Strategic Environmental Assessment

Environmental Report

Scottish Borders
Local Biodiversity Action Plan

2018-2028

Non-Technical Summary

Introduction: Scottish Borders Local Biodiversity Action Plan

The consultation on the Scottish Borders Council Local Biodiversity Action Plan (LBAP) 2018 – 2028 updates the original LBAP, produced in 2001 in collaboration with the LBAP partnership (local organisations with an interest in natural heritage and land management) and appended with updated Habitat Action Plans from 2003-2009,

The new LBAP is being produced with the knowledge gained from work undertaken in connection with the original LBAP, and promotes new actions for biodiversity in light of new international and national targets for biodiversity and based on an ecosystems approach.

The ecosystems approach aims to ensure the protection and enhancement of functioning living systems within the landscape, for the benefit of communities, (rather than focussing purely on individual species and habitats).

These living systems are biodiversity in all its forms - all of life, from animals, plants, fungi to micro-organisms - interacting with their environment. These living systems, known as ecosystems, sustain nature, and our survival depends upon them. They provide us with food, water and air that are essential for life, with the minerals and raw materials for our industry and consumption, and they break down wastes. Our wealth and our individual well-being are directly linked to well-functioning ecosystems. Healthy ecosystems provide a high-quality natural environment, where humans can also find recreation, health and solace, and in which our community finds its roots and sense of place.

The LBAP adopts an ecosystems approach to action-planning for biodiversity, taking account of how to protect and enhance ecosystems, with a focus on four particular groups of ecosystem services, which provide multiple benefits for all of biodiversity, including humans. These are:

- Supporting services
- Regulating services
- Provisioning services
- Cultural services

The Strategic Environmental Assessment of the Plan

SEA is a way of making sure that the environmental effects of a plan, (or a programme or strategy) are carefully considered as the plan is developed. It is a legal requirement for public sector bodies to undertake SEA on certain plans they produce, in accordance with The Environmental Assessment (Scotland) Act 2005 (hereafter referred to as “the 2005 Act”). The 2005 Act also requires the production of this Non-Technical Summary outlining the process and findings of the SEA on the plan or strategy under consideration

The purpose of the SEA is to identify and minimise any potential negative effects on the environment and to enhance any likely positive effects. It ensures environmental considerations are part of the Plan’s development and that these are shared with the public and stakeholders for comment, ensuring transparency in decision-making. For the LBAP, the SEA aims to:

- Integrate environmental factors into the preparation of and decision-making for the LBAP
- Improve the LBAP and enhance environmental protection
- Increase public participation in decision making

- Facilitate the openness and transparency of decision-making

The SEA has been carried out concurrently with the development of the LBAP.

It summarises the current state of the environment, focussing on the Scottish Borders, and also reflecting any relevant aspects of the wider national and international environment and it considers how the environment may change if the LBAP is not implemented.

The SEA focuses on the important aspects of the environment that are relevant to the LBAP and need to be considered during the preparation of the LBAP.

The SEA process is structured around topic areas reflecting environmental issues that should be explored through the main Environmental Report. Topics include:

- Biodiversity, flora and fauna
- Population and human health
- Water
- Soil
- Air
- Climatic factors
- Material assets
- Cultural heritage
- Landscape

To complement the ecosystems approach for the LBAP, the SEA process also adopts an ecosystems approach. This approach considers how the LBAP might impact on ecosystems from an environmental as well as social and economic perspective.

In adopting an ecosystems approach, the SEA topics are linked to ecosystem services. For example, the SEA topic of Water leads to consideration of the ecosystem services water provides, such as providing fresh water we can drink, regulating water quality and pollution, and supporting nutrient cycling.

The assessment considers the potential effects on ecosystems services linked to topic areas if the LBAP is implemented, and also demonstrates the interrelationships between SEA topic areas.

The following were key considerations for the assessment:

- What significant effects will the plan have on ecosystem services?
- What are pressures are ecosystem services under and does the Plan address these?
- Does the Plan meet key objectives for each topic?

Relevant related policies and environmental objectives

Because the Plan adopts an integrated ecosystems approach to achieving its objectives and is applicable to a range of landscapes, both rural and semi-urban, across the Scottish Borders, a large number of other plans, programmes and strategies (PPS) have guided its development and are relevant to its delivery. There are, however, some key PPS for the LBAP:

Scottish Biodiversity Strategy
This Plan is rooted in the context of the Scottish Biodiversity Strategy, incorporating the updated 2020 Challenge for Scotland's Biodiversity. However, the Plan looks beyond 2020 to a time when

the UK-EU relationship may have changed and to a period when we are likely to see the pressures of climate change on living systems increasing.

Land Use Strategy
The Plan is also guided by Scotland's Land Use Strategy (2011, 2016) and builds on pioneering work that Scottish Borders Council undertook with partners through the Land Use Strategy Pilot Framework (LUS Pilot). It attempts to secure multiple benefits through effective land use, management and stewardship that takes account of biodiversity.

Scottish Government *Purpose*
The Plan highlights the links between a high quality natural environment, economic prosperity and social well-being, seeking to help fulfil the Scottish Government's *Purpose.*

Connected Borders
The Plan highlights the links between a high quality natural environment, economic prosperity and social well-being, seeking to help support the vision of *Connected Borders* for better connected, enterprising, beautiful, well, caring and empowered communities.

Overall, this Plan seeks to support national and international objectives to enhance biodiversity and arrest its loss, particularly through improved land management and recognises both the need and the opportunity to support the economy and the health and well-being of society in so doing. However, it also takes account of specific local contexts and landscapes, considering these in the development of actions that will achieve higher-level national and international aims.

All relevant PPS and their relationship to this Plan are outlined in Appendix A of the Environmental Report.

The Scottish Borders: Environmental Issues

The table below gives an overview of key aspects of the environment, organised by SEA topic area:

SEA Topic	Current State
Biodiversity, Flora & Fauna	The high quality natural environment of the Scottish Borders on both land and sea is recognised in regional policy documents as one of its principal assets and also brings benefits for health and wellbeing. Living systems in the Scottish Borders face a large number of varied pressures, which may negatively impact related ecosystem services.
Soil	Soils are of key importance in water quality, flood prevention, biodiversity and other soil related functions for natural heritage. Their protection is vital to maintaining natural processes and in turn the quality of our environment as a whole. It will be important, through LBAP actions, to protect soil biodiversity and quality. This is of increasing importance in the light of challenges that climate change may bring. The LBAP will consider the protection of high quality and sensitive soils such as deep peat, in terms of helping to restore and enhance ecosystem services.
Water	The management and control of our land, as well as our water resources have major implications for water quality, biodiversity and human health, which are important considerations within the LBAP. Water quality in the Scottish Borders is in general very good within freshwater and marine areas, although some areas require improvement, which the LBAP will support. Climate change brings risks of greater flood events.
Landscape	The Scottish Borders is considered to have a special, diverse landscape, with variations of upland, lowland, valley and coastal landscapes. Current landscape issues in the Scottish Borders include the cumulative impact of wind turbines, which may also significantly affect habitats and species, and large plantation forestry of monoculture timber crops such as Sitka spruce, which cover hillsides and feature few native species. Incremental change from development is also a concern. By helping to enhance biodiversity and habitat connectivity, the LBAP aims to ensure the continued local distinctiveness of landscapes, as well as contributing positively to setting and improved visual amenity, for example, through reducing fragmentation.

Population & Human Health	People enjoy living in the Scottish Borders because of the people, area and countryside. By supporting the biodiversity that is inherent in the landscape, the LBAP actions will help ensure people continue to enjoy living in the Borders. Certain health issues such as diabetes or mental health are of increasing concern for the Scottish Borders. The LBAP actions can support other PPS in addressing some of these issues. The LBAP aims to support the local economy and tourism and to encourage rural industries to adopt approaches that work with biodiversity and ecosystems, for mutual benefit.
Climatic Factors	Climate change is a major global issue that in the Scottish Borders is likely to affect species distribution and may also bring more flood events or extreme weather. Greenhouse gas emissions reductions of 80% by 2050 are being supported by renewable energy developments. The LBAP aims to encourage appropriate development in terms of impacts on biodiversity and ensure developments avoid adverse impacts on biodiversity. It also aims to promote active travel, rather than reliance on private car which to assist with greenhouse gas emissions reduction.
Material Assets	Timber is important for energy supplies and the Scottish Borders' forestry resource is significant. It is also essential for construction and development purposes. However, poorly managed commercial forestry may have negative impacts on biodiversity, which the LBAP will seek to avoid. The LBAP will aim to support sustainable management of natural resources and promote improvement and use of green networks in support of more active forms of transport, whilst avoiding disturbance to sensitive species and habitats.
Cultural Heritage	The cultural heritage of the region is part of what residents find most appealing about the Borders as a place to live, in terms of people and landscapes. The LBAP seeks to encourage experiences of nature and the outdoors, supporting cultural ecosystem services and appreciation of local cultural, as well as natural heritage.
Air	Traffic volumes are increasing at around 1.5% per annum, which may impact future air quality (and climate change targets). Planting can be beneficial for improving air quality through the removal of pollutants in the soil and in the air. The LBAP aims to promote woodland creation and expansion, which will support clean air in the Scottish Borders and help with carbon capture. The LBAP also promotes actions that support more active travel, including creation of a local walking route and support for existing walking/cycle paths.

What would happen to our environment without the LBAP?

The table below summarises how the local environment may evolve without the LBAP:

SEA Topic	How the environment may evolve without the LBAP
Biodiversity, Flora & Fauna	The LBAP provides a focus and a framework for the work of partners, land managers and the community to support biodiversity. It may be more challenging to harness the joint efforts of partner organisations to adopt collaborative projects that aim to protect and enhance biodiversity without the LBAP. Species may continue to decline and pressures on habitats may not be adequately considered in decisions about land use, which may fail to consider the connectedness of habitats and species at a landscape scale. There is also an opportunity help species to adapt to climate change, by encouraging connected ecological networks that aid migration and by supporting healthy ecosystems that will help alleviate climate change impacts.
Soil	Without the LBAP there would be lost opportunities to encourage effective land management that supports ecosystems, and helps improve and protect soil quality and biodiversity. Without the LBAP pollution may have greater impacts on biodiversity within sensitive habitats than if it were adopted.
Water	The LBAP actions are intended to promote water quality and represent an additional opportunity to improve existing issues through measures such as restoring and improving ecosystems in catchment areas, that will bring benefits for biodiversity in terrestrial and marine environments.
Landscape	The LBAP will contribute to connected habitats that enhance and support biodiversity, in so doing contributing to the preservation of Scottish Borders land and marine habitats,

	which are valued for their distinctiveness by both the community and visitors.
Population & Human Health	The LBAP seeks to increase awareness of and positive action for biodiversity. There may be missed opportunities to work with communities to promote direct nature experiences and enjoyment of natural greenspace as well as marine areas, which would mean a loss of benefits for people in terms of health, well-being, enjoyment and economic prosperity. It may also mean a loss in terms of gathering data records through citizen science and encouraging people to better understand the pressures on our local ecosystems and biodiversity, in order to help address them.
Climatic Factors	Without the LBAP there would be less coordinated effort to enhance ecosystems that can assist with carbon capture and sequestration, such as protection of blanket bog habitats and woodlands, including strategic woodland planting schemes. The LBAP provides a framework for action to support ecosystem restoration and enhancement and protection of ecosystem services, or natural capital.
Material Assets	The LBAP has the potential to encourage sustainable approaches to our use of natural resources and ecosystem services.
Cultural Heritage	There are actions within the LBAP that help support our regions cultural heritage, not least the positive impacts of being in nature in terms of inspiring creativity and appreciated a shared cultural heritage amongst residents, promoting this to visitors. The LBAP will help to highlight the role that ecosystems play in terms of cultural services with benefits for human health and wellbeing.
Air	Actions within the LBAP can raise awareness of the contribution biodiversity and ecosystems play in regulating air quality, as well as encouraging woodland planting and habitat enhancements that could help improve the function of regulating ecosystems.

Are there any alternatives to this Plan?

The 2005 Act requires the consideration of the reasonable alternatives considered in the development of the Strategy. The following alternatives were assessed:

Alternative Options	Outcome
OPTION 1 Produce a new Plan incorporating new objectives and actions, adopting an ecosystems approach	A new Plan can better link to updated national and international strategies and thinking about how to protect and enhance biodiversity and ecosystems at a landscape scale, also considering future challenges of climate change. **Preferred option.**
OPTION 2 Produce a revised Plan incorporating new objectives and actions, continuing the focus on habitats and species	A revised Plan can better link to updated national and international strategies and take account of future challenges including climate change. **Potential option.**
OPTION 3 Review the existing Plan and do not develop new actions	The old Plan is outdated and cannot be effectively monitored. **Not a preferred option.**
OPTION 4 Retain existing Local Biodiversity Action Plan and do not revise	The existing Plan is outdated. The structure of the Plan does not align with national strategies for biodiversity **Do not take forward.**
OPTION 5 Disregard the existing Local Biodiversity Action Plan and do not replace	Scottish Borders Council has a duty to further the conservation of biodiversity, which the LBAP supports **Not a viable option.**

How will the Plan affect the environment?

A detailed assessment, based on the ecosystem services approach has considered the likely significant environmental effects of the LBAP, if implemented. A summary of results is provided in the table below:

Significant Negative Effects	No significant negative effects were considered likely, following the assessment.
Significant Positive Effects	A number of significant positive effects were identified for regulating, cultural and provisioning ecosystem services. Many of the identified positive effects are likely to work together to deliver more significant combined benefits for the environment. Over time, it is also possible that the components of the LBAP will work together to build greater combined resilience of biodiversity and ecosystems to climate change.
Other Negative Effects	No other negative effects were considered likely, following the assessment.
Other Positive Effects	Other positive effects were considered likely for a range of ecosystems and SEA topic areas, which again would work in combination to provide a cumulatively positive effect for the environment as a result of the LBAP's implementation. In particular positive effects (but not significant positive effects) were predicted for all supporting services, which would benefit indirectly from the LBAP's implementation.
Neutral Effects	For some ecosystem services, neutral effects were predicted, either because the local environment is not as important for these services such as , or because the LBAP actions would not be at a great enough scale to positively or negatively affect these services.

No mitigation has been identified, as the LBAP's implementation is unlikely to result in any negative effects or environmental damage. However, consideration has been given to how to reduce any likely tensions between ecosystem services arising from the implementation of LBAP. Any opportunities for enhancement have also been highlighted within the Environmental Report.

How will environmental effects be monitored?

Monitoring is used to check that no negative environmental effects will arise from the implementation of the LBAP. The LBAP itself sets out commitments for monitoring, which take consideration of the likely environmental effects following the SEA. There are no specific proposals for monitoring arising from the SEA.

Next steps

The next step for both the Environmental Report and the Local Biodiversity Action Plan is a 6-week consultation with the public and key agencies. Consultees may wish to comment on the proposed Plan, taking into account the SEA findings.

All of the comments received will be taken into account and amendments may be made accordingly to both documents. Any significant changes to the LBAP in relation to consultation responses may require further consideration in terms of environmental implications.

The statutory consultation for this Strategic Environmental Assessment is in place until:

Monday 28 May 2018.

If you would like to express your views on the Environmental Report, your comments should be submitted by email or post. Comments will be accepted up until midnight on the last day of the consultation period:

Email: ecology@scotborders.gov.uk
Post: Council Headquarters, Newtown St Boswells, Melrose, TD6 0SA

All opinions will be taken into account before the Plan is adopted.

A Post-Adoption Statement will be prepared in accordance with the requirements of the SEA process, explaining how the findings of the environmental assessment and the responses to the Environmental Report were taken into account.

Environmental Report

1. Introduction

1.1 Overview of the SEA

1.1.1 The EC SEA Directive (2001/42/EC) and the Environmental Assessment (Scotland) Act 2005 (hereinafter referred to as "the 2005 Act") requires the Strategic Environmental Assessment (SEA) of Plans, Programmes and Strategies (PPS) that may have a significant effect on the environment.

1.1.2 To meet the requirements of the 2005 Act, the Scottish Borders Local Biodiversity Action Plan (LBAP), Scottish Borders Council is undertaking a SEA. This process involves several stages, as outlined below, and is a systematic method for considering the likely significant effects on the environment, integrating environmental factors into policy preparation and decision making.

1.1.3 **Screening** is the first SEA stage. The LBAP was not considered to be exempt under Section 4(3) or 6(1)(a) of the 2005 Act. Although not specifically required by legislative, regulatory or administrative provision, the LBAP would be prepared for town and country planning or land use (and would influence other related processes such as forestry and water management); and does not relate to a small area or a minor modification to any existing SEA. As such, it is a 'Qualifying Plan' for SEA.

1.1.4 **Scoping:** This was the process by which details for this Environmental Report were determined. The Scoping Report identified the relevant aspects of the environment to be considered further in the SEA process, and associated environmental problems that would need to be taken into account when developing the plan or policy. The appropriate SEA Consultation Authorities, (Scottish Natural Heritage (SNH), Historic Environment Scotland (HES) and the Scottish Environmental Protection Agency (SEPA)), were approached for their comments on the proposed content, level of detail and methodology for the proposed assessment from October to November 2017, in accordance with the required 35-day consultation period.

1.1.5 Consultation Authorities were generally happy with the proposed approach to the LBAP SEA, including the scoping-in of all nine SEA Topics relevant to the LBAP (Biodiversity, Flora and Fauna; Population and Human Health; Soil; Water; Air; Climatic Factors; Material Assets; Cultural Heritage, and Landscape).

1.1.6 A summary of Consultation Authority responses to the Scoping Report and how these have been taken into account in the preparation of this Environmental Report is outlined in Appendix F. It should be noted that this Appendix highlights only the responses where a specific request for action or consideration was highlighted by the Consultation Authorities. Where responses indicated they were content with the outlined approach, this has not been included in Appendix F. Responses have been abbreviated, for clarity and focus on the required issue.

1.1.7 **Environmental Assessment:** The next stage in the SEA Process is the Environmental Assessment of the LBAP and its reasonable alternatives, which this Environmental Report documents, along with an outline of the LBAP's development and information relating to the approach taken for the SEA. This includes a description of the environmental context within which the LBAP consultation and its likely environmental effects is framed. The Environmental Report establishes a monitoring framework and measures to mitigate any adverse impacts that may occur as a result of the LBAP's implementation.

1.1.8 Assessment of the LBAP has been undertaken in parallel to its development, helping refine the LBAP in order to enhance positive environmental impacts and avoid or mitigate negative environmental impacts. A timeline of progress is outlined in Table 1, below.

1.1.9 **Post-Adoption Statement**: The Post-Adoption Statement will demonstrate how the findings of the SEA have been taken into account in the adopted Plan. In accordance with the Environmental Assessment (Scotland) Act 2005, the Post-Adoption Statement will highlight:

- How the environmental considerations have been incorporated into the LBAP
- How the findings of the Environmental Assessment have been taken into account
- How opinions expressed, from both the local community and consultation authorities during the consultation on the Environmental Report have been taken into account
- The reasons for choosing the LBAP as adopted, in light of other reasonable alternatives
- The measures to be taken to monitor the significant effects of the implementation of the Plan

1.1.10 In summary, as 'an honest interpretation of the likely environmental effects' (Scottish Government, 2013: 6)[1] this SEA has supported the parallel development of the LBAP. Proposed actions have been considered in terms of connection with other relevant PPS, and in terms of their potential for significant effects on the environment. New PPS not previously considered have been added as relevant to the Plan's development and implementation, and actions have been amended where appropriate, or new actions have been proposed. Thus, the SEA has added value to the iterative development of the LBAP.

Table 1: Timeline for LBAP Preparation and SEA Process

LBAP Preparation	Stage in SEA Process	Progress
Audit of original LBAP and Habitat Action Plans Stakeholder consultation workshop preparation	Screening discussions	December 2017 – January 2018 COMPLETE
Baseline mapping Policy Mapping	Baseline mapping Policy mapping	December 2017 – January 2018 COMPLETE
Consultation workshops Action-planning	Policy mapping	February – May 2018 COMPLETE
Draft text Stakeholder consultations	Scoping Report Consultation Authority comments	June – October 2017 COMPLETE
Text revisions Review of actions	Drafting Environmental Report	October – December 2017
Final text review Final actions review Policy driver gap analysis	Drafting Environmental Report	January – April 2018
Production of Final Draft for public/stakeholder consultation	Submission of Environmental Report to Consultation Authorities	13 April 2018
6-week formal consultation period on both LBAP and SEA		
Final LBAP Document Published	Post-adoption statement	Autumn 2018

1.2 The Scottish Borders Local Biodiversity Action Plan

1.2.1 The Scottish Borders Council Local Biodiversity Action Plan (LBAP) is being updated in collaboration with the LBAP partnership: local organisations with an interest in natural heritage and

[1] Scottish Government (2013). *Strategic Environmental Assessment Guidance*. Scottish Government, Edinburgh.

land management, who assisted in the production of the original LBAP, (produced in 2001 and appended with updated Habitat Action Plans from 2003-2009).

1.2.2 The new LBAP is being produced with the knowledge gained from work undertaken in connection with the original LBAP, and promotes new actions for biodiversity based on an ecosystems approach and with experience gained from the Scottish Borders Pilot Regional Land Use Strategy Framework, which aims to ensure the protection and enhancement of functioning ecosystems within the landscape, for the benefit of communities, (rather than focussing on individual species and habitats).

Table 2 outlines Key Facts about the Scottish Borders Local Biodiversity Action Plan.

Table 2: Key Facts

Responsible Authority	Scottish Borders Council
Plan title	Scottish Borders Local Biodiversity Action Plan
Purpose of Plan	To encourage and coordinate joint partnership action for biodiversity across the Scottish Borders, based on an ecosystems approach and with consideration of the findings of the Scottish Borders Land Use Pilot Framework.
What prompted the Plan	Although the LBAP is not a statutory requirement, it was prompted by the UK Biodiversity Action Plan commitment, the Scottish Biodiversity Strategy and the Nature Conservation (Scotland) Act 2004. The Act places a duty on all local authorities and public bodies to further the conservation of biodiversity in carrying out their functions.
Subject	Biodiversity
Plan period	2017-2027 (10 year period to allow for longer-term actions/monitoring)
Frequency of updates	Every 5 years
Plan area	Scottish Borders (region-wide: 4734km²)
Nature/content of Plan	The LBAP strategically outlines proposed actions for biodiversity within the Scottish Borders and their correlation with Scottish Government Policy including the Scottish Biodiversity Strategy, Land Use Strategy and Scottish Government Economic Strategy. The LBAP adopts an ecosystems approach, in line with the Scottish Biodiversity Strategy 2020 Challenge, considering multiple benefits that support for biodiversity can bring to the Scottish Borders, including environmental, economic and social benefits and helping to prevent loss of, and to enhance biodiversity.
Plan objectives	To combat pressures on and support biodiversity and ecosystems, and to deliver social and economic benefits across the Scottish Borders, through encouraging targeted, cost-effective, coordinated actions by partner organisations and the community that will: 1. Restore ecosystems 2. Protect and enhance the regions natural capital 3. Invest in quality greenspace for health and wellbeing 4. Conserve wildlife, habitats and protected places 5. Ensure land and freshwater is managed sustainably 6. Protect and enhance marine and coastal ecosystems
Contact	Elizabeth Hall Assistant Ecology Officer Natural Heritage Regulatory Services Council HQ Newtown St Boswells TD6 0SA elizabeth.hall@scotborders.gov.uk

2. Policy Context

2.1 Key Policies

2.1.1 Schedule 3 of the 2005 Act requires that the Environmental Report includes an outline of the links between the plans, programme or strategy (PPS) under assessment and other relevant PPS.

2.1.2 Because the LBAP adopts an integrated ecosystems approach to achieving its objectives and is applicable to a range of landscapes, both rural and semi-urban, across the Scottish Borders, a large number of PPS have guided its development and are relevant to its delivery. However, four PPS are key policy drivers for the LBAP.

2.1.3 **Scottish Biodiversity Strategy:** The LBAP is rooted in the context of the Scottish Biodiversity Strategy, incorporating the updated 2020 Challenge for Scotland's Biodiversity. However, the LBAP looks beyond 2020 to a time when the UK-EU relationship may have changed and to a period when we are likely to see the pressures of climate change on living systems increasing.

2.1.4 **Land Use Strategy:** The LBAP is also guided by Scotland's Land Use Strategy (2011, 2016) and builds on pioneering work that Scottish Borders Council undertook with partners through the Land Use Strategy Pilot Framework (LUS Pilot). It attempts to secure multiple benefits through effective land use, management and stewardship that takes account of biodiversity.

2.1.5 **Scottish Government *Purpose*** The LBAP highlights the links between a high quality natural environment, economic prosperity and social well-being, seeking to help fulfil the Scottish Government's *Purpose.*

2.1.6 ***Connected Borders*****:** The LBAP highlights the links between a high quality natural environment, economic prosperity and social well-being, seeking to help support the vision of *Connected Borders* for better connected, enterprising, beautiful, well, caring and empowered communities.

2.1.7 In summary, the LBAP seeks to support national and international objectives to enhance biodiversity and arrest its loss, particularly through improved land management and recognises both the need and the opportunity to support the economy and the health and well-being of society in so doing.

2.1.8 The LBAP also takes account of a wide range of relevant international, national, regional and local PPS as well as specific local contexts and landscapes. These have been considered in the development of the LBAP, to ensure complementarity of LBAP actions that support achievement of their aims. All relevant PPS and their relationship to the LBAP are detailed in Appendix A.

2.1.9 Cross-boundary effects with neighbouring authorities are considered through the integration of the LBAP with local plans and strategies, which also consider those produced by neighbouring authorities. Stakeholders from neighbouring authorities are represented within the LBAP Partnership group, as are representatives from statutory consultees with a nation-wide remit for Scotland and links with colleagues from statutory authorities in England.

2.2 An Ecosystems Approach to the Plan and SEA

2.2.1 An ecosystems approach should assist in providing a clear strategic context for the SEA by focussing on the services that ecosystems provide, their importance to the health of the ecosystem (in the Scottish Borders and beyond), and the products or benefits people get from them. The work

of the National Ecosystems Assessment (NEA)[2] has been considered in preparing this SEA, in complement to the ecosystems approach adopted in the LBAP.

2.2.2 Specifically, the ecosystems approach considers how the LBAP might impact on ecosystems that we rely upon to support our social and economic needs, as they provide particular services from which we benefit.

2.2.3 An ecosystem is a complex set of relationships among the living resources, habitats and residents of an area. It includes plants, trees, animals, micro-organisms, water, soil and people. Ecosystems are highly varied, but each is a functioning unit. All elements of an ecosystem are interdependent.

2.2.4 Our own well-being and economic prosperity is dependent on healthy ecosystems as they provide a multitude of resources and processes which are collectively known as 'ecosystem services'. The UK National Ecosystems Assessment describes four groups of ecosystem services[3], all of which are inter-linked. The four groups of services are outlined in Table 3 below.

Table 3: Ecosystem Services

Ecosystem Services	
Supporting services:	**Regulating services:**
These provide the basic infrastructure of life, including primary production, soil formation and water/nutrient-cycling in terrestrial and aquatic ecosystems. All other ecosystem services (regulating, provisioning, cultural) depend on them. Their impacts on human well-being are unseen, but vital.	Extremely diverse, these include the impacts of pollination and regulation of pests and diseases to enable continued provision of ecosystem goods such as food, fuel and fibre. As with supporting services, regulating services are strongly inter-linked with each other, and other types of service.
Provisioning services:	**Cultural services:**
These are manifested in the goods people obtain from ecosystems, such as food and fibre, fuel in the form of peat, wood or non-woody biomass, and water from rivers, lakes and aquifers. Supplies of ecosystem goods are invariably dependent on many supporting/regulating services	These are derived from environmental settings, (where humans interact with each other and nature), such as gardens, parks, rivers and lakes, the seashore and the wider countryside. Such 'green' and 'blue' spaces provide opportunities for outdoor learning, artistic inspiration and recreation.

2.2.5 In the Scottish Borders, there are important stocks of ecosystems, or 'natural capital' that deliver such ecosystem services. Protecting ecosystems and the multiple beneficial services they provide has guided the formation of the LBAP. The LBAP aims to encourage sustainable use of these resources, balancing the ongoing health of ecosystems on which we depend, with social and economic needs.

2.2.6 This ecosystems approach to the LBAP's preparation and implementation is intended to consider the value of ecosystem services when decisions are made regarding how we use, protect and enhance natural resources. The approach takes account of how dynamic ecosystems work across landscapes, and the vast range of ecosystem services that provide us freely with multiple, often unseen benefits.

2.2.7 The ecosystems approach also seeks to involve people who manage or benefit from ecosystem services in decision-making. Preparation of the LBAP has involved people through consultation workshops with partner organisations and formal public consultation, with the aim of encouraging decision-making at a local level about priority actions for biodiversity. The LBAP actions if implemented, provide a framework within which communities can take decisions and action for their local environment.

[2] Defra et al. (2011) UK National Ecosystem Assessment. Available at: http://uknea.unep-wcmc.org/Home/tabid/38/Default.aspx
[3] Ibid. Available at: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx

2.2.8 This SEA will illustrate links between ecosystem services and use them to help explain the Plan's effects on the environment. Assessment questions will be focussed on the effects on ecosystem services in the Scottish Borders context, which have been related to SEA topic areas and their interrelationships.

2.3 Summary of SEA Ecosystems Approach Methodology

2.3.1 In accordance with the 2005 Act, the SEA process is structured around several topic areas reflecting environmental issues that should be explored through the main Environmental Report. Topics relevant to this assessment are:

- Biodiversity, flora and fauna
- Population and human health
- Water
- Soil
- Air
- Climatic factors
- Material assets
- Cultural heritage
- Landscape

2.3.2 The SEA topics and their inter-relationships link naturally to the ecosystems approach, which can be seen as complementary[4].

2.3.3 This assessment is focussed on likely significant environmental effects arising from the LBAP on ecosystem services, as they relate to SEA Topics, (and their inter-relationships), in the context of the Scottish Borders, with consideration of the LBAP thematic action areas and relevant strategic plans and policies.

2.3.4 The following were key considerations for the assessment:

- What significant effects will the plan have on ecosystem services in the Scottish Borders?
- Does the Plan address identified pressures on these ecosystem services?
- How does the Plan perform against SEA objectives?

2.3.5 Further details on the assessment methodology are outlined in Section 4.

[4] Scottish Government (2011). Applying an ecosystems approach to land use: information note (online). Available at: http://www.scotland.gov.uk/Publications/2011/03/16083740/2

3. Environmental Context

3.1 Introduction

3.1.1 This section examines the following requirements of Schedule 3 of the 2005 Act:

- Relevant environmental protection objectives of other PPS
- Current state of the environment
- Environmental characteristics of the areas likely to be significantly affected
- Existing environmental problems
- Likely evolution of the environment without the implementation of the LBAP

3.1.2 In summary, this section establishes the current state of the baseline environment in the Scottish Borders and how this might change in the future, in the absence of the LBAP. It reviews the environmental characteristics of the Scottish Borders, including existing environmental problems.

3.1.3 Information collated from Scottish Borders Council data as well as other local, regional and national data and statistics, is presented under the broad SEA environmental topic headings as outlined above.

3.2 Relevant Environmental Objectives of Other PPS

3.2.1 The 2005 Act requires consideration of how environmental protection objectives of PPS relevant to the Plan under assessment should be taken into account during its preparation.

3.2.2 This SEA considers how the strategic actions proposed for the LBAP could affect such objectives, or assist their implementation, as outlined in Appendix A.

3.3 Relevant Aspects of the Baseline Environment

3.3.3 Review of the environmental baseline has included spatial data, which is included in Appendix C and summarised in Table 4, below.

3.3.4 An overview of the baseline environment relevant to the LBAP then follows in Table 5, organised by SEA Topic.

3.3.5 Table 5 also highlights key environmental issues/challenges relevant to the LBAP, in accordance with Schedule 3 paragraph 4 of the 2005 Act. Commentary is provided per topic area on possible impacts on existing environmental issues that may arise through implementation of the LBAP. Other PPS that have previously identified these issues through the process of SEA are indicated, where relevant.

3.3.6 Data sources relevant to each topic area are listed within Table 5.

Table 4: Spatial information used for assessment (see Appendix C)

SEA Topic	Corresponding spatial information
Air	Daily average traffic flow
Biodiversity, Flora and Fauna	International, national and local designated sites Ancient Woodland Inventory
Cultural Heritage	Listed Buildings Conservation Areas Scheduled Monuments Historic Environment Records Gardens and Designed Landscapes Inventory Battlefields
Water	River Flood Risk; Surface Water Flood Risk
Soil	Soil types
Population and Human Health	Drive times Multi Deprivation Index Core paths
Landscape	National Scenic Areas Special Landscape Areas Landscape Character Assessment Countryside Around Towns area
Material Assets	Strategic road network Rail network Cycle Network Waste recycling centres
Climatic Factors	Wind farms

**Scottish Borders Pilot Regional Land Use Strategy Framework*

Table 5: Overview of the Baseline Environment Relevant to the LBAP

SEA TOPIC: BIODIVERSITY, FLORA & FAUNA	
SEA OBJECTIVE: Protect, enhance and, where necessary, restore biodiversity and encourage habitat	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Habitats • The Tweed Aerial Survey classifies the type of land throughout the Scottish Borders using satellite remote sensing. Information on habitats of the Borders and land cover are outlined in Appendix E. • The Phase 1 Habitat Classification is produced by the Joint Nature Conservation Committee and provides a system to record semi-natural vegetation and other wildlife habitats. The ten categories of habitats include woodland and scrub, grassland and marsh, and heathland. Amongst these categories there are 155 habitat types. Accordingly, the habitat map of the Scottish Borders is too detailed to be legible but more information on the Phase 1 Habitat Classification can be found at http://jncc.defra.gov.uk/page-4258. • The Phase 1 Habitat Survey of the Scottish Borders, derived from aerial imagery, estimated just over 5% of the Scottish Borders region to be blanket bog, 3.5% fens, marsh, swamp and reedbed; 9% upland heath; 8% acid grassland and 0.8% neutral grassland. **Protected Sites and Species** • The Scottish Borders has internationally and nationally important wildlife, habitats and protected places, including 9 Special Areas of Conservation (SAC); 6 Special Protection Areas (SPA); 3 Ramsar sites; 95 Sites of Special Scientific Interest (SSSI); 2 National Nature Reserves (NNR)	Scottish Borders Pilot Regional Land Use Strategy Framework (2016) Tweed Aerial Survey and the Phase 1 Habitat Survey of the Scottish Borders (2010) A Greenspace Strategy for the Scottish Borders Scottish Borders Council (2016) Local Development Plan Scottish Borders Council (2017) Your Community Plan

• The marine environment of the Scottish Borders includes sites and species of international and even global importance, such as the fifth largest colony of grey seals in the world. • There are also Local Biodiversity Sites within the Scottish Borders, with species and habitats of local and regional importance • Maps of protected places are outlined in Appendix C and details of important habitats and species found in the Scottish Borders, including those listed on the Scottish Biodiversity List, and the pressures they face, are found in Appendix E. **Greenspace** • Greenspace in the Scottish Borders is varied in type, form, pattern, character and design – from formal parks to allotments, sports pitches, village greens, amenity spaces and play areas • Most towns in the Borders are built around river corridors, with related green corridors that link towns or villages with open countryside. • Scottish Borders Council has a Greenspace Strategy covering assessment of potential development impacts on greenspace, outdoor sport and recreation. A map of Greenspace is provided in Appendix C. • Special Landscape Areas as well as important open and greenspace is integrated into the Local Development Plan (LDP). • Functional green spaces include outdoor sports facilities such as playing fields, play areas, allotments, cemeteries, churchyards, green corridors such as rivers or former railway lines • Amenity green spaces include parks and gardens, natural green spaces, woodlands and green spaces within residential areas used informally • The Scottish Borders LDP green belt policy is to maintain the character and distinctiveness of the area's settlements. • Key green networks are in and around Duns, Eyemouth, Hawick, Jedburgh, Kelso and Lauder, Peebles, Galashiels/Tweed valley	
Biodiversity, Flora, Fauna: Key Environmental Issues relevant to the LBAP	**Featured in which other key PPS?**
• High quality habitats and a variety of biodiversity in terms of flora and fauna contribute to the value placed upon Scottish Borders' special and distinctive landscapes. This has ensuing benefits for tourism and the food and drink industries, which will support the local economy. • Species rich hedgerows account for 20% of the Scottish resource of this type of "woodland" • The high quality natural environment of the Scottish Borders on both land and sea is recognised in regional policy documents as one of its principal assets and also brings benefits for health and wellbeing. • Habitats important for ecosystems in the Scottish Borders face a large number of varied pressures, which may negatively impact related ecosystem services, or natural capital. • Protected sites and species face similar issues to habitats, and, pressures on habitats may result in further challenges. • The LBAP's primary aim is to help address these pressures, which are outlined in Appendix E. • The Scottish Borders Pilot Regional Land Use Strategy Framework (LUS Pilot) commissioned by the Scottish Government mapped ecosystem services (or 'natural capital') across the region. The maps identify opportunities to extend ecosystem services, show overlaps between them for potential multiple benefits, and identify constraints with existing land use. Maps are shown in Appendix C. The LBAP can support the work of the LUS Pilot by encouraging land use for multiple benefits. • Access to recreational greenspace or bluespace is beneficial to human health and well-being and provides direct nature experiences that may lead to positive action for the environment. • Development on derelict and vacant land relieves pressure on greenbelt locations, however it also has potential to remove habitat, and encourage	Scottish Biodiversity Strategy (SBS) Scottish Borders Pilot Regional Land Use Strategy Framework (2016) (LUS Pilot) Land Use Strategy (2016) (LUS) Scottish Borders Your Community Plan (YCP) (2018) South East Scotland Strategic Development Plan (SESPlan) Scottish Borders Local Development Plan (LDP)

invasive non-native species (INNS). • The LBAP actions will encourage consideration of the biodiversity value of brownfield sites in the context of urban development and expansion.	

SEA TOPIC: SOIL	
SEA OBJECTIVE: Protect and, where appropriate, use high quality and sensitive soils in a sustainable manner and conserve recognised geodiversity assets	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Soil Types • Altitude, natural and human processes determine the Scottish Borders' soil types. A map of soil types is provided in Appendix C. • Agricultural land accounts for over 80% of total land area in the Scottish Borders, although the type and quality of soils within this cultivated area are varied. • The majority of agricultural processes takes place on better quality soils (classes 1, 2 and 3.1) or prime quality agricultural land, covering the Tweed Lowlands and the Merse from Jedburgh and Earlston to the Berwickshire coast line, with small fragmented areas in close proximity. • The Scottish Borders has areas of deep peat soils that have a depth of 0.5m or greater. These are concentrated around the central southern uplands (Wauchope Forest, Newcastleton Forest etc); hills above Ettrick Valley; areas of Tweedsmuir Hills; more limited parts of Moorfoot Hills and Lammermuirs. • There are category 4, 5 and 6 soils present in the Borders, which may store significant amounts of carbon. These are widespread, though small and fragmented areas. They are broadly similar in distribution to deep peat soils. • There are 105ha of derelict and urban vacant land in Scottish Borders, which can be classed as brownfield land. **Soil Quality** • The soils of the Borders have a varied quality with regard to agricultural capability with better quality soils capable of supporting a wider range of arable crops including areas of prime agricultural land located along the south-eastern part of Scottish Borders from Jedburgh northwards to Duns and east to Eyemouth on the coast. • There are poorer quality soils within the area with regards to agricultural capability associated with upland areas of the Pentlands, in the far North West, to the Moorfoot Hills on the western boundary and the Lammermuirs in the north; here the land is only capable of supporting rough grazing. • Contaminated land can cause severe adverse conditions on ecosystems, human health and water systems. Scottish Borders Council adopted a Contaminated Land Inspection Strategy in 2001, in accordance with Part IIA of the Environmental Protection Act 1990, to strategically identify land that could be contaminated within the region. Performance indicators for such land was submitted to the Scottish Executive in 2006-07, highlighting areas warranting inspection. An area of 303 Ha, incorporating 790 sites was indicated as requiring inspection.	Contaminated Land Inspection Strategy (2001), Scottish Borders Council.

Soil: Key Environmental Issues relevant to the LBAP	**Featured in which other key PPS?**
• Soils are of key importance in water quality, flood prevention, biodiversity and other soil related functions for natural heritage. Their protection is key to maintaining natural processes and in turn the quality of our environment as a whole. It will be important, through LBAP actions, to protect soil biodiversity and quality. This is of increasing importance in the light of challenges that climate change may bring. • Threats to soil including erosion and acidification through reduced level and quality of biodiversity that impact soil's quality and functions are exacerbated by climate change. • Reductions in organic soil matter, particularly drainage and peat loss, and the sealing of soil under impermeable surfaces can increase flood risk. • Land management practices are key to the protection and enhancement of	SBS LDP SES Plan LUS Pilot LUS

biodiversity, including soil biodiversity, as well as ecosystem restoration and investment in natural capital. The LBAP proposes actions linked to sustainable land management and promotes the LUS Pilot maps in order to support decisions about land use, which may have positive benefits for soil quality. • The LBAP will consider the protection of high quality and sensitive soils such as deep peat, in terms of helping to restore ecosystem services and enhancing natural capital.	
SEA TOPIC: WATER	
SEA OBJECTIVE: Prevent deterioration and, where possible, enhance the ecological status of water bodies	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Bodies of Water • The main watercourses in the Scottish Borders are the River Tweed and its tributaries, the Eye and Liddel Waters. • Other bodies of water include the North Sea off the eastern coast of the Scottish Borders, reservoirs, wetlands and lakes. **Water Quality** • Across the Scottish Borders, surface water (SW) quality records are available through SEPA's water classification hub, at https://www.sepa.org.uk/data-visualisation/water-classification-hub/. This tool indicates that 54% of SW are in good condition, 5% are in high condition, 28% in moderate condition and 13% in poor condition (including 1 SW in bad condition). • The Eye Water is included in the Scotland RBMP and is a priority catchment, with issues concerning water quality. Details of its condition are provided in Appendix B • The Liddel Water is overall in Good condition. • In the 2015 update of the Solway Tweed River Basin Management Plan (RBMP), 46% of water bodies (surface and ground combined) and 36% of protected areas in the district were found to be not in good condition. New targets for improving water quality are shown in Appendix B. • There is a need to diffuse rural pollution and habitat fragmentation/loss, whilst ensuring the economic viability of farming enterprise **Flood Events** • Generally, flooding is a natural phenomenon that plays an important role in shaping the environment. In the Scottish Borders, flood risk comes from a variety of sources including fluvial, coastal, groundwater, surface water and/or sewer flooding. Flood risk management plans have been developed and flooding is taken into account in decisions about locating development. • Almost all main settlements in the Scottish Borders are in "Potentially Vulnerable Areas" to flooding (Duns being the exception) and with this risk comes the potential for adverse impacts on environmental, community and economic assets. Appendix C provides spatial information on the fluvial and surface flood risk areas of the Scottish Borders. • SEPA produces the national Flood Risk Management Strategy and Scottish Borders Council produces Local Flood Risk Management Plans under the Flood Risk Management (Scotland) Act 2009 (plan period 2015-2021). Maps can be accessed at http://map.sepa.org.uk/floodmap/map.htm • Management takes the form of mitigation against the impacts of flooding, including sustainable flood management projects and adaptation to the changing flood risk in the future. • Natural Flood Management (NFM) techniques have been trialled in the Scottish Borders at Crookston Farm and the Eddleston Water, as well as in the Ettrick and Yarrow catchments through biodiversity offset schemes and Bowmont and Borthwick water catchments • Flood Protection Schemes are being established for Galashiels, Hawick and Selkirk, which include NFM measures • Drought events occurred in the Scottish Borders in 2006, with impacts on wildlife and farmland production.	The river basin management plan for the Solway Tweed river basin district 2015-2027 SEPA National Flood Risk Assessments

Water: Key Environmental Issues Relevant to the LBAP	Featured in which other key PPS?
• The management and control of our land, as well as our water resources have major implications for water quality, biodiversity and human health, which are important considerations within the LBAP. • Diffuse pollution from soil and from atmospheric transport emissions can result in eutrophication, leading to algal blooms and altered water quality, with negative impacts on biodiversity. • For rivers, lakes, estuaries and coastal waters, SEPA's main aim is to ensure good ecological quality, which requires: good, unpolluted water quality; good quality of physical structures of beds, banks and shores; removal of significant man-made impediments to migrating fish; good water flows and levels; protection from INNS. • The LBAP aims to protect watercourses and water bodies and reduce, prevent or offset adverse biodiversity impacts, to help improve water quality and support the restoration of aquatic ecosystems. This will link in with SEPA's aims and the goals of RBMPs. • Meeting updated targets for surface and ground water bodies in the Scottish Borders, in line with the RBMP targets and the Water Framework Directive (WFD), will require integrated water management from 'source to sea', particularly targeting diffuse pollution. Climate change effects and changing water demands also need to be considered in decision-making, which LBAP actions will support. • Climate change may mean that flooding becomes more severe and more frequent in certain areas. Flood prevention, particularly if climate change brings more and unpredictable flood events, is a big challenge for the Scottish Borders, which investment in natural capital may support. • The LBAP includes measures to support aquatic ecosystems and management of freshwater, in order to reduce flooding impacts and incorporate NFM strategies, which may support wider flood management plans.	SBS LDP SES Plan LUS Pilot LUS

SEA TOPIC: LANDSCAPE	
SEA OBJECTIVE: Protect and, where appropriate, restore landscape character, local distinctiveness and scenic value	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Landscape Character • The Scottish Borders is considered to have a special, diverse landscape, with variations of upland, lowland, valley and coastal landscapes. • The Scottish Borders Landscape Character Assessment highlights the 5 key types of landscapes in the Borders as upland, upland fringe, river valley, lowland and coastal. Key areas are: Midland Valley, Tweed Lowlands, Lammermuir and Moorfoot Hills, Central Southern Uplands, Cheviot Hills and Coast. (See map in Appendix C). **Special Landscape Areas** • The most special landscapes in the Borders are protected by national and local designations. There are 2 National Scenic Areas (NSAs) and 6 Areas of Great Landscape Value, as outlined in Appendix B and C. • NSAs are nationally important areas of outstanding beauty, representing some of Scotland's grandest landscapes, and the NSA designation is intended to preserve and enhance their character or appearance. • All Special Landscape Areas (SLAs) are defined by local authorities in development plans, with a view to safeguarding areas of regional or local landscape importance from inappropriate development – the SLAs in the Scottish Borders are designated within the Supplementary Guidance titled 'Local Landscape Designations'. • In addition, the Countryside Around Towns policy aims to prevent settlement coalescence in the central Borders (see map in Appendix C).	The Scottish Borders Landscape Character Assessment (1998) The Natural Heritage of Scotland: An overview (1995) Local Landscape Designations Scottish Borders Countryside Around Towns (2011)

Landscape: Key Environmental Issues Relevant to the LBAP	Featured in which other key PPS?
• Current landscape issues in the Scottish Borders include the cumulative impact of wind turbines, which may also significantly affect habitats and species, and large plantation forestry of monoculture timber crops such as Sitka spruce, which cover hillsides and feature few native species. Incremental change from development is also a concern. • By helping to enhance biodiversity and habitat connectivity, the LBAP aims to ensure the continued local distinctiveness of landscapes, as well as contributing positively to setting and improved visual amenity, for example, through reducing fragmentation. • The LBAP actions have been considered in terms of their relationship to the defined landscape character areas of the Scottish Borders and any significant actions will take consideration of any special landscape designations.	SBS LDP SES Plan
SEA TOPIC: POPULATION & HUMAN HEALTH	
SEA OBJECTIVE: Improve human health and community wellbeing	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Population • The Borders has a scattered rural population over two thirds of the 4734km^2 land area of the Borders, with just under one third in remote areas. • The main population hubs for the Scottish Borders are around the towns of Hawick, Selkirk, Galashiels, Melrose and Jedburgh • Remote centres of population include Peebles, Innerleithen in the west and Duns and Eyemouth to the East. • Population size is predicted to increase by 15% from by 2032 to 130,000, representing 64,000 households (an increase of 27%). • The Council's Housing Needs and Demand Assessment identifies an ongoing need for affordable houses – 100 houses per annum over the next 5 years. **Employment** • Employment is dominated by service industries (72%), with 22% of jobs in production or construction industries Unemployment is at 1.5%, with a higher proportion of men than women unemployed. • Rural industries like agriculture, forestry, fishing and minerals production continue to be important for the local economy • There is a low proportion of enterprises in professional, scientific and technical activities, which adversely affects productivity measures for the Borders • Wage levels are 94% of the Scottish average, and at 84% of the average for people employed within the Scottish Borders. • Studies show an adequate supply of business and industrial land and premises, though improvements are required in Galashiels/Tweedbank and Peebles **Deprivation** • Whilst the majority of the Scottish Borders is located in some of the least deprived areas in Scotland, eight areas are considered to be in the 5-10% of the most deprived areas in Scotland. Just under one third of the Scottish Borders is classed as remote by the Scottish Government • Looked-after school leavers going to positive destinations (including higher or further education, training, employment, voluntary work) is below the Scottish average • 50% of local households cannot afford the average market rent in the Borders • The average house price in the borders is 7% higher than Scotland, whilst the average income in the Borders is 5% lower than Scotland. **Public services** • Approximately 90% of the Scottish Borders population live within 5 miles of a town or village with a population of over 1,000 people, • Access to services (retail, education, policing, leisure facilities, cultural activities) in the	Scottish Borders Council (2016) Local Development Plan Scottish Borders Council (2017) Your Community Plan Scottish Government Statistics: Employee jobs by industry Local Authorities 1998-2007 Annual Business Inquiry Scottish Government (2002). Availability of Services in Rural Scotland National Records of Scotland Scottish Borders Community Planning Partnership – Strategic Assessment (2016) OFCOM – Connected Nations (2016) Scottish Borders Household Survey (2015) Education Outcomes for Scotland's Looked After Children 2015-16 Scottish Health Survey (2015)

Scottish Borders have previously been considered based on drive times to reach facilities such as banks, post offices, petrol stations, as shown in maps provided in Appendix C. Drive times are mostly in the range of 0-15 minutes around areas of population, but greatest in remote fringe areas. There may be potential for promoting transport other than the car near population centres. • Difficulties in accessing services is in large part due to lack of or poor public transport. **Amenities and Recreation** • The Scottish Borders has numerous existing recreational options for both residents and visitors to the region. In particular there is an extensive network of core paths for walking, cycling and horse riding, a programme of promoted paths around towns, long distance paths (Southern Upland Way, Borders Abbey way and St Cuthbert's way) and Scotland's Great Trails. There are also a number of water access points. • Recreation is a critical selling point for the quality of life within the Borders and a high quality natural environment is accessible from the "doorstep" of many residents. • The Council has an online Core Paths Plan in line with the Land Reform (Scotland) Act 2016 promoting routes and encouraging use in line with the Scottish Outdoor Access Code. • To the west of the region there is more structured recreation with associated visitor infrastructure. The area between Peebles and Cardrona has a multi-use path (or MUP), the Glentress Mountain Biking Centre and a zip wire attraction. This area is a major Scottish Visitor attraction and is due to undergo further development • There are cycle paths throughout the Scottish Borders. Sustrans develops and maintains the National Cycle Network which provides sustainable transport routes across the country. Maps in Appendix C show National Routes 1 and 76, which have sections in the Scottish Borders. **Health** • Overall life expectancies in the Scottish Borders in 2011 were higher than the Scottish average • People registered with Type 2 diabetes increased in the Scottish Borders by 26.4% (Scottish increase – 25.9%). • 71% of adults in the Scottish Borders are overweight, compared to 65% in Scotland. • Close to 1 in 5 people in the Borders have a mental health problem – above the Scottish average • An ageing population in the Borders (over 89.5% of the population expected to be aged 75+ by 2039), is expected to drive increased need for care • Fatalities linked to road safety have increased by 57% in the Borders – compared to a decrease of -9% over Scotland. Combined fatalities and serious injuries have increased by 12% in the Borders, whilst figures for Scotland overall have decreased by -13%. **Public opinions on the Borders** • Community surveys have identified that people, the area and the countryside make the Borders a good place to live • Over half of people cited what they liked best was the Borders landscape, scenery and open spaces • Top problems cited include parking, waste and dangerous driving • The top priority cited was growing the local economy and supporting retail/business • Other changes needed were considered to be better access, transport, job opportunities, affordable activities and involving communities • 65% of adults rated their area as a good place to live, higher than the Scottish average	Scottish Diabetes Survey (2010) Information Services Department Scotland

Population & Human Health: Key Environmental Issues Relevant to the LBAP	Featured in which other key PPS?
• People enjoy living in the Scottish Borders because of the people, area and countryside and more than half enjoying the landscapes. By supporting the biodiversity that is inherent in the landscape, the LBAP actions will help ensure people continue to enjoy living in the Borders. • The Scottish Borders has a population increasing in age, where health issues include higher than the Scottish average instances of people being overweight,	YCP SBS LDP

or having a mental health problem. There is a reliance on transportation by private car and an increase in instances of serious injury or fatality linked to road safety. The LBAP actions can support other PPS in addressing some of these issues. • Actions include promoting increased participation in nature-based activities, use of active travel, promoting new long-distance paths, and raising awareness of the benefits of incorporating greenspace and infrastructure into urban development. • Challenges that the LBAP aims to address are the increased provision of green networks and balancing development requirements (e.g. housing expansion) with biodiversity considerations. • The LBAP will aim to increase awareness of the importance of protecting, enhancing and enjoying the biodiversity responsibly, with consideration for wildlife within local landscapes, with the added health benefits this may bring. • Poor mental health can impact people at all life stages and can result in poor outcomes in other areas of life such as physical health, employment and participation within the community. The LBAP actions include promotion of community schemes to support biodiversity that may help support people to participate more in their communities. • The LBAP aims to promote other forms of transport such as active travel like cycling and walking, which could be a realistic proposition for commuting as well as leisure trips. • As well as reducing transport impacts, the LBAP actions to promote active travel are linked to emphasising recreational opportunities within the region, which is a selling point for residents and visitors. • Prosperous town centres with good amenities are linked to the success of the local economy, employment, tourism, recreation and the built environment. The LBAP aims to support the local economy and tourism and to encourage rural industries to adopt approaches that work with biodiversity and ecosystems, for mutual benefit. By supporting the economy in this way, there may be some ensuing indirect influence on work opportunities and reducing deprivation.	
SEA TOPIC: CLIMATIC FACTORS	
SEA OBJECTIVE: Contribute towards the reduction of Scottish greenhouse gas outputs in line with Government targets. Reduce or prevent the overall effects of climate change including those related to flood risks.	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**

Greenhouse Gas Reduction • The Climate Change Act 2009 sets out ambitious targets for Scotland to reduce carbon emissions 42% by 2020 and 80% by 2050. • The global average greenhouse gas footprint is 16.34 tonnes of CO2eq per capita, whilst Scottish Borders emissions figures indicate an average footprint of 17.02 tCO2eq/capita. • The UK average ecological footprint is 5.3 global hectares per person, well above what is considered to be a sustainable level (1.8 g/ha/capita – WWF), however the Scottish Borders Local Authority area footprint is higher than the UK average at 5.52g/ha/capita. • The most recent Scottish Borders greenhouse gas emissions data is shown in Appendix B. **Renewable Energy** • The development of renewable energy sources has been identified as a key strand in the Scottish Government's plans to help tackle the issue of climate change. This is demonstrated by the framework for renewables in 'Scotland's Renewables Action Plan'. • The estimated capacity of renewable energy generation is Scotland has been estimated at 60GW. Scottish Borders has, and continues to play a key role in the development of sustainable energy sources with 19 consented windfarms and 11 proposed and pending a decision, (indicative numbers of windfarms of 5MW or above generation are shown in Appendix C) • Wind farms and small groups of turbines, or individual turbines are located throughout the Scottish Borders, with a concentration in the north and east of the region. They are subject to landscape and visual guidelines, depending on size of turbine. • The Scottish Borders also has the potential of wood fuel and heat recovery systems associated with forestry with potential for trees to contribute to the wood biomass sector. Scale of biomass production is hard to quantify, but demand is predicted to grow as wood is being exported currently to meet demand outwith the Borders. • Recently there has been a growing interest in solar farms.	WWF Footprint Calculator: footprint.wwf.org.uk Scottish Borders Local Development Plan The Scottish Government (2009) Renewables Action Plan The Scottish Government (2002) Scotland's Renewable Energy Potential – Beyond 2010 Scottish Borders Pilot Regional Land Use Strategy Framework (2016)

Climatic Factors: Key Environmental Issues Relevant to the LBAP	**Featured in which other key PPS?**
• Climate change is a major global issue that in the Scottish Borders is likely to affect average temperatures and phenology of some species, with impacts on breeding, growth, distribution or abundance in the region. • Climate change may present opportunities for some new species (including potentially more invasive species) to move their range northwards into the region, or have impacts in terms of habitat change or loss. • In the Scottish Borders, climate change impacts may include impacts on water resources and flooding, population, health and well-being. Alterations to ecosystem services such as water or climate regulation, for example, are likely to have ensuing impacts on biodiversity and ecosystems and our natural capital. • An assumption that can be drawn from Scottish Borders greenhouse gas emissions figures, is that the Scottish Borders consumes resources at an unsustainable rate. • The region's population is increasing, as outlined in *Population & Human Health*, which may result in higher energy demand and a rise in car use. • Emissions reductions of 80% by 2050 are being supported by renewable energy developments. The LBAP aims to encourage appropriate development in terms of impacts on biodiversity and ensure developments avoid adverse impacts on biodiversity.	SBS LDP SES Plan LUS Pilot LUS

SEA TOPIC: MATERIAL ASSETS	
SEA OBJECTIVE: Promote the sustainable use of community assets in the Scottish Borders.	
Overview of Relevant Aspects of Baseline Environment	Data Sources
Timber • The Scottish Borders Woodland Strategy estimates woodland cover in the Borders to	Scottish Borders Woodland Strategy (2005)

be 18.5% of total land area, including 2750 individual woodland blocks greater than 2ha. The average woodland size overall is 30ha. • Forest is largely characterised as upland commercial coniferous plantations, which predominate in the Central Southern Uplands (Tweed Valley and Peeblesshire to the western boundary of the Borders and Craik forest, and the major blocks bounded by the Ettrick and Teviot rivers, extending west from Selkirk and Hawick) and Cheviot Hills (Eskdalemuir; Wauchhope and Newcastleton, which adjoin to Kielder forest). • Forestry of the Tweed Lowlands is characterised by small scale, scattered woodlands within a matrix of agricultural land from the Cheviots to the Merse and the Lammermuir Hills to the north. • The remaining ancient and semi-natural woodland of the Scottish Borders makes up around 0.26% of total land area and represents around 1.4% of total woodland. Associated habitats are steep slopes along watercourses. The biodiversity value of such woodland is high. **Renewable Energy** • Renewable energy, such as from wind-farms, is considered under *Climatic Factors* in the above section **Transport** • The Scottish Government defines just over two thirds of the Scottish Borders as being "accessible" with the remainder being "remote", this means that there is a significant reliance on private car for use in daily life. • Transport infrastructure in the Scottish Borders includes the new Waverley Line, bus routes and road networks. Core Paths provide some active travel routes for walkers and cyclists. • 22% of respondents to the Borders Railway Baseline Survey commute to Edinburgh daily, most by car, with the Scottish Borders population (compared to respondents from other regions in the survey) most dependent on car use • The reliance on the car has impacts for daily traffic flows, emissions and the regional ecological and GHG footprint. • Maps showing Strategic Road Network and Rail Network are presented in Appendix C. • Cycle paths in the Scottish Borders have various local linkages to national routes such as Route 1, which runs from Dover to John O'Groats, and on to Orkney and Shetland, passing Berwick-upon-Tweed and Melrose. Route 76 runs from Berwick-upon-Tweed to St Andrews, passing through the Scottish Borders. • Information on core paths and cycle paths is outlined in *Population and Human Health* **Waste** • The Scottish Government introduced the Zero Waste Plan in 2010, the vision of the document is to reach 70% recycling and maximum 5% to landfill of Scotland's waste by 2025. In addition, there will also be landfill bans for specific waste types, source segregation and separate collection of specific waste types; and restrictions on inputs to energy from waste facilities. • Details of waste collected within the Scottish Borders and quantities composted or recycled are outlined in Appendix B. • Current water and wastewater asset capacity in the Scottish Borders is also shown in Appendix B. Treatment facilities are shown spatially in Appendix C. **Mineral Resources** • Consented mineral operations in Scottish Borders are shown in Appendix B. • Mineral resources are finite and set in specific locations. They must be worked in the most efficient and sustainable manner, as use of mineral alternatives or recycling of minerals cannot fully meet demand. • Transporting minerals over long distances is costly – including in environmental terms. • Securing local supplies can make an important contribution to sustainable Development.	Scotland's Zero Waste Plan (2010) Borders Railway Baseline Survey

Material Assets: Key Environmental Issues Relevant to the LBAP	Featured in which other key PPS?
• Timber is important for energy supplies and as stated under *Climatic Factors*, the Scottish Borders' forestry resource is significant. It is also essential for construction and development purposes. However, poorly managed commercial forestry may have negative impacts on biodiversity, which the LBAP will seek to avoid. • Whilst government planting targets include provision of native woodland alongside commercial forestry, there is an ongoing need for native tree planting, which the LBAP promotes, since the extent of ancient and semi-natural woodland in the Scottish Borders compares unfavourably with other parts of Scotland. • Other challenges relevant to the LBAP include ensuring wind development or repowering does not damage areas with sensitive habitats and species, ensuring sustainable use of mineral resources and increasing waste recycling to meet Scotland's Zero Waste Plan objectives by 2025. • The LBAP will aim to support sustainable management of natural resources and promote improvement and use of green networks in support of more active forms of transport, whilst avoiding disturbance to sensitive species and habitats. • By encouraging green infrastructure and including a focus on support for biodiversity in urban areas, the LBAP may contribute to town centre enhancements, with benefits for the economy and communities. • Some protected species may use sites where minerals are extracted or exist in new locations, or old workings that are re-opened. The LBAP promotes actions aimed at increasing wildlife recording, ensuring development is appropriate and that legal implications relating to wildlife are fully considered, in order to protect species and habitats for the benefit of the region's biodiversity.	SBS LDP SES Plan LUS Pilot LUS

SEA TOPIC: CULTURAL HERITAGE	
SEA OBJECTIVE: Protect, conserve and where appropriate enhance the historic environment	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Designations • Scottish Borders has a rich cultural and historical heritage and this is shown through the number of related designations and initiatives undertaken in the area. For example the Council has completed Townscape Heritage Initiatives (THI) in Hawick and Kelso in recent years, which were undertaken with the aim to culturally, socially and economically regenerate the towns. Supplementary guidance reports include Planning Briefs for historically sensitive sites including one underway for Kelso High School. • The Historic Environment Scotland website shows that Scottish Borders has 3,020 listed buildings. Categories and descriptions of listed buildings and the description are listed in Appendix B. • The location of the Scottish Borders' 43 Conservation areas (covering almost 900ha), 749 scheduled monuments, 31 gardens/designed landscapes and 3 battlefields are also mapped in Appendix C. • The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) manages a register of cultural heritage interest on behalf of Historic Scotland, and provides information on properties of architectural or historic merit throughout the country that are considered to be at risk. Currently the register identifies that there are 172 buildings within Scottish Borders at risk whilst 11 are currently being restored (as at 20/07/2016). **Tourism and Recreation Links** • Cultural heritage attractions are evident throughout the Borders and there are designed landscapes, castles/houses with associated grounds, and numerous other assets. At a strategic level these assets range from nationally significant to locally significant. In addition, many assets remain undisturbed or suspected in certain locations. • There is also a cultural significance to recreational access, with the respective Common	Historic Environment Scotland The Royal Commission on the Ancient and Historical Monuments of Scotland Register

Ridings for settlements, now marked each year in the summer months. • Local walks and tourist routes are often connected with cultural aspects of life in the Scottish Borders, such as walks connected with the life and works of writers, artists, philosophers or engineers.	
Cultural Heritage: Key Environmental Issues Relevant to the LBAP	**Featured in which other key PPS?**
• The cultural heritage of the region is part of what residents find most appealing about the Borders as a place to live, in terms of people and landscapes. The LBAP seeks to encourage experiences of nature and the outdoors, which may take place at cultural heritage or designated sites. • Buildings which require repair may present an issue in terms of protected species such as bats or breeding birds and the LBAP places emphasis on the importance of enhancing habitats and protecting such species. • Work took place in connection with the LUS Pilot to map historic land use in the Scottish Borders, which the LBAP aims to continue. Actions arising from the LBAP will promote the Historic Land Use Value project supported by Historic Scotland, and interconnections with recreation and greenspace to support health and well-being.	SBS LDP SES Plan LUS Pilot LUS
SEA TOPIC: AIR	
SEA OBJECTIVE: Prevent deterioration and, where possible, enhance air quality	
Overview of Relevant Aspects of Baseline Environment	**Data Sources**
Air Quality • Local Authorities have a responsibility under the Environment Act 1995 and Air Quality (Scotland) Amendments Regulations (2002) to improve air quality, not merely minimise pollution. • The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000) and Addendum (2003) set health-based objectives for nine air pollutants and two for the protection of vegetation and ecosystems. Where it is found that these objectives are unlikely to be met by the due date, an Air Quality Management Area (AQMA) must be declared and an action plan setting out proposals for addressing the problems prepared. In the Scottish Borders there are no AQMAs nor areas close to designation. • Transport emissions also affect air quality. New rail transport such as the Borders Railway will help assist with reducing CO2 emissions from cars, the use of which is high in the Scottish Borders in comparison to public transport. • In terms of car emissions, route management schemes also exist for major road routes, the A1, A68, A7 and A702. • The most recent census data, published 2017, shows information up to 2011 on the method of travel to work or study by 'day time' population in Scottish Borders. This information is provided in Appendix B. Daily average traffic flows for certain key routes in Scottish Borders which are shown in Appendix C in maps. **Greenhouse Gas Emissions** • The Climate Change (Scotland) Act 2009 includes emissions reduction targets covering a range of greenhouse gases (GHG): Carbon dioxide (CO2), Methane (CH4), Nitrous oxide (N20), Hydroflurocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF6). • Greenhouse gases are discussed in relation to climate change in *Climatic Factors.*	Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2000) and Addendum (2003)
Key Environmental Issues Relevant to the LBAP	**Feature in which other PPS?**
• Contributing factors that can lead to increased emissions and result in air pollution, include, transport (both private and public) and developments which generate traffic flows and general movement to and from areas. In areas of particularly poor air quality, emissions in the atmosphere as well as potential acid rain can adversely alter and affect biodiversity. Ecosystem services are also likely to be changed as a result.	SBS LDP SES Plan

• The Scottish Borders has no Air Quality Management Areas (SESplan Environment Report). However, traffic volumes are increasing at around 1.5% per annum, which may impact future air quality (and climate change targets). • Planting can be beneficial for improving air quality through the removal of pollutants in the soil and in the air. Woodland and forestry will also contribute to this as carbon capture assets. The LBAP aims to promote woodland creation and expansion, which will support clean air in the Scottish Borders. • The LBAP also promotes actions that support more active travel, including creation of a local walking route and support for existing walking/cycle paths.	LUS Pilot LUS

3.4 Evolution of the Environmental Baseline in the Absence of the Plan

3.4.1 The SEA process requires assessment of the environmental impact in the absence of the Plan's implementation.

3.4.2 The LBAP seeks to encourage co-ordinated, collaborative action, adopting an ecosystems approach and encouraging creative partnership action for biodiversity and ecosystems, at a time of economic uncertainty. Without this Plan, action within the local environment may be disjointed and less effective for biodiversity and ecosystems than if it were adopted: Without the LBAP, it is considered likely that an opportunity would be lost to co-ordinate collaborative, focussed action by partner organisations, land managers and communities that would help to protect and enhance ecosystems and biodiversity across the landscapes of the Scottish Borders.

3.4.3 The LBAP also represents an opportunity to contribute to international efforts to meet the Aichi biodiversity targets by 2020[5], and to help with climate change adaptation.

3.4.5 Table 6 outlines the likely evolution of the environmental baseline in the absence of the LBAP in respect of the SEA topic areas.

Table 6: Evolution of the baseline in the absence of the Plan

SEA Topic	Anticipated evolution without the LBAP's Implementation
Biodiversity, Flora & Fauna	It may be more challenging to harness the joint efforts of partner organisations to adopt collaborative projects that aim to protect and restore ecosystems and natural capital, promote sustainable land management for mutual benefit and to address threats and pressures faced by wildlife, including protected sites and species. The LBAP provides a focus and a framework for the work of partners, land managers and the community to support biodiversity. Species may continue to decline and pressures on habitats may not be adequately considered in decisions about land use, that fail to consider the connectedness of habitats and species at a landscape scale. There is also an opportunity help species to adapt to climate change, by encouraging connected ecological networks that aid migration and by supporting healthy ecosystems that will help alleviate climate change impacts.
Soil	The LBAP takes consideration of related PPS such as the Land Use Strategy and Scottish Borders LUS Pilot, as described above. Without the LBAP there would be lost opportunities to continue the work of the LUS Pilot and to encourage effective land management that supports ecosystems, and helps improve and protect soil quality and biodiversity. Whilst legislation and statutory agencies will work to minimise pollution, without the LBAP pollution may have greater impacts on biodiversity within sensitive habitats than if it were adopted.
Water	Water quality in the Scottish Borders is in general very good within freshwater and marine areas. It is likely that this will remain the same in the absence of the LBAP as a result of other policy, regulation and action. However, the LBAP actions are intended to promote water quality and represent an additional opportunity to improve existing issues through

[5] Secretariat of the Convention on Biological Diversity (2010). *Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets: "Living in Harmony with Nature".* Available at: https://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf.

	measures such as restoring and improving ecosystems in catchment areas, that will bring benefits for biodiversity in terrestrial and marine environments.
Landscape	The LBAP will contribute to connected habitats that enhance and support biodiversity, in so doing contributing to the preservation of Scottish Borders land and marine habitats, which are valued for their distinctiveness by both the community and visitors.
Population & Human Health	The LBAP seeks to increase awareness of and positive action for biodiversity. There may be missed opportunities to work with communities to promote direct nature experiences and enjoyment of natural greenspace as well as marine areas, which would mean a loss of benefits for people in terms of health, well-being, enjoyment and economic prosperity. It may also mean a loss in terms of gathering data records through citizen science and encouraging people to better understand the pressures on our local ecosystems and biodiversity, in order to help address them. Although the LBAP has a primarily environmental focus, it has the potential to address social and economic issues as outlined in Table 5 above, including supporting biodiversity in urban habitats and raising awareness of the possible benefits of green infrastructure.
Climatic Factors	Without the LBAP there would be less coordinated effort to enhance ecosystems that can assist with carbon capture and sequestration, such as protection of blanket bog habitats and woodlands, including strategic woodland planting schemes. Such schemes exist, however the LBAP provides a framework for action to support ecosystem restoration and enhancement and protection of ecosystem services, or natural capital.
Material Assets	The LBAP has the potential to encourage sustainable approaches to our use of natural resources and ecosystem services.
Cultural Heritage	There are ongoing efforts within the Scottish Borders to protect and celebrate cultural heritage, which will continue without the LBAP. However, there are actions within the LBAP that help support our regions cultural heritage, not least the positive impacts of being in nature in terms of inspiring creativity and appreciated a shared cultural heritage amongst residents, promoting this to visitors. The LBAP will help to highlight the role that ecosystems play in terms of cultural services with benefits for human health and wellbeing.
Air	The LBAP will support existing policies to reduce air pollution, which would continue without its adoption. However actions within the LBAP can also raise awareness of the contribution biodiversity and ecosystems play in regulating air quality, as well as encouraging woodland planting and habitat enhancements that could help improve the function of regulating ecosystems.

3.4.6 In summary, if adopted the LBAP will seek to address pressures and environmental issues through an ecosystems approach to action planning, including protection and enhancement of natural capital, restoration of ecosystems, conservation of wildlife and habitats, promotion of greenspace to support wildlife in more urban areas (as well as health and wellbeing), sustainable management of land, freshwater, marine and coastal areas. The adoption of an ecosystems approach will enable the consideration of LBAP actions across a variety of habitats, at a landscape scale, in line with the aims of the Scottish Biodiversity Strategy.

3.4.7 Actions include a focus on tackling INNS and targeting action on certain key species for which projects or funding are in place and can be supported, bearing in mind that resources (financial and personnel) are more limited than formerly. By adopting an ecosystems approach and supporting enhancement of biodiversity at a landscape scale, the LBAP has potential to strengthen ecological networks and lead to creation of more green space and networks. This includes woodland creation and habitat restoration, which will also have benefits in terms of climate change adaptation.

4. Assessment of Environmental Effects: Methodology

4.1 Reasonable Alternatives

4.1.1 The 2005 Act requires the consideration of the reasonable alternatives considered in the development of the Strategy. The following alternatives in Table 7 were considered and shared with the LBAP Partnership during initial consultation stages, and were outlined at Scoping stage:

Table 7: Alternative Options Considered

Alternative Options	Discussion Outcome
OPTION 1 Produce a new Plan incorporating new objectives and actions, adopting an ecosystems approach	A new Plan can better link to updated national and international strategies, and an ecosystems approach is at the heart of the Scottish Government's thinking about how to protect and enhance biodiversity. An ecosystems approach that involves people in decision-making and takes account of protecting ecosystems and the services they provide, will help to focus actions at a broad landscape or catchment scale, incorporating SMART actions that take account of future challenges such as climate change and the future for the UK after leaving the EU. **Preferred option.**
OPTION 2 Produce a revised Plan incorporating new objectives and actions, continuing the focus on habitats and species	A revised Plan can better link to updated national and international strategies and take account of future challenges including climate change. Streamlined, SMART actions can be created. **Potential option.**
OPTION 3 Review the existing Plan and do not develop new actions	The old Plan and related 14 'Habitat Action Plans' are resource-intensive and outdated. The objectives attached to the old Plan are numerous and cannot be effectively monitored. **Not a preferred option.**
OPTION 4 Retain existing Local Biodiversity Action Plan and do not revise	The existing Plan is outdated and does not fully meet SEA objectives. The structure of the Plan does not align with the most recent national strategies for biodiversity and land use. **Do not take forward.**
OPTION 5 Disregard the existing Plan and do not replace	The absence of a plan would weaken Scottish Borders Council's delivery of the biodiversity duty. **Not a viable option.**

4.1.2 Option 1 was agreed to be the best approach to updating the LBAP and it is this option which is the primary focus of the assessment.

4.1.3 Consideration of which alternative options are viable as reasonable alternatives has continued since the Scoping exercise for the SEA.

4.1.4 Option 2 is still considered to be a reasonable alternative, offering an ongoing focus on habitats and species, without attempting to incorporate an ecosystems approach.

4.1.5 Options 3 shares similarities with Option 4 and is not felt to be a viable option on further reflection. Furthermore, a review of the existing LBAP has been undertaken as part of the audit of the plan undertaking during the LBAP consultation with partners, and this has informed development of a new approach to the LBAP. Therefore Option 3 is now redundant in this regard.

4.1.6 Option 4 is not considered viable at Scoping, it was outlined that this option would not be taken forward. The LBAP in its current form has not been updated since 2003, some actions have

been completed or funding streams have closed and national strategies have moved on. Therefore Option 4 is not considered any further within this document.
Option 5 is not a reasonable alternative for the reasons outlined in Table 7, above and at Scoping stage. There is a legal requirement, as well as a desire to protect biodiversity, therefore a plan is required.

4.1.7 In summary, the assessment has considered Options 1 and 2 and this has helped in the development and finalisation of the Plan in its current form. The framework for assessment is outlined below and the detailed assessment is outlined in Appendix D.

4.1.8 Within the detailed assessment, Option 1 is referred to as *Preferred Option* and Option 2 as *Reasonable Alternative Option.*

4.2 Assessment Framework

4.2.1 The assessment methodology incorporates an ecosystems approach into the requirements of the 2005 Act.

4.2.2 The environmental effects of the LBAP as a Plan, and the reasonable alternative option, are considered in terms of any likely significant effects on the delivery of ecosystem services, in the context of the SEA Topic areas and their inter-relationship, and with consideration of cumulative (direct, indirect, secondary and synergistic) effects.

4.2.3 The 2005 Act also requires environmental assessments to consider international, European and national-level objectives relevant to the Plan under consideration.

4.2.4 Table 8 below links the SEA Topics, with the objectives and sub-objectives that were outlined in the Scoping Report (also featured in Table 5 above regarding the baseline environment), and that were agreed to by Consultation Authorities.

4.2.5 Table 8 also displays linked ecosystem services, related to each SEA Topic (provisioning services in yellow; regulating services in purple; supporting services in blue, and cultural services in green). Decisions about which ecosystem service should link to which topic have been made in light of the UK National Ecosystem Assessment, and with consideration of other key policies that are drivers for this LBAP, and which have also adopted an ecosystems approach to their assessment, namely, the Scottish Biodiversity Strategy[6] and the Scottish Borders Pilot Regional Land Use Framework.[7]

4.2.6 Consideration of significant effects on the outlined ecosystem services in the context of SEA Topics will form the backbone of the LBAP's assessment.

4.2.7 Indicators that will aid monitoring of significant effects on the wider environment resulting from the LBAP are also included in Table 8. These have been refined based on proposed baseline information and the existing environmental issues within the Scottish Borders.

[6] The Scottish Government (2013). *2020 Challenge for Scotland's biodiversity – A strategy for the conservation and enhancement of biodiversity in Scotland.* The Scottish Government, Edinburgh.
[7] Spray, C. (2016). *Scottish Borders Pilot Regional Land Use Framework*. Scottish Borders Council, Scottish Borders.

Table 8: SEA Topics with Ecosystem Service-linked Assessment Framework

SEA Topic	SEA Objective	Linked Ecosystem Services[8]	Indicators
Biodiversity, Flora and Fauna	Protect, enhance, create and restore biodiversity, and encourage habitat connectivity in the Scottish Borders • Protect and enhance species/habitats • Avoid damage to designated sites/protected species • Conserve and enhance natural heritage	• **Pollination** • **Disease and pest regulation (e.g. INNS)** • **Hazard regulation (erosion, flood, wildfire)** • **Nutrient cycling** • **Primary production e.g. photosynthesis** • **Wildlife diversity** • **Trees, vegetation, peat**	• Hectares of habitat restoration undertaken • Condition of designated sites • Water Framework Directive status • Trends for key species
Soil	Help maintain soil and peat quality and avoid exacerbating pollution; conserve geodiversity • Minimise soil and peat contamination and disturbance, maintaining high soil quality • Protect and enhance the geology of the Scottish Borders, including natural landforms and peatland	• **Hazard regulation** • **Soil quality** • **Carbon storage** • **Nutrient cycling** • **Soil formation**	• % of peatland improved/ deteriorated • Condition of SSSI geodiversity and biodiversity sites
Water	Help protect the status of the water environment • Protect and enhance inland and coastal waters • Protect and enhance water quality • Avoid flood risk and protect flood-risk areas	• **Pollution control** • **Water quality** • **Coastal defence** • **Nutrient cycling** • **Water Cycling** • **Fresh water supply**	• Changes to classification of water bodies in line with WFD requirements • Hectares of wetland created or managed • Number of hectares of land where natural flood management projects are developing created/enhanced/ maintained
Landscape	Help protect and restore landscape character, local distinctiveness and scenic value • Encourage biodiversity projects that will help enhance the landscape and visual amenity • Contribute to and enhance local distinctiveness in the Scottish	• **Wild species diversity** • **Sense of place** • **Aesthetic values**	• Biodiversity actions result in improved green networks and better connected green spaces • Landscape-scale actions for

[8] Defra et al. (2011) *UK National Ecosystem Assessment*. Available at: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx

	Borders • Protect and enhance landscape designations • Seek to improve habitat connectivity		biodiversity consider the local character and distinctiveness of the area
Population and Human Health	Support improvements in human health and community wellbeing • Safeguard the natural environment for the benefit of communities	• **Noise regulation** • **Hazard regulation** • **Coastal defence** • **Invasive Non-Native Species** • **Health benefits (recreation, tourism, mental health)** • **Education** • **Sense of place** • **Aesthetic values**	• Number of community/volunteer-led biodiversity projects • Number of people undertaking outdoor recreation • Number of projects that raise awareness of the health and wellbeing benefits of enjoying biodiversity
Climatic Factors	Support reduction of greenhouse gas emissions and promote climate change adaptation • Contribute to the mitigation of and adaptation to climate change • Assist with less greenhouse gas emissions being released into the atmosphere	• **Hazard regulation** • **Climate regulation** • **Carbon storage**	• Hectares of native woodland created • NFM projects ha of habitats • Hectares of peatland restoration • Transport statistics for walking/cycling/public transport
Material Assets	Encourage adequate protection and sustainable use of material assets • Protect and enhance natural assets of economic and recreational value, including tourism, food and drink • Support Core Paths and green networks by supporting bid for a new Tweed walk • Maintain consideration of Zero Waste Plan objectives in the delivery of all actions	• **Pollination** • **Food (crops, livestock, wild fish, game)** • **Fibre (crops, trees, wool)** • **Timber** • **Fuel** • **Pharmaceuticals** • **Employment**	• Areas of green space connected through restored ecological networks • Increased awareness and use of local walks and biodiversity projects
Cultural Heritage	Help protect the character, quality and diversity of the Scottish Borders' landscape • Promote visits to enjoy cultural as well as natural heritage assets of the Scottish Borders	• **Sense of place** • **Aesthetic values** • **Cultural heritage**	• Visitor numbers to key cultural heritage assets
Air	Help protect current air quality • Increase woodland creation to support high quality air in the Scottish Borders	• **Hazard regulation** • **Air quality regulation** • **Health benefits**	• Hectares of native woodland created • Increase in frequency of and % of people

	• Promote health and wellbeing benefits of biodiversity and encourage more walking and cycling	**(recreation, tourism, mental health)**	cycling and walking (Reduction in car use/emissions?)

4.2.8 The Plan has objectives to protect and enhance biodiversity alongside ecosystem services in the Scottish Borders. In light of acknowledged environmental issues for the Scottish Borders as outlined in the assessment of the baseline environment (Section 3), key questions for the assessment were:

- What significant effects will the Plan have on ecosystem services in the Scottish Borders?
- Does the Plan address the identified pressures on ecosystem services?
- How does the Plan perform against SEA objectives?

4.2.9 An assessment matrix (example shown in Table 9) was adopted to record findings in relation to the Plan, with consideration of its its six key thematic areas (Ecosystem Restoration; Natural Capital, Greenspace, Conserving Wildlife & Habitats; Land & Freshwater Management; Marine & Coastal Ecosystems).

4.2.10 Assessment of the Plan's reasonable alternatives was also recorded against this matrix.

4.2.11 The matrix adopts a ranking system for environmental effects, as outlined below:

Table 9: Assessment Matrix

Ranking System for Environmental Effects				
xx	**x**	**0**	**✓**	**✓✓**
Significantly negative	Negative	Neutral	Positive	Significantly Positive

4.2.12 The matrix has evolved since the Scoping exercise to incorporate consideration of ecosystem services, in order to incorporate an ecosystems approach to the SEA. The Assessment Matrix is outlined in Table 10 below.

Table 10: Assessment Matrix

Plan: [*e.g. the preferred option; or a reasonable alternative*]			
SEA Topic		**Objectives**	
e.g. Cultural Heritage		*e.g. Help protect the character, quality and diversity of the Scottish Borders' landscape* • *Promote visits to enjoy cultural as well as natural heritage assets of the Scottish Borders*	
Topic-Linked ES	**ES Sub-Type**	**Effect Per Sub-Type**	**Discussion of Anticipated Overall Effects**
Supporting	*e.g. Nutrient cycling*		
Regulating			
Provisioning			
Cultural			
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**	*e.g. None predicted.*	**Signficant Positive Environmental Effects?** *e.g. Nutrient cycling*

Does the Plan address identified pressures on these ecosystem services?	
How does the Plan perform against SEA objectives?	

4.2.13 Additional aspects of the assessment matrix include an overview of all effects for the alternative or preferred option, to show any significant effects at a glance (not shown here). This summary includes an outline of any possible enhancements considered feasible or appropriate and any mitigation required.

4.2.14 Assessment has been undertaken using professional judgement and in light of the environmental baseline with consideration of the proposed plan and its reasonable alternatives.

4.2.15 Determination of the significance of effects, as detailed in the assessment and summarised in Section 5, includes consideration of a combination of the magnitude of the impact and the importance or sensitivity of receptors.

4.2.16 Assessment of cumulative and synergistic significant effects has been addressed through by consideration tensions, conflicts and synergies between ecosystem services. Discussion of these effects is provided in Section 5.

4.2.17 The full, detailed assessment of the Plan and its reasonable alternatives, including commentary is provided in Appendix D.

5. Assessment of Environmental Effects: Discussion and Mitigation

5.1 Introduction

5.1.1 This section sets out the environmental effects of the Plan on ecosystem services, considering the likely significant effects and the effects of the outlined reasonable alternatives, (Section 4, above), to ensure transparency and comparison between the outlined options. The discussion in this section is based on the detailed assessment, which is provided in full in Appendix D.

5.1.2 As outlined in Section 4, above, the detailed assessment was undertaken in light of the examination of the baseline environment within the Scottish Borders against the proposed LBAP and its main alternative option. A wealth of baseline data, including spatial information has been available and there have been no significant obstacles to the completion of the assessment.

5.1.3 Owing to the acceptance of the detailed assessment matrix at Scoping stage, and given the additional complexity of undertaking spatial analysis, a focus on the assessment matrix was maintained. However, maps discussed throughout the detailed assessment that shall inform the implementation of the proposed Plan are available online.[9]

5.2 Assessment of Reasonable Alternative Option

5.2.1 The findings of the assessment of the Reasonable Alternative Option (as identified in Section 4, Table 7), is outlined in the following paragraphs. The detailed assessment of and commentary on this option can be found in Appendix D.

5.2.2 The Reasonable Alternative Option focuses on the actions directly linked to the protection and enhancement of habitats, protected sites and species of the Scottish Borders (habitats as outlined in Appendix E). The predominant focus of this option is species- or site-specific. There will be some wider focus on specific habitats across the region, however the interplay between habitat functionality at a landscape scale is not considered, nor is the interaction between actions for habitats and species and ecosystem services across the region.

5.2.3 Table 11 summarises the environmental effects of the Reasonable Alternative Option in line with the methodology outlined in Table 9 above and provides commentary on the overall findings of the detailed assessment.

Table 11: Reasonable Alternative Option – Summary of Environmental Effects

OPTION 2 ENVIRONMENTAL EFFECTS ON ECOSYSTEM SERVICES		
Supporting	**Effect**	**Commentary**
Nutrient Cycling	**0**	There is potential for beneficial impacts on supporting services through protection and enhancement of key habitats. This is more likely to be at a site-specific level under this option, which does not have a focus on broader ecosystem services across the region.
Primary Production	**0**	No negative effects were considered likely, and some benefits in terms of soil formation services are predicted, through actions linked to peatland, grassland and farmland habitat enhancements. There may be some locally beneficial impacts on aquatic ecosystems,

[9] Available at: https://www.scotborders.gov.uk/info/20013/environment/723/biodiversity/5

Water Cycling	0	including marine and freshwater systems through targeted efforts to support these habitats and there may be some indirect benefits to ecosystems through promoting their health and resilience via enhancement of habitats. Where no conservation action was undertaken, there would be no effects on supporting services. Overall, it is not considered that this option would be at a scale to result in positive or negative effects on supporting ecosystem services and effects were predicted to have a neutral impact, given the site-specific rather than landscape-scale focus of this option.
Soil Formation	0	
Regulating	**Effect**	**Commentary**
Hazard	✓	Again, due to the focus on conservation measures to support biodiversity in relation to specific habitats, sites or species, the benefits are likely to be limited and where no targeted measures are applied, ecosystem services would not be affected by this scenario. A significant positive effect was considered likely for disease and pest regulating services, in relation to measures to specifically target Invasive Non-Native Species (INNS), which will happen in habitats across the region under this option. Other predicted positive effects on pollination services related to measures to enhance habitat that would benefit pollinator species and direct measures for pollinating insects. It is unlikely, however, that there would be a significant impact on pollination regulating services, without a broader approach that considers the interplay of other ecosystem services such as provisioning services. Hazard regulation (flood risk reduction) would be benefited by efforts to enhance woodland habitats, and enhancements to peatlands and bog areas may positively impact soil quality and carbon storage, also supporting climate regulation. Other efforts on aquatic habitats would help with pollution regulation and water quality, producing positive effects in specific areas. Actions for improving urban habitats could indirectly benefit regulating services through planting of native trees in urban areas and encouraging people to spend more time in nature, or walk/cycle rather than using private cars as transport, with potential positive impacts on air quality and climate. This option would also indirectly support the ability of species to adapt to climate change, through undertaking of management approaches to support species and enhance the habitat on which they rely. There are no specific measures within this option that would be considered likely to positively (or negatively) impact noise regulating services or coastal defence.
Air Quality	✓	
Pollination	✓	
Climate	✓	
Carbon Storage	✓	
Noise	0	
Coastal Defence	0	
Pollution	✓	
Water	✓	
Soil Quality	✓	
Disease & Pest (INNS)	✓✓	
Provisioning	**Effect**	**Commentary**
Wildlife Diversity	✓✓	Supporting biodiversity in the region would be the primary of aim of the plan, under this option. A significant positive effect is predicted on wildlife diversity through measures to protect and enhance specific species and habitats of importance throughout the Scottish Borders. This may lead to other positive impacts e.g. on cultural services, which are discussed below. There may also be positive effects on trees, vegetation and peat through habitat-focussed actions to restore peatlands and woodland habitats. Specific actions may not be at a large enough scale to positively impact the region's fresh water supply, although no detrimental impact would be predicted. Similarly, a neutral effect was predicted for fuel and pharmaceuticals, which are not primary produce for the Scottish Borders. As a result of this option, there is potential for negative effects on food, timber and fibre provisioning services, as they may face constraints due to measures to protect mobile species and specific habitats. (Although these services may also be reasonably said to have some negative impacts on wildlife diversity, where an ecosystems approach to land management is not adopted). Overall, the actions would not be of an intensity to result in significant negative effects on these services.
Trees, Vegetation, Peat	✓	
Fresh Water Supply	0	
Food	x	
Timber	x	
Fibre	x	
Fuel	0	
Pharmaceuticals	0	

<table>
<tr><th>Cultural</th><th>Effect</th><th>Commentary</th></tr>
<tr><td>Sense of Place</td><td>✓✓</td><td rowspan="6">The plan focuses on measures to protect and enhance habitats and species in order to benefit biodiversity. This option has potential for significant positive effects on some cultural services, namely sense of place, cultural heritage and aesthetic value. Actions aimed at enhancing biodiversity could increase appreciation of and attachment to the area's natural heritage in terms of both landscapes and seascapes, and its high-quality environment, inspiring aesthetic valuation and creation/enhancement of cultural heritage. This may encourage people to be more active in nature and to appreciate being in nature, however there are no actions that directly encourage or raise awareness of the health benefits of nature for people, and it is not considered overall that the plan would result in a positive effect, although no negative effect would be likely.
There may be indirect positive impacts in terms of education, relating to increased understanding about species and habitats, and for employment, either directly through delivery of key actions for this option, or indirectly through enhancing natural heritage and encouraging visitors and food and drink production (however, some potentially negative interplay with food provisioning services has been identified above).
Since there is no ecosystems approach with consideration of linked services, there is less of a focus in this plan on encouraging people to use more active transport and be active in nature, although negative effects are not predicted.</td></tr>
<tr><td>Health Benefits</td><td>0</td></tr>
<tr><td>Aesthetic Value</td><td>✓✓</td></tr>
<tr><td>Cultural Heritage</td><td>✓✓</td></tr>
<tr><td>Employment</td><td>✓</td></tr>
<tr><td>Education</td><td>✓</td></tr>
<tr><td>What significant effects will this option have on the identified ecosystem services in the Scottish Borders?</td><td colspan="2">Significant Negative Environmental Effects</td><td>None predicted.</td><td>Significant Positive Environmental Effects</td><td>Disease & Pest (INNS)
Wildlife Diversity
Sense of Place
Aesthetic Value
Cultural Heritage</td></tr>
<tr><td>Other (not significant) effects)</td><td colspan="5">• Indirectly, this option could lead to other positive benefits for some ecosystem services
• Neutral effects are predicted for some services
• Some negative effects are indicated (though not significant) for provisioning services</td></tr>
<tr><td>Does this option address identified pressures on these ecosystem services?</td><td colspan="5">• Where positive effects are indicated, this is considered to demonstrate the potential to alleviate pressures on the identified ecosystem services.
• Pressures are likely to be relieved at a site-specific level, rather than across the region as a whole.
• For provisioning services, the actions connected with this option may increase pressure, e.g. on food, timber or fibre supply, although not at a significant level.</td></tr>
<tr><td rowspan="3">How does this option perform against the SEA objectives?</td><td colspan="2">Objectives Fully Met:</td><td colspan="3">Biodiversity, Flora & Fauna;
Water;
Landscape</td></tr>
<tr><td colspan="2">Objectives Indirectly Met:</td><td colspan="3">Cultural Heritage;
Population & Human Health; Climatic Factors</td></tr>
<tr><td colspan="2">Objectives Not Fully Met:</td><td colspan="3">Soil; Material Assets; Air</td></tr>
</table>

5.3 Assessment of Preferred Option

5.3.1 The findings of the assessment of the proposed Plan, which is a new Local Biodiversity Action Plan (LBAP) that adopts an ecosystems approach to action planning (as outlined in Section 2, above), are provided in the following paragraphs. The detailed assessment of and commentary on this option can be found in Appendix D.

5.3.2 This preferred option for the LBAP incorporates actions aimed at protecting and enhancing the ecosystems and natural capital (ecosystem services) of the Scottish Borders, across all habitats and at a landscape scale.

5.3.3 Actions within the LBAP are grouped under six key themes, which were fully considered in the assessment of environmental effects:

Theme 1 Ecosystem Restoration
Theme 2 Natural Capital
Theme 3 Greenspace
Theme 4 Conserving Wildlife & Habitats
Theme 5 Land & Freshwater Management
Theme 6 Marine & Coastal Ecosystems

5.3.4 Table 12, below, summarises the likely environmental effects of the LBAP as the preferred option, in line with the assessment methodology outlined in Table 9, above, and provides commentary on the findings of the detailed assessment in Appendix D.

Table 12: Preferred Option – Summary of Environmental Effects

OPTION 1 (LBAP) ENVIRONMENTAL EFFECTS ON ECOSYSTEM SERVICES			
Supporting	**Effect**	**Commentary**	
Nutrient Cycling	✓	Theme 1	Actions will support ecosystem health and restoration, for example through improving aquatic habitats, actions aiming to reduce development impacts on ecosystems and to enhance and restore the ecological network, including through tree planting. This which will in turn support services like photosynthesis, soil formation and nutrient cycling.
		Theme 2	Actions include restoration of peatland and woodland ecosystems, which will have positive indirect effects on soils and support nutrient cycling, with other positive impacts for climate change adaptation, through increased carbon storage capacity.
Primary Production	✓	Theme 3	Actions seek to encourage supporting ecosystems in urban areas through increased awareness of SUDS use and green infrastructure, which could also have positive indirect effects on supporting services
		Theme 4	In maintaining and enhancing biodiversity, including in soil and water, actions will help protect ecosystems and natural capital, and indirectly promote the health of supporting ecosystem services. In turn, this will harness the benefits of other services.
Water Cycling	✓	Theme 5	Under Theme 5, creative land and freshwater management projects will be encouraged, to enhance supporting services such as soil formation and nutrient cycling, employing lessons learned from the Scottish Borders Pilot Regional Land Use Framework.
Soil Formation	✓	Theme 6	Theme 6 actions such as marine biosecurity may support water cycling, as would actions supporting for Marine Protected Areas.
Regulating	**Effect**	**Commentary**	
Hazard	✓	Theme 1	Theme 1 actions include restoration of farmland habitats and species-rich hedgerows and woodlands, with the aim of enhancing biodiversity. There are potential benefits for carbon storage and climate regulation services (as well as climate change adaptation), and indirect benefits for hazard regulation, such as flood risk mitigation. Restoration of ecosystems is also considered likely to have a significant positive effect on pollution regulating systems for both freshwater and marine environments.
Air Quality	✓		

Pollination	✓✓		Other actions linked to assessing and minimising development impacts in order to support ecosystem restoration may have a positive benefit on noise regulation
Climate	✓✓	Theme 2	Under Theme 2, actions are likely to result in significant positive effects pollination services through habitat restoration and monitoring projects, and for carbon storage and soil quality, through enhancement of natural capital.
Carbon Storage	✓✓	Theme 3	Theme 3 actions will support biodiversity in urban areas, through improving green networks around towns and wildlflower planting, with benefits for pollination services, and actions also promote active travel, and raise awareness of the health benefits of being active in nature, which is likely to have a positive effect on climate and indirectly have a positive effect on air quality through reduced car use.
Noise	✓	Theme 4	Theme 4 actions also seek to improve habitats across the landscape, which will support pollinators and actions also encourage citizen science and dissemination of good practice to raise awareness of biodiversity and how to look after it, which can extend to pollinator species, and benefit them indirectly. creation, which may also have a positive impact on carbon storage. enhancement of peatland ecosystems and natural flood management techniques, including tree planting. Other actions include land management approaches that optimise ecosystems and their beneficial services, resulting in positive effects on hazard regulating services (e.g. relating to flood risk) and carbon storage. This may lead to indirect benefits for air quality.
Coastal Defence	**0**	Theme 5	Theme 5 actions include tackling INNS through awareness raising and direct action, and a focus on maintaining biosecurity with benefits for the regulation of disease and pests. This will be important since other actions for land and freshwater management aim to support a robust ecological network with improved resilience to climate change and a stronger ecological network may provide more opportunities for INNS to spread. Theme 5 also indirectly support improved soil quality, with emphasis on farmland management and air quality, through native woodland Efforts under Theme 5 will include awareness raising of the natural capital value of key environmental features and the costs of negative impacts on regulating services at a landscape scale.
Pollution	✓✓	Theme 6	Actions under Theme 6 for the marine environment seek to establish codes of conduct to protect the water environment in relation to Marine Protected Areas and there will be indirect benefits to water quality through actions to raise awareness of factors that threaten the marine environment, such as diffuse pollution. There are also actions to support participation in plastic bead monitoring, and to raise awareness of this new and increasing type of pollution. There are no specific actions focussed on coastal defence within the plan, although indirectly, other actions within the plan may support climate change adaptation, increasing the overall resilience of ecosystems to climate change effects. However, it is not considered that there would be any negative, or significantly negative effect on this regulating service
Water Quality	✓✓		
Soil Quality	✓✓		
Disease & Pest (INNS)	✓✓		
Provisioning	**Effect**	**Commentary**	

Wildlife Diversity	✓✓	Theme 1	The LBAP actions support sustainability production and use of provisioning services, through protection and restoration of healthy ecosystems. Theme 1 actions include meeting Water Framework Directive requirements, which could indirectly positively impact fresh water supplies (as well as pollution reduction).
Trees, Vegetation, Peat	✓✓	Theme 2	Theme 2 includes woodland ecosystem and peatland restoration as well as enhancement of farmland habitats and grasslands, with a view to using the LUS Pilot maps to ensure land management delivers multiple benefits for a range of ecosystem services, including provisioning services of trees, vegetation and peat and indirect positive effects on food and timber production.
Fresh Water Supply	✓	Theme 3	Actions include native tree species selection and management in community woodlands, streets and settlements as well as biodiversity projects for communal land and encouragement of green infrastructure, including planting and SUDS, as well as wildlife friendly management of greenspace, all of which will have a significantly positive effect on provisioning services. Key actions under this theme that may benefit provisioning services indirectly link to awareness raising of SUDS potential to maintain fresh, clean water, as well as information sharing concerning good practice in relation to urban development.
Food	✓	Theme 4	The primary aim of the LBAP is to act as a framework for the protection and enhancement of biodiversity. A significantly positive direct impact on wildlife diversity is anticipated from the implementation of LBAP actions, all of which aim, through an ecosystems approach, to enhance and protect biodiversity on both land and sea. Theme 4 actions include direct support for wild species diversity, as a primary aim of the LBAP. Other direct actions including ongoing identification and promotion of Local Biodiversity Sites, which will add and enhance the networks between national and internationally protected areas, by recognising the regional and local value of distinctive and important habitats across the Borders. Other actions including awareness raising and monitoring and encouraging appreciation of local biodiversity will have an indirect positive impact on wildlife diversity. Theme 4 actions seek to enhance both habitats and native species diversity at a landscape scale, with priority and most relevant areas for action highlighted in the plan, organised in accordance with the 5 key landscape types in the Borders (Map shown in Appendix C). The LBAP adopts a holistic ecosystems approach to biodiversity action planning, with the aim of targeting action so that benefits to biodiversity protection and enhancement can be maximised whilst tensions with provisioning services are reduced.
Timber	**0**	Theme 5	Theme 5 actions to tackle INNS will have a significant positive effect on wild species diversity, by enhancing their habitats and encouraging their success through removing species that would otherwise out-compete them. Actions to improve land and freshwater management may have indirect positive effects on production of food, fibre and timber.
Fibre	✓	Theme 6	Theme 6 actions also aim to support species diversity within seascapes, through recording, awareness raising and action to improve habitats for native species diversity, such as by tackling INNS.
Fuel	**0**		
Pharmaceuticals	**0**		

Cultural	Effect	Commentary
Sense of Place	✓✓	Theme 1 actions include restoration of ecosystems guided by the LUS Pilot maps, which will look after special landscapes and assist in the retention and enhancements of landscapes which give residents and visitors to the area a sense of place. Theme 2 actions also aim to enhance and protect the high quality natural environment through investment in Natural Capital. The aesthetic appeal of local landscapes is therefore supported by the LBAP actions. Theme 3 actions seek to enhance urban landscapes and to celebrate the historic land use of the Scottish Borders, and to promote the sense of it being a special place both for residents and for visitors. Actions also promote health and wellbeing via green networks and active travel awareness raising as well as increasing biodiversity in and around towns through green infrastructure. Theme 4 actions, it is reasonable to assume, will help in enhancing cultural ecosystem services through support for protected areas, wild species diversity and important habitats. The Scottish Borders features notable species that are iconic to Scotland and important as charismatic species that people actively wish to protect, such as bird species and mammals. actions under Theme 4 to conserve wild species diversity and protect special and designated sites, as well as under Theme 6 relating to enhancement of the marine environment, can be considered to be likely to have a significantly positive impact on cultural services. Theme 6 actions seek to raise awareness and appreciation of the marine and coastal environment and encourage actions that protect it, using educational opportunities to build engagement and enjoyment of the marine and coastal environment in terms of biodiversity awareness and protection. The LBAP includes actions that may indirectly lead to positive benefits for the employment sector, for example in relation to land management for food or timber production, or in relation to tourism. The assessment of impacts on cultural services is difficult since these are subjective concepts; however, there is scientific research that experience of nature can support cultural services, for example by improving mental health and wellbeing through people having a positive sense of place, a feeling of belonging and of being in touch with their cultural heritage, and an appreciation of the aesthetic value of the landscapes. It is reasonable to think that the LBAP actions will have significant positive impacts on cultural ecosystem services overall. All actions seek to enhance biodiversity, and specific actions seek to not only support biodiversity but also enhance green spaces through dedicated walks and promotion of green networks and paths. actions may have resultant benefits for special landscapes, and potentially positive impacts on the local economy through increasing tourism or food and drink industry sales. Actions may assist in increasing a sense of pride in the special character of the Scottish Borders amongst the local population as well as having benefits for the economy
Health Benefits	✓✓	
Aesthetic Value	✓✓	
Cultural Heritage	✓✓	
Employment	✓	
Education	✓	

What significant effects will this option have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**	None predicted.	**Significant Positive Environmental Effects?**	**Pollination** **Climate** **Carbon Storage** **Pollution** **Water Quality** **Soil Quality** **Disease & Pest (INNS)** **Wildlife Diversity** **Trees, Vegetation, Peat** **Sense of Place** **Health Benefits** **Aesthetic Value** **Cultural Heritage**

Other (not significant) effects	• Positive (indirect) effects are considered likely for supporting services • Neutral effects are predicted for coastal defence regulating services and for timber, fuel and pharmaceutical supporting services. • No negative effects are predicted – mitigation takes account of possible tensions (see Appendix D and Section 5.5).	
Does this option address identified pressures on these ecosystem services?	• Supporting services are indirectly benefited through the implementation of the LBAP, which will assist in addressing pressures through contribution to a robust ecological network with well-functioning ecosystems. • It is considered that there will be a significant positive effect on some regulating services, with benefits in addressing pressures across the region. Other regulating services will indirectly benefit through actions to protect and enhance biodiversity and take an ecosystems approach to action planning. In addition, this approach, using the LUS Pilot Maps to target activity, will help in avoiding tensions that may exist with provisioning services, to avoid adding to pressures on these services. • The LBAP actions present an opportunity to relieve pressure on cultural services, perhaps most relevant to the region is positive impacts on health benefits, given the statistics outlined in the baseline report concerning mental and physical wellbeing. In addition, the LBAP looks at supporting a high quality natural environment, which will benefit the region in terms of aesthetic value and lead to indirect economic benefits in industries such as tourism, food and drink. • LBAP actions have been drafted and will be undertaken with consideration of insight gained via the LUS Pilot maps, since the Land Use Strategy is a key policy driver, to ensure land use is undertaken with consideration for ecosystem service health and protection of natural capital.	
How does this option perform against the SEA objectives?	Objectives Fully Met:	ALL
	Objectives Indirectly Met:	-
	Objectives Not Fully Met:	-

5.4 Cumulative & Synergistic Effects

5.4.1 The actions of the preferred option are cumulatively positive, and are designed to be collaborative working with a wide range of partners with multiple interests and with the insight gained from the ecosystem services mapping undertaken by the LUS Pilot. Such collaboration and cumulative positive impacts are predicted to help optimise land use, take a wide range of ecosystem services into account effectively and to ultimately enhance biodiversity. Stronger and more coherent ecosystems will provide benefits for all four main types of ecosystem services.

5.4.2 Where there are natural tensions, for example with provisioning services such as wildlife diversity and food production, actions being guided by LUS Pilot spatial mapping data, close collaboration and consideration of how ecosystems operate across landscapes, is predicted to mitigate any potential negative impacts.

5.4.3 Synergistic effects have been highlighted throughout the detailed assessment, such as peatland restoration benefiting both soil quality and formation, as well as carbon storage and climate. Actions to enhance natural capital, and to restore ecosystems as well as in relation to improved land and freshwater management and marine and coastal ecosystems may have indirect positive impacts on food such as fish, game and livestock and arable crops.

5.4.3 It is also considered that actions to protect and enhance biodiversity, with a view to increasing ecosystem health, will have a longer-term, cumulatively positive effect on adaptations to the challenges of climate change.

5.4.4 The plan adopts a 10 year timescale, with a review scheduled for 5 years. Some actions are tied to partner activities, for example water quality and pollution reduction is linked to SEPA's Water

Framework Directive Targets. Given this timescale, and the spatial scale of the plan, together with the collaboration required and the nature of ecosystems, the expectation is that the predicted significant positive effects will arise over the medium to long-term, rather than short-term results being achieved.

5.5 Proposed Mitigation Measures & Enhancements

5.5.1 As the effects of the Plan, including likely significant effects are expected to be positive, following the detailed assessment, there is no requirement to identify mitigation to avoid or reduce negative effects.

5.5.2 However, undertaking the SEA has identified that potential tensions exist, such as between actions, priorities and pressures for provisioning services, and cultural, regulating or supporting services. These will be considered in the undertaking of all actions, by judicious use of the LUS Pilot maps, which have identified possible opportunities, areas of tension or constraint, where trade-offs may be required (e.g. whether to focus on woodland creation or species rich grassland conservation in particular areas, or the priorities of food production versus the hazard regulation support that natural flood management may provide).

5.5.3 Areas of tension are considered to be:

Increased recreation through positive benefits on cultural ecosystem services (e.g. health benefits) has a negative impact on wildlife sites and habitats
→ *Mitigation proposed:* Care will be taken to encourage responsible access to the countryside to avoid increased visitor impacts in terms of recreational disturbance, erosion or other impacts on ecosystem services, through awareness raising alongside promotion of health benefits.

Stress on provisioning services through actions related to farmland habitat restoration for wildlife diversity, or trees, vegetation and peat.
→ *Mitigation proposed:* Apply information gathered during the LUS Pilot mapping process, which identifies areas of mutual benefit for land use and seeks to avoid negative impacts, or seek to reduce their impact.

5.5.4 Possible enhancement opportunities for some ecosystem services have arisen through the assessment, including:

Coastal defence
→ *Enhancements:* Consider whether to include actions that may directly or indirectly support coastal erosion prevention under Theme 6

Carbon storage
→ *Enhancements:* Consider potential actions to enhance carbon storage potential in the marine environment

5.5.5 Issues raised in the assessment will be considered in the finalisation of the LBAP and discussed with LBAP partners, for example, discussing whether any further refinement can be made to actions in areas of potential tension, as described above, or seeking further, more direct enhancements for cultural services.

5.6 Monitoring

5.6.1 The 2005 Act requires the monitoring of the significant environmental effects of the Plan. The purpose of the monitoring is to identify significant positive and negative environmental effects, including those that were unforeseen.

5.6.2 A monitoring approach is briefly outlined within the LBAP in order to clarify how progress will be measured.

- Key policy drivers including the Scottish Biodiversity Strategy and the Land Use Strategy, as well as the Scottish Borders Local Development Plan, Administration Vision and Communities Plan provide measures for the LBAP.
- In addition, indicators outlined in Section 4, Table 8, will be used as measures for monitoring.
- Monitoring will be integrated with the Biodiversity Duty Report, which Scottish Borders Council is required to produce in line with the Wildlife and Natural Environment (Scotland) Act 2011.
- The final approach to monitoring will be agreed with LBAP partners.

5.6.3 No additional SEA monitoring is proposed, since an established reporting protocol exists, and since the proposed and preferred LBAP option is not predicted to have any negative environmental effects. As the LBAP is put into action, the tensions identified throughout the detailed assessment will be subject to review and monitoring.

6. Next Steps

6.1 Consultation on the Plan and Environmental Report

6.1.1 Public views and opinions on this Environmental Report, and the consultation on the LBAP to which it relates, are now invited. The following questions may provide a helpful structure for responses, although responses need not be refined to these questions and general comments are welcome:

- Are you content that an accurate description of the current environmental baseline has been provided?
- Are you aware of any further environmental information that will help to inform the assessment findings?
- Do you agree with the conclusions on the environmental effects of the Plan?
- Are you aware of other 'reasonable alternatives' to the Plan that should be considered as part of the SEA process?

6.1.2 Queries and general comments on the Environmental Report and relevant documents are invited. Comments should be made, by 25 May 2018 to:

Ecology Team
Council Headquarters
Newtown St Boswells
Melrose
Scottish Borders
TD6 0SA

Or by email to: ecology@scotborders.gov.uk

6.2 Post-consultation Procedures

6.2.1 Following the consultation period, responses will be analysed. The findings from this analysis will be taken into account as the LBAP is finalised. The finalised LBAP will be published by September 2018. As soon as reasonably practicable thereafter, a post-adoption SEA Statement will be prepared, which reflects on the findings of the assessment and associated consultation, and explains how the issues raised have been addressed.

APPENDICES

Appendix A: Relevant Environmental Objectives of Other PPS:

SEA TOPIC		
Biodiversity, fauna and flora		
Plan, programme or strategy	Key considerations for LBAP	Overview of Environmental Objectives of the PPS Relevant to the SEA Topic and the PPS (LBAP)
Rio Declaration (1992)	The LBAP will play a vital role in ensuring that the goals and targets of strategic international plans relating to biodiversity are delivered, taking into account their priorities at a level specific to the Scottish Borders.	Biodiversity policies from international to local levels aim in particular to conserve habitats, species and ecosystems and halt the loss of biodiversity. Halting the decline of key species is important, and where possible remedial action and enhancement should be implemented in degraded areas. Policies also note the importance of an ecosystem approach – an holistic, landscape approach to biodiversity conservation that goes beyond the traditional emphasis on protecting individual sites. The Marine Conservation Strategy seeks to manage seas sustainable to protect a biologically diverse marine and coastal environment and recover seas where practical. The non-native framework will seek to minimise the risk posed, and reduce the negative impacts caused, by invasive non-native species. Agricultural and forestry policies promote sustainable land use, environmental protection and stewardship, and emphasise the importance of delivering public goods outwith market mechanisms. Policy sets a target of increasing forest cover to 25% of land cover.
Convention on Biological Diversity (1992)		
Kyoto Protocol (1997)		
Strategic Plan for Biodiversity 2011-2020		
Aichi Biodiversity Targets		
EU 2020 Biodiversity Strategy		
Scottish Biodiversity Strategy (including Scotland's Biodiversity: It's In Your Hands 2004 and The 2020 Challenge for Scotland's Biodiversity 2013)	The strategy is key to the development of the LBAP, which will deliver the Strategy's aims at a level specific to the Scottish Borders and support the targets set within The 2020 Challenge for Scotland's Biodiversity.	
Nature Conservation (Scotland) Act 2004	Through the production of the LBAP, Scottish Borders Council will contribute to the requirements of the Act, including that the Council, as a public body, will show its commitment to the biodiversity duty.	
Wildlife and Countryside Act (1981)	The objectives of the LBAP will be compliant with the Act and support its requirements	
Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Set out the legal protection of designated sites that are found in the Scottish Borders, specifically Ramsar sites, Special Areas of Conservation and Special Protection Areas. The LBAP will support protection of these sites.	
Directive 79/409/EEC on the conservation of wild birds		
Convention on Wetlands of International Importance 1971 (amended 1982 and 1987) (Ramsar Convention)		
The Scottish Forestry Strategy (2006) (and associated SEA)	The LBAP will contribute towards a "high quality, robust and adaptable environment", with actions for woodlands.	
Scottish Borders Woodland Strategy (2005)	As above, the LBAP will help achieve the vision of "Trees, woodlands and forests will achieve their full potential as a natural resource, creating the environment that	

	gives greatest benefit to the life and work of the Borders people"	
The Non-Native Species Framework Strategy for Great Britain.	In relation to Invasive Non-Native Species, the LBAP is complementary to the aims of these PPS, as it will seek to tackle INNS in the Scottish Borders, reduce negative impacts and minimse the risk of spread	
WANE Act		
Strategy for Marine Conservation in Scotland's Seas	Actions within the LBAP relating to the marine environment will support this strategy to encourage biodiversity through sustainable use of the marine resource	
Population and Human Health		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
Scottish Government National Outcomes	The LBAP aims to support the National Outcomes, for example in terms of actions that promote: longer, healthier lives, successful learners, tackling inequality, sustainable places, supportive and resilient communities, valuing the built and natural environment, reducing local and global environmental impacts.	The PPS highlight that in settlements, networks of linked, good quality open space are important for their contribution to amenity and their role in nature conservation, biodiversity, recreation and physical activity. The LBAP recognises the important role the quality of the physical environment has to play in mental health improvement.
Scottish Borders Core Path Plan (2008)	The core paths of the Borders are essential to health, sense of place and vitality of Borders residents and visitors. The LBAP takes cognisance of these and their potential enhancement for biodiversity and people.	
Soil		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
Scottish Soils Framework (2009)	The purpose of the framework is to ensure more sustainable management of the soil resource. It identifies 13 outcomes of threats to the soil resource and provides action to tackle these outcomes. The LBAP will add efforts to address these threats and assist in tackling them in line with the actions where appropriate.	Policies on soil seek to protect resources from a range of impacts including increased susceptibility to erosion and soil pollution. The LBAP will support protection of soils through its actions, and its links with key policy drivers such as the Land Use Strategy, Scottish Borders Pilot Land Use Framework and Scottish Biodiversity Strategy, which have informed such actions and also seek to protect Scotland's soils.
Water		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
Water Environment and Water Services (Scotland) Act 2003 (Designation of Scotland River Basin District) Order 2003	The documents are the Scottish distillation of the European Water Framework Directive. They give Ministers regulatory powers over water activities in order to protect, improve and promote sustainable use of Scotland's water environment. The LBAP will support these PPS through its actions.	Water related policies aim to protect water resources, achieve an improvement in their ecological condition where appropriate and aim to achieve or maintain Good Environmental Status. River Basin Management Plans, which were prepared under the Water Framework Directive and WEWS Act set specific objectives for the protection and improvement of water resources within each river basin. The LBAP supports
The Water Environment (Controlled Activities) (Scotland) Regulations 2005		
Scotland River Basin	The two RBMPs are the documents that	

Management Plan and Solway Tweed River Basin Management Plan (RBMP)	state the targets and aims for the protection and improvement of Scotland's water environment. The key target is to improve the proportion of water courses in good condition. In the Borders the Tweed is subject to a separate RBMP to the rest of Scotland and thus the LBAP takes account of the objectives of both documents.	such PPS and protection of the water environment and aquatic ecosystems.
Flood Risk Management (Scotland) Act 2009	Sets national policy the requirement to take flood risk into account has been considered in preparing the LBAP.	
Scottish Water, Water Resource Plan (2008)	Sets Scottish Water's plan to ensure a safe supply of drinking water to 2032. One of the key challenges is to adapt to pressures on water resources due to climate change and environmental constraints. The LBAP aims to support to work to meet this challenge.	
National Marine Plan 2010	The LBAP maintains awareness of the vision of this document for the marine environment: "clean, healthy, safe, productive and biologically diverse oceans and seas, managed to meet the long term needs of nature & people"	
Tweed Catchment Management Plan	The Plan has a series of strategic aims with regards to water quality, water resources, habitats and species, river works and flood management. The LBAP aims to assist in work towards these aims	
Tweed Wetland Strategy 2010	The strategy has broad aims related to protection, enhancement of wetland habitats; promotion of habitat connectivity; identification of threats; and supporting sustainable land use. The LBAP will assist in work towards these aims.	
Air		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
Low Carbon Scotland – Meeting the Emissions Reduction Targets 2010-2020	The LBAP should contribute to the targets of Low Carbon Scotland by highlighting the role of biodiversity in carbon sequestration and as a natural resource. The LBAP aims to play a role in achieving targets set at a local level and reflecting the benefits of biodiversity for low carbon communities.	These national strategies aim to achieve the best air quality for Scotland, thereby supporting health and wellbeing and protecting the environment as a natural asset. They aim to ensure that Scotland's air quality has a reputation as high as Scottish landscapes and scenery. LBAP actions are linked to protecting ecosystem services such as air quality regulation and increasing health and wellbeing through encouraging active travel, with potential knock-on benefits for reducing travel by car.
Cleaner Air for Scotland – The Road to a Healthier Future	The LBAP will support this strategy with actions that promote adaptation to climate change and reduction of greenhouse gas emissions, efforts to encourage walking locally and actions to enhance biodiversity and ecosystem services that support air quality and its regulation	
Cultural Heritage		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
NPPG5 Archaeology and Planning (1998)	Sets national policy on archaeology and the historic environment	Policies extend beyond specific designated sites to reflect the value of

NPPG18 Planning and the Historic Environment		the setting of monuments and historic buildings, and wider cultural landscapes. The LBAP includes actions aimed at protecting and promoting the value of the historic environment in terms land use
Scottish Historic Environment Policy (SHEP) (2009)	The LBAP aims to impact as little as possible on the historic environment. The LBAP seeks to promote the SHEP vision.	
Climatic Factors		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
Climate Change (Scotland) Act 2009	The Act sets target for carbon emissions reductions (against a baseline) by 2050. It also informs the national Land Use Strategy, which has led to the Pilot Land Use Strategy in the Scottish Borders. This in turn informs key objectives of the LBAP.	Healthy ecosystems play an important role as carbon sinks and the LBAP aims to contribute to climate change targets and adaptation strategy to increase the resilience of the local community, and natural and economic systems. Indirectly the actions of the LBAP will help to meet climate change targets through the promotion of biodiversity and the role aspects of biodiversity can play as a carbon sink and seek to promote adaptation.
Scottish Climate Change Adaptation	The document has the vision: "To increase the resilience of Scotland's people, environment and economy to the impacts of a changing climate". Within this there are objectives to support a healthy and diverse natural environment with capacity to adapt and to sustain and enhance the benefits, goods and services that the natural environment provides". The document is directly relevant to the aims of the LBAP.	
Biomass Action Plan for Scotland (2007)	The aim of the Plan is to set out a coordinated programme for development of the biomass sector in Scotland. It provides actions to supplement a framework to assist further production. The LBAP should be aware of the need for forestry to provide biomass.	
Material Assets		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
NPF 3	The LBAP and NPF3 should be aligned in their commitment to the Scottish Biodiversity Strategy. The LBAP will represent opportunities in the Scottish Borders to ensure the protection of biodiversity.	These PPS all promote a high quality natural environment and protection of national heritage, internationally and nationally protected sites and species, as well as of locally important sites and species. The Zero Waste Plan seeks to make a positive contribution to Scotland's climate change and renewable energy targets. The LBAP will be adopted as Supplementary Guidance for the Scottish Borders in relation to planning and supports the aims of these PPS.
Scottish Planning Policy	The LBAP will need to consider the requirements of the SPP throughout its development, including the impact of development on biodiversity in the Scottish Borders. The LBAP will contribute to SPP policies in relation to biodiversity and the natural environment.	

Planning Advice Note (PAN) 60	The LBAP will put into practice the requirements of PAN 60, and will be a proactive measure for the encouragement and understanding of the natural environment. The proposed outcomes of the LBAP are in line with PAN 60 requirements.	The LUS Pilot aimed to test principles of the national LUS at a local level to see how they can be realised in a practical way, based on an ecosystems approach that guides decision on integrated land management. In adopting an ecosystems approach and building on learning and outstanding actions from the Pilot, the LBAP supports these PPS
Scottish Borders Local Development Plan	The LBAP will be able to help guide developments to reduce, prevent or offset the effects of development on biodiversity.	
Scotland's Zero Waste Plan (2010)	The LBAP actions promote sustainable use of resources through individual and collective community action	
Scottish Borders Pilot Regional Land Use Strategy Framework	The strategies represent key policy drivers for the LBAP and the maps produced for the LUS Pilot in the Scottish Borders, along with outstanding actions from the Pilot, have shaped preparation of LBAP actions and targeting of effort in the landscape	
Land Use Strategy (2016)		
Landscape		
Plan, programme or strategy	Key considerations for LBAP	Overview of Relevant Environmental Objectives of the PPS
European Landscape Convention (2000)	Requires protection and enhancement of landscapes. LBAP actions are focussed at a landscape scale across the Scottish Borders, which supports these PPS.	Landscape policies recognise the importance of both designated and non-designated landscapes and aims to conserve these. They recognise that landscape has no boundaries and that people are central to its management. The LBAP also highlights the need for biodiversity action to support ecosystems and their beneficial services at a landscape scale.
SNH Natural Heritage Futures		
SNH National Scenic Areas Programme		

Appendix B: Environmental Baseline: Supporting Data Tables

1 Biodiversity Flora & Fauna

1.1 Land Cover and Habitats of the Scottish Borders

Land cover and habitat data is provided in the separate Appendix E.

(See also spatial information in Appendix C – Maps 1 - 4).

2 Soil

(See spatial information in Appendix C – Map 5).

3 Water

3.1 Improvement objectives for water bodies and protected areas for 2015 to 2027

Target	Genre	Percentage
Currently Good or Better	Protected Areas (58 in total)	64%
Achieving Good by 2021		14%
Achieving Good by 2027		19%
Recovering to Good after 2027		3%
Currently Good or Better	Surface and Ground Water Bodies (624 in total)	48%
Achieving Good by 2021		9%
Achieving Good by 2027		33%
Recovering to Good after 2027		4%
Will not achieve Good		6%

Source: The river basin management plan for the Solway Tweed river basin district: 2015 update

3.2 Condition of the Eye Water Catchment (2014 data)

Water Body	Overall Condition	Water Quality
Eye Water (Ale Water Confluence to Eyemouth)	Poor	Poor
Ale Water	Good	Good
Eye Water (Source to Ale Water Confluence)	Moderate	Moderate
Horn Burn	Good	Moderate

Source: SEPA Water Environment Hub.

(See also spatial information in Appendix C – Maps 6 & 7).

4 Landscape

4.1 Landscape Areas of the Scottish Borders (NSAs and SLAs)

Landscape Designation	Area (Ha)
Eildon and Leaderfoot NSA	3880
Upper Tweeddale NSA	12770
Berwickshire Coast SLA	4469
Cheviot Foothills SLA	18602
Lammermuir Hills SLA	25057
Pentland Hills SLA	5949
Teviot Valleys SLA	15693
Tweed, Ettrick and Yarrow Confluences SLA	11994
Tweed Lowlands SLA	6819
Tweedsmuir Uplands SLA	53569
Tweed Valley SLA	10959
TOTAL Ha of Designated Landscapes	169761 (1697.61 km^2 = 36% of Borders region)

(See also spatial information in Appendix C – Maps 8 – 10).

5 Population & Human Health

5.1 Scottish Borders Population Breakdown (2014 Figures)

Age Group	Male Population Scottish Borders	Female Population Scottish Borders	Total Population of Scottish Borders	% of total population of Scottish Borders
0 - 14	9,070	8,771	17,841	15.7
15 - 29	8,304	8,276	16,580	14.5
30 - 44	8,704	9,653	18,357	16.1
45 - 59	13,202	13,632	26,834	23.5
60 - 74	11,146	11,707	22,853	20.1
75+	4,890	6,675	11,565	10.1

Source: Office for National Statistics

(See also spatial information in Appendix C – Maps 11 - 13)

6 Climatic Factors

6.1 Scottish Borders Greenhouse Gas Emissions

Scottish Borders Population = 114,530							
PER CAPITA FOOTPRINT					**TOTAL FOOTPRINT**		
	Ecological Footprint (gha/capita)	Carbon Footprint (tonnes CO2/capita)	GHG Footprint (tonnes CO2eq/capita)		Total Ecological Footprint (gha)	Total Carbon Footprint (Tonnes CO2)	Total GHG Footprint (Tonnes CO2 eq)
TOTAL	**5.52**	**12.59**	**17.02**		**611,216**	**1,392,837**	**1,882,729**
Housing	1.44	4.10	4.59		159,741	454,143	507,433
Transport	0.94	3.09	3.58		103,548	341,616	396,351
Food	1.40	1.23	3.05		155,110	135,697	337,371
Consumer Items	0.73	1.44	2.09		80,764	158,856	231,677
Private Services	0.29	0.74	1.05		31,839	81,415	116,578
Public Services	0.59	1.58	2.13		65,637	174,520	236,014
Capital Investment	0.12	0.36	0.46		13,756	39,298	51,049
Other	0.01	0.07	0.06		821	7,293	6,257

Source: Scottish Borders Council Greenhouse Gas Emissions Data

(See also spatial information in Appendix C – Map 14).

7 Material Assets

7.1 Municipal Waste collected within Scottish Borders (2009)

Total municipal waste collected in tonnes	Waste collected for disposal (tonnes)			Waste collected for recycling and composting (tonnes)	
	Household	Commercial	Other non-household	Household	Commercial
70,498	30,699	12,698	120	23,593	3,088

7.2 Water and Wastewater Asset Capacity

Area	Wastewater Asset Status	Drinking Water Asset Status
Stow	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Lauder	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Galashiels	Galashiels has limited capacity. Contributions may be required when updates are necessary. Developers may be required to contribute to the local water network to enable development.	There is currently limited capacity at Manse Street WTW; supply may be supported by another WTW
Peebles	A growth project has been raised to enable development in this area	There is currently sufficient capacity for identified development needs. However, any further development a growth project may be required where the developer will need to meet 5 growth criteria
Innerleithen	Current capacity is sufficient for identified development needs	There is currently sufficient capacity for identified development needs. However, any further development a growth project may be required where the developer will need to meet 5 growth criteria
Selkirk	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Hawick	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Newtown St Boswells	A growth project has been raised to enable development in this area	Current capacity is sufficient for identified development needs
Jedburgh	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Melrose	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Duns	Current capacity is sufficient for identified development needs. Developers may be required to contribute towards upgrading the local water network to enable development.	Current capacity is sufficient for identified development needs
Reston	There is currently sufficient capacity at the treatment works. However, if development exceeds current capacity a growth	Current capacity is sufficient for identified development needs

	project would be required.	
Kelso	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Earlston	Earlston has limited capacity, however the growth project is awaiting confirmation of the 5 Criteria from the developer. Contributions may be required when upgrades are necessary	Current capacity is sufficient for identified development needs
Coldstream	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Eyemouth	Current capacity is sufficient for identified development needs	Current capacity is sufficient for identified development needs
Howden WWTW	Current capacity is sufficient for identified development needs	N/A

7.3 Consented Mineral Operations in Scottish Borders

Hard rock mineral extraction	Sand and gravel mineral extraction	Other mineral extraction
• Cowieslinn • Craighouse • Greena • Soutra Hill • Trowknowes • Edston • Glenfin • Hazelbank • Swinton	• Kinegar • Reston	• Whim Moss

(See also spatial information in Appendix C – Maps 15 – 18).

8 Cultural Heritage

Listed Buildings in the Scottish Borders by Category

Category	Category Description	Total number
A Listed	Buildings of national or international importance, either architectural or historic, or fine little-altered examples of some particular period, style or building type.	185
B Listed	Buildings of regional or more than local importance, or major examples of some particular period, style or building type which may have been altered.	1,233
C Listed	Buildings of local importance, lesser examples of any period, style, or building type, as originally constructed or moderately altered; and simple traditional buildings which group well with others in categories A and B.	1,602
	TOTAL OF ALL CATEGORIES:	**3,020**

Source: Historic Environment Scotland Website, 2017 data

(See also spatial information in Appendix C – Maps 19 - 25).

9 Air

9.1 Mode of transport to work or study in the Scottish Borders

Method of Travel to Work or Study	Number of People
Total 'day time' population (as of 2011)	106,944
'Day time' population not currently working or studying	41,152
'Day time' population that works or studies mainly at or from home	10,469
Train	62
Bus, minibus or coach	5,595
Driving a car or van	27,794
Passenger in a car or van	5,604
Bicycle	691
On foot	14,882
Other	695

Source: Census data 2001

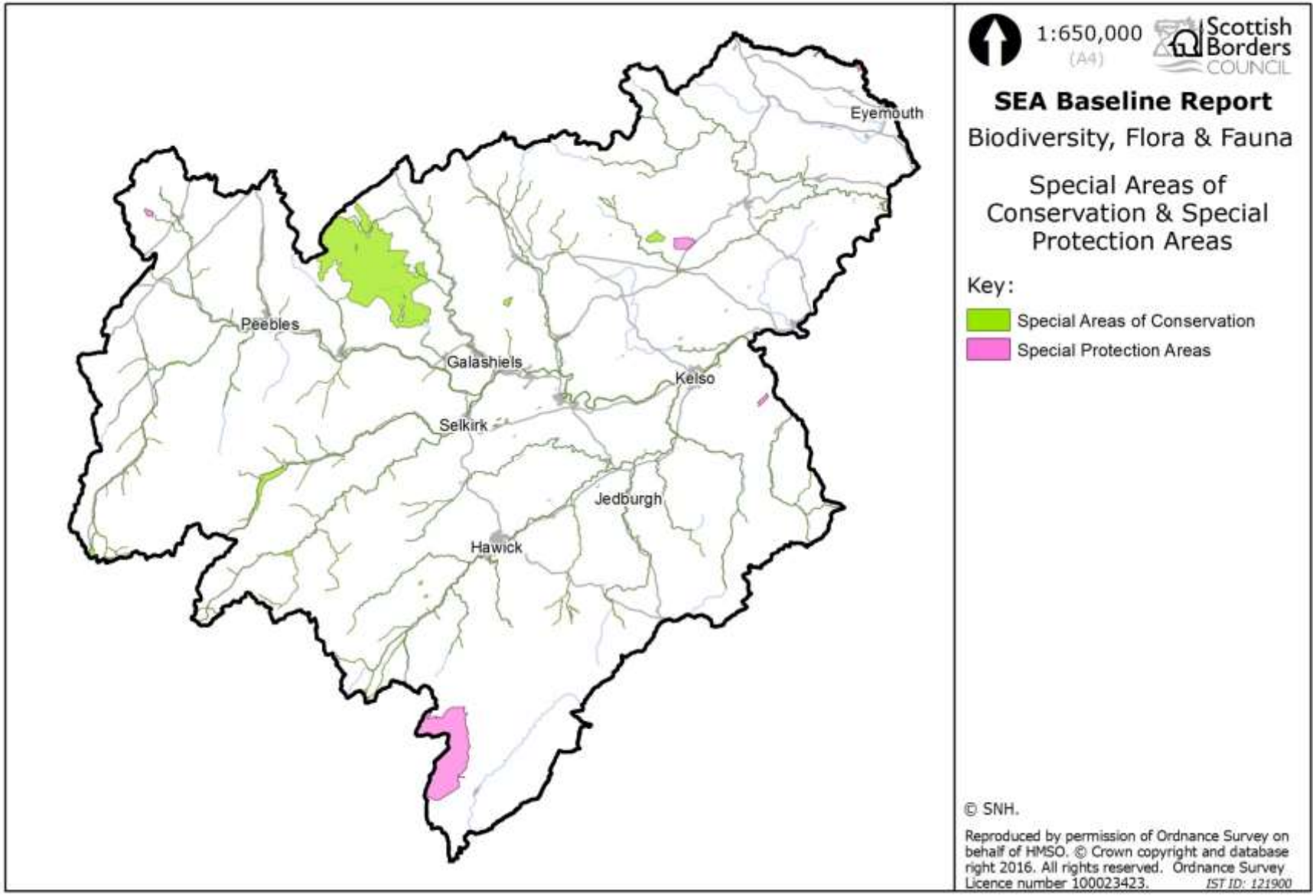
(See also spatial information in Appendix C – Map 25).

Appendix C: Environmental Baseline: Spatial Information

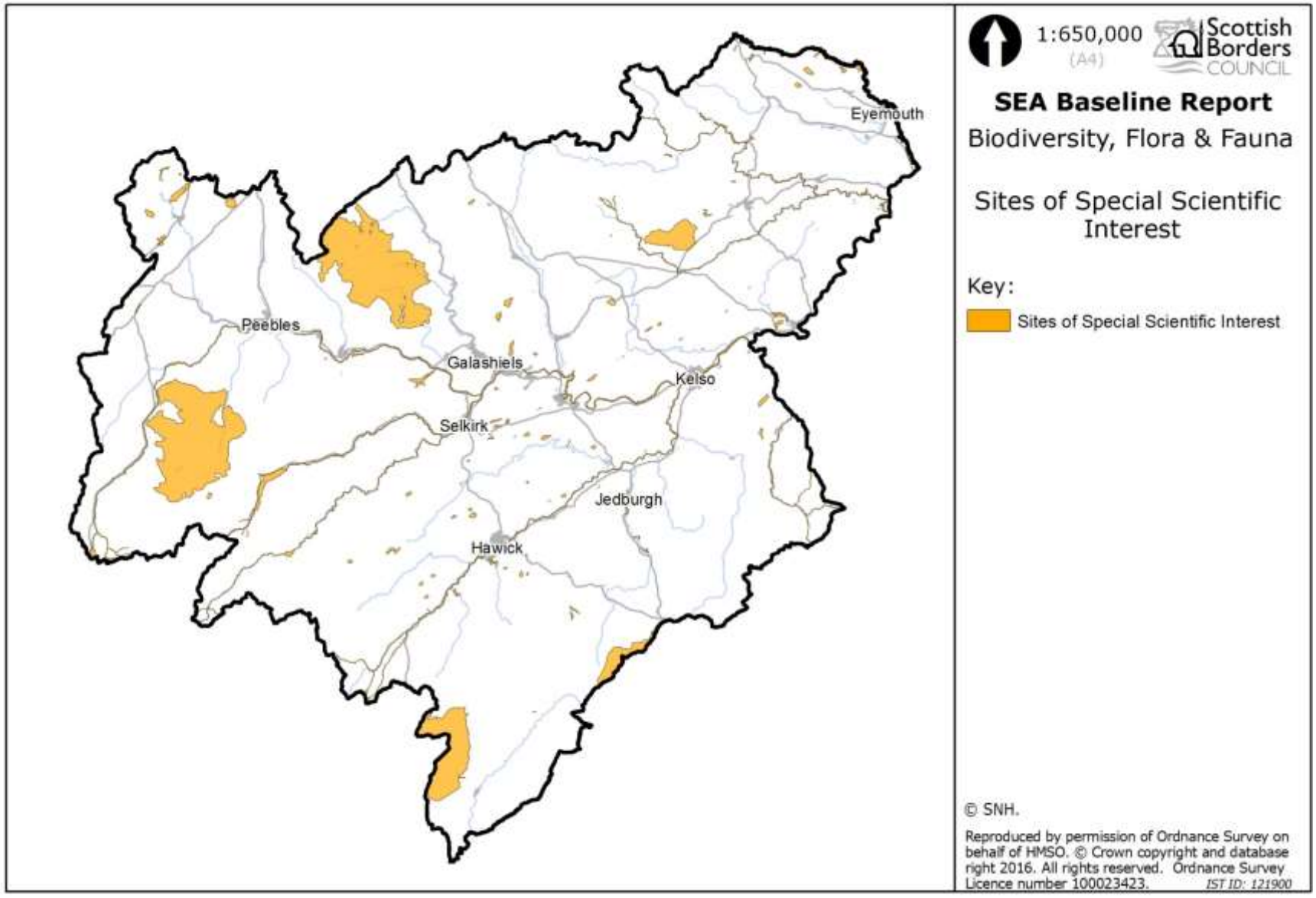
SEA Topics Mapped:

Biodiversity Flora and Fauna	Maps 1 – 4
Soil	Map 5
Water	Maps 6 & 7
Landscape	Maps 8 – 10
Population & Human Health	Map 11 – 13
Climatic Factors	Map 14
Material Assets	Map 15 – 18
Cultural Heritage	Maps 19 – 24
Air	Map 25

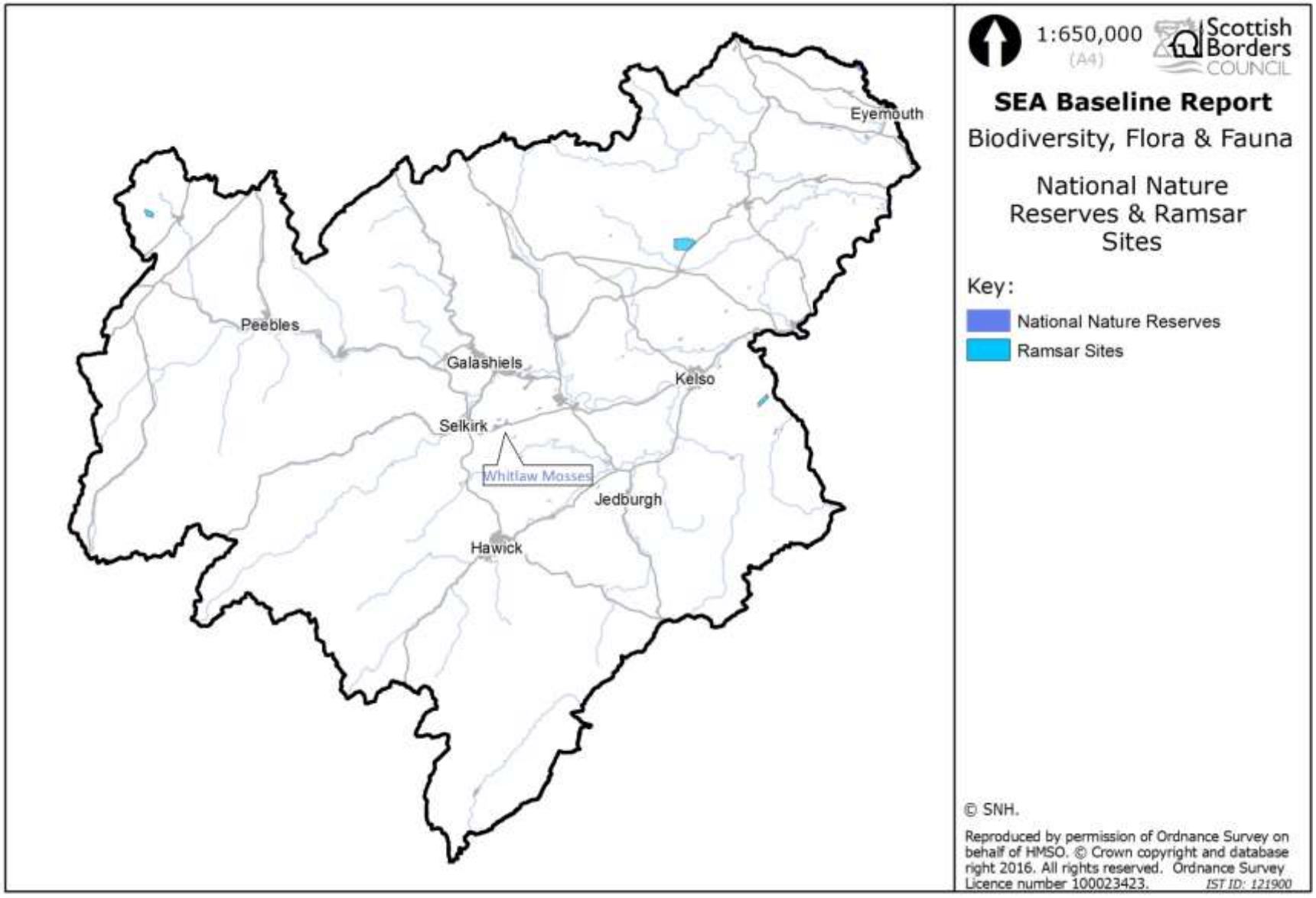
Map 1: Special Areas of Conservation & Special Protection Areas



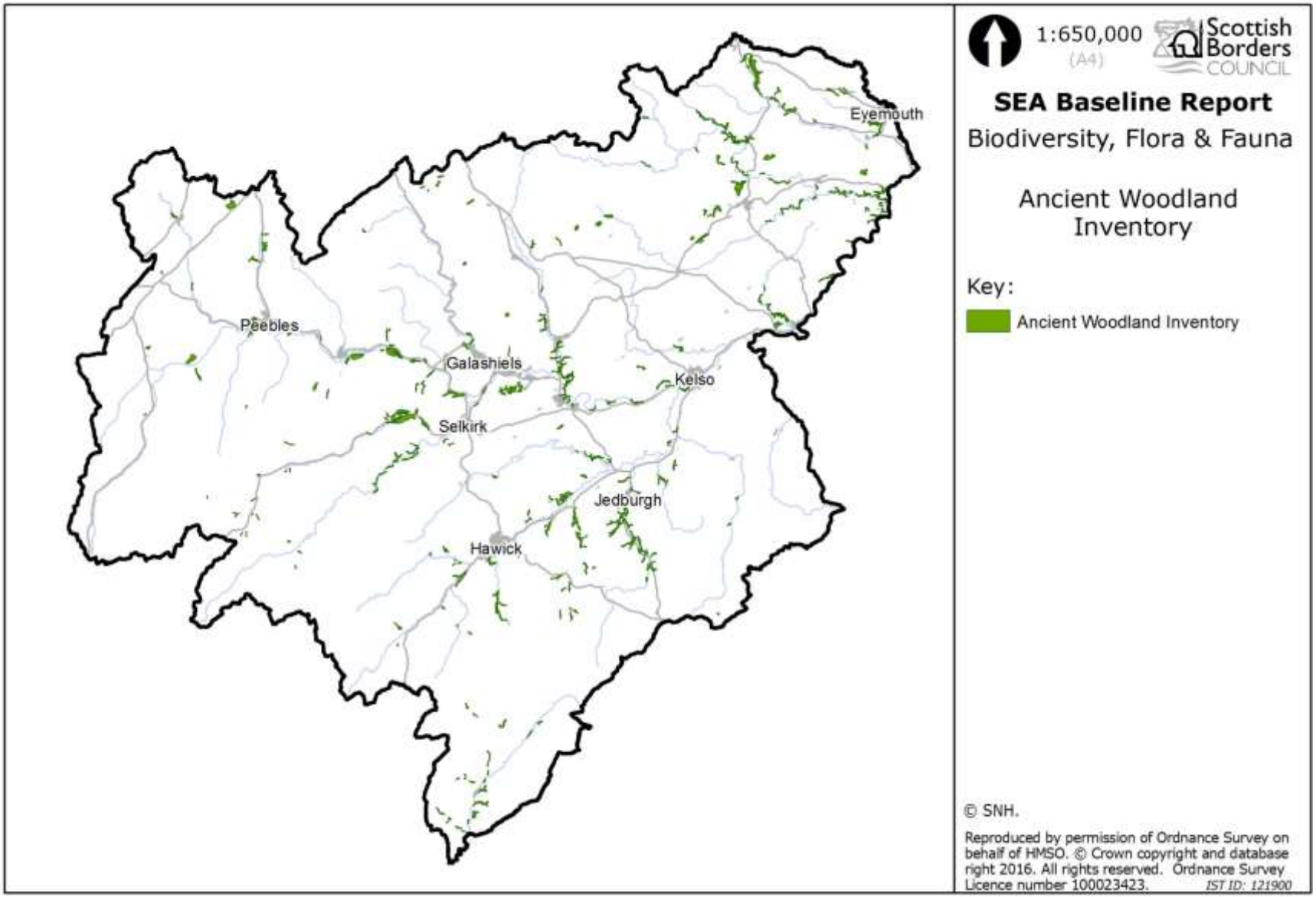
Map 2: Sites of Scientific Special Interest



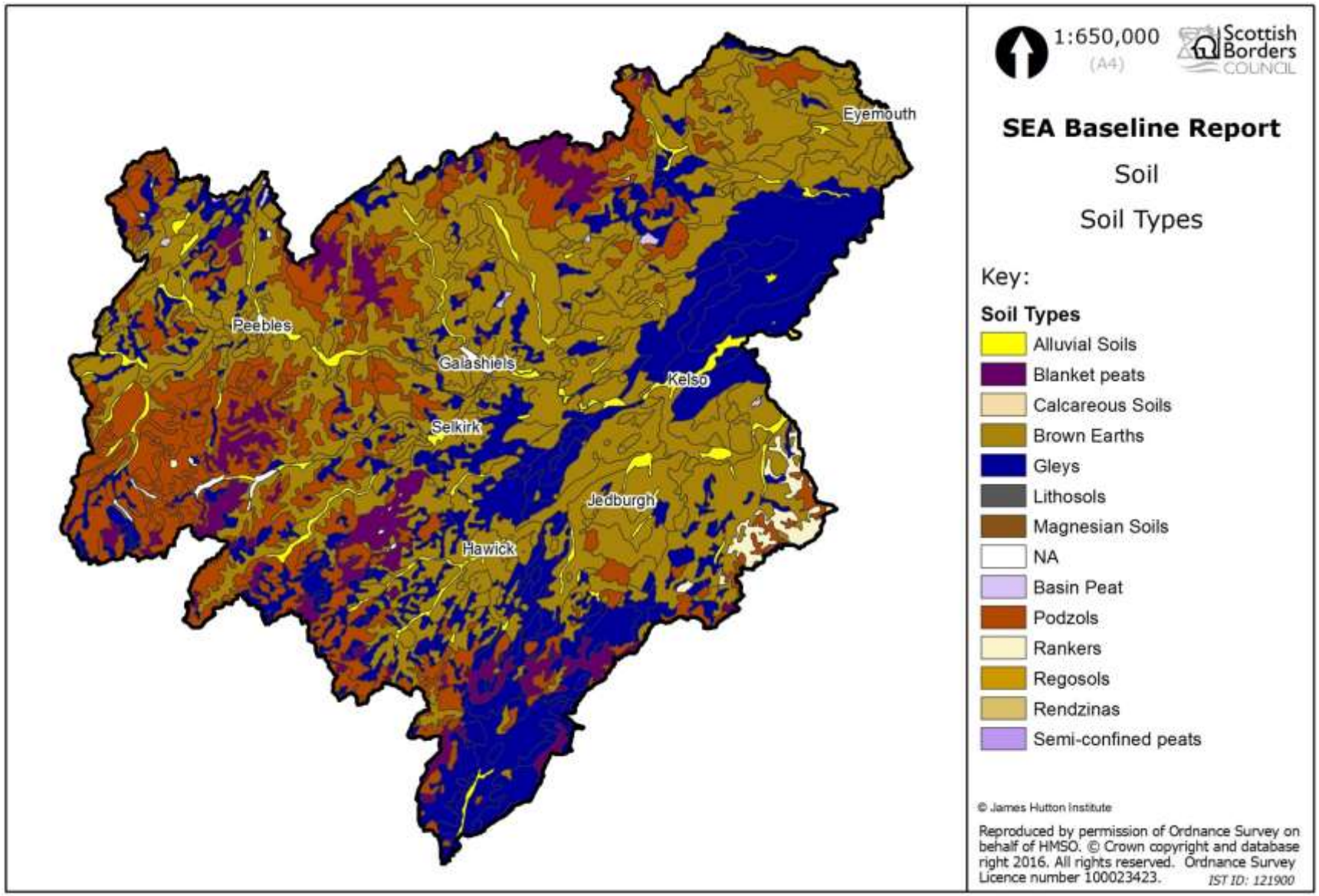
Map 3: National Nature Reserves & Ramsar Sites



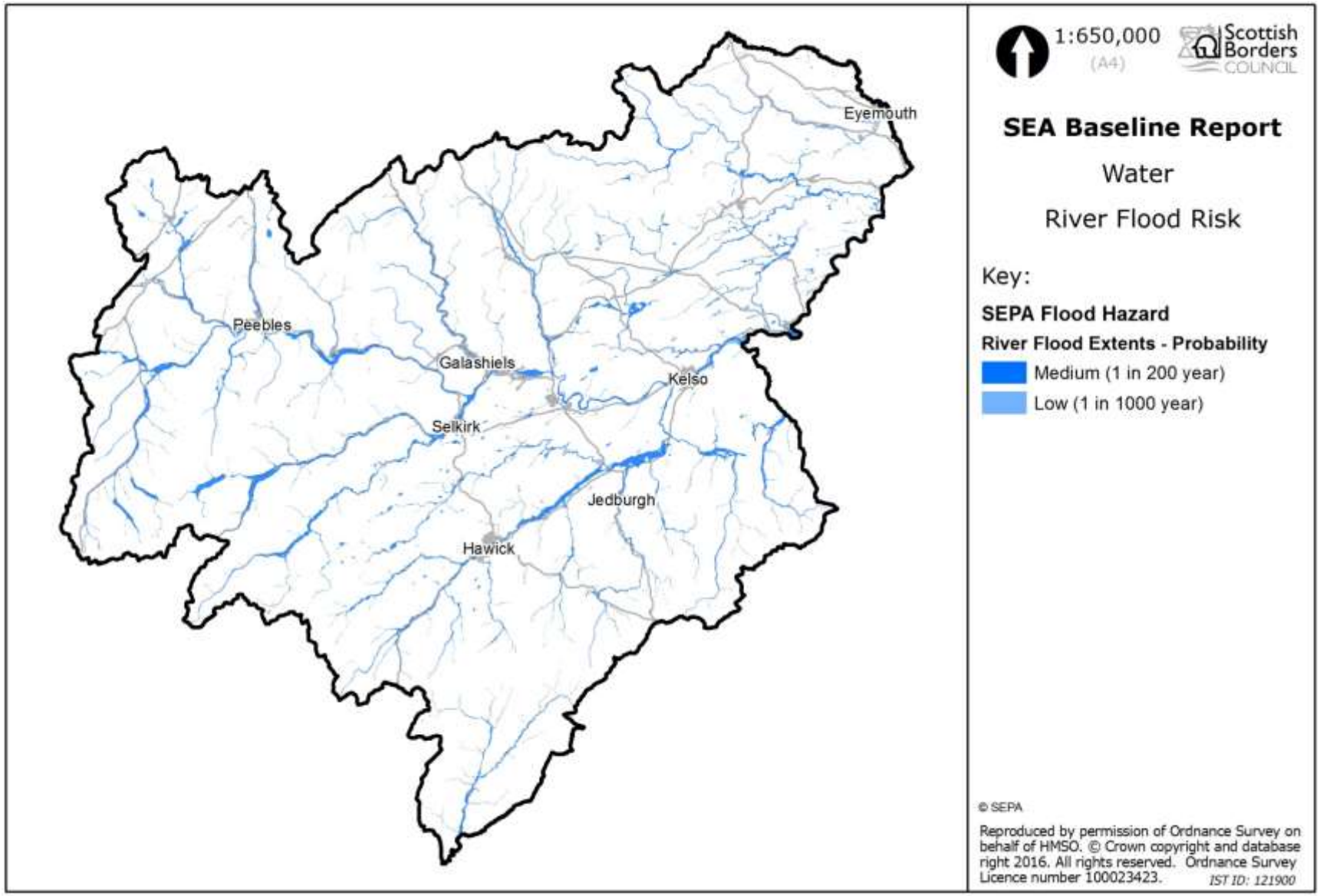
Map 4: Ancient Woodland Inventory



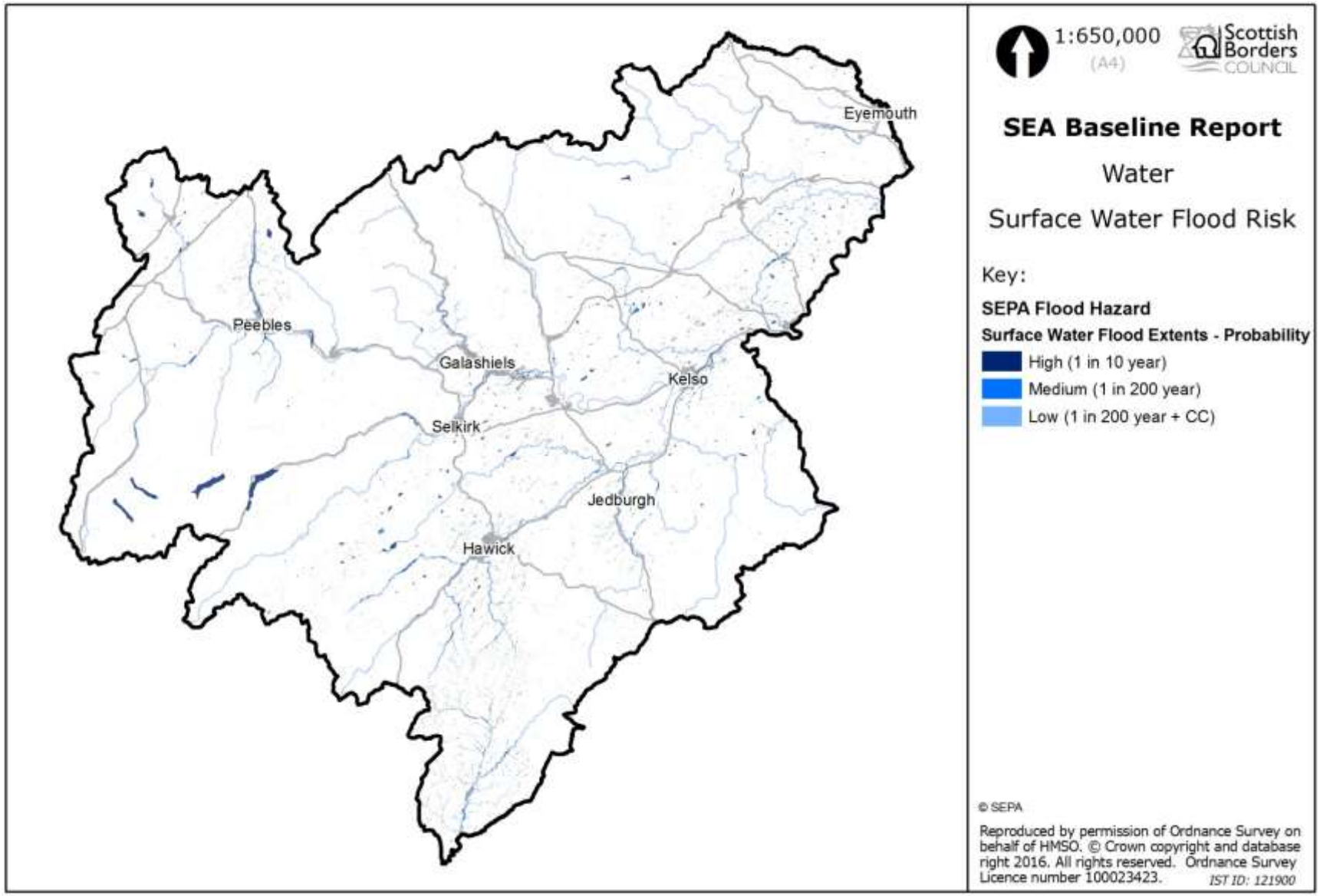
Map 5: Soil Types



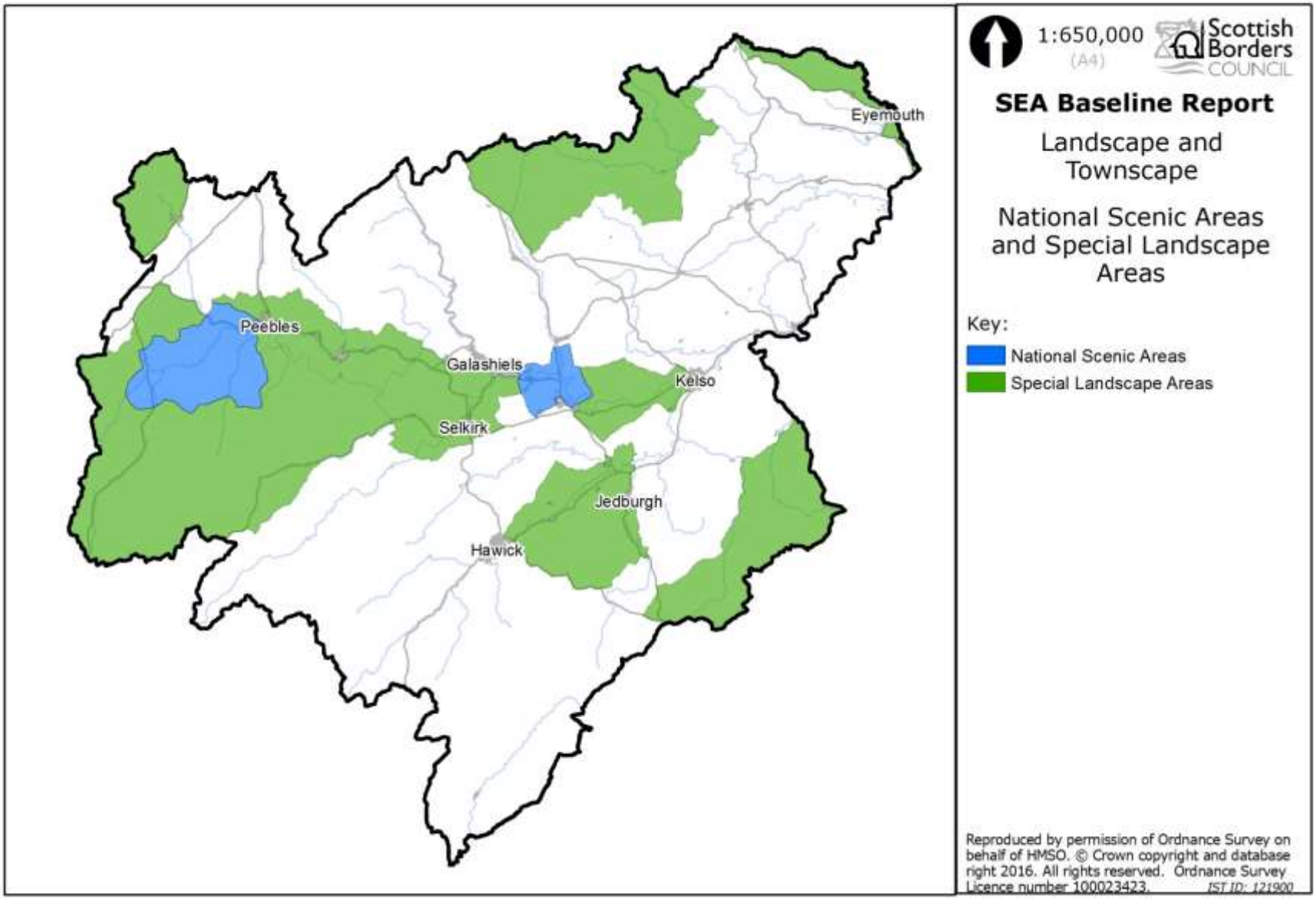
Map 6: River Flood Risk



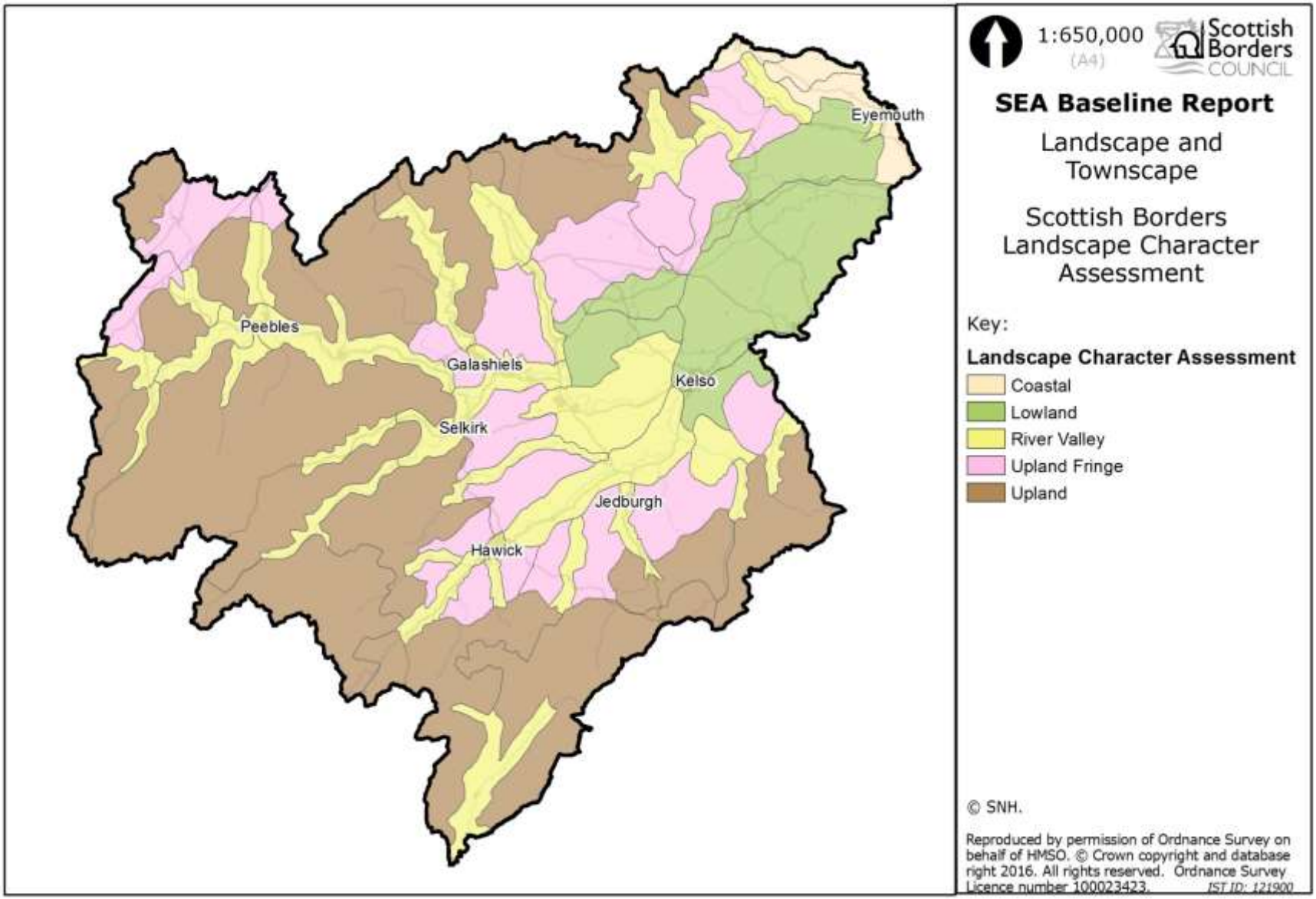
Map 7: Surface Water Flood Risk



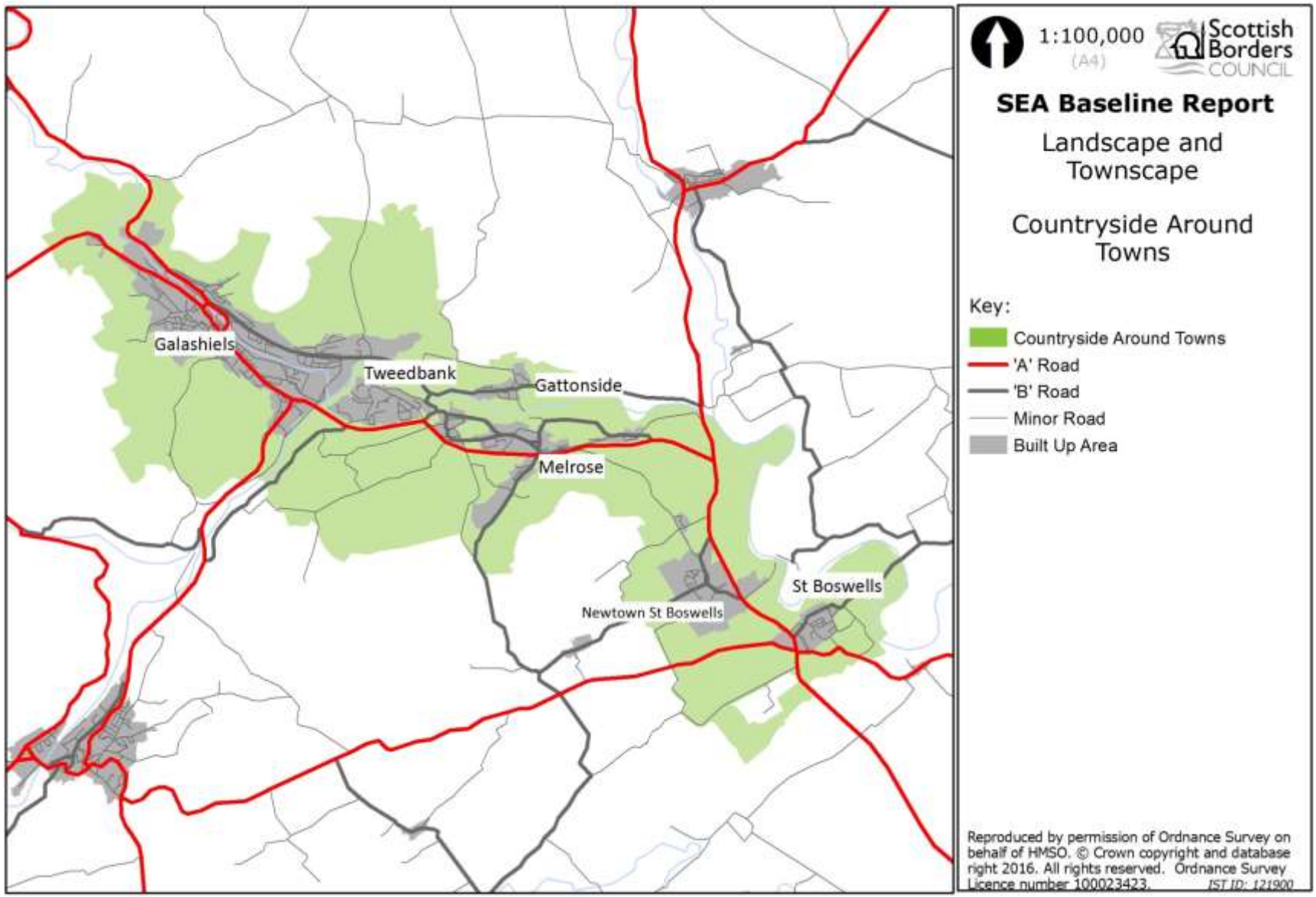
Map 8: National Scenic Areas and Special Landscape Areas



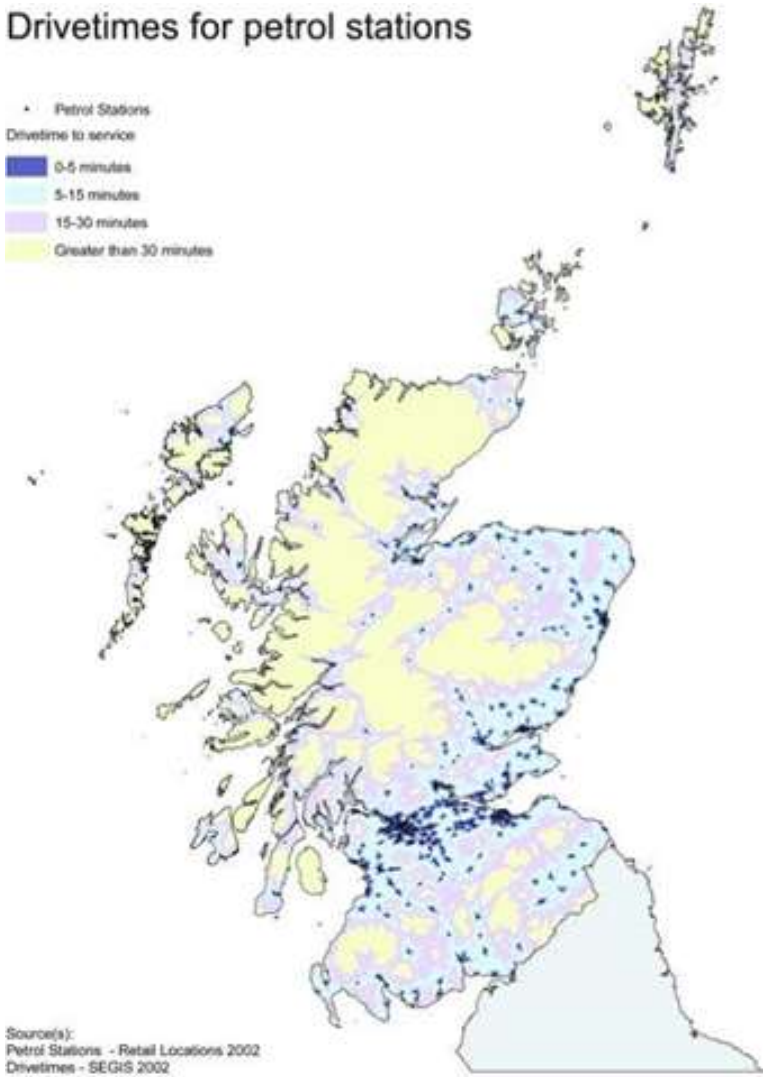
Map 9: Scottish Borders Landscape Character Assessment

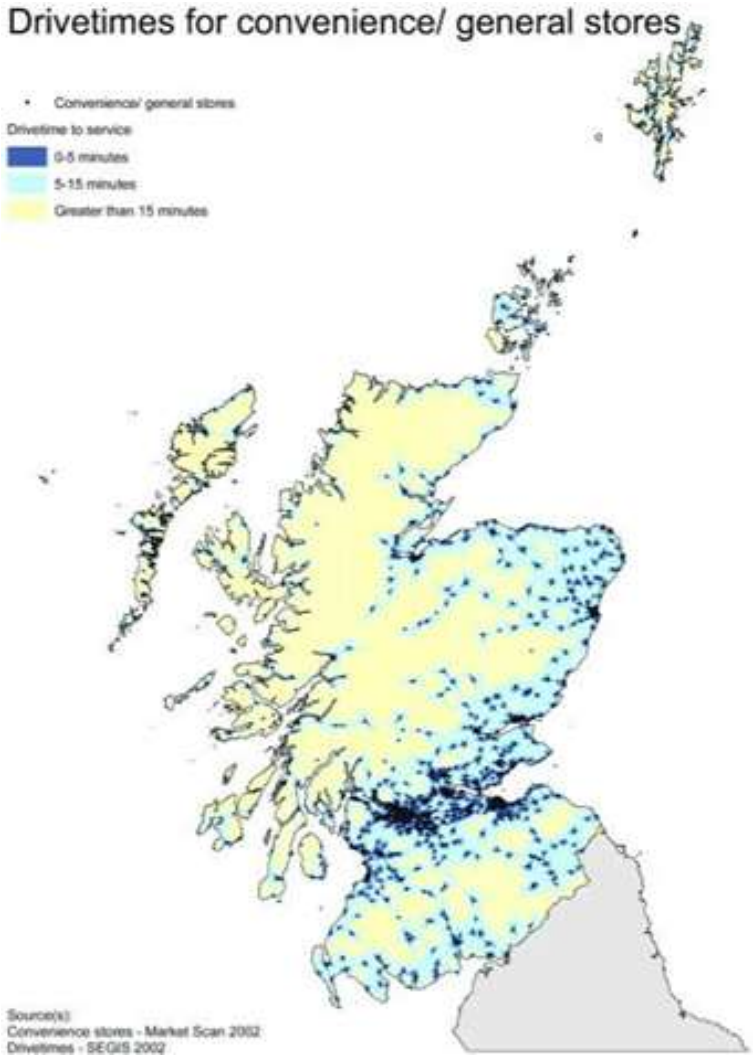


Map 10: Countryside around Towns

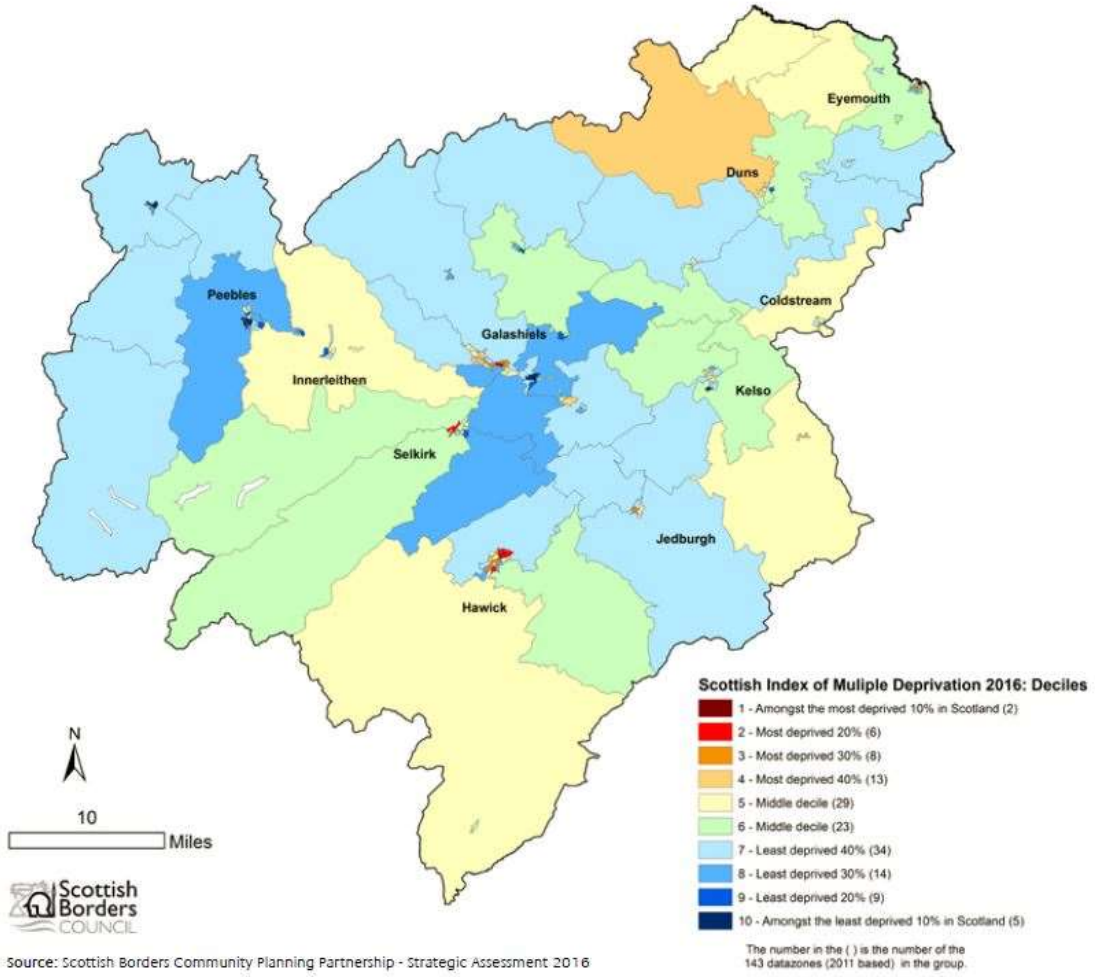


Map 11: Drive times



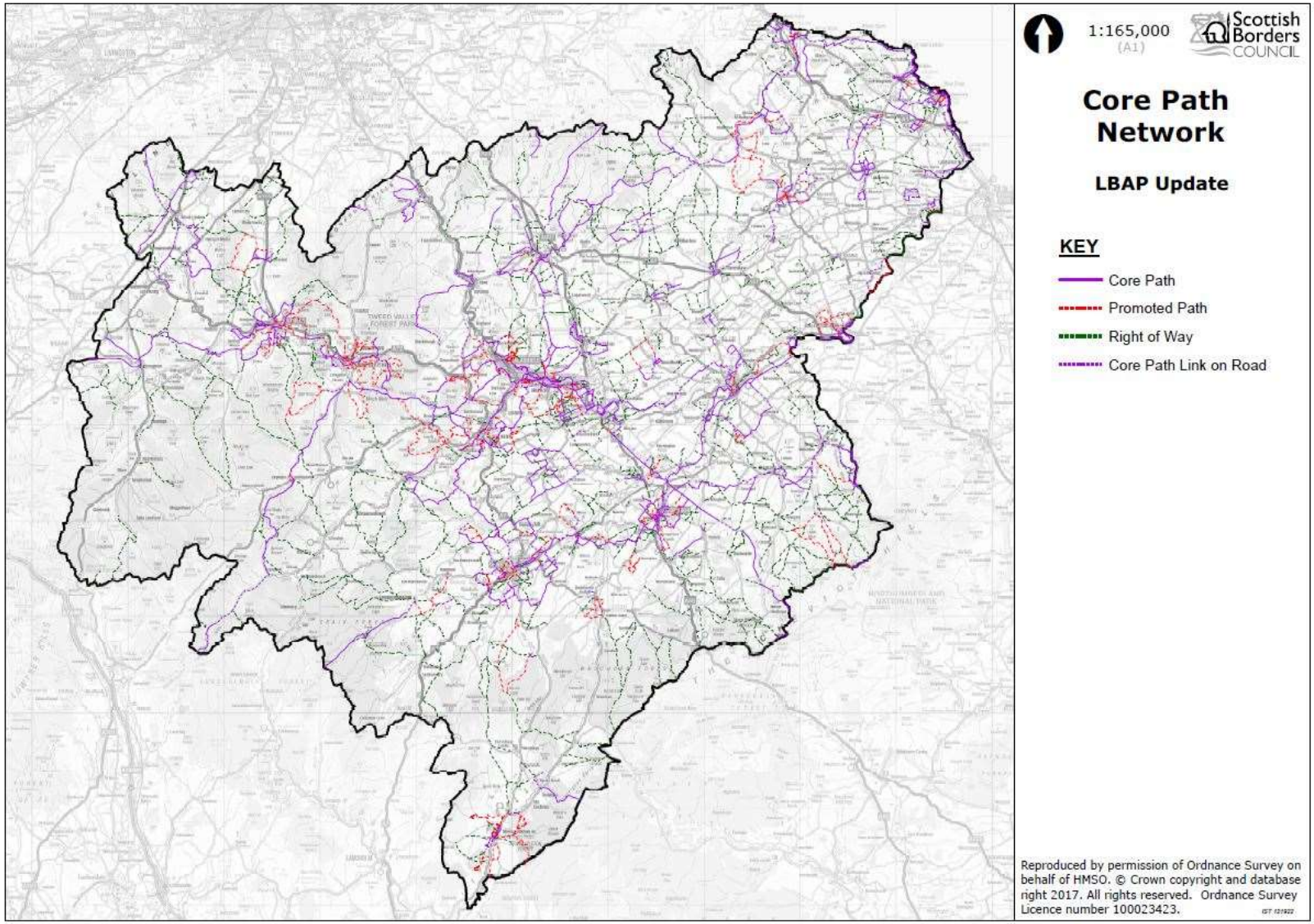


Map 12: Multi Deprivation Index (2016)

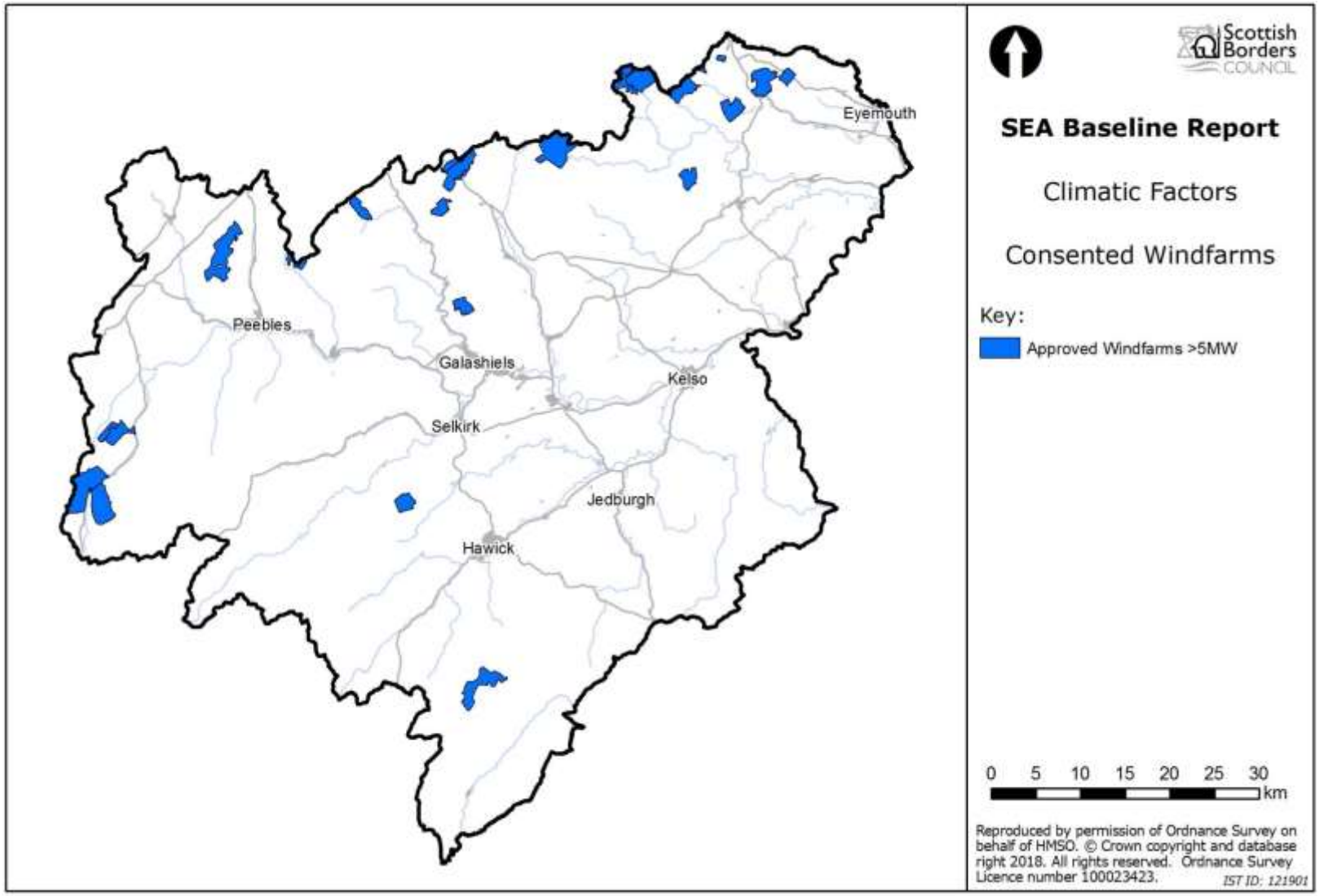


Source: Scottish Borders Community Planning Partnership - Strategic Assessment 2016

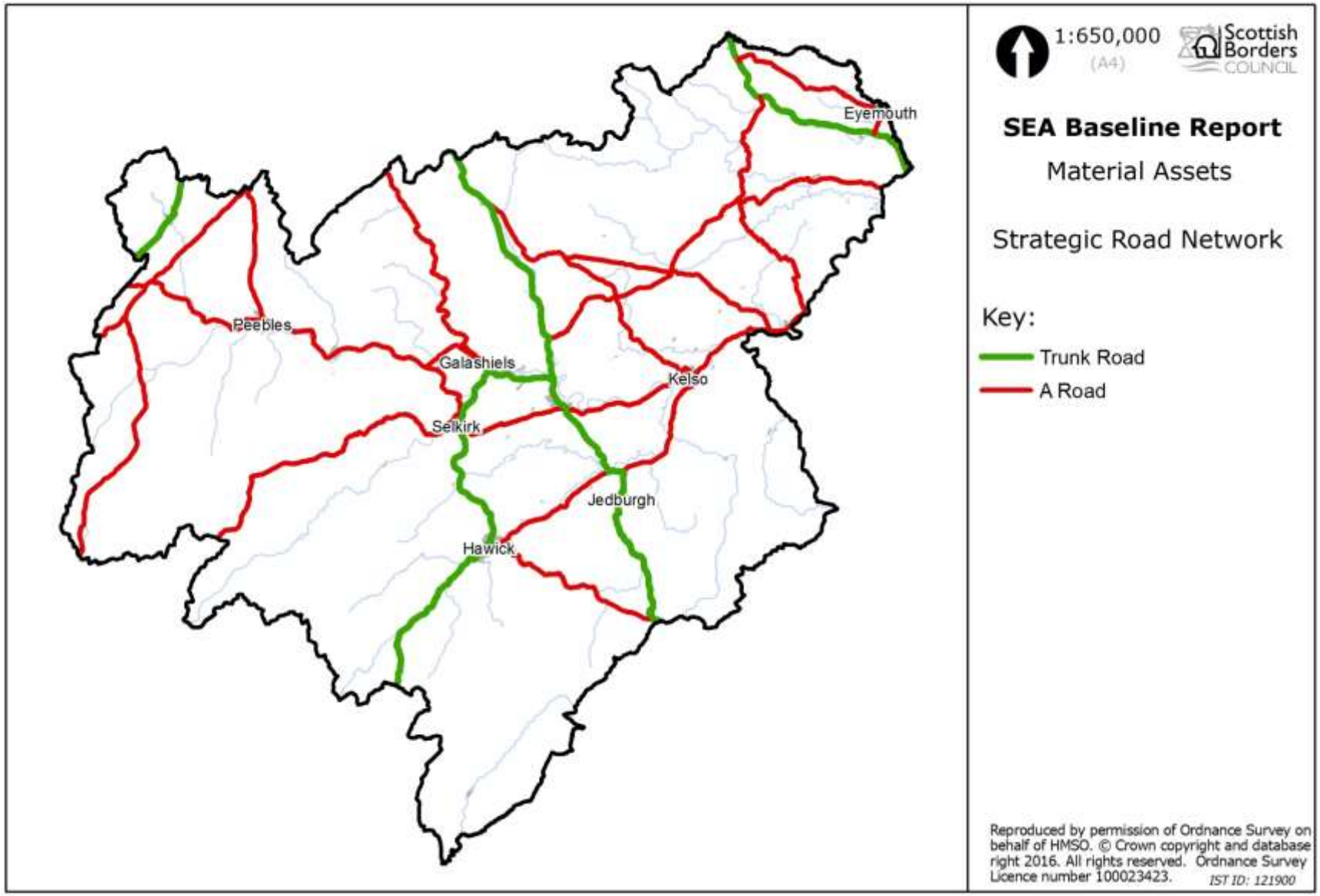
Map 13: Core Path Network



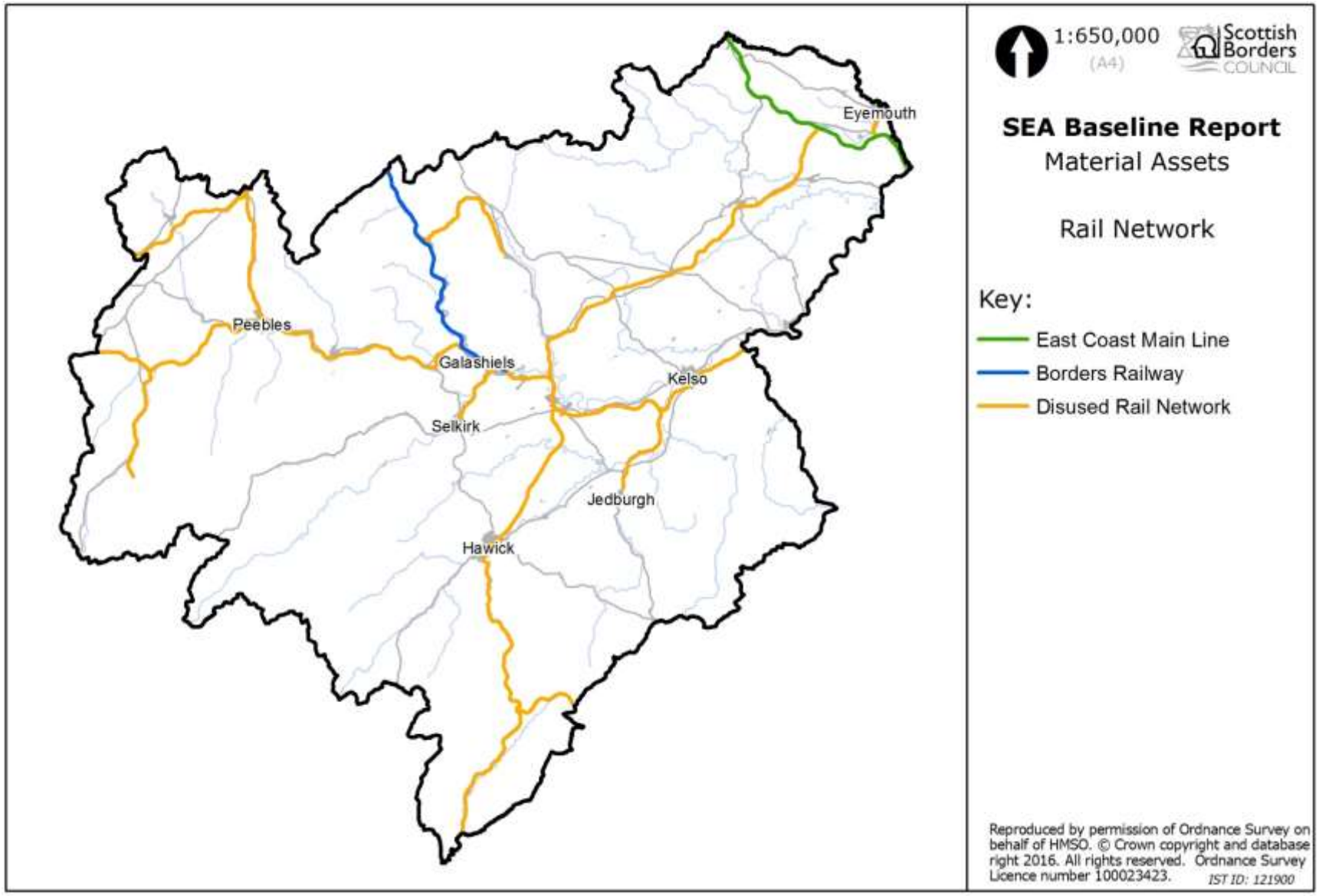
Map 14: Operational and Consented Windfarms



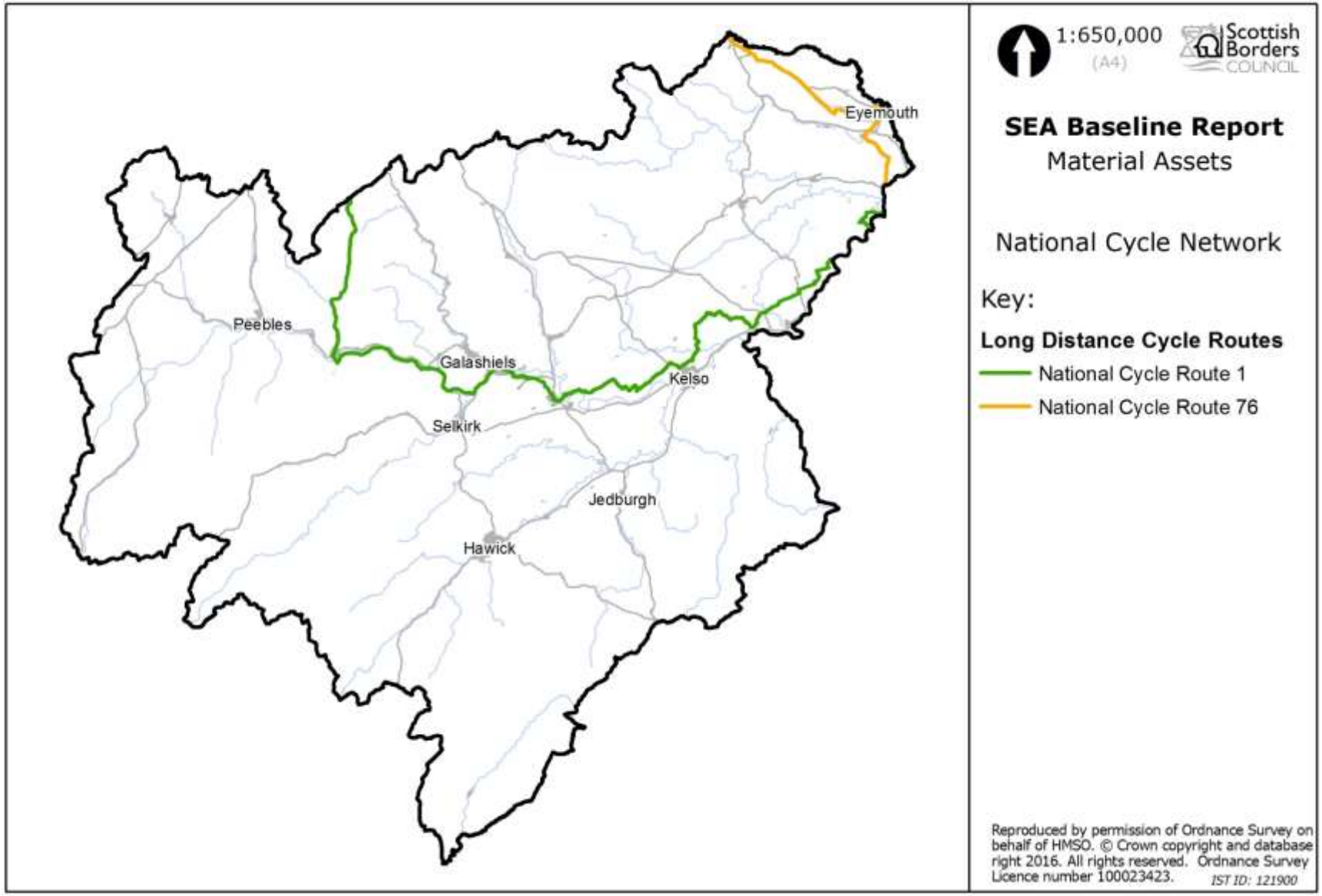
Map 15: Strategic Road Network



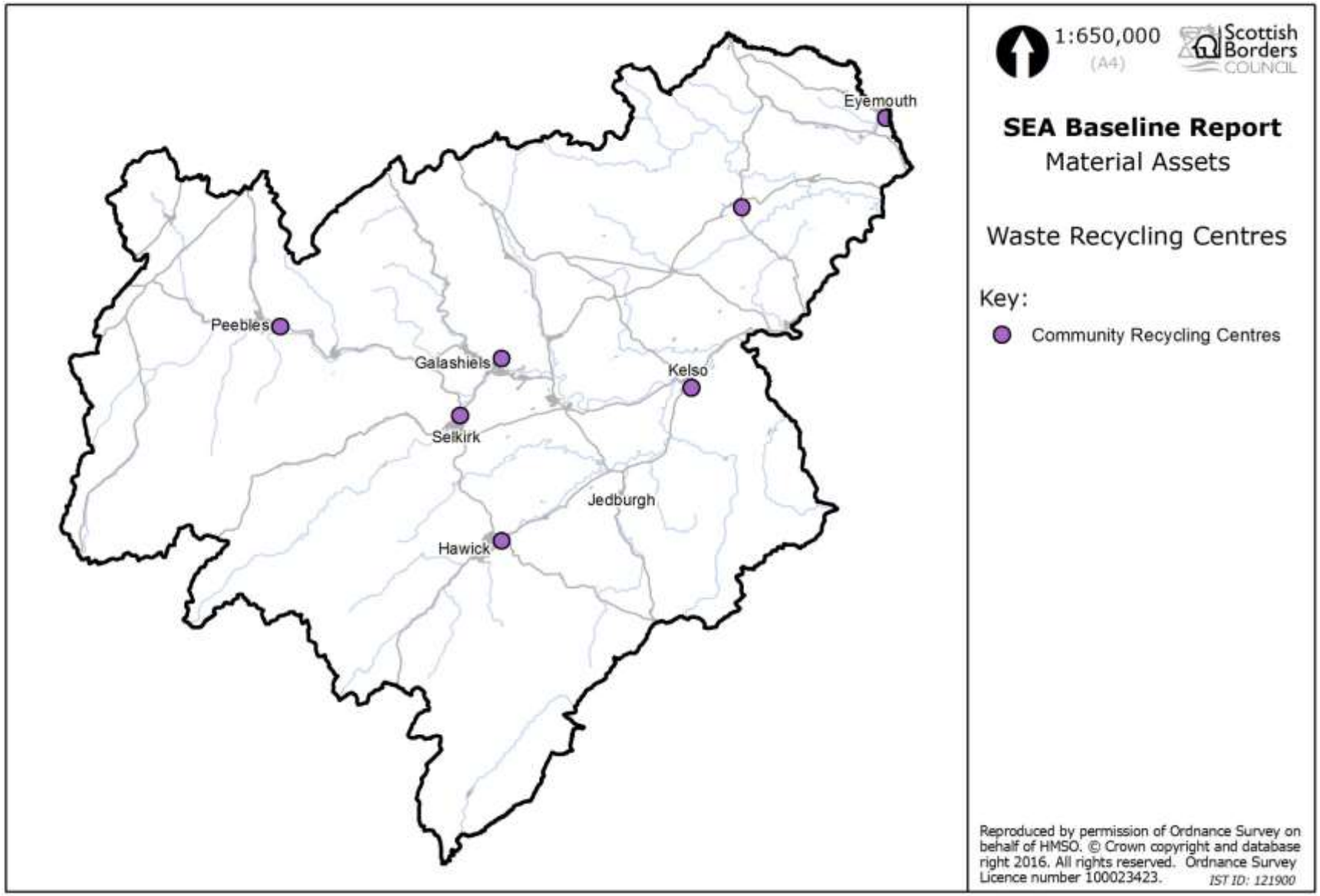
Map 16: Rail Network



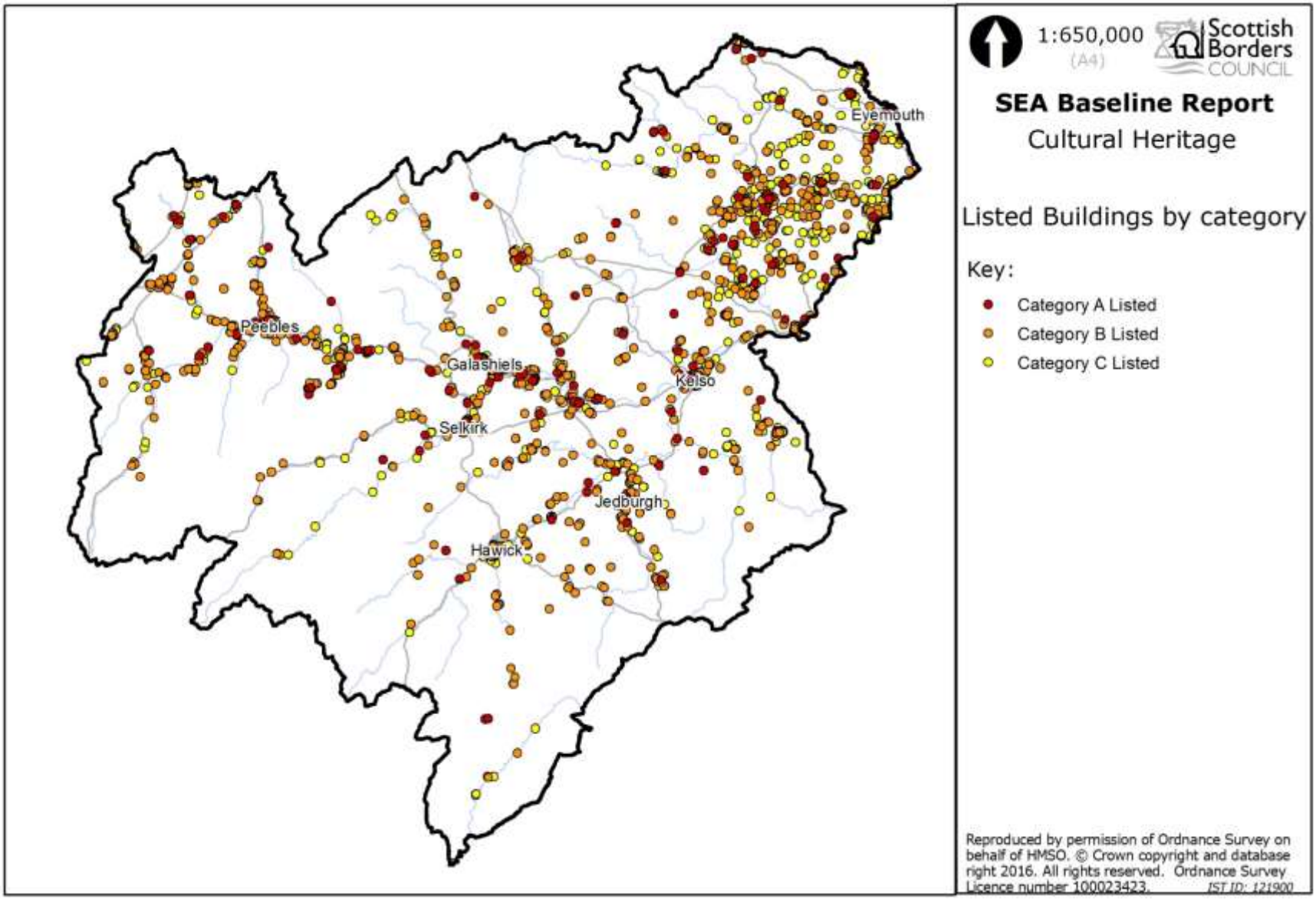
Map 17: National Cycle Network



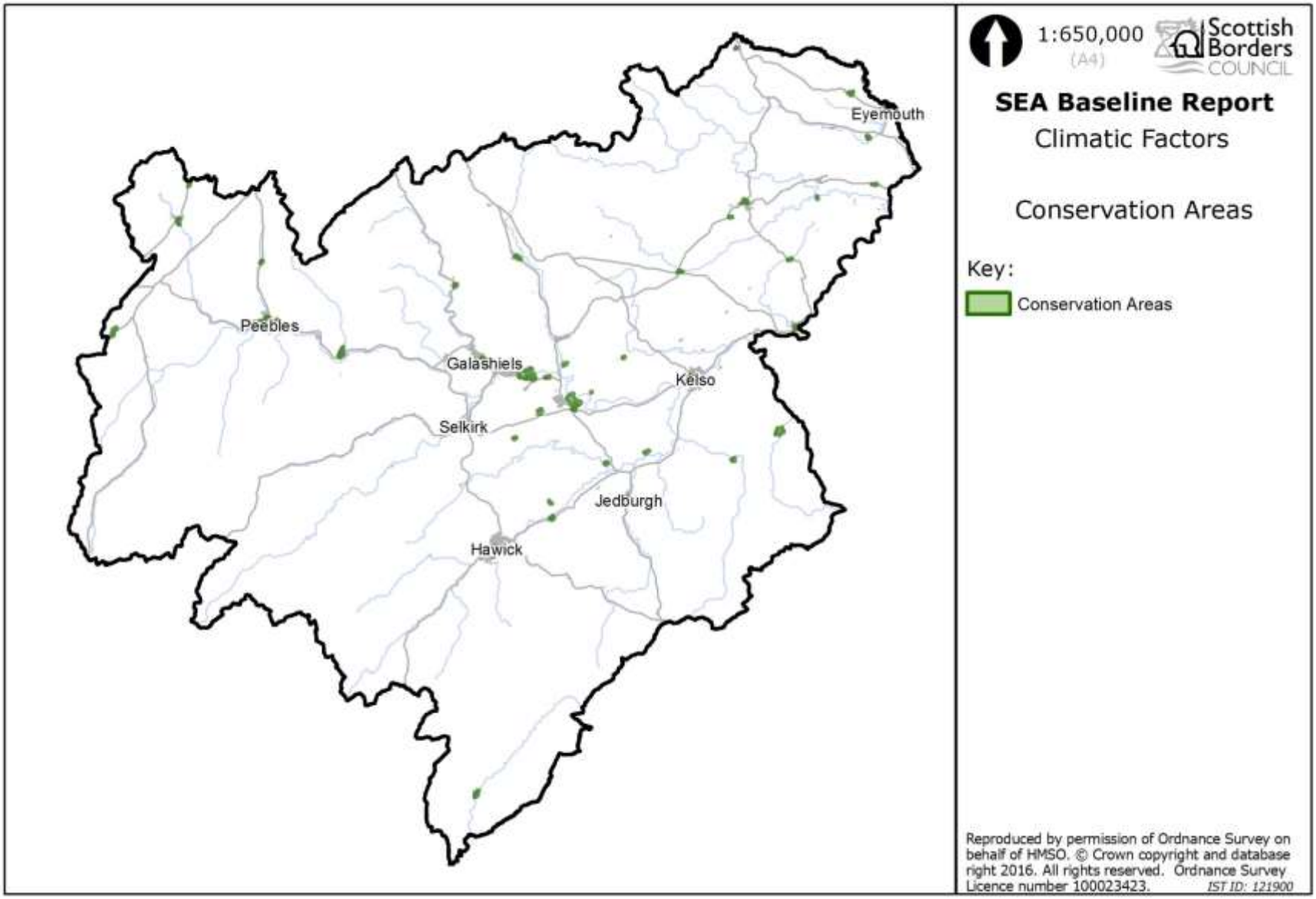
Map 18: Waste Recycling Centres



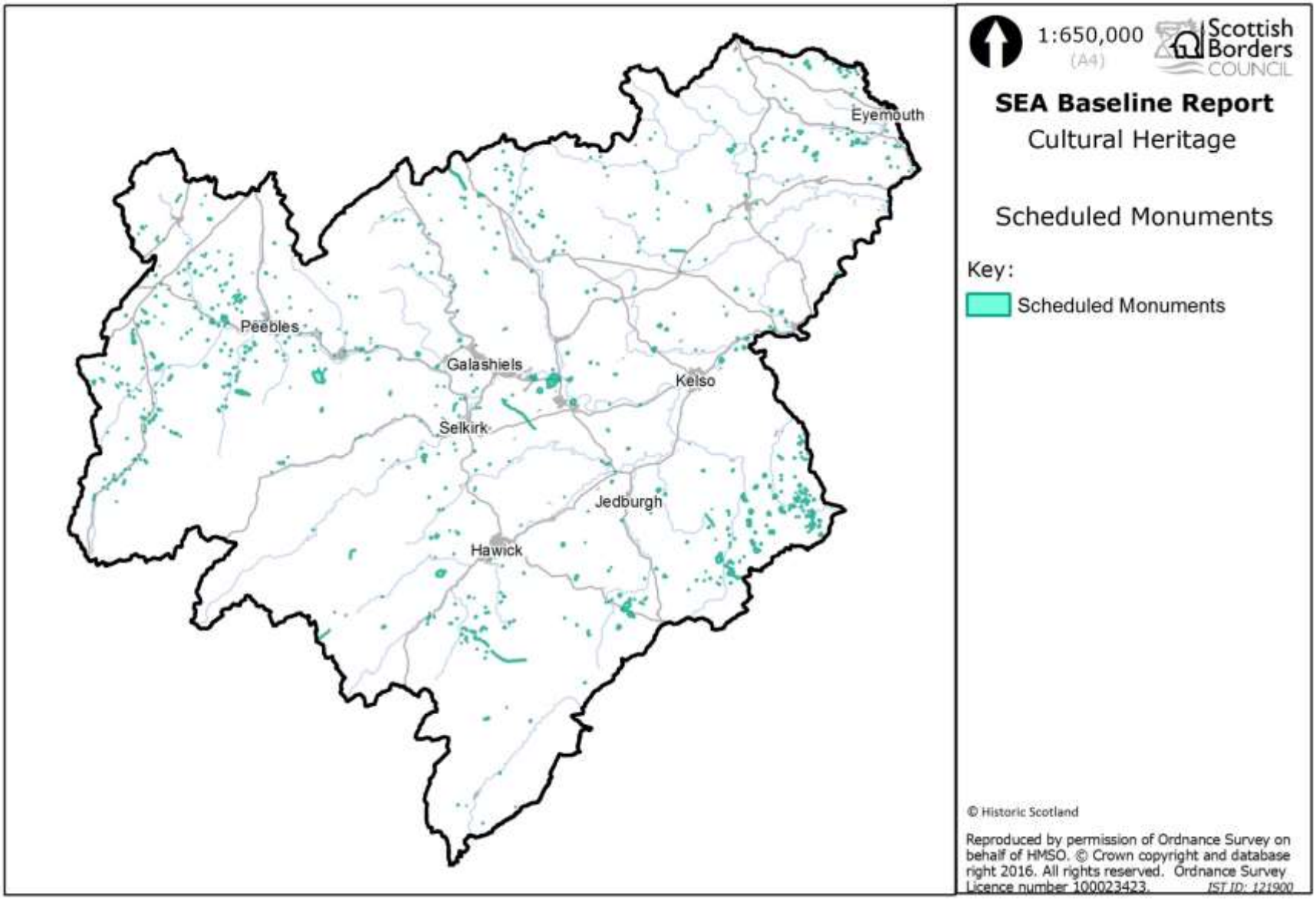
Map 19: Listed Buildings



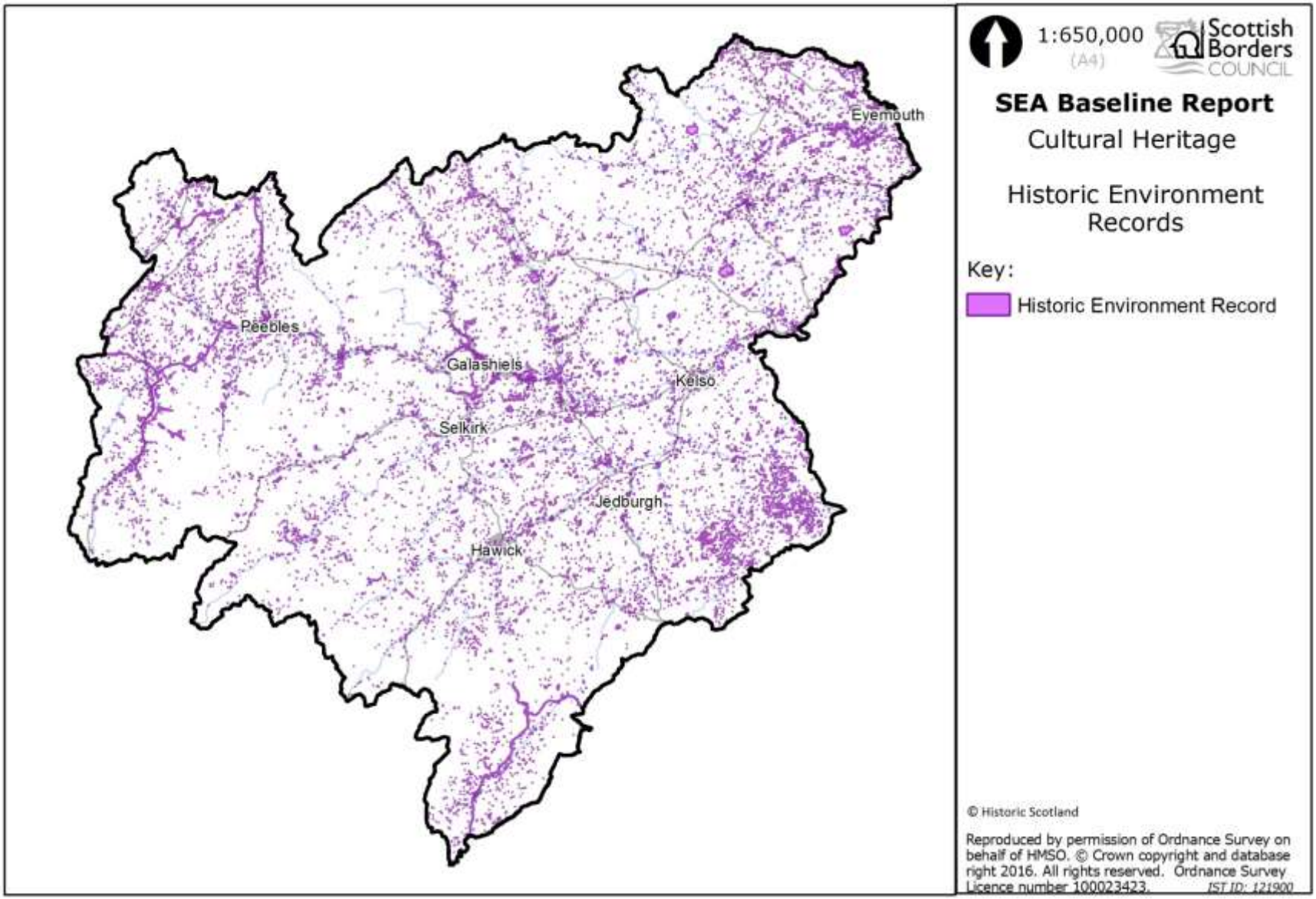
Map 20: Conservation Areas



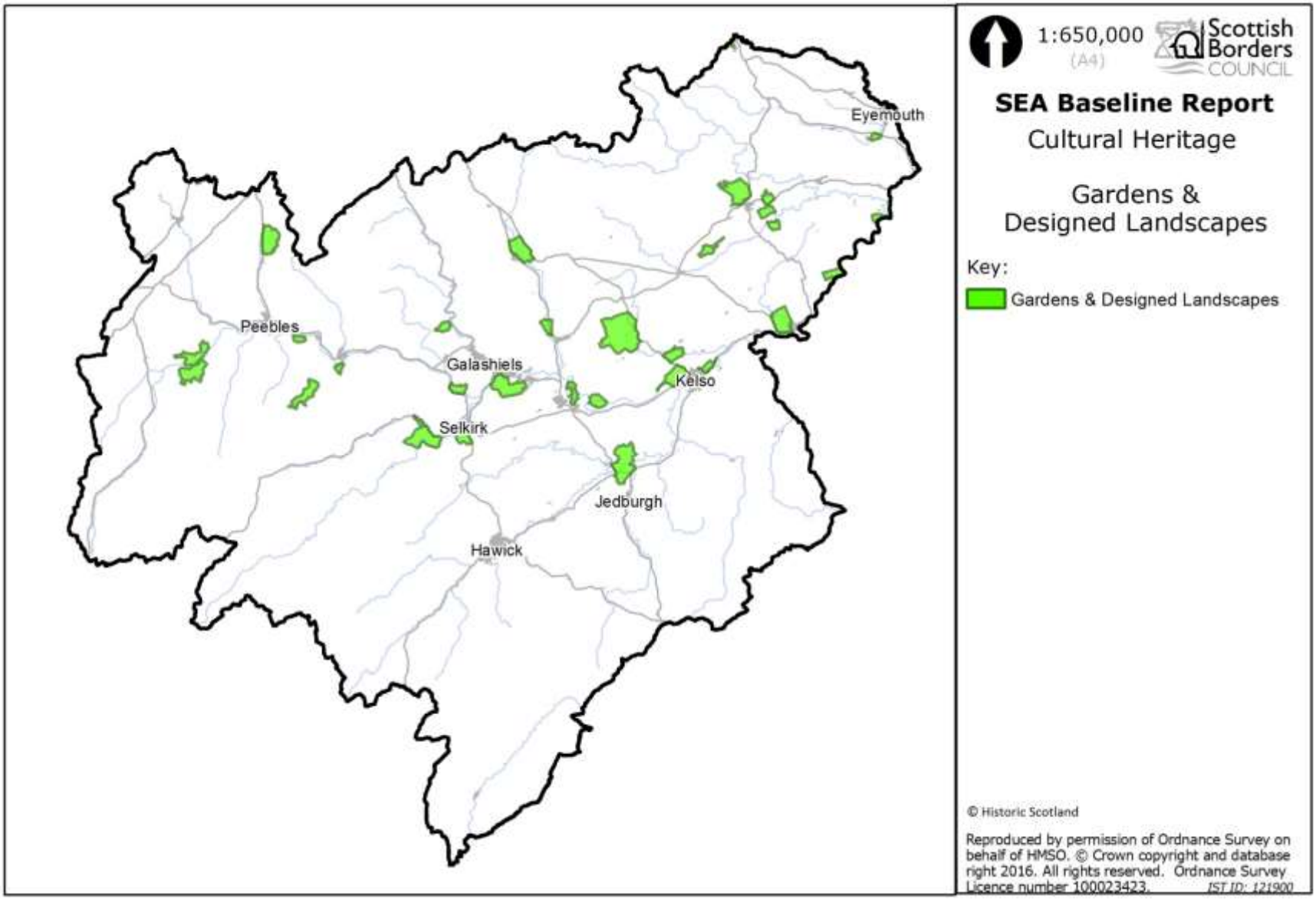
Map 21: Scheduled Monuments



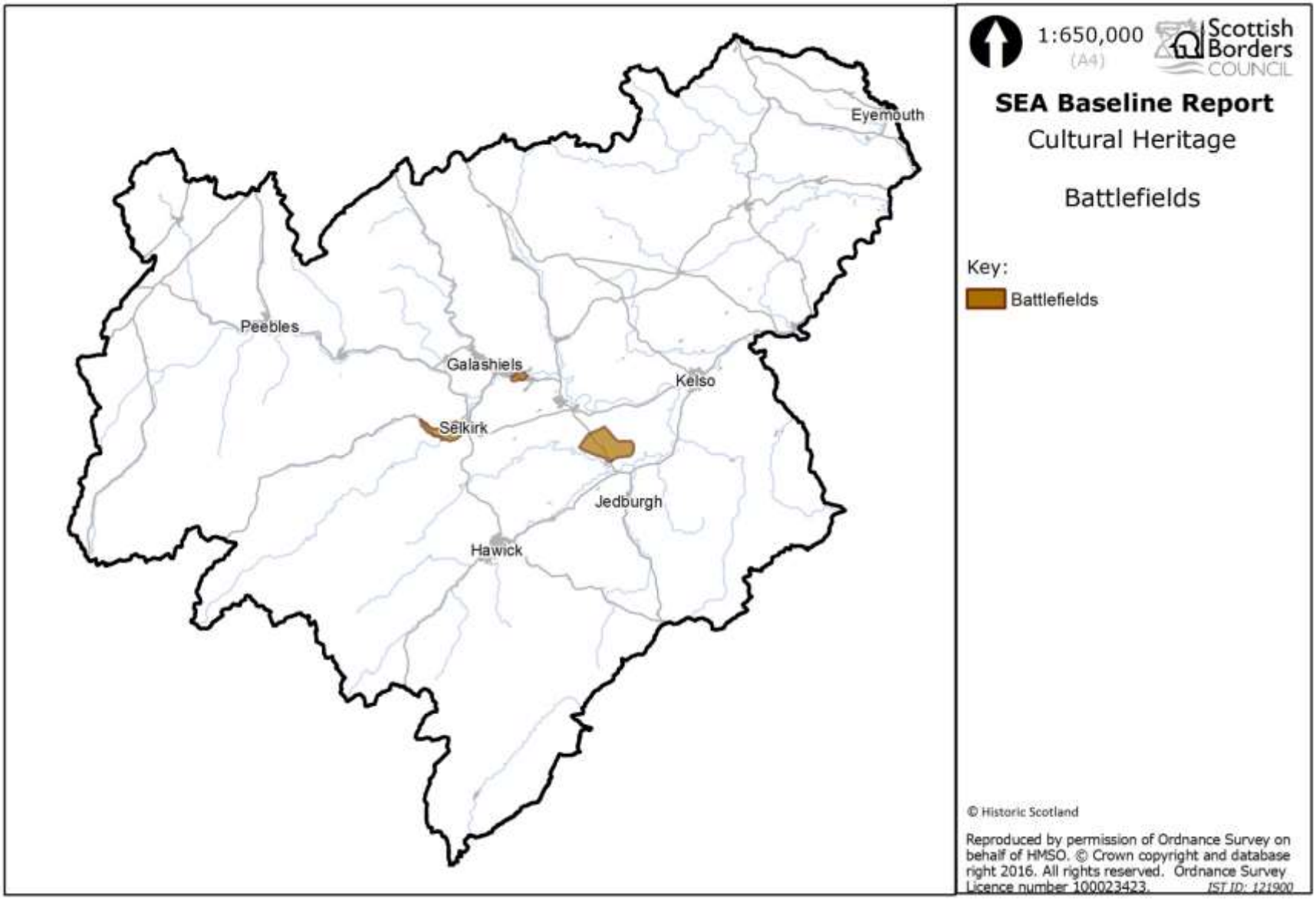
Map 22: Historic Environment Records



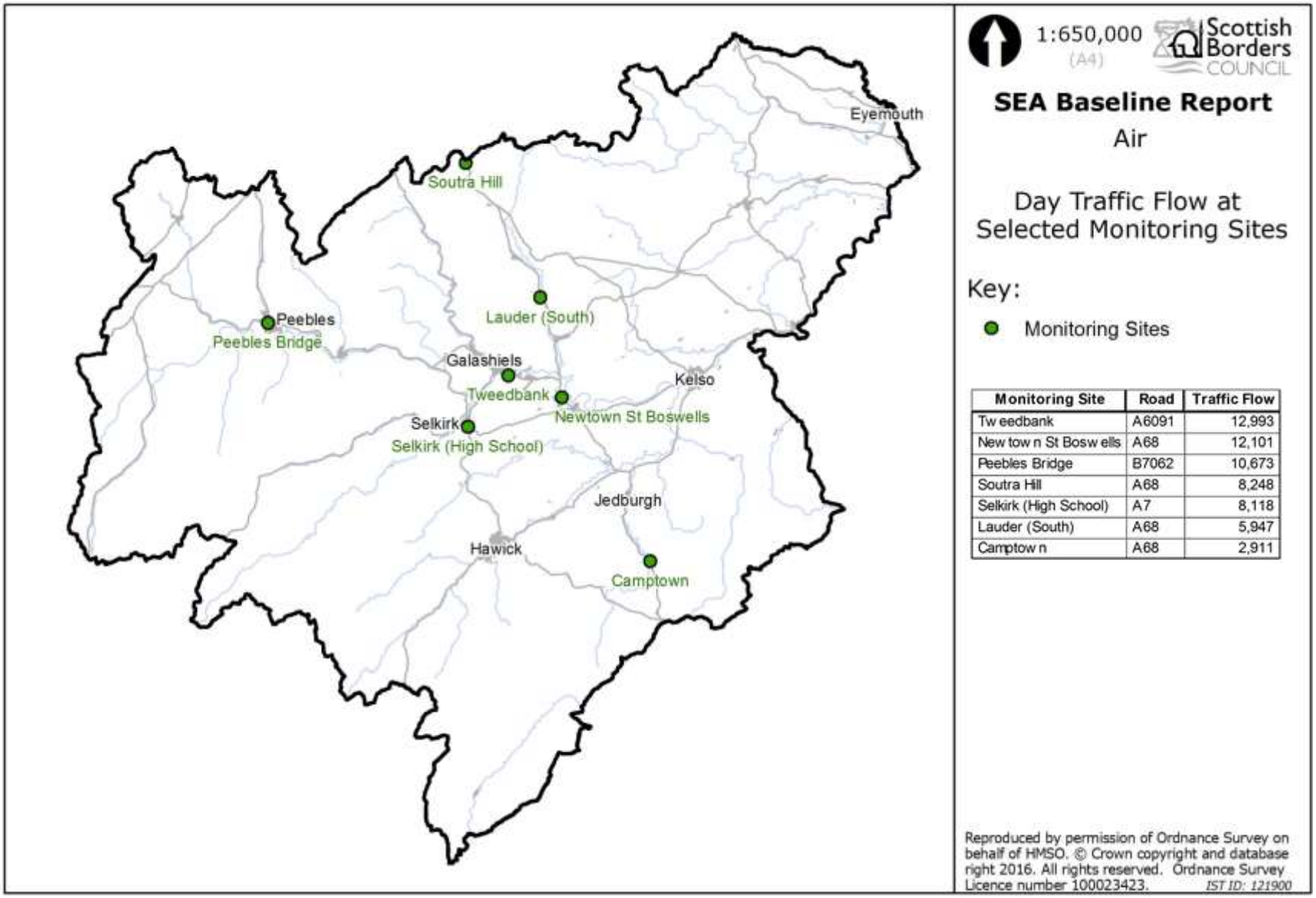
Map 23: Gardens & Designed Landscapes



Map 24: Battlefields



Map 25: Day Traffic Flow at Selected Monitoring Sites



Monitoring Site	Road	Traffic Flow
Tweedbank	A6091	12,993
Newtown St Boswells	A68	12,101
Peebles Bridge	B7062	10,673
Soutra Hill	A68	8,248
Selkirk (High School)	A7	8,118
Lauder (South)	A68	5,947
Camptown	A68	2,911

Appendix D: Detailed Environmental Assessment of Preferred Plan and Alternatives

1. ASSESSMENT OF REASONABLE ALTERNATIVE OPTION:

<table>
<tr><th colspan="4">A revised LBAP incorporating new objectives and actions, continuing the focus on habitats and species</th></tr>
<tr><td colspan="4">An alternative option to the preferred ecosystems approach for the LBAP would be a revised LBAP for the Scottish Borders offering an ongoing focus on habitats and species, with actions updated from the previous LBAP. The habitats and species referred to throughout are those taken from the original LBAP and outlined in Appendix E. This option was discussed at a high level with partners, however detailed action planning was not undertaken. Therefore assessment of proposed actions is based on the actions that would follow a similar approach to the existing LBAP that is being renewed and updated. Actions are considered relevant to SEA Topic Area.</td></tr>
<tr><th colspan="2">SEA Topic</th><th colspan="2">Objectives</th></tr>
<tr><td colspan="2">Biodiversity, Flora & Fauna</td><td colspan="2">Protect, enhance, create and restore biodiversity, and encourage habitat connectivity in the Scottish Borders:
• Protect and enhance species/habitats
• Avoid damage to designated sites/protected species
• Conserve and enhance natural heritage</td></tr>
<tr><th colspan="2">Linked Ecosystem Services</th><th>Commentary Relevant to LBAP Proposed Actions</th><th>Effect</th></tr>
<tr><td rowspan="2">Supporting</td><td>Nutrient cycling</td><td rowspan="2">A focus on biodiversity conservation and protection in isolation, without reference to wider ecosystem service considerations, may have a beneficial impact on supporting services at a site-specific level. There is no framework for supporting wider beneficial impacts on supporting services across landscapes and at a regional level, and, whilst no negative impacts would be anticipated, it is not considered that there would be positive impacts for supporting services at a landscape scale.</td><td>0</td></tr>
<tr><td>Primary production</td><td>0</td></tr>
<tr><td rowspan="3">Regulating</td><td>Pollination</td><td rowspan="3">Actions to support pollinator species, or increase pollinator habitat would have a beneficial impact on regulating services, and targeted action to tackle INNS across the region would also provide positive effects. It is not considered likely that there would be any significant beneficial impact on hazard regulating services such as flood risk, as no targeted action to tackle natural flood management would result. However, there would be likely to be ongoing efforts to increase and restore woodland habitats, which may have beneficial, though less targeted impacts on flood regulation.</td><td>✓</td></tr>
<tr><td>Disease & pest (INNS)</td><td>✓</td></tr>
<tr><td>Hazards</td><td>0</td></tr>
<tr><td rowspan="2">Provisioning</td><td>Wildlife diversity</td><td rowspan="2">It is likely that efforts to support specific species and habitats of importance throughout the Scottish Borders would have a positive effect on wildlife diversity. Supporting biodiversity in the region would be the primary of aim of the plan, under this option. There may also be potential for enhancing trees, vegetation and peat through habitat-specific actions to restore peatlands and woodland habitats. These enhancements may be less targeted across the landscape, without the adoption of an ecosystems approach, which would incorporate findings from the LUS Pilot mapping exercise.</td><td>✓✓</td></tr>
<tr><td>Trees, vegetation, peat</td><td>✓</td></tr>
<tr><th colspan="4">Overview</th></tr>
<tr><td colspan="2">What significant effects will this Plan have on the</td><td colspan="2">It is not considered that this option would result in significant effects, either negative or positive, upon the</td></tr>
</table>

identified ecosystem services in the Scottish Borders?		identified ecosystem services on the whole, with the exception of wildlife diversity. It would still be reasonable to consider that this option would result in significant positive impacts on wildlife diversity, taken.	
Does the Plan address identified pressures on these ecosystem services?		This option does not address the pressures on ecosystem services directly, but there may be some benefits for example in relation to flood risk regulation and encouraging species diversity.	
How does the Plan perform against SEA objectives?		It is considered that this option would meet the SEA objectives for this topic, to protect and enhance biodiversity. There may be indirect benefits in terms of habitat connectivity, although this option does not incorporate a strategic approach to enhancing ecological networks, rather focussing on habitat and species-specific focussed actions to support biodiversity.	
SEA Topic		**Objectives**	
Soil		Help maintain soil and peat quality and avoid exacerbating pollution; conserve geodiversity: • Minimise soil and peat contamination and disturbance, maintaining high soil quality Protect and enhance the geology of the Scottish Borders, including natural landforms and peatland	
Linked Ecosystem Services		**Commentary Relevant to LBAP Proposed Actions**	**Effect**
Supporting	**Nutrient cycling**	This option may provide benefits in terms of soil formation supporting services, through habitat protection and enhancements linked to peatlands and, potentially, grassland and enclosed farmland habitats. It is not considered that negative effects on these services would ensue. However, it is envisaged that any beneficial impacts would again be at a site-specific level, and would be unlikely to have any positive effect on ecosystems at a landscape scale.	**0**
	Soil formation		**0**
Regulating	**Hazards**	Improvements in services such as soil quality and carbon storage may be achieved through the protection and enhancement of habitats such as peatlands, blanket bog and raised bog, with linked benefits for climate regulation. However, it would reasonable to consider that enhancements will be area-specific, as this option does not adopt an approach that looks at ecosystems across the region and beyond and therefore benefits are likely to be localised, and not significant. It is not considered that this option would lead to negative impacts on regulating ecosystem services.	**0**
	Soil quality		✓
	Carbon storage		**0**
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?		It is not considered likely that this option would have significant positive or negative impacts on the identified ecosystem services. A positive impact may be considered reasonable in relation to improvements to soil quality, albeit site-specific	
Does the Plan address identified pressures on these ecosystem services?		The limited scope of this option, with a focus on habitat-specific actions is likely to mean that the potential for wider benefits for ecosystem services may not be realised, with a failure to assist in relieving pressures on hazard regulating services across the region. However, there may be some positive localised results.	
How does the Plan perform against SEA objectives?		This option may result in maintenance of soil and peat quality and conservation measures at a site-specific level for certain habitats. The option does not fully meet the SEA objectives to protect and enhance natural landforms and peatland across the region.	
SEA Topic		**Objectives**	

Water		Help protect the status of the water environment • Protect and enhance inland and coastal waters • Protect and enhance water quality Avoid flood risk and protect flood-risk areas	
Linked Ecosystem Services		**Commentary Relevant to LBAP Proposed Actions**	**Effect**
Supporting	**Nutrient cycling**	There may be some locally beneficial impacts on aquatic ecosystems, including marine and freshwater systems through targeted efforts to support these habitats. It is not considered that this option would be at a scale to result in positive or negative impacts on these supporting ecosystem services.	**0**
	Water Cycling		**0**
Regulating	**Pollution control**	Targeted efforts on specific water courses, standing water, fens, marshes or bogs would support regulating services in terms of working with land managers to reduce pollution and increase the quality of aquatic habitats. There may be beneficial impacts in the case of both freshwater and marine habitats. However, these would be site-specific actions not necessarily as effectively co-ordinated across the region's landscapes as would actions that adopt an ecosystems approach at a landscape scale.	✓
	Water quality		✓
	Hazards		✓
Provisioning	**Fresh Water Supply**	It is considered that actions to improve the water environment for key aquatic habitats would support provisioning systems in terms of fresh water supply, although again, at a site-specific scale. Specific actions may not be at a large enough scale to positively impact the region's fresh water supply, although no detrimental impact would be predicted.	**0**
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?		It is not considered that this option for the plan would have significant effects on the identified ecosystem services, although adverse impacts would not be predicted for ecosystem services. Positive impacts may be reasonably expected in relation to pollution control, water quality and hazard regulation, but given that this option would have a site-specific focus, it is not thought likely that there would be significant impacts on regulating ecosystem services across the region.	
Does the Plan address identified pressures on these ecosystem services?		This plan may help to address impacts on regulating services at a site-specific level. It is not considered that there would be a tangible impact on reducing pressures relating to supporting or provisioning ecosystem services, which would in any case be more indirectly affected by any actions at a site-specific level under this plan.	
How does the Plan perform against SEA objectives?		This plan would meet all SEA objectives in terms of helping to protect and enhance inland and coastal waters, improve quality and protect flood-risk areas.	
SEA Topic		**Objectives**	
Landscape		Help protect and restore landscape character, local distinctiveness and scenic value • Encourage biodiversity projects that will help enhance the landscape and visual amenity • Contribute to and enhance local distinctiveness in the Scottish Borders • Protect and enhance landscape designations • Seek to improve habitat connectivity	
Linked Ecosystem Services		**Commentary**	**Effect**
Provisioning	**Wildlife diversity**	The plan will support notable Borders species and habitats so that wild species diversity as a provisioning service would be positively impacted by this plan. Actions would include support for species such as red squirrel, black grouse, golden eagle, notable invertebrates, bats, as well as	✓

		marine species and protected / designated sites and habitats. It is considered that the plan would have a positive overall impact on wild species diversity. The plan would operate at a site-specific level however, rather than at a landscape scale, therefore some opportunities to consider interactions with other services and to ensure they are optimised, may not be realised. However, improving habitats and the diversity of species will indirectly contribute to and enhance distinctiveness and improve habitat connectivity.	
Cultural	**Sense of place**	As above, under this plan, actions would be more species and habitat / site focussed, therefore there may not be significant impacts on cultural services in terms of a sense of place or aesthetic values at a landscape scale. However, the plan would include protection of Local Biodiversity Sites as well as other designations, and include protection and enhancement of other habitats, with species-specific management plans. These may positively impact on cultural services in relation to enhancements of landscapes, encouraging a positive sense of place and satisfaction with aesthetic values.	✓
	Aesthetic values		✓
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?		It is unlikely that this plan would have significant effects on the identified ecosystem services, given that the focus would be on specific sites, species and habitats rather than on actions at a landscape scale.	
Does the Plan address identified pressures on these ecosystem services?		The plan would address pressures on wild species, including for example habitat connectivity, through actions to improve habitat and sites for the benefit of wild species. It would also contribute to supporting a strong sense of place and ensure that important sites and habitats are protected in the face of development or other land uses.	
How does the Plan perform against SEA objectives?		It is considered that the plan would meet the objectives for this SEA topic, in terms of encouraging projects that support biodiversity, which will also have a beneficial impact on landscape and visual amenity and enhance local distinctiveness. By supporting specific habitats and species, connectivity between habitats could be enhanced.	
SEA Topic		**Objectives**	
Population and Human Health		Support improvements in human health and community wellbeing • Safeguard the natural environment for the benefit of communities	
Linked Ecosystem Services		**Commentary Relevant to LBAP Proposed Actions**	**Effect**
Regulating	**Noise**	There may be indirect benefits for regulating services such as coastal defence and hazard regulation (e.g. flood regulation) through this plan, which will seek to protect and enhance specific habitats, protected sites and wild species across the Scottish Borders. It is considered unlikely that there would be any impact on noise regulation, although no negative impacts would be anticipated. The plan would include specific actions to deal with INNS, which are a direct pressure on particular habitats and species, and it is considered that targeted action at specific sites may have a positive impact on INNS reduction and therefore help to support disease and pest regulating services.	**0**
	Hazards		✓
	Coastal defence		**0**
	Disease & pest (INNS)		✓✓
Cultural	**Health benefits**	The plan focuses on habitats and species actions that will protect and enhance biodiversity, which may result in indirect positive impacts on cultural ecosystem services, by enhancing a	**0**

	Education	sense of place and adding to aesthetic values and appreciation of the wildlife and habitats of the local area. This may encourage people to be more active in nature and to appreciate being in nature, however there are no actions that directly encourage or raise awareness of the health benefits of nature for people, and it is not considered that the plan would result in a positive impact from the types of actions proposed. There may be indirect positive impacts in terms of education, relating to increased understanding about species and habitats, which could be linked in to specific projects targeting particular wildlife, protected areas, habitats or places.	✓
	Sense of place		✓
	Aesthetic values		✓
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?		It is not considered that this plan would have significant positive or negative effects on the identified ecosystem services, with the exception of potentially Disease & Pest (INNS) regulating service. Indirect positive effects may ensue, or there may be neutral effects, due to the closer focus and scale of actions under this option on particular sites, habitats and species.	
Does the Plan address identified pressures on these ecosystem services?		The plan directly identifies pressures on regulating services in relation to control of INNS and may indirectly address other pressures faced by regulating services through, for example, habitat improvements that bolster flood hazard regulating services. It is considered that the plan would have neutral impact on pressures relating to health benefits and noise overall, but that there may be opportunities to address other pressures on cultural services, by adding to the overall enhancement of landscapes through specific actions for habitats and species at a site level.	
How does the Plan perform against SEA objectives?		Overall, the plan does contribute to safeguarding of the natural environment, although this is more as a result of indirect impacts, rather than due to actions that are specifically targeted to achieve these objectives.	
SEA Topic		**Objectives**	
Climatic Factors		Support reduction of greenhouse gas emissions and promote climate change adaptation • Contribute to the mitigation of and adaptation to climate change • Assist with less greenhouse gas emissions being released into the atmosphere	
Linked Ecosystem Services		**Commentary Relevant to LBAP Proposed Actions**	**Effect**
Regulating	**Hazard**	Habitat and species protection and enhancement at a site-specific level are likely to indirectly benefit regulating services such as hazard e.g. flood regulation and climate regulating services For example, actions to protect and enhance peatlands, woodland ecosystems and to support healthy marine environment may all indirectly support services relating to hazard and climate regulation and carbon storage. The site-specific approach may have less significant positive effect compared with a coordinated ecosystems approach at a landscape scale. The plan would be likely to indirectly support the ability of species to adapt to climate change, by through undertaking of management approaches to support species and enhance the habitat on which they rely.	✓
	Climate		✓
	Carbon Storage		✓
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?		It is not considered likely that the plan would have any significant effect on the identified ecosystem services. Negative impacts on greenhouse gases or climatic factors are not predicted. A positive impact may occur indirectly through actions relating to habitat and species protection and enhancement.	

Does the Plan address identified pressures on these ecosystem services?		The plan will indirectly address pressures through actions related to habitat enhancement and protection, for example in relation to wetlands, peatland and woodland habitats, or protection of the marine environment, which may all positively impact on carbon storage services, and regulating services relating to hazards such as flood risk and climate.	
How does the Plan perform against SEA objectives?		Indirectly, the plan would support the outlined SEA objectives.	
SEA Topic		**Objectives**	
Material Assets		Encourage adequate protection and sustainable use of material assets • Protect and enhance natural assets of economic and recreational value, including tourism, food and drink • Support Core Paths and green networks by supporting bid for a new Tweed walk • Maintain consideration of Zero Waste Plan objectives in the delivery of all actions	
Linked Ecosystem Services		**Commentary Relevant to LBAP Proposed Actions**	**Effect**
Regulating	**Pollination**	There are likely to be positive impacts on pollinating services through the plan, which will target action at key species and habitats, as well as protected sites, in order to enhance the natural environment of the Scottish Borders. It is unlikely that there would be a significant impact on pollination regulating services, without a broader approach that considers the interplay of other ecosystem services such as provisioning, therefore it is felt that whilst this plan would result in some positive impacts on pollination services, they are unlikely to be significant due to the site-specific nature of the plan.	✓
Provisioning	**Food (crops, livestock, wild fish, game)**	Actions to protect specific wild species, particularly highly mobile species, or to preserve particular habitats, such as grasslands or heathlands, may have negative impacts on provisioning services such as food, fibre or timber production. Such actions may result in constraints to the production of crops or management of game. Actions to preserve woodlands may have negative implications for timber provisioning services. However, it is not considered that the level and intensity of actions within the plan would lead to significant negative effects. In the case of fuel and pharmaceuticals provisioning, there is likely to be no impact. The main aim of the plan would be to protect biodiversity and to enhance species and habitats. Whereas the ecosystems approach of the preferred option would more broadly consider land uses across the Scottish Borders and endeavour (as far as possible) to find solutions in order to benefit biodiversity and other beneficial systems, the site or species-specific approach of this plan will be more restricted in its aims and applications.	x
	Fibre (crops, trees, wool)		x
	Timber		x
	Fuel		0
	Pharmaceuticals		0
Cultural	**Employment**	There may be some positive benefits in relation to job creation, as some specific actions may lead or result from projects that would require management and administration in order to deliver. The plan aims to enhance and protect species and sites, and by extension, the wider landscape, which is likely to have a positive impact in terms of the food and drink and tourism industries, which rely on the high quality natural environment of the Scottish Borders, in order to attract visitors to the region, and encourage them to return.	✓
Overview			
What significant effects will this Plan have on the identified ecosystem services in the Scottish		It is not considered that there would be significant positive or negative impacts from the implementation of this plan within the Scottish Borders in terms of the identified ecosystem services. There are some	

<table>
<tr><td colspan="2">Borders?</td><td colspan="2">possible negative, as well as positive impacts, and some services where effects would be considered to be neutral.</td></tr>
<tr><td colspan="2">Does the Plan address identified pressures on these ecosystem services?</td><td colspan="2">The plan addresses some of the pressures on cultural services, by positively impacting on employment and having the potential for job creation. Pollinating services face pressures in terms of intensive land management uses, that may be relieved through actions to enhance and protect sites and habitats. However, in relation to provisioning services some pressures may intensify, although without significant effects.</td></tr>
<tr><td colspan="2">How does the Plan perform against SEA objectives?</td><td colspan="2">The plan meets the sub-objective of protecting and enhancing natural assets of economic and recreational value, in relation to cultural services for employment. The plan does not meet the other sub-objective relating to core paths as there is no provision for meeting this objective within the plan, which focuses on site and habitat enhancements and protection. The plan does not fully meet the over-arching objective to protect material assets, as the plan, pursued in isolation, may have some negative impacts on provisioning services, although not considered to be significant. (It should be highlighted that the impacts of providing or delivering material assets, where undertaken intensively, have a far greater impact on biodiversity than the protection of biodiversity would ever be likely to have on such assets).</td></tr>
<tr><td colspan="2">SEA Topic</td><td colspan="2">Objectives</td></tr>
<tr><td colspan="2">Cultural Heritage</td><td colspan="2">Help protect the character, quality and diversity of the Scottish Borders' landscape
• Promote visits to enjoy cultural as well as natural heritage assets of the Scottish Borders</td></tr>
<tr><td colspan="2">Linked Ecosystem Services</td><td>Commentary Relevant to LBAP Proposed Actions</td><td>Effect</td></tr>
<tr><td rowspan="3">Cultural</td><td>Sense of place</td><td rowspan="3">In a similar vein to the comments under the topic of Landscape, it is likely that this plan would have a positive impact on the cultural services relating to the sense of the Scottish Borders being a special place, with special, and designated, landscapes. The emphasis on protecting and enhancing biodiversity at a site and species-specific level will lead to indirect benefits for the overall quality and diversity of the Scottish Borders' landscapes and seascapes, the biodiversity of which is an integral part. This is likely to have a positive impact on cultural services, which rely on a high quality natural environment. There is potential for a significant positive impact on these services, as much of the natural environment has inspired artists and writers and is reflected on cultural traditions and heritage of the Scottish Borders. Protecting and enhancing biodiversity therefore has potential to enhance cultural services for both visitors and residents of the area.</td><td>✓✓</td></tr>
<tr><td>Aesthetic values</td><td>✓✓</td></tr>
<tr><td>Cultural heritage</td><td>✓✓</td></tr>
<tr><td colspan="4">Overview</td></tr>
<tr><td colspan="2">What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?</td><td colspan="2">It is considered that the plan may have a significant positive effect on cultural ecosystem services as outlined above.</td></tr>
<tr><td colspan="2">Does the Plan address identified pressures on these ecosystem services?</td><td colspan="2">The plan will address pressures on services through creation and enhancement of high quality habitats, supporting people's interest in and appreciation of the natural environment of the Scottish Borders and its landscapes and seascapes.</td></tr>
<tr><td colspan="2">How does the Plan perform against SEA objectives?</td><td colspan="2">The plan addresses the objectives in terms of protecting the character, quality and diversity by investing in biodiversity and natural heritage, which in turn is an inspiration for cultural activity, aesthetic appreciation and creation of cultural heritage. It may also indirectly promote visits to cultural heritage</td></tr>
</table>

<table>
<tr><td colspan="2"></td><td colspan="2">assets, as people visiting the area will be more likely to visit if the Scottish Borders continues to have a high quality natural environment.</td></tr>
<tr><td colspan="2">SEA Topic</td><td colspan="2">Objectives</td></tr>
<tr><td colspan="2">Air</td><td colspan="2">Help protect current air quality
• Increase woodland creation to support high quality air in the Scottish Borders
• Promote health and wellbeing benefits of biodiversity and encourage more walking and cycling</td></tr>
<tr><td colspan="2">Linked Ecosystem Services</td><td>Commentary Relevant to LBAP Proposed Actions</td><td>Effect</td></tr>
<tr><td rowspan="2">Regulating</td><td>Hazard</td><td rowspan="2">The plan includes protection and enhancement of native woodland habitat, with a focus on specific sites. Other habitats which may have a bearing on the protection of air quality and that would be addressed by this plan include urban habitats, for which the focus would be to increase native tree planting. There may be a positive benefit on regulating services. Actions for improving urban habitats may indirectly benefit regulating services by encouraging people to spend more time in nature, or walk/cycle rather than using private cars as transport.</td><td>✓</td></tr>
<tr><td>Air quality</td><td>✓</td></tr>
<tr><td>Cultural</td><td>Health benefits</td><td>Since there is no ecosystems approach with consideration of linked services, there is less of a focus in this plan on encouraging people to use more active transport. However, there may be indirect benefits on cultural services through action for improving and enhancing habitats. It is not considered that there would be any negative impacts.</td><td>0</td></tr>
<tr><td colspan="4">Overview</td></tr>
<tr><td colspan="2">What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?</td><td colspan="2">It is not considered that the plan would have significant effects on hazard or air quality regulating services, or on health benefits in relation to cultural ecosystem services. The plan would operate at a site-specific level and therefore not have significant effect across the region.</td></tr>
<tr><td colspan="2">Does the Plan address identified pressures on these ecosystem services?</td><td colspan="2">The plan would address pressures in relation to air quality through increasing woodland provision at some specific sites. It is unlikely that there would be a significant effect on addressing pressures related to these, or cultural ecosystem services.</td></tr>
<tr><td colspan="2">How does the Plan perform against SEA objectives?</td><td colspan="2">The plan will meet the SEA objectives in part, by increasing woodland creation to support high quality air. However, it will not directly promote health and wellbeing benefits and encourage active travel.</td></tr>
</table>

OVERALL PREDICTED EFFECTS OF REASONABLE ALTERNATIVE OPTION ON ECOSYSTEM SERVICES WITHIN THE SCOTTISH BORDERS											
Ecosystem Service: Supporting											
Nutrient Cycling		Primary Production		Water Cycling		Soil Formation					
0		0		0		0					
Ecosystem Service: Regulating											
Hazard	Air Quality	Pollination	Climate	Carbon Storage	Noise	Coastal Defence	Pollution	Water	Soil Quality	Disease & Pest	
✓	✓	✓	✓	0 to ✓	0	0	✓	✓	✓	✓✓	
Ecosystem Service: Provisioning											
Wildlife Diversity	Trees, Vegetation, Peat	Fresh Water Supply	Food	Timber	Fibre	Fuel	Pharmaceuticals				
✓ to ✓✓	✓	0	x	x	x	0	0				
Ecosystem Service: Cultural											
Sense of Place	Health Benefits	Aesthetic Value	Cultural Heritage	Employment	Education						
✓✓	0	✓✓	✓✓	✓	✓						
Mitigation Required				**Enhancement Opportunities**							
• Care will be taken to encourage responsible access to the countryside to avoid increased visitor impacts in terms of recreational disturbance, erosion or other impacts on ecosystem services, through awareness raising as well as promotion of health benefits											

2. ASSESSMENT OF PREFERRED OPTION:

<table>
<tr><th colspan="4">A new LBAP that adopts an ecosystems approach to action planning (preferred option)</th></tr>
<tr><td colspan="4">

LBAP actions are organised under six key themes in this option. These themes are directly linked to the overarching Scottish Biodiversity Strategy Routemap to 2020, which is itself based upon an ecosystems approach. The themes are also linked to Scotland's Land Use Strategy, which also promotes an ecosystems approach. These six themes, which are discussed in the below commentary section, are:

Theme 1 - Ecosystems Restoration
Theme 2 - Natural Capital
Theme 3 - Greenspace
Theme 4 - Wildlife & Habitats
Theme 5 - Land & Freshwater Management
Theme 6 - Marine & Coastal Ecosystems

For each SEA Topic, actions are considered by thematic area and discussed in relation to their likely environmental effect on each of the four ecosystem service types overall (reference is made within commentary to specific and relevant ecosystem services sub-types for the SEA Topic in question (as outlined in the Environmental Report, Section X, Table X).
Overall effects of all actions are considered and scored per ecosystem service sub-type for the SEA Topic area.
Any required mitigation and enhancement opportunities are presented.

</td></tr>
<tr><th colspan="2">SEA Topic</th><th colspan="2">SEA Objectives</th></tr>
<tr><td colspan="2">Biodiversity, Flora & Fauna</td><td colspan="2">Protect, enhance, create and restore biodiversity, and encourage habitat connectivity in the Scottish Borders:
Protect and enhance species/habitats
Avoid damage to designated sites/protected species
Conserve and enhance natural heritage</td></tr>
<tr><th>Topic-Linked ES</th><th>ES Sub-Type</th><th>Effect Per Sub-Type</th><th colspan="2">Discussion of Anticipated Overall Effects of Thematic Actions on Topic-Linked ES</th></tr>
<tr><td rowspan="3">Supporting</td><td rowspan="3">Nutrient Cycling</td><td rowspan="3">✓</td><td colspan="2">Overall Effects on Supporting Services</td></tr>
<tr><td>Theme 1</td><td>Actions under Theme 1 will support ecosystem health and restoration, which will in turn support services like photosynthesis and nutrient cycling. For example, actions include awareness raising about reducing pollution in aquatic ecosystems through use of the Scottish Borders Pilot Regional Land Use Framework maps (LUS Pilot maps), which identify opportunities for effective pollution prevention throughout priority catchments. In addition, actions under this theme including ongoing assessment and reduction of development impacts on ecosystems and enhancing the ecological network, as well as woodland and farmland habitat restoration. Such actions to improve the health of ecosystems will have indirect benefits for supporting ecosystem services.</td></tr>
<tr><td>Theme 2</td><td>Actions under Theme 2 include restoration of peatland ecosystems and degraded sites, which will protect soils and support nutrient cycling. Natural flood management approaches under Theme 2 will have the added benefit of increasing native tree planting, with multiple benefits for supporting ecosystems.</td></tr>
</table>

			Theme 3	Within urban environments, actions under Theme 3 seek to encourage supporting ecosystems in towns through increased awareness of SUDS use and green infrastructure and under Theme 5, creative land and freshwater management projects will be encouraged, to enhance supporting services.
	Primary Production	✓	Theme 4	It is anticipated that the efforts of the LBAP actions to maintain and enhance biodiversity, including in soil and water, through the action under theme 4 to support the ecological network will promote the health of supporting ecosystem services indirectly and enhance nutrient cycling. In addition the actions to support a strong ecological network and may indirectly support primary production by maintaining the health of the network.
			Theme 5	Actions include awareness raising about land use implications using the LUS Pilot maps, and to encourage tree-planting in appropriate areas to avoid damaging important grassland, heathland or wetland sites, and to monitor riparian environments which will promote a robust ecosystem with indirect benefits for supporting services.
			Theme 6	Support for Marine Protected Areas, which this plan seeks to promote, could help with greater protection of marine supporting services and sustainable use of resources.
Regulating			**Overall Effects on Regulating Services**	
	Pollination	✓✓	Theme 1	The LBAP actively seeks to support pollinators and to tackle INNS, thus enhancing regulating ecosystem services. For example, actions under Theme 1 include restoration of farmland habitats and species-rich hedgerows.
			Theme 2	Under Theme 2, pollinator habitat will also be supported through monitoring projects as well as other habitat enhancements and promotion of improved habitat management techniques. The LBAP does not have actions directly aimed at hazards such as wildfire, although efforts to restore peatland ecosystems and improve ecosystem health may assist in supporting the protection of natural capital indirectly, however there are actions specifically aimed at reducing the risk of floods through natural flood management (NFM), tree planting – and again, peatland restoration. It should be noted that NFM on its own may be insufficient to support hazard regulating services, but there may be indirect benefits on hazard regulating services.
	Disease & Pest (INNS)	✓✓	Theme 3	Under Theme 3, there is emphasis on supporting biodiversity in urban areas, through improving green networks around towns and wildlflower planting to support more pollinators in amenity areas.
			Theme 4	Theme 4 actions also seek to improve habitats across the landscape, which will support pollinators and actions also encourage citizen science and dissemination of good practice to raise awareness of biodiversity and how to look after it, which can extend to pollinator species, and benefit them indirectly. Actions under Theme 4 include thinking in advance about the potential for beaver to colonise the region, and how they may support flood risk management, (as well as general thinking about how to respond to and manage their integration within ecosystems in the Scottish Borders).
	Hazards	✓	Theme 5	As well as actions across all themes that seek to restore and enhance ecosystem health, enabling robust ecosystems that respond better to regulating disease and pests, there are specific actions to manage INNS under Theme 5, with a focus on maintaining biosecurity

				within the Scottish Borders. Partners are also working to raise awareness of biodiversity and how to protect it, which will include actions such as managing visits to areas where INNS may be present (such as plants) in order to prevent their spread.
			Theme 6	Actions include establishing a marine biosecurity project to tackle INNS. There are no actions within Theme 6 that will specifically effect hazards such as coastal erosion, which is not an issue for the rocky coasts of the Scottish Borders but may impact other sandy coasts of the Scottish Borders. However, other PPS are better placed to tackle this, such as Scottish Borders Council Shoreline Management Plans.
Provisioning			**Overall Effects on Provisioning Services**	
	Wildlife Diversity	✓✓	Theme 1	Theme 1 actions will support wildlife diversity through creation of increased ecological network connectivity and ecosystem restoration such as woodland creation and farmland habitat restoration, which will also support the provisioning services of trees, vegetation and peat.
			Theme 2	Support for the provisioning services of trees, vegetation and peat will be delivered through actions under Theme 2 to increase woodland diversity and integration of woodland types and land uses, in accordance with the principle of multiple benefit land use outlined in the LUS Pilot. Actions also include peatland restoration, including long-term monitoring. Vegetation enhancements include increasing grassland margins and hedgerow habitat with benefits for pollinators. Actions under this theme are anticipated as having a significant positive effect on wildlife diversity as well as trees, vegetation and peat.
			Theme 3	Actions include native tree species selection and management in community woodlands, streets and settlements as well as biodiversity projects for communal land and encouragement of green infrastructure, including planting and suds, as well as wildlife friendly management of greenspace, all of which will have a significantly positive effect on provisioning services.
	Trees, Vegetation, Peat	✓✓	Theme 4	Actions under Theme 4 include direct support for wild species, with some notable species for which funds and resources exist given particular attention. Other direct actions including ongoing identification and promotion of Local Biodiversity Sites, which will add and enhance the networks between national and internationally protected areas, by recognising the regional and local value of distinctive and important habitats across the Borders. Indirect actions supporting provisioning services of wildlife diversity including communications about the protection and enhancement of biodiversity through awareness raising, to encourage observation, recording, monitoring and feedback, as well as appreciation and care for biodiversity throughout the region. Encouraging citizen science and disseminating information to show good practice, will have positive indirect impacts under Theme 4.
			Theme 5	Actions for trees include herbivore management and encouragement of natural regeneration as well as consideration of proposals for tree planting and potential impacts on other habitats, such as grasslands. Measures to respond to invasive non-native species will also support biodiversity. As well as use of the LUS maps, National Stream Temperature monitoring will assist in identifying the most effective areas for riparian tree planting in order to control water temperature, with benefits for aquatic biodiversity.

			Theme 6	In addition, actions under Theme 6 aim to demonstrate the pressures facing marine biodiversity and will support provisioning services in terms of wildlife diversity specifically. Encouragement of wildlife recording will also result in positive effects on biodiversity, as will awareness raising about pressures on biodiversity, which could help indirectly to lower pressures and benefit wildlife diversity provisioning services.

Overview Commentary				
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders connected with this SEA Topic?	**Significant Negative Environmental Effects?**	None predicted	**Significant Positive Environmental Effects?**	**Pollination** **Disease & Pests** **Wildlife Diversity** **Trees, Vegetation, Peat**
	It is considered that the LBAP will have significant positive impacts on regulating services relating to pollination and control of disease and pests, as well as wildlife diversity, trees, vegetation and peat, if implemented. Indirect benefits are anticipated for other supporting, provisioning and regulating ecosystem services.			
Does the Plan address identified pressures on these ecosystem services?	INNS are increasing in number and abundance across the region and threatening other species, and by extension, wild species diversity. However, the actions within the plan seek to target pressures from INNS and support disease and pest regulating services directly, and to address overall pressures on regulating ecosystems through management of land e.g. intensive agriculture. The LBAP provides a framework for action, looking to promote more sustainable and considered approaches to land use, through the application of the LUS Pilot maps to decision-making.			
How does the Plan perform against SEA objectives?	The primary aim of the LBAP is to protect and enhance biodiversity and the implementation of LBAP actions will, through an ecosystems approach, enable the enhancement and protection of biodiversity on both land and sea. The adoption of the LBAP will provide a framework, through which partner organisations, land managers and the public can be encouraged to support biodiversity flora and fauna. It is considered that the plan fully meets the SEA objectives. The themes of the plan and their related actions, are specifically designed to conserve and enhance natural heritage and to protect the diversity of species.			

SEA Topic		**SEA Objectives**	
Soil		Help maintain soil and peat quality and avoid exacerbating pollution; conserve geodiversity: • Minimise soil and peat contamination and disturbance, maintaining high soil quality • Protect and enhance the geology of the Scottish Borders, including natural landforms and peatland	
Topic-Linked ES	**ES Sub-Type**	**Effect Per Sub-Type**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**
Supporting	**Nutrient**	✓	**Effects on Supporting Services**

	cycling		Theme 1	Actions encouraging woodland restoration should also have an indirect positive effect on soil formation and nutrient cycling by assisting with flood prevention and encouraging healthy soils
			Theme 2	The plan includes actions under Theme 2 that aim to protect and enhance natural capital, such as peatland ecosystems and support their restoration, leading to high quality soil formation, (with other positive impacts for climate change adaptation, through increased carbon storage capacity).
			Theme 3	Actions to promote awareness and increased potential of SUDS and green infrastructure may have an indirect positive effect on nutrient cycling in urban environments, as would projects to enhance the urban tree resource and improve green networks, strengthening the overall ecological network.
	Soil formation	✓	Theme 4	Actions under Theme 4 do not directly benefit supporting services, however actions to develop a stronger ecological network through identification and adoption of Local Biodiversity Sites may have an indirect benefit for supporting services such as nutrient cycling and soil formation.
			Theme 5	Supporting services such as soil formation and nutrient cycling will be considered in actions relevant to Theme 5, regarding land and freshwater management. Lessons from the LUS Pilot have been incorporated to action planning, for example with actions relating to farmland management and incorporating ecosystem services into farm accounting. The actions do not directly seek to influence supporting services such as soil formation or nutrient cycling, however it is reasonable to consider that maintaining and enhancing soil biodiversity through effective land management will support biodiversity within the soil, formation and cycling of nutrients.
			Theme 6	Theme 6 actions may indirectly support nutrient cycling, by promoting healthy and robust marine environment, including protection of marine biodiversity and promotion and support for MPAs.
Regulating			**Effects on Regulating Services**	
	Hazards	✓	Theme 1	Theme 1 actions to invest in woodland ecosystem restoration and tree diversity to enhance woodland ecosystems will add to the potential for woodlands to store carbon and assist in climate change adaptation. There may also be indirect benefits such as mitigating flood risk, stabilising soils and reduce erosion.
			Theme 2	The plan includes actions under Theme 2, Natural Capital, aimed specifically at increasing carbon storage within the Scottish Borders through restoration and enhancement of peatland ecosystems as carbon stores, flood mitigation systems and sites of geological importance. Actions include adoption of the Peatland Code and long-term monitoring projects in previously restored and existing degraded peatland sites. This is also directly linked to enhancing quality soils. There are also additional actions specifically aimed at reducing flood risk and thereby directly supporting regulating services, including use of the LUS Pilot project maps to identify likely suitable areas for natural flood management, helping stabilise soils and reduce erosion.
	Soil quality	✓	Theme 3	Actions to promote use of SUDS for biodiversity and their effective use may have indirect benefits for hazard regulating services within urban/suburban environments. Other actions to improve urban greenspace for the benefit of biodiversity may have indirect benefits for soil quality.

			Theme 4	Actions to extend the Local Biodiversity Site network, thereby creating areas where biodiversity is protected, the ecological network is strengthened, may have positive indirect impacts on soil quality. Hazard regulation services may indirectly benefit through actions considering the potential arrival of beaver in the region, and the role they may play in natural flood management.
	Carbon storage	✓	Theme 5	Actions under Theme 5 indirectly support improved soil quality, with emphasis on support for improving farmland management. Actions related to strategic woodland creation and management may also have a positive indirect impact on hazard regulation linked to flood risk and increased woodland resource will result in indirect benefits for carbon storage ecosystem services.
			Theme 6	Actions to encourage awareness of the pressures facing the marine environment, responsible management of recreational and economic activities such as fishing, and promotion of the importance of Marine Protected Areas, may all have an indirect positive impact on the carbon storage potential of the marine environment, by helping to strengthen marine ecosystems.

Overview Commentary			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**	None predicted.	**Significant Positive Environmental Effects?** None predicted.
	The actions within the LBAP under Themes 1, 2 and 5 in particular, will overall have a positive impact on regulating and supporting services within the Scottish Borders, in relation to soil formation and quality, carbon storage, regulation of hazards such as flood and nutrient cycling. It is considered unlikely that the implementation of the LBAP actions will have significant effects in isolation, however the overall effects of these actions if well targeted and funded may cumulatively have a significant positive impact on supporting and regulating ecosystem services in the longer term.		
Does the Plan address identified pressures on these ecosystem services?	Pressures such as soil erosion and acidification through reduced level and quality of soil biodiversity may be indirectly alleviated through the implementation of the plan, with benefits in terms of counteracting peat loss, improving drainage for reducing flood risk (which has been of particular concern in the Scottish Borders in recent years due to flood events) and supporting climate change adaptation.		
How does the Plan perform against SEA objectives?	The plan includes actions that offer potential to enhance geological features such as peatlands and improve soil quality through promotion and implementation of improved land management.		

SEA Topic		**SEA Objectives**	
Water		Help protect the status of the water environment • Protect and enhance inland and coastal waters • Protect and enhance water quality • Avoid flood risk and protect flood-risk areas	
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**

Supporting	**Nutrient cycling**	✓	**Effects on Supporting Services**	
			Theme 1	LBAP actions seek to enhance and protect ecosystems and natural capital, which it is considered reasonable to believe will have at least a positive indirect impact on supporting ecosystems such as nutrient and water cycling. There are specific, direct actions under Theme 1 to support aquatic ecosystems and raise awareness about the Water Framework Directive (WFD) requirements – and any future requirements of new legislation that may be transposed into UK law after the UK leaves the EU. The actions under Theme 1 aim to support aquatic ecosystems and by encouraging reduction of pollution in priority catchments across the Scottish Borders.
			Theme 2	Under Theme 2, actions aim to support soil biodiversity and quality through restoration of peatlands, with potential indirect benefits for nutrient cycling, as would be the case for actions to increase planting of native trees and use of different woodland types to enhance and support woodland ecosystems and by extension, their functions and role in the cycling of nutrients.
			Theme 3	Theme 3 actions have a focus on urban drainage systems and the encouragement of SUDS, which will support water cycling services.
	Water Cycling	✓	Theme 4	Actions under Theme 4 do not directly benefit supporting services, however actions to develop a stronger ecological network through identification and adoption of Local Biodiversity Sites may have an indirect benefit for supporting services such as nutrient cycling and water cycling
			Theme 5	Theme 5 incorporates actions to improve farmland management and encourage creative projects relating to land and freshwater management.
			Theme 6	Direct actions to support water cycling in the marine environment link to beach cleaning and marine biosecurity, which may have positive impacts on the water environment of the marine area.
Regulating	**Pollution control**	✓✓	**Effects on Regulating Services**	
			Theme 1	As above, there are specific actions under Theme 1 to reduce pollution in freshwater aquatic ecosystems and raise awareness of pollution prevention measures and reporting. SEPA is a lead partner for this action. In the marine environment, water quality will be assisted by efforts to reduce pollution in priority catchments, for example such as the Eye Water.
			Theme 2	Hazards such as flooding are a particular concern in the Scottish Borders, due to fluvial or surface water flooding. Theme 2 actions include specific natural flood management schemes and woodland ecosystem enhancement and restoration, which may assist in alleviating pressure on flood regulation services provided by ecosystems, in combination with awareness raising about land management approaches that may reduce flood risk.
	Water quality	✓✓	Theme 3	Theme 3 actions include a focus on urban drainage systems and the encouragement of SUDS, which will support regulating services in urban areas, such as hazard regulation in the context of flood risk avoidance. Actions to enhance biodiversity including green spaces and networks in an urban context will also support pollution control and water quality.
			Theme 4	Actions to improve ecological network connectivity will support regulating services indirectly, the consideration of beavers and their potential role in flood management may also indirectly raise awareness of the importance of regulating services and dissemination of good practice will highlight work from partners across a wide range of fields to enhance the water environment,

				with benefits for ecosystems and biodiversity.
	Hazards	✓	Theme 5	Freshwater management is a key focus of this theme and includes consideration of creative freshwater projects, with an emphasis on community-led involvement, in order to assist with regulation of the water environment particularly in priority catchments and urban zones vulnerable to flooding. Monitoring of stream temperatures will assist in water quality and hazard regulation. INNS action will include awareness raising of the clean, check, dry system for the protection of the biodiversity of the riparian and water environment.
			Theme 6	Actions under Theme 6 for the marine environment also seek to establish codes of conduct to protect the water environment in relation to Marine Protected Areas and there will be indirect benefits to water quality through actions under Theme 6 to raise awareness of factors that threaten the marine environment, such as diffuse pollution. There are also actions to support participation in plastic bead monitoring, and to raise awareness of this new and increasing type of pollution.
Provisioning	**Fresh Water Supply**	✓	**Effects on Provisioning Services**	
			Theme 1	The actions under Theme 1 are not directly linked to provision of fresh water, rather the focus is on meeting WFD, or equivalent legislation, requirements. However, it is reasonable that efforts to reduce pollution and raise awareness of land management than can enhance water quality should also have positive impacts on fresh water supply.
			Theme 2	Supporting retention of peatlands under this Theme will assist in keeping water stored on the land, with benefits in reducing flooding, but also with benefits for provision of water and its use in food and drink, such as whiskey production.
			Theme 3	Key actions under this theme that may benefit provisioning services indirectly link to awareness raising of SUDS potential to maintain fresh, clean water, as well as information sharing concerning good practice in relation to urban development.
			Theme 4	The actions relating to awareness raising and dissemination of good practice are the main link for this Theme and impacts on fresh water supply, with the potential for indirect benefits through application of good practice.
			Theme 5	Raising awareness of good practice in freshwater management to benefit biodiversity under this Theme will have indirect benefits for provisioning services by supporting clean fresh water. The promotion of the LUS pilot mapping tool for targeting management activity will also assist in indirectly benefiting this service.
			Theme 6	Raising awareness of the pressures facing the marine environment and supporting Marine Protected Areas through promotion of codes of conduct may indirectly benefit this service.

Overview Commentary				
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	Significant Negative Environmental Effects?	None predicted.	Significant Positive Environmental Effects?	**Pollution control** **Water quality**

	Climate change may mean that flooding becomes more severe and more frequent in certain areas, which is a challenge for the Scottish Borders, where many settlements are in a vulnerable zone for flooding events. The plan will help to support flood risk management through NFM in freshwater systems, however it is unknown as the significance of this positive effect, weighed against hard engineering techniques. It is considered likely that there will be a significant positive effect on regulating systems such as water quality, through efforts to tackle diffuse pollution and INNS, and to promote improved and integrated land management at a catchment scale through the application of learnings from the LUS Pilot mapping project, to support these ecosystems.
Does the Plan address identified pressures on these ecosystem services?	The plan addresses pressures such as diffuse pollution and protection from INNS, which impact on regulating and supporting ecosystem services. It should also help to support climate change adaptation as there are actions connected with management of flood risk through natural flood management techniques and increased tree planting / enhancement of woodland ecosystems.
How does the Plan perform against SEA objectives?	The plan addresses the SEA objectives for this topic. The plan will seek to enhance the water environment, both freshwater and marine, linking in with river basin management planning and SEPA's objectives and helping to tackle pollution impacts from source to sea.

SEA Topic		**SEA Objectives**	
Landscape		Help protect and restore landscape character, local distinctiveness and scenic value • Encourage biodiversity projects that will help enhance the landscape and visual amenity • Contribute to and enhance local distinctiveness in the Scottish Borders • Protect and enhance landscape designations • Seek to improve habitat connectivity	
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**
Provisioning	**Wildlife diversity**	✓✓	**Effects on Provisioning Services**
			Theme 1: Actions include restoration of farmland habitats across the landscape and of woodland ecosystems, with a focus on juniper and montatne / heathland scrub in upland areas and to enhance the Forest Habitat Network. Actions will contribute to local distinctiveness, improve connectivity and in so doing, support wildlife diversity through enhancement of a robust ecological network.
			Theme 2: Enhancing woodland diversity through inclusion of native species and integration with different woodland types and land uses, along with enhancing roadside and hedgerow habitats will all have beneficial impacts on landscape and encourage a range of wildlife, for example pollinators.
			Theme 3: Enhancements to the urban environment through green infrastructure such as living walls, promotion of use of SUDS as well as actions to link Local Biodiversity Sites and Protected Areas and enhance countryside around towns will contribute to an ecological network that beneficially impacts landscape and supports wildlife diversity.
			Theme 4: LBAP actions under Theme 4 seek to enhance both habitats and native species diversity across

				the landscape, including actions to support black grouse, golden eagle, northern brown argus butterfly as well as actions to raise awareness of species diversity and the importance of recording wildlife. Actions for wildlife are considered at a landscape scale, with priority and most relevant areas for action highlighted in the plan, organised in accordance with the 5 key landscape types in the Borders (Map shown in Appendix C). Actions under Theme 4 also include dissemination of good practice across the region to promote wild species diversity, in order to inform partner, land managers, developers and the public about good practice and how to support native species.
			Theme 5	Land and freshwater management actions will both directly enhance landscapes through actions to integrate woodland types and indirectly benefit the landscape through actions to raise awareness of effective land use for multiple benefits, through promotion of the LUS pilot maps for land management decisions. These actions are planned with ecosystem health and by extension, protection and enhancement of biodiversity in mind.
			Theme 6	Actions under Theme 6 will aim to support species diversity within seascapes, through recording, awareness raising and action to improve habitats for native species diversity, such as by tackling INNS.
Cultural	**Sense of place**	✓✓	**Cultural Services**	
			Theme 1	LBAP actions under Theme 1 include restoration of ecosystems to improve habitat connectivity and enhance habitats, (for example, via planting of native woodland and montane scrub species, and expanding/enhancing habitats around Local Biodiversity Sites). LBAP actions will therefore assist in the retention and enhancements of landscapes which give residents and visitors to the area a sense of place.
			Theme 2	Use of the Scottish Borders Land Use maps will help in planning land use and management to protect ecosystems and in turn look after the special landscapes of the Borders. Actions aim to enhance and protect the high quality natural environment through investment in Natural Capital and establish long-term monitoring projects to maintain it. The aesthetic appeal of local landscapes is therefore supported by the LBAP actions.
			Theme 3	Actions under Theme 3 seek to enhance urban landscapes, through promotion of green infrastructure (e.g. SUDS) and networks, community woodlands and the urban tree resource. There are also actions under Theme 3 to develop a local walk along the River Tweed, which will promote the sense of the Scottish Borders being a special place both for residents and for visitors, and to celebrate the historic environment and land use, which will support recognition of the history of landscapes within the Borders and the meaning they provide.
	Aesthetic values	✓✓	Theme 4	Actions include identification, adoption and promotion of Local Biodiversity Sites, which will highlight the biodiversity rich landscapes around the region and have positive impact on people's sense of place and appreciation of the aesthetic value of the Scottish Borders. All actions under this Theme seek to promote wildlife diversity, which requires projects that seek to enhance habitats at a landscape scale and through application of the LUS Pilot maps, which will add to the distinctiveness of the local area.

			Theme 5	Actions under this Theme are likely to indirectly benefit cultural services linked to sense of place and aesthetic value, by promoting actions to manage land and freshwater sustainably, for the benefit of biodiversity and ecosystem health.
			Theme 6	Actions under Theme 6 seek to raise awareness and appreciation of the marine and coastal environment and encourage actions that protect it, with indirect benefits for seascapes and positive impacts on cultural services.

Overview Commentary			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**		**Significant Positive Environmental Effects?** **Wildlife Diversity** **Sense of Place** **Aesthetic Values**
	Implementation of this plan is likely to have significantly positive effects on the outlined cultural services, particularly through Theme 1 actions (Ecosystem Restoration) and actions to protect and enhance natural capital (Theme 2). There are specific actions that focus on marine environment and seascapes. The plan aims to support wild species diversity through a number of actions across thematic areas, which will support provisioning ecosystem services. The actions of the LBAP should have a particularly positive impact on cultural ecosystem services relevant to Landscape, with other related benefits for biodiversity and for human health and wellbeing.		
Does the Plan address identified pressures on these ecosystem services?	The plan includes actions to address identified pressures through support for ecological connectivity and habitat enhancement at a landscape scale, information gathering and monitoring and actions to tackle pressures such as invasive non-native species.		
How does the Plan perform against SEA objectives?	The proposed actions within the six LBAP thematic areas will address the outlined SEA objectives and sub-objectives for landscape.		

SEA Topic		**SEA Objectives**		
Population and Human Health		Support improvements in human health and community wellbeing • Safeguard the natural environment for the benefit of communities		
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**	
Regulating	**Noise**	✓	**Regulating Services**	
			Theme 1	Actions under Theme 1 include a commitment to assessing and developing an approach to offsetting development impacts for biodiversity net gain, with indirect benefits for human health and wellbeing, particularly in urban areas. It is considered reasonable to think that regulating ecosystem services such as noise, disease and pest and hazard regulation would indirectly benefit from this action and so, as a result, would the human population.
	Hazards	✓	Theme 2	Actions under Theme 2 relate to the hazard regulation of flooding, which would result in positive benefits for the local population in areas vulnerable to flooding, although there is a requirement for flood defence and mitigation measures to include hard engineering, in addition to the soft engineering of Natural Flood Management outlined in the LBAP actions.

			Theme 3	Development of business and biodiversity initiatives for green spaces and urban habitats is considered likely to have positive indirect impacts on regulating services, as would actions to enhance urban greenspace and communal land.
	Coastal defence	**0**	Theme 4	Citizen science projects to raise awareness of issues affecting biodiversity and ecosystems, such as INNS and the links with healthy ecosystems and well-functioning ecosystem services are predicted to have indirect positive benefits on services such as hazard regulation and INNS control.
			Theme 5	Actions aiming to reduce INNS will allow greater wild species diversity, adding to and enhancing landscapes that are found to be beneficial for human wellbeing – not just in the terrestrial environment, but also in the marine environment. Since some of the INNS include those harmful to human health (e.g. Giant Hogweed), actions to control them will directly benefit the human population. It should be noted that actions to improve green networks may result in greater ability of species to spread. However, where INNS are capable of being controlled by human management, the LBAP will promote robust action to prevent their spread.
	Disease & pest (INNS)	✓	Theme 6	Actions aiming to reduce INNS in the marine environment will also enhance seascapes, with benefits for human wellbeing. There are no specific actions focussed on coastal defence within the plan, although indirectly, other actions within the plan may support coastal defence in vulnerable areas, also increasing the overall resilience of ecosystems to climate change effects. However, it is not considered that there would be any negative, or significantly negative effect on this regulating service. Other PPS will be better placed to deal with coastal defence regulating systems, e.g. Scottish Borders Council Shoreline Management Plans and Local Development Plan.
Cultural			**Cultural Services**	
	Health benefits	✓✓	Theme 1	It is considered that ecological network enhancements through ecosystem restoration are likely to have indirect positive benefits for cultural ecosystem services, particularly sense of place, aesthetic value and health benefits.
	Education	✓	Theme 2	Likewise actions under Theme 2 focus on enhancements to natural capital, and it is reasonable to consider that such actions would indirectly benefit cultural ecosystem services.
			Theme 3	There are focussed and dedicated actions under Theme 3 to improve health and wellbeing, to add to a sense of the Scottish Borders spirit of place, through promotion of green networks, green space enhancement, active travel across the landscape, and sustainable management, increased SUDS potential for biodiversity and supporting business initiatives to enhance biodiversity. These actions are likely to have positive impacts on the urban environment, with beneficial impacts on the aesthetic values of town environments, and ensuing health benefits in terms of mental and physical wellbeing as well as positive impacts in terms of the local economy. Actions under Theme 3 also encourage exploration of links between recreation, learning and greenspace.
	Sense of place	✓✓	Theme 4	Under Theme 4, it is reasonable to assume that the support for protected areas, wild species diversity and important habitats will help in enhancing cultural ecosystem services, such as through protection of charismatic species that arouse people's interest in nature, and through encouragement of citizen science projects to record biodiversity, raising interest and awareness about nature on people's doorsteps.

	Aesthetic values	✓✓	Theme 5	Actions to improve land and freshwater management are likely to indirectly benefit cultural ecosystem services, by improving the health of the ecological network at a landscape scale.
			Theme 6	Across the wider landscape, including marine (Theme 6) actions include increasing education and interest in biodiversity, particularly through citizen science biological monitoring projects, which it is reasonable to consider would have benefits to the population, through spending more time out of doors, and learning and experiencing nature. This also taps into the educational services that time learning about nature can offer, with positive benefits for increasing learning and knowledge, in this area

Overview Commentary			
	Significant Negative Environmental Effects?	**Significant Positive Environmental Effects?**	**Health Benefits Sense of Place Aesthetic Values**
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	It is considered that overall the LBAP actions will result in significant positive effects on cultural ecosystem services, with positive benefits, or, at least, neutral effects, on regulating ecosystem services. By protecting and enhancing biodiversity and supporting ecosystems the LBAP will have a positive impact on the landscapes in which people enjoy living, and will encourage cultural services like promotion of health benefits, by encouraging active interest in nature. Together with enhancement of green spaces through dedicated walks and promotion of green networks and paths, such actions may have resultant benefits for special landscapes, and potentially positive impacts on the local economy through increasing tourism or food and drink industry sales. These actions may assist in increasing a positive sense of place in the special character of the Scottish Borders amongst the local population as well as having benefits for the economy.		
Does the Plan address identified pressures on these ecosystem services?	Actions directly address pressures on cultural ecosystem services, such as improving aesthetics and combating health issues, as well as seeking to remove disconnects between people's lives and their experiences of nature. Actions encourage people to be active in nature, to learn about biodiversity, to enhance landscapes, to support a greener urban environment, with attention to decreasing pressures from development, balancing development pressures with biodiversity considerations. As well as the benefits of the LBAP actions resulting from their undertaking, the LBAP seeks to actively raise awareness of the benefits of well-functioning ecosystem services, particularly in terms of cultural ecosystem services, and conversely, to draw attention to the impacts and pressures that result when humans live detached from nature and ecosystems are degraded.		
How does the Plan perform against SEA objectives?	It is considered that the plan meets the SEA objectives fully, since its overarching aim is to protect biodiversity through specific actions, that will also have a benefit for the human population and wellbeing and communities. Where Scottish Borders Council is a lead partner for actions, the Council will seek to work collaboratively, including with communities' department, in the delivery of actions that benefit the human population and health and wellbeing.		

SEA Topic		Objectives		
Climatic Factors		Support reduction of greenhouse gas emissions and promote climate change adaptation • Contribute to the mitigation of and adaptation to climate change • Assist with less greenhouse gas emissions being released into the atmosphere		
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**	
Regulating	**Hazard**	✓✓	**Regulating Services**	
			Theme 1	LBAP actions include approaches to improve ecosystem health under Theme 1 by reducing pressures, improving connectivity and managing habitat declines. Improving ecosystem health through restoration of ecosystems will support regulating services in general with clear links to services such as climate regulation.
			Theme 2	In some areas of the Scottish Borders, improvements to ecosystem health and investment in natural capital, such as peatland and woodland ecosystems, will benefit services in terms of reducing flood risk, increasing carbon sinks and erosion control, resulting in less release of greenhouse gases into the atmosphere.
	Climate	✓✓	Theme 3	Actions under Theme 3 include promotion of active travel and raising awareness of the benefits of being in nature, which may have a resultant impact on reduced car use, with reduced greenhouse gas emissions ensuing.
			Theme 4	Actions to enhance Local Biodiversity Sites across the region may have indirect positive benefits for climatic factors, increasing the overall health of ecosystems across the Scottish Borders. In addition, actions for species will consider the likelihood of northern shifts in species' ranges, in response to climate change.
	Carbon storage	✓✓	Theme 5	Theme 5 promotes improved land and freshwater management to support a robust ecological network with improved resilience to climate change.
			Theme 6	Action to support the marine environment and to raise awareness of supporting the health of marine biodiversity will indirectly benefit regulating services such as climate regulation and carbon storage.

Overview Commentary			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**	None predicted.	**Significant Positive Environmental Effects?** **Hazard** **Climate** **Carbon Storage**
	It is felt that overall the LBAP actions can be reasonably considered to be capable of having an overall positive effect on regulating services in relation to climatic factors. In terms of flood risk hazard regulation, as aforementioned, natural flood management (NFM) techniques are only part of the picture, alongside hard engineering. However, the longer-term benefits of using such techniques may be more beneficial in terms of cost, compared to expensive hard engineering, with longer term benefits for climate regulation and carbon storage. In order to have a significant effect, a large investment in NFM would need to be made, which may be beyond the scope of the LBAP. Similarly, with peatland restoration, woodland ecosystem enhancement, large-scale action is required. Actions under Theme 5 include a substantial woodland regeneration project and the positive benefits of targeting action across the landscape, making use of the LUS Pilot maps to coordinate action could have a significant		

	positive effect on regulating services overall, across the Scottish Borders
Does the Plan address identified pressures on these ecosystem services?	The Plan actively seeks to reduces pressures on regulating services in relation to climatic factors, through support for flood risk management, reduction of greenhouse gases and storage of carbon, locking this up in peatlands and woodland ecosystems. These actions should more broadly support provisioning and cultural services to better withstand pressures linked to climate change.
How does the Plan perform against SEA objectives?	The LBAP supports reduction of greenhouse gas emissions and promotes the importance of actions that will assist in climate change adaptation, therefore it meets these objectives.

SEA Topic		**Objectives**		
Material Assets		Encourage adequate protection and sustainable use of material assets • Protect and enhance natural assets of economic and recreational value, including tourism, food and drink • Support Core Paths and green networks by supporting bid for a new Tweed walk • Maintain consideration of Zero Waste Plan objectives in the delivery of all actions		
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**	
Regulating	**Pollination**	✓✓	**Regulating Services**	
			Theme 1	Improving ecosystem health will support regulating services in general, such as actions outlined under Theme 1 (ecosystem restoration) and under Theme 4, which aims to promote and enhance biodiversity of wild species in general.
			Theme 2	The LBAP includes specific actions aimed at enhancing pollination regulating services under Theme 2 through habitat improvements, targeted with the aid of the LUS Pilot mapping tools.
			Theme 3	As above, direct actions to enhance pollinator services are also included under Theme 3.
			Theme 4	Enhancements for wildlife such as Northern Brown Argus and identification and adoption of Local Biodiversity Sites under Theme 4 are likely to have positive impacts on pollination regulating services.
			Theme 5	There are no specific actions for pollinators under Theme 5, however land management actions will include enhancements to farmland habitats, urban habitats and will indirectly benefit pollination services.
			Theme 6	Actions for pollinators are not relevant to the marine environment, but enhancements to coastal ecosystems e.g. in relation to management for butterflies will have beneficial impacts for pollination regulating services.
Provisioning	**Food (crops, livestock, wild fish, game)**	✓	**Provisioning Services**	
			Theme 1	Actions to restore ecosystems under Theme 1 may have indirect positive impacts on food such as fish, game and livestock and arable crops. Stronger and more coherent ecosystems will

				support land uses that seek to harness provisioning services in a more sustainable fashion and therefore are considered likely to support the provisioning services identified in this assessment.
	Fibre (crops, trees, wool)	✓	Theme 2	Actions under Theme 2 to enhance natural capital may have indirect positive impacts on food such as fish, game and livestock and arable crops. It is considered that there would be neutral benefits on timber, as actions seek to promote strategic native woodland creation over the longer term, for the benefit of biodiversity.
			Theme 3	The provisioning services may not be supported in a commercial sense directly as a result of LBAP actions being implemented
	Timber	**0**	Theme 4	There is potential for tension between actions to protect and enhance biodiversity and provisioning services particularly for food, fibre and timber. Actions for biodiversity will be considered against the information contained within the LUS Pilot maps, in order to ensure multiple benefits are maximised whilst maintaining awareness of and reducing potential tensions.
	Fuel	**0**	Theme 5	Actions to improve land and freshwater management may have indirect positive effects on production of food, fibre and timber. The actions outlined in the LBAP are designed to be collaborative, bearing in mind the lessons of the LUS Pilot in terms of optimising land use as well as enhancing biodiversity, in order to minimise tensions between productive land use and biodiversity protection and enhancement. Therefore, it is reasonable to consider that there may be indirect positive benefits on provisioning services through these actions.
	Pharmaceuticals	**0**	Theme 6	Actions to enhance and marine and coastal ecosystems, through promoting healthy seas, may have indirect positive impacts on food production services, e.g. wild fish.
Cultural	**Employment**	✓	**Cultural Services**	
			Theme 1	Actions linked to ecosystem restoration aim to promote ecosystem health, with potential indirect benefits for employment sectors such as food and drink, tourism and provisioning services, though a healthy well-functioning ecosystems that add to the high quality natural environment of the region, as an attraction to tourists and visitors.
			Theme 2	It is possible that some of the actions within the LBAP, resources permitting, may directly relate to employment opportunities, for example in relation to projects to create new woodland across the region.
			Theme 3	Actions to establish a new walking route along the River Tweed, with the related promotional tasks and publicity that such an enterprise may involve, have potential for indirect positive benefits to employment in food and drink and tourism sectors.
			Theme 4	Actions to support wildlife may in some cases result in direct employment opportunities if posts are required and funded for their delivery. However, it is considered that indirect benefits are most likely, for the food and drink and tourism services, and in provisioning service production areas, through contributions of actions under this theme to protect and enhance biodiversity and ecosystem health.
			Theme 5	No direct benefits for cultural services in terms of employment are predicted through the implementation of actions under Theme 5, however promotion of land use that supports ecosystems holistically will contribute to ecosystem health, with benefits for provisioning services and ensuing indirect benefits for those working in their production.

			Theme 6	Whilst no direct benefits for cultural services in terms of employment are predicted through the implementation of actions under Theme 6, the promotion of healthy seas may have an indirect benefit on industries such as food and drink and recreation/tourism in a marine context.

Overview Commentary			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects?**	None predicted.	**Significant Positive Environmental Effects?** **Pollination**
	It is considered that there will be significant positive effects on pollination services, through the direct action as outlined in the LBAP. It is considered that there will be other positive effects on provisioning and cultural services, but these are likely to be less significant, as they are more indirectly enhanced by LBAP actions. Neutral effects are predicted on pharmaceuticals, fuel and timber provisioning services.		
Does the Plan address identified pressures on these ecosystem services?	The positive benefits of the LBAP on regulating, provisioning and cultural services will help to address pressures on reduction in pollinator habitat and encourage land use techniques that support biodiversity, as well as reduce pollution. The LBAP actions consider that support for provisioning services, is important not only for a high quality natural environment, but also for regional prosperity. In some ways, provisioning services in the commercial sense will not be directly supported, however the LBAP actions support sustainability of provisioning services, through healthy ecosystems, which will have beneficial impacts for the local economy.		
How does the Plan perform against SEA objectives?	The LBAP, in supporting the protection and enhancement of biodiversity and ecosystem services across the Scottish Borders, is directly aiming to protect and enhance natural assets of economic and recreational value, including tourism, food and drink, and in addition to support core paths, green networks and walks – with additional multiple benefits relating to improved habitats and enhancement of regulating services. It is considered that the LBAP meets all the outlined objectives in relation to this Topic. The LBAP includes actions that may indirectly lead to positive benefits for the employment sector, for example in relation to land management for food or timber production, or in relation to tourism. Whilst there may be some linked benefits for employment through the LBAP actions linked to the protection and enhancement of biodiversity and ecosystem services, it is considered that the scale and significance of this is likely to be low, in comparison to other opportunities linked, for example, to farming or forestry.		

SEA Topic		SEA Objectives	
Cultural Heritage		Help protect the character, quality and diversity of the Scottish Borders' landscape • Promote visits to enjoy cultural as well as natural heritage assets of the Scottish Borders	
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**
Cultural	**Sense of**	✓✓	**Cultural Services**

	place		Theme 1	LBAP actions under Theme 1 that promote healthy and connected ecosystems might reasonably be considered to have the potential to improve sense of place and aesthetic value services.
			Theme 2	The plan does not include specific references to cultural service benefits under Theme 2, which deals with enhancement of natural capital, however it is recognised that there are indirect benefits for cultural services through appreciation of a healthy and vibrant natural environment, which the LBAP seeks to support.
	Aesthetic values	✓✓	Theme 3	Under Theme 3, there are actions that encourage exploration of links between recreation, learning and greenspace, and the expansion on the Historic Land Use Value Project will explore links with greenspace and historic/contemporary land use to support health and wellbeing. Other actions such as adding to the community woodland and urban tree resource will link to improving and enhancing countryside around towns, with not just health benefits, but potentially benefits for the local economy, in terms of increasing the attractiveness and aesthetic value of the area for visitors and tourists.
			Theme 4	The Scottish Borders features notable species that are iconic to Scotland and important as charismatic species that people actively wish to protect, such as bird species and mammals. Whilst there are other less-known, but equally important species that the LBAP will seek to protect and support, the actions under Theme 4 to conserve wild species diversity and protect special and designated sites. The opportunity to be in nature and observe charismatic species benefits a sense of place and aesthetic value.
	Cultural heritage	✓✓	Theme 5	Theme 5 actions will assist in enhancing ecosystems at a landscape scale, indirectly benefiting cultural ecosystem services.
			Theme 6	Theme 6, relating to enhancement of the marine environment is likely to have positive benefits in relation to aesthetic value, sense of place, and cultural heritage, although these are not direct objectives for the Theme.

Overview Commentary			
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effect?**	None predicted.	**Significant Positive Environmental Effect?** **Sense of place** **Aesthetic values** **Cultural heritage**
	The LBAP is likely to have a significantly positive effect on cultural ecosystem services such as cultural heritage, aesthetic values and a sense of place, aiming to reconnect with nature and the land, improving understanding that will lead to greater appreciation of the complexity of our environment, ecosystems and the services they provide, and the importance of protecting and enhancing the biodiversity of the Scottish Borders, which also has benefits for the population through enhanced cultural ecosystem services. The assessment of impacts on cultural services is difficult since these are subjective concepts; however, there is scientific research that experience of nature can lead to health benefits in terms of mental health wellbeing, which can only be enhanced by people having a positive sense of place, a feeling of belonging and of being in touch with their cultural heritage, and an appreciation of the aesthetic value of the landscapes. The evidence from research undertaken by Scottish Borders Council in relation to why people		

	enjoy living in the Borders, suggests that a high quality natural environment and the history of the place are key factors – both of which LBAP actions will directly seek to enhance
Does the Plan address identified pressures on these ecosystem services?	Some of the pressures on cultural ecosystem services relate to the fact that they are difficult to quantify via financial metrics, therefore their validity and importance may be overlooked in terms of beneficial impacts on people and nature. The LBAP aims to highlight the links between health, recreation, greenspace, nature, ecosystems and cultural services, and in other areas, will seek to support actions that reduce pressures on cultural ecosystem services (for example through advice on biodiversity in relation to development planning, and through supporting sensitive and sustainable land management, for benefits to landscapes and nature).
How does the Plan perform against SEA objectives?	The LBAP actively seeks to help protect the character, quality and diversity of the Scottish Borders' landscape through its actions, linking this to appreciation of biodiversity and beneficial ecosystem services. It includes actions dedicated to the encouragement of an appreciation of cultural heritage, set in the context of greenspace and nature, which invites residents and visitors to consider the region at a landscape scale, and in the context of vital ecosystem services that are a part of the distinctive cultural heritage of the Scottish Borders.

SEA Topic		**SEA Objectives**		
Air		Help protect current air quality • Increase woodland creation to support high quality air in the Scottish Borders • Promote health and wellbeing benefits of biodiversity and encourage more walking and cycling		
Topic-Linked ES	**ES Sub-Type**	**Effect**	**Discussion of Anticipated Effect of Thematic Actions on Topic-Linked ES**	
Regulating	**Hazard**	✓	**Regulating Services**	
			Theme 1	Actions under Theme 1 includes the restoration of woodland ecosystems, including approaches to resting woodland in montane habitats and in riparian habitats, with indirect benefits for air quality as well as hazard regulation.
			Theme 2	The actions under Theme 2 of natural capital enhancements, encourage land managers and farmers to manage in ways that optimise ecosystems and the beneficial services they provide, with consideration of opportunities to have a positive impact on hazards such as flooding, as well as to reduce soil erosion and increase carbon capture, which may also have indirect benefits for the quality of our air.
			Theme 3	Actions under Theme 3 seek to encourage more active modes of transport and reduce reliance on private car journeys, and to promote awareness of the global footprint network to help encourage individual action that may help reduce impacts on our air quality
	Air quality	✓	Theme 4	Indirectly, Theme 4 actions will support and benefit regulating services, through actions which promote wildlife and habitat diversity and a healthy well-functioning ecological network.
			Theme 5	Under Theme 5, there are further actions to encourage native woodland creation. Planting of trees can be beneficial for improving air quality through removal of pollutants from the soil and in the air, and may contribute to carbon capture assets
			Theme 6	Theme 6 actions are not considered to have a direct link to regulating services linked to air.

Cultural	**Health benefits**	✓✓	**Cultural Services**	
			Theme 1	As above, restoration of ecosystems to support ecosystem health will have indirect benefits for human health, for example via woodland creation resulting in benefits to air quality.
			Theme 2	As above, enhancements of natural capital may lead to indirect human health benefits through enhancement of regulating services.
			Theme 3	Leading people to take responsibility for undertaking more active travel as outlined under regulating services will also have added health benefits. Actions under Theme 3 seek to encourage more active modes of transport and reduce reliance on private car journeys, and to promote awareness of the global footprint network to help encourage individual action that may help reduce impacts on our air quality, by leading people to take responsibility for undertaking more active travel. It is considered that the LBAP is one plan amongst other PPS (e.g. Local Development Plan) that can support improved air quality across the Scottish Borders and have a positive impact on reduced greenhouse gas emissions.
			Theme 4	There may be indirect benefits for health in relation to air through actions that seek to enhance a range of habitats such as Local Biodiversity Sites, and dissemination of good practice and news that raises awareness of the importance of healthy ecosystems for air quality – and human health.
			Theme 5	Woodland creation projects may result in indirect benefits for human health related to air quality.
			Theme 6	Theme 6 actions are not considered to have a direct link to cultural services linked to air

Overview Commentary				
What significant effects will this Plan have on the identified ecosystem services in the Scottish Borders?	**Significant Negative Environmental Effects**	None predicted.	**Significant Positive Environmental Effects**	**Health benefits**
	It is considered that the LBAP actions will lead to positive effects on air quality and hazard regulation, however it is not considered that these may be significant, as concerted effort is needed across the region to fully address issues around air quality and regulation of hazards that put pressure on our air quality. However, it is considered that the plan offers the opportunity for significant positive effects on health benefits and cultural ecosystem services, through promotion of activity in nature that will benefit wellbeing.			
Does the Plan address identified pressures on these ecosystem services?	Pressures include impacts from traffic emissions. In the Scottish Borders, traffic volumes are increasing, therefore this plan directly attempts to address these pressures through promotion of active travel, with a focus on promoting reduced car use and more cycling and walking, as well as actions that include strategic woodland creation, with multiple benefits as a result of strengthened ecosystems, including support for ecosystem services that help to regulate air quality.			
How does the Plan perform against SEA objectives?	It is considered that the LBAP meets the objectives and sub-objectives for this topic, including increase in woodland creation that will support quality air across the region, and promotion of the health and wellbeing benefits of being active in nature, gaining appreciation of biodiversity and the ecosystems that both support our wellbeing and can be supported by our lifestyle choices, helping to improve our environment.			

OVERALL PREDICTED EFFECTS OF PREFERRED OPTION ON ECOSYSTEM SERVICES WITHIN THE SCOTTISH BORDERS										
Ecosystem Service: Supporting										
Nutrient Cycling		Primary Production		Water Cycling		Soil Formation				
✓		✓		✓		✓				
Ecosystem Service: Regulating										
Hazard	Air Quality	Pollination	Climate	Carbon Storage	Noise	Coastal Defence	Pollution	Water	Soil Quality	Disease & Pest (INNS)
✓	✓	✓✓	✓✓	✓✓	✓	0	✓✓	✓✓	✓✓	✓✓
Ecosystem Service: Provisioning										
Wildlife Diversity		Trees, Vegetation, Peat	Fresh Water Supply	Food		Timber	Fibre	Fuel		Pharmaceuticals
✓✓		✓✓	✓	✓		0	✓	0		0
Ecosystem Service: Cultural										
Sense of Place		Health Benefits	Aesthetic Value			Cultural Heritage		Employment		Education
✓✓		✓✓	✓✓			✓✓		✓		✓

Mitigation Required	Enhancement Opportunities
• Care will be taken to encourage responsible access to the countryside to avoid increased visitor impacts in terms of recreational disturbance, erosion or other impacts on ecosystem services, through awareness raising as well as promotion of health benefits. • Potential tensions between farmland restoration and other provisioning services will be resolved through application of information gathered during the LUS Pilot mapping process, which identifies areas of mutual benefit for land use and seeks to avoid negative impacts, or seek to reduce their impact.	• Consider whether to include actions that may directly or indirectly support coastal erosion prevention under Theme 6 • Consider potential actions to enhance carbon storage potential in the marine environment

Appendix E: Important Habitats of the Scottish Borders

This appendix summarises information from existing Habitat Action Plans (HAPs) for priority habitats in the Scottish Borders. It is updated with details of the Scottish Biodiversity List species present in each habitat, and with land cover estimates from the Tweed Aerial Survey Phase 2[i]. Land cover totals include habitats that were mapped as part of the aerial survey, but not originally included in HAPs (e.g. Gorse Scrub under Grassland/Enclosed Farmland). The new LBAP adopts an ecosystems approach and aims to deliver action at a landscape scale; therefore, all habitats in the Scottish Borders have been considered during action planning for biodiversity.
The original HAPs continue to provide useful background information and can be downloaded at:
https://www.scotborders.gov.uk/downloads/download/423/habitat_action_plans.

***NVC – National Vegetation Classification** **Species on Scottish Biodiversity List**

WETLAND HABITATS

Fens, marsh, swamp & reedbed (Including Flush & Lowland Fen) **(17582ha / 4.73% of Scottish Borders Land Cover)[10]**

- These habitats include vegetation that is ground water fed, and occur on permanently, seasonally or periodically waterlogged peat, peaty or mineral soils where grasses do not predominate.
- They also include emergent vegetation or frequently inundated vegetation occurring over peat or mineral soils

Associated NVC* Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
M25 *Molinia caerula-Potentilla erecta*mire S4 *Phragmites australis* swamp and reedbeds S9 *Carex 116quatic116* swamp W1 *Salix cinerea-Galium palustre* woodland Other fen, marsh, swamp and reedbed NVC Communities found in Scottish Borders include: M4, M6, M7, M8, M9, M10, M13, M23, M26, M27, M32, S3, S5, S7, S8, S10, S11, S25, S26, S27, S28, W2, W3, W4, W5	**Mammals:** **Otter *Lutra lutra*** **Birds:** **Reed bunting *Emberiza schoeniclus;* Grasshopper warbler *Locustella naevia*** **Invertebrates:** a **reed beetle *Donacia aquatic***, and a large number of red data and nationally notable beetles Cranefly, hoverfly and moths **Plants:** Greater tussock sedge *Carex paniculata;* Alpine rush *Juncus alpinus;* Tall bog sedge *Carex magellanica;* Cowbane *Cicuta virosa;* Coralroot orchid *Corallorhiza trifida;* Holygrass *Hierochloe odorata;* Narrow small reed *Calamagrostis stricta*	• Drainage • Nutrient enrichment & diffuse pollution Inappropriate or lack of management • Habitat loss and fragmentation • Grazing and poaching • Natural succession

Blanket Bog **(25393ha / 5.36% of Scottish Borders Land Cover)[i]**

- Blanket bog applies only to that portion of a blanket 'mire' which is exclusively rain-fed, mainly the watershed summits of upland areas. However, these areas are generally part of a landscape scale complex of peat-based habitat types (blanket mire) fed also by ground waters.
- Areas of blanket bog supporting semi-natural blanket bog vegetation, may be defined as 'active' i.e. still peat forming or exclusively rain-fed.
- Blanket bog occurs over 23% of the land area in Scotland, which represents a significant amount of the European and world resource.
- In addition to supporting biodiversity peatland and blanket bogs perform vital roles within our environment, include flood management, carbon storage, and water supply.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures

[10] Scottish Borders Council & Tweed Forum Consortium (2010) *Tweed Aerial Survey Phase 2: Aerial Photography Interpretation Land Cover Classification & Habitat Mapping.* Produced by Environment Systems.

M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire M19 *Calluna vulgaris-Eriophorum vaginatum* mire M20 *Eriophorum* mire M25 *Molinia caerulea-Potentilla erecta* mire	**Birds:** **Golden plover *Pluvilais apricaria;* Dunlin *Calidris alpine*** **Plants:** Golden bog-moss *Sphagnum pulchrum;* Rugged collar-moss *Sphagnum vasculosum;* Bog bilberry *Vaccinum uliginosum;* Cloudberry *Rubus chamaemorus;* Slender Green Feather Moss *Hamatocaulis vernicosus* **Invertebrates:** A ground beetle *Carabus nitens;* Marsh oblique-barred *Hypenodes humidialis;* **Swamp lookout spider *Notioscopus sarcinatus***	• Overgrazing • Fragmentation/isolation • Afforestation • Inappropriate burning • Drainage • Erosion • Recreation • Wind farms • Access tracks • Climate change • Peat cutting

Lowland Raised Bog (409ha / 0.09% of Scottish Borders Land Cover)[i]

- These habitats are typically isolated domes of peat in an otherwise non-peat landscape.
- Lowland Raised Bogs occur below an altitude of 300 metres. This differentiates them from blanket bog, which occurs in the uplands.
- Bogs that share characteristics of raised and blanket bogs do occur in the uplands and are termed "intermediate" bogs. They are considered within the blanket bog habitat type.
- The surface of a "natural" lowland raised bog is waterlogged, acidic and low in plant nutrients. This supports a range of specialised plant assemblages dominated by mosses of the genus *Sphagnum* that are able to store large amounts of water. The surface of a healthy bog is a mosaic of pools, hummocks and Sphagnum 'lawns'.
- The wet and acidic conditions slow down the decomposition process and allows peat to accumulate. When a raised bog functions naturally it accumulates peat and is said to be active. If undamaged, it is described as unmodified. If damage has stopped the bog functioning naturally it is said to be inactive and modified.
- Around 94% of the raised bogs in Britain have been destroyed since the beginning of the 19th century. Of those remaining only a small percentage are active and unmodified
- The main threats to the remaining lowland raised bogs in Scottish Borders are internal and peripheral drainage and tree colonisation.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
M1 *Sphagnum auriculatum* M2 *Sphagnum cuspidatum / recurvum* M3 *Eriophorum angustifolium* (Bog pool communities) M18 *Erica tetralix – Sphagnum papillosum* raised and blanket mire.	**Fungi:** **A lichen *Absconditella sphagnorum;*** **Plants:** Slender cow-horn bog moss *Sphagnum subsecundum;* Coralroot orchid *Corallorhiza trifida;* Cranberry *Vaccinium oxycoccos;* **Invertebrates:** **A water-beetle *Cyphon kongsbergensis*; Dark-bordered beauty *Epione vespertaria*; Large Heath Butterfly *Coenonympha tullia*** **Reptiles:** **Adder *Vipera berus***	• Landfill development that utilises bogs where peat extraction has occurred • Afforestation and associated drainage • Drainage for agriculture and water abstraction • Air pollution • Nutrient enrichment from catchment, livestock and game management (draingage, trampling, burning and enrichment from feed/droppings) • Land reclamation for development • Climate Change

Standing Open Water (1576ha / 0.34% of Scottish Borders Land Cover)[i]

- This habitat type includes natural systems and man-made waters such as reservoirs, canals, ponds and gravel pits. It includes the open water zone which may contain submerged, free floating or floating-leaved vegetation, and water fringe vegetation. It also includes adjacent wetland habitats with contiguous water levels that are

less than 0.25ha.

- Ponds are defined as standing open water bodies of <2ha size.
- Ditches with open water for at least the majority of the year should also be included in this type.
- Small areas of open water in a predominantly terrestrial habitat such as bog pools or temporary pools on heaths should be included in the appropriate terrestrial broad habitat type
- The Scottish Borders contains a wide variety of standing open waters from the large natural lochs and water supply reservoirs characteristic of the west and south of the area to the networks of small ponds and fishing pools scattered throughout the Borders region.
- These bodies of water have many uses ranging from fire ponds, cattle drinking, potable water, sailing, angling to aesthetic.
- Standing open water is a relatively rare habitat in the Scottish Borders, particularly in the eastern part of the region.
- Many of the larger bodies of water are either completely artificial or have been modified to allow control of water levels.
- Marl lochs are notable in the Scottish Borders, which are base rich through the gradual accumulation of minerals over a long period of time. These include a rare example of a deep, glacially excavated loch in the south of Scotland, and several glacially relict networks of ponds and small pools.
- The habitat is characterised by a large diversity of morphological and trophic types of standing open water, for example:
  - Eutrophic: *High levels of plant nutrients and turbidity caused by high plankton levels. Coarse fish are generally dominant. In a natural state high levels of biodiversity are supported. Often important wildfowl sites. (Scottish Borders examples include Yetholm Loch SSSI, Hoselaw Loch SSSI/RAMSAR, Coldingham Loch).*
  - Mesotrophic: *High biodiversity, characteristic ecology, intermediate nutrient status. Can become important marl lochs important in a local/national context, where geology provides a source of basic chemicals (e.g. lime). (Scottish Borders examples include Faldonside Loch, Megget and Talla reservoirs, Branxholme Easter and Wester Lochs, St Mary's Loch/Loch of the Lowes).*
  - Oligotrophic: *Low levels of plant nutrients, clear water, sparse plankton. Salmonid fish generally dominant. (Scottish Borders examples include Cauldshiels Loch, Portmore Loch, Stantling Craig reservoir)*
  - Dystrophic: *Highly acidic, brown-stained water due to peat drainage, low productivity. (In the Scottish Borders, includes Gameshope Loch)*

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
Not applicable	**Plants:** Several Stonewort species: *Chara spp.; Nitella spp.;* Clustered Stonewort *Tolypella glomerata* Several Pincerwort species: ***Cephalozia spp.*** **Fragile frillwort *Fossombronia fimbriata*** Slender Smoothcap *Atrichum tenellum* Several moss species: *Ephemerum serratum serratum; Cinclidium stygium; Pseudobryum cinclidioides; Drepanocladus vernicosus;* Northern Yellow-cress *Rorippa islandica sens. Str.* Cowbane *Cicuta virosa* Pondweed species: **Potamogeton spp.** **Amphibians:** *Rana temporaria;* ***Triturus cristatus****; Triturus vulgaris; Triturus helveticus; Bufo bufo* **Invertebrates:** including mud beetles, rove beetles, weevils, cranefly, hoverfly **Fish: Arctic Charr *Salvelinus alpinus*; Eel *Anguilla Anguilla*** **Birds: Slavonian grebe *Podiceps auritus;* Black-necked grebe *Podiceps nigricollis***	• Hydrological alteration • Diffuse pollution • Invasive Non-Native Species (INNS) • Introduced (native) fish • Climate change • Habitat fragmentation
Rivers and Burns		**(1950ha / 0.42% of Scottish Borders Land Cover)**[i]

- Rivers and burns are by nature dynamic systems. Associated features include shingle beds and sand bars as well as marginal and bankside vegetation.

- The River Tweed is classed as a "Lowland Eutrophic" or nutrient rich river and is a rare example of this type. It shows the full characteristic range of flow patterns from relatively turbulent sections to more sluggish, meandering sections and reaches of alternating deep pools and shallow riffles. This, coupled with a range of water chemistry, offers a wide diversity of river habitats for wildlife.
- Under the Habitats Directive, the Tweed and a number of its tributaries have been designated a Special Area of Conservation (SAC) in recognition of their importance for Atlantic salmon, brook, river and sea lamprey, otter and water crowfoot (*Ranunculus*) populations.
- As a result of its distinctive water chemistry, the Tweed system is notable for its diversity of invertebrate species. A number of the invertebrate species found in the area are rare both in European and Scottish terms, For example, IUCN (World Conservation Union) red-list dipteran fly and beetle populations occur in exposed sediments throughout the catchment and in the upper catchment, the Northhope Burn supports a population of rare aquatic beetles.
- The distinctive water chemistry of the Tweed system also produces a range of plant communities different from that found in other larger rivers in Eastern Scotland and North eastern England. The area also represents the edge of UK distribution for a number of plants including species of Water Crowfoots and Horned Pond Weed.
- The Tweed system now represents approximately 15% of all the spawning water available to salmon in Scotland with the Ettrick Water being an important spawning area for spring salmon. The Eden in its upper reaches supports a naturally isolated trout population while in its lower reaches it has notable eel and lamprey populations.
- Otters have a healthy and expanding population on the lower and middle Tweed and their presence is the subject of ongoing research into their distribution and breeding habits

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
A17 *Ranunculus penicillatus spp. Pseudofluitans*	**Fungi:** **River Jelly Lichen *Collema dichotomum*; Ear-lobed Dog-lichen *Peltigera leucophlebia;*** Water Rock-bristle *Seligeria carniolica* **Plants:** **Yellowish Fork-moss *Dichodontium flavescens***; Beck Pocket-moss *Fissidens rufulus;* Short Pottia *Hennediella macrophylla;* **Water Grimmia *Schistidium agassizii;* Spruce's Bristle-moss *Orthotrichum sprucei;* Twist-tip Feather-moss *Eurhynchium schleicheri;*** Kelso Water-Crowfoot *Ranunculus x kelchoensis;* Globe-Flower *Trollius europaeus;* Great Water-Parsnip *Sium latifolium;* Lesser Water-Parsnip *Berula erecta;* Green Figwort *Scrophularia umbrosa;* Northern Spike-Rush *Eleocharis austriaca* **Fish:** **Sea Lamprey *Petromyzon marinus;* River Lamprey *Lampetra fluviatilis;* Brook Lamprey *Lampetra planeri;* Allis Shad *Alosa alosa;* Atlantic Salmon *Salmo salar;* Sea Trout *Salmo trutta;*** Grayling *Thymallus thymallus* **Birds**: Oystercatcher *Haematopus ostralegus;* Redshank *Tringa tetanus;* Kingfisher *Alcedo atthis;* Sand Martin *Riparia riparia;* Dipper *Cinclus cinclus;* Reed Bunting *Emberiza schoeniclus* **Mammals:** Water Vole *Arvicola terrestris*; **Otter *Lutra lutra;*** Daubenton's bat *Myotis daubentonii* **Invertebrates:** An extensive list, including important river and shingle beetles and flies, notable caddis fly / mayfly species.	• Diffuse pollution • Engineering and drainage operations • INNS • Climate change • Bankside management • Development • Abstraction • Genetic integrity

WOODLAND HABITATS

Productive Woodland (Including Coniferous & Broadleaved Plantation; Felled Woodland; Mixed Woodland) **(67530ha / 14.14% of Scottish Borders Land Cover)**[i]

- This type of woodland includes all coniferous stands where broadleaved trees make up less than 20% cover with the exception of yew woodlands.
- Areas of recently felled coniferous woodland are also included in this type, along with other integral features of woodland such as glades and rides.
- Coniferous woodland also includes shelter belts and small farm woodland plots. A large proportion of coniferous woodlands are located in the uplands in the south west of the Borders.
- The priority areas for red squirrel in Scottish Borders are all large scale coniferous plantations in the south-west of the region.

- Areas of important wetlands, grasslands and upland heath remain within some of the coniferous plantations.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
Not applicable	**Mammals:** **Red squirrel *Sciurus vulgaris*; Pine marten *Martes martes*** **Birds:** Goshawk *Accipiter gentilis;* Goldcrest *Regulus regulus;* **Tree pipit *Anthus trivialis*;** Redpoll *Carduelis flammea* **Plants:** **Twinflower *Linnaea borealis;* Creeping ladies tresses *Goodyera repens*** **Invertebrates:** Several nationally notable beetles; a red data pyralid moth; a nationally notable hoverfly; a money spider.	• Ongoing forestry management • Lack of investment • Siting of wind farms • Herbivore control (deer & grey squirrel) • Lack of certification / sustainable management in private forestry • Priority areas for red squirrel and control of greys • Management and ownership of FCS estate • Restoration of priority wetland habitats within forests • Management for black grouse • Restructuring • Grazing by goats

Native Woodland (including Native Wet Woodland) **(1111ha / 0.24% of Scottish Borders Land Cover)**[i]

- Native woodlands are defined as 'woodlands composed wholly or largely of the tree species which occur naturally in the Scottish Borders; including both woodlands with a continuous history of natural regeneration and those where either the current or a previous generation of trees has been planted within their natural range'.
- Throughout Great Britain there has been a gradual decline in the remaining native woodland, with a reduction of approximately 30 - 40% over the last 60 years. The issues causing decline are outlined below. Declines extend to ground flora and fauna, as well as the ability to regenerate young trees.
- The Scottish Borders possesses one of the lowest percentages of native woodland compared to total land area of any Scottish region. However, there are opportunities for improved management of the existing native woodlands, and for native woodland expansion.
- Native woodlands have been classified into several categories: Ancient Woodland (present on maps pre-1750); Long-established woodland (present on maps pre 1850); Semi-natural woodland (established through self-seeding).
- Semi-natural woodland in the Borders is sparse and totals approximately 6,790ha. Berwickshire contains the largest hectarage of ancient and semi-natural woodland with 298ha (0.4% of land area), Ettrick and Lauderdale contain 225ha (0.2% of land area), Roxburgh has 180ha (0.1%of land area) and Tweeddale has only 35ha (<0.1% of land area) (Walker & Badenoch 1988, 1989 and 1991).
- The Planted Ancient Woodland Site (PAWS) component consists of 0.3% (1,355ha) of the land area. The broader definition of the native woodland framework which includes ancient, long established and semi-natural and high native component of the Scottish Semi-Natural Woodland Inventory (SSNWI) covers 1.4% of the land area (6,790ha) (Ray et al. 2003).
- The Borders has many small remnant woodlands, many of which have been visited by woodland surveyors and a few of which are safeguarded by Scottish Natural Heritage as Sites of Special Scientific Interest (SSSI) and registered as Scottish Wildlife Trust Wildlife Sites.
- The UK Biodiversity Action Plan (UKBAP) details six different native woodland types as priority habitats, five of which are represented in the Borders. These are: upland oakwoods; upland ashwoods; wet woodlands; upland birchwoods; lowland mixed deciduous woodland.
- However, few remnants of Borders native woodland can be 'fitted' in to a particular native woodland type; either because the woodlands have been heavily grazed and only the tree species remain, or because remnant ground flora remains beneath an overstorey of trees containing non-native species, such as beech and sycamore.
- Much of the native woodland of the Borders woodland is characterised by its small size and fragmented nature, with few significant ancient semi-natural woodlands

and with large distances between the woodland fragments. The majority of these woodlands are long and thin, and as a result of exposure to the influence of 'drying' winds, are not as humid and shady as less linear native woodlands. This lack of woodland conditions e.g. humidity and shade, means that the range of woodland plant and animal diversity in many Borders native woods is low.

- Although scattered, small and often poor in numbers of plants and animals, native woodlands in the Borders are significant in nature conservation value. The most apparent features of this conservation value can often be seen in the ground flora.
- Some of our native woods are rich in dead wood and associated fauna and flora - a few are known to have internationally important populations of fungi and invertebrates that make a living from feeding on dead wood.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
W7 *Alnus glutinosa- Fraxinus excelsior- Lysimachia nemorum,* W9 *Fraxinus excelsior – Sorbus aucuparia- Oxalis acetosella* woodland W11 *Quercus petraea – Betula pubescens- Oxalis acetosella*	**Lichens:** a lichen *Cyphelium inquinans* **Bryophytes:** **Fragile frillwort *Fossombronia fimbriata*** **Plants:** Ash *Fraxinus excelsior;* Hard Shield Fern *Polystichum aculeatum;* Yellow Star-of-Bethlehem *Gagea lutea;* Rock Whitebeam *Sorbus rupicola;* Lesser Hairy-brome *Bromopsis benekenii;* Sessile oak *Quercus petraea;* Common cow-wheat *Melampyrum pratense;* Common figwort *Scrophularia nodosa;* False brome *Brachypodium sylvaticum;* Alder *Alnus glutinosa;* Bay willow *Salix pentandra;* Wood stitchwort *Stellaria nemorum;* Coral-root Orchid *Corallorhiza trifida;* Greater Tussock-sedge *Carex paniculata*; **Chickweed wintergreen *Urocystis trientalis;*** Green figwort *Scrophularia umbrosa;* Herb Paris *Paris quadrifolia;* **Juniper *Juniperus communis;* Twinflower *Linnaea borealis***; Tea-leaved willow *Salix phylicifolia;* Downy birch *Betula pubescens;* Silver birch *Betula pendula;* Rowan *Sorbus aucuparia;* Wood anemone *anemone nemorosa;* Slender St John's-wort *Hypericum pulchrum;* Greater stitchwort *Stellaria holostea;* Pendunculate oak *Quercus robur;* Primrose *Primula vulgaris;* Tufted hair-grass *Seschampsia cespitosa;* Wavy hair-grass *Deschampsia flexuosa* **Mammals:** **Invertebrates:** **Dark bordered beauty *Epione paralellaria;*** a sawfly *Nematus monticola* **Birds:** Redstart *Phoenicurus phoenicurus; Pied flycatcher Ficedula hypoleuca* **Black grouse *Tetrao tetrix***; Jay *Garrullus glandarius;* **Wood warbler *Phylloscopus sibilatrix;* Spotted flycatcher *Muscicapa striata;* Tree sparrow *Passer montanus;* Bullfinch *Pyrrhula pyrrhula;* Kingfisher *Alcedo atthis***; **Willow Tit *Poecile montanus;*** Redpoll *Carduelis flammea*	• Historical loss of woodlands • Loss of traditional management • "Coniferisation" • Overgrazing • Inappropriate burning • Agricultural intensification • Habitat fragmentation • Invasive non-native species • Climate change

Upland Cleuch and Scrub Woodland (126ha / 0.03% of Scottish Borders Land Cover)[i]

- This habitat includes juniper scrub, upland montane dwarf-shrub communities (Krummholz) and upland birchwoods.
- This latter community may be dominated by stands of downy birch, and/or silver birch with consitutents such as rowan, willow, juniper and aspen.
- On more acidic soils, rowan is a prominent component. It includes areas of hill marginal ground containing hawthorn, blackthorn or gorse stands.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures

W7 *Alnus glutinosa-Fraxinus excelsior-Lysimachia* woodland W9 *Fraxinus excelsior-Sorbus aucuparia-Mercurialis perennis* woodland W11 *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland W19 *Juniperus communis-Oxalis acetosella* woodland W20 *Salix lapponum-Luzula sylvatica* scrub W23 *Ulex europeaus-Rubus fruticosus* scrub	**Birds: Ring ouzel *Turdus torquatus*** **Plants: Juniper *Juniperus communis;*** a lady's mantle *Alchemilla wichurae;* Globeflower *Trollius europaeus;* Pale forget-me-not *Mysotis brevifolia;* **Chickweed wintergreen *Urocystis trientalis*;** Mountain melic *Melica nutans;* Green spleenwort *Asplenium viridis;* Hairy stonecrop *sedum villosum;* Wilson's filmy-fern *Hymenophyllum wilsonii*; Saxifrages; nationally scarce mosses	• Over/undergrazing • Scrub clearance • Excessive burning • Inappropriate planting including afforestation • Lack of information • Illegal collecting of rare plants • Inappropriate bracken spraying

Wood Pasture and Parkland **(1812ha / 0.39% of Scottish Borders Land Cover)**[i]

- Lowland wood-pastures and parkland are the products of historic land management systems and represent a vegetation structure rather than being a particular plant community.
- Typically this structure consists of large, open-grown or high forest trees (often pollards) at various densities, in a matrix of grazed grassland, heathland and/ or woodland floras.
- Veteran trees may be a feature of this habitat and may date from medieval forests and parks and old commons.
- Policy woodlands and designed landscapes are included in this habitat.
- The Borders holds some important wood pasture sites that can be identified as existing at the time of the 1st edition Ordnance Survey maps (1850).

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
W10 *Quercus robur-Pteridium aquilinim- Rubus fruticosus* woodland W16 *Quercus spp-Betula spp-Deschampsia flexuosa* woodland.	**Mammals: Common pipistrelle *Pipistrellus pipistrellus;* Brown long-eared bat *Plecotus auritus*** **Birds: Song thrush *Turdos philomelos;* Spotted flycatcher *Muscicapa striata*; Tree sparrow *Passer montanus;*** Green woodpecker *Picus viridis* **Plants: Northern hawk's-beard *Crepis mollis*** **Invertebrates:** Several nationally scarce and UKBAP priority beetles – e.g. lesser stag and rhinoceros beetles **Fungi:** lichens e.g. *Calaplaca luteoalba;* **Sap-groove Lichen *Bacidia incompta*** • Loss of and lack of protection for veteran trees • Lack of pollarding • Fragmentation of habitat • Over/undergrazing • Agricultural improvements • Removal of deadwood • Lack of long-term replacement • Importance as a landscape feature.

UPLAND AND LOWLAND HABITATS

Upland Heathland (including Mosaic Habitats with Upland Heath) **(54620ha / 11.53% of Scottish Borders Land Cover)**[i]

- Heathland vegetation occurs widely on mineral soils and thin peats (<0.5 m deep) throughout the uplands and moorlands of the UK.
- It is characterised by the presence of dwarf shrubs at a cover of at least 25%.
- It is typically dominated by a range of dwarf shrubs such as heather *Calluna vulgaris* bilberry *Vaccinium myrtillus*, crowberry *Empetrum nigrum*, and bell heather *Erica cinerea*.
- Blanket bog is distinguished from heathland by its occurrence on deep peat (>0.5 m).

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
H12 *Calluna vulgaris-Vaccinium myrtillis* heath H18 *Vaccinium myrtillus-Deschampsia flexuosa* heath M16 *Erica tetralix-Sphagnum compactum* wet heath And: H4, H8, H9, H10, H15, H16, H21	**Birds:** **Black grouse *Tetrao tetrix;*** **Hen harrier *Circus cyaneus;*** **Twite *Carduelis flavirostris*** **Reptiles:** **Adder *Vipera berus*** **Plants:** **Sword-grass *Xylena exsoleta;*** Heath dog-violet *Viola canina*; Bog bilberry *Vaccinium uliginosum;* **Chickweed wintergreen *Urocystis trientalis*** **Invertebrates:** Nationally notable moths and ground beetles; mountain bumblebee *Bombus Monticola*	• Overgrazing • Undergrazing (bracken and purple moor grass) • Inappropriate muirburn • Increased predation • Persecution of key species • Climate change • Agri-environment/forestry schemes

Grasslands and Enclosed Farmland (Including Acid/Calcareous/Neutral Grassland/Semi-Improved Grassland; Arable Field; Arable Field Margin; Purple Moor Grass and Rush Pasture; Scrub/Gorse Scrub; Bracken/Scattered Bracken) **(146221ha / 30.85% of Scottish Borders Land Cover – plus 5377.70km of hedgerow)**[i]

- This is the dominant habitat type of the Scottish Borders. Around 85% of the land is agricultural and a diverse range of habitats exist within this farmed landscape.
- Grasslands of highest biodiversity value tend to be areas of long established pasture, which have been managed traditionally for generations with low levels of input.
- With changing agricultural practices and intensification, up to 95% of the UK's species rich meadows have been lost since World War II. The estimated area of unimproved, species rich grasslands in the Borders, is less than 2,000ha.
- Though it is possible to create wildflower grasslands under agri-environment schemes, these grasslands are not readily recolonised by rarer plants and insects because of habitat isolation and fragmentation. Created grasslands may also pose a threat to the genetic integrity of the remaining natural grasslands as there is no requirement to use seed of local provenance.
- Therefore it is important to retain old unimproved grasslands and to continue their traditional management such as controlled grazing or mowing in late summer.
- Unimproved grasslands occurring in Scottish Borders can be broken down into four broad types; acid grassland, purple moor grass and rush pasture, unimproved neutral grassland and calcareous grassland, which conform to UK Biodiversity Action Plan priority habitat types.
- It is estimated that 10% of the known species-rich hedgerows occur in Scottish Borders. Other grassland boundary features include dykes, grass margins, beetle banks, shelter belts, field corner plantings, and water margins.
- Modern, intensive farming practices, particularly in the arable areas of the east e.g. the Merse, have led to loss of such boundary features and their intrinsic biodiversity value as corridors and networks for wildlife, as well as their ability to act as seed banks.
- Ironically, sympathetic management can positively impact agriculture. For example, beetlebanks provide habitat for predatory insects, reducing the need for pesticides. Game birds can seek cover in grassland margins and corner plantings.
- Much of the acid grassland in Scottish Borders occurs on Silurian siltstones and shales and Devonian sandstones and lavas and on superficial deposits such as sands and gravels – geological features that are generally acid to neutral in composition. Due generally to high levels of rainfall, soils readily leach to form an acidic substrate. Large expanses occur in the uplands.
- Acid grassland is often the result of poor management of other priority habitats such as upland heath and may be of low biological interest. However, locally base rich deposits occur, which give rise to calcareous soils and flushes which are more species rich. It is an important component of birds such as curlew and golden plover.
- Purple moor grass and rush pasture occur in the wettest areas of hill ground, usually on acidic soils on flatter tops and less steep slopes of western hills, in areas of highest rainfall. It is particularly localised around the headwaters of the Yarrow, Ewes Water and Upper Tweed.
- The vegetation types associated with this habitat can form diverse mosaics of wet grasslands, dry grasslands, and, in the Scottish Borders, upland heath.
- The mosaic of vegetation types associated with this habitat and the often very wet nature of the sites provide rich feeding and breeding areas particularly for insects. These insects in turn form the basis of an important food supply for chicks of several of our upland bird species such as black grouse, snipe and curlew.

- Purple moor grass is particularly susceptible to over-grazing. Rush pasture, because it occurs on lower lying slopes and semi-improved enclosed agricultural land, can be at risk from reclamation work such as drainage, ploughing, liming and reseeding.
- Unimproved or species rich grasslands are those that are unaffected by agricultural improvement (extensive fertiliser use and reseeding).
- These grasslands are mainly managed as traditional hay meadows or areas of permanent pasture and occur throughout the Borders on a variety of rock types; from the sea cliffs of Berwickshire, through the basin mires and rocky knolls of the central Borders, to the hill slopes of Tweeddale. Such sites can contain high proportions of native wild flowers and grass species.
- Most neutral grasslands (meadows) survive as isolated habitat fragments often enclosed by linear field margins or woodlands. In the uplands they can be bounded by drystone dykes or occur on the lower slopes of unimproved hill ground. They provide feeding areas for moorland birds in the summer and support woodland edge species.
- Calcareous grasslands occur where underlying rock types are base rich. Most commonly these are found on Silurian greywacke rocks in the uplands. locally however, rocks rich in lime can outcrop almost anywhere and that is where small pockets of this grassland type can be found.
- Calcareous grasslands in the Borders are generally found on steep, south facing slopes with thin soils and basic rocks. Very small areas now remain in the Borders and are of high nature conservation interest.

Associated NVC Communities*	Species of Conservation Concern (SoCC)	Issues / Pressures
U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland U2 *Deschampsia flexousa* grassland U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland M25 *Molinia caerulea- Potentilla erecta* mire M26 *Molinia caerulea-Crepis paludosa* mire MG1 *Arrhenatherum elatius* grassland *MG3 Anthoxanthum oderatum-Geranium sylvaticum* grassland MG5 *Centaurea nigra- Cynosurus cristatus* grassland. CG2 *Festuca ovina- Avenula pratensis* grassland CG7 *Festuca ovina-Hieracium pilosella-Thymus praecox* grassland CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland.	**Plants:** Mat grass *Nardus stricta*; Common bent *Agrostis capillaris;* Stiff sedge *Carex bigelowii*; Butterwort *Pinguicula vulgaris*; Purple moor grass *Molinia caerulea;* Wavy hair grass *Deschampsia flexuosa;* Viviparous fescue *Festuca vivipara;* Jointed rush *Juncus articulates;* Soft rush *Juncus effuses*; Bell heather *Erica cinerea;* Crested hair grass *Koeleria macanthra*; Soft brome *Bromus hordeaceus*; **Annual knawel *Scleranthus annus***; Maiden pink *Dianthus deltoids*; Rock rose *Helianthemum chamaecistus*; Kidney vetch *Anthyllis vulneraria;* Autumn gentian *Gentianella amarelle;* Crested dogstail *Cynosurus cristatus*; Quaking grass *Briza media;* Harebell *Campanula rotundifolia;* Thyme *Thymus polytrichus*; Yarrow *Achillea millefolium*; Yellow rattle *Rhinanthus minor;* Meadow cranesbill *Geranium pratense;* Hawthorn *Crataegus monogyna*; Blackthorn *Prunus spinose*; Ash *Fraxinus excelsior;* Purple ramping fumitory *Fumaria purpurea*; **Wild pansy *Viola tricolor***; **Charlock *Sinapis arvensis*.** **Birds: Short eared owl *Asio flammeus;* Golden plover *Pluvialis apricaria;* Curlew *Numenius arquata***; Snipe *Gallinago gallinago;* **Barn owl *Tyto alba;* Grey partridge *Perdix perdix***; **Tree sparrow *Passer montanus*** **Invertebrates:** Common hawker dragonfly *Aeshna juncea;* Emperor moth *Saturnia pavonia*; Northern brown argus *Aricia Artaxerxes*; Common blue butterfly *Polyommatus Icarus;* Yellow meadow ant *Lasius fiavus* **Mammals: Brown hare *Lepus europaeus***	• Inappropriate grazing • Afforestation – including native woodland • Abandonment • Fertilising, ploughing and reseeding • Increased slurry use • Silage (rather than hay) cropping • Agricultural intensification • In-filling of gullies or quarrying • Lack of information on distribution and condition of habitats • Lack of awareness of grassland habitat value

Montane (141ha / 0.03% of Scottish Borders Land Cover)[i]

- This habitat lies above the natural tree line (above 600m) and nationally includes montane heath and snow bed communities that are dominated by stiff sedge and three leaved rush, and dwarf forb communities of alpine lady's mantle, moss campion, Sibbaldia and saxifrage species.
- It also includes moss and lichen dominated heaths of mountain summits.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
W20 *Downy willow Salix lapponum-greater woodrush Luzula sylvatica* And: U7, U10, U14, U17, U23, H14, H20, cG12	**Mammals:** **Mountain hare *Lepus timidus*** **Birds:** **Golden eagle *Aquila chrysaetos;*** **Dotterel *Charadrius morinellus***; Raven *Corvus corax;* **Ring ouzel *Turdus torquatus;*** **Twite *Carduelis flavirostris*** **Plants:** **Oblong woodsia *Woodsia ilvensis;*** **Downy willow *Salix lapponum;*** Pale forget-me-not *Myosotis stolonifera;* Hairy stonecrop *Sedum villosus;* **Mossy saxifrage *Saxifraga hypnoides***; Sheathed sedge *Carex vaginata;* Black alpine sedge *Carex atrata;* Alpine foxtail *Alopecurus borealis;* nationally scarce mosses **Fungi**: Nationally scarce lichens	• Overgrazing • Fragmentation and isolation • Recreation • Wind farms • Climate change Agri-environment/forestry schemes

MARINE AND COASTAL HABITATS

Maritime Cliff and Slope (Includes Inland and Coastal Rock) **(872ha / 0.19% of Scottish Borders Land Cover)**[i]

- This habitat comprises sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion. It includes cliff tops influenced by salt spray deposition and shore areas above the intertidal zone.
- Around 4,000km of the UK coastline has been classified as cliff of which approximately one half occurs in Scotland. 1% of the UK total (c.40km) lies in Scottish Borders.
- In Scottish Borders, the habitat is mainly made up of hard cliffs. These are formed in rocks that are resistant to weathering and tend to support few higher plants except on ledges. Soft cliffs, which are formed in less resistant rocks, have less steep slopes that are more easily colonised by vegetation. Good examples of soft cliffs occur around Burnmouth.
- Lichens are the predominant vegetation on exposed hard cliffs with plant species such as thrift and sea campion on ledges. Variations occur where there is water seepage or enrichment from seabird guano. Scrub and bracken occur on soft cliffs and there is a small remnant of semi-natural woodland.
- Maritime grasslands have red fescue, thrift, sea and buck's-horn plantain together with species of more inland grassland such as bird's-foot trefoil, common restharrow and various grasses.
- Calcareous grassland communities, with common rock-rose and crested hair-grass occur on thin soils with underlying mineral-rich rock while areas on acidic rocks support maritime heath characterised by ling. Associated with these grassland habitats are invertebrates of nationally restricted distribution such as the northern brown argus butterfly.
- There are colonies of breeding seabirds with nationally important numbers of guillemot and kittiwake. Other breeding species are cormorant, shag, razorbill, fulmar and puffin. There are also breeding peregrine and raven, cliff nesting house martins and an abundance of rock pipits and linnets.

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
CG2 *Festuca ovina- Avenula pratensis* grassland CG7 *Festuca ovina-Hieracium pilosella- Thymus praecox* grassland CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland.	**Plants:** Common rock-rose *Helianthemum chamaecistus;* Thrift *Armeria maritima;* Scots lovage *Ligustum scoticum;* Roseroot *Sedum rosea;* Carline thistle *Carlina vulgaris;* Bloody cranes-bill *Geranium sanguineum;* Spring squill *Scilla verna;* Sea campion *Silene maritima;* **Purple milk-vetch *Astragalus danicus***; Kidney vetch *Anthyllis vulneraria;* Buck's-horn plantain *Plantago coronopus;* Crested hair-grass *Koeleria macrantha;* Ling *Calluna vulgaris* **Birds:** **Peregrine falcon *Falco peregrinus***; Raven *Corvus corax;* Rock	• Inappropriate grazing, cultivation and abandonment • Overgrazing (sheep, cattle, rabbits) • Scrub encroachment • Reduction of natural zonation at cliff edges • Local eutrophication • Pesticide applications • Dumping of rubble and rubbish

	pipit *Anthus petrosus;* House martin *Delichon urbicum*, Atlantic puffin *Fratercula arctica*; Herring gull *Larus argentatus;* Razorbill *Alca torda;* Shag *Phalacrocorax aristotelis;* Kittiwake *Rissa tridactyla;* Guillemot *Uria aalge* **Invertebrates: Northern brown argus *Aricia artaxerxes;*** Common blue butterfly *Polyommatus icarus*	• Recreational impacts in easily accessible places • Development too close to cliff-top ecological communities • Coastal erosion (e.g. Lower Burnmouth, Cove, Hilton Bay) • Local erosion, trampling and disturbance • Introduced species and INNS • Climate change

Marine (Coastal Sea and Shore) **(435ha / 0.19% of Scottish Borders Land Cover)**[i]

- The marine environment did not feature in previous Habitat Action Plans for the Scottish Borders, however actions for marine habitats were undertaken by the Berwickshire and North Northumberland Marine Nature Partnership (now extended to southern coastal areas in Northumberland).
- There are internationally important populations of breeding seabirds and marine mammals; the grey seal population is part of a larger colony centred around Fast Castle, thought to be the fourth largest in the UK, and fifth largest in the world.
- Sea caves, rocky reefs and rich marine life are

Associated NVC Communities	Species of Conservation Concern (SoCC)	Issues / Pressures
Not applicable.	**Plants:** Narrow-leaved eelgrass *Zostera angustifolia*; Dwarf eelgrass *Z. noltei* **Crustaceans:** Mussel *Mytilus edulis;* Burrowing heart-urchins *Echinocardium cordatum;* small crustaceans; polychaete worms; bivalve molluscs. **Fish:** Sand-eels *Ammodytes spp*. **Birds**: Herring gull *Larus argentatus;* Razorbill *Alca torda;* Shag *Phalacrocorax aristotelis;* Kittiwake *Rissa tridactyla;* Guillemot *Uria aalge* **Mammals:** Grey seal *Halichoerus grypus;* **Otter *Lutra lutra***	• Pollution • Climate change • Recreational activities • Intensive

OTHER HABITATS

Urban Habitats (Including Amenity Grassland, Gardens, Ruderal Communities, Bare Ground habitats) **(11676ha / 2.49% of Scottish Borders Land Cover)**[i]

- The Scottish Borders has a long history of human settlement, throughout which the urban environment has been developed in response to the needs and well-being of the inhabitants.
- Over 80% of the Borders population live and work in Borders towns and villages and the need for a healthy and green built environment is therefore particularly important.
- The character of the built environment is dynamic, continually changing through the landscaping and management of public and private space, changes or additions to the building stock and the changing demands on land.
- Urban wildlife habitats can be defined as greenspaces and the associated ecological niches found within built up areas. Types of greenspace include public parks and gardens, private gardens and grounds, amenity greenspace, play areas, sports areas, green corridors, natural and semi natural greenspaces (including Common Good Land, Community Woodlands and Designed Landscapes), cemeteries, allotments and public utility land, derelict land and civic space.
- Tree lined avenues between settlements, weirs and river corridors and walkways are often recognised as having aesthetic and wildlife value. Even existing buildings, derelict buildings, old farmsteads and former industrial sites can all have a high biodiversity value.

• Recording urban wildlife and identifying priorities and projects to support biodiversity within urban habitats may help to protect and enhance it, with benefits for human health and wellbeing.		
Associated NVC Communities	**Species of Conservation Concern (SoCC)**	**Issues / Pressures**
Not applicable	Mammals: Otter *Lutra lutra;* Common pipistrelle *Pipistrellus pipistrellus*; Soprano pipistrelle *Pipistrellus pygmaeus;* Brown long eared bat *Plecotus auritus;* Whiskered bat (scarce) *Myotis mystacinus;* Natterer's bat *Myotis nattereri;* Hedgehog *Erinaceus europaeus;* Mole *Talpa europaea;* Red fox *Vulpes vulpes* Fish: Atlantic salmon *Salmo salar* Birds: Swift *Apus apus;* House martin *Delichon urbicum;* Linnet *Linaria cannabina*; Spotted flycatcher *Muscicapa striata;* Song thrush *Turdus philomelos;* Peregrine falcon *Falco peregrinus;* House Sparrow *Passer domesticus;* Black-headed gull *Larus ridibundus* Amphibians: Common Frog *Rana temporaria;* Common Toad *Bufo bufo;* Smooth Newts *Lissotriton vulgaris* Invertebrates: Large white *Pieris brassicae*; Small Tortoiseshell *Aglais urticae*; Red admiral *Vanessa atalanta*; Peacock butterfly *Aglais io*; Ladybird species *Coccinellidae spp.*	

Appendix F: Scoping Report Responses

HISTORIC SCOTLAND		
Issue	**Comment**	**How addressed in SEA**
Environmental Baseline Data	*Inventory Battlefields, non-designated heritage assets identified by your Historic Environments Record and the Historic Land Use map (Http://hlamap.org.uk) should be included under cultural heritage*	Included within Environmental Baseline Data under cultural heritage.
Reasonable Alternatives	*The scoping report helpfully sets out the high level alternatives for delivering (or not) the LBAP, and confirms that these will be assessed. You will also need to identify and assess reasonable alternatives within the selected delivery model will be identified and assessed, e.g. alternatives content, objectives and actions.*	High level alternatives have been assessed in terms of their deliverability and suitability in Section 5. A second option to the preferred plan has been subject to a detailed assessment (Appendix D). This is considered to be the only other viable alternative to the preferred plan and incorporates content, objectives and actions that are an alternative approach to the ecosystems approach adopted in the preferred plan. The preferred option has been assessed in detail in relation to proposed thematic areas and their correlated actions. It is considered that this approach has considered all aspects of the PPS that could have significant environmental effects and is in line with approaches taken for the SEA of similar (and related) PPS.
SEA objectives	*We have assumed that the key objective aims to test the effects of outcomes of the action plan on the features that form the cultural and historic landscape of the Scottish Borders. You may wish to consider adding a sub-objective or sub-objectives which focus on the protection of cultural heritage to support this intention more explicitly*	The intention or aim of this key objective was to support cultural ecosystem services via protection of natural heritage assets, with a focus on indirect or secondary benefits to people (both residents and visitors to the Scottish Borders) in terms of cultural services. This is felt to be most appropriate in the context of the LBAP, since the enjoyment of nature is a key driver for its protection. The existing sub-objective includes promoting visits to enjoy both cultural and natural heritage assets. Commentary incorporates the consideration that this must include promotion of responsible access to such assets. Other PPS may be more appropriate for objectives which focus on the direct protection of cultural heritage assets.
SCOTTISH NATURAL HERITAGE		
Issue	**Comment**	**How addressed in SEA**
Content with scope and level of detail proposed for the environmental report and proposed consultation period		
SEPA		
Issue	**Comment**	**How addressed in SEA**
Relationship	*Some of the PPS included have themselves been subject to SEA. Where this*	Environmental baseline information makes reference to

with other Plans, Policies and Strategies (PPS)	*is the case you may find it useful to prepare a summary of the key SEA findings that may be relevant to the LBAP. This may assist you with data sources and environmental baseline information and also ensure the current SEA picks up environmental issues or mitigation actions which may have been identified elsewhere.*	relevant PPS that have also addressed similar environmental issues to the LBAP. The baseline has been compiled with reference to issues from the SEAs of related PPS.
	Add the Clear Air for Scotland, Scottish Borders Land Use Strategy, Zero Waste Strategy to Appendix 1. Make reference to the Flood Risk Management (Scotland) Act (not Bill).	The list of PPS has been updated accordingly in Appendix A.
Baseline information	*SEPA has environmental data; local information and topic guidance that are relevant to SEA Topics and may be of use.*	Considered and consulted in the preparation of the environmental baseline.
Environmental Problems	*Forestry is an issue / opportunity that should be considered. Note SEPA's advice on forestry.*	Noted and referenced in the baseline information
Alternatives	*We are satisfied with the alternatives. These should be assessed and findings should inform the choice of the preferred option and documented in the Environmental Report*	Alternatives considered and discussed, preferred and alternative options chosen and assessed in detail and the rationale for the choice of the preferred option has been outlined.
Methodology for assessing environmental effects	*Including a commentary section within the matrices in order to state, where necessary, the reasons for the effects cited and the score given helps to fully explain the rationale behind the assessment results. This allows the Responsible Authority to be transparent and also allows the reader to understand the rationale behind the scores given*	Commentary section included within assessment matrices.
	Where it is expected that other plans, programmes or strategies are better placed to undertake more detailed assessment of environmental effects this should be clearly set out in the Environmental Report.	This has been indicated where applicable, in the Environmental Report and assessment.
	We would expect all aspects of the PPS which could have significant effects to be assessed.	A detailed and thorough assessment of all aspects of the PPS which could have significant effects has been undertaken to the best of ability.
	When it comes to setting out the results of the assessment in the Environmental Report please provide enough information to clearly justify the reasons for each of the assessments presented. It would also be helpful to set out assumptions that are made during the assessment and difficulties and limitations encountered.	Justification for the assessments has been provided in the commentary section of the detailed assessment. Details of any assumptions made and difficulties and limitations encountered have also been included in the Environmental Report.
	It is helpful if the assessment matrix directly links the assessment result with proposed mitigation measures.	Commentary on mitigation and enhancement measures has been included to explain the rationale and links to the assessment matrix.
	We note the intention to undertake an ecosystem services approach. We would request that in presenting the findings: *It is demonstrated how the requirements of the SEA legislation have been met, in particular, the requirements of Schedule 3 of the Act* *The Environmental Report is a separate and easily identified component of the wider assessment.*	Commentary has been provided in the introduction to the assessment methodology which explains how the assessment approach complies with the requirements of the 2005 Act and compliance with the 2005 Act is signposted throughout the report. The assessment is included as a separate appendix to the Environmental Report, and is

		referenced within the report.
	We understand that some effects will be assessed through a GIS map methodology and we are content with this approach, making sure that the legend will be clear and consider the aspects mentioned in the SEA objectives.	A detailed assessment has been undertaken however it has been decided to focus primarily on assessment via matrices in order to ensure a manageable assessment process. (The proposed matrix approach to assessment having been deemed appropriate by all Consultation Authorities at scoping stage).
	We would recommend that the wording of the following SEA objectives be revised as follows: *WATER- change 'protect flood risk areas' to 'avoid flood risk and protect flood risk areas'. The LBAP should aim to avoid flood risk, however if may be that some aspects of the LBAP may help protect areas of flood risk. Please refer to the most recent Natural Flood Risk Management guidance for details.* *MATERIA ASSETS- one sub-objective could be added to say 'help meeting the objectives of the Zero Waste Plan* *CLIMATIC FACTORS – substitute CO2 emissions with greenhouse gases emission as CO2 is not the only gas that causes climate change.*	Changes made, with the exception of Material Assets. An exploration of including a sub-objective to maintain consideration of the Zero Waste Plan was considered, but it was felt that other PPS also exist, for example Scottish Borders Local Development Plan, which directly aim to help meet the Zero Waste Plan objectives.
Mitigation and enhancement	*We would encourage you to use the assessment as a way to improve the environmental performance of individual aspects of the final option; hence we support proposals for enhancement of positive effects as well as mitigation of negative effects.*	Where enhancements are considered possible, this has been indicated within the assessment matrices.
	It is useful to show the link between potential effects and proposed mitigation / enhancement measures in the assessment framework.	This has been undertaken in the assessment.
	We would encourage you to be very clear in the Environmental Report about mitigation measures which are proposed as a result of the assessment. These should follow the mitigation hierarchy (avoid, reduce, remedy or compensate).	Commentary on mitigation and measures is included in the the Environmental Report.
	One of the most important ways to mitigate significant environmental effects identified through the assessment is to make changes to the plan itself so that significant effects are avoided. The Environmental Report should therefore identify any changes made to the plan as a result of the SEA.	No significant negative effects are predicted following the assessment, and therefore do not need to be avoided. However, opportunities for further enhancement of the plan have been identified and commented up in the Environmental Report, following the detailed assessment.
	Where the mitigation proposed does not relate to modification to the plan itself then it would be extremely helpful to set out the proposed mitigation measures in a way that clearly identifies: (1) the measures required, (2) when they would be required and (3) who will be required to implement them. The inclusion of a summary table in the Environmental Report such as that presented below will help to track progress on mitigation through the monitoring process.	Detail of mitigation measures in the Environmental Report Section 5 reflects this recommendation.

Monitoring	*Although not specifically required at this stage, monitoring is a requirement of the Act and early consideration should be given to a monitoring approach particularly in the choice of indicators. It would be helpful if the Environmental Report included a description of the measures envisaged to monitor the significant environmental effects of the plan.*	Although not specifically required at this stage, commentary on initial thoughts for a monitoring approach has been provided in Section 5 of the report. Indicators have been suggested in Section 4, Table 8 of the report.
Outcomes of the Scoping exercise	We would find it helpful if the Environmental Report included a summary of the scoping outcomes and how comments from the Consultation Authorities were taken into account.	See next comment.
	We welcome proposals for the inclusion of a summary of how the comments provided by the Consultation Authorities at the Scoping stage have been taken into account in the preparation of the Environmental Report.	This Appendix F provides the summary of comments and how they have been taken into account in the preparation of the Environmental Report.

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