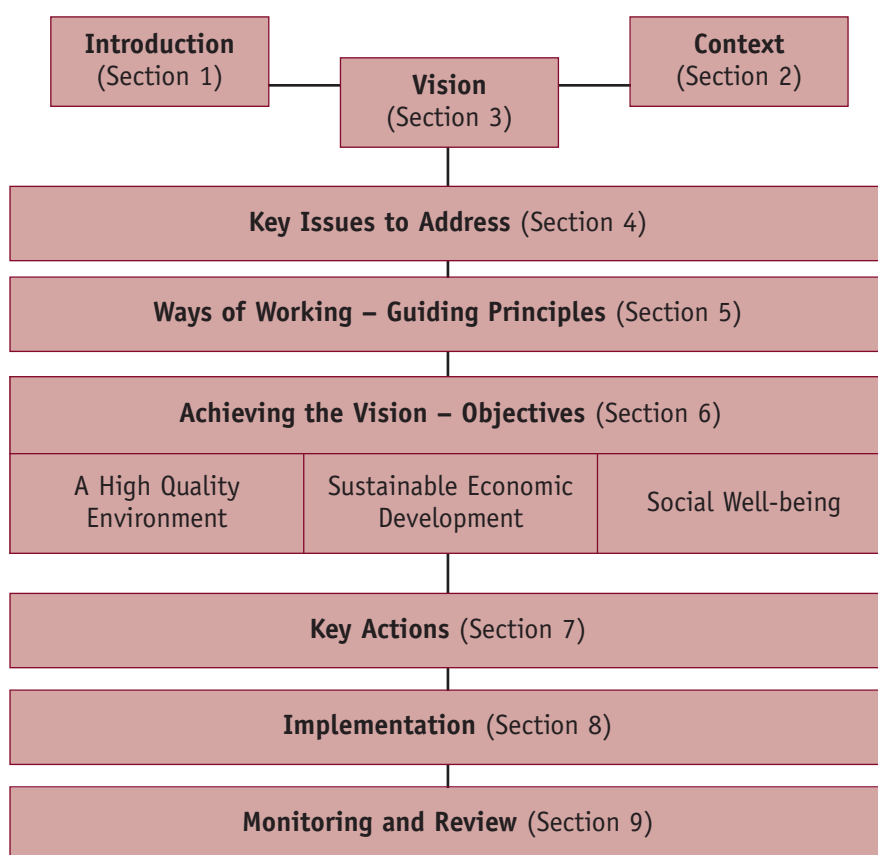
The SEA Non-Technical Summary is found in the Annex to the Strategy, and is also contained within the SEA Environmental Report available either from the DCS website or on a CD-ROM distributed with copies of the Strategy. Printed copies of the documents are available on request.

**Download the full SEA document from [www.dcs.gov.uk](http://www.dcs.gov.uk)**

## 1.3 Background to strategy

There have been considerable changes in deer management since 2001 when the DCS published its first Long-Term Vision and Strategy for Wild Deer in Scotland. Consequently, a review of the original DCS Vision and Long-Term Strategy was needed. Scottish Ministers asked DCS to lead the development of a new Strategy for Wild Deer in Scotland as a joint-agency strategy. This aims to encourage a more sustainable and integrated approach to deer management in the broader context of land management. The main agencies involved in supporting DCS in development of the Strategy were Scottish Natural Heritage and the Forestry Commission for Scotland.

Through this approach, the new Strategy for Wild Deer in Scotland will not simply guide the work of DCS as an organisation, but will be a cross-agency national Strategy for wild deer, sitting alongside other land-use strategies such as the Scottish Forestry Strategy and the Forward Strategy for Scottish Agriculture. The draft Strategy sets out a long-term Vision, some Guiding Principles and a series of Objectives and Actions for future deer management. See Figure 1 for an overview of the structure of Strategy.



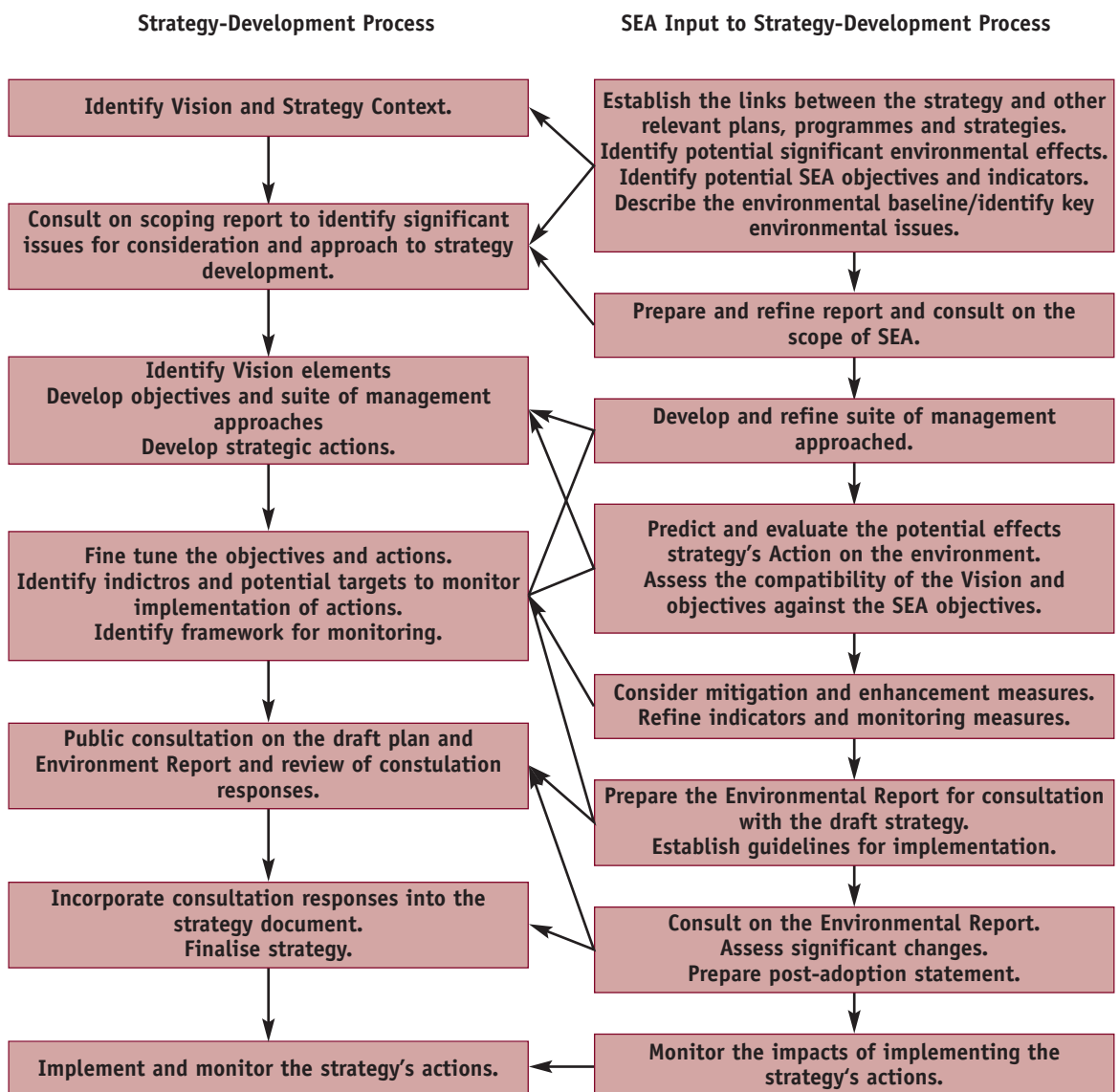
**Figure 1: Summary of Strategy Structure**

Source: Draft Strategy for Wild Deer (DCS, 2007)

### 1.4 Integration of the SEA with the Strategy development process and engagement with stakeholders

The SEA has been undertaken in parallel to the development of the draft Strategy with considerable interaction between the SEA team and the Strategy team. See Figure 2 below for an overview of how the SEA process was integrated with the Strategy development process. In addition, the SEA process has involved a combination of formal and informal engagement with relevant stakeholders throughout the development of the Strategy. The SEA team engaged with the Strategy development process, over an extended period from March 2006 to October 2007, as

the Strategy development process unfolded. A range of different mechanisms were employed including; meetings with staff, phone conversations, e-mail communications, engaging with the consultations on the draft Strategy and Strategy Scoping Report, reviewing comments, formal consultation on the Scoping Report and workshops with the Strategy Steering and Advisory Groups.



**Figure 2: Integration of the SEA into the Strategy development process**

Source: Adapted from Therivel (2004) and Fife Council SEA Toolkit (2006)

## 1.5 SEA overview

The SEA aims to inform the draft Strategy development process. It is important to note that the draft Strategy itself is a high level strategy and as such the approach taken to the SEA has been of a high level assessment. This SEA is not intended to address issues that should be considered during the assessment of lower-level plans or complementary strategies which may support implementation of the Strategy.

### 1.5.1 Scoping the level of detail for the assessment

The approach to the SEA of the draft Strategy initially involved determining the level of detail of the SEA to ensure it was appropriate to the draft Strategy (called 'Scoping'). A Scoping Report, for the draft Strategy itself and the potential effects of implementing the Strategy on the environment, was produced and consulted upon in June and July 2007.

The responses to the Scoping Report were taken into account to inform and adapt the approach to development of the Strategy and the undertaking of the assessment of the Strategy's potential effects on the environment, society and the economy. In the case of the potential environmental effects of the Strategy, the responses informed the approach to the associated SEA. The responses to the Scoping Report consultation provided comments on an initial review of relevant plans, programmes, strategies and associated environmental protection objectives to which the Strategy and the SEA would need to refer. A list of environmental protection objectives (termed 'SEA objectives') were identified under the following nine environmental topics, which would be appropriate for the Strategy to work towards. The SEA topics are included in Table 1, which summarises the outcomes of the assessment of effects of the proposed Strategy Actions, and the SEA Objectives are included in Table 2, which summarises the assessment of the overall effects of the Strategy compared to continuing with the current approach to deer management.

To set the context within which the draft Strategy will need to operate, the SEA Objectives were used to support identification of key environmental issues and used as a framework for establishing the environmental baseline against which the effects of implementation of the draft Strategy would be assessed. Through this process, some initial monitoring indicators were identified for measuring progress of the Strategy towards achieving the SEA Objectives.

### 1.5.2 Assessing extent to which Strategy Objectives support environmental objectives

SEA Objectives identified under each of the above topics were used as a basis for testing the extent to which the **Strategy Vision** and **Objectives** were supportive of, compatible with, or incompatible with, the overarching SEA objectives. This broad compatibility test highlighted areas of particular attention for implementing and monitoring the effects of the strategy. The compatibility test also helped focus the SEA on further assessing the most significant potential effects of implementing the Strategy.

#### Strategy Vision: Compatibility Test Outcome

Overall, as the Strategy's vision elements are overarching and high-level in nature, compatibility with the SEA objectives is largely uncertain. Many of the vision elements have the potential to conflict with or support the SEA objectives. The outcome depends largely on how the Strategy's actions are implemented in lower-level plans.

#### Strategy Objectives: Compatibility Test Outcomes

*High Quality Environment Objectives:* Most of the Strategy's environmental objectives are supportive of the SEA objectives. There are a few areas of conflict, largely as a result of potential knock-on (or secondary) effects on the historic environment and landscape.

*Sustainable Economic Development Objectives:* The compatibility of the Strategy's sustainable economic development objectives with the SEA objectives is characterised by many areas of conflict combined with some areas of uncertainty. This is largely because increasing the economic opportunities associated with wild deer could potentially result in a range of negative environmental effects generally associated with economic development depending on how this is carried out. There is only one instance where the Strategy's sustainable economic development objectives are supportive of the SEA objectives, and this is in the context of enhancing and protecting human health.

*Social Well-being Objectives:* The compatibility of the Strategy's social well-being objectives with the SEA objectives is characterised by many areas of uncertainty combined with some areas of conflict. Only a few of the social well-being objectives are supportive of the SEA objectives. As might be expected, the social well-being objectives are particularly supportive of protecting and enhancing human health.

#### 1.5.3 Identification of alternative approaches to deer management

Through its implementation, the Strategy will need to respond to, and anticipate, a number of external factors for change. These include potential changes in:

- Land Use,
- Agricultural Reform,
- Economic Circumstances,
- Tourism Pattern,
- Climate,
- Public Perception,
- Legislation, Policy and Administration, and
- Other unforeseen events

Through exploration and discussion of the potential implications of the above changes for the Strategy, a range of approaches to deer management were identified in relation to each of the above factors for change. These helped to understand better the potential effects different actions might have on the environment. The strategy as a whole was also assessed against the 'No Strategy' (or 'Business-as-usual') scenario, i.e. how would the environmental effects resulting from implementing the strategy differ from the scenario of no new strategy being put in place (see below).

#### 1.5.4 Assessing potential environmental effects of Strategy Actions

To assess, in further detail, the **potential effects** of implementation of the Strategy Actions on the environment, the **Strategy Actions** were assessed against the SEA objectives. The outcomes of this assessment supported the identification of the most significant potential effects of implementing the Strategy. Where there were potential **beneficial effects** identified, further **enhancement** of these effects was suggested. Where potential **detrimental effects** were identified, ways of monitoring and **reducing** these effects were recommended.

##### Strategy Actions – Assessment of Effects Outcomes:

*High Quality Environment Actions:* Most of the Strategy's environmental actions are likely to have minor to major positive effects on most of the SEA objectives. However, there may be some minor and indirect negative effects on the historic environment due to increased visitor numbers to cultural heritage sites and the associated trampling and general 'wear and tear'.

*Sustainable Economic Development Actions:* Most of the Strategy's sustainable economic development actions may have minor negative or uncertain effects on all the SEA objectives. This is largely because increasing the economic opportunities associated with wild deer may have a range of negative environmental effects generally associated with economic development depending on how they are implemented.

*Social Well-being Actions:* The Strategy's social well-being actions are likely to have mixed, neutral or uncertain effects on the SEA objectives. On the one hand, actions may have major positive effects on protecting and enhancing human health. On the other hand, actions may have minor negative effects, because enhancing social development may result in range of negative environmental effects generally associated with infrastructure development.

*Cross-cutting Actions:* Many of the Strategy's cross-cutting actions are equally likely to have uncertain, neutral or positive effects on the SEA objectives. A minority may have minor negative effects on reducing contributions to climate change, protecting the historic environment and the Scottish landscape.

SEA Objectives	No New Strategy	New Strategy
To maintain and enhance biodiversity, flora, fauna and habitats	?	+/-
To protect and enhance human health	?	+/?
To meet environmental standards required by the Water Framework Directive (WFD)	0/+	0/+
To avoid, reduce and management flood risk	0/+	0
To conserve soil resource and quality	?/+	+/?
To improve air quality	0	0
To contribute to adaptation to climate change	?	+/?
To reduce contributions to climate change	+/-	?/-
To promote sustainable management of natural and man-made resources	+/?	?/+
To protect, conserve, and where appropriate, enhance the historic environment and cultural heritage	+/-	+/-
To protect, conserve and enhance the Scottish landscape	?/-	+/-

**Table 2: Summary – Assessment of ‘No Strategy’ versus ‘New Strategy’ scenarios**

Note: The first score is the primary overall effect of the scenario and the second score is the secondary overall effect.

Table 1 summarises the results of the assessment. Table 2 summarises the results of assessment of the potential effects of the Strategy compared to the scenario of not having a new Strategy, i.e. the ‘**New Strategy**’ versus ‘**No New Strategy**’ (or ‘Business-as-usual’) scenarios. The key explains the scoring approach used in Tables 1 and 2 below.

The following sections draw on the outcomes of these assessments and summarise the key recommendations for reducing potential detrimental effects and monitoring potential effects with the implementation of the Strategy. The scores are meant to be indicative, not absolute.

Key to scoring of potential effects	
++	Major positive effects
+	Minor positive effects
0	Neutral effects
-	Minor negative effects
--	Major negative effects
++/-, /+/- etc.	Mixed effects
?	Uncertain effects

SEA Topics	Effects of Environment Actions	Effects of Economic Actions	Effects of Social Actions	Effects of Cross-cutting Actions	Overall Effects of All Actions
Biodiversity	++	-/+	-/+/?/0	?/0	+/-
Population and Human Health	0	-/+/?0	++	?/0	+/?
Water Quality	+	?	?/+	?/0	0/+
Flood Risk	+	?/0/+	0/?	?/0	0
Soil Resources	++	?	?/0/+	?/0	+/?
Air Quality	0	0/?	0??	?/0	0
Reducing Contributions to Climate Change	?	-/+/?	-/+/?/0	?/0/+/-	?/-
Adaptation to Climate Change	+	-/+/?	-/+/?	?/0/+	+/?
Sustainable Resource Management	+	-/+/?	?	?/0/+	?/+
Cultural Heritage	-/+	-/+/?	-/+/?/0	?/+	+/-
Scottish Landscape	++	-/+/?	-/+/?/0	?/+	+/-

**Table 1: Summary – Prediction and Evaluation of the Potential Effects of the Strategy.**

### 1.5.5 Proposed measures for reducing detrimental effects

#### Key negative effects

The key potential negative effects are mainly due to the Strategy’s objectives and actions to promote economic and social development, such as deer-related businesses and opportunities to view wild deer, which could result in a range of minor negative environmental effects generally associated with infrastructure development depending on how they are implemented. Also, the Strategy’s focus on promoting deer-related outdoor activities may lead to an increase in visitors to the countryside (and associated trampling, compaction and other human presence effects), which may have a minor negative effect on cultural heritage sites, soil quality, and the Scottish landscape. The additive nature of the above types of effects repeated across different sites over Scotland may also become a significant cumulative effect at the regional or national scale.

#### Summary of mitigation and enhancement measures

Proposed mitigation measures for the above potential negative effects include:

- Detailing, in lower-level plans, how people participating in activities can reduce their negative effects on cultural heritage sites, soil quality and the Scottish landscape.
- Advising how deer-related businesses, such as the venison production and stalking, may ensure that the potential environmental effects of any economic/infrastructure development associated with them can be minimised.

### 1.5.6 Proposed framework for monitoring potential effects of implementing the Strategy

A proposed monitoring framework has been developed to be incorporated into the overall framework for monitoring the effects of implementation of the Strategy. The monitoring framework consists of a number of proposed indicators which could be used at a number of different levels and scales:

- Indicators relevant to establishing the wider operational context and the environmental baseline;
  - e.g. indicators include: land use change; and status of species and designated sites.
- Indicators relevant at the local/site level; and
  - e.g. indicators include: loss of soil carbon content; species, habitats or designated sites adversely affected by deer or deer management activities; and the costs associated with deer management.
- Indicators requiring further research and/or data analysis.
  - e.g. indicators include: locations and condition of landscape designations, cost to forestry and agricultural sectors of effects of deer.

### 1.6 Relationship with other assessments and relevant plans, programmes and strategies

As the Strategy will be referred to, and implemented by, a number of lower level operational plans at appropriate organisational or local scales, the SEA of the Strategy seeks to provide a framework for informing subsequent SEAs or development of more detailed monitoring frameworks. The main key issues for implementation highlighted in the Environmental Report, along with recommendations for monitoring significant potential detrimental effects identified through this SEA, should be broadly applicable to more detailed, site specific, considerations in supporting operational level plans. Lower-level plans, programmes and projects taking on board the objectives of the Wild Deer Strategy should consider the extent to which they need to undertake Appropriate Assessment of potential effects on European designated sites (required under Article 6 of the Habitat's Directive) or Environmental Impact Assessment (EIA) (in relation to individual projects), especially where they may involve development or new infrastructure.

### 1.7 Next steps

Following consultation on the Environmental Report (including this Non-technical summary) and the draft Strategy, all responses will be collated and analysed by the Scottish Government. The results of the analysis will be taken into account in the finalisation of the Strategy. In line with SEA legislative requirements, in the event that any significant changes are made to the Strategy, an assessment of its potential effect on the environment of the changes will be undertaken and summarised in an addendum to the Environmental Report. A post-adoption statement on how the Environmental Report itself and the responses to the SEA and draft Strategy have been taken into account will also be published along with a list of the Consultees.

The Environmental Report (along with any addendum required), and the Post-Adoption Statement, will be published alongside the final Strategy for Wild Deer in Scotland.

## 2 : introduction

To meet its legislative requirements under the Environmental Assessment (Scotland) Act 2005, the Deer Commission for Scotland (DCS) contracted EnviroCentre, in partnership with Collingwood Environmental Planning, to support the Strategic Environmental Assessment (SEA) of the joint-agency Strategy for Wild Deer in Scotland (the Strategy) which was commissioned by the Scottish Government.

Although an equivalent socio-economic assessment is not a requirement in Scottish legislation, the DCS also undertook a smaller scale socio-economic assessment which is presented in a separate consultation document.

This section describes why an SEA of the draft Strategy has been undertaken, the location of relevant SEA statutory requirements by chapter, and presents the outcomes of the SEA process to support consultation on the draft Strategy and the Environmental Report.

### 2.1 Purpose of the Environmental Report

In Scotland, Strategic Environmental Assessment (SEA) is a requirement for all public plans, programmes and strategies which may have a significant effect on the environment. The Environmental Assessment (Scotland) Act 2005 is the national legislative framework for implementation of the European Community Directive 2001/42/EC on SEA (the SEA Directive).

The SEA has been undertaken, in collaboration with the DCS, alongside the development of the draft Strategy. This document constitutes an Environmental Report required under SEA legislation.

The purpose of the Environmental Report is to support consultation on the draft Strategy by:

- providing a summary of the SEA process; and
- identifying, describing and providing an evaluation of the likely *significant* effects on the environment of implementing the Strategy.

These potential **significant effects** on the environment may be potentially beneficial (**positive effects**) or potentially detrimental (**negative effects**).

The SEA process explores and assesses the Strategy's proposed management approaches, objectives and actions, and recommends measures to prevent and reduce any potential significant negative environmental effects of implementing the Strategy which were identified through the SEA. The SEA also seeks to identify measures to improve or enhance the positive environmental effects the Strategy may have. The Environmental Report sets out a proposed framework for monitoring the potential negative effects of implementing the Strategy.

### 2.2 Consultation on the Environmental Report

The Environmental Report from the SEA of the draft Strategy is available to support the consultation of the draft Strategy for a period of three months from **Monday 5th November, 2007** to **Friday 1st February, 2008**.

The Environmental Report and the draft Strategy are available as printed documents, with the appendices for the Environmental Report available on CD-ROM. All printed documents are available from the DCS and are also available in electronic format from the DCS website [www.dcs.gov.uk](http://www.dcs.gov.uk).

Queries and comments on the Environmental Report and the draft Strategy should be sent to: [consultation@dcs.gov.uk](mailto:consultation@dcs.gov.uk) OR

**Strategy for Wild Deer Consultation**  
**Deer Commission for Scotland**  
**Great Glen House, Leachkin Road, Inverness IV3 8NW**  
**Tel: 01463 725000 Fax: 01463 725048**

### **2.3 SEA Requirements**

The requirements of the Environmental Assessment (Scotland) Act 2005, under which the SEA has been undertaken, are listed in Table 2.3a and indicates the relevant sections of this Environmental Report where this information can be found.

**Table 2.3.a: Summary of SEA requirements and where these are covered in the Environmental Report**

<b>Information to be included in the Environmental Report under the Environmental Assessment Act (Scotland) 2005</b>	<b>Relevant sections in this Environmental Report</b>
Schedule 3 (10) – Non-technical summary (including consultation timescale and address for comments)	Non-technical summary/summary of the environmental report
Schedule 3 (1) – An outline of the contents and main objectives of the plan, programme or strategy and of its relationship with other qualifying plans, programmes and strategies	Section 3 – Background to the strategy Section 3.2 – Relationship to other Plans and Strategies Section 4.3 – Identifying other relevant Plans, Programmes and Strategies
Schedule 3 (5) – Environmental protection objectives set at international, Community or Member state level	Section 4.3 – Identifying other relevant Plans, Programmes and Strategies
Schedule 3 (2) and (3)- The relevant aspects of the current state of the environment and the environmental characteristics of areas likely to be significantly affected – the Baseline	Section 5 – Baseline Environment information and key issues Section 5.14 – Inter-relationships between themes Section 5.15 – Likely future environmental trends without the strategy
Schedule 3 (4) – any existing environmental problems or issues which are relevant to the plan, programme or strategy	Sections 5.4 – 5.13 Existing environmental problems that are relevant to the plan are included under each SEA ‘topic’ where relevant
Schedule 3 (6), (7) and (8) – Assessment of environmental effects of the plan, programme or strategy, including reasonable alternatives and proposed mitigation measures	Section 7 – Assessment of the strategy’s proposed objectives and actions Section 8 – Proposed mitigation and enhancement measures
Schedule 3 (9) – Monitoring	Section 9 – Monitoring Proposals

## 3 : background to the strategy

This section provides a brief overview of the draft Strategy for Wild Deer, its objectives and relationships with other plans, programmes and strategies. For more detailed background information, please refer to the draft strategy document.

### 3.1 The draft Strategy Context

The Deer Commission for Scotland published the first Long Term Vision for Wild Deer in Scotland (15 to 20 year timescale) in 2000 and its Long-Term Strategy in 2001. This document has set the framework for DCS's Corporate and Annual Plans since 2001.

As there have been considerable changes in deer management since 2001, a review of the original DCS Vision and Long-Term Strategy was needed. Scottish Ministers asked DCS to lead the development of a new vision and Strategy for Wild Deer in Scotland as a joint-agency strategy. This aims to encourage a more sustainable and integrated approach to deer management in the broader context of land management. The main agencies involved in supporting DCS in development of the Strategy were Scottish Natural Heritage and the Forestry Commission for Scotland.

Through this approach, the new Strategy for Wild Deer in Scotland will not simply guide the work of DCS as an organisation, but will be a cross-agency national Strategy for wild deer, sitting alongside other land-use strategies such as the Scottish Forestry Strategy and the Forward Strategy for Scottish Agriculture.

### 3.2 Overview of the Strategy

The draft Strategy sets out an overall vision for wild deer over the next 20 years:

*"In 20 years time:*

*1. There will be widespread understanding and achievement of 'sustainable deer management' – the conservation, control and use of all species of deer so as to contribute to:*

*A high quality environment, by*

- *valuing populations of wild deer as part of Scotland's natural heritage;*
- *minimising any adverse impacts of wild deer on nature and natural systems.*

*Sustainable economic development, by*

- *careful use of wild deer as a resource, contributing to successful rural businesses and communities;*
- *developing the skills, knowledge and employment opportunities of those involved in deer management;*
- *minimising any adverse impacts of wild deer on other land uses.*

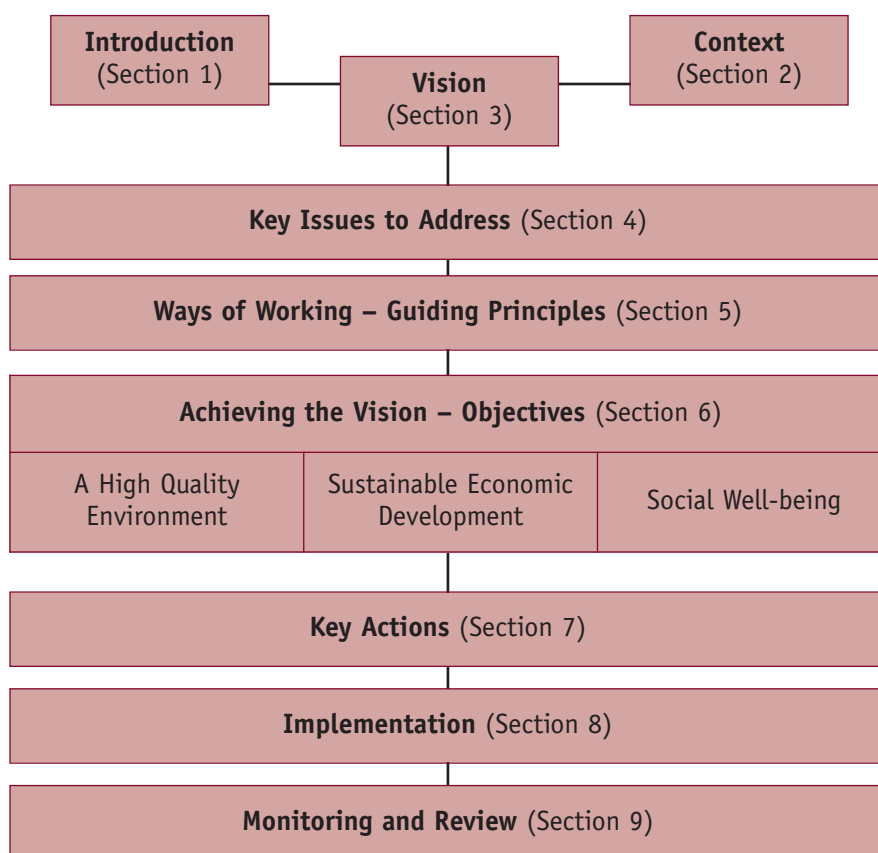
*Social well-being, by*

- *safeguarding public health and reducing safety risks associated with wild deer;*
- *facilitating the observation and understanding of wild deer by the public;*
- *promoting the enjoyment of wild venison as a high quality food product.*

2. Effective mechanisms will be in place to:

- assess the actual management interventions required to achieve the best combination of these outcomes in any area at a given time; and
- ensure that these interventions are carried out effectively, in good time and in accordance with best practice.”

This vision is intended to be achieved through a series of objectives relating to delivering a high quality environment; sustainable economic development and social well-being (see Figure 3.2a). These objectives will themselves be delivered through key actions. The strategy Objectives and Actions form the main basis for the Strategic Environmental Assessment and their details can be found later in the Environmental Report (Sections 6 and 7). However, key factors (or drivers) influencing the Strategy Objectives, and the possible deer management approaches, are also considered as part of the SEA, since these are relevant to the possible alternative options available for meeting the overall vision.



**Figure 1: Summary of Strategy Structure**

Source: Draft Strategy for Wild Deer (DCS, 2007)

### **3.3 Relationship to other plans and strategies**

The Strategy for Wild Deer will be one component in a range of plans and strategies that provide a framework for land management and natural resources. It will be a national Strategy that guides the work of all relevant government agencies and departments in relation to wild deer, and will therefore influence the corporate and operational plans of a range of organisations.

Given that deer are a wild resource and their management addresses their interactions with a range of other land uses and objectives, integration between this Strategy and other land management strategies is essential. The Strategy for Wild Deer is therefore being developed as one component of a more integrated policy context addressing land management.

A summary of the most relevant national plans, programmes and strategies that have the potential to impact upon the Strategy, and that the Strategy may influence, can be found in Appendix 2 of this Environmental Report (and Annex 3 of the draft Strategy document).

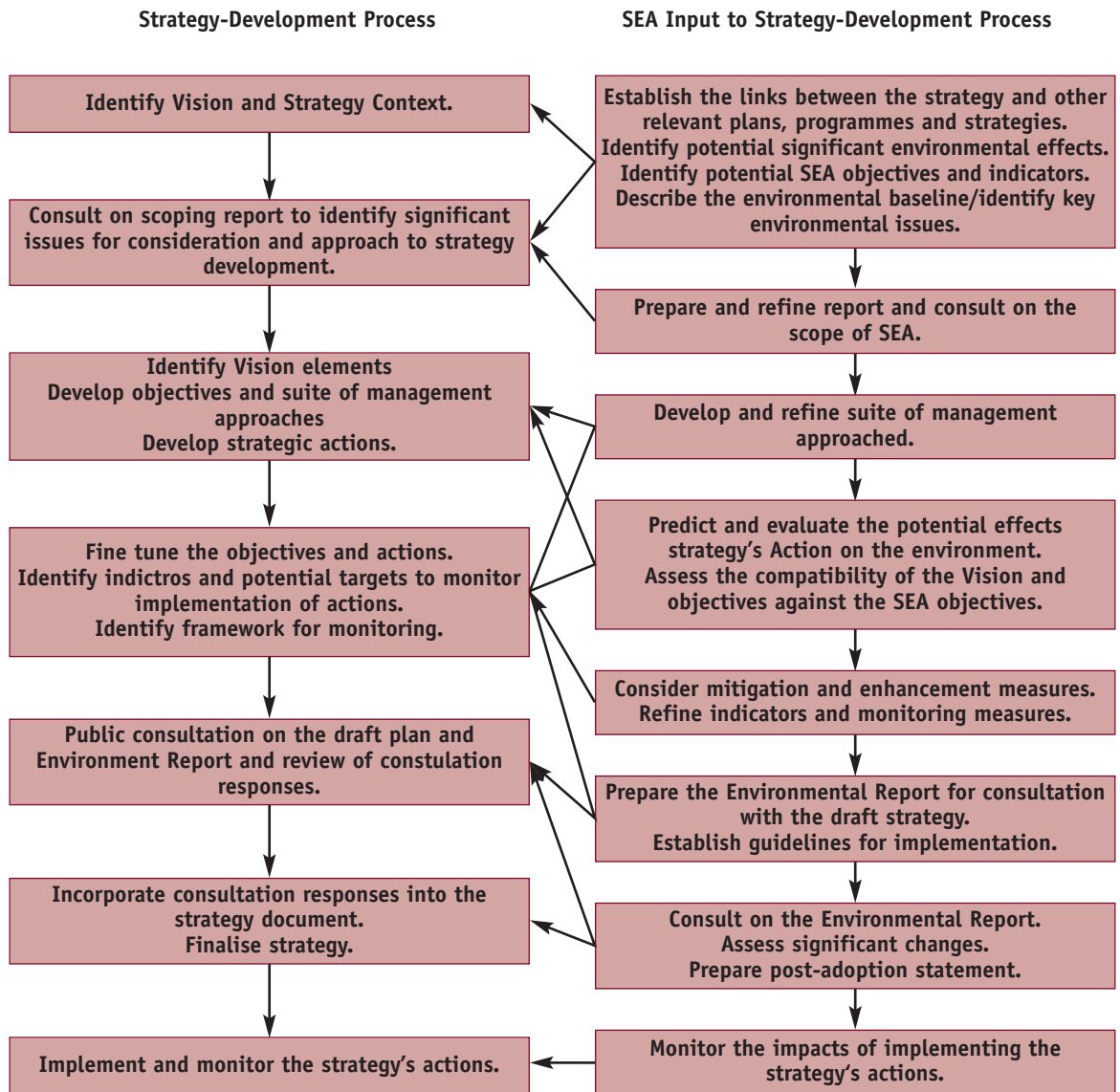
## 4 : SEA approach

This section describes the approach taken in undertaking the SEA of the draft Strategy for:

- Scoping of the SEA,
- Engagement,
- Identifying other relevant plans, programmes and strategies,
- Identifying SEA Objectives,
- Identifying and assessing alternative approaches for deer management, and
- Assessment of the potential environmental effects of implementing the Strategy.

### 4.1 Overview of approach

Figure 4.1. summarises the ways in which the Strategy development process has been informed by the SEA process. It is important to note that the draft Strategy itself is a high level strategy and as such the approach taken to the SEA has been of a high level assessment. This SEA has not therefore sought to address issues that should be more properly considered as part of the assessment of lower-level plans which may support implementation of the Strategy. At this high level the interaction between the SEA process and the Strategy development process has been particularly important, especially to help ensure the draft Strategy itself is structured in a way that makes the consideration of long-term factors and alternative options explicit and that the strategy as a whole is assessable, i.e. that there are clear objectives and actions that can be assessed against wider environmental (SEA) objectives. Further details of the way in which the SEA team has engaged with the strategy development team are provided below.



**Figure 2: SEA Integration into the Strategy development process**

Source: Adapted from Therivel (2004) and Fife Council SEA Toolkit (2006)

#### 4.2 Scoping the SEA

A joint Scoping Report, for both the Strategy and its assessment of potential effects, was developed for consultation with the supporting agencies, advisory groups and the SEA statutory Consultation Authorities. The Scoping Report went out for consultation in June 2007. Comments on the Scoping Report received from Consultation Authorities, were collated and incorporated into the SEA process as appropriate. Appendix 1 presents a summary of the comments received from Historic Scotland, the Scottish Environment Protection Agency and Scottish Natural Heritage and how these have been addressed in the SEA. A copy of the Strategy Scoping Report is available from the DCS.

The aim of the consultation on the SEA parts of the Strategy's Scoping Report were to:

- Identify key environmental issues;
- The scope of the assessment (geographic scale);
- Identify draft SEA objectives;
- Indicate the relationship between the draft Strategy and other plans and programmes; and
- Establish the appropriate level of detail of environmental baseline information relevant to the Strategy.

### 4.3 Engagement

The SEA process involves a combination of formal and informal engagement with relevant stakeholders throughout the development of the Strategy. In addition, the SEA team sought ongoing engagement with the Strategy development team. In the case of the DCS drafting process for the Strategy, there were a number of occasions where views were sought from key stakeholders; either through the Strategy Steering or Advisory Groups, DCS board, DCS Strategy Committee and Staff or with individuals and organisations. Further details of these groups and committees can be found in the draft Strategy itself.

The DCS is required to formally notify and consult with the SEA statutory Consultation Authorities on the SEA through a Scoping Report and the Environmental Report. The responses from the Consultation Authorities to the consultation on the Scoping Report are summarised in Appendix 1. The DCS will publish a Post-Adoption Statement with the publication of the final approved Strategy which will detail how the Strategy has taken into account the responses to the consultation on the Environmental Report and the draft Strategy and any significant informal consultation responses.

The SEA team engaged with the Strategy development process, over an extended period from March 2006 to October 2007 as the strategy development process unfolded. A range of different mechanisms were employed including; meetings with staff, phone conversations, e-mail communications, engaging with the consultations on the draft Strategy and Strategy Scoping Report, reviewing comments, formal consultation on the Scoping Report and workshops with the Strategy Steering and Advisory Groups.

The main meetings and workshops in which the SEA team was involved include:

- A number of Steering Group meetings on the Strategy and its assessment,
- A number of one-to-one SEA planning meetings with the DCS Director and the head of the DCS Strategy Group,
- A DCS board meeting,
- Attendance at two DCS staff workshops on the vision for the Strategy,
- Two Advisory Group workshops on the Strategy,
- An informal consultation meeting on the draft SEA assessment with Scottish Natural Heritage and Scottish Environment Protection Agency.

The purpose for SEA of the above engagement process was to:

- Develop an understanding of DCS activities and the key issues which the Strategy will need to address;
- Obtain feedback on the scope of the SEA process including on:
  - The appropriateness and level of detail of the relevant environmental baseline,
  - The significant environmental issues for the Strategy and the assessment,
  - Key indicators for monitoring potential environmental effects,
  - Relevant plans, programmes and strategies and environmental protection objectives,
  - Relevant SEA objectives,
  - The approach to the SEA assessment.
- Support identification and review of key factors for change which the Strategy may need to respond to;
- Support identification of alternative approaches to deer management;
- Support development of a detailed approach to the SEA assessment;
- Obtain feedback on the draft assessment; and
- Provide input on the approach to consultation on the draft Strategy.

As important, if not more so, was the way in which the SEA process influenced the Strategy process and was taken into account of the development of the Strategy. This was most noticeable through inputting to the early drafting process of the Strategy to ensure that it articulated long-term issues and options in a way that was accessible for the SEA process. In this way, the SEA process helped to facilitate the development of a Strategy that was both sufficiently strategic and able to be implemented. The SEA process therefore, acted as a sounding board to the Strategy Objectives and Actions as they were developed. In particular, the requirement for the SEA process to consider the ‘No Strategy’ option provided an opportunity for an explicit discussion and evaluation of the way in which the proposals in the draft Strategy differed from what was current ‘Business-as-usual’ policy and how that policy might be manifested over the next 20 years (the timescale of the Strategy).

#### **4.4 Identifying other relevant plans, programmes and strategies**

An important part of the SEA process is identifying other plans, programmes and strategies that are relevant to the Strategy. This is carried out to identify where (if at all) other plans, programmes and strategies may constrain or support the objectives of the Strategy and vice versa.

The initial approach taken to considering relevant plans, programmes and strategies in the SEA of the Draft Strategy was to produce a comprehensive list for Scoping consultation; with DCS and the Consultation Authorities (see Appendix 2). The most relevant of these, with respect to assessing the potential effects of the Strategy on the environment, are summarised in Table 4.4a.

In line with legislative requirements, plans, programmes and strategies produced at international, community and Member State level that establish environmental protection objectives, targets and thresholds were identified. These were considered and integrated into the SEA process by incorporating them, where appropriate, into the SEA objectives. Relevant SEA objectives, drawn from the review of the plans, programmes and strategies in Table 4.4a and Appendix 2, are summarised in Table 4.4b.

SEA objectives provide a framework for assessment against which the environmental effects of the Strategy are assessed. These identify desired environmental protection outcomes; such as protection of water, soil and biodiversity resources. A list of the SEA objectives is provided in Table 4.4b. These have been adapted from available SEA guidance and relevant environmental protection objectives identified through a review of relevant plans, programmes and strategies.

The SEA objectives are used to assess the extent to which the Vision and the Strategy **Objectives** are likely to be compatible (or conflict with) the SEA objectives. When assessing the potential effects of implementing the Strategy **Actions**, these are also assessed against the SEA objectives, but in this case assessed for their significance, using significance criteria. The extent to which the SEA objectives are likely to be achieved by the Strategy is monitored by using indicators, many of which are drawn from other relevant plans, programmes and strategies.

**Table 4.4.a: Most relevant plans, programmes and Strategies**

Note: See Appendix 2 for a more comprehensive list

Plan, Programme, Strategy or Legislation	Key aims/objectives
<b>International Policy</b>	
Ramsar Convention on Wetlands 1971	Aims to conserve and promote wise use of all wetlands at local, regional and national levels by prompting international cooperation.
<b>European Union Policy</b>	
Thematic Strategy for Soil Protection (2006)	A comprehensive EU strategy specifically dedicated to soil protection.
Conservation of Natural Habitats of Wild Fauna and Flora (1992)	Aims to sustain populations of naturally occurring flora and fauna by ensuring that key sites are maintained in ecologically sound condition.
Conservation of Wild Birds Directive (1979)	Aims to protect, manage and regulate all bird species naturally living in the wild in European territories. Protection also covers bird eggs, nests and habitats. The Directive also seeks to regulate the exploitation of these species.

**Table 4.4a (cont.): Most relevant plans, programmes and Strategies**

<b>Plan, Programme, Strategy or Legislation</b>	<b>Key aims/objectives</b>
<b>National Policy</b>	
Choosing our Future Scotland's Sustainable Development Strategy – Scottish Executive	This is described in Strategy annex 3
Framework for Economic Development in Scotland – Scottish Executive	This is described in Strategy annex 3
Rural Development Plan for Scotland – Scottish Executive	This is described in Strategy annex 3
Changing Our Ways: Scotland's Climate Change Programme – Scottish Executive	This is described in Strategy annex 3
A Forward Strategy for Scottish Agriculture – Scottish Executive	This is described in Strategy annex 3
Improving Health in Scotland – The Challenge – Scottish Executive	This is described in Strategy annex 3
A Strategic Framework for Scottish Aquaculture – Scottish Executive	This is described in Strategy annex 3
Scotland's Biodiversity: it's in your hands – a strategy for the conservation and enhancement of biodiversity in Scotland – Scottish Executive	This is described in Strategy annex 3
Scottish Forestry Strategy – Forestry Commission for Scotland	This is described in Strategy annex 3
A Five Year Species Action Framework – SNH	This is described in Strategy annex 3
National Transport Strategy – Scottish Executive	This is described in Strategy annex 3
Passed to the Future: Historic Scotland's Policy for the Sustainable Management of the Historic Environment – Historic Scotland	This is described in Strategy annex 3
A Smart, Successful Scotland: Ambitions for the Enterprise Networks – Scottish Executive	This is described in Strategy annex 3

**Table 4.4a (cont.): Most relevant plans, programmes and Strategies**

Plan, Programme, Strategy or Legislation	Key aims/objectives
Environment Act 1995 – Schedule 16 Prohibition Notices and Discharges Exempt from Consent (SEPA Policy No.1)	This is described in Strategy annex 3.
Draft Climate Change Bill (2007) – Defra	The Draft Climate Change Bill (2007) and its accompanying strategy sets out a framework which aims to move the UK to a low carbon economy. It includes new powers for government to cut emissions.
River Basin Planning Strategy for the Scotland River Basin District (2005) – SEPA	Describes planned actions to deliver effective river basin planning. The statutory organisation charged with delivery of the strategy is SEPA.
Nature Conservation (Scotland) Act (2004)	Places duties on public bodies to conserve biodiversity, conserve and enhance natural features, protect wildlife and requires Scottish Natural Heritage (SNH) to prepare and issue a Scottish Fossil Code setting out recommendations, advice and information relating to fossils.
Land Reform (Scotland) Act 2003	Establishes statutory rights of access to land and inland water for outdoor recreation. The Statutory right of responsible access commenced on 9 February 2005.
Directing the flow: Priorities for future water policy (2002)	Sets out a long term strategic vision primarily for inland and freshwater resource use. It embraces links between water policy and other policy areas.
Natural Heritage Futures (2002) SNH	Aims to ensure that SNH taken an integrated approach their entire remit to contribute towards sustainable development.
Tourism Framework for Action 2002:2005	Sets out the opportunities and challenges that face the tourism industry in Scotland and identifies the further actions that need to be taken.
Potential Adaptation Strategies for Climate Change in Scotland (2001)	Its purpose was to examine potential Scottish opportunities to moderate the adverse impacts of the changing climate and to realise concomitant opportunities.
UK Biodiversity Action Plan (UKBAP)	Statutory response to the UN Convention on Biological Diversity (CBD) signed in 1992. It describes the UK's biological resources and commits a detailed plan for their protection.
Regional Biodiversity Plans (18 in total across Scotland)	Regional biodiversity plans implement the UKBAP at regional levels – they describe the important biological resources at the regional level and present a plan for their protection and enhancement.

**Table 4.4a (cont.): Most relevant plans, programmes and Strategies**

Plan, Programme, Strategy or Legislation	Key aims/objectives
Scottish Historic Environment Policy 1: Scotland's Historic Environment	Historic Scotland's overarching policy statement for the historic environment. It provides a framework for more detailed strategic policies and operational policies that inform the day to day work of a range of organisations that have a role and interest in the historic environment.
National Trust for Scotland and SNH Countryside Management Strategy	Defines in broad terms the mutual interests, aims and objectives of these two organisations and describes how they will work in partnership to develop these joint purposes.
Groundwater Protection Policy for Scotland (SEPA Policy No.19)	Aims to provide a sustainable future for Scotland's groundwater resources by protecting groundwater quality from the risks of point and diffuse pollution sources and by influencing the design of abstractions and developments which could potentially affect its quality.
Strategy for Implementing Actions under the UK Biodiversity Action Plan (SEPA Policy No.21)	Provides SEPA with a framework for addressing Governments proposed UKBAP actions.
Flood Risk Assessment Strategy (SEPA Policy No.22)	Charges SEPA with the function of assessing the risk of flooding in any area of Scotland and advising planning authorities on any assessed risk.
Towards a Healthier Scotland – A white paper on Health (1999)	Reported on actions already and innovative measures to improve the health of Scotland's people.

**Table 4.4.b: SEA Objectives**

SEA Headline Objectives	SEA Sub-Objectives
<b>Biodiversity Flora and Fauna</b>	
To maintain and enhance biodiversity, flora, fauna and habitats	<p>Ensure sustainable management of key wildlife sites and the ecological processes on which they depend</p> <p>Avoid damage and adverse impacts to priority habitats (as per UKBAP)</p> <p>Enhance habitat diversity and connectivity and reduce habitat fragmentation</p> <p>Maintain and enhance woodland cover and management</p> <p>Avoid harm to protected species (as per UKBAP)</p> <p>Maintain healthy deer populations</p> <p>Reduce diffuse impacts of deer on natural heritage settings</p> <p>Prevent the establishment of non-native species</p> <p>Protect the genetic integrity of species</p>

**Table 4.4.b (cont.): SEA Objectives**

<b>SEA Headline Objectives</b>	<b>SEA Sub-Objectives</b>
<b>Population and Human Health</b>	
To protect and enhance human health	<ul style="list-style-type: none"> <li>Promote healthy living and lifestyles</li> <li>Increase opportunities for outdoor recreation and exercise</li> <li>Minimise conflict between land managers and recreational interests</li> <li>Reduce human injury and death rates from culling/shooting activities</li> <li>Reduce road traffic accidents</li> </ul>
<b>Water</b>	
To meet environmental standards required by the Water Framework Directive (WFD)	<ul style="list-style-type: none"> <li>Maintain and enhance good ecological status of all water bodies</li> <li>Maintain and restore key ecological processes (e.g. hydrology, geomorphology, coastal processes)</li> </ul>
To avoid, reduce and manage flood risk	Minimise disturbance to ecological processes which may increase the risk of flooding from rivers, watercourses and waterbodies
<b>Soil</b>	
To conserve soil resources and quality	<ul style="list-style-type: none"> <li>Safeguard soil structure, quality and quantity</li> <li>Maintain and enhance the function and integrity of soil processes and services</li> </ul>
<b>Air (including transport)</b>	
To improve air quality (with reference to the pollutants under the EC Air Quality Directives)	<ul style="list-style-type: none"> <li>Reduce the need to travel</li> <li>Reduce emissions which contribute to air pollution</li> </ul>
<b>Climate Factors (including energy)</b>	
To reduce contributions to climate change	<ul style="list-style-type: none"> <li>Reduce greenhouse gas emissions</li> <li>Increase carbon storage and sequestration</li> </ul>
Contribute to adaptation to climate change	Manage natural resources to reduce vulnerability to climate change
<b>Material Assets</b>	
Promote sustainable management of natural and man-made resources	<ul style="list-style-type: none"> <li>Minimise loss of important mineral, timber, agricultural or other assets</li> <li>Manage to minimise impact of built assets, property, infrastructure and services</li> <li>Manage the impact of deer on other assets</li> <li>Reduce waste associated with deer produce</li> </ul>

**Table 4.4.b (cont.): SEA Objectives**

<b>SEA Headline Objectives</b>	<b>SEA Sub-Objectives</b>
<b>Cultural Heritage</b>	
To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	<p>Conserve archaeological sites and other culturally important features and their settings</p> <p>Strengthen and maintain the Scottish rural heritage and identity</p> <p>Protect the landscape/townscape setting of historic environment features such as battlefields or areas with recognised historic value, e.g. Conservation Areas</p>
<b>Landscape</b>	
Protect, conserve and enhance the Scottish landscape	<p>Conserve and enhance landscape character</p> <p>Protect and conserve statutory designated areas</p> <p>Maintain and conserve landscape features</p>

#### 4.5 Assessment of Alternatives

As part of the SEA assessment process, the assessment of alternatives aims to inform decisions made within the development of the vision, objectives and actions within the Strategy. In the case of the high level assessment of the Strategy, the approach to assessment of alternatives sought to:

1. Understand the long-term factors of change affecting the management of wild deer;
2. Establish the 'No Strategy' (Business as usual extended over 20 year timescale) versus 'Strategy' scenarios; and
3. Identify a range of management approaches that could potentially respond to future changes in the wider operational context for integrated land management and other areas of activity.

The Strategy options have been considered iteratively with the development of the Strategy. However, the three levels of alternative approaches considered above aim to provide an appropriate approach to consider reasonable alternative approaches at this level. A more detailed description of the approach to the three levels of assessment is found in Section 6. More detailed assessment of alternatives to individual actions, for example, would be more appropriate as and when lower level implementation plans are brought forward.

## 5 : environmental baseline and key issues

This section summarises the established environmental baseline to support the assessment and monitoring of the effects of implementing the Strategy. The full environmental baseline overview can be found in Appendix 3. All environmental baseline sources are listed in Appendix 4.

### 5.1 Introduction

In order to support prediction and assessment of the potential effects of implementing the draft Strategy, a description of the existing state of the environment, relevant to deer management in Scotland, was established. The environmental baseline presents information on the current and potential environmental issues relevant to the Strategy (see Appendix 15 for a full list of key issues considered). The likely future state of the environment without the implementation of the Strategy was also predicted through establishment and review of past trends.

### 5.2 Collecting environmental baseline information

Establishment of the environmental baseline for the SEA process is required to take into account the SEA topics listed in Schedule 2 of the Environmental Assessment (Scotland) Act 2005 (see section 5.4 for a list of SEA topics). Information was primarily sourced from DCS, the Scottish Environment Protection Agency, Historic Scotland and Scottish Natural Heritage. A reference list of sources of the environmental baseline information can be found in Appendix 4. The process of baseline information collection focused on supporting future monitoring of the potential effects of implementing the Strategy through the use of recommended key indicators, and provision of supplementary information to support informed decision-making in the Strategy development process.

Environmental baseline information for SEA purposes was identified in parallel with the development of the Strategy's vision and objectives to ensure that relevant information was sourced. Where possible, within the timescales for collection, the collation of baseline information aimed to establish the:

- Current state of the environment,
- Past and likely future trends,
- The key current environmental issues, and
- The significant environmental issues for the implementation of the Strategy.

### 5.3 Future collection of environmental baseline information

A significant amount of information was available on the current state of the environment, particularly where these related to existing government priorities such as protecting sites of European or national nature conservation importance. However, there was a lack of availability of information specifically related to the interactions of wild deer with various aspects of the environment and inter-relationships between deer and other species.

Key information gaps which should be reviewed for updates to the environmental baseline, and data sets that will be available in the near future, are noted in the environmental baseline information reference list (Appendix 4) and specified in the more detailed summary of environmental baseline (Appendix 3).

#### **5.4 Scotland's Environment**

For its size, Scotland has the most varied geology and natural landscapes of any country on the planet (SNH, 2002). Its varied upland, lowland and island landscapes include habitats and species of significant conservation value.

In the past few decades, many aspects of Scotland's natural heritage, including its diversity, condition and the way in which it is exploited, have changed substantially (SNH, 2001). The current status, past trends and key environmental issues of the Scottish environment are considered below under the main topics identified in the Environmental Assessment (Scotland) Act 2005, and those relevant to the Strategy for Wild Deer.

The following sections are structured around the nine SEA topics listed below.

1. Biodiversity, Habitats, Flora and Fauna
2. Population and Human Health
3. Water
4. Soil
5. Air (including Transport)
6. Climate Factors (including Energy)
7. Material Assets (including Waste and Resource Management)
8. Cultural Heritage
9. Landscape

#### **5.5 Biodiversity, Habitats, Flora and Fauna**

Deer are an important part of Scotland's biodiversity and can have both positive and negative effects on habitats and other species. Biodiversity aspects relevant to the Strategy include the status of Scotland's diverse habitats and species, deer populations, and designated sites.

Scotland has a high proportion of semi-natural habitats covering over 50% of the land area. The greatest change in semi-natural habitats between 1990 and 1998 was the loss of grasslands, bogs and bracken habitats, which declined by nearly 900,000 hectares, or 2%.<sup>1</sup>

Deer can impact habitats in a number of ways as a result of their grazing, browsing (removal of foliage and shoots from woody plants), bark stripping, trampling and dunging. Six species of

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<sup>1</sup> Natural Heritage Trends Scotland, 2001

deer occur in the wild in the UK, only two of which (red and roe) are native. It is estimated that there are currently 567,050 to 767,050 deer in Scotland.<sup>2</sup> The range of all wild deer has expanded between 1972 and 2002.<sup>3</sup>

Designated protected areas form some 20% of Scotland’s land area (see Table 5.5a below).<sup>4</sup> Although over 80% of relevant features on these designated sites are in favourable condition, there are 238, of 338 sites identified, that would benefit from reduced grazing pressure (from deer as well as other herbivores). The potential effects of deer on Natura 2000 European designated sites is of particular concern for deer management. More detailed information on Scotland’s biodiversity, fauna and flora, which is relevant to deer management can be found in Appendix 3.

**Table 5.5.a: Selected Designated Sites in Scotland**

Designated Site	Number	Area Ha
<b>Sites of Special Scientific Interest (SSSI):</b> Exemplary places in Scotland for nature conservation. They are special for their plants or animals or habitat, their rocks or landforms or a combination of these. Designation is a legal process <u>Nature Conservation (Scotland) Act 2004</u> .	1,455	1,034,000 (12.9% of Scotland)
<b>Ramsar sites:</b> <u>Wetlands of International Importance</u> protecting wildfowl habitat.	51	313,000
<b>Special Areas of Conservations (SAC):</b> Areas of European importance for Wild Fauna and Flora. They range from sand dunes and forest to bogs and heath land.*	103	372,261
<b>Special Protection Areas (SPA):</b> Areas of European importance for Wild Birds.*	128	643,484
<b>National Nature Reserves (NNR):</b> Sites are important nationally for nature, they are also designated SSSIs.	71	114,277
<b>Local Nature Reserves (LNR):</b> Places with special local natural interest, set up to protect nature, and for people to enjoy and appreciate.	29	9,297

*Note: A site may be protected by more than one designation. For example, about two thirds of the area of SACs and 80% of SPAs and Ramsar sites also have SSSI designations.*

<sup>2</sup> DCS (2000) and Mammal Tracing Partnership (2005)

<sup>3</sup> Hunt, J F. Impacts of Wild Deer in Scotland: How Fares the Public Interest? Report for WWF Scotland and, RSPB Scotland (August 2003)

<sup>4</sup> <http://www.snh.org.uk/about/ab-pa00.asp> (October, 2007)

Key issues linked to biodiversity include:

- The effects of wild deer on habitats, such as native woodland, and the effects of deer management methods, including fencing, on habitat structure and distribution;
- The effects of wild deer on other species, and the effects of deer management methods, including fencing, on wildfowl;
- The need to manage the combined effects of deer and other grazing animals;
- The establishment of non-native deer species and spread of sika deer, as well as red deer and sika deer hybridisations, and the effect of this on habitat distributions and structures;
- The effect of the open season's timing and the effect of culling activities on deer population levels;
- The effects of grazing and trampling damage on designated sites, and the need to manage biodiversity in the wider countryside; and
- Possible future effects on deer populations and distribution as a result of climate change.

## 5.6 Population and Human Health

Deer populations and deer management have an important influence on the well-being and health of human populations. Deer are central to sport and nature tourism, provide venison, but also sometimes cause road accidents and transmit infections including Lyme disease. Population and human health aspects relevant to the Strategy include the status of road and sport shooting accidents, recreation and access, disease transmission and venison quality.

The incidence of deer-vehicle collisions is highest in the north and north-east of Scotland, but there is a risk of collisions on roads across the country. Between 2003 and 2005 there were 74 injuries to drivers and passengers as a result of deer-vehicle collisions in Scotland, including an estimated 16 serious injuries.<sup>5</sup>

Over a quarter of all Scottish adults take part in open-air recreation at least once a week. Recent surveys of use and demand have shown that walking is by far the most popular activity.<sup>6</sup> Recreational activities relating to deer include deer watching and stalking in forests, woods and open hill. It is unlikely that deer have any direct impact on the numbers of hill walkers and climbers.<sup>7</sup>

Lyme disease is transmitted through sheep ticks, which are transferred to humans via deer and sheep (as well as some other types of mammals and birds). In Scotland, the number of Lyme disease sufferers went up 35% between 2003 and 2004. Health experts have warned of increases in cases of Lyme disease, with the real number thought to be much higher than those reported.<sup>8</sup> Further information on population and human health, which is relevant to deer management, can be found in Appendix 3.

5 <http://www.deercollisions.co.uk/ftp/Scotpressrel.pdf> (October, 2007)

6 <http://www.outdooraccess-scotland.com/default.asp?nPageID=303> (October, 2007)

7 <http://www.ramblers.org.uk/scotland/> (October, 2007)

8 Ross, J. Concern as sheep-tick disease cases soar. *The Scotsman* (Tue 31 May 2005)  
<http://thescotzman.scotsman.com/index.cfm?id=594082005>

Key issues linked to population and human health include:

- The effects of deer management in urban areas on the number of road accidents, and the effect of hunting practice regulation and education on the safety of hunters and the general public;
- The effects of deer fencing and safety concerns linked to sport shooting and culling activities on public access to rural and protected areas;
- The prevalence of infectious disease transmission (e.g. Lyme disease), and the effect of deer density, distribution or species mix on the risk of disease transmission to livestock (e.g. Bovine Tuberculosis) and the quality or safety of meat and other animal products; and
- The effects of access to venison on nutrition and human health.

## 5.7 Water

Deer populations and deer management have some minor implications for water quality, flooding and the quality of rivers and lakes. Water aspects relevant to the Strategy include morphological alterations to freshwater bodies, water quality and flooding.

Morphological alterations of water bodies can be caused by agricultural and forestry activities as well as by hydropower energy generation and recreational activities. In addition, alterations can result from cattle, other stock or deer poaching (the erosion of river and burn banks by cattle trampling at watering areas). This can result in alterations to flow regimes and damage or loss of habitats in very extreme situations.<sup>9</sup>

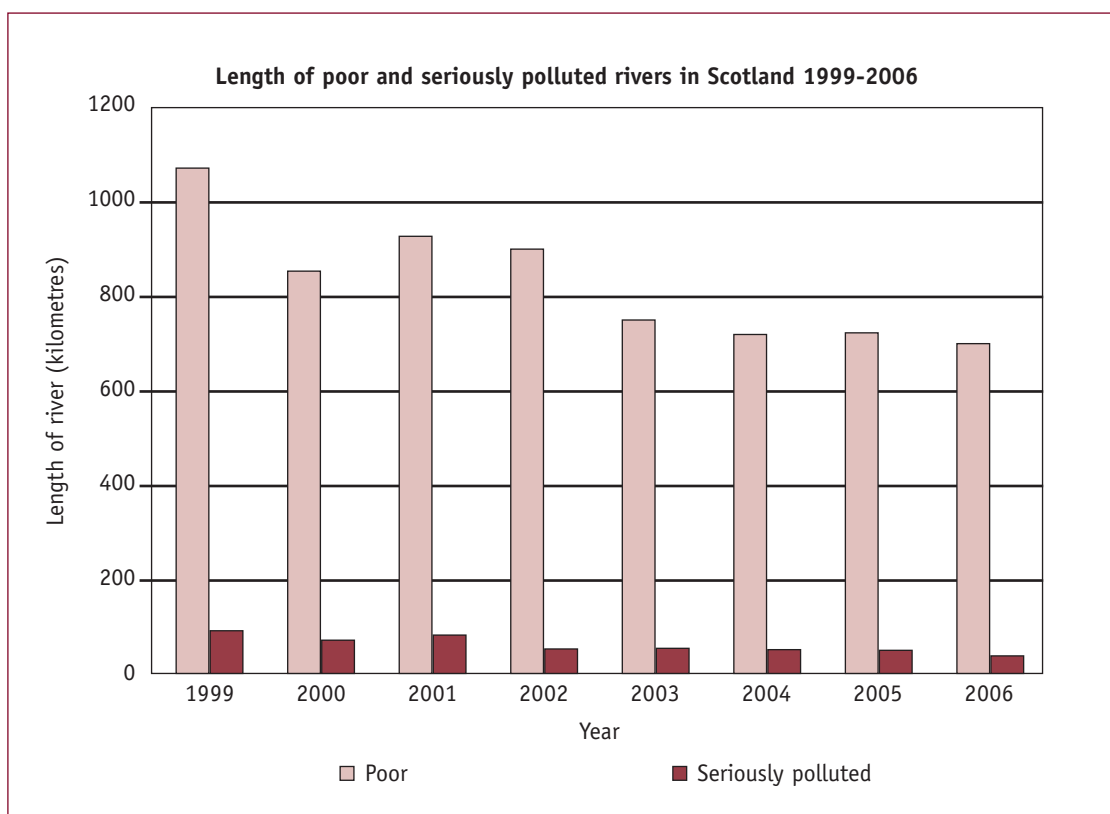
The Scottish Executive is aiming to achieve and maintain good ecological quality in Scotland's rivers, lochs and coastal waters by the year 2015 in line with the targets of the Water Framework Directive. Most rivers in Scotland are of 'good' to 'excellent quality', and the length of 'poor' and 'seriously polluted' rivers in Scotland has steadily decreased between 1999 and 2006.<sup>10</sup> This is depicted below in Figure 5.7a.

Heavy grazing in the immediate riparian zone (up to 30m from a watercourse), by deer and other grazing animals can adversely affect water quality, and cause erosion of river banks leading to unnaturally wide and shallow water courses.<sup>11</sup>

<sup>9</sup> The Scotland River Basin District: Characterisation and impacts analyses required by Article 5 of the Water Framework Directive, Summary Report [www.sepa.org.uk](http://www.sepa.org.uk) (October, 2007)

<sup>10</sup> State of Scotland's Environment Report, SEPA (2006)

<sup>11</sup> Hunt, J F. Impacts of Wild Deer in Scotland: How Fares the Public Interest? Report for RSPB Scotland (2003)



**Figure 5.7.a: Length of poor and seriously polluted rivers in Scotland 1999-2006**

Source: Scottish Environment Protection Agency (2006)

At times of high rainfall, river systems lacking natural woodlands are more “flashy” with increasing run off leading to greater risk of flooding down stream. Reductions in deer numbers in these areas can allow scrub and tree regenerations, though often this needs to be accompanied by sheep reductions.<sup>12</sup> Further information on water quality relevant to deer management can be found in Appendix 3.

Key issues linked to water include:

- The effects of deer on the quality of rivers and lakes;
- The effects of deer and other grazing animals on river habitats and the filtering capacity of vegetation; and
- Land-use change in river flood plains related to deer management activities, and the effect of deer management on flood risk (e.g. resulting from vegetation cover loss, compaction and erosion of soil).

<sup>12</sup> Hunt, J F. Impacts of Wild Deer in Scotland: How Fares the Public Interest? Report for RSPB Scotland (2003)

## 5.8 Soil

Soil is a resource that renews itself extremely slowly and is central to basic ecosystem processes as well as agriculture and forestry. Deer populations and deer management have some effects on soil resource quality. Soil aspects relevant to the Strategy include the status of soil erosion and compaction and loss of organic matter from Scottish soils.

Scottish soils are generally of good quality, diverse and differ markedly from those in the remainder of the UK. The majority have acidic and organic-rich surface layers including large areas of blanket bog up to eight metres thick. These types of soils are often not managed intensively and play important roles in nature conservation, biodiversity and carbon storage, and landscape value. In contrast, soils suitable for arable cropping are limited largely to eastern Scotland.<sup>13</sup>

There is no clear evidence that soil erosion poses serious threats to soil quality. However, there is evidence that levels of organic matter in Scottish soils may be declining. This could represent a very significant reduction in the UK stock of terrestrial carbon, which would have implications for climate change and soil management.<sup>14</sup> Further information on soil resources relevant to deer management can be found in Appendix 3.

Key issues linked to soil include:

- The effects of deer population densities in vulnerable areas on nutrient loss through excessive grazing and trampling, and the effects of deer density on soil erosion and compaction; and
- The effect of deer density on the loss of organic carbon from Scotland's soils, particularly in peat uplands, as soil carbon released into the atmosphere contributes to climate change.

## 5.9 Air (including Transport Emissions)

Deer populations and deer management activities have extremely minor effects on air quality. Air quality is not expected to have significant direct effects from the Strategy.

## 5.10 Climate Factors (including Energy)

Climate change is a global issue with short and long-term local effects. In Scotland, flood risk, water resources, agriculture, tourism and health may be affected. All of these factors may be of economic, social and environmental importance. Deer populations and deer management have tangible implications for reducing the contribution towards, and adapting to, climate change. Climate change aspects relevant to the Strategy include the status of greenhouse gas emissions per sector, carbon sinks, species and habitats vulnerable to climate change and the effects of climate change on disease transmission.

<sup>13</sup> State of the Environment: Soil Quality Report, SEPA (2001)

<sup>14</sup> Scotland's Soil Resource: Current State and Threats. Report for the Scottish Executive on the current state and threats to Scotland's soil resource (September, 2006)

Regardless of any reductions achieved in emissions, some climate change will occur due to the level of gases that have already accumulated in the atmosphere.<sup>15</sup> It is expected that this will have a significant effect on species and habitats in the UK.<sup>16</sup> Research has suggested that the habitats most sensitive to fluctuations in temperature and rainfall include montane habitats, raised bogs, some coastal habitats and chalk rivers.<sup>17</sup> Also, various diseases transmitted by mosquitoes or ticks, such as Lyme disease, are climate-sensitive and may increase or be introduced due to climate change.<sup>18</sup>

Scotland's soils contain the bulk of the UK soil carbon pool. Soil carbon can be lost either through climate change or as a consequence of inappropriate land management, for example through drainage of deep peats and erosion or trampling caused by grazing animals including deer. Either would have major effects in relation to added green house gas emissions. Only 0.1% of the soil carbon store in Scotland would need to be released to the atmosphere through inappropriate land management practice, for Scotland's current official carbon dioxide emissions to double.<sup>19</sup> Appendix 3 provides more detailed information on climate factors of relevance to deer management.

Key issues linked to climate factors include:

- The effects of climate change on the populations and distribution of wild deer in Scotland;
- The effects of deer population densities on the productivity or reinstatement of forests, and methane emission levels (generated during digestion);
- The effect of deer management and deer densities on the condition of carbon sinks;
- The effects of wild deer on species and habitats most likely to be affected by climate change; and
- The effects of climate change on the prevalence and spread of diseases transmitted by deer to human and livestock.

### 5.11 Material Assets

Wild deer populations can be considered a material asset as they relate to tourism, venison production, and employment in the deer sector. Deer densities and deer management have significant effects on plantation, forest and agricultural resources. Material assets relevant to the Strategy include the status of waste production and plantation, forest, agricultural and tourism resources, and employment in the deer sector.

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15 Met Office/DETR (1999)

16 DEFRA – Climate Change and UK Nature Conservation: A Review of the Impact of Climate Change on UK Species and Habitat Conservation Policy (October, 2007) <http://www.defra.gov.uk/wildlifecountryside/climatechange/nature/execsum.htm>

17 DEFRA – Climate Change and UK Nature Conservation: A Review of the Impact of Climate Change on UK Species and Habitat Conservation Policy (October, 2007) <http://www.defra.gov.uk/wildlifecountryside/climatechange/nature/execsum.htm>

18 Postnote: UK Health Impacts of Climate Change (November, 2004)

19 State of the Environment: Soil Quality Report, SEPA (2001)

Most deer-related damage occurs to forestry interests (especially young plantation trees and regeneration). Agricultural damage is a limited and local problem although where it occurs, it may be significant.<sup>20</sup>

Tourism supports around 9% of all employment in Scotland.<sup>21</sup> International tourist numbers and spend increased between 2005 and 2006, while domestic tourist numbers and spend decreased. The visitor attitude surveys of 1999/2001 demonstrate that 90% of tourists identify the landscape as the key reason for their visit. Currently, there are over 250 businesses involved in nature and wildlife tourism in Scotland, with over 3,000 employees. Since 2001, activities relating to the development of wildlife and nature-tourism have increased significantly.<sup>22</sup> Recreational activities undertaken by tourists in Scotland (in 2005) included hiking, hillwalking, rambling as well as field or nature studies (see the Table 5.11a below for details).

**Table 5.11.a Activities undertaken by tourists in Scotland, 2005**

	UK Holiday Trips (%)*	Overseas Holiday Trips (%)**
Visiting castles, monuments, churches, etc.	39	83
Hiking/Hillwalking/Rambling/Other walking	33	39
Visiting museums, galleries, heritage centres, etc.	29	58
Swimming	21	5
Field/Nature Study	17	9
Watching performing arts (including cinema)	16	16
Golf	8	2
Visiting Theme Parks/Activity Parks	8	6
Traditional Regional Music Events	7	n/a
Fishing	6	3

\* 2003 data – no further update available

\*\* 1996 data – no further update available

Total gross and net expenditures in 1996 for deer stalking in Great Britain are estimated at £14 million and £5 million respectively. Scotland contributes most to this, with £10.4 million direct expenditure on stalking. Currently, deer-related employment in Scotland is estimated at a minimum of 850 full-time equivalents, including around 500 professional stalkers. The true figure, however, may be somewhere between 1000 and 1500 full-time equivalents.<sup>23</sup> See Appendix 3 for more detailed information on Scotland’s material assets relevant to deer management.

20 Staines B, Palmer S.C.F, Wyllie I, Gill R, and Mayle B. Desk and limited field studies to analyse the major factors influencing regional deer populations and ranging behaviour. A report for MAFF (1998)

21 Visit Scotland Tourism Statistics Leaflet [http://www.visitscotland.org/tis\\_summary2005updated.pdf](http://www.visitscotland.org/tis_summary2005updated.pdf) (October, 2007)

22 Wildlife Tourism – Training For Success

23 Landwise Scotland for the Deer Commission for Scotland, Developing a Policy Framework for Managing Diffuse Deer Impacts (2005)

Key issues linked to material assets include:

- The effect of deer management practices on forest productivity and agricultural resources;
- The effect of deer management practices on tourism resources;
- The effect of deer management practices on the venison market, and the manner in which value is added to deer related activities and products, aside from shooting;
- The effect of deer management practices on the quality, quantity, diversity and versatility, of employment; and
- The disposal of waste associated with culling activities (e.g. carcasses).

### 5.12 Cultural Heritage

Scotland's historic environment features are an integral component of the landscape and make an important contribution to tourism. The continued survival of many archaeological sites is linked to an appropriate level of grazing. Deer populations and deer management practices can contribute to the management of archaeological sites by helping to keep them free from natural vegetation regeneration. However, excessive grazing may cause damage through trampling. Cultural heritage aspects relevant to the Strategy include the status of; Scheduled Ancient Monuments, archaeological sites, historic parks and gardens, battlefields, and World Heritage Sites.

Scotland has a rich historic environment including; four World Heritage Sites (and one proposed site – the Antonine wall), over 7800 Scheduled Ancient Monuments, over 47,000 listed buildings, and 386 gardens and designed landscapes.<sup>24</sup> There are also numerous recorded archaeological sites within Scotland.<sup>25</sup> Appendix 3 provides more detailed information on Scotland's cultural heritage and its relevance to deer management.

Key issues linked cultural heritage aspects include:

- The effects of deer density or species mix on erosive and trampling damage to historic environment features;
- The effect of deer density or species mix on vegetation root depth or growth close to archaeological features; and
- The effects of fencing and tree guards on archaeological sites and the setting of Scheduled Ancient Monuments.

<sup>24</sup> The draft Scottish Historic Environment Policy (SHEP) paper (2007)

<sup>25</sup> <http://www.historic-scotland.gov.uk/> (October, 2007)

### 5.13 Landscape

The landscape is a result of the underlying geology, habitats and species, historic environment features, agriculture and forestry, and human presence. Wild deer populations and deer management can affect all of the above factors and, therefore, alter the balance of Scotland's landscapes. Landscape aspects of particular relevance to the Strategy include the status of land-use, landscape designations, and sporting estates.

Changes in land use have been implicated as having significant impacts on the landscape of rural Scotland, as well as on the water environment, climatic factors, and biodiversity. One of the major land uses in Scotland is agriculture, with approximately 80% of land in Scotland being given over to agriculture (especially grazing) and a further 16% of land in Scotland being afforested.<sup>26</sup>

Over the period from c.1947 to c.1988, significant changes have taken place within Scotland's urban and rural land-use. The largest change was the increase in woodland (from about 5% to 14% of Scotland), primarily due to the increase of coniferous plantation forest throughout the Highlands and Southern Uplands. This accounted for much of the decline in heather, mire and grassland in the uplands.<sup>27</sup>

The main national landscape designations in Scotland are National Scenic Areas (NSAs) (the designation of National Parks is a relatively recent introduction in Scotland). These are areas of land considered of national significance on the basis of their outstanding scenic interest.<sup>28</sup> Table 5.13a, below shows that in 2005, 568,000 hectares of land in Scotland were covered by National Parks; 1,002,000 hectares were covered by National Scenic Areas; and 155,000 hectares by Green Belt. The proportions of land in Scotland covered by each of these designations, or constraints on development, are lower than the UK averages. See Appendix 3 for more detailed information on Scotland's landscape and its relevance to deer management.

**Table 5.13.a: Designated Areas, 2005**

	National Parks		Areas of Outstanding Natural Beauty/ National Scenic Area		Green Belt	
	Area (thousand hectares)	% of total area in region	Area (thousand hectares)	% of total area in region	Area (thousand hectares)	% of total area in region
<b>UK</b>	1,972	8	3,377	14	2,032	8
<b>England</b>	994	7	2,018	16	1,650	13
<b>Wales</b>	410	20	72	4	-	-
<b>Scotland</b>	568	6	1,002	13	155	2
<b>Northern Ireland</b>	-	-	285	20	227	16

*Note 1: AONB is an English designation, and the Scottish equivalent is National Scenic Area.*

*Note 2: Green Belts are not a landscape designation but do present a constraint on development.*

<sup>26</sup> Scottish Executive Environment Statistics, <http://www.scotland.gov.uk/Topics/Statistics> (October, 2007)

<sup>27</sup> Scottish Executive Environment Statistics, <http://www.scotland.gov.uk/Topics/Statistics> (October, 2007)

<sup>28</sup> Department of Environment, Food and Rural Affairs, Regional Trends 39; ONS (2006)

#### 5.14 Inter-relationships between topics

There are clearly interrelationships between all of the above topics. For example, deer populations and deer management practices can cause changes in habitats and species, historic environment features, agriculture and forestry, and human presence. These changes, when combined, can have significant knock-on effects on the balance of landscapes in Scotland. Of particular importance in the context of the draft Strategy is the likely effect of climate change on deer populations and distribution, as well as its effect on the wider landscape and biodiversity.

Some topics, such as landscape and biodiversity, are more strongly inter-linked than others. However, more complex sets of effects (e.g. knock-on effects, groups of effects, or accumulations of similar effects) should always be considered in the wider context of the variety of factors which make up Scotland's environment.

#### 5.15 Likely future environmental trends without the Strategy

The Strategy builds upon the previous DCS Vision and Long-Term Strategy and introduces some new cross-agency working elements to set within the wider integrated land management context and other areas of activity, such as tourism. These new elements are described in Section 6.2, which explores in more detail the implications of the 'New Strategy' compared with 'No New Strategy' scenarios over the next 20 years. The new elements are also summarised in Table 6.2b and 6.2c. Without the implementation of the new Strategy the following environmental trends would be likely:

- Less focus on an ecosystem approach to deer management;
- Less explicit linkage of deer management to climate change issues and its role in contributing to reducing and adapting to climate change;
- Less promotion and use of deer-related material resources, such as tourism opportunities and broader economic opportunities, including venison marketing and supply chain;
- No linkage to healthy living and lifestyle issues;
- Less emphasis on reducing the risk of Lyme disease transmission; and
- A less joined-up approach to integrated land use management.

## 6 : exploring future scenarios and how to adapt to future change

Given the high level strategic nature of the Strategy, the assessment of alternatives within the strategy by the SEA process sought to identify the extent to which the Strategy could respond to or anticipate, future change which may affect deer management activities. It was recognised that there will be a five-yearly review process, so some issues and options are likely to be prioritised first and others may come to be prioritised through the regular review process. Anticipation of the key factors of change (or drivers) can help in the prioritisation of the Strategy Objectives and Actions.

### 6.1 Identifying factors of change affecting the Strategy

Long-term factors (or drivers) of change affecting the Strategy were identified through a collaborative process including members of the Advisory Group and cross-agency partners.

These factors of change include the following:

1. Climate change;
2. Land-use change;
3. Changes in tourism markets;
4. Changes in public perception;
5. Changes in economic circumstances; and
6. Policy, legislative and administrative change.

The current and likely future context of the above factors of change are described in the Strategy in more detail. Figure 6.1a below illustrates the level of importance and predictability of the range of factors identified.

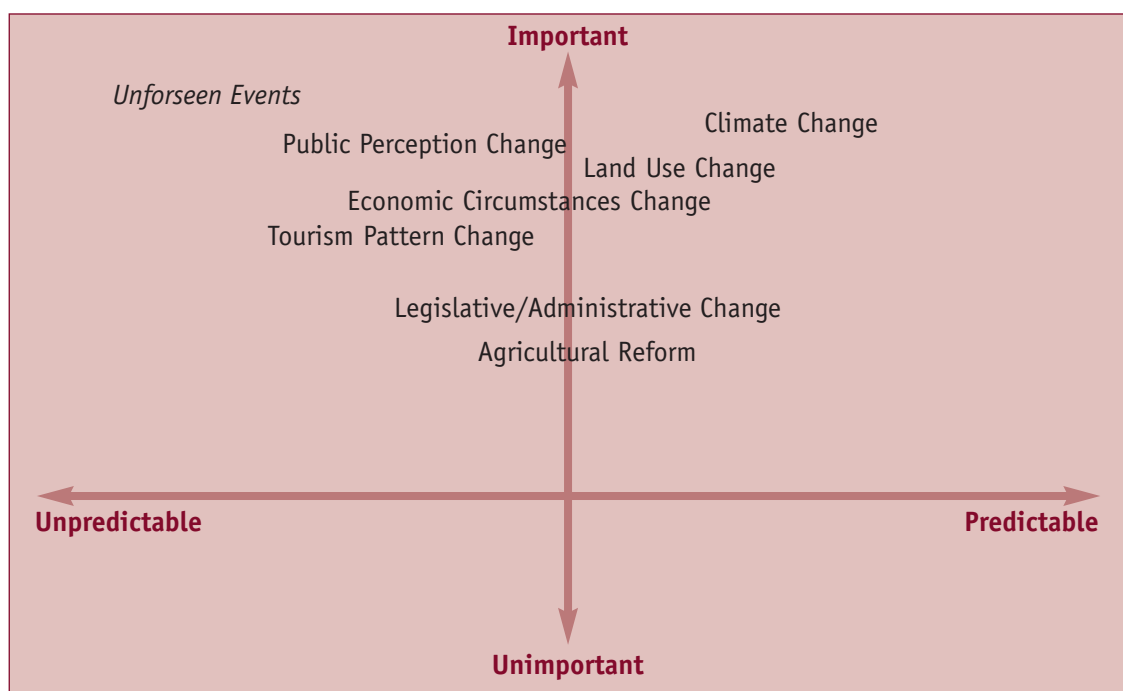


Figure 6.1.a: The relative importance and predictability of factors of change.

## 6.2 The New Strategy Verses the No New Strategy Scenario

The difference between deer management approaches with the new Strategy compared to the 'Business-as-usual' or 'No New Strategy' scenarios were explored by discussing and summarising what is proposed in the new strategy at the objective and action level and how this differs from current policy:

- **Scenario 1:** Continuation of 'business-as-usual' policy over a 20-year timescale; and
- **Scenario 2:** The implementation of the Strategy over a 20-year timescale.

Table 6.2b (objectives level) and Tables 6.2c (action level) summarise the ways in which the new Strategy builds on, or introduces new, policies and approaches compared to the existing Strategy or prevailing policies. Table 6.2d summarises the predicted effects on the environment of the 'No New Strategy' versus 'New Strategy' and the key below presents the symbols used in Table 6.2d.

**Table 6.2.a Key to scoring of potential effects**

Key to scoring of potential effects	
++	Major positive effects
+	Minor positive effects
0	Neutral effects
-	Minor negative effects
--	Major negative effects
++/-,+/-- etc.	Mixed effects
?	Uncertain effects

**Table 6.2.b: Comparison of Strategy versus No Strategy scenarios at objectives level**

Objectives	No Strategy	Strategy
<b>6.1 Objectives contributing to a high quality environment</b>		
6.1 a) Safeguard the welfare of all species of wild deer.	Lack of clarity on responsibility of welfare and gaps in measures to safeguard welfare year-round.	Aims to add to current closed season management mechanism by identifying approaches to safeguard welfare all year round. The strategy seeks to facilitate and support welfare competence project set in the broader context for deer welfare.
6.1 b) Minimise further spread of non-native deer species in Scotland.	No change in new policy.	Reaffirmation of existing policy with recognition that stopping the spread is not possible, but managing it is.
6.1 c) Secure the favourable condition of features in designated sites.	Reinforced government policy.	Continued reinforcement of government priority. Greater emphasis on working at appropriate geographical scales set within wider contexts.
6.1 d) Conserve and enhance biodiversity in the wider countryside.	General policy without clarity on how to implement in practice.	Aims to add to basic requirements from the Nature Conservation Act. To clarify practical definition of biodiversity and how its enhancement can be approached in the wider ecosystem context.
6.1 e) Maintain the integrity of natural processes.	General policy.	Greater emphasis on management with respect for natural processes.
6.1 f) Help tackle and adapt to the effects of climate change.	Little recognition previously of interactions with climate change mitigation and adaptation measures.	Recognises links between deer management and climate change and seeks to improve role in developing adaptation and mitigation measures.
6.1 g) Conserve and enhance the cultural and historic environment.	Not explicit enough in previous objectives.	Increased emphasis on existing policy and more explicit on the relevance of deer management.

**Table 6.2b (cont.): Strategy versus No Strategy scenarios at objectives level**

Objectives	No Strategy	Strategy
<b>6.2 Objectives contributing to sustainable economic development</b>		
6.2 a) Increase the economic opportunities associated with wild deer.	Previously more environmental focus and government not so explicit about promoting economic resource.	Emphasises new, broader tourism and economic opportunities. To increase flexibility and response to future drivers. To link to other cross-government agencies.
6.2 b) Minimise economic costs attributable to wild deer.	Cost/benefit approach undertaken at more local level.	Continuation of current approach with greater strategic focus and emphasis, including mechanisms for delivery.
6.2 c) Develop the market and supply chain for venison.	Little co-ordinated action to date.	Aim to increase value that land managers get from wild resource product and improve supply chain to make product available. Identify appropriate marketing balance and facilitate supply of consistent quality product.
6.2 d) Contribute to the social and economic development of communities.	General policy.	To continue and reaffirm role of deer management in wider activities, e.g. in tourism and rural economy.
6.2 e) Ensure the skills and knowledge required to manage deer as an integral part of natural resources.	General policy.	Recognise and keep up to date with changes, including how they relate to the wider context. Identification of new training needs e.g. in relation to habitat monitoring, tourism, marketing and customer services.

**Table 6.2b (cont.): Strategy versus No Strategy scenarios at objectives level**

Objectives	No Strategy	Strategy
<b>6.3 Objectives contributing to social well-being</b>		
6.3 a) Increase participation in management and enjoyment of the wild deer resource.	No explicit policy to date.	New focus and emphasis in terms of explicit government policy and in recognising the broader value of wild deer.
6.3 b) Contribute to a safe and healthy environment for people.	No change in new strategy.	Continuation of current policy.
6.3 c) Manage the impacts of wild deer in and around communities.	General policy.	Continuation of current policy and approach with an increased emphasis on urban as well as rural communities.
6.3 d) Promote opportunities for outdoor recreation.	Existing policy through Scottish Outdoor Access Code.	Continuation of supporting outdoor access policy.
6.3 e) Promote venison as a healthy food.	Previously no formal acknowledgement.	New emphasis and links to current government policy on healthy living and lifestyle.

**Table 6.2c: Strategy versus No Strategy at Action level**

Strategy Actions	To what extent is the Strategy introducing new actions for wild deer management?
<b>7.1 Actions contributing to a high quality environment</b>	
7.1.1 a) Actively manage grazing and trampling impacts of deer and other animals on Sites of Special Scientific Interest to achieve favourable condition.	Ongoing programme of work with new sites to be brought into programme.
7.1.1 b) Integrate management action with other land-uses including agriculture in order to achieve favourable condition.	Existing.
7.1.1 c) Seek the most effective management solutions using flexibility of management area and timescale in order to achieve long-term benefits for designated sites.	New emphasis.
7.1.2 a) Develop effective ways to address deer management within an ecosystem scale approach to landscape and biodiversity.	Seeking to do something different.
7.1.2 b) Integrate biodiversity and ecosystem objectives and data into deer management planning.	New approach related to action 7.1.2 a)
7.1.2 c) Contribute to the conservation of species on the UK and Scottish biodiversity action plan lists.	Existing.
7.1.3 a) Protect woodlands and carbon-rich soils in order to maintain and enhance carbon storage.	New emphasis.
7.1.3 b) Facilitate establishment and maintenance of habitat networks in order to help biodiversity adapt to climate change.	Existing with new emphasis on supporting climate change adaptation.
7.1.3 c) Research the impacts of climate change on wild deer and their habitats.	New focus to support evidence-based working approach to deer management and development of necessary skills.
<b>7.2 Actions contributing to sustainable economic development</b>	
7.2.1 a) Retain existing markets and develop new markets associated with wild deer, both in stalking and other activities and products.	Continuing and looking for new opportunities.
7.2.1 b) Identify the most effective means to brand and market venison as a quality, sustainable product.	New government activity.
7.2.1 c) Increase the number and value of people participating in deer-related activities including stalking and wildlife watching and remove barriers to participation.	New.
7.2.1 d) Seek to capture fairly the economic value of wild deer among those involved in deer management.	New focus.

**Table 6.2c (cont.): Comparison of Strategy versus No Strategy at Action level**

Strategy Actions	To what extent is the Strategy introducing new actions for wild deer management?
7.2.2 a) Actively manage wild deer to minimise losses to woodland establishment and growth, agriculture and other land uses.	Existing.
7.2.2 b) Maintain and develop capacity to manage deer cost-effectively in woodlands.	Existing.
<b>7.3 Actions contributing to social well-being</b>	
7.3.1 a) Promote locations and opportunities where people are likely to observe wild deer.	New.
7.3.1 b) Provide information to local communities and tourism businesses on wild deer and their management.	New.
7.3.2 a) Demonstrate high standards of competence in food safety, operator safety and public safety.	New.
7.3.2 b) Reduce the risks of road traffic accidents involving wild deer.	Existing.
7.3.2 c) Co-ordinate action to minimise human disease risks.	Ongoing but a new emphasis particularly in relation to ticks and increasing perceived risk of increased incidents of Lyme disease.
<b>7.4 Cross-cutting actions</b>	
7.4.1 a) Promote widespread understanding of sustainable deer management in practice.	New focus on what this means at a local level.
7.4.1 b) Understand at a local level the costs and benefits delivered by deer management.	New focus. Linked to action 7.4.1 a)
7.4.1 c) All relevant interests engage in the deer management planning and implementation process to consider social, economic and environmental objectives for management.	More inclusive process of deer management planning and including involvement with stakeholders e.g. communities, NGOs, etc.
7.4.1 d) Facilitate greater community engagement in deer issues.	New focus. Linked to action 7.4.1 c)
7.4.1 e) Learn from other international models for managing wild deer in considering future approaches.	New and increased degree of collaboration with relevant stakeholders and groups.
7.4.1 f) Build on the collaboration of deer management groups to integrate deer management with other land-uses and interests.	New.
7.4.1 g) Where deer management groups do not exist ensure that effective management forums exist in all relevant areas.	New.

**Table 6.2c (cont.): Comparison of Strategy versus No Strategy at Action level**

Strategy Actions	To what extent is the Strategy introducing new actions for wild deer management?
7.4.2 a) Agree a common understanding of deer welfare.	New.
7.4.2 b) Articulate the welfare responsibility associated with managing wild deer.	New.
7.4.2 c) Demonstrate high standards of competence in safeguarding welfare.	New.
7.4.2 d) Consider deer welfare in all management planning and activities affecting wild deer.	Existing.
7.4.2 e) Monitor disease risks and the effects of climate change on deer welfare.	New.
7.4.3 a) Establish a series of long term monitoring sites to inform management practice.	New.
7.4.3 b) Collate data from deer managers and processors more effectively and share data among relevant interests to be used in management.	New with increased emphasis on basic level of knowledge or awareness.
7.4.3 c) Empower land managers to use sound science to underpin the deer management planning process.	New with increased emphasis on basic level of knowledge or awareness.
7.4.3 d) Improve knowledge of optimal grazing regimes for site management.	New with increased emphasis on basic level of knowledge or awareness.
7.4.3 e) Refine methods of measuring impacts of wild deer on habitats.	Development of existing approach.
7.4.4 a) Develop a greater understanding of public perceptions of wild deer.	New.
7.4.4 b) Increase public understanding of the need to manage wild deer and how they are managed.	New.
7.4.4 c) Increase awareness of roe deer and the associated management needs in and around urban areas.	New.
7.4.4 d) Increase awareness of the interactions of all species of wild deer with access and recreation in urban, woodland and open land settings.	Development of existing approach.

**Table 6.2.d: Summary – Predicted effects of ‘No New Strategy’ versus ‘New Strategy’ scenarios**

Note: The first score is the primary overall effect of the scenario on the environment and the second score is the secondary overall effect

SEA Objectives	No New Strategy	New Strategy	Commentary
To maintain and enhance biodiversity, flora, fauna and habitats	?	+/-	The New Strategy scores higher overall on maintaining and enhancing biodiversity due to its increased focus on ecosystem approaches to deer management. However, the New Strategy’s focus on enhancing economic and social development may potentially result in a range of minor negative environmental effects generally associated with infrastructure development.
To protect and enhance human health	?	+/?	The New Strategy scores higher overall on enhancing human health as it incorporates linkages to healthy living and lifestyle issues, lacking in the ‘No New Strategy’ scenario. The New Strategy also addresses co-ordinating action to minimise human disease risk, with a new emphasis on ticks and the perceived increased incidences of Lyme disease.
To meet environmental standards required by the Water Framework Directive (WFD)	0/+	0/+	The ‘New Strategy’ and ‘No New Strategy’ scenario score similarly overall on meeting the environmental standards required by the Water Framework Directive. In part, this is because the effects of deer management on the above are generally neutral to minor positive (or potentially minor negative in the context of economic and infrastructure development). However, the New Strategy introduces some new elements that may have an added positive effect on water quality such as establishing long-term monitoring sites, which should flag up any future concerns of the potential effects of deer and deer management on water quality and riparian habitats.
To avoid, reduce and manage flood risk	0/+	0	The ‘New Strategy’ and ‘No New Strategy’ scenario score similarly overall on avoiding flood risk. In part, this is because the effects of deer management on the above are likely to be generally neutral to minor positive (or potentially minor negative in the context of economic and infrastructure development). However, the New Strategy introduces some new elements that may have an added positive effect on avoiding flood risk, such as establishing long-term monitoring sites, which should flag up any future concerns on the potential effects of deer and deer management on flood risk.

SEA Objectives	No New Strategy	New Strategy	Commentary
To conserve soil resources and quality	?/+	?/+	The 'New Strategy' and 'No New Strategy' scenario score similarly overall on protecting soil resources, i.e. minor positive to uncertain effects. However, the effects of the New Strategy are more uncertain as an increase in visitor numbers to the countryside (due to expanding deer related activities and outdoor recreation) and associated trampling and compaction may have a minor negative effect on soil quality. The additive nature of the above types of effects repeated across different sites over Scotland may also become a significant cumulative effect at the regional or national scale.
To improve air quality (with reference to the EC pollutants under the EC Air Quality Directives)	0	0	The 'New Strategy' and 'No New Strategy' scenario score similarly on improving air quality. This is because the potential effects of deer management on air quality are generally neutral (or potentially minor negative in the context of economic and infrastructure development).
To reduce contributions to climate change	+/-	?/-	The 'New Strategy' scenario scores higher overall as it incorporates linkages to deer populations' and deer management's role in reducing contributions to climate change, which the 'No New Strategy' scenario lacks. However, the New Strategy introduces some new elements, such as promoting deer-related businesses and increasing participation in deer-related outdoor activities, which may have minor negative effects on increasing transport and development emissions.
To contribute to adaptation to climate change	?	+/?	The 'New Strategy' scenario scores higher overall as it incorporates linkages to deer populations' and deer management's role in contributing to adaptation to climate change, which the 'No New Strategy' scenario lacks. The New Strategy focuses on establishing habitat network, protecting woodland, upland peat habitats and carbon-rich soils. Additionally, it also proposes new monitoring sites to inform management practice and undertaking research on optimal grazing regimes and the effect of climate change on disease transmission. These are all likely to have a positive effect on adapting deer management practices to the effects of climate change.
To promote sustainable management of natural and man-made resources.	+/?	?/+	The 'No New Strategy' scenario scores slightly higher overall. This is because the New Strategy promotes the expansion of deer-related material resources, such as tourism opportunities and broader economic opportunities (including venison), which may involve a range of negative environmental effects generally associated with economic development.

**Table 6.2.d: (cont.) Summary – Predicted effects on the environment of the ‘No New Strategy’ versus ‘New Strategy’ scenarios**

Note: The first score is the primary overall effect of the scenario on the environment and the second score is the secondary overall effect

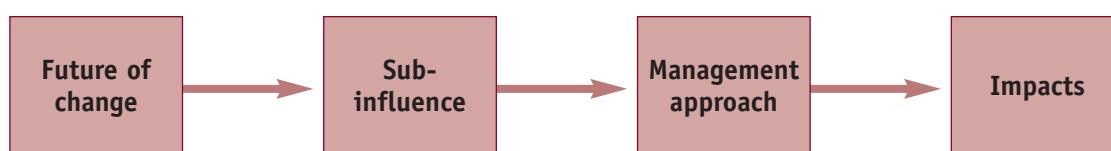
SEA Objectives	No New Strategy	New Strategy	Commentary
<b>To protect conserve, and where appropriate, enhance the historic environment and cultural heritage</b>	+/-	+/-	The ‘New Strategy’ and ‘No New Strategy’ scenario score similarly on protecting the historic environment. However, the New Strategy has an increased emphasis on establishing habitat networks, which may potentially have negative effects on archaeological sites if these are established near or on these sites (which could lead to increased grazing/trampling pressure from grazing animals including deer). Another focus of the new Strategy, increasing participation in outdoor activities, may have a minor negative effect on archaeological sites due to trampling, and general ‘wear and tear’, caused by increased frequency and volume of visitors to the countryside. The additive nature of the above types of effects repeated across different sites over Scotland may also be a significant additive effect at the regional or national scale.
<b>To protect, conserve and enhance the Scottish landscape</b>	?/-	+/-	The ‘New Strategy’ and ‘No New Strategy’ scenarios score similarly, i.e. mixed minor positive and negative effects. However, the New Strategy’s overall primary score is minor positive, rather than uncertain, due to its focus on ecosystem approaches to deer management and on protecting woodland establishment and upland peat habitats. The New Strategy is also likely to have some negative effects on the Scottish landscape due to the focus on promoting deer-related businesses and participation in outdoor deer-related activities, which may increase human presence in the countryside.

### 6.3 Identifying a suite of management approaches to respond to future change

A suite of alternative approaches to managing wild deer, which could enable the Strategy to respond to future changes and unexpected or unforeseen events, were identified through exploring future scenarios for the six factors of change listed in section 6.1 above. These were not assessed as part of this strategy-level SEA as it would be more appropriate to assess them at the subsequent action plan level, but their identification is important to inform the strategy's regular review process as to the possible options available for implementing prioritised actions and the development of subsequent, more specific, action plans.

The factors of change were also linked to groups of relevant Strategy Objectives and Actions to support the process of identification of relevant management approaches, related environmental issues, and monitoring of measures. This Deer Management Approaches Mapping Summary is presented in Appendix 13.

The "cause and effects" mapping approach, summarised in Figure 6.3.a below and illustrated in Appendix 14, was used to link up factors of change and sub-influences with management approaches and their potential effects. The resulting causal chains provide a means of understanding better how Strategy Actions might be implemented and have an impact on the ground. This aided the identification and assessment of the potential environmental effects of the strategy.



**Figure 6.3.a: Cause and effects mapping approach**

A list of the full range of management approaches identified, and how they relate to key factors for change, is provided below in Table 6.3a.

Part of the collaboration between the SEA process and the strategy development process was to consider the possible sub-influences of each factor of change and relate them to a range of management approaches. For example, in the future climate change could potentially lead to an alteration in species' distribution (see Appendix 14). If this were to happen, an appropriate management approach might be to:

- 1) Focus deer management at the ecosystem or landscape scale; and/or
- 2) To incorporate data on the effects of climate change on deer behaviour into deer management.

Management approach 2) could potentially mitigate against the negative effects of deer on areas of greatest vulnerability to climate change.

The three most significant factors of change, illustrated in Figure 6.1a, with respect to deer management (climate change, public perception and land-use change) and their likely sub-influences and corresponding management approaches and possible effects, are presented in Appendix 14 in the form of causal chains.

**Table 6.3.a: The full range of management approaches identified**

Relevant Factors for Change	No.	Wild Deer Management approaches
<b>Climate Change</b>	1	Alter location of feeding and shelter
	2	Focus deer management approach at the ecosystems/landscape scale.
	3	Incorporate data on the effects of climate change on deer behaviour/distribution into deer management
	4	Adopt carbon accounting to monitor and reduce deer sector's GHG emissions
	5	Adapt approach to deer-related tourism (e.g. promote ecotourism and carbon-neutral holidays)
	6	Adapt approach to deer-related sports
	7	Incorporate data on the effects of climate change on deer behaviour/distribution into deer management
<b>Public Perception</b>	8	Predator re-introduction (e.g. Norwegian wolves)
	9	Control deer via publicly acceptable means (e.g. contraceptive pills, darting)
	10	Adapt management approach to shooting and culling.
	11	Adapt awareness raising, education, training approaches
	12	Adapt input of deer management to public perception
<b>Land-use Change</b>	13	Adapt direct deer management practices
	14	Adopt a flexible approach to deer management with respect to the potential removal of sheep in some upland areas
	15	Adapt deer management to a possible multi-approach to forestry that potentially includes carbon storage
	16	Manage deer in urban and around urban areas, e.g. through culling and shooting
<b>Policy/Legislative/ Administrative Change</b>	17	Managing for grouse and open moorland
	18	Adapt approach to overall deer management and responsibility
<b>Tourism Markets</b>	19	Adopt a flexible approach to deer management with respect to trends in landholding
	20	Adapt approach to managing deer in ecotourism locations
	21	Adapt deer management as it relates to deer-specific leisure activities
	22	Adapt management of the production of deer-related products, e.g. venison
<b>Economic Circumstance/Global Economics</b>	23	Impacts of sport shooting and culling activities, and safety concerns linked to these, on public access to rural and protected areas
	24	Alter approach to minimising economic losses associated with deer management
	25	Alter approaches of marketing of deer products
	26	Alter approach to managing deer-related tourism activities
	27	Alter private deer management objectives

## 7 : assessment of the strategy’s proposed objectives and actions

This section describes the assessment process that has been undertaken to:

1. Test the compatibility of the elements of the Strategy’s Vision with the SEA objectives;
2. Test the compatibility of the Strategy Objectives with the SEA objectives; and
3. Evaluate and predict the potential effects of the Strategy’s Actions on the environment through assessment against the SEA objectives.

The methodological approach taken to the assessment as a whole is described in Section 4.

### 7.1 Testing the compatibility of the Strategy’s vision against the SEA objectives

The compatibility of the Strategy’s vision towards achieving the SEA objectives was tested using a matrix format with the 12 SEA headline objectives (on the left-hand side) and the elements of the Vision (across the top).

The Vision objectives were scored as either; 1) supportive of the SEA objectives, 2) potentially conflicting with the SEA objectives, 3) no identified conflicts with the SEA objectives, and 4) uncertain. A key showing the symbols used to describe the compatibility of the strategy’s vision elements is shown below at table 7.1a. Table 7.1b summarises the scores and commentary for the overall compatibility of the Strategy’s vision elements with the SEA objectives. The detailed assessment of the Strategy’s vision is found in Appendix 5.

**Table 7.1.a Key to compatibility symbols in tables 7.1 b and 7.2 a, b and c**

Compatibility	Symbol
Supportive of SEA objectives	✓
Identified potential conflicts with SEA objectives	X
No identified conflicts with SEA objectives	0
Uncertain whether will conflict with SEA objectives	?

#### Compatibility Test Outcome:

##### Strategy Vision

Overall, as the Strategy’s vision elements are overarching and high-level in nature, compatibility with the SEA objectives is largely uncertain. Many of the vision elements have the potential to conflict with or support the SEA objectives. The outcome depends largely on how the Strategy’s actions are implemented in lower-level plans.

Table 7.1.b: Summary of compatibility of the strategy's Vision with SEA objectives

SEA Objective	Compatibility of Strategy's Vision with SEA Objectives	X/?
To maintain and enhance biodiversity, flora, fauna and habitats	Potential conflicts or uncertain compatibility between most vision objectives and maintaining biodiversity. A minority are supportive.	X/?
To protect and enhance human health	Uncertain whether most vision objectives will conflict with enhancing human health. A few are supportive or potentially conflicting.	?/X/✓
To meet environmental standards required by the Water Framework Directive (WFD)	Potential conflicts or uncertain compatibility between most vision objectives and maintaining water quality. A minority are supportive.	X/?
To avoid, reduce and manage flood risk	Uncertain whether most vision objectives will conflict with avoiding flood risk. A minority of objectives are supportive or potentially conflicting.	?
To conserve soil resources and quality	Potential conflicts or uncertain compatibility between most vision objectives and conserving soil resources. A minority are supportive.	X/?
To improve air quality (with reference to the pollutants under the EC Air Quality Directives)	Uncertain whether most vision objectives will conflict with improving air quality. A minority of objectives are supportive or potentially conflicting.	?
To reduce contributions to climate change	Potential conflicts or uncertain compatibility between most vision objectives and reducing contributions to climate change. A minority of objectives are compatible.	X/?
Contribute to adaptation to climate change	Potential conflicts or uncertain compatibility between most vision objectives and contributing to climate change adaptation. A minority are supportive.	X/?
Promote sustainable management of natural and manmade resources.	Uncertain whether most vision objectives will conflict with promoting sustainable resource management. A minority are supportive or potentially conflicting.	?
To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	Potential conflicts or uncertain compatibility between most vision objectives and protecting the historic environment. A minority are supportive.	X/?
Protect, conserve and enhance the Scottish landscape	Potential conflicts or uncertain compatibility between most vision objectives and protecting the Scottish landscape. A minority are supportive.	X/?
Broad Comments	The degree of compatibility of the vision objectives with the SEA objectives is largely uncertain at this very high strategic level. Many of the vision objectives have the potential to conflict with or support the SEA objectives – the outcome depending largely on how implementation actions at lower levels, e.g. the strategy's actions.	

## 7.2 Testing the compatibility of Strategy Objectives with SEA objectives

The compatibility of the Strategy's Objectives and the SEA objectives was tested in the same way as for the Vision against the SEA objectives (see Section 7.1). The same scoring system was also used which is described in the key at table 7.1a.

Tables 7.2 a, b and c provide a summary of the overall compatibility of the Strategy objectives with the SEA objectives. These are presented as three separate matrices:

1. Compatibility of the Strategy's High Quality Environmental Objectives with SEA Objectives;
2. Compatibility of the Strategy's Sustainable Economic Development Objectives with SEA Objectives; and
3. Compatibility of the Strategy's Social Well-being Objectives with SEA Objectives.

The full detailed assessment of the Strategy Objectives can be found in Appendices 6-8.

### **Strategy Objectives:**

#### **Compatibility Test Outcomes**

##### **High Quality Environment Objectives:**

Most of the Strategy's high quality environment objectives are supportive of the SEA objectives. There are a few areas of conflict, largely as a result of potential knock-on (or secondary) effects on the historic environment and landscape.

##### **Sustainable Economic Development Objectives:**

The compatibility of the Strategy's sustainable economic development objectives with the SEA objectives is characterised by many areas of conflict combined with some areas of uncertainty. This is largely because increasing the economic opportunities associated with wild deer could potentially result in a range of negative environmental effects generally associated with economic development. There is only one instance where the Strategy's sustainable economic development objectives are supportive of the SEA objectives, and this is in the context of enhancing and protecting human health.

##### **Social Well-being Objectives:**

The compatibility of the Strategy's social well-being objectives with the SEA objectives is characterised by many areas of uncertainty combined with some areas of conflict. Only a few of the social well-being objectives are supportive of the SEA objectives. As might be expected, the social well-being objectives are particularly supportive of protecting and enhancing human health.

Table 7.2.a: Summary of compatibility of the Strategy's High Quality Environment Objectives with SEA Objectives

SEA Objective	Compatibility of Strategy's High Quality Environment Objectives with SEA Objectives
To maintain and enhance biodiversity, flora, fauna and habitats	Environment objectives mostly supportive of maintaining biodiversity. A minority are potentially incompatible. ✓
To protect and enhance human health	Environment objectives are equally supportive, neutral, and potentially conflicting with protecting human health. ✓/X/O
To meet environmental standards required by the Water Framework Directive (WFD)	Environment objectives are equally supportive, uncertain, and potentially conflicting with protecting water quality. ✓/X/?
To avoid, reduce and manage flood risk	Environment objectives mostly supportive of reducing flood risks. ✓/?
To conserve soil resources and quality	Environment objectives mostly supportive of conserving soil resources. A minority are potentially conflicting. ✓
To improve air quality (with reference to the pollutants under the EC Air Quality Directives)	Environment objectives mostly have no identified conflicts with maintaining local air quality. A minority are potentially supportive. ✓/O
To reduce contributions to climate change	Environment objectives mostly supportive of reducing contributions to climate change. ✓/?
Contribute to adaptation to climate change	Environment objectives mostly supportive of contributing to climate change adaptation. ✓
Promote sustainable management of natural and manmade resources	Environment objectives mostly supportive of sustainable resource use. A minority are potentially conflicting. ✓
To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	Environment objectives mostly supportive of protecting the historical environment. A minority are potentially conflicting. ✓
Protect, conserve and enhance the Scottish landscape	Environment objectives mostly supportive of protecting the Scottish landscape. A minority are potentially conflicting. ✓
Broad Comments	Most of the strategy's high quality environment objectives are supportive of the SEA objectives. There are a few areas of conflict, largely as a result of potential secondary effects on the historic environment and cultural heritage.

**Table 7.2.b: Summary of compatibility of the Strategy's Sustainable Economic Development Objectives with SEA Objectives**

SEA Objective	Compatibility of Strategy's Sustainable Economic Development Objectives with SEA Objectives
To maintain and enhance biodiversity, flora, fauna and habitats	Possible conflicts or uncertain compatibility between most economic objectives and maintaining biodiversity. X
To protect and enhance human health	Uncertain whether most economic objectives will conflict with enhancing human health. A few are supportive or potentially conflicting. ✓ / X / ?
To meet environmental standards required by the Water Framework Directive (WFD)	Possible conflicts or uncertain compatibility between most economic objectives and maintaining water quality. X
To avoid, reduce and manage flood risk	Uncertain whether most economic objectives will conflict with avoiding flood risk. ?
To conserve soil resources and quality	Possible conflicts between most economic objectives and conserving soil resources. X
To improve air quality (with reference to the pollutants under the EC Air Quality Directives)	Uncertain whether most economic objectives will conflict with maintaining local air quality. ?
To reduce contributions to climate change	Possible conflicts between most economic objectives and reducing contributions to climate change. X
Contribute to adaptation to climate change	Possible conflicts between most economic objectives and contributing to climate change adaptation. X
Promote sustainable management of natural and manmade resources.	Possible conflicts between most economic objectives and sustainable resource use. X
To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	Possible conflicts between most economic objectives and protecting the historic environment. X
Protect, conserve and enhance the Scottish landscape	Possible conflicts between most economic objectives and protecting the Scottish landscape. X
<b>Broad Comments</b>	The compatibility of the strategy's sustainable economic development objectives with the SEA objectives is characterised by many areas of conflict combined with some areas of uncertainty. This is largely due to the fact that increasing the economic opportunities associated with wild deer could have a range of environmental impacts generally associated with economic development. There is only one instance where the strategy's sustainable economic development objectives are supportive of the SEA objectives, and this is in the context of enhancing and protecting human health.

Table 7.2.c: Summary of compatibility of the Strategy's Social Well-being Objectives with SEA objectives

SEA Objective	Compatibility of Strategy's Social Well-being objectives with SEA Objectives	
To maintain and enhance biodiversity, flora, fauna and habitats	Potential conflicts between most social well-being objectives and maintaining biodiversity.	X
To protect and enhance human health	Social well-being objectives mostly supportive of enhancing human health. A minority are potentially conflicting.	✓
To meet environmental standards required by the Water Framework Directive (WFD)	Potential conflicts between most social well-being objectives and protecting water quality.	X
To avoid, reduce and manage flood risk	Uncertain whether most social well-being objectives will conflict with avoiding flood risk.	?
To conserve soil resources and quality	Potential conflicts and uncertain compatibility between most social well-being objectives and conserving soil resources.	X / ?
To improve air quality (with reference to the pollutants under the EC Air Quality Directives)	Uncertain whether most social well-being will conflict with improving air quality.	?
To reduce contributions to climate change	Potential conflicts and uncertain compatibility between most social well-being objectives and reducing contributions to climate change.	X / ?
Contribute to adaptation to climate change	Potential conflicts and uncertain compatibility between most social well-being objectives and contributing towards adapting to climate change.	X / ?
Promote sustainable management of natural and manmade resources	Uncertain whether most social well-being objectives will conflict with promoting sustainable resource management.	?
To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	Potential conflicts or uncertain compatibility between most social well-being objectives and protecting the historic environment.	X / ?
Protect, conserve and enhance the Scottish landscape	Potential conflicts or uncertain compatibility between most vision objectives and protecting the Scottish landscape.	X / ?
Broad Comments	The compatibility of the strategy's social well-being objectives with the SEA objectives is characterised by many areas of uncertainty combined with some areas of conflict. Only a few of the social well-being objectives are supportive of the SEA objectives. As might be expected, the social well-being objectives are particularly supportive of the SEA objective on protecting and enhancing human health.	

### 7.3 Prediction and evaluation of the Strategy's environmental effects

The prediction and evaluation of the Strategy's environmental effects is based on using the following significance criteria presented below in Table 7.3a. The most significant effects were those that may be potentially permanent and might affect large areas of Scotland.

The types of effects identified are described in Table 7.3b These include more complex groups of effects, and accumulations of similar effects (e.g. secondary, synergistic and cumulative effects). The effects of the strategy were identified and assessed at the Strategy Action level, which proved to be the most appropriate level at which potential effects could be understood. While compatibility of the Strategy was undertaken at the Strategy Objectives level, the Strategy Objectives themselves were rather too broad to assess against the SEA objectives, hence the assessment was undertaken on the Actions. The environmental baseline information, supported by the causal chains and an understanding of the possible management approaches, provided the means of identifying how the individual Strategy Actions might effect the individual SEA objectives.

The effects of the High Quality Environment, Sustainable Economic Development, Social Well-being and Cross-Cutting actions were evaluated and scored in four different matrices (see Appendices 9-12 for the detailed assessment and Appendices 16-19 for the summary assessment). The Actions (across the top) were evaluated against the SEA objectives (on the left-hand side).

An overall summary assessment of the predicted effects of the Strategy's Actions is presented below in Table 7.3c.

## **Strategy Actions:**

### **Assessment of Effects Outcomes:**

#### **High Quality Environment Actions**

Most of the Strategy's high quality environment actions are likely to have minor to major positive effects on most of the SEA objectives. However, there may be some minor negative effects on the historic environment due to increased visitor numbers to cultural heritage sites and associated trampling and general 'wear and tear'.

#### **Sustainable Economic Development Actions**

Most of the Strategy's sustainable economic development actions may have minor negative and uncertain effects on all the SEA objectives. This is largely because increasing the economic opportunities associated with wild deer may have a range of environmental impacts generally associated with economic development.

#### **Social Well-being Actions**

The Strategy's social well-being actions are likely to have mixed, neutral and uncertain effects on the SEA objectives. On the one hand, actions may have major positive effects on protecting and enhancing human health. On the other hand, actions may have minor negative effects, because enhancing social development may result in range of environmental impacts generally associated with infrastructure development.

#### **Cross-cutting Actions**

Many of the Strategy's cross-cutting actions are likely to have equally uncertain, neutral and positive effects on the SEA objectives. A minority may have minor negative effects on reducing contributions to climate change, protecting the historic environment and the Scottish landscape.

**Table 7.3.a: Significance Criteria used for scoring assessments**

Score	Description
<b>Major Positive (++)</b>	An action very likely to lead to a significant improvement, or a series of long-term improvements, leading to large-scale and permanent benefits to the SEA objective being appraised. A major positive effect is also likely to have cumulative and indirect beneficial effects and is also likely to have positive transboundary effects.
<b>Minor Positive (+)</b>	An action likely to lead to moderate improvement in both short and long-term, leading to large-scale temporary, or medium-scale permanent benefits to the objective being assessed. Even where beneficial effects are felt to be temporary, they should not be easily reversible in the long-term (to detriment of the SEA objective).
<b>Neutral (o)</b>	An action which is unlikely to have any beneficial or negative effects on the SEA objective being assessed in either the short, or long-term. Neutral scoring should only be used where it is very likely that the effect will be neither positive, nor negative. A neutral score is not the same as 'uncertain', where an appraiser is not sure if an effect is likely to be positive or negative, or 'mixed'. Where the appraiser feels that the effects are likely to be both positive and negative (see below for more detail).
<b>Minor Negative (-)</b>	An action likely to lead to moderate damage or loss in both short and long-term, leading to large-scale temporary, or medium scale permanent negative effect on the objective.  An action which may also have limited cumulative and indirect detrimental effects and/or limited degradation of conditions outside the specific strategy area. It is also likely that it will be possible to mitigate or reverse a minor negative effect through policy or project intervention.
<b>Major Negative (--)</b>	An action likely to lead to a significant or severe damage or loss, or series of long-term negative effects, leading to large-scale and permanent negative effects on the SEA objective being assessed.  An action which may also have significant cumulative and indirect detrimental effect and/or degrade conditions outside the specific action area, so will have negative transboundary effects.  An action which is likely to threaten environmental thresholds or capacities in areas already under threat.  The detrimental effects of an action which will be hard to reverse and are unlikely to be easily mitigated through policy or project intervention.  Any damage or detrimental effect in or to environmentally sensitive areas, issues or landscapes which are recognised and/or protected locally, regionally, nationally or internationally should be scored as a major negative.
<b>Mixed (+/-, +/- etc.)</b>	The effect is likely to be a combination of beneficial and detrimental effects, particularly where effects are considered on sub-issues, areas or criterion. For example an action may enhance the viability of certain protected species or habitats (such as native woodlands), but, through this, damage existing (non-native) habitats which may themselves be important. Such mixed effects will be hard to predict, but could be significant in the long-term, or when taken with other effects e.g. cumulative or synergistic.
<b>Uncertain (?)</b>	The effect of an action is not known, or is too unpredictable to assign a conclusive score. The appraiser is not sure of the effect. This may be the case where an action covers a range of issues, or where the manner in which the action is implemented will have a material impact on the effects it will have.

Source: Environmental Report of the Wales Rural Development Plan (2006).

Table 7.3.b: Definition of environmental effects

List of effects	Working Definition	Example
<b>Secondary</b> (May also be cumulative effects)	Secondary or knock-on effects resulting from a primary effect.	Facilitating the establishment of habitat networks may increase pressure on cultural heritage sites due to afforestation and grazing/trampling pressures.
<b>Indirect</b> (May also be cumulative effects)	Effects which are not a direct result of the plan/programme/strategy but occur as a result of a complex pathway, often at a distance removed from the source.	
<b>Spatial</b>	Some actions may have localised, regional, national or international effects.	
<b>Temporal</b>	Some actions may impact the environment in the short, medium or long-term.	
<b>Permanent/Temporary</b>	Some actions may have permanent or temporary effects.	
<b>Reversible/Irreversible</b>	Some actions may have reversible or irreversible effects.	
<b>Probable/Improbable</b>	The consequence of actions may be probable or improbable.	
<b>Cumulative</b>	Effects that result from the combined effects of single or multiple activities.	
<b>List of cumulative effects</b>	<b>Working Definition</b>	<b>Example</b>
<b>Indirect (cumulative)</b>	Effects which are not a direct result of the plan/programme/strategy, often occurring at a distance removed from the source.	Road building requires quarrying of aggregates.
<b>Secondary (cumulative)</b>	Secondary or knock-on effects resulting from a primary or direct effect.	Induced commercial and residential development associated with road construction.

<b>Time crowding (additive effect with temporal attribute)</b>	Frequent and repetitive effects on an environmental component or resource. Generally the time interval between effects is too small for the environmental component or resource to assimilate or recover from the effects.	Incremental noise from a number of separate developments.
<b>Space crowding (additive effect with spatial attribute)</b>	High spatial density of effects on an environmental system. The spatial proximity between effects is smaller than the distance required to remove or disperse the impact.	Traffic congestion resulting from increase in activities in a particular area or progressive fragmentation of wildlife habitats from a variety of sources.
<b>Fragmentation</b>	Change in landscape pattern.	Fragmentation of woodlands.
<b>Synergistic affects</b>	Effects resulting from multiple sources or other effects which together may be different in nature from the individual effects or which may have effects on receptors that may not be likely individually.	Combination of habitat fragmentation and noise disturbance on wildlife.

Sources: Adapted from Smit and Spaling (1995), Cooper (2003), ODPM SEA Guidance (2005) and Scottish Executive SEA Toolkit (2006)

Table 7.3.c: Summary – Prediction and Evaluation of the Effects of the Strategy (All Actions)

SEA Objectives	Environment Actions	Economic Actions	Social Actions	Cross-cutting Actions	Overall Effects	POTENTIAL EFFECTS OF THE STRATEGY
Biodiversity	++	-/+	-/+/?/0	?/0	+/-	<p><b>Negative:</b> The Strategy is likely to have minor negative local effects on biodiversity if there is an increase in the number of people participating in outdoor deer-related activities and causing trampling and disturbance. If infrastructure, such as car parks and access routes are built to accommodate new and expanding deer markets, this will also have a negative effect on habitats and species. The Strategy may also have minor negative effects on some woodland species, such as grouse, if deer fencing is used to manage effects of wild deer in woodland.</p> <p><b>Positive:</b> The Strategy is likely to have positive local effects on managing the negative impacts of grazing and trampling on Sites of Special Scientific Interest, promoting woodland regeneration and facilitating the establishment of habitat networks. Also, it is likely that increasing interest and awareness of deer will increase interest and awareness of wider biodiversity issues.</p>
Population and Human Health	0	-/+/?/0	++	?/0	+/-	<p><b>Negative:</b> The Strategy may have minor negative effects on human health if venison production is not subject to strict regulations and if measures to avoid sports shooting accidents are not incorporated into lower-level plans.</p> <p><b>Positive:</b> The Strategy is likely to have a positive effect on human health overall. For example, although the environment actions are likely to have no direct effects on human health, they will have some positive bearing on biodiversity, and therefore, the natural systems that human beings depend on for wellbeing and natural resources. Positive effects on human health are also likely as a result of increased participation in deer-related activities and the associated health-benefits of exercise. Lastly, promotion of inclusive decision-making and consideration of wider social issues with regards to deer management decisions is likely to have secondary positive effects on raising awareness of Lyme disease and deer collision accidents.</p>

Water Quality	+	?	?/+	?/0	0/+	<p><b>Negative:</b> Overall, the potential effects of the Strategy on water quality are minor. However, new and expanding deer markets may have negative effects on local water quality due to the construction of infrastructure, etc.</p> <p><b>Positive:</b> Overall, the potential effects of the Strategy on water quality are minor. However, some minor positive effects are likely. For example, active management of the negative effects of grazing/trampling in Site of Special Scientific Interest riparian habitats is likely to have positive local effects on riparian water quality by increasing the buffering capacity of bankside vegetation and reducing erosion. Also, promoting long-term monitoring sites will ensure that if deer related activities have a negative effects on water quality, the effects will be flagged up and details passed on to relevant parties to ensure that water quality is maintained or enhanced.</p>
Flood Risk	+	?/0/+	0/?	?/0	0	<p><b>Negative:</b> Overall, the potential effects of the Strategy on reducing flood risk are minor with few to no minor negative effects identified.</p> <p><b>Positive:</b> Overall, the potential effects of the Strategy on reducing flood risk are minor. However, there are potential minor positive effects on reducing the local flood risk of 'flashy' rivers, through minimising losses to woodland, and managing the grazing impacts in Sites of Special Scientific Interest, particularly in riparian habitats.</p>
Soil Resources	++	?	?/0/+	?/0	+/-	<p><b>Negative:</b> Overall the Strategy is likely to have few minor negative effects on soil resources. However, trampling and compaction due to new/expanding deer markets and increases in visitor numbers to the countryside may lead to localized minor soil erosion issues. The additive nature of the above types of effects repeated across different sites over Scotland may also become a significant cumulative effect at the regional or national scale.</p> <p><b>Positive:</b> Overall the Strategy is likely to have some minor positive effects on soil resources. For example, actively managing the negative impacts of trampling and grazing in Sites of Special Scientific Interest may potentially reduce localised soil erosion/compaction issues. The Strategy is also likely to have positive effects on carbon rich soils if carbon-rich soils are managed in order to reduce carbon loss.</p>

Table 7.3.c (cont): Summary – Prediction and Evaluation of the Effects of the Strategy (All Actions)

SEA Objectives	Environment Actions	Economic Actions	Social Actions	Cross-cutting Actions	Overall Effects	POTENTIAL EFFECTS OF THE STRATEGY
Air Quality	0	0/?	0/?	?/0	0	<p><b>Negative:</b> The Strategy is likely to have few potential negative effects on local air quality. However, if travel in the context of new and expanding deer markets increases, this may have a negative effect on local air quality during peak season.</p> <p><b>Positive:</b> The Strategy is likely to have few potential positive effects on local air quality.</p>
Reducing contributions to climate change	?	-/+/?	-/+/?/0	?/0/+/-	?/-	<p><b>Negative:</b> The Strategy is likely to have negative effects on reducing our contributions to climate change if there is an increase in travel to certain sites as a result of deer or outdoor related recreation, which would result in an increase in greenhouse gas emissions. Also, if carbon-rich soils lose carbon, this could potentially have a significant negative effects on Scotland's national carbon emission levels.</p> <p><b>Positive:</b> The Strategy is likely to have some positive effects on reducing national contributions to climate change via conservation or enhancement of Scotland's carbon sinks, particularly woodlands and carbon-rich soils such as peat.</p>
Adaptation to climate change	+	-/+/?	-/+/?	?/0/+	+/?	<p><b>Negative:</b> The Strategy is likely to have minor direct negative direct effects on climate change adaptation if roadside verges are cut back to promote road safety related to deer related road accidents (roadside verges act as habitat networks, allowing species to expand their ranges).</p> <p><b>Positive:</b> The Strategy is likely to have positive effects on species' and habitats' ability to adapt to climate change through establishing habitat networks, and protecting woodland and upland peat habitats. Additionally, monitoring sites to inform management practice and researching optimal grazing regimes is likely to have a positive effect on our ability to adapt deer management practices to the effects of climate change.</p>

Sustainable Resource Management	+	-/+/?	?	?/0/+	?/+	<p><b>Negative:</b> The Strategy may have some negative effects on sustainable resource use if promoting new and expanding existing deer markets leads to less unsustainable management of deer resources (e.g. large scale deer farms for the production of Venison).</p> <p><b>Positive:</b> The Strategy is likely to have positive effects on sustainable resources use. For example, by promoting the integration of deer management action with other land-uses, which is likely to have a positive effect on agricultural resources, woodland and soil resources. Also, promoting widespread understanding of sustainable deer management practice is likely to have positive effects on sustainable management of deer as well as other resources.</p>
Cultural Heritage	-/+	-/+/?	-/+/?/0	?/+	+/-	<p><b>Negative:</b> The Strategy is likely to have negative effects on the integrity of cultural heritage sites if, for example, habitat networks are established near or on these sites. This could lead to increased grazing or trampling pressure from grazing animals including deer. Potential negative effects on archaeological sites may occur due to trampling, and general 'wear and tear', caused by increased frequency and volume of visitors to the countryside. The additive nature of the above types of effects repeated across different sites over Scotland may also be a significant cumulative effect at the regional or national scale.</p> <p><b>Positive:</b> The Strategy is likely to have positive effects on cultural heritage sites, particularly archaeological sites, due to active management of the potential negative effects of grazing and trampling impacts of deer in Sites of Special Scientific Interest, which may be in close proximity to cultural heritage sites.</p>
Scottish Landscape	++	-/+/?	-/+/?/0	?/+	?/-	<p><b>Negative:</b> The Strategy is likely to have negative effect on the Scottish landscape due to increased travel for recreation purposes, as well as the development of infrastructure such as car parks, access routes etc. The additive nature of these effects on different sites at regional and national scales across Scotland may be significant.</p> <p><b>Positive:</b> The Strategy is likely to have positive effects at the local level on Sites of Special Scientific Interest, woodland, moorland and habitat networks which, combined, are likely to have a positive additive effect on landscape character.</p>

## 8 : mitigation and enhancement measures

This section proposes measures to prevent, reduce or offset potential adverse environmental effects resulting from the implementation of the Strategy.

Several approaches to mitigation and enhancement are possible at the strategic level, these include proposals for:

- Changes to the Strategy;
- Measures which may need to be put in place in lower level plans and programs;
- Measures which may need to be put in place through other means (e.g. EIA and Appropriate Assessment); and
- Compensation measures (e.g. replacement habitats).

### 8.1 Proposed mitigation and enhancement measures for the potential effects of the Strategy

Table 8.1a below presents a summary of proposed mitigation and enhancement measures organised by the nine SEA topics. Mitigation is focused only where significant adverse effects have been identified (see table 7.3a for details relating to the significance criteria used to judge the significance of effects). Where possible, areas where the Strategy could help enhance positive effects are also identified.

#### Key negative effects:

The key potential negative effects are mainly related to the Strategy's Objectives and Actions to promote economic and social development, such as deer-related businesses and opportunities to view wild deer, which could result in a range of minor negative environmental effects generally associated with infrastructure development depending on how they are implemented. Also, the Strategy's focus on promoting deer-related outdoor activities may lead to an increase in visitors to the countryside (and associated trampling, compaction and other human presence effects), which may have a minor negative effect on cultural heritage sites, soil quality, and the Scottish landscape. The additive nature of the above types of effects repeated across different sites over Scotland may also become a significant cumulative effect at the regional or national scale.

Proposed mitigation measures for the above potential negative effects include:

- Detailing, in lower-level plans, how people participating in activities can reduce their negative effects on cultural heritage sites, soil quality and the Scottish landscape.
- Advising how deer-related businesses, such as the venison production and stalking, may ensure that the potential environmental effects of any economic/infrastructure development associated with them can be minimised.

**Table 8.1.a: Mitigation and enhancement measures**

SEA Objectives	Proposed Mitigation Measures	Proposed Enhancement Measures	Relevant Actions
<b>Biodiversity, Flora and Fauna</b>	<p>1) At action plan level, compensate for any loss of road-side verges cut back to minimise deer collisions by connecting/creating nearby wildlife corridors.</p>	<p>2) Review the level of integration of biodiversity and ecosystem objectives and information into deer management planning.</p> <p>3) Evaluate how the following information from proposed research is used in reviewing the Strategy and lower-level action plans:</p> <ul style="list-style-type: none"> <li>a) long-term monitoring sites;</li> <li>b) deer managers and processors;</li> <li>c) research on optimal grazing regimes; and</li> <li>d) research on refined methods for measuring the effects of wild deer on habitats.</li> </ul>	<p>7.1.2 b), 7.2.1 a), 7.2.1 c), 7.2.2 a), 7.2.2 b), 7.3.2 b), 7.4.3 a), 7.4.3 b), 7.4.3 d), 7.4.3 e)</p>
<b>Population and Human Health</b>	<p>1) Detail at the action plan level how people participating in deer-related activities can minimise their negative effects on the environment and how sport shooting accidents will be avoided.</p> <p>2) Include a wide range of topics when promoting understanding of sustainable deer management in practice.</p>	<p>3) Ensure that the information provided to local communities and tourism businesses on wild deer and their management incorporates consideration of environmental and socio-economic issues.</p>	<p>7.2.1 a), 7.2.1 b), 7.2.1 c), 7.3.1 a), 7.3.1 b), 7.4.1 a), 7.4.4 d)</p>
<b>Water Quality</b>	<b>No significant negative environmental effects identified.</b>		
<b>Soil Resources</b>	<p>1) Detail at the action plan level how people participating in deer-related activities can effects on soils, e.g. trampling and compaction</p>	<p>None identified.</p>	<p>7.2.1 a), 7.2.1 c),</p>
<b>Air Quality</b>	<b>No significant negative environmental effects identified.</b>		

Table 8.1a (cont.): Mitigation and enhancement measures

SEA Objectives	Proposed Mitigation Measures	Proposed Enhancement Measures	Relevant Actions
<b>Climate Change</b>	<ol style="list-style-type: none"> <li>1) Aim to reduce the cumulative effects of deer related transport and transport use for deer management, e.g. aircraft/ATVs.</li> <li>2) Raise awareness, during summer months when diseases transmitted by ticks, such as Lyme disease, are most prevalent.</li> </ol>	<ol style="list-style-type: none"> <li>3) Evaluate how climate change research is incorporated in planning in the short to long-term, and promote research into how diseases that can pass from deer to humans will respond to climate change.</li> <li>4) Attempt to foster links between the Management Strategy for Wild Deer and other related plans, programmes and strategies (such as those for the management of woodland/peat bog etc.), to further enhance the effectiveness of deer management's contribution to climate change.</li> </ol>	<p>7.1.3 c), 7.3.1 a), 7.3.2 c), 7.2.1 a), 7.2.1 c)</p>
<b>Material Assets</b>	<ol style="list-style-type: none"> <li>1) At the action plan level, detail how the potential negative effects of infrastructure linked to expanding deer markets will be mitigated.</li> <li>2) Review and agree venison production guidelines as relates to food safety and deer farms.</li> </ol>	<p>None identified.</p>	<p>7.2.1 a), 7.2.1 b), 7.2.1 c), 7.3.1 a)</p>
<b>Cultural Heritage</b>	<ol style="list-style-type: none"> <li>1) Detail at the action plan level how people participating in deer-related activities can minimise negative effects on the historic environment.</li> <li>2) Consider cultural heritage sites, including Scheduled Ancient Monuments, in planning the location of habitat networks at the action plan level.</li> </ol>	<ol style="list-style-type: none"> <li>3) In seeking effective management solutions and wider benefits, include consideration of historic and geological designations during the planning process.</li> <li>4) Monitor the degree of integration of historic environment issues into lower level management plans.</li> <li>5) Consider compiling/collecting information on the nature of effects of deer management on archaeological sites and their settings.</li> </ol>	<p>7.1.1 c), 7.1.3 b), 7.2.1 a), 7.2.1 b), 7.2.1 c), 7.3.1 a)</p>
<b>Landscape</b>	<ol style="list-style-type: none"> <li>1) Detail at the action plan level how people participating in deer-related activities will be managed to minimise their impact on the landscape as a whole.</li> </ol>	<ol style="list-style-type: none"> <li>2) In seeking effective management solutions and wider benefits, include consideration of landscape designations during the planning process.</li> </ol>	<p>7.1.1 c), 7.2.1 a), 7.2.1 c), 7.3.1 a)</p>

The anticipated effectiveness of the above measures in achieving mitigation and enhancement will depend on the level of cross-agency collaboration. The agencies that implement the above measures should note that there may be knock-on effects from some of these measures on other aspects of the environment, given the inter-relationships between environmental factors (see Section 5.14 on inter-relationships between environmental factors).

## 9 : monitoring proposals

This section details the proposed monitoring framework for the Strategy's significant negative environmental effects. It is important to monitor the potential negative environmental effects of implementing the Strategy so that adaptations can be made to the strategy itself and to the above mitigation measures if required.

Monitoring the Strategy will comprise:

1. **Monitoring the implementation of the Strategy** – the extent to which the objectives and actions of the Strategy are achieved; and
2. **Monitoring the potential effects of implementing the Strategy** – the effect that implementing the Strategy has on the environment, the economy and society.

### 9.1 Cross-agency approach to monitoring the potential effects of the strategy

DCS will co-ordinate cross-agency implementation of the strategy and its monitoring. Monitoring of the delivery of the Strategy will focus on the objectives and actions set out on a five-year basis, with reference to the Strategy's Vision. It should report on what has been achieved over that five year period, which will inform review of the Strategy. The final Strategy will outline, in greater detail, the proposed monitoring framework.

Monitoring the effects of implementing the Strategy on the environment will require a focus on a set of indicators reflecting the broader environmental context and the potential negative environmental effects of the Strategy's actions. Where possible, the set of indicators should include existing national monitoring frameworks and data sets in order to avoid duplication of effort.

A proposed monitoring framework has been developed to be incorporated into the overall framework for monitoring the effects of implementation of the Strategy. The monitoring framework consists of a number of proposed indicators which could be used at a number of different levels and scales:

- **Indicators relevant to establishing the wider operational context and the environmental baseline;**  
–e.g. indicators include: land use change; and status of species and designated sites.
- **Indicators relevant at the local/site level; and**  
–e.g. indicators include: loss of soil carbon content; species, habitats or designated sites adversely affected by deer or deer management activities; and the costs associated with deer management.
- **Indicators requiring further research and/or data analysis.**  
–e.g. indicators include: locations and condition of landscape designations, cost to forestry and agricultural sectors of effects of deer.

The proposed framework for monitoring of potential environmental effects is detailed below in Table 9.1, organised by SEA topic and listing the relevant SEA objectives and corresponding proposed indicators. There is always the possibility that unforeseen negative effects will arise; which are not covered in the monitoring framework presented below. This possibility is discussed in Section 6 in the context of future factors of change, and a suite of alternative management approaches has been identified for the Strategy to respond to future change.

**Table 9.1.a: Proposed monitoring framework**

SEA Topics	SEA Objectives	Indicators Relevant to Monitoring Identified Effects
<b>Biodiversity, Habitats, Fauna and Flora</b>	<b>To maintain and enhance biodiversity, flora, fauna and habitats</b>	<b>Indicators relevant to establishing the wider context</b> Status of UKBAP species and habitats Area and condition of protected areas (SSSIs, SPAs, SACs, Ramsar, NNRs, LNRs) Trends in natural and semi-natural habitats
		<b>Indicators relevant to monitoring significant negative effects</b> Species adversely affected by deer management activities (aside from fencing) Species adversely affected by deer fencing Percentage red deer/sika deer hybrids Number of designated sites where a reduction in grazing pressure is needed (both deer as well as other herbivores) Total area of roadside verges lost per annum
		<b>Indicators relevant at the local/site level</b> Distribution and number of wild deer by species Grazing pressure hot spots Annual deer cull rates
		<b>Indicators requiring further research and/or data analysis</b> Percentage/area of habitats (by type) suffering from adverse effects of deer Birdstrike (number/species/year) due to deer management fences
<b>Population and Human Health</b>	<b>To protect and enhance human health</b>	<b>Indicators relevant to establishing the wider context</b> Proportion of Scottish adults taking part in open-air recreation once a week Area of countryside openly accessible to the public
		<b>Indicators relevant to monitoring significant negative effects</b> Number of injuries/deaths associated with deer-vehicle collisions Number of accidental injuries/deaths associated with sport shooting and culling
		<b>Indicators relevant at the local/site level</b> Status of venison quality
		<b>Indicators requiring further research and/or data analysis</b> Prevalence of Lyme disease Number of deer management fences affecting public access Number of people participating in deer-related activities

**Table 9.1a (cont.): Proposed monitoring framework**

SEA Topics	SEA Objectives	Indicators Relevant to Monitoring Identified Effects
Water	<b>No significant negative environmental effects.</b>	
Soil	<b>To conserve soil resources and quality</b>	<b>Indicators relevant to establishing the wider context</b> Percentage soil at risk of erosion in Scotland
		<b>Indicators relevant to monitoring significant Soil negative effects</b> Soil carbon content (% loss per year)
Climate Factors	<b>Reduce contributions to climate change</b>  <b>Contribute to adaptation to climate change</b>	<b>Indicators relevant to establishing the wider context</b> GHG emissions by sector Status of carbon sinks in Scotland (particularly moorlands)
		<b>Indicators relevant to monitoring significant negative effects</b> Total GHG emissions from deer sector Status of species and habitats likely to be affected by climate change
		<b>Indicators requiring further research and/or data analysis Climate Factors</b> Carbon soil loss (% per year) caused by the negative effects of deer
Material Assets	<b>Promote sustainable management of natural and manmade resources</b>	<b>Indicators relevant to establishing the wider context</b> Total income from tourism in Scotland
		<b>Indicators relevant to monitoring significant negative effects</b> Total costs associated with deer management in Scotland Total employment in the deer sector Total income from deer-related tourism Deer associated tourism numbers (per year) Waste associated with deer culling activities
		<b>Indicators requiring further research and/or data analysis</b> Cost to forestry sector of the negative effects of deer Cost to agricultural sector of the negative effects of deer

**Table 9.1a (cont.): Proposed monitoring framework**

SEA Topics	SEA Objectives	Indicators Relevant to Monitoring Identified Effects
Cultural Heritage	To protect conserve, and where appropriate, enhance the historic environment and cultural heritage	<b>Indicators relevant to establishing the wider context</b> Number and location of Scheduled Ancient Monuments Number and location of historic parks and gardens
		<b>Indicators relevant to monitoring significant negative effects</b> Designated sites adversely affected by grazing (including by deer and other grazing animals)
		<b>Indicators requiring further research and/or data analysis</b> Number and location of archaeological sites Number and location of historic battlefields Visitor numbers to cultural heritage sites
Landscape	Protect, conserve and enhance the Scottish landscape	<b>Indicators relevant to establishing the wider context</b> Land-use change (ha)
		<b>Indicators requiring further research and/or data analysis</b> Location and condition of landscape designations, NSAs, NPs, and Greenbelts Extent and status of sporting estates

## 10 : conclusions and next steps

The publication of this Environmental Report marks the beginning of a three-month consultation period. Following consultation on the Environmental Report (and this Non-technical summary) and the draft Strategy, all responses will be collated and analysed by the Scottish Government. The results of the analysis will be taken into account in the finalisation of the Strategy. In line with SEA legislative requirements, in the event that any significant changes are made to the Strategy, an assessment of its potential effect on the environment of the changes will be undertaken and summarised in an addendum to the Environmental Report.

A post-adoption statement on how the Environmental Report, itself and the responses to the SEA and draft Strategy, have been taken into account will also be published with the final Strategy, along with a list of the consultees and a summary of the consultation responses. All documents will be circulated to Consultation Authorities and will be made available to the public on the DCS website ([www.dcs.gov.uk](http://www.dcs.gov.uk)). The post-adoption statement will also summarise the ways in which this Environmental Report and consultation feedback have influenced the finalisation of the Strategy for Wild Deer in Scotland.

### 10.1 Relationship with other assessments and relevant plans, programmes and strategies

As the Strategy will be referred to, and implemented by, a number of lower level operational plans at appropriate organisational or local scales, the SEA of the Strategy seeks to provide a framework for informing subsequent SEAs or development of more detailed monitoring frameworks. The main key issues for implementation highlighted in the Environmental Report, along with recommendations for monitoring significant potential detrimental effects identified through this SEA, should be broadly applicable to more detailed, site specific, considerations in supporting operational level plans.

Lower-level plans, programmes and projects taking on board the objectives of the Strategy should consider the extent to which they need to undertake Appropriate Assessment of potential effects on European designated sites (required under Article 6 of the Habitat's Directive, for plans, programmes and strategies affecting protected areas under the Birds and Habitats Directive i.e. Special Protection Areas and Special Areas of Conservation) or Environmental Impact Assessment (EIA) (in relation to individual projects), especially where they may involve development or new infrastructure. This SEA highlights some of the cumulative effects possible at the regional/national scale, which would probably not be picked up by separate EIAs.

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# Annex 7 : assessment of potential socio- economic effects of the strategy

## 1. Introduction

An assessment of the socio-economic effects of the strategy is not a statutory requirement like the strategic environmental assessment. However, given the focus of the strategy on sustainable deer management, DCS has chosen to undertake an assessment of likely socio-economic effects as well as assessing likely environmental effects.

The purpose of this assessment is to identify, at a strategic level, where the strategy may have significant negative or positive effects on social well-being and the economy. The strategy itself is not able to resolve all the potential negative effects, but by highlighting them at this stage, it allows implementation to take account of them and where possible to take mitigating action.

Some of the method and reporting are parallel to the Environmental Report (Annex 6). In particular, the background and discussion of future scenarios and alternatives discussed in sections 2 and 6 of the Environmental Report considered issues common to assessing both the environmental and socio-economic effects. This discussion is not repeated here. Instead this Annex provides information similar to section 7 of the Environmental Report, highlighting the results of the assessments of compatibility and potential effects. More detailed results of the assessment are available in the appendices to this Annex.

## 2. Socio-economic objectives

In the same way as SEA, the socio-economic assessment objectives are assessment tools that provide a framework against which the potential effects of the strategy can be assessed. The socio-economic assessment objectives are derived from the national policy context on social well-being and economic development.

The socio-economic assessment objectives against which the strategy is assessed are listed in Table 2.1:

**Table 2.1**

<b>Socio-Economic Assessment Objective</b>	<b>Sub-Objectives/Criteria</b>
<b>To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas</b>	Increase opportunities to derive sustainable economic value from sustainable use of natural resources Develop quality and marketing of local products Promote and increase diversity and quality of employment opportunities for all in rural areas Promote training to establish and develop skills that contribute to business development Develop tourism potential of natural resources and environment
<b>To contribute to sustaining vibrant rural communities</b>	Encourage participation of rural communities in management and planning of the use of natural resources Contribute to the capacity building and strengthening of rural communities Maintain and promote the cultural identity of rural communities
<b>To contribute to a strong and just society</b>	Reduce and prevent crime (related to land management) Contribute to social development and social inclusion – close the opportunity gap Engage more people in voluntary activity in rural Scotland and encourage active citizenship
<b>To improve awareness and understanding of natural resource management</b>	Increase public awareness of land management issues and practices Encourage effective communication between different interests
<b>To protect and enhance human health</b>	Promote healthy living and lifestyles Decrease noise pollution Reduce human injury and death rates Increase opportunities for outdoor recreation and exercise Increase access to good quality, locally-sourced food

### 3. Testing the compatibility of the Strategy's vision against the Socio-economic objectives

The compatibility of the Strategy's vision with the socio-economic assessment objectives was tested using a matrix format.

The Vision was scored as either; 1) supportive of the SEA objectives, 2) potentially conflicting with the SEA objectives, 3) no identified conflicts with the SEA objectives, and 4) uncertain.

See Table 3.1 for a summary of the assessment. The detailed assessment of the Strategy's vision is in Technical Appendix A.

#### **Strategy Vision – Test Outcome:**

Overall, as the Strategy's vision elements are overarching and high-level in nature, compatibility with the socio-economic assessment objectives is uncertain. Some of the vision elements have the potential to conflict with or support the SEA objectives. The outcome depends largely on how the vision is implemented. Some are also more likely to have positive effects.

**Table 3.1: Summary of compatibility of the strategy's Vision with Socio-Economic Assessment Objectives**

Socio-Economic Assessment Objective	Compatibility of Strategy's Vision Elements with Socio-Economic Assessment Objectives
To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas	Potential conflicts or supportive between vision outcomes and contributing to rural businesses and employment depending on implementation. <b>X/✓</b>
To contribute to sustaining vibrant rural communities	Minimal conflicts or supportive between vision outcomes and contributing to vibrant rural communities depending on implementation. <b>✓/0</b>
To contribute to a strong and just society	Primarily no potential for conflict of vision outcomes on contributing to a strong and just society. <b>0</b>
To improve awareness and understanding of natural resource management	Broadly supportive impacts of vision outcomes on improving awareness and understanding of natural resource management. <b>✓/0</b>
To protect and enhance human health	Primarily no potential for conflict of vision outcomes on human health. Reducing safety risks and promoting wild venison is supportive. <b>0</b>
Broad Comments	Overall the compatibility assessment identifies both potential conflicts between the vision outcomes and objectives and potential for supportive effects. This is largely because at this strategic level the effects could vary depending on how they are implemented, through for example the strategy's objectives and actions.

#### **4. Testing the compatibility of Strategy objectives with socio-economic assessment objectives**

The compatibility of the Strategy objectives and socio-economic assessment objectives was tested in the same format as the Vision (see Section 3). The same scoring system was also used.

See tables 4.1–4.3 for a summary of the overall compatibility of the Strategy objectives with the socio-economic assessment objectives. The detailed assessment of the Strategy objectives is in Technical Appendix B.

##### **High Quality Environment Objectives – Test Outcome:**

There is potential for conflict identified in two of the strategy's objectives for a high quality environment, as the effects on rural businesses and communities could conflict, depending on how these objectives are implemented. Otherwise the compatibility is considered to be neutral.

##### **Sustainable Economic Development Objectives – Test Outcome:**

The strategy's objectives for sustainable economic development are considered to be supportive of the objectives for rural businesses and communities in particular. No potential conflicts between these objectives are identified.

##### **Social Well-being Objectives – Test Outcome:**

The strategy's objectives for social well-being are considered to have aspects that are supportive, for example promotion of venison and human health, but also potential for conflict with rural businesses and outdoor access, depending on how they are implemented.

**Table 4.1: Summary of compatibility of the Strategy's Objectives for a High Quality Environment with Socio-economic Assessment Objectives**

Socio-Economic Assessment Objective	Compatibility of Strategy's Environmental objectives with Socio-Economic Assessment Objectives
To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas	Environmental objectives potentially conflict with contributing to rural businesses <b>X</b>
To contribute to sustaining vibrant rural communities	Environmental objectives potentially conflict with contributing to rural communities <b>X</b>
To contribute to a strong and just society	Environmental objectives have no identified conflicts with contributing to a just and strong society <b>0</b>
To improve awareness and understanding of natural resource management	Environmental objectives have no identified conflicts with raising awareness of natural resource management <b>0</b>
To protect and enhance human health	Environmental objectives have no identified conflicts with protecting and enhancing human health <b>0</b>
Broad Comments	There is potential for the strategy's objectives for a high quality environment to conflict with the socio-economic assessment objectives at this strategic level. The likelihood of conflict depends on how the objectives are implemented in practice.

**Table 4.2: Summary of compatibility of the Strategy's Sustainable Economic Development Objectives with Socio-economic Assessment Objectives**

Socio-Economic Assessment Objective	Compatibility of Strategy's Sustainable Economic Development objectives with Socio-Economic Assessment Objectives	
To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas	Sustainable Economic development objectives are supportive of contributing to rural businesses and employment	✓
To contribute to sustaining vibrant rural communities	Sustainable Economic development objectives are supportive of contributing to rural communities	✓
To contribute to a strong and just society	Sustainable Economic development objectives are not in conflict with contributing to a strong and just society	0
To improve awareness and understanding of natural resource management	Sustainable Economic development objectives are not in conflict with raising awareness of natural resource management	0
To protect and enhance human health	Sustainable Economic development objectives are not in conflict with protecting and enhancing human health	0
Broad Comments	Two of the strategy's sustainable economic development objectives are supportive of the socio-economic assessment objectives and no potential conflicts are identified.	

**Table 4.3: Summary of compatibility of the Strategy's Social Well-being Actions with Socio-economic Assessment Objectives**

Socio-Economic Assessment Objective	Compatibility of Strategy's Social Well-being Objectives with Socio-Economic Assessment Objectives
To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas	Potential conflict between social wellbeing objectives and contributing to rural businesses. Promoting venison is supportive <b>X/✓</b>
To contribute to sustaining vibrant rural communities	Overall social wellbeing objectives are supportive of contributing to rural communities with no potential for conflict <b>✓/0</b>
To contribute to a strong and just society	Overall there is no potential for conflict between social wellbeing objectives and contributing to a strong and just society. Increasing participation and contributing to a safer environment are supportive <b>✓/0</b>
To improve awareness and understanding of natural resource management	There is no potential for conflict between social wellbeing objectives and raising awareness of natural resource management <b>0</b>
To protect and enhance human health	Overall social wellbeing objectives are supportive of protecting and enhancing human health although there is potential for conflict with increasing participation <b>X/✓</b>
<b>Broad Comments</b>	There are likely to be mixed effects of the strategy's social wellbeing objectives on the socio-economic assessment objectives. There is some potential conflict identified, but more broadly there are aspects of many objectives which are supportive.

## 5. Prediction and evaluation of the Strategy’s socio-economic effects

The prediction and evaluation of the Strategy’s socio-economic effects is based on the following significance criteria presented below in Table 5.1. The most significant effects were those that may be potentially permanent and might affect large areas of Scotland.

**Table 5.1: Significance criteria**

Score	Description
<b>Major Positive (++)</b>	An action very likely to lead to a significant improvement, or a series of long-term improvements, leading to large-scale and permanent benefits to the objective being appraised. A major positive effect is also likely to have cumulative and indirect beneficial effects.
<b>Minor Positive (+)</b>	An action likely to lead to moderate improvement in both short and long-term, leading to large scale temporary, or medium scale permanent benefits to the objective being assessed. Even where beneficial effects are felt to be temporary, they should not be easily reversible in the long-term.
<b>Neutral (o)</b>	An action which is unlikely to have any beneficial or negative effects on the objective being assessed in either the short, or long-term. Neutral scoring should only be used where it is very likely that the effect will be neither positive, nor negative. A neutral score is not the same as ‘uncertain’, where an appraiser is not sure if an effect is likely to be positive or negative, or ‘mixed’.
<b>Minor Negative (-)</b>	An action likely to lead to moderate damage or loss to the objective in both short and long-term, leading to large-scale temporary, or medium scale permanent negative effect on the objective. An action which may also have limited cumulative and indirect detrimental effects and / or limited degradation of conditions outside the specific strategy area. It is also likely that it will be possible to mitigate or reverse a minor negative effect through policy or project intervention.
<b>Major Negative (--)</b>	A scheme/measure likely to lead to a significant or severe damage or loss, or series of long-term negative effects, leading to large-scale and permanent negative effects on the objective being assessed. The detrimental effects of a scheme/measure which will be hard to reverse and are unlikely to be easily mitigated through policy or project intervention
<b>Mixed (++/-, +/-/- etc.)</b>	The effect is likely to be a combination of beneficial and detrimental effects, particularly where effects are considered on sub-issues, areas or criterion. Such mixed effects will be hard to predict, but could be significant in the long-term, or when taken with other effects e.g. cumulative or synergistic.
<b>Uncertain (?)</b>	The effect of an action is not known, or is too unpredictable to assign a conclusive score. The appraiser is not sure of the effect. This may be the case where an action covers a range of issues, or where the manner in which the action is implemented will have a material impact on the effects it will have.

The types of effects identified are described in Table 5.2 These include more complex groups of effects, and accumulations of similar effects (e.g. secondary, synergistic and cumulative effects).

**Table 5.2: Definition of types of effects**

List of effects	Working Definition
<b>Secondary</b> (May also be cumulative effects)	Secondary effects resulting from a primary activity.
<b>Indirect</b> (May also be cumulative effects)	Effects which are not a direct result of the plan/programme/strategy but occur as a result of a complex pathway, often a distance removed from the source.
<b>Spatial</b>	Some actions may have localised, regional, national or international effects.
<b>Temporal</b>	Some actions may impact in the short, medium or long-term.
<b>Permanent/Temporary</b>	Some actions may have permanent or temporary effects.
<b>Reversible Irreversible</b>	Some actions may have reversible or irreversible effects.
<b>Probable/Improbable</b>	The consequence of actions may be probable or improbable.
<b>Cumulative</b> (See table below for types of cumulative effects)	Effects that result from the combined effects of single or multiple activities.
List of cumulative effects	Working Definition
<b>Indirect (cumulative)</b>	Effects which are not a direct result of the plan programme/strategy, often occurring at a distance removed from the source.
<b>Secondary (cumulative)</b>	Secondary knock-on effects resulting from a primary activity or direct effect.
<b>Time crowding (additive effect with temporal attribute)</b>	Frequent and repetitive effects on a socio-economic component or resource. Generally the time interval between effects is too small for the socio-economic component or resource to assimilate or recover from the effects.
<b>Space crowding (additive effect with spatial attribute)</b>	High spatial density of effects. The spatial proximity between effects is smaller than the distance required to remove or disperse the impact.
<b>Synergistic effects</b>	Effects resulting from multiple sources or effects which may be different in nature from the individual effects or affect receptors that the individual receptors may not be likely to affect.

The socio-economic effects of the Environmental, Sustainable Economic Development, Social Well-being and Cross-Cutting actions were evaluated and scored in four different matrices (see Technical Appendix C for the detailed assessment).

A summary evaluation of the predicted socio-economic effects of the Strategy's actions is presented below in tables 5.3-5.6.

**Environmental Actions – Test Outcome:**

The effects of actions on rural businesses, communities and employment are uncertain, as there is potential for interactions that could be either positive or negative depending on how they are carried out. Other actions in this section are unlikely to have much effect on the socio-economic assessment objectives with the exception of some actions that contribute to improving awareness and understanding.

**Sustainable Economic Development Actions – Test Outcome:**

Most of these actions are likely to have a positive or strongly positive effect on the socio-economic assessment objectives due to explicit support for economic and community development. There is some uncertainty over potential for increased health and safety risks associated with increased activity involving more people.

**Social Well-being Actions Test Outcome:**

The actions are likely to have predominantly positive effects, or in the case of human health and safety, strongly positive due to actions specifically addressing this.

**Cross-Cutting Actions – Test Outcome:**

Overall, the cross-cutting actions are likely to have a strongly positive effect on improving awareness and understanding of natural resource management due to explicit actions to achieve this. They are also likely to have a positive effect on other socio-economic assessment objectives, although having little effect on a strong and just society.

**Table 5.3 Summary of effects of actions for a High Quality Environment**

Socio-Economic Assessment Objective	Commentary on effects of actions for a High Quality Environment	Overall Potential Effects
<b>To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas</b>	The effects of the actions are considered largely uncertain. There is potential for negative effects to rural businesses, skills and employment but the nature of the effects depends on how these actions are implemented and integrated with other actions in the strategy.	?
<b>To contribute to sustaining vibrant rural communities</b>	The effects of the actions are considered largely uncertain. There is potential for negative effects to rural communities but the nature of the effects depends on how these actions are implemented and integrated with other actions in the strategy.	?
<b>To contribute to a strong and just society</b>	The actions are not considered to have any effect on this assessment objective.	0
<b>To improve awareness and understanding of natural resource management</b>	There are potential positive effects resulting from integrating biodiversity objectives into management planning and research in to the effects of climate change. Otherwise, the actions are not considered to affect this assessment objective.	0/+
<b>To protect and enhance human health</b>	The actions are not considered to have any effect on this assessment objective.	0

*Note: Summaries reflect the prevailing scores. This method of scoring is intended to be descriptive, not definitive, in terms of effects of options.*

**Table 5.4: Summary of effects of actions for sustainable economic development**

Socio-Economic Assessment Objective	Commentary on effects of actions for Sustainable Economic Development	Overall Potential Effects
To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas	The actions are likely to have a positive or strongly positive effect on this assessment objective.	++
To contribute to sustaining vibrant rural communities	All the actions are likely to have a positive effect on this assessment objective.	+
To contribute to a strong and just society	Increasing the number of people participating in deer-related activities and seeking to capture fairly the economic gain among those involved in management is likely to have a positive effect on this assessment objective. Other actions are not considered to affect this objective.	+ / 0
To improve awareness and understanding of natural resource management	The actions are not considered to affect this assessment objective, although there is uncertainty over whether increasing participation in deer related activity may affect it.	0
To protect and enhance human health	The actions are not considered to affect this assessment objective, although there is uncertainty over whether increasing participation in deer related activity increase risks.	0 / ?

*Note: Summaries reflect the prevailing scores. This method of scoring is intended to be descriptive, not definitive, in terms of effects of options.*

**Table 5.5: Summary of effects of actions for Social Well-being**

Socio-Economic Assessment Objective	Commentary on effects of actions for Social Well-being	Overall Potential Effects
<b>To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas</b>	Providing information to communities and businesses and demonstrating high standards of competence are likely to have a positive effect on rural businesses and skills. While promoting locations to see deer is likely to have a positive effect on the economy, there are uncertainties over effects it may have on individual businesses depending on how it is carried out.	+
<b>To contribute to sustaining vibrant rural communities</b>	Providing information to communities is likely to have a positive effect on this assessment objective, although there is some uncertainty over the effects other actions may have which will depend on how they are implemented.	+/?
<b>To contribute to a strong and just society</b>	The actions are unlikely to have much effect on this assessment objective, but there is potential for some indirect positive effects of demonstrating high standards of competence and providing information to communities.	0/?
<b>To improve awareness and understanding of natural resource management</b>	Providing information to communities and tourism businesses is likely to have a positive effect on this assessment objective. Promoting locations to see deer may also have a positive effect, depending on how it is carried out.	+/0
<b>To protect and enhance human health</b>	Actions to reduce the risks of road traffic accidents involving deer and to minimise human disease risks are likely to have a strongly positive effect on this assessment objective.	++

*Note: Summaries reflect the prevailing scores. This method of scoring is intended to be descriptive, not definitive, in terms of effects of options.*

**Table 5.6: Summary of effects of cross-cutting actions**

Socio-Economic Assessment Objective	Commentary on effects of cross-cutting actions	Overall Potential Effects
<p><b>To contribute to competitive and enterprising rural businesses and the availability of skills, training and employment in rural areas</b></p>	<p>The effects of the sustainable deer management actions are potentially positive although uncertain at this strategic level. The nature of effects will depend on how these actions are implemented in local circumstances. The actions for welfare, research and awareness an understanding are unlikely to affect this assessment objective.</p>	<p>?/0</p>
<p><b>To contribute to sustaining vibrant rural communities</b></p>	<p>The effects of the sustainable deer management actions are potentially positive although uncertain at this strategic level. The nature of effects will depend on how these actions are implemented in local circumstances. The actions for welfare, research and awareness an understanding are unlikely to affect this assessment objective.</p>	<p>?/0</p>
<p><b>To contribute to a strong and just society</b></p>	<p>The action to involve all relevant interests in deer management planning and potentially to promote widespread understanding of sustainable deer management are likely to have a positive effect on this assessment objective. The actions for welfare, research and awareness an understanding are unlikely to affect this assessment objective.</p>	<p>+/0</p>
<p><b>To improve awareness and understanding of natural resource management</b></p>	<p>Most actions are likely to have a positive effect on this assessment objective. In particular, actions to explicitly improve awareness and understanding are likely to have a strongly positive effect.</p>	<p>+/+++</p>
<p><b>To protect and enhance human health</b></p>	<p>The cross-cutting actions are unlikely to affect this assessment objective.</p>	<p>0</p>

*Note: Summaries reflect the prevailing scores. This method of scoring is intended to be descriptive, not definitive, in terms of effects of options.*

### **Proposed mitigation and enhancement measures**

This section considers actions that could be taken to prevent, reduce or offset potential adverse socio-economic effects resulting from the implementation of the Strategy.

There are some key areas that emerge that require more detailed consideration when objectives and actions in the strategy are being implemented.

The assessment highlights uncertainty over the effects of the strategy's actions for a high quality environment on socio-economic objectives for rural businesses and employment and rural communities. These actions could result in either positive or negative effects, depending on how they are implemented.

The assessment also highlights potential tensions within objectives to increase economic development opportunities. For example, there may be a tension between increasing the revenue derived from broader tourism activities and other land management objectives including sport tourism that could affect rural businesses. Again, these effects of this are likely to be determined by local circumstances and these interactions should therefore be considered at in implementation.

The assessment also highlights opportunities to maximise the benefits of the strategy by ensuring that the effects of implementation are properly monitored and that this information is used to inform ongoing implementation and management decisions.

Action to address these issues can be taken:

- a) by adjusting the strategy as it finalised to build in mitigation where possible; and
- b) by highlighting issues that need to be considered at the implementation stage or enacted through subsidiary plans and actions.