Scotland's Forestry Strategy 2019 - 29

Strategic Environmental Assessment
Environmental Report

September 2018

Report prepared by:

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List of Abbreviations

AQMA	Air Quality Management Area
CA	Consultation Authority/ies
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CCC	Committee on Climate Change
CO2	Carbon Dioxide
EC	European Commission
EIA	Environmental Impact Assessment
EU	European Union
EU ETS	European Union Emissions Trading Scheme
FSC	Forest Stewardship Council
GDL	Gardens and Designed Landscapes
HES	Historic Environment Scotland
LRRS	The Land Rights and Responsibilities Statement
LUS	The Land Use Strategy
$MtCO_2e$	Metric tons carbon dioxide equivalent
NPF3	National Planning Framework 3
PEFC	Programme for the Endorsement of Forest Certification
PM_{10}	Particulate matter of diameter less than or equal to 10 micrometres
PPS	Plans, programmes, and strategies
RBMP	River Basin Management Plan
RPP	Low Carbon Scotland: Meeting our Emissions Reduction Targets 2010 – 2022: Report on Proposals and Policies
RPP2	Low Carbon Scotland: Meeting our Emissions Reduction Targets 2013 – 2027: The Second Report on Proposals and Policies
SAC	Special Area(s) of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SFM	Sustainable Forest Management
SFS	Scottish Forestry Strategy
SG	Scottish Government
SNH	Scottish Natural Heritage
SPA	Special Protection Area(s)
SPP	Scottish Planning Policy
SRDP	Scottish Rural Development Programme
SSSI	Site(s) of Special Scientific Interest
The 2005 Act	The Environmental Assessment (Scotland) Act 2005
UK	United Kingdom
UKWAS	UK Woodland Assurance Scheme
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change

Non-Technical Summary

Background and Strategic Environmental Assessment (SEA)

This non-technical summary of the Environmental Report sets out the findings of the Strategic Environmental Assessment of the draft Forestry Strategy 2019-29.

The development of proposals for the Forestry Strategy is considered to fall under Section 5(3) of the Environmental Assessment (Scotland) Act 2005 ('the 2005 Act'). The 2005 Act requires that public plans, programmes, and strategies (PPS) are assessed for their potential effects on the environment.

Strategic Environmental Assessment (SEA) enables environmental considerations to be built into the Forestry Strategy, so that potentially significant environmental impacts are identified at an early stage. It also gives members of the public and other interested organisations an opportunity to comment on the draft Strategy and its environmental effects. The SEA also considers how identified adverse impacts can be avoided or minimised ('mitigation'). A monitoring plan is also developed to identify any unexpected adverse environmental effects, should these arise. The conclusions from each stage of the assessment are summarised in the sections below.

Comments from the Consultation Authorities (SNH, SEPA and Historic Environment Scotland) have been taken into account, in terms of how the assessment has been undertaken, what it covers, and the level of detail required in this Environmental Report.

Forestry Strategy

The draft Strategy has been prepared in line with the Forestry and Land Management (Scotland) Act 2018. The Act requires Scottish Ministers to prepare a new Forestry Strategy.

The 50-year vision which underpins the Forestry Strategy is: Scotland will have more forests and woodlands, which will be sustainably managed as a much greater part of the nation's natural capital, providing a resilient, high quality and growing resource that supports a strong economy, a thriving environment, and healthy and empowered communities. To support the vision, the draft Forestry Strategy identifies three primary objectives to deliver over the next 10 years:

- Increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth;
- Protect and enhance Scotland's valuable natural assets, ensuring that our forests and woodlands are resilient and contribute to a healthy and high quality environment;
- Use Scotland's forest and woodland resources to empower more people to improve their health, well-being and life chances.

The Strategy also identifies the main priorities likely to have the greatest impact on achieving the draft objectives over the next 10 years. This assessment has focused on these 10 priorities. The Strategy sets out the range of policies the Government has to support delivery. Detailed actions for implementing the Strategy are not specified, as further information will be provided in the associated Monitoring and Reporting Framework that will be published later in 2019. Where applicable, the more detailed plans and programmes associated with the implementation of the Strategy will themselves be environmentally assessed under the 2005 Act. Actions carried out to support the delivery of the Strategy's vision and objectives must adhere to the principles of sustainable forest management where relevant, and this has been taken into account in assessing the environmental effects of the draft Strategy.

Relevant related policies and environmental objectives

The SEA process has taken into account existing wider environmental objectives. These include established policies and strategies relating to the protection and enhancement of the natural and built environment.

A Forestry Strategy was first published in 2000, and established a framework of guiding principles for developing forestry in Scotland. A second edition further developed this framework and was published in 2006.

In 2011, the Scottish Government concluded that the existing Strategy remained 'fit for purpose' and a revision was not required.

In 2016, 'Getting the best from our land: A Land Use Strategy for Scotland 2016-2021' (LUS2) was published, setting out a framework for a more unified and strategic approach to land use within Scotland[1]. Its fundamental principles of "long-term, well integrated, sustainable land use delivering multiple benefits for all society" have been consolidated across management strategies for a range of sectors, including forestry. The Land Use Strategy noted the key role of forestry as a multi-purpose land use and identified a review of the existing Forestry Strategy as a priority for delivering its Vision, Objectives and Principles, and ensuring it aligned with relevant Scottish Government policies and priorities.

Another key environmental policy is the Scottish Government's Climate Change Plan 2018 (CCP). The plan establishes the government's annual woodland creation target (currently 10,000 hectares per year, rising to 15,000 hectares by 2025) and through this its longer-term ambition to increase Scotland's forest and woodland cover to 21% of the total land area by 2032.

The commitment to produce a new Forestry Strategy was carried through to the Forestry and Land Management (Scotland) Act 2018, which was passed by the Scottish Parliament on 20th March 2018 and received Royal Assent on 1st May 2018. The Act is a fundamental step in the process to complete the devolution of forestry, providing the legislative framework to enable delivery of a package of other policy initiatives to increase forestry's contribution to the Scottish Ministers' economic, environmental, and social ambitions. The Act makes provision for what must be included in the new Forestry Strategy and how it must be prepared (including consultation requirements), reviewed and reported on.

The LUS2 and CCP were both themselves subject to SEA before they were finalised.

Environmental characteristics related to forestry

Hundreds of years of human intervention and the impacts of climate change have reduced in extent and altered Scotland's forests, so that no woodlands in Scotland can be regarded as truly natural. However, examples of semi-natural woodlands have endured to the present day and these are a conservation priority due to the biodiversity that they support.

By the early 20th century, forest cover in Scotland, as well as the rest of the UK, was reduced to 5%. This was recognised as a strategic problem and the UK Forestry Act of 1919 was introduced to address this issue. Given the strategic need to grow more timber, the forests and woodlands planted in Scotland during the subsequent 100 years were primarily, but not exclusively designed to optimise timber production, using species from around the world suited to Scotland's growing climate. Today, Scotland's woodland and forests cover 19% of the country's total land area.

[1] Scottish Government (2011) Getting The Best From Our Land: A Land Use Strategy for Scotland 2016 - 2021 [online] Available at: http://www.gov.scot/Topics/Environment/Countryside/Landusestrategy (accessed 11/12/2017)

Native woodlands, which account for 22% of Scotland's, forests and woodlands, are those in which over 50% of the canopy is comprised of species that are native to the region and are commonly classified according to four main types: native pinewoods, upland birchwoods, upland oakwoods, and lowland mixed deciduous woodland. Many of these are protected through designations such as Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SACs).

Scotland's oldest woodlands have existed in some capacity for at least 250 years. These are referred to as ancient woodlands and are recognised for their particularly high levels of biodiversity. Many also possess considerable heritage value. Much like native woodlands, ancient woodlands are often fragmented and so are vulnerable to further degradation. Other woodland varieties include aspen woodland, urban and amenity woodland, and individual and small groups of trees. Despite their relatively limited spatial extent, these types of woodland perform many vital functions such as providing green space in urban environments and serving as a "living record" of historic land uses.

Scotland's woodlands face pressures to their health and productivity. Land use change due to urban expansion and other activities can result in habitat fragmentation and a loss of biodiversity[2]. Pests[3] and diseases[4] can cause physical damage or tree death while invasive non-native species can alter species composition and disrupt woodland ecosystems[5], including native woodlands[6]. Unmanaged woodland recreation could also introduce problems such as trampling, the disturbance of wildlife, and the introduction of pathogens[7].

Climate change has the potential to affect forests and woodlands in a number of ways. For example, it may promote the propagation of pests, diseases, and non-native species; the climate-induced spread of *Phytophthora ramorum*, which threatens larch, and *Dothistroma* needle blight, which targets coniferous trees including native pinewood, have been identified as particular concerns[8]. A changing climate is also likely to alter species distribution, potentially favouring certain species over others. For example, Sitka spruce is less resistant to drought and so may be affected by drier summer conditions in the future[9]. Climate change could also increase the incidence and severity of wildfires[10] and extreme weather events such as wind storms[11], all of which could damage woodlands.

[2] Forest Research (undated) Habitat fragmentation – Practical considerations [online] Available at: https://www.forestresearch.gov.uk/tools-and-resources/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/practical-considerations-and-challenges-to-greenspace/habitat-fragmentation-practical-considerations/ (accessed 18/09/2018)

[3] Forestry Commission (undated) Top tree pests [online] Available at: https://www.forestry.gov.uk/forestry/BEEH-9XLGZT (accessed 18/09/2018)

[4] Forestry Commission (undated) Top tree diseases [online] Available at: https://www.forestry.gov.uk/forestry/BEEH-9XLGXD (accessed 18/09/2018)

[5] Forestry Commission Scotland (2018) Non-native species and forestry [online] Available at: https://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/biodiversity/non-native-species (accessed 18/09/2018)

[6] ClimateXChange (undated) NB37 Proportion of native woodland affected by invasive non-native plant species [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/indicators/nb37-proportion-of-native-woodland-affected-by-invasive-non-native-plant-species/ (accessed 18/09/2018)

[7] Forestry Research (2012) Recreational use of forests and disturbance of wildlife [online] Available at: https://www.forestry.gov.uk/pdf/FCRP020.pdf/$file/FCRP020.pdf (accessed 18/09/2018)

[8] ClimateXChange (undated) Pests, diseases and invasive species (forestry) [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/natural-environment/pests-diseases-and-invasive-species-forestry/ (accessed 18/09/2018)

[9] ClimateXChange (undated) Suitability and productivity (forestry) [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/natural-environment/suitability-and-productivity-forestry/ (accessed 18/09/2018)

[10] ClimateXChange (undated) NB42; NF17/18 Number and area of reported wildfires in forests and key habitats [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/indicators/nb42-nf1718-number-and-area-of-reported-wildfires-in-forests-and-key-habitats/ (accessed 18/09/2018)

[11] ClimateXChange (undated) NF16 Proportion of coniferous woodland on the National Forest Estate with a high/medium-high risk of wind throw [online] Available at: https://www.climatexchange.org.uk/research/indicators-

Herbivores and deer in particular are regarded as one of the primary drivers of native woodland deterioration. For example, deer can compromise a woodland's ability to regenerate due to browsing and changes in the habitat structure[12]. Conversely, woodland expansion may result in effects on deer populations such as a reduction in open ground and displacement. Effective deer management can be a challenge due to practical, economic, and environmental considerations.

The evolution of the environment without the Forestry Strategy

Sustainable forest management is central to the Forestry Strategy and forms the basis for all relevant decisions taken by the current forestry regulator, Forestry Commission Scotland. The Strategy outlines how, through compliance with the UK Forestry Standard (UKFS), the principles of SFM will be implemented in practice.

The Forestry and Land Management (Scotland) Act 2018 requires that Scottish Ministers have due regard to the Forestry Strategy when exercising their forestry functions, such as managing the existing National Forest Estate, and providing financial support to the sector. The Strategy will therefore play a critical role in shaping how Scottish Government resources are utilised: Without it, there would be no such guidance. Similarly, forestry is a long term consideration and without the implementation of the Forestry Strategy it is unlikely that as much priority and as full a commitment would be given to, amongst other matters, existing forestry, climate change and biodiversity objectives and targets.

If the Forestry Strategy were not to be implemented, the opportunity to address the issue of sympathetic integration of forestry with other land-uses would also be missed.

Reasonable Alternatives

The 2005 Act requires that the Scottish Government also identify, describe and evaluate the likely significant effects on the environment of any 'reasonable alternatives' to the draft Strategy, taking into account its objectives and geographical scope.

Consideration of alternatives was undertaken in discussion with a wide range of stakeholders. The extent to which alternatives could be considered 'reasonable' was influenced by the existing legislative and policy context that the document must reference and align with, and the current Government commitments and targets such as the woodland creation target in the Climate Change Plan 2018.

In developing the draft Strategy, the Scottish Government drew on evidence on the potential key issues facing forestry over the next 10 years (the period of the Strategy), and the requirements of the Act, as a basis for developing the 50-year vision and the 10-year economic, social and environmental objectives and priorities. These key issues, and the scope of the Strategy's vision, objectives and priorities for action were discussed with a broad range of Scottish Government policy teams, representatives from the SEA Consultation Authorities, and external stakeholders. Engagement with external stakeholders was mainly through the Forestry Strategy Reference Group (which includes representatives from the Confederation of Forest Industries, the National Farmers Union for Scotland, Scottish Environment Link, Scottish Natural Heritage, the Scottish Environment Protection Agency, the Community Woodland Association and academia). This informed the development of the core content of the

and-trends/indicators/nf16-proportion-of-coniferous-woodland-on-the-national-forest-estate-with-a-highmedium-high-risk-of-wind-throw/ (accessed 18/09/2018)

[12] SNH (2016) Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016 [online] Available at: https://www.nature.scot/sites/default/files/Publication%202016%20-%20Deer%20Management%20in%20Scotland%20Report%20to%20the%20Scottish%20Government%20from%20Scottish%20Natural%20Heritage%202016.pdf (accessed 18/09/2018)

Strategy. Having taken this approach to the Strategy it was considered that there are no other reasonable alternatives.

Summary of the likely significant effects of the Forestry Strategy

The Environmental Report has found that the draft Forestry Strategy will have an overall positive impact across all aspects of the environment, with a few potential mixed effects anticipated across individual priorities with respect to the historic environment, landscape, biodiversity, air and soil. Table NTS1 shows the effect of each Strategy priority in relation to environmental objectives.

Population and human health is expected to experience positive effects over all of the priorities within the Forestry Strategy, for example, in terms of supporting recreation and improving urban landscapes. It is assumed that any potential negative effects such as the nuisance factors of dust and noise will be managed appropriately through the implementation of the principles of SFM under the UKFS.

Biodiversity, flora and fauna is anticipated to experience an overall positive effect from woodland creation, sustainable management of pests and diseases and broader promotion of the SFM principles. However, in terms of individual priorities 8 (Increase the use of Scotland's forests and woodlands to improve health and well-being, help people better understand forestry, and support wider Scottish Government activity to help children become confident and resilient members of Scottish society) and 9 (Enhance forestry's contribution to sustaining viable rural communities and increase the positive impact of forest and woodland management on other businesses, especially in agriculture and tourism), a mixed effect is predicted. An increase in visitor numbers to woodlands could potentially give rise to some negative effects effect on habitats and species, and as a result, careful management of these priorities will be required.

It is predicted that the effect on Soil will be positive overall, although, in relation to Priority 8, a potential for mixed effects on soil from increased visitor numbers was also noted.

There are predicted to be major positive effects on Air from Priorities 1 (Promote and develop the concept of sustainable forest management as it applies to Scotland) and 7. (Increase the natural capital value of Scotland's woodlands and forests by improving the condition of native woodlands and forests and increasing the positive impacts of forest and woodland management on biodiversity, air, water, soils, flood management, landscapes and the historic environment, mitigating the risks of negative impacts). For the majority of the remaining priorities there is expected to be neutral or positive effects on air for example, indirectly via the expansion of woodlands and introduction of low carbon heat systems. However, mixed effects are likely for Priority 2 (sustainable expansion of woodlands) and 6 (Increase efficiency, productivity and the value generated from forest products and services and help develop forestry's role in creating a low-carbon economy by supporting technological innovation, improving the capacity and skills of those working in the sector and developing existing and new markets), as, for example, forestry expansion will clearly have positive effects on air, whilst increased forestry operations could generate some local level emissions.

The water environment is expected to benefit overall from several priorities in terms of improvements expected for water quality and flood alleviation, and particularly positive effects are expected from three priorities including Priority 7 (on increasing natural capital value of native woodlands and forests) as well as Priorities 1 (on promoting SFM) and 2 (on sustainable expansion) as a result of the positive effects of sustainable afforestation.

For climatic factors the effects are predicted to be positive overall. There would be major positive effects over most of the priorities as a result of the increased contribution to carbon sequestration from afforestation and replacement

of carbon intensive construction materials, as well as from the planting of species resilient to pests and diseases. More minor positive effects are expected from two remaining priorities (8 and 9) in terms of the positive effects on the environment gained from greater public awareness.

In terms of material assets positive effects are expected overall. There will be a major positive impact across seven of the ten priorities including priority 3 (wood fibre) and 9 (rural communities) as opportunities will increase for more people and businesses to benefit from forestry and also with the potential for the reduction in waste that goes to landfill. More minor positive effects are anticipated over priorities 8 and 10 from, for example, awareness of the environment and lessening flood events and consequent prevention of damage to infrastructure.

On balance the topics of landscape and historic environment are predicted to experience positive effects when woodlands and forest are well planned and designed, and for landscape, in the case of Priority 10 (urban forestry), in the provision of healthy living spaces. However, across four priorities more mixed effects may be experienced and would require planning and management to avoid potential local level conflict with other land uses and negative impacts from increased visitor numbers. Woodland and forest design should also be used to avoid or manage changes to the recognised character of cultural and historic landscapes.

Some uncertainties have been noted during the course of the assessment, as the Strategy is high-level in nature and does not, therefore, fully define the more specific actions that will be undertaken to implement it. Underlying this assessment is the assumption that all actions coming out of the Forestry Strategy will be in line with SFM principles, supported through compliance, where relevant, with the UKFS.

Table NTS1: Summary Assessment Table

Topics: / Strategy Priorities:	Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
Priority 1	++	++	++	++	++	++	++	++	++
Priority 2	++	++	++	+/-	++	++	++	+/-	+/-
Priority 3	+	0	0	+	0	++	++	+/-	+/-
Priority 4	+	++	+	0	+	++	++	+	+
Priority 5	++	0	0	0	0	0	0	0	0
Priority 6	++	+	+	+/-	+	++	++	0	0
Priority 7	++	++	++	++	++	++	++	++	++
Priority 8	++	+/-	+/-	+	+	+	+	+/-	+/-
Priority 9	++	+/-	+	+	+	+	++	+/-	+/-
Priority 10	++	+	+	+	+	++	+	+	++

Mitigation measures

The 2005 Act requires information to be provided on measures that should be taken to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the draft Strategy. These measures are often referred to as mitigation measures.

The assessment has concluded that the draft Strategy, with its core purpose of promoting and supporting sustainable forest management, will have overall positive environmental effects. There is potential for mixed effects in relation to some aspects of the environment: historic environment, landscape, and to a lesser extent, biodiversity, air quality and soil. Mitigation measures have been identified against the relevant priorities and include the provision of recreation and visitor plans where soil and biodiversity may be affected by trampling from additional visitor numbers, the use of Environmental Management Plans to manage on site air quality as a result of forestry operations, and the use of local forest and woodland strategies to minimise adverse impacts on landscape and historic environment.

Monitoring arrangements

A wide range of existing programmes are in place at the national and local level to report on environmental status and assess performance against established environmental indicators. Since the publication of the second Forestry Strategy, indicators have been developed which enable progress against the objectives to be assessed[13]. These include indicators such as: area of native woodland, area of coniferous woodland and area of broadleaved woodland where timber production is a significant management objective.

Following the publication of this (the third) Forestry Strategy 2019-29, the Scottish Government will publish a detailed monitoring and reporting framework. A draft suite of progress indicators has been included within the draft Forestry Strategy to enable the Government to track progress against this Strategy's 10-year objectives and monitor forestry's contribution towards the Scottish Government's National Outcomes. The Government has asked for suggestions on monitoring via the consultation, to assist the process of finalising its approach to monitoring the implementation of the Strategy monitoring plan.

Therefore, it is anticipated that the outcomes from the SEA and the potential effects of the draft Strategy, can be monitored as an integral part of the monitoring of the Forestry Strategy itself. Further information on monitoring proposals will be set out in the Post Adoption SEA Statement.

How to comment on the Environmental Report

Comments on the Environmental Report are welcome by 29th November 2018. Details of how to comment can be found at https://consult.gov.scot/forestry/scotlands-forestry-strategy-2019-29/. Responses can be submitted by email, with the Respondent Information Form (Appendix E) to forestry.strategy@forestry.gsi.gov.uk or by mail to the Forestry Strategy Team, Silvan House 231 Corstorphine Road Edinburgh EH12 7AT.

[13] SPICe Information Centre (2016) Scottish Forestry [online] Available at: http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_16-93_Scottish_Forestry.pdf (accessed 18/07/2018)

1 Introduction

1.1 Purpose of this Environmental Report

1.1.1 This report has been prepared in accordance with the Environmental Assessment (Scotland) Act 2005 (referred to hereafter as "the 2005 Act"). The 2005 Act requires all qualifying policies, plans, programmes and strategies (referred to generally as plans) to undergo SEA. This provides a systematic process for identifying, reporting and mitigating the environmental impacts of the proposed plan[14]. The SEA process comprises the following distinct stages:

- **Screening** – determining whether a plan requires a SEA;
- **Scoping** – establishing significant environmental topics, setting the environmental baseline, developing appropriate SEA objectives and consulting via a Scoping Report;
- **Environmental Assessment** – assessing the potential environmental impact of the Strategy and consulting on both the draft plan and Environmental Report;
- **Post Adoption Statement** – how the assessment and the consultation results have been considered within the finalised plan. Developing the monitoring strategy to assess progress once adopted;
- **Monitoring** – monitoring significant environmental effects and taking appropriate remedial action for any unforeseen significant environmental effects.

1.1.2 The Forestry Strategy is a qualifying plan in accordance with Section 5(3) of the 2005 act, and therefore a SEA is required. Consequently screening was not undertaken. This report sets out the findings of the SEA undertaken on the draft Scottish Forestry Strategy 2019-29.

1.2 SEA activities to date

1.2.1 At each stage of the SEA process, there is a requirement to consult the statutory Consultation Authorities. These are Historic Environment Scotland (HES), Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA). The present SEA process began with the production of a Scoping Report submitted via the SEA Gateway to the Consultation Authorities in June 2018. This set out initial information on the likelihood of significant effects arising from the Forestry Strategy. It also provided an initial view on the proposed evidence base that would be used to inform the assessment. The representations of the Consultation Authorities to the Scoping stage have helped to inform the content of the draft Strategy and the SEA process. The SEA has subsequently progressed over the course of August and September 2018 in parallel with the preparation of the Forestry Strategy itself.

1.2.2 The key facts relating to the Scottish Forestry Strategy are set out in **Table 1.**

[14] Please note that throughout this report the terms effects and impacts are used interchangeably

Table 1: Key Facts in relation to the Forestry Strategy

Responsible Authority	The Responsible Authority for undertaking the SEA is the Forestry Commission Scotland (on behalf of the Scottish Government).
Title of Plan, Programme or Strategy (PPS)	The Scottish Forestry Strategy 2019-29
Reason for the PPS	The Strategy will set out the Government's long-term vision and priorities for forestry and provide the sector with the confidence needed to make the long-term investments and commitments required to ensure forestry in Scotland delivers increased environmental, economic and social benefits.
Subject of the PPS	The Strategy relates to the use, expansion, management and protection of all woodlands and forests in Scotland.
Period covered by PPS	The Forestry Strategy covers the period up to 2029.
Frequency of updates	Scottish Ministers are required to keep the Strategy under review and must revise it after 9 years, if not before.
Area covered by the PPS	The Forestry Strategy will cover Scotland as a whole.
Purpose and/or objectives of the PPS	The vision for the Forestry Strategy on Scotland is: ***Scotland will have more forests and woodlands, which will be sustainably managed as a much greater part of the nation's natural capital, providing a resilient, high quality and growing resource that supports a strong economy, a thriving environment, and healthy and empowered communities.*** This is supported by three objectives to focus action: • Increase the contribution of forests and woodlands to Scotland's **sustainable and inclusive economic growth**. • Protect and enhance Scotland's valuable natural assets, ensuring that our forests and woodlands are resilient and contribute to a **healthy and high quality environment**. • Use Scotland's forest and woodland resources to empower more people to **improve their health, well-being and life chances**.
Contact	For further information related to the Forestry Strategy please contact: **The Forestry Strategy Team** **Tel: 0300 067 6568** **Email: forestry.strategy@forestry.gsi.gov.uk**

2 The Forestry Strategy 2019-29 context and overview

2.1 Main policy principles / common themes

2.1.1 A Forestry Strategy was first published in 2000, and established a framework of guiding principles for developing forestry in Scotland. These principles were based on the established economic, social and environmental pillars of sustainable forest management (SFM). This current Strategy[15] was published in 2006 and set the framework for taking forestry forward through the first half of this century and beyond. It set a vision that "by the second half of this century, people are benefiting widely from Scotland's trees, woodlands and forests, actively engaging with and looking after them for the use and enjoyment of generations to come. The forestry resource has become a central part of our culture, economy and environment".

2.1.2 In 2011, the Scottish Government (SG) concluded that the existing Strategy remained 'fit for purpose' and a revision was not required. When the second Land Use Strategy (2016-2021) was published, a commitment was made to review the Strategy to ensure it aligned with relevant SG policies and priorities. This commitment to produce a new Forestry Strategy was carried through to the Forestry and Land Management (Scotland) Bill Act 2018 ('The Act').

2.1.3 Getting The Best From Our Land: A Land Use Strategy for Scotland 2016 - 2021 sets a framework for a more unified and strategic approach to land use within Scotland[16]. Its fundamental principles of "long-term, well integrated, sustainable land use delivering multiple benefits for all society" are consolidated across the management strategies for a range of sectors including forestry. The Land Use Strategy noted the key role of forestry as a multi-purpose land use and identified a review of the Scottish Forestry Strategy as a priority for delivering its Vision, Objectives and Principle.

2.1.4 Another key environmental policy is the Scottish Government's Climate Change Plan 2018 (CCP). The plan establishes the government's annual woodland creation target (currently 10,000 hectares per year rising to 15,000 hectares from 2025) and through this longer-term ambition to increase Scotland's forest and woodland cover to 21% of the total land area by 2032. The plan states that "*these new woodlands will absorb greenhouse gas emissions, as well as potentially helping to mitigate flood risk and improve water quality, improve biodiversity and provide opportunities for people to improve their health and wellbeing. They will also provide confidence for the forest products industry to continue to invest in Scotland and create new jobs, through the ongoing production of sustainable raw materials."* The plan reiterates the commitment that these new forests will be created according to the principles of SFM using the UK Forestry Standard as the bench mark for good practice.

[15] Forestry Commission Scotland (2016) The Scottish Forestry Strategy [online] Available at: http://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/forestry-strategy (accessed 11/12/2017)

[16] Scottish Government (2011) Getting The Best From Our Land: A Land Use Strategy for Scotland 2016 - 2021 [online] Available at: http://www.gov.scot/Topics/Environment/Countryside/Landusestrategy (accessed 11/12/2017)

2.2 Forestry and Land Management (Scotland) Act (2018)

2.2.1 The Act places a duty on Scottish Ministers to promote SFM and Scottish Ministers must have regard to this duty when performing their regulatory functions under the Forestry and Land Management (Scotland) Act (FLM(S)A) 2018. The FLM(S)A also places a duty on Scottish Ministers to prepare a forestry strategy. The draft Strategy has been prepared in line with the Act (see Appendix A) including the requirement to set out Scottish Ministers' objectives, priorities and policies with respect to the promotion of SFM.

2.3 Outline and objectives of the Forestry Strategy 2019-29

2.3.1 The new Strategy sets out Scotland's long-term ambition for the sustainable growth of forestry, to increase its already substantial economic, social and environmental contribution to Scotland.

2.3.2 The Strategy covers the use, expansion, management and protection of all Scotland's public and privately owned forests and woodlands and the products and services they provide.

2.3.3 The 50-year vision which underpins the Forestry Strategy is: Scotland will have more forests and woodlands, which will be sustainably managed as a much greater part of the nation's natural capital, providing a resilient, high quality and growing resource that supports a strong economy, a thriving environment, and healthy and empowered communities.

2.3.4 This vision is based on:

- A long-term commitment to **sustainable modern forestry** as a key land-use in Scotland;
- A sustained programme of **woodland expansion**;
- Increasing the already substantial economic, environmental and social benefits of forestry to Scotland **by addressing key challenges and harnessing opportunities**;
- Promoting multi-purpose forestry and the **sustainable management** of Scotland's forests and woodlands;
- A commitment to the principle of **the right tree, in the right place for the right purpose**;
- **Integrating forestry with other land-uses** and businesses;
- Supporting the delivery of the **Scottish Government's purpose** and **National Performance Framework**[17].

2.3.5 Therefore, this draft Strategy focuses on **both** the sustainable management of existing forests **and** the establishment of new woodlands, to help realise our long-term vision for forestry in Scotland.

2.3.6 To support the 50-year vision, the draft Forestry Strategy identified three primary objectives for the Strategy to deliver over the next 10 years:

[17] Scotland's National Performance Framework

1. Increase the contribution of forests and woodlands to Scotland's **sustainable and inclusive economic growth**;
2. Protect and enhance Scotland's valuable natural assets, ensuring that our forests and woodlands are resilient and contribute to a **healthy and high quality environment**;
3. Use Scotland's forest and woodland resources to empower more people to **improve their health, well-being and life chances**.

2.3.7 These objectives largely cover the three pillars of sustainability namely, Economy, Society and the Environment. The Strategy has identified the main priorities likely to have the greatest impact on achieving the draft objectives over the next 10 years. The predicted environmental effects of the 10 priorities are the focus of this assessment.

2.3.8 All of the priorities address more than one objective. The ordering and numbering of the priorities below does not imply any ranking.

1. Promote and develop the concept of sustainable forest management as it applies to Scotland.
2. Sustainably expand the area of all types of woodlands and forests across Scotland and ensure harvested sites are replanted appropriately.
3. Ensure wood fibre availability from Scotland's forests is predictable and increases over time.
4. Protect forests and woodlands from damage caused by new or existing pests and diseases, promote the sustainable management of wild deer and build resilience to support adaptation to climate change.
5. Increase community ownership and management of forests and woodlands.
6. Increase efficiency, productivity and the value generated from forest products and services and help develop forestry's role in creating a low-carbon economy, by supporting technological innovation, improving the capacity and skills of those working in the sector, and developing existing and new markets.
7. Increase the natural capital value of Scotland's woodlands and forests by improving the condition of native woodlands and forests, and increasing the positive impacts of forest and woodland management on biodiversity, air, water, soils, flood management, landscapes and the historic environment, mitigating the risks of negative impacts.
8. Increase the use of Scotland's forests and woodlands to improve health and well-being, help people better understand forestry, and support wider Scottish Government activity to help children become confident and resilient members of Scottish society.
9. Enhance forestry's contribution to sustaining viable rural communities and increase the positive impact of forest and woodland management on other businesses, especially in agriculture and tourism.
10. Increase the positive contribution that urban forestry makes in Scotland's towns and cities.

2.3.9 The Strategy does not set out the actions which will be required to deliver these priorities. Rather, the delivery of this Strategy will require action across a range of

private and public partners which includes the Scottish Government, its agencies and other public authorities. In particular, the activities of the two new forestry agencies – Scottish Forestry and Forestry and Land Scotland – will be aligned and focused on the implementation and delivery of this Strategy. Where applicable, the plans and programmes associated with this activity will themselves be subject to consideration in accordance with the requirements of the Environmental Assessment (Scotland) Act 2005.

2.4 Sustainable Forest Management

2.4.1 The principles behind SFM underpin the draft Forestry Strategy and the delivery of its objectives and priorities. These principles have been agreed internationally. In 1993, SFM was defined as:

The stewardship and use of forest lands that maintains biodiversity, productivity, regeneration capacity, vitality and potential to fulfil now and in the future relevant ecological, economic and social functions at local, national and global levels and that does not cause damage to other ecosystems"[18].

2.4.2 The Scottish and other governments in the UK have adopted this definition and, along with relevant legislation and other good practice, have incorporated it into the UK Forestry Standard (UKFS). **These are also the principles upon which Scotland's modern forestry legislation, practice and related policies are built.**

2.5 The UK Forestry Standard – the benchmark for sustainable practice

2.5.1 The UKFS sets out the Government's approach to SFM, to help inform forest planning decisions which involve all forests, and to ensure that international agreements and conventions are applied. It is reviewed every five years with the input of forestry sector and environmental stakeholders and it provides the basis for regulating forestry activities, including approvals for felling licences. In addition, payment of government grants for woodland creation and forest management is conditional on meeting the requirements of the UKFS and its supporting guidelines:

- Forests and Biodiversity
- Forests and Climate Change
- Forests and Historic Environment
- Forests and Landscape
- Forests and People
- Forests and Soil
- Forests and Water

2.5.2 The UKFS also provides the basis for independent certification of woodland management through the internationally recognised Forest Stewardship Council (FSC) system and the Programme for the Endorsement of Forest Certification (PEFC). In Scotland and the rest of the UK, the UK Woodland Assurance Standard (UKWAS) is used to demonstrate compliance with both the FSC and the PEFC; the UKWAS gives consumers confidence that products from certified forests come from

[18] Second Ministerial Conference on the Protection of Forests in Europe 16-17 June 1993, Helsinki/Finland.

sustainably managed sources. In 2018, 58% of Scotland's forests were certified against the UKWAS.

2.5.3 The delivery of the Forestry Strategy will promote the principles of SFM. The creation and management of forests and woodlands should meet the requirements of the UKFS – this is a pre-requisite for Government funding.

2.5.4 The key elements of the Scottish Government's policy and regulatory framework established to promote SFM are set out in Figure 1.

2.6 The Wider Regulatory Framework

2.6.1 The Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 require that individual forestry projects take account of any significant environmental effects and the opportunities to avoid, prevent or reduce such effects, before a consent is granted.

2.6.2 The Forestry Strategy supports the appropriate development of infrastructure and built development to deliver on its objectives and priorities. Though forestry does not fall within the definition of development, the buildings, structures and access tracks associated with forest operations and woodland use may require planning permission from the relevant planning authority for the area. In relation to this the planning system has its own requirements in place regarding the consideration of any environmental impacts arising, including through the Town and Country Planning (Environmental Impact Assessment) Scotland Regulations 2017.

2.6.3 Where appropriate, adherence to the requirements of the UKFS and the wider regulatory framework is taken into account as 'assumed mitigation' and factored into the assessment of the significance of effects. Table 2 summarises the key measures and controls relevant to the Forestry Strategy against each of the individual Strategy priorities. In addition to the UKFS, these include:

- The Scottish planning system (e.g. associated built development);
- The Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 that requires that new forestry projects take account of any significant environmental effects;
- Plant Health (Forestry) legislation provides a regulatory framework to protect Scotland's forest and woodlands from the spread of pests and diseases and facilitate the trade in wood products.

Table 2: Assumed mitigation measures under each priority

Priority	Assumed Mitigation	Responsibility
1. Promote and develop the concept of sustainable forest management as it applies to Scotland.	UKFS (includes related legislation, i.e. Forestry EIA etc.)	Scottish Government
2. Sustainably expand the area of all types of woodlands and forests across Scotland and ensure harvested sites are replanted appropriately.	UKFS	Scottish Government Private companies Land owners and Managers Local Authorities

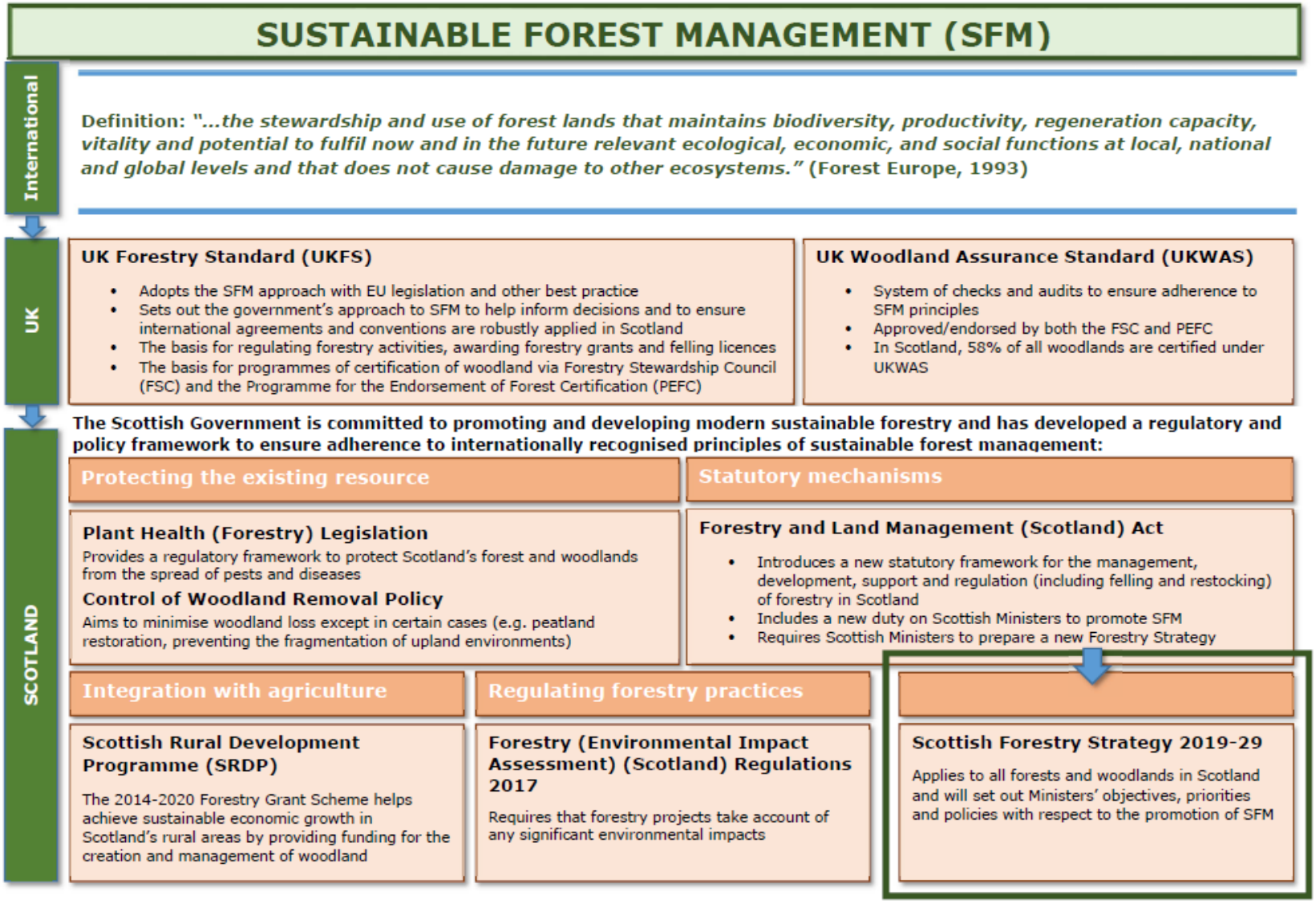
Priority	Assumed Mitigation	Responsibility
3. Ensure wood fibre availability from Scotland's forests is predictable and increases over time.	UKFS	Scottish Government Private companies Land owners and managers
4. Protect forests and woodlands from damage caused by new or existing pests and diseases, promote the sustainable management of wild deer and build resilience to support adaptation to climate change.	UKFS Plant Health (Forestry) legislation	Scottish Government Private companies Land owners and managers
5. Increase community ownership and management of forests and woodlands.	UKFS	Scottish Government Community organisations Non-governmental organisations
6. Increase efficiency, productivity and the value generated from forest products and services and help develop forestry's role in creating a low-carbon economy, by supporting technological innovation, improving the capacity and skills of those working in the sector, and developing existing and new markets.	UKFS Planning system and / or relevant energy consents?	Scottish Government Private companies Planning Authorities Local Authorities Professional bodies
7. Increase the natural capital value of Scotland's woodlands and forests by improving the condition of native woodlands and forests, and increasing the positive impacts of forest and woodland management on biodiversity, air, water, soils, flood management, landscapes and the historic environment, mitigating the risks of negative impacts.	UKFS	Scottish Government Private companies Land owners and managers Non-governmental organisations Environmental regulators Local Authorities
8. Increase the use of Scotland's forests and woodlands to improve health and well-being, help people better understand forestry, and support wider Scottish Government activity to help children become confident and resilient members of Scottish society.	UKFS	Scottish Government Forest users Forest Owners and managers Local Authorities Non-governmental organisations
9. Enhance forestry's contribution to sustaining viable rural communities and increase the positive impact of forest and woodland management on other businesses, especially in agriculture and tourism.	UKFS Planning system	Scottish Government Planning Authorities Local Authorities Forest users Forest owners and managers Private companies/Users Non-governmental organisations
10. Increase the positive contribution that urban forestry makes in Scotland's towns and cities.	UKFS Planning system	Scottish Government Planning Authorities Forest owners and managers

2.7 Relationship with other relevant plans, programmes and strategies (PPS)

2.7.1 The 2005 Act requires Responsible Authorities to define the plan's broader policy context, highlighting any relevant environmental protection objectives that may influence its development and implementation. A wide range of environmental protection and improvement objectives are set out within existing legislation, policies, plans, programmes and strategies at the EU, UK and Scottish levels. An analysis of the relationship between the Forestry Strategy and these PPS is required as part of the SEA process. It is important to identify plans that will influence the Forestry Strategy and those that will be influenced by it.

2.7.2 An overview of the relationships between the Forestry Strategy and other PPS is provided in Appendix B.

Figure 1: Policy and regulatory framework for promoting Sustainable Forest Management



3 Environmental baseline

3.1.1 It is a requirement of the 2005 Act that Responsible Authorities provide details of the character of the environment which may be affected, including any existing pressures and the likely evolution of the environment in the absence of the PPS. The Strategy will be assessed against this baseline to provide an indication of the type and significance of any environmental impacts that could arise.

3.1.2 Scotland is a relatively small country of 77 911 km^2 with a population of approximately 5.43 million people[19]. Although the vast majority (98%) of Scotland is classified as rural land, there is a marked contrast in the number of people living in rural areas (18%) versus non-rural areas (82%)[20]. Further, the population is mainly concentrated in seven city-regions: Glasgow City (1 827 240), Edinburgh City (1 375 880), Perth and Kinross (787 500), Dundee City (787 500), Aberdeen City (490 600), and Inverness (Highland) (235 180)[21]. Since 1997, Scotland's population has grown by about 6%[22] and future projections estimate Scotland's population will grow by an additional 6.1% by 2041, to a total of roughly 5.69 million[23].

3.1.3 Scotland is internationally renowned for its varied and dramatic landscapes including impressive mountain ranges, broad plateaus, expansive lowlands, and striking coastal features[24]. Many of these are the result of ancient glacial and periglacial activity as well as changes in sea level[25]. The three primary landscape classifications are the Central Lowlands, the Highlands and Islands to the north and west, and the Southern Uplands[26]. Situated among these natural features are the many iconic manmade landmarks and townscapes that help to give Scotland its reputation as a tourist destination[27].

3.1.4 Some five thousand years ago, Scotland's landscape was a complex mosaic of natural vegetation, dominated by woodland cover which stretched all the way to Shetland and the Western Isles[28]. What followed though was the shift towards a

[19] Scottish Enterprise (2018) Scottish key economic facts [online] Available at: https://www.scottish-enterprise.com/knowledge-hub/articles/publication/scottish-key-facts (accessed 11/05/2018)

[20] Scottish Government (2015) Rural Scotland Key Facts 2015 – People and Communities, Services and Lifestyle, Economy and Enterprise [online] Available at: http://www.gov.scot/Resource/0047/00473312.pdf (accessed 14/05/2018)

[21] Scottish Enterprise (2018) Scottish key economic facts [online] Available at: https://www.scottish-enterprise.com/knowledge-hub/articles/publication/scottish-key-facts (accessed 11/05/2018)

[22] Scottish Government (2017) Summary: Age Demographics [online] Available at: http://www.gov.scot/Topics/People/Equality/Equalities/DataGrid/Age/AgePopMig (accessed 11/05/2018)

[23] Scottish Government (2017) Scotland's population is projected to increase and age [online] Available at: https://news.gov.scot/news/scotlands-population-is-projected-to-increase-and-age (accessed 11/05/2018)

[24] James Hutton Institute (2018) Regional Landscapes of Scotland [online] Available at: http://www.hutton.ac.uk/learning/exploringscotland/regional-landscapes-scotland (accessed 11/05/2018)

[25] SNH (2017) Landforms [online] Available at: https://www.nature.scot/landforms-and-geology/scotlands-rocks-landforms-and-soils/landforms (accessed 03/05/2018)

[26] The James Hutton Institute (2018) Regional Landscapes of Scotland [online] Available at: http://www.hutton.ac.uk/learning/exploringscotland/regional-landscapes-scotland (accessed 03/05/2018)

[27] Historic Environment Scotland (2016) Scotland's Historic Environment Audit 2016 – Summary [online] Available at: https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=315b3f0d-631b-4a24-b12b-a6db00ba1696 (accessed 11/05/2018)

[28] SNH (2017) History of Scotland's woodlands [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/history-scotlands-woodlands (accessed 09/05/2018)

cooler, wetter climate, which transformed much of this formerly forested land into peat, inhospitable to tree succession, combined with early agriculture on the better soils which prompted deforestation on an extensive scale in these areas[29]. The 17th and 18th centuries brought new pressures on the use of land, although where there was demand for woodland products such as charcoal and timber, those woodlands with a clear purpose and value tended to be protected and well managed. Despite large scale tree planting initiatives during the 18th and 19th centuries forest cover ultimately fell to a historic low of about 5% in 1900[30].

3.1.5 This chronic lack of trees and timber was recognised as a strategic problem for the country, and so the UK Forestry Act of 1919 was introduced to address the issue. Given this strategic need to grow more timber, the forests planted in Scotland during the subsequent 100 years were primarily, but not exclusively, designed to optimise timber production, using species from around the world that could thrive in Scotland's relatively favourable growing conditions.

3.1.6 As our understanding of the environment and these new forests has developed, so has the practice of modern Scottish forestry. In particular, over the second half of the 20th century, it became clear that the industrial, intensive, single-purpose forestry that dominated the 1960s, 1970s and early 1980s was not sustainable, and an approach was required that needed to embrace environmental and wider societal interests. This change of focus for forestry policy resulted in the development of comprehensive standards for forest management in the 1990's, drawing on international initiatives stemming from the first Earth Summit in Rio in 1992.

3.1.7 Today, forests and woodlands cover 19% of Scotland's total land area[31]. Even so, Scotland has significantly less forest cover than most other European countries[32].

3.1.8 Hundreds of years of human intervention and the impacts of climate change have altered Scotland's forests so that no woodlands in Scotland can be regarded as truly natural[33]. However, examples of semi-natural woodlands have endured to the present day and these are considered a conservation priority due to the extremely high levels of biodiversity that they support[34].

3.1.9 Native woodlands are those in which over 50% of the canopy is comprised of species that are native to the region and are commonly classified according to four main types: native pinewoods, upland birchwoods, upland oakwoods, and lowland mixed deciduous woodland[35]. Many of these are protected through designations such as

[29] ibid

[30] SNH (2017) Woodland expansion across Scotland [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/woodland-expansion-across-scotland (accessed 04/05/2018)

[31] Forestry Commission (2017) Forestry Statistics 2017 – Chapter 1: Woodland Areas and Planting [online] Available at: https://www.forestry.gov.uk/pdf/Ch1_Woodland_FS2017.pdf/$FILE/Ch1_Woodland_FS2017.pdf

[32] SNH (2017) Woodland expansion across Scotland [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/woodland-expansion-across-scotland (accessed 04/05/2018)

[33] Scotland's Environment (Available at: https://www.environment.gov.scot/our-environment/habitats-and-species/woodland-and-forests/ (accessed 04/05/2018)

[34] Forestry Commission (2016) What are Scotland's native woodlands? [online] Available at: https://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/native-woodland-survey-of-scotland-nwss/scotlands-native-woodlands (accessed 09/05/2018)

[35] ibid

Sites of Special Scientific Interest (SSSI) and Special Areas of Conservation (SACs) such as ashwoods, Caledonian pinewoods, alluvial forests, and bog woodland[36].

3.1.10 Scotland's oldest woodlands have existed in some capacity for at least 250 years. These are referred to as ancient woodlands and are recognised for their particularly high levels of biodiversity. Many also possess considerable heritage value[37]. Much like native woodlands, ancient woodlands are often fragmented[38] and are therefore vulnerable to further degradation[39].

3.1.11 Scotland's forests have adapted to exist across a wide range of environmental conditions. For example, the oceanic climate of the west coast gives rise to "rainforests" of Atlantic hazel and upland oakwood, while the drier east coast favours different species. Native pine woodlands colonise thin, infertile, mineral soils, whereas ecologically rich collections of ashwoods become established on richer soils. Wet woods are predominantly found in areas of poor drainage, such as depressions, whereas montane scrub thrives above the treeline along Scotland's hills and mountains[40].

3.1.12 Minor woodlands include aspen woodland, urban and amenity woodland, and individual and small groups of trees[41]. Despite their relatively limited spatial extent, these types of woodland perform many vital functions, such as providing greenspace in urban environments and serving as a "living record" of historic land uses.

3.1.13 Scotland's woodlands face pressures to their health and productivity. Land use change due to urban expansion and other activities can result in habitat fragmentation and a loss of biodiversity[42]. Pests[43] and diseases[44] can cause physical damage or tree death while invasive non-native species can alter species composition and disrupt woodland ecosystems[45], including native woodlands[46].

[36] SNH (2017) Woodland habitats [online] Available at: https://www.nature.scot/habitats-and-ecosystems/habitat-types/woodland-habitats (accessed 11/05/2018)

[37] Forestry Commission (2016) What are Scotland's native woodlands? [online] Available at: https://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/native-woodland-survey-of-scotland-nwss/scotlands-native-woodlands

[38] SNH (2017) History of Scotland's woodlands [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/history-scotlands-woodlands (accessed 04/05/2018)

[39] Scotland's Environment (2014) Woodlands and forests [online] Available at: https://www.environment.gov.scot/media/1202/land-woodlands-and-forests.pdf (accessed 11/05/2018)

[40] SNH (2017) Woodland habitats [online] Available at: https://www.nature.scot/habitats-and-ecosystems/habitat-types/woodland-habitats (accessed 14/05/2018)

[41] SNH (2017) Minor woodland types [online] Available at: https://www.nature.scot/habitats-and-ecosystems/habitat-types/woodland-habitats/minor-woodland-types (accessed 11/05/2018)

[42] Forest Research (undated) Habitat fragmentation – Practical considerations [online] Available at: https://www.forestresearch.gov.uk/tools-and-resources/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/practical-considerations-and-challenges-to-greenspace/habitat-fragmentation-practical-considerations/ (accessed 18/09/2018)

[43] Forestry Commission (undated) Top tree pests [online] Available at: https://www.forestry.gov.uk/forestry/BEEH-9XLGZT (accessed 18/09/2018)

[44] Forestry Commission (undated) Top tree diseases [online] Available at: https://www.forestry.gov.uk/forestry/BEEH-9XLGXD (accessed 18/09/2018)

[45] Forestry Commission Scotland (2018) Non-native species and forestry [online] Available at: https://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/biodiversity/non-native-species (accessed 18/09/2018)

[46] ClimateXChange (undated) NB37 Proportion of native woodland affected by invasive non-native plant species [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/indicators/nb37-proportion-of-native-woodland-affected-by-invasive-non-native-plant-species/ (accessed 18/09/2018)

Unmanaged woodland recreation could also introduce problems such as trampling, the disturbance of wildlife, and the introduction of pathogens[47].

3.1.14 Climate change has the potential to affect forests and woodlands in a number of ways. For example, it may promote the propagation of pests, diseases, and non-native species; the climate-induced spread of *Phytophthora ramorum*, which threatens larch, and *Dothistroma* needle blight, which targets coniferous trees including native pinewood, have been identified as particular concerns[48]. A changing climate is also likely to alter species distribution, potentially favouring certain species over others. For example, Sitka spruce is less resistant to drought and so may be affected by drier summer conditions in the future[49]. Climate change could also increase the incidence and severity of wildfires[50] and extreme weather events such as wind storms[51], all of which could damage woodlands.

3.1.15 Herbivores and deer in particular are regarded as a primary driver of woodland deterioration. For example, deer can compromise a woodland's ability to regenerate due to browsing and changes in the habitat structure[52]. Conversely, woodland expansion may result in effects on deer populations such as a reduction in open ground and displacement where fencing is not carefully planned and implemented. Effective deer management can be a challenge due to practical, economic, and environmental considerations.

3.1.16 Further baseline information relating to Scotland's forests is presented in Appendix C. Baseline information for each SEA topic is presented, including descriptive statistics, current condition(s), general existing pressures and past and projected trends, if known. Where practical, data has been tailored with relevance to forests. This is intended to give an account of the present state of Scotland's environment as well as an indication of its likely evolution in the absence of the plan in order to place any potential impacts of the third Forestry Strategy into an appropriate environmental context. The majority of the data has been derived from Scottish Government sources, Forestry Commission publications, Scotland's Environment web, and the websites of the statutory Consultation Authorities (SEPA, SNH, and Historic Environment Scotland), with additional sources consulted as necessary.

[47] Forestry Research (2012) Recreational use of forests and disturbance of wildlife [online] Available at: https://www.forestry.gov.uk/pdf/FCRP020.pdf/$file/FCRP020.pdf (accessed 18/09/2018)

[48] ClimateXChange (undated) Pests, diseases and invasive species (forestry) [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/natural-environment/pests-diseases-and-invasive-species-forestry/ (accessed 18/09/2018)

[49] ClimateXChange (undated) Suitability and productivity (forestry) [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/natural-environment/suitability-and-productivity-forestry/ (accessed 18/09/2018)

[50] ClimateXChange (undated) NB42; NF17/18 Number and area of reported wildfires in forests and key habitats [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/indicators/nb42-nf1718-number-and-area-of-reported-wildfires-in-forests-and-key-habitats/ (accessed 18/09/2018)

[51] ClimateXChange (undated) NF16 Proportion of coniferous woodland on the National Forest Estate with a high/medium-high risk of wind throw [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/indicators/nf16-proportion-of-coniferous-woodland-on-the-national-forest-estate-with-a-highmedium-high-risk-of-wind-throw/ (accessed 18/09/2018)

[52] SNH (2016) Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016 [online] Available at: https://www.nature.scot/sites/default/files/Publication%202016%20-%20Deer%20Management%20in%20Scotland%20Report%20to%20the%20Scottish%20Government%20from%20Scottish%20Natural%20Heritage%202016.pdf (accessed 18/09/2018)

3.2 Environmental issues relevant to the strategy

3.2.1 Schedule 3 (4) of the SEA Act requires the Environmental Report to include a description of existing environmental problems, in particular those relating to any areas of specific environmental importance. It can be helpful to explore whether a PPS could cause or exacerbate known environmental problems within the area of the PPS, be constrained or affected by existing problems.

3.2.2 In line with this requirement Table 3 highlights the potential environmental opportunities and issues that could be caused by poor forestry practice and the opportunities that could be realised from the implementation of good forestry practice (i.e. compliance with the UKFS).. As mentioned previously the core foundation of the Forestry Strategy is the promotion of the internationally recognised principles of SFM. These international principles have been 'translated' into the UKFS[53] which is the Scottish Government's bench mark for SFM in Scotland. The UKFS is a code of practice laying out the legal and good practice requirements that woodland and forest managers should follow to ensure that their woods are managed sustainably and therefore avoiding the potential environmental problems that can arise through poor forestry practice. The UKFS includes within it a number of more detailed supporting guidelines ensuring forestry practice avoids, mitigates and minimises detrimental impacts on the environment. These guidelines include:

- Forests and Biodiversity
- Forests and Climate Change
- Forests and Historic Environment
- Forests and Landscape
- Forests and People
- Forests and Soil
- Forests and Water

3.2.3 In addition to the above, additional guidance is also available for forest workers and managers to further develop and communicate good practice approaches. For example, the Forestry and Water Initiative[54] provides information and guidance on good water management practices for forestry operations.

3.2.4 Compliance with the UKFS will mitigate the negative impact of forestry on the environment, as it underpins all government regulation and support covered by the Strategy.

3.2.5 Furthermore, the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017[55] requires that new forestry projects take account of any likely significant environmental effects and the opportunities to avoid, prevent or reduce such effects, before a consent is granted.

3.2.6 Table 3 has been updated as a result of Consultation Authority comments to the Scoping Report.

[53] Forestry Commission (2017) The UK Forestry Standard [online] Available at: https://www.forestry.gov.uk/pdf/FCFC001.pdf/$FILE/FCFC001.pdf (accessed 25/09/2018)

[54] Confor Forestry & Water Scotland (undated) [online] Available at: http://www.confor.org.uk/resources/forestry-water-scotland/videos/ (accessed 24/09/2018)

[55] The Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 (2017) [online] Available at: http://www.legislation.gov.uk/ssi/2017/113/made (accessed 24/09/2018)

3.2.7 During the SEA process existing environmental concerns were taken into account and consideration was given to, where necessary, mitigation measures as detailed in Section 7.

Table 3: The current environmental opportunities/issues related to Forestry

Topic	Environmental Opportunities/Issues
Population and human health	**Opportunities** • provision of access to green space and other outdoor spaces, including in areas of existing deprivation[56]; • enhanced visual amenity value from urban woodlands, with opportunities to screen unsightly development; • rural employment and economic enhancement; • opportunities for outdoor play and learning for young people[57]; • decreased levels of obesity and other health problems associated with physical inactivity[58]; • improved connections between individuals/communities and land in terms of use, management, and ownership[59]; **Issues** • reduced air quality, noise pollution, and nuisance from forestry operations (e.g. felling, timber transport routes) • risks to forest-workers' health and safety from forestry operations.
Biodiversity, flora, and fauna	**Opportunities** • benefits to native and ancient woodland; • improved habitat quality, quantity, and connectivity; • benefits to upland environments from woodland expansion (e.g. carbon storage, soil stabilisation, flood attenuation); • creation of additional habitats for biodiversity[60]; • protection of native woodland, public access, and landscape appearance;

[56] Greenspace Scotland (2018) State of Scotland's Greenspace Report [online] Available at: http://www.greenspacescotland.org.uk/state-of-scotlands-greenspace.aspx (accessed 11/05/2018)

[57] Play Strategy for Scotland (2013) [online] Available at: http://www.gov.scot/Resource/0042/00425722.pdf (accessed 08/06/2018) and Scotland's Biodiversity: a route map to 2020 [online] Available at: http://www.gov.scot/Resource/0048/00480289.pdf

[58] Scottish Government (2017) Health of Scotland's population – Obesity [online] Available at: http://www.gov.scot/Topics/Statistics/Browse/Health/TrendObesity (accessed 11/05/2018)

[59] Land Use Strategy (2016) [online] Available at: http://www.gov.scot/Resource/0050/00505253.pdf (accessed 08/06/2018) and Land Rights and Responsibilities Statement (2017) [online] Available at: http://www.gov.scot/Resource/0052/00525166.pdf (accessed 08/06/2018)

[60] SNH (2017) Woodland expansion in the uplands [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/upland-and-moorland/woodland-expansion-uplands (accessed 03/09/2018)

	• more effective action to mitigate threats from tree disease; **Issues** • incidence and prevalence of tree diseases (e.g. ash dieback[61]) and pests; • deer browsing impacts and loss of woodland structure, and potential associated effects of deer management on deer welfare; • impacts of invasive non-native species (e.g. rhododendron[62]); • woodland habitat fragmentation (e.g. Atlantic Rainforest); • neglect or lack of management[63]; • mismanagement (e.g. "scrub" clearance[64]); • impacts of poorly planned and designed woodland expansion (e.g. vulnerability to disease due to monocultures; interactions with native woodlands; impacts on open-ground habitats, land management practices etc.).
Soil	**Opportunities** • soil stabilisation, including in upland areas; • inputs of organic matter from decomposing vegetation[65]; **Issues** • planting of soils with high carbon content may be damaged and release greenhouse gases; • potential erosion, landslides, compaction, and contamination of soil from sub-standard forestry operations (e.g. from vehicle movements); • alterations to soil biodiversity.

[61] SNH (2017) Woodland habitats [online] Available at: https://www.nature.scot/habitats-and-ecosystems/habitat-types/woodland-habitats (accessed 03/05/2018)

[62] SNH (2017) Native versus non-native woodland [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/native-versus-non-native-woodland (accessed 04/05/2018)

[63] SNH (2017) Woodland condition [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/woodland-condition (accessed 11/05/2018)

[64] SNH (2017) Atlantic hazelwood [online] Available at: https://www.nature.scot/habitats-and-ecosystems/habitat-types/woodland-habitats/atlantic-hazelwood (accessed 11/05/2018)

[65] FAO (2015) Forests and forest soils: an essential contribution to agricultural production and global food security [online] Available at: http://www.fao.org/soils-2015/news/news-detail/en/c/285569/ (accessed 12/09/2018)

Water	**Opportunities** • natural flood risk management; • reductions in river water temperatures through creation of riparian woodland; • water filtration by trees; • reduced pollutant and sediment delivery to water bodies from forested areas[66]; • desynchronised flood flows[67]; **Issues** • high water consumption by trees[68]; • reductions in water quality due to increased sedimentation and turbidity arising from sub-standard forestry operations; • diffuse pollution (e.g. phosphorous) originating from fertiliser application; • changes in river bank morphology due to erosion; • acidification of water bodies in areas with mature conifer forests and vulnerable geology[69]; • increased susceptibility to floods due to increased runoff and shorter retention times following poorly planned forest harvesting operations; • reduce water yield (surface and ground water)[70].

[66] Calder, I. et al (undated) Towards a new understanding of forests and water [online] Available at: http://www.fao.org/docrep/010/a1598e/a1598e02.htm (accessed 12/09/2018)

[67] Forestry Commission (2011) Forests and water – UK Forestry Standard Guidelines [online] Available at: http://www.confor.org.uk/media/246145/forest-and-water-guidelines.pdf (accessed 11/05/2018)

[68] Forestry Commission (2005) Water Use by Trees – Information Note [online] Available at: https://www.forestry.gov.uk/pdf/FCIN065.pdf/$FILE/FCIN065.pdf

[69] Forest Research (undated) Forestry and Diffuse Pollution [online] Available at: https://www.forestry.gov.uk/fr/beeh-a5gl8v (accessed 11/05/2018)

[70] Forestry Commission (2011) Forests and water – UK Forestry Standard Guidelines [online] Available at: http://www.confor.org.uk/media/246145/forest-and-water-guidelines.pdf (accessed 11/05/2018)

Air	**Opportunities** • improved local air quality due to removal of certain air pollutants (e.g. NO_2, particulates) by trees[71]; **Issues** • benefits could in theory be reduced by possible increases in localised NO_2 levels in some cases and emissions of biogenic volatile organic compounds (BVOCs) by certain plant varieties (associated with increases in ozone pollution[72] • reduced air quality from forestry operations due to emissions from forest machinery and timber transportation vehicles.
Climatic factors	**Opportunities** • mitigation of the impacts of climate change through the sequestration of carbon dioxide from the atmosphere; • contributions to climate change adaptation across other sectors through well-designed forests (e.g. the provision of natural flood management, the provision of shade and shelter for livestock, etc.); • opportunities for increases in productivity due to improvements in the fitness of certain species in response to changing environmental conditions; **Issues** • potential for decreased productivity due to declines in the fitness of certain species in response to changing environmental conditions; • unchecked spread of pests and pathogens and increases in their occurrence (e.g. red band needle blight) as a result of climate change; • potential release of greenhouse gases from the afforestation of soils with high carbon content[73]; • increased incidence of flooding, extreme weather events, wind throw[74], and fires as a result of climate change.
Historic	**Opportunities**

[71] Defra (2010) What impact do trees have on air pollutants concentrations? [online] Available at: https://laqm.defra.gov.uk/laqm-faqs/faq105.html (accessed 11/05/2018)

[72] Woodland Trust (2012) Urban air quality [online] Available at: https://www.woodlandtrust.org.uk/mediafile/100083924/Urban-air-quality-report-v4-single-pages.pdf

[73] SNH (2017) Woodland and climate change [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/woodland-and-climate-change (accessed 11/05/2018)

[74] ClimateXChange (2018) Suitability and productivity (forests) [online] Available at: https://www.climatexchange.org.uk/research/indicators-and-trends/natural-environment/suitability-and-productivity-forestry/ (accessed 11/05/2018)

environment	• benefits for woodlands with historic value (e.g. ancient woodlands); • opportunities for historic features to be accessed and presented for public enjoyment through appropriate conservation management; **Issues** • destruction of archaeological remains due to poorly planned and sub-standard cultivation, desiccation, root damage, visitor erosion, burrowing animals, or chemical changes to the surrounding environment; • changes in setting of historic and cultural features due to alterations in forest and woodland cover and composition; • potential for woodland to have a masking effect on historic landscapes including within designated landscapes (National Scenic Areas and Local Landscape Areas) and Inventory Battlefields and Gardens and Designed Landscapes (GDL) and the wider cultural landscape of Scotland.
Material assets	**Opportunities** • improvements in land quality, particularly vacant and derelict land; • improvements in appearance of transport routes (road, rail, active travel, and canal based); • reuse of forestry residues (e.g. brash) from operations for ecological benefit. **Issues** • unsustainable management of forest resources[75]; • competing land uses (e.g. agriculture, landfills, transport infrastructure, energy infrastructure, etc.)[76]; • production of waste from forestry operations (e.g. plastics).
Landscape	**Opportunities** • enhanced landscape appearance through the spatial distribution and species structure of woodland; • seasonal contribution of trees (autumn colours) to the visual diversity of wooded landscapes; • opportunities for positive changes to a forest's contribution to landscape quality through managed change. **Issues** • modifications/changes to landscape character and appearance due to poorly planned and designed afforestation[77];

[75] Forestry Commission (2017) Forestry Statistics 2017- Sources [online] Available at: https://www.forestry.gov.uk/website/forstats2017.nsf/0/218e61bbf1abe26580257fe0004b2d21 (accessed 11/05/2018)

[76] Scotland's Environment (2011) Land use and management [online] Available at: https://www.environment.gov.scot/media/1211/land-land-use-and-management.pdf (accessed 11/05/2018)

	• visual screening of geological features (e.g. "landscape sculptures"[78]) due to poorly planned and designed afforestation; • visual enclosure of a landscape through afforestation; • altered patterns of land use through poorly planned and designed afforestation.

[77] SNH (2017) Woodland expansion in the uplands [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/upland-and-moorland/woodland-expansion-uplands (accessed 13/05/2018)

[78] SNH (2017) Pressures on landscape sculptures [online] Available at: https://www.nature.scot/landforms-and-geology/pressures-geodiversity/pressures-landscape-sculptures (accessed 11/05/2018)

3.3 Likely evolution of the environment without implementation of the strategy

3.3.1 The SEA process requires an assessment of the likely evolution of the environment without the Forestry Strategy being implemented. In relation to the current trends identified in the existing Scottish environment, without the implementation of the Forestry Strategy it is anticipated that certain environmental indicators, such as the ecological condition of native woodlands would either deteriorate or would not achieve their full environmental potential.

3.3.2 In addition SFM is central to the Forestry Strategy not least since under the new regulatory regime SFM forms the basis for all decisions taken by the regulator: Scottish Ministers will have a duty to promote SFM and in taking decisions and determining applications as a regulator will have to have regard to that duty. This is a new requirement placed on Scottish Ministers, in section 27 of the new Act. Without the Strategy an opportunity to further SFM would be lost with the potential for positive effects across each topic not being realised.

3.3.3 Scottish Ministers must also have regard to the Forestry Strategy when they are carrying out their forestry functions (e.g. managing the existing National Forest Estate, financial provision etc.). A strategy provides the long-term strategic framework for these functions, which may not be as clearly articulated if it did not exist.

3.3.4 Forestry is a long term consideration and the absence of the new Forestry Strategy, aligned with SFM, which states the Government's long-term commitment to the delivery of its associated benefits and associated targets, may undermine the delivery of forestry's significant contribution towards the Government's climate change and biodiversity commitments.

3.3.5 If the Forestry Strategy were not to be implemented it would be a missed opportunity to address the issue of sympathetic integration of forestry with other land-uses; a missed opportunity in terms of integrated and co-ordinated land management in line with the Land Use Strategy.

3.3.6 Although the current trend in human health would continue to improve in the absence of the Strategy, this would result in a missed opportunity to encourage people and communities to explore, enjoy and value Scotland's natural environment.

3.3.7 Without a strategy, it is likely that forest management and expansion would take place in an ad-hoc manner. Some investors would not engage without the confidence in a long term positive vision for forestry in Scotland, making the achievement of targets difficult. Regulatory cases for felling and planting would also have no framework for assessment, resulting in the potential for sub-optimal solutions in relation to Scotland's long-term ambitions for sustainable and inclusive economic growth.

4 SEA Methodology

4.1 Framework for assessing environmental effects

4.1.1 The draft Forestry Strategy has been assessed to ascertain the potential for significant environmental effects. The approach for predicting the environmental effects of the Strategy, the consideration of mitigation and enhancement measures and implementing a monitoring programme are described in this section.

4.1.2 A number of previous SEAs, particularly those pertaining to policies with implications for land use, set an appropriate framework for the present assessment. These assessments have already compiled a considerable amount of baseline data on forests and woodlands in Scotland, and have explored the possible environmental impacts that could result from changes to the sector. Recent examples include:

- 'Getting the best from our land - A land use strategy for Scotland 2016-2021'[79];
- 'Climate Change Plan: The Third Report on Policies and Proposals 2017-2032' and 'Scottish Energy Strategy: The Future of Energy in Scotland' (joint assessment)[80];
- 'Proposals for a Draft Climate Change Bill'[81];
- 'The Scottish Forestry Strategy 2006[82];
- SEA of Forest District Plans[83];
- SEA of the Regulations on Felling and Restocking[84].

4.1.3 Additional SEAs of relevance include those undertaken on National Planning Framework 3 and Scottish Planning Policy[85] (joint), 'A Consultation on 2020 Challenge for Scotland's Biodiversity'[86], and 'Climate Ready Scotland: Draft Scottish Climate Change Adaptation Programme'[87]. The assessment of these policy areas

[79] Scottish Government (2015) Getting the best from our land, consultation on a draft Land Use Strategy for Scotland 2016-2021 – Strategic Environmental Assessment Environmental Report [online] Available at: http://www.gov.scot/Resource/0048/00489448.pdf (accessed 22/02/2018)

[80] Scottish Government (2017) The Draft Climate Change Plan: The Draft Third Report on Policies and Proposals 2017-2032 and Draft Scottish Energy Strategy: The Future of Energy in Scotland – Strategic Environmental Assessment Environmental Report [online] Available at: http://www.gov.scot/Resource/0051/00513440.pdf (accessed 22/02/2018)

[81] Scottish Government (2017) Proposals for a new Climate Change Bill – Strategic Environmental Assessment Environmental Report [online] Available at: https://consult.gov.scot/energy-and-climate-change-directorate/climate-change-bill/supporting_documents/SCT07175538641_environmental_%20Final_v2.pdf (accessed 22/02/2018)

[82] Forestry Commission (2006) Scottish Forestry Strategy SEA ER, SEA Database case number 00026 [online] available at: https://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG (accessed 20/08/2018)

[83] Forestry Commission (2008) Forest Enterprise Scotland Forest District Strategic Plans SEA ER, SEA Database case number 00181 [online] available at: https://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG (accessed 20/08/2018)

[84] Scottish Government (2018) Regulations on Felling and Restocking: SEA Environmental Report [online] Available at: https://consult.gov.scot/forestry/fellingandrestocking/consult_view/ (accessed 24/09/2018)

[85] Scottish Government (2013) National Planning Framework 3 and Scottish Planning Policy – Strategic Environmental Assessment Environmental Report [online] Available at: http://www.gov.scot/Publications/2013/04/3435 (accessed 23/02/2018)

[86] Scottish Government (2012) A Consultation on the 2020 Challenge for Scotland's Biodiversity – Environmental Report and Non-Technical Summary [online] Available at: http://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG (accessed 23/02/2018)

has largely been undertaken by the Scottish Government's SEA team, thereby providing the added benefit of good institutional knowledge of the broader policy area. Relevant findings have been collated from these previous assessments and used to guide this assessment.

Table 4: Scoping of environmental topics for the Forestry Strategy SEA

SEA Topic	Rationale
Population and human health	• Potential positive effects on health and wellbeing for people of all ages through the provision of quality recreational environments, increased availability of and access to greenspace, and the promotion of more active lifestyles • Potential to improve health and wellbeing through educational and skill development activities (e.g. environmental volunteering) • Potential positive effects on health and wellbeing through the provision of employment opportunities • Potential positive effects on individual and community wellbeing and social capital through the provision of opportunities in the management and ownership of land • Potential negative effects on individual and community wellbeing through inappropriate land use change and forestry operations (e.g. noise) • Potential impacts on human health as a result of changes in air quality
Soil	• Potential for disturbance and destruction of deep peaty soils through planting • Potential positive effects on soil stabilisation through woodland creation • Potential for improvements in soil condition • Potential for forestry operations to adversely impact soil (e.g. increased erosion)
Water	• Potential positive and negative effects relating to flood risk • Potential for improvements and deterioration in surface water and groundwater quality • Potential for reduction in water quantity and availability
Air	• Potential for positive effects on local air quality, particularly from urban woodland • Potential for negative effects on air quality through forestry operations • Potential negative secondary impacts on air quality from shift towards greater use of forestry-derived biomass in energy generation
Climatic factors	• Potential to increase natural sequestration of carbon • Potential for positive effects through reductions in the use of fossil fuels and associated carbon emissions due to the uptake of low-carbon forestry technologies and the increased use of timber in construction • Potential for positive effects in terms of mitigating and adapting to climate change • Potential to harness positive effects of climate change on species fitness and distribution • Potential for various negative impacts on forests and woodlands
Historic environment	• Potential for physical damage to protected built heritage, monuments and archaeology from tree growth and forestry operations • Potential for direct visual effects on the historic environment, including historic landscapes • Potential for loss of unknown archaeological resources • Potential for negative effects on the setting of historic and cultural assets from inappropriate siting of woodland • Potential for positive impacts on woodlands with high historic value
Material assets	• Potential for positive effects through improvements to degraded land • Potential for enhancements to public spaces and greenspace • Potential for positive effects from land use change for woodland creation through improved land integration and optimisation (e.g. in relation to transport infrastructure) • Potential for more efficient use of resources such as through the reduction of waste and the reuse of waste products in new products
Landscape	• Potential for negative and positive effects on landscapes and townscapes from changes in woodland cover.

4.2 Development of Assessment Criteria

4.2.1 The Scoping Report set out environmentally-specific SEA objectives and associated indicator questions to help describe, analyse, and compare environmental effects. The SEA objectives cover all of the SEA topic areas that have been scoped into the assessment (see Table 4) and were derived from the key environmental topics, baseline data, and environmental protection objectives of relevance to the proposal.

4.2.2 The SEA objectives are separate from the Forestry Strategy objectives and priorities although they can influence each other and sometimes overlap. In line with the requirements of the 2005 Act, the SEA objectives cover the environmental topics set out in Schedule 3 of the 2005 Act, including the interrelationship between them.

4.2.3 The SEA objectives were identified based on a contextual analysis and then further refined following the Consultation Authorities responses to the scoping stage. The objectives were subject to the following distilling and tailoring process:

1. Identification of objectives based on issues identified in relation to forestry and the scoping of SEA topics;
2. The objectives were separated into primary objectives (SEA objectives) and secondary objectives or SEA criteria. The criteria were phrased as indicator questions to aid analysis (Table 6);
3. The assessment methodology was updated based on the scoping responses from the Consultation Authorities including clarity of read across from the issues/opportunities to the SEA objectives;
4. The objectives were refined to remove duplication;
5. Relevant PPS were signposted within the objectives.

4.2.4 In line with the 2005 Act the focus of the assessment is the key issues and potential for significant environmental effects (short, medium and long-term, permanent and temporary, positive and negative, secondary, cumulative and synergistic) associated with the proposals, ensuring this is framed in the context of current environmental obligations.

4.2.5 **A Scoring System** has been used to present information on the relative effects of the Forestry Strategy. This scoring system helps to form an opinion on how significant the impacts would be, with a magnitude ranging from:

Major Positive	++	There will be a significant beneficial impact or an ongoing / continually improving environmental impact.
Positive	+	There will be a minor cumulative or isolated positive environmental impact.
Insignificant or no impacts	0	There will be neither a positive nor negative environmental impact.
Negative	-	There will be a minor to moderate negative environmental impact.
Major Negative	--	There will be a significant adverse impact.

4.2.6 Commentary is provided to justify the scoring with any uncertainties highlighted.

4.2.7 As shown in Table 5 the assessment was undertaken at a number of levels, running alongside the preparation of the Forestry Strategy.

Table 5: Framework used to assess the Forestry Strategy

Task	Description
Stage 1: Initial baseline assessment	Initial assessment of baseline data to establish context within which the Forestry Strategy is being implemented.
Stage 2: Contextual review and identification of SEA objectives	Undertaken in order to structure the assessment process. Scoping report prepared setting out key issues emerging from the initial assessment and defining methodology.
Stage 3: Assessment of the priorities	The assessment took a broad brush view of the objectives against the overarching SEA objectives in order to identify any potential significant environmental effects at a strategic level. This was used as a reference point for a subsequent level of analysis: a more detailed review of the priorities versus the SEA indicator questions. Outcomes from the assessment were considered during the development of the Strategy as they emerged.
Stage 4: Assessment of new priorities as they emerged	Provided a further insight into content of the Strategy as it developed through stakeholder engagement.
Stage 5: Review of baseline data and adjustment of assessment	Undertaken alongside the assessment to ensure sufficient data was gathered and used to inform judgements, incorporating additional data referred to during the course of the work.
Stage 6: Synthesis of findings	Review of findings from the assessment, identification of significant impacts, as well as measures for mitigation and enhancement. Overall conclusions drawn and Environmental Report prepared. Early and emerging findings have been taken into account by the Strategy as far as possible, during the final stages of preparation of the Strategy.

Table 6: SEA Objectives and Indicators

Objective for each topic	SEA Indicator Questions…Will the Forestry Strategy ….?
Population and human health	
Protect and enhance human health and well being	• Encourage increased participation in outdoor recreation, volunteering, and learning (in line with the Scottish Biodiversity Strategy)? • Promote access to open space, greenspace and the wider countryside • Enable the benefits associated with a rich natural environment to be realised?
Biodiversity, flora and fauna	
Protect and enhance both forested and non-forested (i.e. open-ground) ecosystems	• Promote the protection and enhancement of designated and non-designated sites, habitats, and species? • Contribute to the restoration and expansion of native woodland (in line with the Scottish Biodiversity Strategy)? • Avoid the spread of diseases, pests, and invasive non-native species?
Support sustainable deer management	• Avoid exacerbating adverse impacts on deer populations and woodland areas arising from deer fencing and other deer management approaches (in line with the Code of Practice on Deer Management)? • Promote the benefits of sustainable deer management?
Soil	
Protect high quality and sensitive soils	• Protect and enhance soil quality, function, and fertility? • Support peatland restoration efforts (in line with the Scottish Biodiversity Strategy and Climate Change Plan)? • Protect and enhance geodiversity features and geomorphological processes?
Maintain and improve soil stability	• Help to prevent or reduce soil erosion, slope failure, and compaction?
Air	
Protect and enhance air quality	• Help to improve local air quality, particularly in areas of elevated air pollution such as AQMAs? • Minimise air quality and nuisance issues associated with forestry-related activity?
Water	
Protect and improve the water environment	• Contribute to RBMP enhancement measures? • Avoid declines in surface water and groundwater quality and quantity as a result of forestry-related activity? • Support flood prevention measures, where appropriate?

Climatic factors	
Reduce the causes and effects of climate change	• Reduce existing and avoid new greenhouse gas emissions? • Help reduce the impacts of a changing climate? • Maintain and enhance the carbon sequestration of forest ecosystems? • Support the afforestation and peatland restoration targets of the Climate Change Plan? • Preserve and enhance existing carbon-rich soils? • Increase the potential for low carbon technology to support forestry activities?
Material assets	
Promote the effective and sustainable use of forests and woodlands	• Help to ensure forests and woodlands are sustainably managed using an ecosystems approach (in line with the Land Use Strategy [Policy 1])? • Reflect the overarching principles of the Land Use Strategy? • Help to promote renewable timber building materials over more carbon intensive materials or imported timbers (in line with the Climate Change Plan)? • Minimise waste arisings and promote the reuse of waste such as forestry waste and peat arising from forestry-related activity (in line with Scotland's Zero Waste Plan)?.
Safeguard and enhance existing natural and built resources	• Improve the quality of vacant and derelict land? • Improve the setting of transport routes? • Avoid adverse impacts on high-quality agricultural land?
Historic environment	
Safeguard the historic environment, including historic landscapes	• Avoid direct impacts on heritage assets, including archaeological sites and monuments? • Protect the setting of heritage assets, including monuments and archaeological sites? • Avoid adverse impacts on historic landscapes? • Protect and enhance areas of ancient and semi-natural woodland?
Landscape	
Protect and enhance the quality of landscapes and townscapes	• Protect the diversity and value of Scotland's landscapes? • Improve degraded landscapes?

5 Consideration of Reasonable Alternatives

5.1.1 The 2005 Act requires that the Scottish Government also identify, describe and evaluate the likely significant effects on the environment of any reasonable alternatives to the draft Strategy, taking into account its objectives and geographical scope.

5.1.2 The extent to which alternatives could be considered 'reasonable' was influenced by the existing legislative and policy context the document must reference and align with, and the current Government commitments and targets such as the woodland creation target in the Climate Change Plan 2018.

5.1.3 The draft Strategy has been developed to articulate the Scottish Government's ambition to expand Scotland's forests and woodlands to deliver greater social, environmental and economic benefits; promote SFM; support the implementation of the Scottish Government's National Outcomes; and, to meet the requirements of the Forestry and Land Management (Scotland) Act 2018. The Act outlines the broad content of the Strategy (e.g. setting out a vision, objectives, priorities and policies etc.), as well as how it should be prepared and consulted on.

5.1.4 In developing the Strategy, the Scottish Government drew on evidence on the key issues facing forestry over the next 10 years (the period of the Strategy), and the requirements of the Act, as a basis for developing the 50 year vision and the 10-year economic, social and environmental objectives and priorities. These key issues, and the scope of the Strategy's vision, objectives and priorities for action were discussed with a broad range of Scottish Government policy teams, representatives from the SEA Consultation Authorities, and external stakeholders. Engagement with external stakeholders was mainly through the Forestry Strategy Reference Group (which includes representatives from Confederation of Forest Industries, National Farmers Union for Scotland, Scottish Environment Link, Scottish Natural Heritage, Scottish Environmental Protection Agency, Community Woodland Association and academia). This engagement process informed the development of the core content of the Strategy.

5.1.5 Taking this into account, these alternatives were considered, but were not identified as appropriate:

- 'Do nothing' scenario - i.e. the Scottish Government could choose not to publish a new Forestry Strategy for Scotland. However, when the second Land Use Strategy (2016-2021) was published, a commitment was made to review the Forestry Strategy to ensure it aligned with relevant Scottish Government policies and priorities. This commitment was carried through to the Forestry and Land Management (Scotland) Act 2018 and Scottish Ministers now have a duty to prepare and publish a strategy. The Act outlines the content of the Strategy and how it must be prepared (including consultation requirements), reviewed and reported on. A key aspect of the development of the Strategy is to ensure appropriate stakeholder consultation. Therefore, the "Do nothing" approach is also not a viable alternative for inclusion in the assessment

- Consideration of priorities allocated under a specific objective. This was not considered to be a realistic alternative because of the crosscutting nature of the priorities across different objectives, and the equal importance of each of the pillars of sustainability (translating to the objectives). This was also not identified as a realistic alternative because the actual content of the Strategy would not be sufficiently different to generate different environmental effects.

6 Assessment findings and recommendations

6.1 Introduction

6.1.1 The draft Forestry Strategy was assessed for its environmental effects and likely significance upon the environmental baseline. The Forestry Strategy Priorities were assessed against all of the SEA topics using the SEA objectives and indicator questions using the methodology set out in Section 4.

6.2 Technical Issues Encountered

6.2.1 The 2005 Act requires a description of how the assessment was undertaken including any difficulties encountered in compiling the required information. These uncertainties and assumptions are outlined below in terms of information compilation and assessment of priorities.

6.2.2 Some of the difficulties encountered in compiling the information reflect the challenge of measuring current performance and identifying trends. Key difficulties include:

- Data sets change over time, for example by using different criteria and baselines. This means that it can be difficult to accurately assess trends.
- Similarly, it can be difficult to ensure that there are not anomalies in the data caused by external factors (for example weather conditions affecting air quality data).

6.2.3 The high-level nature of the Strategy means that specific delivery actions are not included. However, as set out in Section 2.6, existing regulatory frameworks will manage impacts of the Strategy as it is taken forward, and the potential for environmental effects arising from individual forestry proposals will continue to be assessed and mitigated, where appropriate through existing mechanisms, including through the EIA process, application of standards and guidelines and consenting where relevant.

6.2.4 The assessment of each priority assumes that the management of existing forests and woodlands and new afforestation will meet the requirements of the UKFS which defines the requirements for the sustainable management of forests in the UK including Scotland.

6.3 Assessment of potential environmental effects

6.3.1 The assessment of the Forestry Strategy against the SEA objectives topics (and corresponding indicator questions) is presented below for each Forestry Strategy Priority and supporting text. A scoring matrix is provided in Table 7 showing the magnitude of significance covered by each score.

Table 7: Assessment scoring

Scoring System:	
Major Positive	**++**
Minor Positive	**+**
Insignificant or No Impacts	**o**
Minor Negative	**-**
Major Negative	**- -**
Mixed	**+/-**
Uncertain	**?**
Within the assessment tables, the terms indicate the following timeframes:	
Short Term	**0-9 years**
Medium Term	**9-50 years**
Long Term	**50+ years**

Priority 1: Promote and develop the concept of sustainable forest management as it applies to Scotland								
Population and Human Health	**Biodiversity, Flora and Fauna**	**Soil**	**Air**	**Water**	**Climatic Factors**	**Material Assets**	**Historic Environment**	**Landscape**
++	++	++	++	++	++	++	++	++
Likely Environmental Effects								
Priority 1 involves promoting awareness amongst communities, the workforce and forestry managers of the concept of SFM. SFM ensures production of all forest and woodland benefits is maintained over the long term via a balance of the environmental, economic and social functions of forests and woodlands. The UKFS sets out the Scottish Government's approach to SFM and the requirements are divided into legal requirements and good forestry practice requirements. Requirements are categorised into different elements of SFM, with supporting								

guidelines. The elements are General Forestry Practice, Biodiversity, Climate Change, Historic Environment, Landscape, People, Soil and Water. From an environmental standpoint there are a number of relevant requirements including:

- appropriate protection and conservation of designated sites, habitats and species including protection or improvement of biodiversity value;
- landscape context and designations to be taken into account in woodland creation;
- avoidance of woodland creation in deep peat soils;
- consideration given to involving people in development of forestry proposals.
- identification, protection and conservation management of historic environment features and sites of special cultural significance.

Under the new regulatory regime, SFM forms the basis for all decisions taken by the regulator: Scottish Ministers will have a duty to promote SFM and in taking decisions and determining applications as a regulator, will have to have regard to that duty. This is a new requirement placed on Scottish Ministers, in section 27 of the new Act, to *have regard to their duty to promote sustainable forest management* when making decisions. Intrinsic to SFM is the protection of the environment as a whole and by promoting the approach to SFM, it is predicted that this priority will have a major positive effect over the long term across all topics from empowering the workforce through to having positive secondary effects on climatic factors (due to associated carbon sequestration) to allowing appropriate protection and conservation of designated sites (biodiversity and historic environment).

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- It is assumed that this implies learning and development of the workforce, engagement and communication on the concept of SFM with stakeholders and interested parties.

Priority 2: Sustainably expand the area of all types of woodlands and forests across Scotland and ensure harvested sites are replanted appropriately

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	++	++	+/-	++	++	++	+/-	+/-

Likely Environmental Effects

Priority 2 includes helping to deliver the Scottish Government's Climate Change Plan including the annual woodland creation target with an expected major positive effect on material assets. This is likely to have a major positive effect on climatic factors by reducing GHG emissions through increased CO_2 sequestration. The potential negative effect of releasing carbon from soils when establishing new woodland is usually outweighed by the amount of carbon sequestered by the forest, transferred into the soil and then locked up in wood products (hence this has been scored as a major positive effect)[88].

The creation of sustainably managed forests (material assets) via the use of SFM principles can have associated medium to long term major positive effects on soil, water, biodiversity, flora and fauna, human health and wellbeing.

Soil can be detrimentally affected by inappropriate ground preparation techniques such as use of heavy machinery and deep-level cultivation can change the soil structure, causing erosion and run-off. Poor forestry practices on carbon rich soils can result in a series of small increases (or a cumulative moderate increase) in soil contamination due to the transport of compounds (fuel oils, lubricants, pesticides and other chemicals, sewage sludge, and inorganic nutrients, for example) in run-off. Forestry operations that drain carbon-rich soils can result in a series of small increases (or a cumulative moderate increase) in the amount of organic matter lost from soil, which in turn can reduce its value as a carbon store (climatic factors). However, since the principles of SFM will be employed in the implementation of this priority the effects are expected to be of major positive magnitude in terms of increasing nutrients and fertility.

It is predicted that expanding the area of all types of woodlands and forests will contribute positively to improving air quality but it can also have short term negative effects in the form of emissions from forestry-related operations associated with the creation of woodlands. Therefore the impact on this topic is predicted to be mixed.

The effects of land use change on the wider environment could be mixed, depending on the scale and nature of changes. For example, afforestation can have positive or negative impacts on the landscape, historic environment, biodiversity, and patterns of recreational use (population and human health). These effects

[88] Forest Research (2012) Understanding the carbon and greenhouse gas balance of forests in Britain [online] Available at https://www.forestresearch.gov.uk/research/forestry-and-climate-change-mitigation/greenhouse-gases-and-carbon-dynamics-of-forestry/ (accessed 14/09/2018)

cannot be fully defined at this scale as they depend on detailed or site specific matters such as siting and location and the practices used to create new forests, for example the potential for afforestation to obscure landforms and rock outcrops as well as alter the recognised character of cultural and historic landscapes. It is assumed that potential negative impacts will be avoided where afforestation schemes are appropriately designed and delivered to meet the requirements of the UKFS. Local forestry and woodland strategies also identify the most appropriate locations for woodlands to maximise the delivery of public benefits and minimise adverse environmental and landscape impacts. In addition, specific woodland creation proposals must meet the requirements of the statutory processes for assessing impact on designated habitats or the wider environment (e.g. Habitats Regulations Appraisal, Environmental Impact Assessment). Therefore it has been predicted that the effects of implementing this priority on landscape and historic environment will be of a mixed nature.

Uncertainties/assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- Assessment of this priority assumes that afforestation and replanting (restocking) will meet the requirements of the UK Forestry Standard which defines the requirements for the sustainable management of forests in the UK including Scotland and all relevant statutory requirements including Habitats Regulations Appraisal and Environmental Impact Assessment.

Priority 3: Ensure wood fibre availability from Scotland's forests is predictable and increases over time

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
+	o	o	+	o	++	++	+/-	+/-

Likely Environmental Effects

Ensuring wood fibre availability can stimulate further rural development can bring major positive material asset benefits across the short, medium and long term and a minor positive effect for the population. Exposure to pollution (e.g. dust) or nuisance (e.g. noise from transportation) can have a negative effect but would be addressed through mitigation. In addition, the infrastructure necessary to maintain a long term supply of wood fibre needs to be sustainably managed (in line with the Scottish Government Economic Strategy) to ensure that people and biodiversity in the vicinity are not adversely affected. Based on the assumption that this will be delivered following SFM principles, exposure to pollution will be avoided and the infrastructure necessary to maintain a long term supply of wood fibre will be sustainably managed, it is predicted that there will be a neutral effect for biodiversity.

Improving the predictability of wood fibre availability could result in increased production of timber from

Scotland's forests and woodlands. This priority has the potential to have a detrimental effect on habitats and species (biodiversity) as well as soil biodiversity and stability and in theory this could lead to secondary negative impacts in terms of deterioration of water quality, potentially conflicting with RBMP objectives depending on the scale of the impact. However, since the implementation of this priority will be in line with the requirements of the UKFS , it is therefore assumed that the effect of this priority on soil and water will be neutral as a result of implementing this priority.

Increasing availability could also promote the use of locally grown timber as a building material, which could benefit climatic factors (major positive) and air quality (minor positive) by replacing more carbon intensive materials, particularly if combined with the initiatives described in priority 6. However, there is potential for negative effects on material assets if an increase in the scale and intensity of forestry operations place unsustainable pressures on existing infrastructure such as transport routes. The consideration of landscape is subjective and adverse impacts on landscape could also arise but it is assumed that new planting will be planned and designed according to the requirements of the UKFS. In some cases, changes to land use and landscape could be positive, such as in the rehabilitation of vacant and derelict land and in improving the appearance of transport corridors. These considerations also apply to the setting of the historic environment and hence both these topics are predicted to experience mixed effects.

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- Assessment of this priority assumes that the creation, management and harvesting of productive forests and woodlands will meet the requirements of the UK Forestry Standard which defines the requirements for the sustainable management of forests in the UK including Scotland.

Priority 4: Protect forests and woodlands from damage caused by new or existing pests and diseases, promote the sustainable management of wild deer and build resilience to support adaptation to climate change

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
+	++	+	o	+	++	++	+	+

Likely Environmental Effects

Fulfilment of Priority 4 in connection with climate adaptation (i.e. planting diverse species that are well adapted to the site) would result in more resilient stock and a major positive effect on climatic factors. This would provide an improvement in the quality of woodland as well as timber products reaching market (material assets) which is considered to be a major positive effect.

As mentioned in the Scottish Climate Change Adaptation Programme[89] (SCCAP), plant pests have the potential to have a greater impact on livelihoods in Scotland compared to other parts of the UK. This is due to the relatively larger rural land use sector in Scotland and the importance of the natural landscape to tourism. Therefore, prioritisation of their management is likely to result in benefits to population and human health (considered to be of minor positive magnitude). However, as stated in the Plant Health Strategy[90], it needs to be recognised that plant health actions can have unintended consequences (e.g. such as on biodiversity) as well as positive impacts.

Given the uncertainty around specific impacts arising from climate in the long term, as well as the diverse views on adaptation methods (as mentioned in SCCAP), using a range of management and restocking strategies should help to increase resilience by accounting for various impact and implementation scenarios. Examples include the use of Continuous Cover Forestry, different thinning and spacing regimes, and diversified plantings. Any emerging threats (e.g. pests) may then only affect a smaller proportion of the total forest investment.

Whilst investment in deer management provides jobs, supports local communities, and preserves the forestry asset (material assets), the unsustainable management of deer populations may negatively impact on woodlands and forests. It can also lead to an increase in road traffic accidents. Wild deer are an integral part of Scotland's biodiversity. However, changes in their numbers can disrupt the balance between natural woodland processes such as regeneration and the suppression of scrub encroachment[91]. Using an ecosystems approach in managing deer can have benefits for both estate managers and the wider population, as well as for the environment at large.

Adopting an integrated, evidence-based approach to pest and disease management essentially takes into consideration biodiversity (major positive), soil and water (minor positive), and balances these factors to give a net positive impact on the environment over the medium term.

Implementation of this priority would prevent damage caused by herbivores and deer to wider environmental receptors such as water and carbon stores locked in soil and peatland (climatic factors). Managing wild deer will also have the effect of minimising the volume of tree stock requiring replanting and hence reducing negative impacts on soil. It could also support a diversification of species planted and encouraged through natural regeneration as more palatable[92] tree species are often disproportionately damaged by high deer densities.

Protecting forests and woodlands is seen to be protecting historic environment (ancient woodland) and landscape and hence has been assessed as a minor positive effect as a result of this priority.

It is considered that this priority will not have a significant effect on air quality.

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementa-

[89] Scottish Government (2014) Climate Ready Scotland: Scottish Climate Change Adaptation Programme [online] Available at: https://www.gov.scot/Resource/0045/00451392.pdf (accessed 27/08/2018)

[90] Scottish Government (2016) The Scottish Plant Health Strategy [online] Available at: https://www.gov.scot/Resource/0049/00495142.pdf (accessed 27/08/2018)

[91] Scottish Natural Heritage (2012) Code of Practice on Deer Management [online] Available at: https://www.nature.scot/professional-advice/land-and-sea-management/managing-wildlife/managing-deer/code-practice-deer-management

(accessed 27/08/2018)

[92] A measure of palatability is used in the assessment of herbivore impacts in woodland areas being considered for Scottish Rural Development Programme (SRDP) grant funding through the Woodland Grazing Toolbox[92].

tion of this priority are not specified.

- This priority is directly linked to implementing climate change adaptation measures.
- Scoring assumes that good practice methods will be used in managing the impact of pest and diseases according to the requirements of the UKFS.

Priority 5: Increase community ownership and management of forests and woodlands

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	0	0	0	0	0	0	0	0

Likely Environmental Effects

There is potential for a major positive effect on population and human health in terms of contributing to increased community empowerment in the short to long term. Also, improved awareness of the environment can have an indirect yet positive effect over the long term in preserving all aspects of the environment for example if the local community has ownership of its surroundings and implements SFM principles. It is considered that changing ownership will not change the effect on the other environmental topics and this effect is therefore considered to be neutral.

Uncertainties/Assumptions:

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- Assumes that community woodlands will be managed to meet the requirements of the UKFS.

Priority 6: Increase efficiency, productivity and the value generated from forest products and services and help develop forestry's role in creating a low-carbon economy, by supporting technological innovation, improving the capacity and skills of those working in the sector, and developing existing and new markets

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	+	+	+/-	+	++	++	o	o

Likely Environmental Effects

In terms of benefits to the workforce, this priority (6) is predicted to have a major positive effect on population and human health in the short to long term. Specifically, this priority is likely to yield health and safety benefits (via improvements in technology, for example) as well as facilitating job creation and the development of a skilled workforce. This, in turn, can contribute to long term investment and potential for positive effects via the implementation of sustainable practices in the timber industry into the future (a major positive effect on material assets) as well as the provision of a sustainable supply of timber for economic development.

Supporting innovation and emerging technologies has the potential to result in a major positive effect on material assets if such technologies support the concept of a circular economy and hence minimise waste generation. There are also likely to be secondary benefits for material assets and the landscape from minimising waste from the forestry sector. Effects on landscape would be largely neutral although displacement of waste to landfill could be minimised with secondary benefits in terms of reduced transport emissions and energy consumption during processing (climatic factors). In general, growing forests more sustainably via a more efficient supply chain will serve to minimise any negative effects of forestry operations on the environment.

Meeting increasing demand for wood fibre products (material assets) by afforestation and increasing the use of timber in construction has the potential to reduce GHG emissions and have a major positive impact on climatic factors. Additional benefits are likely to accrue to biodiversity, soil, and water if the timber is sourced from sustainably managed forests. Forests can help to control soil erosion and help create new habitats. Potential local negative effects may arise via increased emissions from forestry activities (air).

Increasing productivity and encouraging a broader range of markets is likely to increase profitability and encourage resilience of the forestry sector in Scotland (material assets). This will help provide funding for forest owners and managers to support restructuring existing forests in line with UKFS guidelines, improving soil stability, water quality, and biodiversity in the longer term (minor positive). Additionally, new woodland areas should be planned and designed to meet the requirements of the UKFS, which would again minimise potential negative impacts on soil stability, water quality, and biodiversity during planting and harvesting.

Promoting the use of wood-based and non-timber forest products could have significant positive impacts on a variety of environmental topics. For example, substituting much higher embodied energy building materials in construction with timber–based products and systems can have significant benefits in terms of carbon storage and emissions reduction. In certain circumstances, some panelised timber systems can lead to a reduction in construction times and overall material use such as reduced foundations.[93] The recycling of wood products can also lead to a reduction in waste.

In terms of low carbon innovation this priority is seen to extend to the promotion of all raw materials derived from forests in order to reduce carbon emissions (climatic factors), including the use of timber in carbon neutral buildings and the use of bio-refining to create alternative materials. This is linked to increasing the value of previously valueless forest products (such as spruce needle refining) and enhancing the value of materials perceived to be low value (like turning low grade pulp wood into glulam, for example), benefiting material assets by enhancing the efficiency of resource use and reducing waste production.

Promoting a transition towards greater generation and use of low carbon heat will help to reduce GHG emissions (climatic factors) and will have associated benefits for air quality (hence a mixed effect overall) and population and human health. Wood fuel for biomass heating is a growing use of forestry resources[94] (material assets). The effect on the historic environment is considered to be neutral.

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- It is assumed that new technologies will improve sustainability, by maximising resource efficiency (improving the sustainable output of forests) and helping address issues such as the impact and cost of timber transport.
- This assessment assumes restructuring of existing woodlands will meet the requirements of the UK Forestry Standard which defines the requirements for the sustainable management of forests in the UK including Scotland. It also assumes that adverse environmental effects will be managed by following good practice promoted in the UK Forestry Standard and associated guidelines.

[93] C. A. S. Hill & J. Dibdiakova (2016): The environmental impact of wood compared to other building materials, International Wood Products Journal, DOI: 10.1080/20426445.2016.1190166

[94] Forestry Commission Scotland (2015) Woodfuel Demand & Usage. Available at: http://scotland.forestry.gov.uk/images/corporate/pdf/woodfuel-demand-and-usage-in-scotland_2015.pdf (accessed 22/08/18)

Priority 7: Increase the natural capital value of Scotland's woodlands and forests by improving the condition of native woodlands and forests, and increasing the positive impacts of forest and woodland management on biodiversity, air, water, soils, flood management, landscapes and the historic environment whilst mitigating the risks of negative impacts

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	
++	++	++	++	++	++	++	++	++

Likely Environmental Effects

It is predicted that this priority will have a major positive effect across all topics. Enhancing woodlands and increasing the amount of woodland cover including delivery of the Scottish Government's woodland creation targets (as set out in the Climate Change Plan) is likely to have a major positive effect on climatic factors by reducing GHG emissions through increased CO_2 sequestration as well as positively affecting the health and wellbeing of the population. It is predicted that trees and woodlands will be significantly affected as a result of climate change[95]. Coupled with the long time frame associated with this sector, it is assumed that that mitigation and adaptation[96] to climate change is implicit within this priority.

Increasing the area of sustainably managed forests through both afforestation and improvements to the management of existing forests (a major positive effect on material assets), can have associated major positive effects on soil, water, biodiversity, flora and fauna, human health and wellbeing and the historic environment.

The restoration and expansion of native woodland is a priority of the 2020 Challenge for Scotland's Biodiversity. Native woodlands hold internationally important populations of priority and protected species which benefit when woodland areas are suitably protected. Enhancing native woodlands will also benefit a wider range of species (biodiversity) and if designed appropriately add to the quality of the landscape.

Further, Scotland's forests and woodlands support a disproportionately high share of biodiversity[97] and the role that the forestry sector can play in increasing habitat diversity in support of climate change resilience is recognised in the 2020 Challenge for Scotland's Biodiversity. It is considered that this priority will result in major positive effects on biodiversity. Secondary benefits for population and human health may also arise through increased flood management and could help to support communities in managing and improving resilience to

[95] Forest Research (2018) Climate change adaptation [online] Available at: https://www.forestresearch.gov.uk/research/climate-change-adaptation/ (accessed 21/08/2018)

[96] Forest Research (2018) Climate change adaptation [online] Available at: https://www.forestresearch.gov.uk/research/climate-change-adaptation/ (accessed 21/08/2018)

[97] Forestry Commission (2012) Biodiversity [online] Available at: http://www.forestry.gov.uk/woodsfornature (accessed 23/08/2018)

these events.

There is the potential for beneficial effects on human health and wellbeing to arise through the increased provision of accessible woodland space which can be used for recreational purposes and can enhance the environmental quality of urban areas in particular. Improving air quality (predicted to be a major positive effect) will have a knock on effect in terms of reducing human exposure to poor air quality, thereby reducing the likelihood of air quality-related adverse health effects. Improving soil quality increases the viability of natural ecosystems which filter pollutants and thereby contributes to a better quality living environment. Woodlands and forests also contain substantial carbon in their soil and vegetation, and globally are hugely important in regulating carbon, water, and energy cycles. Secondary benefits for population and human health may also arise through improved flood management and could help to support communities in improving their resilience to these events. Natural flood management techniques can also provide further benefits for biodiversity.

The effect of this priority on landscape is considered to be of major positive magnitude. Ensuring forestry activities protect and where possible enhance significant aspects of the landscape and historic environment will also provide indirect benefits for soil if suitable land management principles are applied. Benefits are considered likely for population and human health as Scotland's historic and cultural environment and landscape play a key role in contributing to our sense of place and providing opportunities for recreation, with associated benefits in terms of increased physical fitness and improved mental health. An estimated 95% of the Scottish adult population agree or strongly agree that woodlands in Scotland are an important part of the country's natural and historic environment[98]. However, whilst tourism, leisure, and sport can improve understanding and enjoyment of the natural environment, increased visitor numbers can also place pressure on these resources if not managed sustainably. Enhancing and maintaining public access, undertaking conservation management initiatives, and considering the presentation of significant features should all be included as relevant considerations in the context of forest planning[99].

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- It is assumed the key actions associated with this priority will involve the sustainable creation of new woodlands, and sustainable management of all existing forests and woodlands in line with the UKFS.
- Assessment of this priority assumes consideration of climate mitigation.

[98] Forestry Commission (undated) A valuation of the economic and social contribution of Forestry for People in Scotland [online] Available at: http://www.forestry.gov.uk/fr/INFD-6S8CSP (accessed 23/06/2018)

[99] Forestry Commission Scotland (undated) Forests & historic environment information and advice [online] Available at: https://scotland.forestry.gov.uk/images/corporate/pdf/fcs-forest-historic-enviro-info-advice-hi-res.pdf (accessed 23/08/2018)

Priority 8: Increase the use of Scotland's forests and woodlands to improve health and well-being, help people better understand forestry, and support wider Scottish Government activity to help children become confident and resilient members of Scottish society

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	+/-	+/-	+	+	+	+	+/-	+/-

Likely Environmental Effects

There is potential for a major positive effect on population and human health in terms of spending time outdoors and alleviating pressures on health services. The health benefits of greenspace are well documented. It provides space for outdoor activities, a chance to connect with nature, and a place to socialise (population and human health). Further, improved awareness of and respect for the environment can have a positive effect over the long term in preserving all aspects of the environment including air, water, climatic factors and material assets.

Woodlands are becoming increasingly popular for recreational visitors with over 63% of the adults in Scotland having visited a woodland in the last year[100]. However, increased numbers of visitors could place pressure on the natural environment if not managed in a sustainable way. For example, visitors could trample vegetation, create noise, disturb wildlife, and leave litter. Some of these pressures could extend to historic environment features located in or near forests and woodlands and would require appropriate management. Therefore it is considered that an overall mixed effect is anticipated for biodiversity, soil, landscape and historic environment. Given established mitigation including the Scottish Access Code, and scope for visitor management, any adverse effects are not expected to be major overall.

Access to outdoor spaces and opportunities to connect with the natural environment can have both physical and mental benefits for wellbeing and can also provide a sense of identity and place[101]. This interaction with woodlands can increase the population's awareness of the goods that are derived from it and increase awareness of the importance of maintaining good ecosystem health. This can have an indirect yet major positive effect over the long term in preserving all aspects of the environment.

Woodlands offer a rich opportunity for children to play, in an environment that is more challenging and diverse than any other type of greenspace. Behavioural and emotional problems in children, such as attention deficit

[100] Scottish Natural Heritage (2014) Commissioned Report No. 679 Scotland's People and Nature Survey 2013/14 [online] Available at: Scotland's People and Nature Survey 2013/14 (accessed 21/09/2018)

[101] Scottish Government (2016) Land Use Strategy 2016-2021 SEA ER [online] Available at: https://www.gov.scot/Topics/Environment/Countryside/Landusestrategy/LUS2consultation (accessed 21/08/2018)

disorder, may be improved by exposure to woodland and research has reported that children engaged in woodlands settings are more likely to interact and socialise as part of a group[102]. This has been reported to be of particular value to children with varying emotional health since the forest setting can help to stabilise anger, with is linked to reduced physical and mental health, depression, and increased antisocial behaviour[103].

Children's early experiences are thought to be central to shaping their long term health and wellbeing and critical to improving the health of the whole population and reducing inequalities in health over the longer term[104]. In 2016, 14% or children aged 2-15 were at risk of obesity, with a further 15% at risk of being classed as overweight[105]. Further benefits for population and human health may also arise from encouraging children to participate in increased physical activity which may lead to long term behaviour changes. Participation in initiatives such as forest schools also seek to raise awareness of the environment through undertaking conservation tasks, with the potential for pupils to retain this connection for years after leaving[106].

Priority 9: Enhance forestry's contribution to sustaining viable rural communities and increase the positive impact of forest and woodland management on other businesses especially in agriculture and tourism

Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	+/-	+	+	+	+	++	+/-	+/-

Likely Environmental Effects

This priority is predicted to have major positive benefits for population and human health in terms of supporting rural business creation and the local community via employment opportunities and provision of integrated land management principles (in line with the Land Use Strategy)[107],enabling farmers to benefit from forestry, for

[102] Forestry Commission Scotland (undated) Woods for health [online] Available at: https://scotland.forestry.gov.uk/images/corporate/pdf/fcfc011.pdf (accessed 21/08/2018)

[103] Forestry Commission Scotland (undated) Woods for health [online] Available at: https://scotland.forestry.gov.uk/images/corporate/pdf/fcfc011.pdf (accessed 21/08/2018)

[104] ISD Scotland NHS (undated) Child health [online] Available at: http://www.isdscotland.org/Health-Topics/Child-Health/ (accessed 22/08/2018)

[105] Scottish Government (2017) Health of Scotland's population – obesity [online] Available at: https://www.gov.scot/Topics/Statistics/Browse/Health/TrendObesity (accessed 22/08/2018)

[106] Forest Schools Wales (undated) Environmental Awareness and Sustainability [online] Available at: https://www.forestschoolwales.org.uk/ysgol-goedwigforest-school/what-happens-in-a-session/environmental-awareness/ (accessed 22/08/2018

[107] Scottish Government (2016) Land Use Strategy 2016-2021 SEA ER [online] Available at: https://www.gov.scot/Topics/Environment/Countryside/Landusestrategy/LUS2consultation (accessed 21/08/2018)

example through income from timber, provision of shelter for stock, or the use of timber as a source of biomass energy which is considered to be a major positive effect for material assets. With this comes a responsibility to ensure that local air quality is not negatively affected.

This priority also has the potential to expand opportunities for more people and businesses to benefit from forestry-related tourism over the short to long term. A minor positive effect is likely on soil, air, water and climatic factors in terms of increased awareness of the benefits of the outdoors and conservation. This could lead to increased physical and mental health benefits if it leads to an increase in people's physical activity and access to greenspace. However, if increased numbers of visitors could also place pressure on the environment if not managed in a sustainable manner. For example, visitors may trample vegetation, create noise, disturb wildlife, and leave litter behind. Therefore it is considered that the topics of biodiversity, historic environment and landscape could experience effects of a mixed magnitude, although the comments above relating to established mitigation are also applicable here.

There is the potential for both positive and negative effects to arise through land use change and conflict over potential alternative land use options, and for landscape depending on the scale and nature of changes. However, increased tourism and income derived from visitors experiencing Scotland's landscape quality has an important contribution to make to local, regional and national economy. Nevertheless, such effects will be experienced at different spatial and temporal scales, so the effects will often be local and subjective.

Forestry is a key asset in Scotland, which has some of the most productive forests in the UK. Further, the amount of timber harvested has been increasing steadily. This priority could stimulate further rural development and ensure the timber industry continues to grow into the future (material assets). However, there is the potential for both positive and negative effects to arise through land use change and conflict over potential alternative land use options, depending on the scale and nature of changes (landscape).

The effects of land use change on the wider environment and communities could be mixed, depending on the scale and nature of changes and if afforestation is not carried out sensitively.

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- Afforestation and forest management will meet the requirements of the UK Forestry Standard which defines the requirements for the sustainable management of forests in the UK including Scotland.

Priority 10: Increase the positive contribution that urban forestry makes in Scotland's towns and cities								
Population and Human Health	Biodiversity, Flora and Fauna	Soil	Air	Water	Climatic Factors	Material Assets	Historic Environment	Landscape
++	+	+	+	+	++	+	+	++

Likely Environmental Effects

There are numerous benefits associated with urban trees, forest and woodlands. As well as acting as a local carbon sink (climatic factors) urban forests and woodlands can help to improve air quality through the removal of pollutants such as airborne particulates and absorption of nitrogen dioxide, sulphur dioxide, and ozone.

Urban trees, woodlands and forests also moderate temperatures and have energy effects on buildings, including the reduction of building energy use by lowering temperatures and shading buildings during the summer, and blocking winds in winter (climatic factors and population and human health). Conversely they can increase energy use by shading buildings in winter, and may increase or decrease energy use by blocking summer breezes. Thus, appropriate tree placement near buildings is critical to achieve maximum building energy conservation benefits. The net effects on climatic factors and population and human health are considered to be of major positive magnitude. Lowering the energy use of buildings can have a secondary effect of lowering pollutant emissions from power plants (air quality)[108]. Therefore the effect on air is expected to be local and therefore overall considered to be of minor positive magnitude.

Trees can intercept rainwater runoff and re-evaporate it from their canopies, as well as allowing rain to percolate into the soil, having the effect of lessening flooding incidents and hence a minor positive effect on water, material assets and soil. Improved air quality can have a positive effect on population in terms of lowering levels of asthma. Flood alleviation can have a positive effect on population and water by protecting personal assets and managing the flow of surface water. With an increased contribution from urban forestry it is considered that biodiversity will be encouraged to these areas and hence experience a minor positive effect.

Trees and woodlands have the positive effect of improving urban landscapes which is beneficial for human health over the short to long term by providing opportunities for exercise and helping to lower the incidence of heart attacks and Type 2 diabetes (population and human health)[109]. The effect on landscape is considered to

[108] Forestry Commission England (2010) The case for trees in development and the urban environment, [online], Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718033/eng-casefortrees.pdf (accessed 16/09/2018)

[109] 'Greenspace, urbanity and health: relationships in England', Mitchell R & Popham F, Journal of Epidemiology and Community Health. 61: pp681-683, 2007.

be of major positive magnitude. With a greener environment comes a greater sense of pride and community cohesion as well as lowered crime levels in some cases[110]. Additional secondary benefits are predicted for material assets and population by providing small volumes of by-products and as assets to development. It is expected that the setting of historic environment buildings and monuments could experience minor positive effects from the implementation of this priority.

Uncertainties/Assumptions

- The high-level nature of the Strategy means that the detailed actions associated with the implementation of this priority are not specified.
- Assumes that urban forest and woodland creation and management meets the requirements of the UKFS.

6.4 Cumulative Assessment

6.4.1 The cumulative effects of the Forestry Strategy prioirities are detailed in Table 8 and discussed below.

6.4.2 The cumulative effects assessment of the Forestry Strategy priorities highlights that all of the SEA objectives will experience positive effects as a result of the implementation of the Strategy and specifically those that relate to population and human health, biodiversity, flora and fauna, climatic factors and material assets. Minor positive effects are predicted overall across the priorities for soil, air and water. On the whole minor positive effects are expected with respect to the SEA objectives that relate to the historic environment and landscape although there are several potential mixed effects anticipated for these objectives.

6.4.3 With regard to positive effects, major positive cumulative effects are identified for population and human health, biodiversity, flora and fauna, climatic factors and material assets. For example, some priorities will have a major positive impact on population and human health through the delivery of SFM, increased community ownership and sustaining rural communities.

6.4.4 Minor positive effects on soil, air and water are predicted from a combination of, for example, expansion of woodland, lower pollutant emissions due to low carbon technology, lowering of flood incidence in the urban environment and a general increase in conservation awareness.

6.4.5 Whilst on balance the effect on historic environment and landscape is expected to be of minor positive magnitude there are also potential mixed effects that can be addressed at a lower tier.

6.4.6 For example, where priorities support SFM that has the potential to introduce land use change, individual projects will be subject to consideration through the relevant statutory regimes including EIA to ensure any likely significant environmental effects are identified and opportunities to avoid, reduce or offset

[110] 'Environment and Crime in the Inner City. Does Vegetation Reduce Crime?' Kuo FE & Sullivan WC, Environment and Behaviour 33 (3), pp 343-367, 2001; 'Aggression and Violence in the inner city: Effects of Environment via Mental Fatigue', Prof. Kuo FE & Sullivan WC, Environment and Behaviour 33 (4) July, pp 543-571, 2001

these are considered, particularly in relation to the landscape and the historic environment.

Table 8: Cumulative effects of the Forestry Strategy Priorities

Strategy Priorities **SEA Objectives**	1	2	3	4	5	6	7	8	9	10
Population and human health	++	++	+	+	++	++	++	++	++	++
Biodiversity, flora and fauna	++	++	o	++	o	+	++	+/-	+/-	+
Soil	++	++	o	+	o	+	++	+/-	+	+
Air	++	+/-	+	o	o	+/-	++	+	+	+
Water	++	++	o	+	o	+	++	+	+	+
Climatic Factors	++	++	++	++	o	++	++	+	+	++
Material Assets	++	++	++	++	o	++	++	+	++	+
Historic Environment	++	+/-	+/-	+	o	o	++	+/-	+/-	+
Landscape	++	+/-	+/-	+	o	o	++	+/-	+/-	++

6.5 Effects of the Forestry Strategy in combination with other Policies, Plans and Strategies

6.5.1 The potential for effects in combination with other PPS has also been considered. The draft Forestry Strategy has the potential to positively and cumulatively contribute across a wide range of Scottish Government policy areas within the context in which it sits. The key role that land management in the context of forestry can play in reducing GHG emissions and adapting to climate change is noted within a range of policies, including the Climate Change Plan and second Land Use Strategy. For example, the role of Scotland's forests and woodlands and the increased use of wood products as a renewable resource to support climate change and biodiversity commitments. In particular, the Climate Change Plan sets out a commitment to ensuring that forestry in Scotland continues to be carried out sustainably to maintain this important carbon sink.

6.5.2 The importance of reducing fragmentation and improving ecosystem health in order to adapt to a changing climate is set out in a range of documents. For example, the 2020 Challenge states a need to improve ecosystem health at the catchment or landscape scale, and that integration of action for wider habitats is needed to combat fragmentation and restore key habitats. This is also reflected in Climate Ready Scotland: Scottish Climate Change Adaptation Programme which supports a healthy and diverse natural environment with the capacity to adapt to climate change and ensure that our natural environment is resilient to any future effects.

6.5.3 The role of increased forestry to alleviate flooding is also noted in the Climate Change Plan and the use of natural flood management measures, such as the planting of woodlands, wetland creation, river restoration also has a key role to play in the delivery of Flood Risk Management Strategies and Local Flood Risk Management Plans. Flooding can have a negative impact on population and human health, and there is the potential for wider health benefits to be realised as a result of the draft Strategy leading to potential improvements in air quality and a possible increase in the uptake of physical activity.

6.5.4 The sustainable use of Scotland's natural environment and the benefits that are derived from them are a key consideration in documents such as the Climate Change Plan and NPF3 and SPP. In particular, the potential environmental and wider societal benefits are noted. For example, the role of green space in driving economic development is noted in addition to the importance of sustainable forestry practices in rural Scotland. In turn, further supporting wider Scottish Government policies that seek to improve quality of life.

6.6 The influence that the SEA has had on the Forestry Strategy

6.6.1 This assessment has re-affirmed the importance of the promotion and adherence to the principles of SFM. The draft Strategy has these principles as a corner stone of its vision and ambitions and states that the UKFS is a key requirement for the associated delivery of forest and woodland creation, management and protection. However, as a result of this assessment the Strategy has provided a clear

commitment to this approach by including the following priority for action: To promote and develop the concept of SFM as it applies to Scotland. Following the assessment of the consultation responses, the way that the SEA has influenced the development of the Forestry Strategy will be further set out in the Post Adoption Statement.

7 Proposed mitigation/enhancement measures

7.1.1 The 2005 Act requires information to be provided on measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the PPS. These measures are often referred to as mitigation measures.

7.1.2 The assessment has concluded that the Strategy, with its core purpose of promoting and supporting the implementation of SFM principles, will have overall positive environmental effects. There may be potential for some mixed effects in relation to the SEA topics historic environment, landscape, and to a lesser extent, biodiversity, air quality and soil, although it is expected that negative effects would be largely localised and can be mitigated through established regulatory regimes and guidance. Table 9 sets out the proposed mitigation measures against the potential impact, associated priority from which it is predicted to arise, and the responsible party.

Table 9: Proposed mitigation measures

Potential Mixed Impact on SEA Objectives	Mitigation	Responsibility
Biodiversity, Flora and Fauna (Priority 8 and 9)	In addition to the requirements of the UKFS, which requires forest managers to take account of environmental objectives and minimise direct impacts on biodiversity and historic environment sites caused by visitors, long-term forest plans could incorporate a suitable recreation / visitor plan, for sites where the impacts are likely to be a significant issue.	Scottish Government Land owners and managers
Soil (Priority 8)	[Same mitigation as above – 'Biodiversity']	Scottish Government Land owners and managers
Air Quality (Priority 6)	Use of Environmental Management Plans for site specific mitigation such as enclosing stockpiles of dusty materials, damping down etc.	On site contractor and private companies Land owners and managers
Landscape / (Priorities 2, 3, 8 and 9)	The Principles for Sustainable Land Use will be used by public bodies when making plans and taking significant decisions affecting the use of land (Land Use Strategy (2016-2021). Local forestry and woodland strategies also identify the most appropriate locations for woodlands to maximise the delivery of public benefits and minimise adverse landscape impacts. Additional information and guidance on forest landscape design is provided by Forestry Commission Scotland.	Scottish Government Local Authorities Statutory Consultees / public bodies Land owners and managers
Historic Environment	Local forestry and woodland strategies also identify the most appropriate locations for	Scottish Government

(Priorities 2, 3, 8 and 9)	woodlands to maximise the delivery of public benefits including the protection, and where possible enhancement of the historic environment. Additional information and guidance on protecting the historic environment is provided by Forestry Commission Scotland.	Local Authorities Statutory Consultees / public bodies Land owners and managers

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8 Monitoring

8.1.1 Section 19 of the 2005 Act requires that the responsible authority monitors the significant environmental effects of the implementation of the PPS in order to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action. Given the range of indicators currently in use, and to avoid duplication, it is recommended that existing indicators are utilised.

8.1.2 A wide range of existing programmes are in place at the national and local level to report on environmental status and assess performance against established environmental indicators. Since the publication of the second Forestry Strategy, indicators have been developed which enable progress against the objectives to be judged[111]. These include indicators such as: area of native woodland, area of coniferous woodland and area of broadleaved woodland where timber production is a significant management objective.

8.1.3 Following the publication of this (the third) Forestry Strategy 2019-29 the Scottish Government will publish a detailed monitoring and reporting framework. A draft suite of progress indicators has been included within the draft Forestry Strategy to enable the Government to track progress against this Strategy's 10 year objectives and monitor forestry's contribution towards the Scottish Government's National Outcomes. Table 10 shows these possible indicators. The Government has asked for suggestions on monitoring received from respondents to the consultation to assist the process of finalising its approach to monitoring the implementation of the Strategy monitoring plan.

8.1.4 Therefore, it is anticipated that the outcomes from the SEA and in particular, key potential effects, can be monitored as an integral part of the monitoring of the Forestry Strategy itself as long as the monitoring takes place with the outcomes of the SEA also in mind. Further information on monitoring proposals will be set out in the Post Adoption SEA Statement.

Table 10: Proposed indicators

Forestry Strategy 10-year objectives	Possible progress indicators
Increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth	• Contribution of woodlands, forests and the forest sector to the Scottish economy (GVA and jobs). • Volume of available wood fibre. • Area of woodland and forests. • Area of new woodland and forest creation.
Protect and enhance Scotland's valuable natural assets, ensuring that our forests and woodlands are resilient and contribute to a healthy and high quality environment.	• Woodland contribution to Natural Capital Index[112]. • Proportion of protected woodland and forests with natural features in favourable condition. • Area of new native woodland and forest creation.

[111] SPICe Information Centre (2016) Scottish Forestry [online] Available at: http://www.parliament.scot/ResearchBriefingsAndFactsheets/S5/SB_16-93_Scottish_Forestry.pdf (accessed 18/07/2018)

[112] Scottish Forum on Natural Capital (2018) Scotland's Natural Capital Asset Index: Tracking the national Index [online] Available at: http://naturalcapitalscotland.com/article/snhrsquos-natural-capital-asset-index/ (accessed 22/09/2018)

Use Scotland's forest and woodland resource to empower more people to improve their health, well-being and life chances.	• Numbers of visits to forests and woodlands. • Area of forests and woodlands that are owned by communities.

9 Conclusion

9.1.1 The SEA has concluded that the draft Strategy, with its core purpose of promoting and supporting the implementation of SFM principles, will have overall positive environmental effects. Cumulative effects are expected to be positive over all of the environmental topics.

9.1.2 Where appropriate, adherence to the requirements of the UKFS and existing environmental regulation and mitigation is taken into account as 'assumed mitigation' and factored into the assessment of the significance of effects. In addition to the UKFS, these include the planning system (where applicable to associated built development); the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 and Plant Health (Forestry) legislation.

9.1.3 There may be potential for some mixed effects in relation to the SEA topics: historic environment, landscape, and to a lesser extent, biodiversity, air quality and soil. Mitigation measures for any potential negative impacts have been proposed in the report against the relevant priority from which it is predicted to arise, and the responsible party.

9.1.4 It anticipated that the outcomes from the SEA, and in particular key potential effects, can be monitored as an integral part of the monitoring of the Forestry Strategy itself. Further information on monitoring proposals will be set out in the Post Adoption SEA Statement.

10 Consultation

10.1.1 Public views and comments are invited on both this Environmental Report and the draft Scottish Forestry Strategy to which it relates. Details of how to respond are provided below.

When can I respond?

Respondents are asked to submit responses to this Environmental Report directly to the Scottish Government by closing date of 29 November 2018.

How can I respond?

- **Online:** You can respond online using the Scottish Government's consultation platform, Consultation Hub, at: https://consult.gov.scot/forestry/scotlands-forestry-strategy-2019-29/

  Consultation Hub allows you to save and return to your responses while the consultation is still open. A copy of your final response will be emailed to you.

- **By Email or Post:** Responses can be submitted by email, with the Respondent Information Form (Appendix E) to forestry.strategy@forestry.gsi.gov.uk or by mail to Forestry Strategy Team, Silvan House 231 Corstorphine Road Edinburgh EH12 7AT

How will responses be considered?

Following the consultation, a Post-Adoption Statement will be prepared. The Statement will reflect on the views provided on the findings of the assessment and the proposals in the Consultation Paper and will explain how the issues raised have been taken into account in finalising the Strategy.

Consultation Questions on the Environmental Report

Respondents may find the following questions helpful to provide a focus for their responses to this Environmental Report. Please note that responses do not need to be limited to these questions, and more general comments on this Environmental Report and the proposals set out in the Consultation Paper are also invited.

1. What are your views on the evidence set out in the Environmental Report that has been used to inform the assessment process?
2. Should any additional evidence sources be used in the Environmental Report? Please provide details.
3. What are your views on the predicted environmental effects as set out in the Environmental Report?
4. Do you agree with the conclusions and recommendations set out in the Environmental Report?
5. Please provide any other further comments you have on the Environmental Report.

Appendices

Appendix A: Forestry and Land Management (Scotland) Act 2018 – sections on forestry strategy

3 Duty to prepare a Forestry Strategy

(1) The Scottish Ministers must prepare a Forestry Strategy.

(2) The Forestry Strategy—

(a) must set out a vision for forestry in Scotland,

(b) must set out the Scottish Ministers' objectives, priorities and policies with respect to the promotion of sustainable forest management, and

(c) may set out other matters with respect to the promotion of sustainable forest management.

(3) The Forestry Strategy must include the Scottish Ministers' objectives, priorities and policies with respect to—

(a) the creation of woodland,

(b) the economic development of forestry,

(c) targets for the planting of trees,

(d) the conservation and enhancement of the environment by means of sustainable forest management,

(e) the realisation of the social benefits of forestry,

(f) the acquisition and disposal of land under sections 15 to 17,

(g) the production and supply of timber and other forest products.

(4) The Scottish Ministers—

(a) must keep the forestry strategy under review, and

(b) may, if they consider it appropriate to do so, revise the strategy.

(5) If the Scottish Ministers have not revised the forestry strategy under subsection (4)(b) within the period of 9 years beginning with the day on which the strategy was last published, they must revise the strategy.

4 Preparation and revision of the Forestry Strategy

(1) In preparing or revising the Forestry Strategy, the Scottish Ministers must—

(a) publish a draft of the strategy and consult with such bodies as they consider appropriate and also with the general public,

(b) have regard to—

(i) the land use strategy (prepared under section 57 of the Climate Change (Scotland) Act 2009), and

(ii) the land rights and responsibilities statement (prepared under section 1 of the Land Reform (Scotland) Act 2016),

(iii) Article 2 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change,

(iv) the code of practice on deer management (drawn up under section 5A of the Deer (Scotland) Act 1996),

(v) the Scottish Biodiversity Strategy (prepared under section 2 of the Nature Conservation (Scotland) Act 2004).

(2) The forestry strategy must be prepared and revised with a view to achieving consistency, so far as practicable, between the objectives, priorities and policies set out in the strategy and the Scottish Ministers' other functions.

5 Publication of the Forestry Strategy

(1) The Scottish Ministers must publish the Forestry Strategy and each revision of it.

(2) The Scottish Ministers must lay a copy of the Forestry Strategy and each revision of it before the Scottish Parliament.

(3) When complying with subsection (1), the Scottish Ministers must also publish a report setting out—

(a) the consultation process undertaken in order to comply with section 4(1)(a), and

(b) the ways in which views expressed during that process have been taken account of in preparing or revising the Forestry Strategy.

(4) The Scottish Ministers must lay a copy of a report under subsection (3) before the Scottish Parliament.

6 Duty to have regard to the Forestry Strategy

The Scottish Ministers must have regard to the Forestry Strategy when –

(a) complying with their duty to promote sustainable forest management,

(b) exercising any of their tree health and silivicultural material testing functions under the Plant Varieties and Seeds Act 1964 and the Plant Health Act 1967 (see Chapter 2),

(c) managing forested land in accordance with section 11,

(d) acquiring land under section 18(1) or 19(1),

(e) disposing of forested land under section 20(1),

(f) exercising any of the following functions for the purposes of or in connection with the carrying out of a function mentioned in paragraphs (a) to (e) –

(i) section 69 (information, research and education etc.)

(ii) section 70 (power to form companies etc.),

(iii) section 71 (financial assistance),

(iv) section 72 (charging).

Appendix B: Relationship with other relevant plans or legislation

Name of PPS or legislation	Main requirements of the PPS or Legislation	How it affects, or is affected by the Forestry Strategy
International		
Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO 1972)	Provides the framework for cataloguing, naming and conserving sites of outstanding cultural or natural importance (world heritage sites).	The Forestry Strategy will have due cognisance of this convention.
Convention on Biological Diversity (UNCED 1992)	Highlighted objectives and outcomes, including the conservation of biological diversity, the sustainable use of natural resources, and the fair and equitable use of biological and natural resources, including forests.	The Forestry Strategy will contribute towards Scotland meeting its commitments made under this Convention.
Forest Principles (UNCED 1992)	Introduced the 'Forest Principles' which lay the foundation for all later policy developments, seeking to balance and harmonise competing demands on forest resources.	The Forestry Strategy will support these principles.
Johannesburg Summit on Sustainable Development (2002)	Furthering of Parties commitment to sustainable development through promoting the implementation of strategies to support ecosystems.	The Forestry Strategy through the promotion of SFM and the UKFS will contribute towards these commitments.
Kyoto Protocol (UNFCCC 1997)	Agreement to reduce greenhouse gases which cause climate change. Signatories are obligated to report net greenhouse gas emissions arising from afforestation, reforestation, and deforestation. Article 2 commits signatories, in achieving emission limitation and reduction commitments, to implement and/or further elaborate policies and measures for the protection and enhancement of sinks and reservoirs of greenhouse gas, while at the same time promoting SFM.	The Forestry Strategy will contribute towards Scotland meeting its Protocol commitments and also through its support for the delivery of the Scottish Government's Climate Change Plan..
Ramsar Convention, 1971	Provides the framework for the conservation and wise use of wetlands and their resources through national action and international cooperation.	The Forestry Strategy through the promotion of SFM and the UKFS (includes guidelines on forests and water and biodiversity) will contribute towards these commitments.
Rio Declaration (United Nations Conference on Environment and Development (UNCED) 1992)	Highlighted the need to protect and enhance the environment when pursuing economic and social development.	The Forestry Strategy through the promotion of SFM and the UKFS will contribute towards these commitments.
The Bern Convention (1982)	The Convention on the Conservation of European Wildlife and Natural Habitats aims to ensure the conservation and protection of wild plant and animal species and their natural habitats.	The Forestry Strategy through the promotion of SFM and the UKFS (includes a guideline on forests and biodiversity) will contribute towards these commitments.
The Paris Agreement (UNFCCC 2015)	Agreement to reduce emissions to contribute to the reduction of greenhouse gas. Commitment to limit global warming to less than $2^{o}C$ and to take action to minimise climate change. Calls for action to conserve and enhance sinks of greenhouse gases, including forests.	The Forestry Strategy will contribute towards Scotland meeting its Protocol commitments and also through its support for the delivery of the Scottish Government's Climate Change Plan.
European		
Common Agricultural Policy (CAP) (reformed in 2013)	A system of agricultural support and programmes for viable food production, sustainable management of natural resources and climate action, and balanced territorial development. The CAP recognises the beneficial impact of well-managed woodland on natural landscape and biodiversity.	The Forestry Strategy will have due cognisance of the policy.
EU 2020 Climate and Energy Package	Sets three key climate and energy targets for 2020 requiring a 20% reduction in greenhouse gas emissions from 1990 levels, 20% of EU energy from renewables and a 20% improvement in energy efficiency.	Renewables targets have prompted growth in woodfuel/biomass sector. Any impacts arising from the Forestry Strategy on the delivery of these targets and / or other wood fibre markets will need to be appraised.
EU 2030 Climate and Energy Framework	Sets three key targets for 2030: at least 40% reduction in greenhouse gas emissions; at least 27% share for renewable energy and at least 27% improvement in energy efficiency.	Renewables targets have prompted growth in woodfuel/biomass sector. Impact of any policy in the Forestry Strategy on the delivery of these targets and / or other wood fibre markets will need to be appraised.
EU Air Quality Directive 2008/50/EC	Sets long term air quality objectives and introduces air quality standards.	The Forestry Strategy will comply with all relevant European and domestic regulatory requirements.
EU Birds Directive 2009/147/EC	Protects all wild birds, their nests, eggs and habitats within the EC. It aims to protect all European wild birds and the habitats of listed species, in particular through the designation of Special Protection Areas (SPA).	The Forestry Strategy will comply with the Directive the promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity) will contribute towards these commitments.
EU Forest Strategy, 2013	A non-legislative framework which provides guidance on the development of policies	The Forestry Strategy will have cognisance of the Strategy.

Name of PPS or legislation	Main requirements of the PPS or Legislation	How it affects, or is affected by the Forestry Strategy
	having an impact on forests.	
EU Habitats Directive 92/43/EEC	Aims to protect biodiversity, through the conservation of natural habitats, wild flora and fauna. Provides the basis to classify the network of Special Areas of Conservation (SAC).	The Forestry Strategy will comply with the Directive. The promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity) will contribute towards these commitments.
EU Water Framework Directive 2000/60/EC	Safeguards the sustainable use of surface water, transitional waters, coastal waters and groundwater. Supports the status of aquatic ecosystems and associated environments. Addresses issues such as groundwater pollution and river basin management planning.	The Forestry Strategy will comply with the Directive. The promotion of SFM and the UKFS will contribute towards these commitments.
EU Plant Health Regime: EU Plant Health Directive and Official Controls and new EU Plant Health regulation (EU) 2016/2031 and Official Controls (EU) 2017/625	Sets out the protective measures against plant pests and addresses official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products.	The Forestry Strategy will have due regard to the Plant Health Regime.
European Biodiversity Strategy to 2020 – towards implementation (2011)	European endorsement of the Convention on Biological Diversity. It has a target to achieve more sustainable agriculture and forestry, for example, by encouraging forest holders to protect and enhance forest biodiversity. It outlines the Aichi Biodiversity Targets.	The Forestry Strategy will contribute to the delivery of this strategy by the promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity).
European Landscape Convention (2000)	Promotes landscape protection, management and planning.	The Forestry Strategy will contribute to this Strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Landscape).
European Strategy for Sustainable Development (2009 Review)	Sets out the long term objectives for sustainable development in Europe concerning issues such as climate change, transport, health and natural resources.	Strategy will contribute to this strategy through the promotion of SFM and the UKFS will contribute towards these commitments.
Industrial Strategy (renewed in 2017?)	Includes a new series of actions on Circular Economy, including measures to improve the production of renewable biological resources and their conversion into bio-based products and bio-energy.	The Forestry Strategy will take cognisance of this Strategy.
Renewable Energy Directive 2009/28/EC	Requires that biofuels and bioliquids meet EU's sustainability criteria in order to contribute towards national renewable energy targets. It aims to reduce the risk of indirect land use change, for example, by conversion of forests to agricultural land and to facilitate the development and adoption of advanced biofuels.	The Forestry Strategy will include references to SG's ambition for expanding Scotland's forest area, through woodland creation, that will support delivery of this commitment.
National		
2020 Challenge for Scotland's Biodiversity, 2013	The focus of the strategy is on protecting and restoring healthy ecosystems, connecting people with nature and ensuring biodiversity contributes to sustainable economic growth.	The Forestry Strategy will take cognisance of this strategy.
Ancient Monuments and Archaeological Areas Act, 1979 (as amended by the Historic Environment Scotland Act, 2014)	Provides protection of scheduled monuments and areas of archaeological importance. Sites of national importance can be added to the inventory of historic battlefields or the inventory of gardens and designed landscapes (GDL) ('inventories') under this legislation. Historic Environment Scotland is responsible for compiling and maintaining the inventories.	The Forestry Strategy will take cognisance of this through the promotion of SFM and the UKFS (includes a guideline on Forests and Historic Environment).
Biomass Action Plan for Scotland, 2007	Sets out a coordinated programme for the development of the biomass sector in Scotland.	The Forestry Strategy will take cognisance of the Plan.
Cleaner Air for Scotland: The Road to a Healthier Future, 2015	Sets out proposals to further reduce air pollution to protect human health and comply with European and Scottish legal requirements relating to air quality.	The Forestry Strategy will have cognisance of the Strategy.
Climate Change (Scotland) Act, 2009	The Act sets targets for the reduction of greenhouse gas emissions and other climate change provisions, including adaptation.	The Forestry Strategy will support this programme through the promotion of SFM and the UKFS (includes a guideline on Forests and Climate Change).
Climate Change Plan (2018-2032)	Sets out the Scottish Government's decarbonisations plans to 2032.	The Forestry Strategy will directly support the implementation of the plan through delivering sustainable woodland creation and encouraging the increased use of wood products in construction, and contributing to other policy outcomes such as those identified for the agricultural sector.
Climate Ready Scotland – Scottish Climate Change Adaptation Programme, 2014	Sets out Ministers' objectives, policies, and proposals to tackle identified climate change impacts. It promotes planned adaptation in woodland creation and management, recognising that well-structured and diverse forests can better withstand change and extreme events.	The Forestry Strategy will support this programme through the promotion of SFM and the UKFS (includes a guideline on Forests and Climate Change).

Name of PPS or legislation	Main requirements of the PPS or Legislation	How it affects, or is affected by the Forestry Strategy
Code of Practice on Deer Management, 2012	Sets out how land managers can deliver sustainable deer management. It specifies land managers' responsibilities and helps them identify what they *must* do and *could* do to manage deer sustainably.	The Forestry Strategy will have due regard to this code.
Community Empowerment Act, 2015	Introduces a right for community bodies to apply for ownership, lease or other rights over public assets, including the sale or lease of National Forest Estate land through the Community Asset Transfer Scheme.	The Forestry Strategy will take cognisance of this Act.
Environment Act, 1995	As well as establishing SEPA, the Act makes provision for schemes that benefit nature conservation and the promotion of public enjoyment of the countryside.	The Forestry Strategy will have due regard for the provisions of this Act through the promotion of SFM and the UKFS (includes a guidelines on Forests and Biodiversity, Water etc).
Flood Risk Management (Scotland) Act, 2009	Introduced a more sustainable, modern approach to flooding in Scotland and a framework for co-ordination and co-operation between organisations.	The Forestry Strategy will have due regard for the provisions of this Act.
Good Places, Better Health, 2008	Promotes partnership working which shares knowledge and understanding of how the physical environment impacts on mental health and wellbeing.	The Forestry Strategy will take cognisance of this Strategy.
Land Reform (Scotland) Act, 2003 & 2016	Establishes statutory public rights of access to land for recreational and other purposes	The Forestry Strategy will take cognisance of this Act.
Land Use Strategy (LUS) for Scotland, 2016 – 2021	Sets a framework for sustainable land use. It recognises the importance of ecosystem functions and services. It mandated a review of the Forestry Strategy.	The Forestry Strategy will take cognisance of this Strategy.
National Peatland Plan, 2015	Aims to secure the sustainable use, management and restoration of peatlands, including priority habitat bog woodland.	The Forestry Strategy will contribute to this strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Soil).
National Planning Framework 3 (NPF3) (2014)	The Scottish Government's policy on nationally important land use planning matters. The NPF3 strongly supports renewable energy developments and the Green Network. It aims to deliver 100,000 hectares of new woodland over the next 10 years to ensure Scotland meets its emissions reduction targets and wider land use objectives.	The Forestry Strategy will support the delivery of a number of key policies and national development e.g. woodland creation, Central Scotland Green Network etc.
Nature Conservation (Scotland) Act, 2004	Sets out measures to conserve biodiversity and to protect and enhance Scotland's biological and geological natural heritage by the provision of the legal framework for the protection and management of Sites of Special Scientific Interest (SSSI).	The Forestry Strategy will take cognisance of this through the promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity).
Our Place in Time – The Historic Environment Strategy for Scotland, 2014	A high level framework for Scotland's historic environment with a key outcome. to ensure the cultural, social, environmental and economic value of Scotland's heritage makes a strong contribution to the nation's wellbeing.	The Forestry Strategy will contribute to this strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Historic Environment).
Planning etc. (Scotland) Act, 2006	Introduced the new system for the preparation of Strategic and Local Development Plans.	The Forestry Strategy will recognise the importance the planning system has for protecting and enhancing the natural environment.
Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997	This is the main legislation that allows Historic Environment Scotland to list buildings of special architectural or historic interest and advise on changes affecting listed buildings and conservation areas, e.g. through listed building consent.	The Forestry Strategy will take cognisance of this Act.
Regulations on Forestry Felling and Restocking (Forestry and Land Management (Scotland) Bill) (forthcoming)	Will create a new legislative framework to support, develop, and regulate forestry. It will transfer the functions currently held by Forestry Commissioners to Scottish Ministers and set out enabling powers to regulate felling and restocking.	Regulations will underpin the delivery of the Forestry Strategy.
Scotland's Economic Strategy, 2015	Sets a framework for a more competitive and fairer Scotland. Forestry meets the Strategy's four key priorities by sustainably investing in people and infrastructure; supporting a culture of innovation, research and development; promoting inclusive growth and creating opportunity and boosting international trade and investment.	The Forestry Strategy will support the implementation of this strategy.
Scottish Forestry Strategy, 2006	Provides the strategic framework for forestry and woodland in Scotland.	The new Forestry Strategy will replace the current Strategy. It will continue to take cognisance of the importance of woodlands and forests to the environment, communities and to people.
Scottish Government policy on the control of woodland removal (Forestry Commission Scotland, 2009)	Provides a strategic framework for appropriate woodland removal, the maintenance and expansion of forest cover, the achievement of an appropriate balance between forested and non-forested land, support for climate change mitigation and adaptation.	This policy will support the delivery of the Forestry Strategy and the promotion of SFM by minimising permanent woodland removal.
Scottish Planning Policy (SPP), 2014	Sets out policy on the creation of well designed, sustainable places, the reduction in carbon emissions and adaptation to climate change. This includes the protection and	The Forestry Strategy will support the SPP.

Name of PPS or legislation	Main requirements of the PPS or Legislation	How it affects, or is affected by the Forestry Strategy
	enhancement of natural and cultural assets, including woodlands.	
Scottish Plant Health Strategy	This strategy sets out the Scottish Government's approach to the protection of the health of plants (agricultural & horticultural crops, plants in parks and gardens, forestry and the natural environment) in Scotland.	The Forestry Strategy will have due regard to the strategy.
Scottish Rural Development Programme (SRDP) (2014 - 2020)	The key purpose of the SRDP is to help achieve sustainable economic growth in Scotland's rural areas. It's priorities include protecting and improving the natural environment and supporting the agricultural and forestry businesses.	The Forestry Strategy will take cognisance of the Act.
Scottish Soil Framework, 2009	Describes key pressures on soils, particularly climate change, relevant policies to combat those threats, and identifies the future focus for soil protection, key soil outcomes, and actions across a range of sectors.	The Forestry Strategy will contribute to this strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Soil).
The Forestry (Environmental Impact Assessment) (Scotland) Regulations, 2017	Covers various forestry projects including afforestation, deforestation, forest roads, and forestry quarries.	When delivering the new Forestry Strategy, forestry expansion and management practices should adhere to the SFM principles in the UKFS including the implementation of the EIA Regs.
The Forestry Act, 1967	Requires landowners to apply for a license for the felling of growing trees.	Is replaced by the Forestry and Land Management (Scotland) Act 2018.
The Historic Environment Scotland Policy Statement, 2016	Guides the operation of decision making within the Scottish planning system. It replaces the operational practices set out in the Scottish Historic Environment Policy (2011).	The Forestry Strategy will contribute to this strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Historic Environment).
The Land Rights and Responsibilities Statement (LRRS), 2017	Ministers have a duty to promote LRRS principles: There should be a more diverse pattern of land ownership/tenure and more opportunities for citizens and local communities to own, lease and have access to land or buildings which can contribute to their community's wellbeing and future development. There should be greater collaboration and community engagement in decisions about land.	The Forestry Strategy will have due regard to the LRRS.
The National Flood Risk Assessment (2015-21)	Published by SEPA. The risk assessment identifies the Potentially Vulnerable Areas and the risk associated with flooding in these areas. Relevant actions will be identified in the regional plans.	The Forestry Strategy will support this assessment through the promotion of SFM and the UKFS (includes a guideline on Forests and Water).
The right tree in the right place – Planning for forestry and woodlands (Forestry Commission Scotland, 2010)	Provides Scottish Government advice to planning authorities on planning for forestry and woodlands. It supports a significant expansion in woodland cover.	The Forestry Strategy will restate the principle of 'right tree in the right place'.
The River Basin Management Plan for the Scotland River Basin District, 2009 – 2015	Outlines the actions required to protect Scottish waters in good condition and to improve the quality of others.	The Forestry Strategy will support this plan through the promotion of SFM and the UKFS (includes a guideline on Forests and Water).
The Water Environment (Controlled Activities) (Scotland) Regulations, 2018	Outlines different levels of authorisations to allow for proportionate regulation of the water environment.	The Forestry Strategy will support the implementation of these regulations through the promotion of SFM and the UKFS (includes a guideline on Forests and Water).
UK Forestry Standard, revised 2017	The reference standard for SFM in the UK applies to all woodland, irrespective of who owns or manages it.	When delivering the new Forestry Strategy forestry expansion and management practices should adhere to the SFM principles in the UKFS.
Water Environment and Water Services (Scotland) Act, 2003	Protects the water environment including groundwater, surface water and wetlands, for, or in connection with the implementation of the Water Framework Directive.	The Forestry Strategy will contribute to this strategy through the promotion of SFM and the UKFS (includes a guideline on Forests and Historic Environment).
Wildlife and Countryside Act, 1981	Promotes the protection of wildlife, the countryside, National Parks and the designation of protected areas and public rights of way. It requires that the risks posed to wildlife by tree work and work in woodland are carefully assessed.	The Forestry Strategy will support this Act through the promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity).
Wildlife and Natural Environment (Scotland) Act, 2011	Makes a range of provision about wildlife and the natural environment. Makes certain amendments to the Wildlife and Countryside Act 1981 and other existing legislation.	The Forestry Strategy will support this Act through the promotion of SFM and the UKFS (includes a guideline on Forests and Biodiversity).
Zero Waste Plan, 2010	Sets out a vision for a zero waste society in which all waste is seen as a resource; waste is minimised; valuable resources are not disposed of in landfills and most waste is sorted, leaving only limited amounts to be treated.	The Forestry Strategy will have due regard for the Plan.
Regional		
Flood Risk Management Plans	Published by local authorities. These plans set out how organisations, stakeholders and communities will work together to manage flood risk.	The Forestry Strategy will take cognisance of these strategies.
Flood Risk Management Strategies	Published by SEPA, the strategies set out actions to manage flood risk and the impact	The Forestry Strategy will take cognisance of these strategies.

Name of PPS or legislation	Main requirements of the PPS or Legislation	How it affects, or is affected by the Forestry Strategy
	of flooding in high risk areas, within specific flood risk management districts.	
Planning Authority Forestry and Woodland Strategies, 2016	Aims to guide the expansion and management of woodland in the planning authority areas	The Forestry Strategy will provide strategic context for future versions of these strategies.
River Basin Management Plans	Introduce a system to promote sustainable water use in a way which protects and improves the water environment in line with the Water Framework Directive.	The Forestry Strategy will contribute to these plans through the promotion of SFM and the UKFS (includes a guideline on Forests and Historic Environment).

Appendix C: Baseline Information of relevance to the Forestry Strategy

Environmental Topic	Baseline Information	Key Data	Trends	Source
Population and Human Health	**Age structure** (2017)	17% of the population is under 16 years of age; 64% is between 16 and 64; 19% is 65 and over	Scotland's population is **aging**, with people 75 and over projected to become the fastest growing age group in Scotland	National Records of Scotland - Age Demographics
	Life expectancy at birth (2015)	76.9 years for males; 81.0 years for females; 79.0 years combined male and female	this figure has shown general **improvement** over the long term (i.e. from 68.7 for males and 75.1 for females in 1980)	NHS Information Services Division - Life Expectancy
	Mortality rates (2016)	1 136 per 100 000	there has been a 27% **drop in overall mortality** since 1994, reflecting a cumulative decline in deaths from cancer, coronary heart disease, respiratory conditions, and stroke	National Records of Scotland - Mortality Rates
	Deprivation (2016)	many of the 5% most deprived areas in Scotland are clustered to the west of the Central Belt, particularly in and near Glasgow City	between 2012 and 2016, the **largest increases in share of the 20% most deprived areas** occurred across **West Dunbartonshire**, **Midlothian**, **North Ayrshire**, and **South Ayrshire**	Scottish Government - Scottish Index of Multiple Deprivation 2016
	Access to greenspace (2016)	65% of adults live within a 5 minute walk of their nearest greenspace	this figure has remained relatively **stable** over time (2013)	Scotland's People Annual Report: Results from the 2016 Scottish Household Survey
	Frequency of use of local green-space (2016)	36% of adults visit their nearest greenspace several times a week; 41% visit once a week or less; 23% do not visit at all	greenspace usage has remained relatively **stable** over time (2013) but may decline as the population ages	as above
	Outdoor visits (2016)	48% of adults visit the outdoors at least once a week; 13% do not visit at all; people in deprived areas are less likely to visit the outdoors	this figure has remained relatively **stable** over time (2013)	as above
	Participation in physical activity (2016)	79% of adults reported participating in sport and exercise in the past month, including walking	this figure has **increased** by 17% since 2007, mostly due to increases in recreational walking	as above
	Active travel (2016)	69% of adults surveyed reported walking and 6% of adults reported cycling in the past week, with walking accounting for 24% of all journeys taken and cycling accounting for 1% of all journeys taken in 2016	between 2012 and 2016, the annual distance cycled in Scotland appears to have **increased** by 13.5%	Transport Scotland - Transport and Travel in Scotland 2016
	Pressures on population and human health	poor air quality, physical inactivity, inadequate housing conditions, deprivation, physical and mental health issues, ageing population and age-related diseases (e.g. dementia), climate change (e.g. increased vulnerability to flooding)		SPICe Briefing – Air Quality in Scotland; Scottish Government – A National Clinical Strategy for Scotland; SPICe Briefing – Good for climate, good for health;
Biodiversity, Flora, and Fauna	**Forest and woodland cover** (2017)	1 440 000ha (18% of Scotland's land area)	forest and woodland cover has **increased** over the 20th century from 351 000ha in 1905 to 656 000ha in 1965 to 1 281 000ha in	Forestry Commission - Forestry Statistics 2017; see also Figure B3 (Appendix B) (Native Woodland Survey of Scotland 2014)

Environmental Topic	Baseline Information	Key Data	Trends	Source
			1995-99	
	New planting (2016-2017)	4 800ha planted (73% of UK total amount)	new planting has **decreased** since 2012-2013 (7 000ha)	as above
	New planting by ownership (2016-2017)	1 100ha Forestry Commission	**private sector** new planting has **decreased** (e.g. 6 200ha in 2012-2013) but has **remained greater** than Forestry Commission new planting (e.g. 800ha in 2012-2013)	as above
		3 700ha private sector		
	New planting by forest type (2016-2017)	3 200ha conifers	**broadleaf** planting has **decreased considerably** to become less extensive than **conifer** planting, which has **increased**	as above
		1 500ha broadleaves		
	Woodland area by ownership (2017)	470 000ha (33%) owned by FC; 970 000ha (67%) owned by the private sector	these proportions have been fairly **stable** since 2013	as above
	Species composition (2017)	74% conifers (1 061 000ha)	**no trend data available**	as above
		26% broadleaved species (378 000ha)		
	Native woodland cover (2013)	319 100ha (22.5% of Scotland's total woodland area as of March 2011 and roughly 4.0% of Scotland's total land area)	native woodland cover **decreased** during the 20th century but began to **recover** after 1985 in response to policy changes	Forestry Commission - Native Woodland Survey of Scotland; SNH - Natural Heritage Trends - Forest and woodland: native woodland; see also Figure B3 (Appendix B) (Native Woodland Survey of Scotland 2014)
	Condition (2013)	46% found to be in satisfactory condition	overall, conditions are **stable** or **declining**, with some areas exhibiting improvements and others declining	as above; Scotland's Environment – Woodlands and forests
	Ancient woodland cover (2013)	120 305ha (65% / 64 130ha of these ancient woodlands qualify as native woodland, comprising 20.6% of native woods in total and just 4.6% of all woodlands in Scotland)	in comparison to previous surveys (i.e. Scottish Ancient Woodland Inventory), ancient woodland cover appears to have **decreased**	as above
	Condition (2013)	40% found to be in satisfactory condition	**no trend data available**	as above
	UK BAP Priority habitat types (woodland)	lowland mixed deciduous, native pine woodlands, upland birchwoods, upland mixed ashwoods, upland oakwood, wet woodland, wood pasture and parkland		SNH – Habitat definitions
	HabMoS – EUNIS land cover	coastal habitats; constructed, industrial, and other artificial habitats; grasslands and lands dominated by forbs, mosses, or lichens; habitat complexes; heathland, scrub, and tundra; inland surface waters; inland unvegetated or sparsely vegetated habitats; marine habitats; mires, bogs, and fens; montane habitats; regularly or recently cultivated agricultural, horticultural, and domestic habitats; woodland, forest, and		see also Figures B9 and B10 (Appendix B) (Scotland's Environment map)

<table>
<tr><th>Environmental Topic</th><th>Baseline Information</th><th>Key Data</th><th>Trends</th><th>Source</th></tr>
<tr><td rowspan="4"></td><td></td><td>other wooded land</td><td></td><td></td></tr>
<tr><td>Designated protected areas (2016)</td><td>1 423 Sites of Special Scientific Interest (SSSI), 51 Ramsar sites, 153 Special Protection Areas (SPAs), 249 Special Areas of Conservation (SAC)</td><td></td><td>SNH - Protected areas</td></tr>
<tr><td>Condition of notified species National Indicator (SSSI, Ramsar, SPA, SAC) (2016)</td><td>71% of all species features were in favourable condition; 3% were unfavourable recovering; 3% were unfavourable with corrective measures agreed; and 24% were in an unfavourable condition
<table><tr><th>Species</th><th>% favourable/unfavourable recovering</th></tr><tr><td>Terrestrial mammals</td><td>88%</td></tr><tr><td>Birds</td><td>72%</td></tr><tr><td>Fish</td><td>76%</td></tr><tr><td>Marine mammals</td><td>57%</td></tr><tr><td>Amphibians and reptiles</td><td>50%</td></tr><tr><td>Dragonflies</td><td>100%</td></tr><tr><td>Butterflies</td><td>87%</td></tr><tr><td>Invertebrates</td><td>82%</td></tr><tr><td>Vascular plants</td><td>82%</td></tr><tr><td>Non-vascular plants</td><td>65%</td></tr></table></td><td>considered to be in stable condition</td><td>SNH Biodiversity Indicator S010 – Condition of notified species</td></tr>
<tr><td>Condition of notified habitats national indicator (SSSI, Ramsar, SPA, SAC) (2016)</td><td><table><tr><th>Reporting category (sample size)</th><th>% favourable/unfavourable recovering</th></tr><tr><td>Geological (648)</td><td>95%</td></tr><tr><td>Upland (324)</td><td>74%</td></tr><tr><td>Heath (380)</td><td>56%</td></tr><tr><td>Woodland (502)</td><td>53%</td></tr><tr><td>Grassland (222)</td><td>50%</td></tr><tr><td>Freshwater (223)</td><td>73%</td></tr><tr><td>Wetland (347)</td><td>70%</td></tr><tr><td>Marine (103)</td><td>98%</td></tr><tr><td>Coastal (334)</td><td>82%</td></tr></table></td><td>considered to be in stable condition</td><td>SNH Biodiversity Indicator S011 – Condition of notified habitats</td></tr>
<tr><td>Index of abundance of terrestrial breeding birds national indicator (2016)</td><td>indicates: environmental change and condition of biodiversity overall</td><td>all-species figure is 14% higher than 1994; farmland birds increased in number up to the late-2000s then decreased, showing an overall 14% increase over 1994; woodland birds have seen a significant increase (67%) since 1994; upland birds</td><td>SNH – Index of Abundance for Scottish Terrestrial Breeding Birds, 1994 to 2016</td></tr>
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<table>
<tr><th>Environmental Topic</th><th>Baseline Information</th><th>Key Data</th><th>Trends</th><th>Source</th></tr>
<tr><td></td><td></td><td></td><td>have decreased (16%) in the same time period</td><td></td></tr>
<tr><td></td><td>Index of terrestrial insect abundance – butterflies (2017)</td><td>indicates: habitat loss and fragmentation and the impacts of climate change</td><td>all-species, generalist, and specialist numbers are considered to be stable since 1979</td><td>SNH Biodiversity Indicator S008 – Terrestrial Insect Abundance - Butterflies</td></tr>
<tr><td></td><td>Deer population in woodland habitats (2016)</td><td><table><tr><th>Species</th><th>National population</th></tr><tr><td>red deer</td><td>between 85 000 and 105 000</td></tr><tr><td>roe, Sika, and fallow deer</td><td>between 125 000 and 145 000</td></tr><tr><td>all species</td><td>between 210 000 and 250 000</td></tr></table></td><td>trend data is uncertain; across private woodlands, estimates indicate the population could be stable or falling slightly; on National Forest Estate land, figures suggested the population for all deer species combined dropped by 24% between June 2001 and June 2016</td><td>SNH – Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016</td></tr>
<tr><td></td><td>Impacts of deer grazing on woodlands</td><td>more than a third of all native woodlands were found to be in the high or very high herbivore impact categories (C and D), which would be likely to prevent successful tree and shrub regeneration of most species in most cases if the impact were to be maintained at that level
a little over half of native woodlands fell in the medium impact rating (B) category, meaning that whilst some regeneration is possible, the more vulnerable species may not be able to regenerate
although it is difficult to assign impacts to particular herbivores, deer were recorded as a significant presence in 73% of native woodland areas
deer and herbivores are also a major cause (89%) of unfavourable condition of natural features in protected woodland areas</td><td></td><td>Forestry Commission - Native Woodland Survey of Scotland; SNH – Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016; see also Figures B11, B12 and B13 (Appendix B)</td></tr>
<tr><td></td><td>Challenges associated with deer management</td><td>cost; different environmental and social contexts requiring different approaches (e.g. different patterns of land ownership); lack of coordination in some instances; associated environmental impacts (e.g. impacts on public access, landscape, protection of native woodland, etc.)</td><td></td><td>SNH – Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016; see also Figure B4 (Appendix B)</td></tr>
<tr><td></td><td>Pressures on biodiversity</td><td>pollution; land use intensification and modification; spread of invasive species and wildlife disease; a lack of recognition of the true value of nature; a disconnection with nature; climate change; marine exploitation</td><td></td><td>SNH – Key pressures on biodiversity</td></tr>
<tr><td>Soil</td><td>Characteristics</td><td>in general, Scotland’s soils are young, acidic, carbon rich, and nutrient poor compared to those found elsewhere in UK and mainland Europe</td><td></td><td>SEPA - Making the Case for the Environment: Soil</td></tr>
<tr><td></td><td>Main soil types</td><td>podzols (associated with coniferous woodland), brown earths (associated with semi-natural woodlands to the west), gleys, organic peat soils</td><td></td><td>The James Hutton Institute - Soils - Introduction</td></tr>
</table>

Environmental Topic	Baseline Information	Key Data	Trends	Source
	Condition (2014)	Scotland's soils are considered to be in good condition	**no trend data available**	Scotland's Environment - State and Trend Assessment
	Pressures on soils	changes in climate and changes in land use and land management practices leading to loss of soil organic matter, erosion, compaction, soil sealing, contamination, leaching, and changes in soil biodiversity		Scotland's Soils – Our soils
	Spatial extent of peatlands (blanket bog, raised bog, fens, and bog woodland) (2015)	peatlands cover more than 20% of Scotland's land area, mostly to the north and west with smaller pockets elsewhere; blanket bog alone covers 23% of Scotland's land area (1.8 million hectares)		SNH – Scotland's National Peatland Plan; see also Figure B7 (Appendix B) (Scotland's Environment map)
	Condition of peatlands (2018)	it is estimated that over 80% of peatlands are degraded; 70% of blanket bog and 90% of raised bog has sustained some level of damage	certain peatlands are considered to be **improving** due to focused restoration efforts	Scotland's Soils - Peatland Restoration; SNH – Scotland's National Peatland Plan; ClimateXChange - NB22a Peatland restoration area
	Pressures on peatland	commercial peat extraction and general harvesting, overgrazing, trampling by herbivores, burning, drainage and conversion to agricultural land and development, tree planting and woodland expansion, renewable energy generation, climate change		SNH – Commission Report No. 701 – Scotland's peatland – definitions and information resources
	Carbon abatement from peatland restoration (2012)	estimated at 0.018 Mt CO_2e/year	by 2027, carbon savings could **increase** to 0.4-0.7 Mt CO_2e/year based on a realistic restoration program	ClimateXChange – Soil Carbon and Land Use in Scotland
	Soil carbon storage (2011)	3 000 million tonnes (roughly 50% of the UK total)	this figure has remained relatively **stable** over time, although there may be small changes in individual land use categories over short time periods	as above
	Rocks and landforms	Rocks: volcanic foundation rocks (Central Belt); Lewisian-like and Moine-like rocks overlain by Dalradian foundation rocks (Grampian Highlands); Moine and Lewisian-like foundation rocks (Northern Highlands); Lewisian rocks, Torridonian rocks, and Cambrian and Ordovician foundation rocks (North-west seaboard); sedimentary greywacke and shale foundation rocks (Southern Uplands); various rocks formed since joining of foundations (Devonian, Carboniferous, Permian to Cretaceous, Palaeogene and Neogene)		SNH – Scotland's rocks, landforms and soils
		Landforms: caves and karst, coastal features (e.g. cliffs, sand dunes), Ice Age landforms (e.g. moraines, meltwater channels and deposits, periglacial features, etc.), landslides, rivers		
	Condition of rocks and landforms (2014)	Scotland's rocks and landforms considered to be in generally good condition	conditions are considered to be **stable** or **declining**	Scotland's Environment – Rocks and landforms
	Pressures	urban and rural development; changes in land use; demand for resources; climate change; rising sea levels; vegetation growth; dumping of waste material; quarrying, mining, and gravel extraction; coastal protection and river engineering;		as above

Environmental Topic	Baseline Information	Key Data		Trends	Source
		specimen collection			
	Geological Conservation Review sites	nearly 900, covering features such as rocks, minerals, and fossils; landform features formed during the Ice Age; and modern rivers and coasts; a significant proportion of these are covered by protective SSSI designations but more than 200 are unnotified and so their protection is not guaranteed			SNH – Geological Conservation Review sites; see also Figure B1 (Appendix B) (Scotland's Environment map)
	Condition of SSSI with earth sciences features (including Geological Conservation Review sites) (2018**)**	Condition	Number of sites	the majority of features experienced no change in condition increased between 2010 and 2016 (i.e. are considered to be **stable**)	Scotland's Environment – Data Analysis – Protected Nature Sites
		Favourable	625		
		Recovering	23		
		Unfavourable	14		
		Not assessed	2		
Water	**Water bodies in Scotland**	125 000 km of river, 25 500 lochs (2 000 km^2), 49 estuaries (1 000 km^2), 19 000 km of coastline (48 000 km^2), and 462 000 km^2 of offshore waters; additionally, significant volumes of groundwater (greater than rivers and lochs combined)			Key Scottish Environment Statistics 2016; BGS/SEPA - Scotland's aquifers and groundwater bodies
	Surface water conditions (total number of water bodies) (2016)	Rivers		since 2007, conditions have been **stable** or **improving**	SEPA – Water Environment Hub
		High status	172		
		Good status	1134		
		Moderate status	607		
		Poor status	368		
		Bad status	128		
		Lochs		since 2007, conditions have been **stable** or **improving**	
		High status	106		
		Good status	109		
		Moderate status	80		
		Poor status	36		
		Bad status	3		
		Transitional		since 2007, conditions have been **stable** or **improving**	
		High status	12		
		Good status	29		
		Moderate	7		
		Coastal waters		since 2007, conditions have been **stable** or **declining**	
		High status	143		
		Good status	312		
		Moderate status	1		
		Poor status	1		
	Groundwater conditions (2016)	Groundwater		since 2012, conditions have been	as above

Environmental Topic	Baseline Information	Key Data		Trends	Source
		Good status	320	**stable** or **improving**	
		Poor status	83		
	Protected areas conditions (2016)	**Bathing waters**		longer term trend data is unavailable but figures have remained **stable or improved** since **2014**	as above
		Excellent status	25		
		Good status	34		
		At target objective	16		
		Poor status	11		
		Shellfish waters			
		At target objective	29		
		Not at target objective	51		
	Pressures on rivers and lochs	agriculture, sewage disposal, hydropower and water supply, urban development, climate change, obstacles to fish migration, atmospheric pollution, invasive non-native species			Scotland's State of the Environment Report 2014
	Pressures on transitional waters	waste water, diffuse pollution, habitat modifications, climate change, water abstraction, noise, dredging, invasive non-native species, litter			as above
	Pressures on coastal waters	climate change, fishing, inputs of nutrients, contaminants, dredging and dumping, aquaculture, microbiological contamination, noise, litter, invasive non-native species			as above
	Pressures on groundwater	diffusion pollution from rural sources, discharges from industries such as mining and quarrying, abstraction for agricultural irrigation and industry			as above
	Flood risk (2015)	1 in 22 homes and 1 in 13 businesses are at risk from flooding		episodes of flooding are expected to become **more common** and **severe** in response to climate change	SEPA - Flood risk management in Scotland; Committee on Climate Change - Scottish Climate Change Adaptation Programme: An independent assessment for the Scottish Parliament
Air	**Condition** (2014)	air quality in Scotland overall is considered to be moderate, with localised areas of higher concentrations of certain pollutants that are the subject of special management measures (i.e. Air Quality Management Areas [AQMAs]) in 2017, 83 sites across Scotland met national air quality standards while 4 sites did not (Glasgow Kerbside, Edinburgh St Johns Road, Dundee Lochee Road, and Dundee Seagate)		air quality has generally been **improving** in recent years	Scotland's State of the Environment Report 2014; Air Quality in Scotland; see also Figure B6 (Appendix B) (Scotland's Environment – Air Quality)
	Main air pollutants	nitrogen oxides, particulate matter (fine dust), sulphur dioxide, ammonia, volatile organic compounds, ozone			Scotland's Environment – Air quality
	Ammonia emissions (2015)	37 ktonnes		10% **reduction** in emissions since 1990	Air Quality Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 1990-2015 (National Atmospheric Emissions Inventory)
	PM_{10} emissions (2015)	12 ktonnes		63% **reduction** in emissions since	as above

Environmental Topic	Baseline Information	Key Data	Trends	Source
			1990	
	Non-methane volatile organic compounds (NMVOCs) emissions (2015)	140 ktonnes	66% **reduction** in emissions since 1990	as above
	Nitrogen oxides/NO_x emissions (2015)	84 ktonnes	71% **reduction** in emissions since 1990	as above
	Carbon monoxide emissions (2015)	112 ktonnes	83% **reduction** in emissions since 1990	as above
	Sulphur dioxide emissions (2015)	23 ktonnes	92% **reduction** in emissions since 1990	as above
	Lead emissions (2015)	0 ktonnes (2.8 tonnes)	99% **reduction** in emissions since 1990	as above
	Air Quality Management Area (AQMAs) (2018)	38 (mostly due to traffic emissions)	as monitoring and assessment activities have increased, **more** AQMAs have been established (e.g. from 26 in 2011 to 32 in 2013 to 38 in 2018) and it is expected this number may continue to rise	Air Quality in Scotland; Scotland's Environment – Air quality; see also Figure B6 (Appendix B) (Air Quality in Scotland – Air Quality Management Areas)
	Pressures on air quality	agriculture, domestic sources, power generation and industrial processes, road transport,		SPICe Briefing – Air Quality in Scotland
	Potential human health impacts of poor air quality	premature death, ischaemic heart disease, stroke, chronic obstructive pulmonary disease (COPD), lung cancer, asthma, acute respiratory infections in children, diabetes, dementia, obesity		as above
	Potential environmental impacts of poor air quality	reduced crop yields, stunted plant growth, impacts on livestock from reduced food quantity and quality, damage to natural ecosystems and the built environment from acid deposition, eutrophication of soil and water leading to biodiversity loss		as above
Climatic Factors	**Greenhouse gas emissions*** (EU ETS adjusted) (2015) * includes carbon dioxide, methane, and nitrous oxide (1990 baseline) and hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, and nitrogen trifluoride (1995 baseline)	45.5 $MtCO_2e$	41.0% **reduction** from 1990/1995 baseline	Scottish Government - Scottish Greenhouse Gas Emissions 2015
	Greenhouse gas emissions by forestry sector (2015)	-7.0 $MtCO_2e$ (i.e. net emissions removal)	absorption by forestry is likely to **fall** over the coming decades due to low planting and maturing forests	as above; SPICe - Scottish Forestry
	Mean annual temperature (2016)	7.83°C	in general, temperatures have been **increasing**; eight of the ten warmest years on record in	Scottish Government temperature data (Metadata: Met Office); Key Scottish Environment Statistics 2016 (Metadata: Met

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<tr><td></td><td></td><td></td><td>Scotland have occurred since 2001; the average temperature in the 2000s was 0.90°C warmer than the 1961-1990 average and warmer than any other decade since records began in 1910</td><td>Office)</td></tr>
<tr><td></td><td>Mean annual precipitation (2015)</td><td>2015 was the second wettest year since records began in 1910 with precipitation recorded at 33.3% above the 1961-1990 baseline</td><td>records show an overall increase in rainfall since the 1980s over previous decades, but there is seasonal and regional variation</td><td>Key Scottish Environment Statistics 2016 (Metadata: Met Office)</td></tr>
<tr><td></td><td>Climate projections for Scotland</td><td>in general, projections suggest observed climate trends will continue and intensify in the future

these include:
projected increases in mean annual temperature by the 2080s for Scottish regions range from 1.6°C to 4.5°C, with central estimates between 2.6°C and 3.0°C;
drier summers and wetter winters;
more seasonal rainfall; and
increased risk of flood, drought, and extreme weather events</td><td></td><td>as above</td></tr>
<tr><td>Historic Environment</td><td>Designations (2018)</td><td>6 World Heritage sites, 8 167 scheduled monuments, 377 gardens and designed landscapes, 39 battlefields, and 663 conservation areas</td><td></td><td>Historic Environment Scotland – Listing, scheduling and designations</td></tr>
<tr><td></td><td>Condition of historic environment overall (2014)</td><td>Scotland’s historic environment is considered to be in moderate condition</td><td>conditions are considered to be stable</td><td>Scotland's Environment - State and Trend Assessment</td></tr>
<tr><td></td><td>Pressures on historic environment</td><td>development pressures, maintenance, land use, changing climate, coastal erosion, pollution, sustainability of traditional buildings, visitors</td><td></td><td>as above</td></tr>
<tr><td></td><td>Condition of scheduled monuments (2017)</td><td>around 88% of monuments are rated as being in satisfactory condition, 10% have major but localised problems, while 2% have extensive significant problems<table><tr><th>Condition (2013-17)</th><th>Percentage of scheduled monuments</th></tr><tr><td>Optimal</td><td>20%</td></tr><tr><td>Satisfactory with minor localised problems</td><td>41%</td></tr><tr><td>Satisfactory with significant localised problems</td><td>27%</td></tr><tr><td>Unsatisfactory with major localised problems</td><td>10%</td></tr></table></td><td>certain areas in west Scotland have higher than average unsatisfactory condition scores; trees and tree regeneration are the most widespread causes of deterioration across six of the eight monument categories

in terms of risk, 61% of monuments are considered to be at low risk (minimal or slight) of deterioration and 8% are considered to be at high (deterioration within 1 year) or immediate (ongoing deterioration) risk</td><td>Historic Environment Scotland – The Condition of Scotland’s Scheduled Monuments – Results from Historic Environment Scotland’s Monitoring Programme (publication pending)</td></tr>
</table>

Environmental Topic	Baseline Information	Key Data		Trends	Source
		Extensive significant problems	2%		
	Percentage of pre-1919 dwellings classified as having disrepair to critical elements national indicator (2016)	67%		this is a **reduction** from a peak of 80% in 2012	Scottish Government - Improve the state of Scotland's historic sites National Indicator
	Archaeological features associated with Scotland's woodlands	approximately 25 000			Forestry Commission Scotland – Scotland's woodlands and the historic environment
	Examples of historical woodland features	wood banks, charcoal platforms, saw pits, park pale, ancient coppice stools, veteran trees			Forestry Commission – Archaeology Of wooded environments
Material Assets	**Main types of land use** (2014)	agriculture (~70%), woodland (~18%), urban (~2.5%)		thousands of years ago, **woodland** cover was the dominant land use type; over time, this **decreased** to make way for agriculture, which today greatly surpasses all other types of land use, although **agricultural land** has **decreased** in area from 1982, likely due to woodland and urban expansion	Scotland's Environment – Land use and management
	Key land-based industries	agriculture (crops and livestock), forestry, sporting (e.g. deer management), food and drink, mining and aggregate extraction, energy, tourism			as above
	Agricultural land use in Scotland (2016)	~50% rough grazing; ~25% grass; ~10% used for crops or left fallow; ~15% used for woodland, ponds, yards, or other uses		since 2000, these proportions have remained relatively **stable**; however, the NA2 Area of Prime Agricultural Land (Land Capability) Indicator suggests a long-term trend towards an **increase in prime agricultural land** in response to climate change (e.g. warmer, drier summers)	Scottish Government – Agricultural Land Use in Scotland; Scottish Government Rural and Environment Analytical Services – Economic Trends in Scottish Agriculture; ClimateXChange – NA2 Area of Prime Agricultural Land (Land Capability) Indicator
	Area of woodland on farms (2016)	502 400ha		woodland on farms has **increased** in area since 2007 (279 900ha)	Forestry Commission - Forestry Statistics 2017
	Extent of built development landscape national indicator (2009)	122 498ha (1.55% of Scotland's land area)		**no trend data available**	SNH Landscape Indicator LBD1 – Extent of Built Development
	Waste sent to landfill (2014)	4.02 million tonnes		42% **reduction** from 2005	Key Scottish Environment Statistics 2016 (Metadata: SEPA)
	Amount of Biodegradable Municipal Waste (BMW) sent to landfill (2014)	1.06 million tonnes		51% **reduction** from 2005	as above
	Household waste recycling rate (2015)	44.2%		**increase** from 42.8% in 2014	as above
	Timber harvesting (2016)	8.4 million m^3		timber harvesting has **increased** relatively steadily over the past 35 years, with current volumes	Forestry Commission - Forestry Statistics 2017

Environmental Topic	Baseline Information	Key Data	Trends	Source
			roughly seven times those of the late 1970s	
	Restocking in Scotland (2016-2017)	11 100ha		as above
	Restocking by ownership (2016-2017)	6 700ha Forestry Commission		as above
		4 400ha private sector		
	Restocking by forest type (2016-2017)	9 100ha conifers		as above
		2 000ha broadleaves		
	Non-timber forest products	more than 200, including wild and managed game; berries, mushrooms, and other edible plants; medicinal plants; foliage, seeds, bark, and resins; dyes and craft materials		ForestHarvest website
	Pressures on material assets	increased demand for energy, water, raw materials, transport infrastructure, etc. leading to burdens on capacity and congestion; mismanagement; competition for space; climate change (e.g. increased vulnerability to flooding)		National Infrastructure Commission – Congestion, Capacity, Carbon: Priorities for National Infrastructure; European Environment Agency – Landscapes in transition; Committee on Climate Change - Infrastructure
Landscape	**Area of National Landscape Designations national indicator** (2016)	• 25.2% (1 988 000ha) of land covered by one or more form of landscape designation; • 17.5% (1 381 100ha) of land and sea designated as National Scenic Area (13% of Scotland's land designated as National Scenic Area, mostly found in more remote and mountainous areas). • 8.1% (639 100ha) of land designated as National Parks; • 1.0% (76 500ha) land with Inventory of Gardens & Designed Landscapes status; • 0.3% (27 000ha) of land with Battlefields Inventory status; • 0.2% (18 300ha) of land scheduled as Scheduled Monuments	**increase** from approximately 17% in 1996, due in large part to designation of Cairngorms and Loch Lomond & the Trossachs National Parks	SNH Landscape Indicator LLQ1 0 Area of National Landscape Designations; see also Figure B2 (Appendix B) (Scotland's Environment map)
	Geoparks	3 (10% of Scotland's total land area)		SNH - Geopark
	Wild land areas	42 (mostly in the north and west)		SNH - Wild Land Area descriptions; see also Figure B5 (Appendix B) (Scotland's Environment map)
	Landscape Character Assessment	includes coastal, highland, island, lowland, and upland areas		see also Figure B8 (Appendix B) (Scotland's Environment map)
	Visual influence of built development national indicator* (2013) * The components that make up this indicator are: Airfields; Major bridges; Extraction industries; Offshore surface structures;	one or more types of built development could be seen from 73% (5 750 855ha) of Scotland's land area (7 880 880ha)	this represents an **increase** from 71.4% in 2012 and from 65.4% in 2008	SNH Natural Heritage Indicator N3 - Visual influence of built environment

Environmental Topic	Baseline Information	Key Data	Trends	Source
	Wind Turbines; Tall structures without wind turbines; Building density (low and high); Motorways; Trunk roads; Non trunk A roads; B Roads; Minor roads and tracks (all); Railways; Overhead lines			
	Pressures on landscapes	climate change (e.g. loss of land to sea, flooding, changes in distribution of natural and semi-natural habitats, changes in plant composition due to pests or pathogens, etc.), incremental and ongoing development (e.g. infrastructure projects, housing, wind farms, etc.), and land use and intensification of land use and management (e.g. monoculture crops)		Scotland's Environment - Landscape

Appendix D: Figures in support of the environmental baseline

KEY	
Figure Source	Figure B1: Geological Conservation Review sites map (Source: Scotland's Environment map) Figure B2: National Scenic Areas map (Source: Scotland's Environment map) Figure B3: Woodland distribution map (Source: Native Woodland Survey of Scotland 2014) Figure B4: Deer fence high cost area map (Source: Scotland's Environment map) Figure B5: Wild Land Areas map (Source: Scotland's Environment map) Figure B6: Pollutant emissions and AQMAs (Source: Scotland's Environment; Air Quality in Scotland) Figure B7: Carbon and peatland map (Source: Scotland's Environment map) Figure B8: Landscape Character Assessment map (Source: Scotland's Environment map) Figure B9: Habitat Map - Northern and Southern Scotland and Western Isles (Source: Scotland's Environment map) Figure B10: Habitat Map - Orkney and Shetland and Legend (Source: Scotland's Environment map) Figure B11: Impacts of herbivores on native woodlands (Source: Native Woodland Survey of Scotland 2014) Impacts of herbivores on woodlands (Deer management) (Source: Deer Management in Scotland: Report to the Scottish Government from Scottish Natural Heritage 2016) Figure B12: Summarises the breakdown of results for the six different feature types identified as being potentially affected by herbivores Figure B13: Proportion of features assessed as unfavourable due to herbivores or other pressures

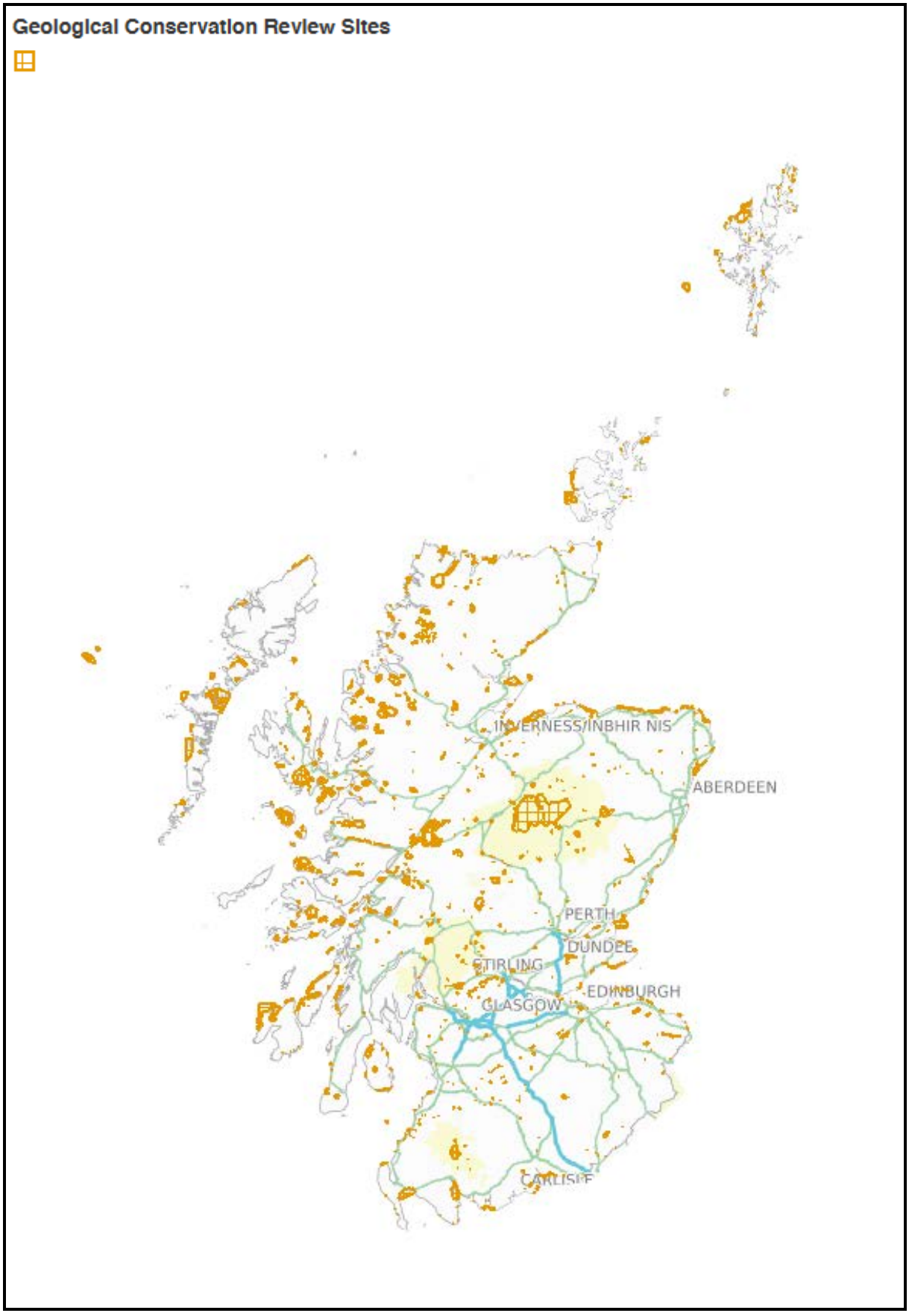


Figure B1: Geological Conservation Review sites map

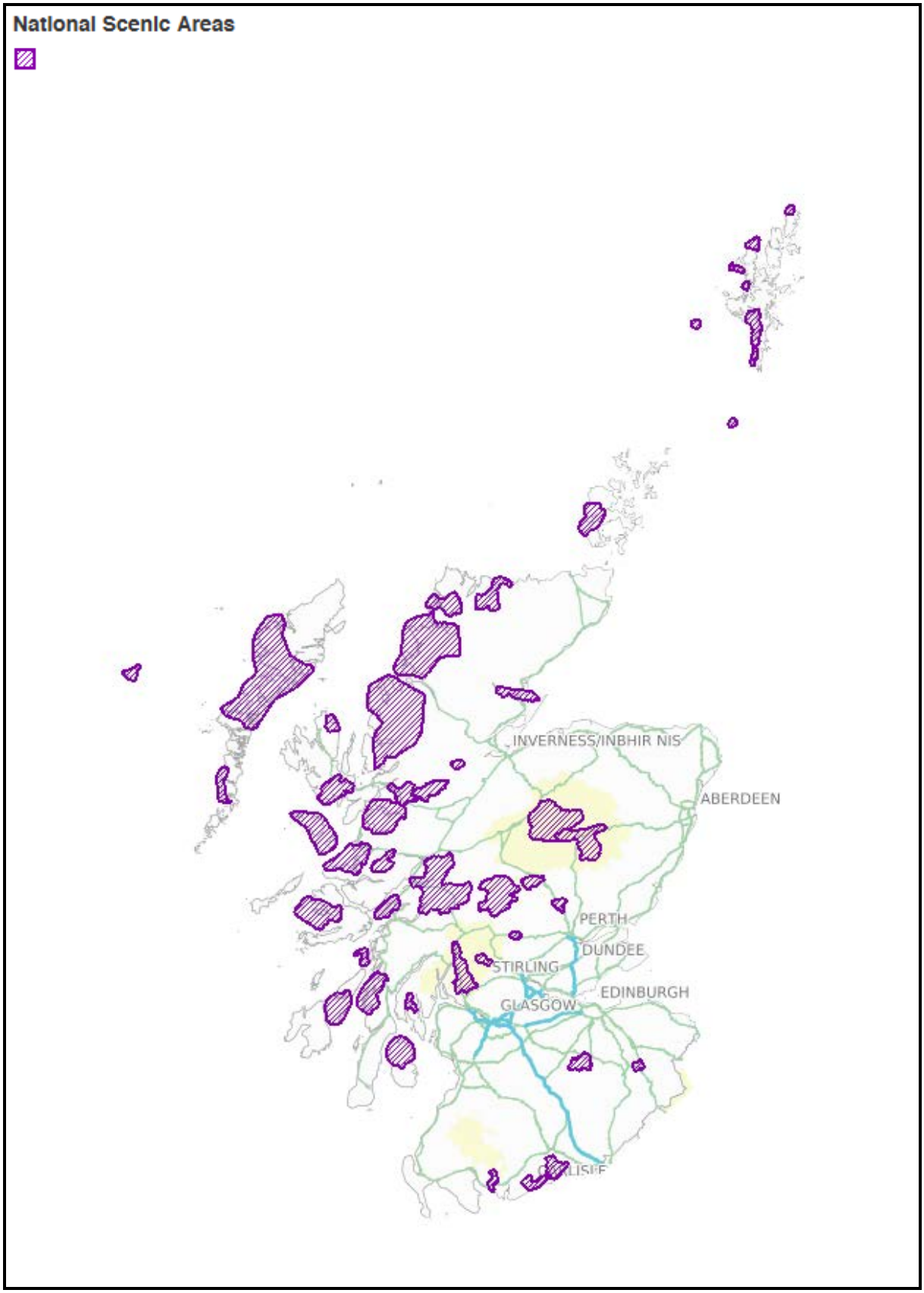


Figure B2: National Scenic Areas map

MAP CURRENTLY BEING UPDATED

Figure B3: Woodland distribution map

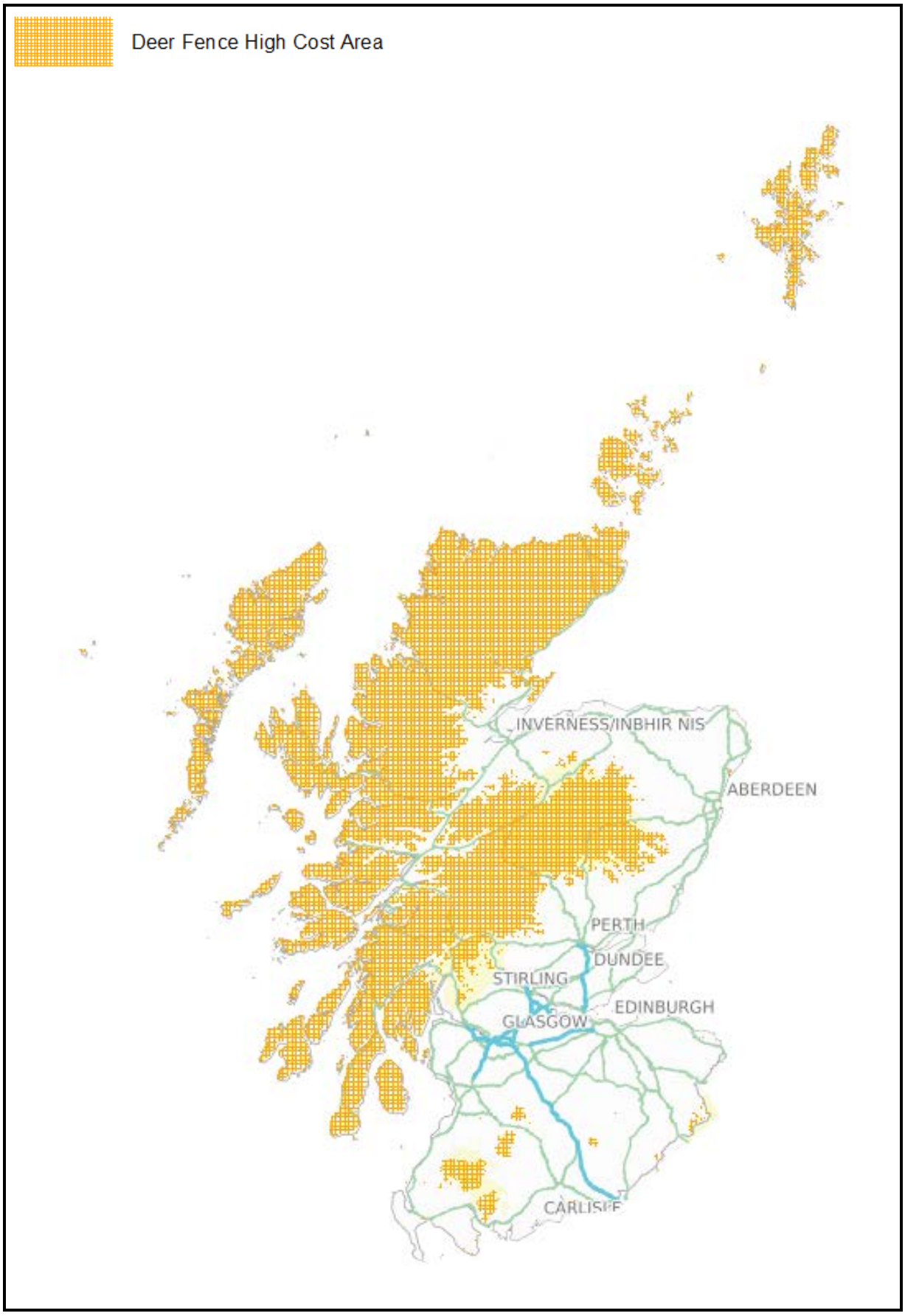

Deer Fence High Cost Area
INVERNESS/INBHIR NIS
ABERDEEN
PERTH
DUNDEE
STIRLING
EDINBURGH
GLASGOW
CARLISLE

Figure B4: Deer fence high cost area map

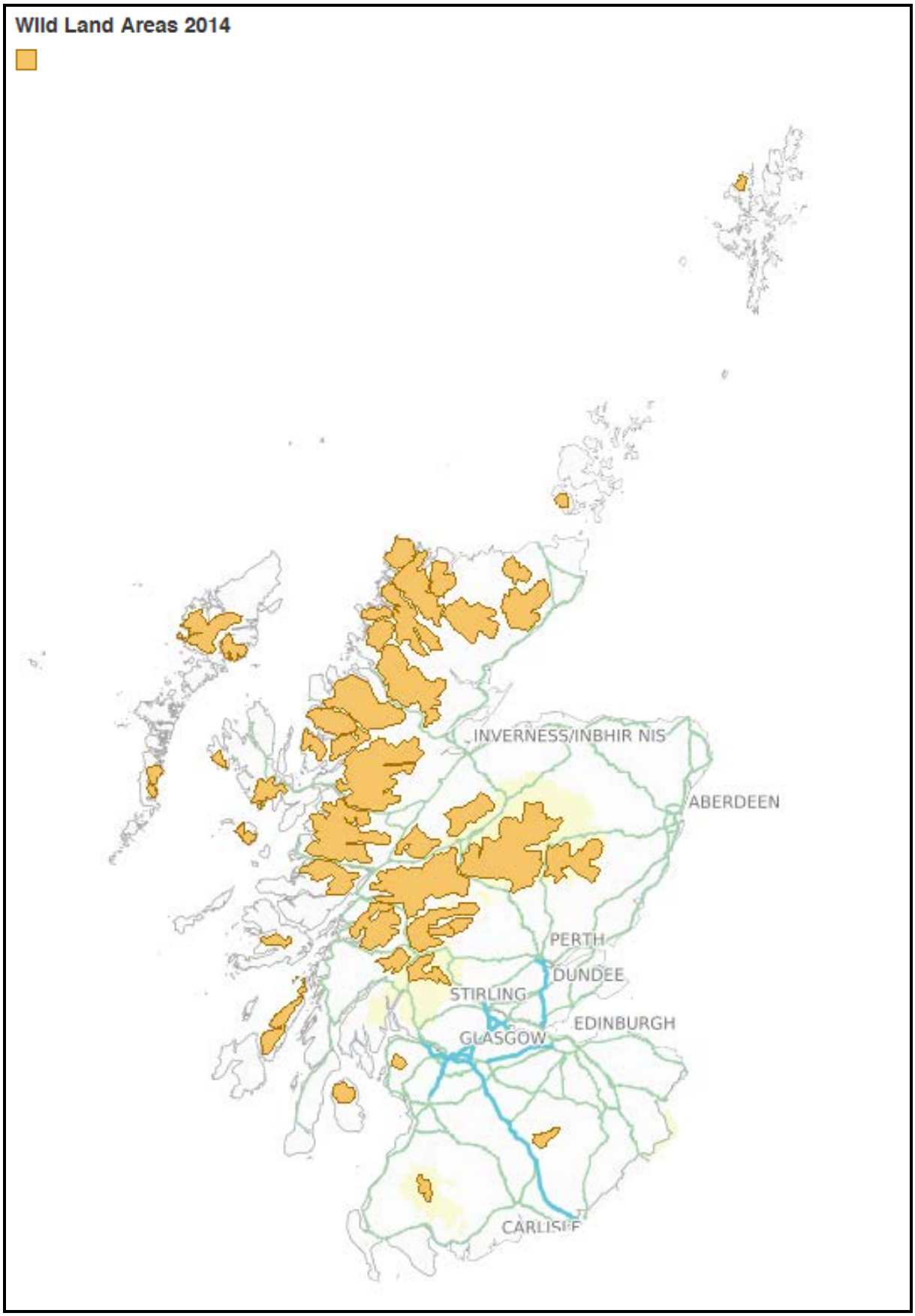
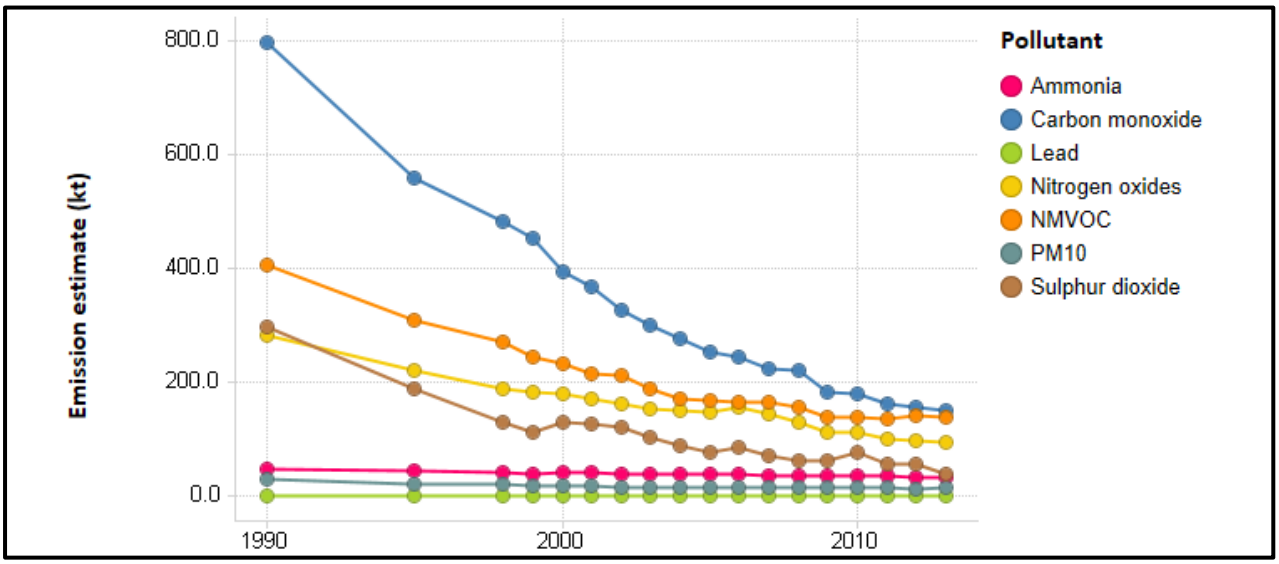
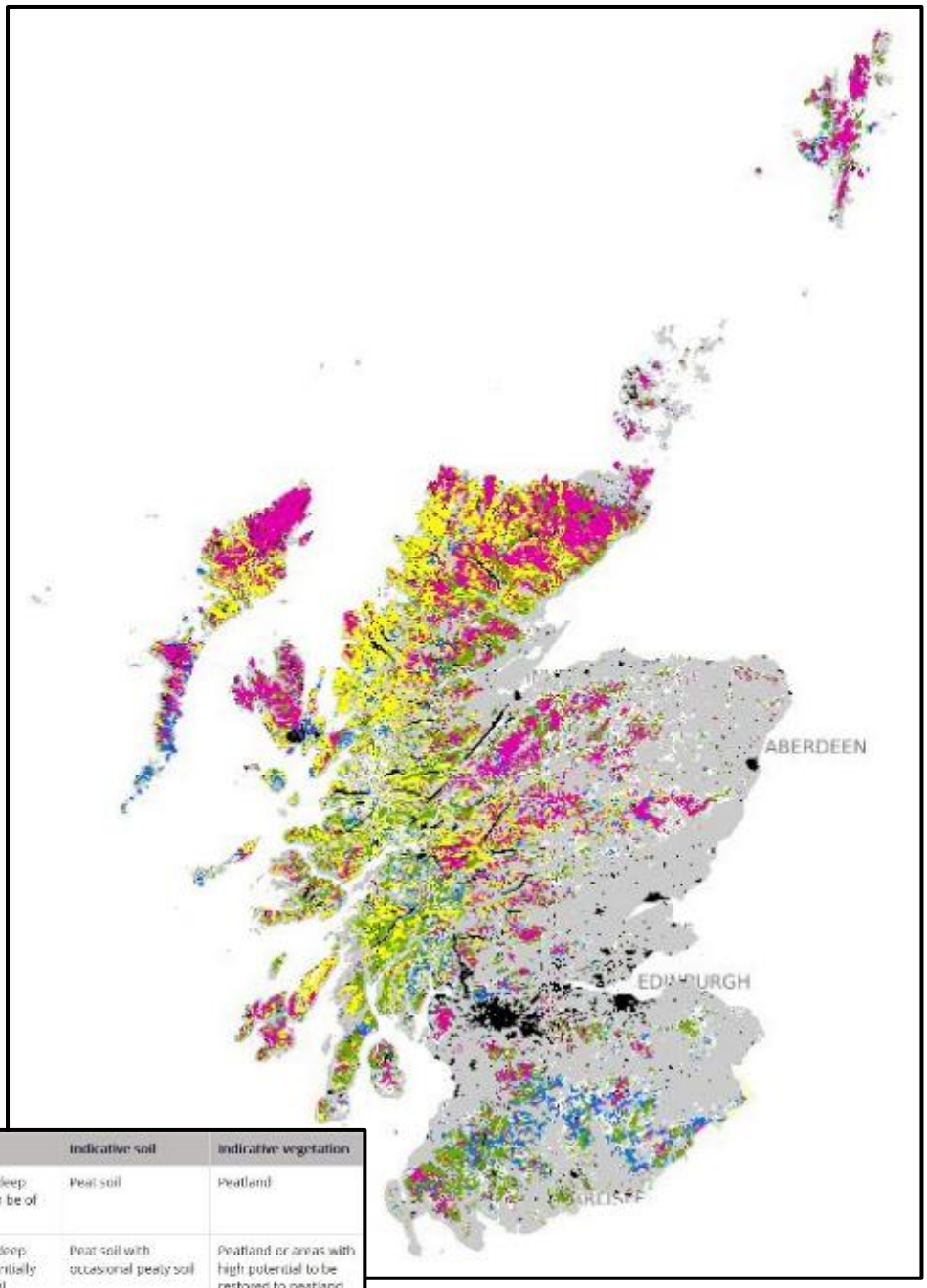


Figure B5: Wild Land Areas map



MAP CURRENTLY BEING UPDATED

Figure B6: Pollutant emissions and AQMAs



	Class description	Indicative soil	Indicative vegetation
	Class 1 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value	Peat soil	Peatland
	Class 2 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential	Peat soil with occasional peaty soil	Peatland or areas with high potential to be restored to peatland
	Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat	Predominantly peaty soil with some peat soil	Peatland with some heath
	Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils	Predominantly mineral soil with some peat soil	Heath with some peatland
	Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon rich and deep peat.	Peat soil	No peatland vegetation
	Mineral soil - Peatland habitats are not typically found on such soils (Class 0)	Mineral soils	No peatland vegetation
	Non soil (e.g. loch, built up area, rock and scree) (Class -2)	No soil	Not applicable
	Unknown soil type – information to be updated when new data are released (Class -1)	Not classified (unknown soil type)	Not applicable

Figure B7: Carbon and peatland map

MAP CURRENTLY BEING UPDATED

Figure B8: Landscape Character Assessment map

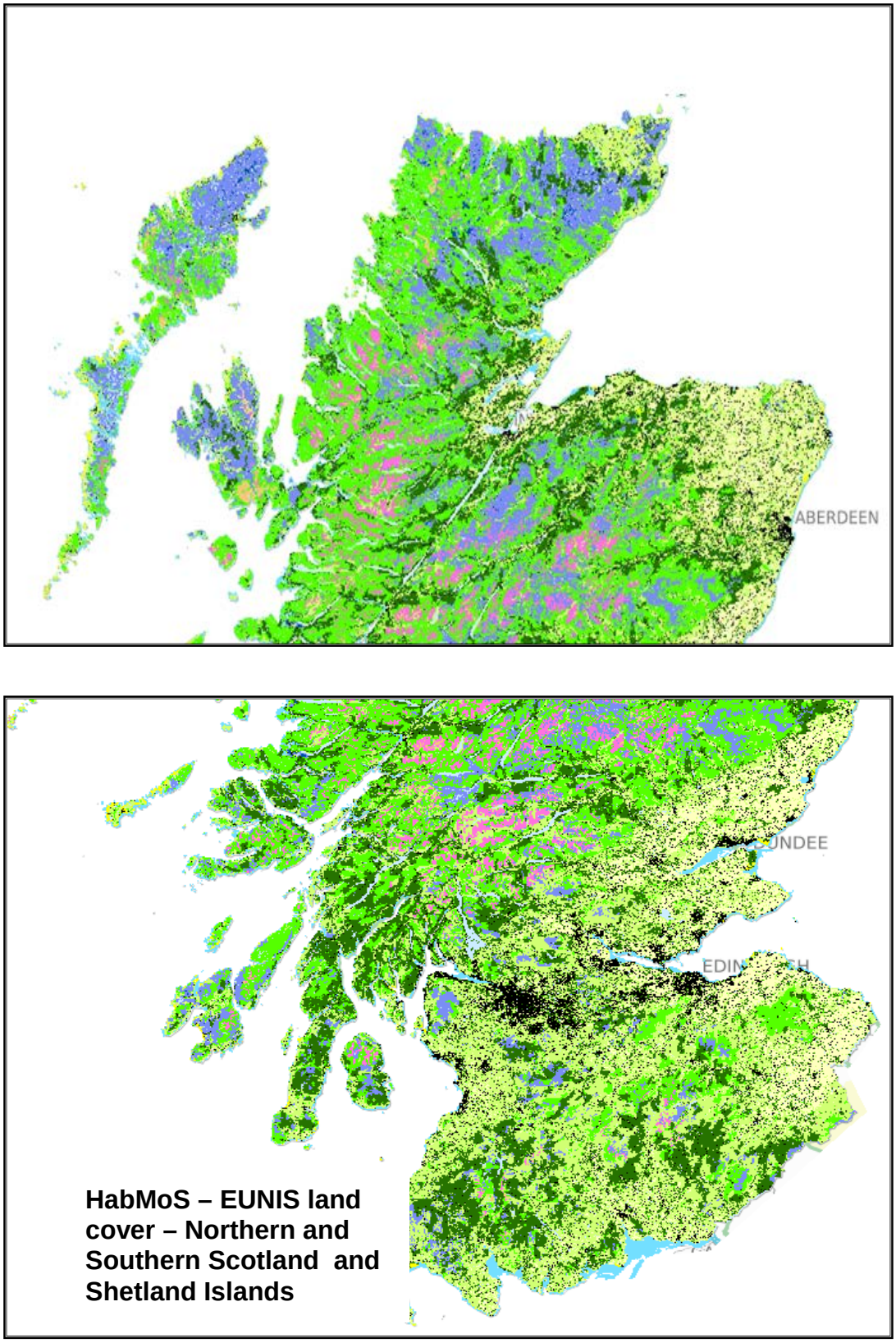


Figure B9: Habitat Map - Northern and Southern Scotland and Western Isles

HabMoS – EUNIS land cover – Orkney Islands

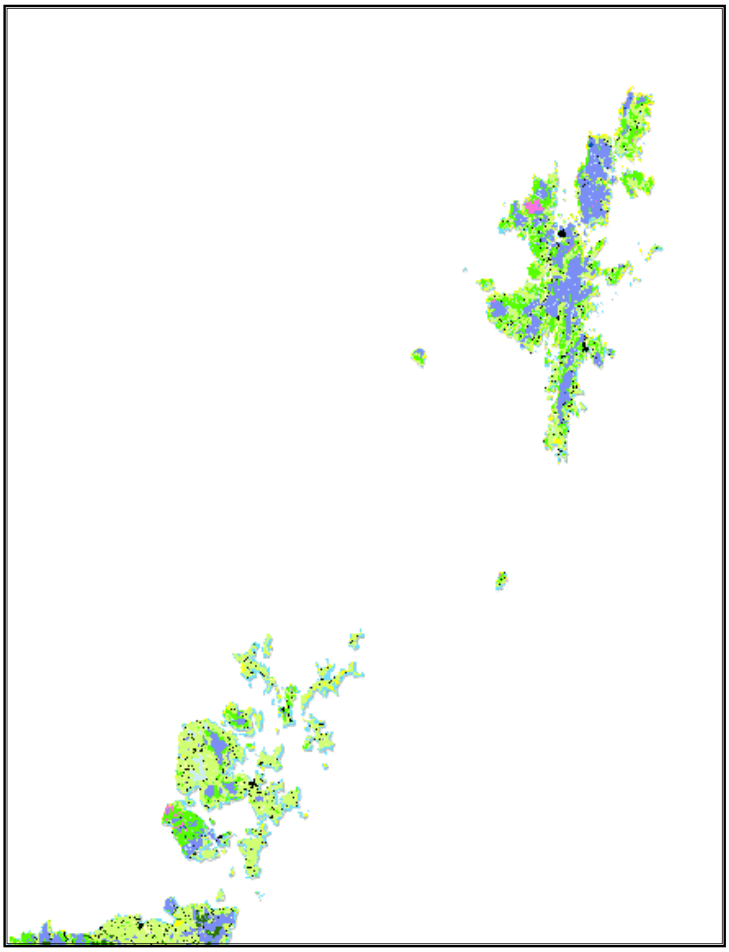


Figure B10: Habitat Map - Orkney and Shetland and Legend

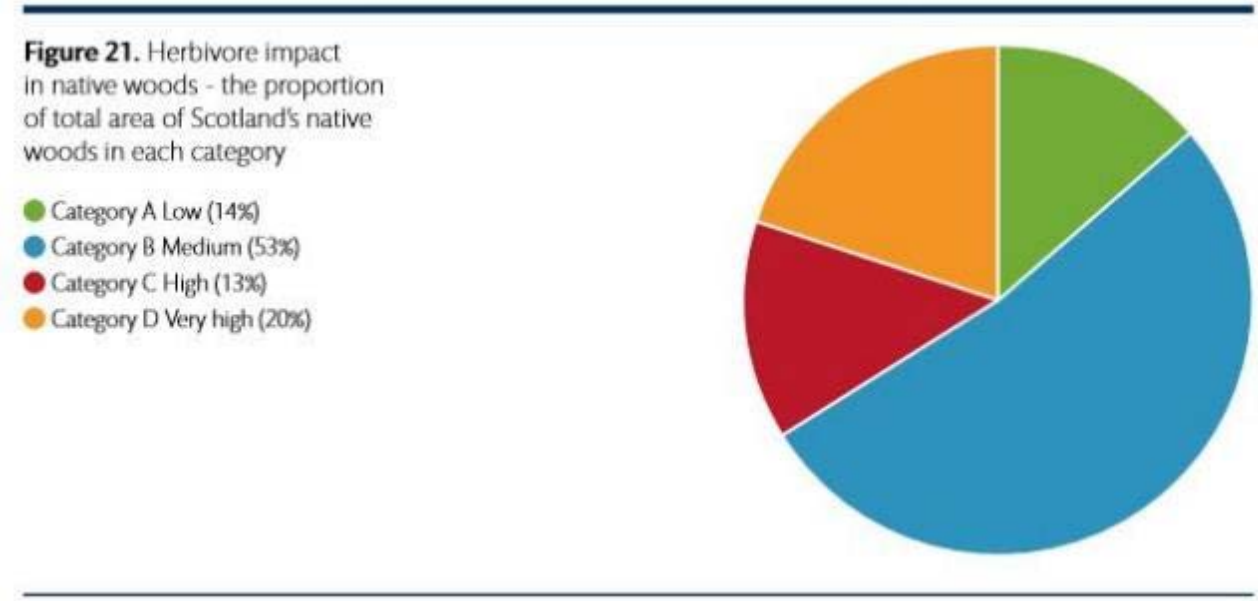


Figure B11: Impacts of herbivores on native woodlands

Impacts of herbivores on woodlands (Deer management)

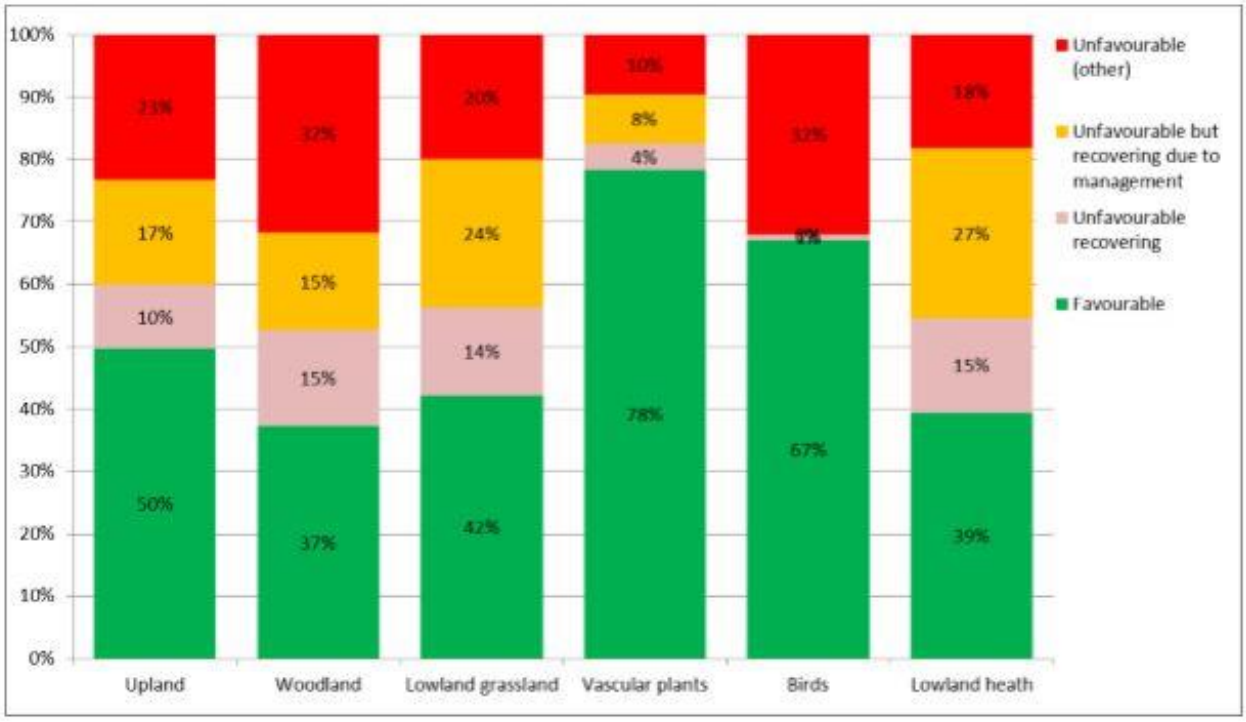


Figure B12: Summarises the breakdown of results for the six different feature types identified as being potentially affected by herbivores

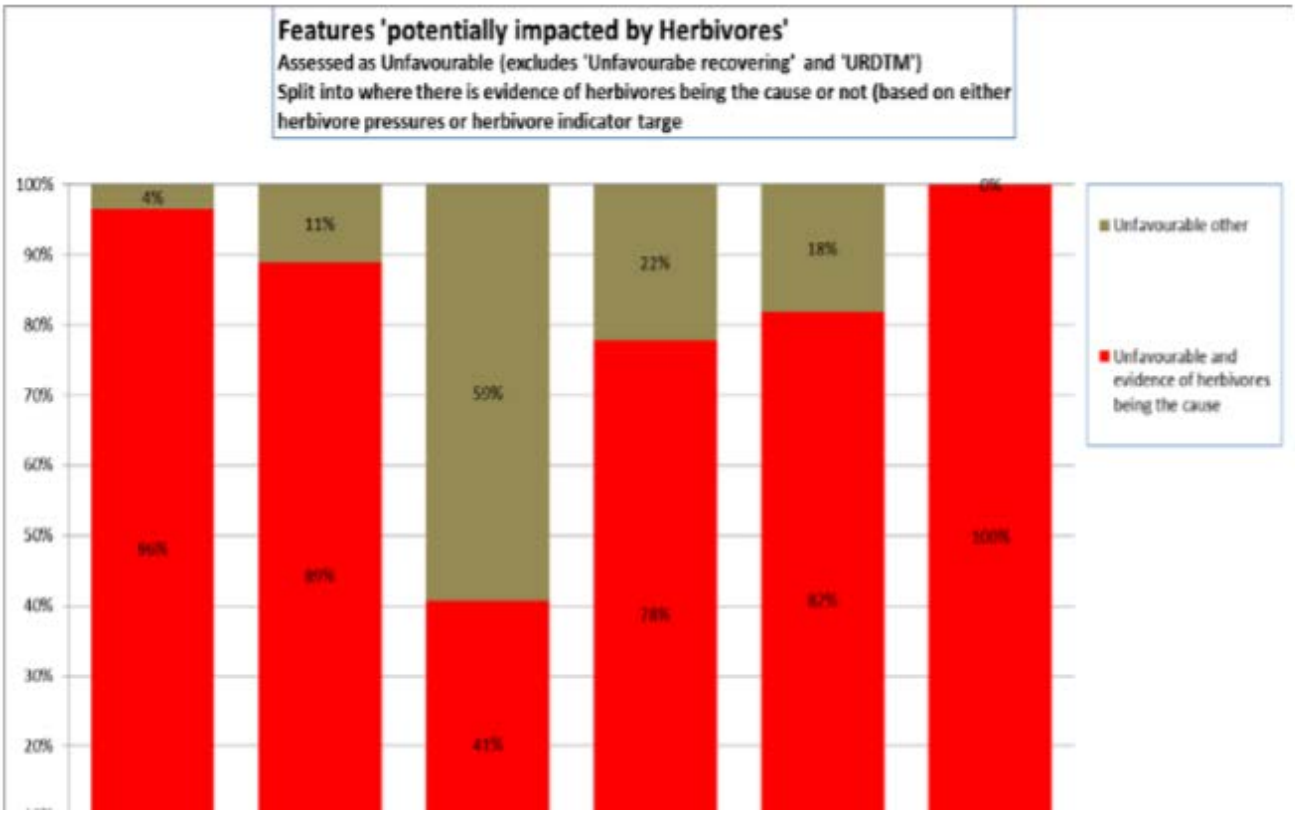


Figure B13: Proportion of features assessed as unfavourable due to herbivores or other pressure

Appendix E: Respondent information form and consultation questionnaire

Respondent information form and consultation questionnaire

Scotland's Forestry Strategy 2019-2028 – A Consultation Draft

Respondent information form

Please Note this form **must** be completed and returned with your response.
To find out how we handle your personal data, please see our privacy policy: https://beta.gov.scot/privacy/

Are you responding as an individual or an organisation?

☐ Individual

☐ Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

☐ Publish response with name

☐ Publish response only (without name)

☐ Do not publish response

Information for organisations:

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

☐ Yes

☐ No