REGULATORY SERVICES
PLACE

Supplementary Guidance

Scottish Borders Local Biodiversity Action Plan

2018-2028

Scottish Borders COUNCIL

CONTENTS

INTRODUCTION: BIODIVERSITY IN THE SCOTTISH BORDERS

The Scottish Borders stretches over 4,700 square kilometres from the wetter landscapes of the west to the drier eastern coastline. Over half the land lies above 300 metres. The region's varying climate and rainfall, soil types and land uses have produced a great variety of semi-natural features and wildlife, including many different habitat types.

MARINE AND COASTAL HABITATS

Our seas are a coalescence of cold northern and warm southern waters that wash over a varied geology, resulting in a rich mixture of marine life. Under the waves, sea caves are filled with coralline seaweeds, sea squirts and sponges, whilst reefs are home to the northern wolf fish and cup corals. Our marine environment also hosts internationally important populations of breeding seabirds and marine mammals; the breeding grey seal population is part of a larger colony centred around Fast Castle, thought to be the fourth largest in the UK and the fifth largest in the world.

On the shore are small dunes and flushes, and, high above the seas, some of our least modified habitats –soaring cliffs with internationally important seabird populations of shag, kittiwake, razorbill, herring gull and guillemot. Rare ferns like sea spleenwort, mosses, orchids and autumn gentian are also found in a mosaic of coastal habitats including coastal deans (steep-sided valleys) such as base-rich grassland, ancient woodland, maritime heath and scrub.


© Keith Robeson

LOWLAND AND UPLAND HABITATS

The Scottish Borders is rich in landscapes that have long historical and cultural significance as part of a working countryside. From the coast to upland valleys, fertile soils provide rich nutrients for grazing and arable farming. With sensitive management, farmland habitats such as grasslands, woodlands and wetlands can be rich in biodiversity. Around 10% of the species-rich hedgerows in Scotland are found in the Scottish Borders.[1] Grasslands rich in wildflowers, birds and butterflies are still found in steep-sided valleys and rocky ridges, with important remaining areas in Berwickshire and central Borders.

The uplands of the Scottish Borders are typically rounded, with steep, river-cut valleys, but soar to mountainous levels (840m above sea level) in the Broad Law massif. Montane species found here include dotterel on passage, raven, ring ouzel and mountain hare, downy willow, black alpine sedge, alpine foxtail as well as nationally scarce mosses and lichens and several nationally rare montane moths including northern dart.

WOODLANDS

Woodland accounts for around 18.5% of land cover in the Scottish Borders. Most are found within upland coniferous plantations of fast-growing, non-native species dominated by Sitka spruce.[1] Whilst not a native habitat, the biodiversity value of plantations can rise as they mature and are re-structured, increasing age diversity and by including more broadleaf species that provide opportunities for species such as goshawk, red squirrel, roe deer, and juniper.

Around 1.4% of the land area is covered by native woodland, and less than 1% of trees are remnant native ancient woodland.[2] Although fragmented, these woodlands have high numbers of rare plants, invertebrates and other species, making them exceptional value for biodiversity. Mixed policy woodlands, dating from the 17th and 18th century estate improvements, form the main element of lowland woodland structure. Planted broadleaves also provide a small market for local broad-leaved timber. Woodlands from wet 'carr' to upland scrub have huge potential to store carbon and also play a role in natural flood management.


© Keith Robeson

WETLANDS AND AQUATIC HABITATS

Wetlands in the Scottish Borders include internationally recognised 'fens' with communities of scarce plants and insects that are found nowhere else in the UK. Bogs, mires and wet heathlands are also nutrient and wildlife rich. Our wetlands also act as carbon 'sinks,' locking up carbon dioxide from the atmosphere. They also have potential to store water and help alleviate flooding around our towns.

The River Tweed runs through the region along a 160km central spine, from which tributaries and streams fissure out to form a bowl-shaped catchment. The river is internationally protected for its plant communities and populations of wild salmon, trout, lamprey and otter. Scarce and rare invertebrate species are also present, giving the river a rich variety of biodiversity. The Liddel Water catchment runs to the Solway, with a fine collection of fossil beds. The Eye Water flows to the east of the region.


© Keith Robeson

URBAN HABITATS

We can all support and help biodiversity to thrive on our doorsteps and in greenspaces around our towns. With creative and thoughtful management, derelict land, road verges, gardens and golf courses can all provide opportunities for wildlife. Regeneration schemes can support enhanced river corridors; mineral workings can provide locally rare cliff-face habitats. Even within our homes and buildings, wildlife-friendly management and green infrastructure can help biodiversity flourish.

The pay-off is not only a rich diversity of species and habitats, but health, wellbeing and recreational benefits that enrich our lives, provide inspiration for art, music and literature and bring economic benefits such as increased tourist visitor numbers.


© Keith Robeson

WHY DO WE NEED A LOCAL BIODIVERSITY ACTION PLAN?

Our local biodiversity is valuable for the sheer variety of habitats and wildlife it contains. Together with complex local geology, it enhances the varied local landscapes of the Scottish Borders, which are valued by visitors to the region and attractive to current and potential new residents.

In this way, biodiversity is not only inherently valuable, but key to enhanced local landscapes that can support and bolster our local economy. It is also recognised that access to a flourishing natural environment supports physical and mental wellbeing.[3]

However, we may lose these multiple benefits as local biodiversity declines in the face of steadily-increasing pressures, which apply not just in our region, but at a national and global scale, such as intensification of land management, use of agrichemicals and artificial fertilisers, inappropriate grazing and burning, afforestation, urban development, invasive non-native species (INNS).

Problems resulting from these pressures can include pollution and nutrient enrichment of rivers and watercourses, habitat loss and fragmentation, disturbance or injury to wildlife and overall loss of the nature on our doorsteps. The Local Biodiversity Action Plan seeks to reduce the pressure on biodiversity locally, and to create opportunities to enhance biodiversity.
The first Local Biodiversity Action Plan (LBAP) identified many of these pressures and work has been ongoing to address them, through the committed efforts of partners and land managers. Good progress and improvements have been made, however more local action is required.

Undertaking new actions for biodiversity is challenging in the face of uncertain economic times and a warmer and more unpredictable climate that will require increasingly adaptive management.

This new LBAP for 2018 to 2028 aims to build on successful work to date, and adopt an ecosystem approach to deliver targeted, collaborative action that will support the rich, unique and valuable biodiversity of the Scottish Borders, helping to secure its potential multiple benefits for our region.


© Keith Robeson

1. BACKGROUND TO THE LOCAL BIODIVERSITY ACTION PLAN

In 2001, Scottish Borders Council (SBC; the Council) adopted a Local Biodiversity Action Plan (LBAP)[4] for key habitats in the Scottish Borders, linked to the UK Biodiversity Action Plan (UKBAP). It was jointly produced by a partnership of local organisations interested in land management and natural heritage in the Scottish Borders. The LBAP subsequently included 14 Habitat Action Plans aimed at improving habitat networks, enhancing biodiversity and setting out the priorities for action in the Scottish Borders. Essential information about these habitats, their conservation importance and the pressure upon them is provided in Appendix E. The original Habitat Action Plans are still available to download as PDFs at: https://www.scotborders.gov.uk/downloads/download/423/habitat_action_plans.

The vision of the original LBAP was healthy landscapes in the Scottish Borders and a legacy of natural resources that future generations would inherit. The partnership has been working with other stakeholders, land managers, developers and the public to try to achieve this vision and has met annually to monitor progress. Examples of actions undertaken by partners include:

- Native woodland management and creation of new native woodlands
- Peatland and wetland habitat restoration
- River and floodplain restoration
- Species monitoring
- Site condition monitoring of protected areas
- Assessment and survey of potential Local Biodiversity Sites
- Development of biodiversity offset schemes in relation to windfarm and major developments
- Advice on land management that strikes a balance between conservation of natural heritage resources and other land uses (such as farming, forestry, fishing, recreation and development).

Examples of good practice for biodiversity that have recently been undertaken in the Scottish Borders feature throughout this publication.


© Tweed Forum

The LBAP for 2018 to 2028 provides a framework for new, collaborative action. It promotes joint partnership action for biodiversity at a local landscape scale, with new emphasis on achieving multiple benefits through effective land use, management and stewardship. This is an area in which the Council and local partners have already begun pioneering work (see Section 2.2).

The new LBAP takes account of the real and growing challenge of climate change in relation to biodiversity. The impacts of climate change are highly unpredictable, yet threaten to disrupt the beneficial living systems (termed 'ecosystems') that are intrinsic to our landscapes. Examples of ecosystems include river systems that regulate and cleanse water flows; peatlands and woodlands that lock up atmospheric carbon; rich soils; a wealth of pollinating insects that help produce food crops, and coastal waters teeming with biodiversity.

In addition to the impacts of climate change, the LBAP seeks to address other pressures on biodiversity in Scotland, as outlined by the Scottish Government,[5] including:

- Pollution
- Land use intensification and modification
- Spread of invasive species and wildlife disease
- Lack of recognition of the value of nature
- Disconnection with nature
- Marine exploitation

The Scottish Government has highlighted the need to adopt an ecosystems approach in addressing these pressures.[5] An ecosystems approach has been adopted in this update and an explanation of the ecosystems approach is outlined in Section 3.

This is a time when funding for biodiversity action is harder to find. There is also uncertainty about what policies and resources will be available to protect the environment in the context of a new UK-EU relationship. The updated LBAP aims to promote cost-effective, targeted, coordinated action for biodiversity that will raise awareness of and help our natural assets in the Scottish Borders to flourish.

It is proposed that the updated LBAP will have a "working life" of 10 years from 2018 to 2028, with provision for a 5-year review in 2023.

2. POLICY CONTEXT

Production of the LBAP is part of the Council's biodiversity duty, under the Nature Conservation (Scotland) Act (2004).[6] The LBAP is adopted as Supplementary Guidance under the Scottish Borders Local Development Plan and will continue to form part of the Council's Supplementary Guidance for Biodiversity.[7]

In updating the LBAP, we are aiming to align local actions and policies with international and national strategic policies. Relevant policies are referenced throughout this text. A summary is found in Appendix A.

Two key policies relate to biodiversity and land use: The Scottish Biodiversity Strategy (SBS) and the Scottish Government's Land Use Strategy (LUS). The updated LBAP also maintains awareness of achieving the Scottish Government's *Purpose*.[8] The relevance of these three policy areas is outlined more fully below.

2.1 SCOTTISH BIODIVERSITY STRATEGY

The Scottish Biodiversity Strategy (SBS) encompasses *Scotland's Biodiversity*: *It's in Your Hands* (2004)[9] and the subsequent 2020 *Challenge for Scotland's Biodiversity* (2013),[10] (the strategy for the conservation and enhancement of biodiversity in Scotland). The SBS reflects the aims of key international strategies: The UN Convention on Biological Diversity, which set the *Aichi Targets* (2010)[11] to halt biodiversity loss and restore the natural environment to health, and the European Union's *Biodiversity Strategy for 2020* (2011).[12] In response to the International Convention on Biological Diversity, the EU committed to achieve 6 ambitious targets and 20 actions to halt the loss of biodiversity and ecosystem services by 2020.

The SBS recognises the need for local action to align with and contribute towards both national and international agendas. Therefore, whilst not losing sight of the priority habitats and species of the Scottish Borders that still need protection from the pressures outlined in Section 1 above, the updated LBAP is organised around the priority themes of the SBS, and linked by extension to the Aichi Targets. The SBS themes are captured in a *Routemap*,[5] which outlines *Six big steps for nature* to achieve the 2020 *Challenge.*

In centring new LBAP actions around the SBS, our aims are to encourage local biodiversity action that:

- Protects and restores biodiversity in the land and sea
- Supports healthy ecosystems
- Connects people with nature and promotes health and wellbeing
- Involves people in decisions about the environment
- Maximises benefits for Scotland in terms of biodiversity and ecosystem services

2.2 SCOTLAND'S LAND USE STRATEGY

There are complex drivers for land use in Scotland, including land managers' priorities, market influences, local capacity, incentives and regulations. The Scottish Government's Land Use Strategy (LUS) (2011, 2016),[13] outlines an integrated, strategic approach to land use and aims to ensure land is used sustainably now, and in the future by promoting coordinated action at a landscape scale.

The LUS highlights how land management decisions can play a crucial role in addressing pressures on our ecosystems, (including climate change), recognising the multiple benefits that ecosystems provide. These benefits, termed 'ecosystem services', include both tangible goods and services, like timber or water purification, and less tangible benefits, such as space for recreation, relaxation and creative inspiration.

The LUS highlights the importance of managing our ecosystems as valuable assets, ('natural capital') that deliver beneficial ecosystem services, thereby enhancing Scotland's wellbeing as a nation. This links to the Scottish Government's Purpose and Economic Strategy (2015).[14]

In response to the LUS, a pioneering Land Use Strategy Pilot (2016),[15] (LUS Pilot) was developed by the Council and partner organisations, which informed updates to the national LUS in 2016. The LUS Pilot reviewed the ecosystems, or 'natural capital' of the Scottish Borders and mapped the services they provide. Stakeholders from land-based businesses and communities reviewed the maps of ecosystem services and considered their future management to ensure sustainable land use for the continued vitality and viability of local communities, the local environment and economy.

The updated LBAP integrates the LUS policy drivers with action planning alongside SBS thematic priorities and adopts an ecosystems approach, building on the follow-up actions of the LUS Pilot.

2.3 THE SCOTTISH GOVERNMENT'S PURPOSE

The biodiversity and ecosystems of the natural world are vital to human wellbeing and prosperity, but are consistently undervalued in conventional economic analyses and decision-making.[16] Whilst the role of economic valuations of nature in protecting biodiversity are contested, it is acknowledged that a high quality natural environment is 'a key piece of the economic jigsaw',[17] and this contributes to fulfilling the Scottish Government's *Purpose* to create 'a more successful country, with

opportunities for all of Scotland to flourish through increasing sustainable economic growth'. In *Connected Borders,* the Council's Administration sets out a vision for 2017 to 2022 that includes in its opening sentence a recognition of the importance of our natural environment, which is the basis of the area's outstanding beauty.[18] Our natural environment helps attract people and businesses to live and work in the Scottish Borders and drives economic sectors that base their branding on Scotland's natural assets. Some of Scotland's most successful industry sectors are food and drink, and tourism,[14] which trade on a reputation for environmental quality, and on perceptions of Scotland as a 'wild, exciting destination'.[19] The *Scottish Borders Economic Strategy 2023*[17] also outlines opportunities to drive economic growth through local industries such as tourism and food and drink, and by capitalising on the location of the Scottish Borders, which is seen as a high-quality environment. In the Corporate Plan 2018-2023 "*Our Plan and Your Part in it*"[20] includes a commitment to build community capacity in localities including to improve health and well-being and develop greenspace to enhance our towns, villages and more remote rural areas and the Scottish Borders Community Plan seeks to protect and improve our quality of life and develop and improve our place.[29]

It is increasingly acknowledged that nature and greenspace enhance health, wellbeing and quality of life,[17] which are primary market drivers for the rural economy. The LBAP includes actions that will help to ensure a high quality natural environment in the Scottish Borders, helping deliver socioeconomic, as well as biodiversity benefits in fulfilment of the Scottish Government's *Purpose.*

3. AN ECOSYSTEMS APPROACH

Biodiversity encompasses the entire variety of life on earth, including humans, and the way in which life, in all its myriad forms, interacts with the environment in living ecosystems. Current thinking about protecting biodiversity has moved from a focus on individual habitats and species, to consideration of ecosystems at a landscape and catchment scale. The LBAP aligns with the SBS, which also puts an ecosystems approach at the heart of new thinking about biodiversity.

This thinking aims to promote protection of biodiversity based on an awareness, not just of its intrinsic value, but also its value as natural capital, which delivers multiple benefits to humans, through ecosystem services, as well as the cost of failing to look after these services. An ecosystems approach aims to help consider the value of ecosystem services in decision-making. For example, the value of the services provided by just some of the pollinating insects in Scotland was estimated at £43million annually, based on indicative costs of restoring or replacing the ecosystem service if it could not effectively function.[16]

There are three key steps in an ecosystems approach[10]:

1) Taking account of how ecosystems work and recognising that:

- Nature connects across both broad and local landscapes
- Ecosystems are dynamic, so change is inevitable and adaptive management may be required
- Ecosystems are not an infinite resource and cannot repeatedly absorb damaging impacts


© Keith Robeson

2) Taking account of ecosystem services, recognising that:

- Food, fuel, water, climate regulation, contributions to quality of life, culture and well-being are just some of the benefits we freely receive from ecosystem services
- Not maintaining ecosystem services is financially costly for society, when we lose these benefits or have to offset or mitigate negative effects on them

3) Involving people who manage or benefit from ecosystem services in decision-making by:

- Valuing their knowledge
- Supporting them to participate in decision-making
- Encouraging them to take responsibility for their actions

In adopting an ecosystems approach in this new LBAP, we will promote actions that help maintain awareness of the intrinsic value of biodiversity and the less tangible value it holds in our lives, in terms of inspiring art, enabling recreation and supporting mental and physical health and wellbeing. The LBAP will also include actions for key habitats and species within ecosystems in the Scottish Borders.

With an ecosystems approach, the LBAP aims to build on the work of the LUS Pilot. The LUS Pilot produced maps outlining ecosystems and the services they provide across the Scottish Borders, as a means of guiding decisions on how to use land optimally and to help resolve conflicting priorities (for example the use of land for food production, versus its use for natural flood management).[22]
It identified important stocks of natural capital within the Scottish Borders as delivering:

- Provisioning services, (food, timber, biomass, fuel, freshwater, renewable energy)
- Regulating services (air+ water quality, climate, water runoff, erosion, pollination, carbon storage)
- Cultural services (recreation, field sports, ecotourism, a sense of place, ethical values)
- Supporting services (nutrient cycling, water cycling, soil formation, photosynthesis, biodiversity)

Protection and enhancement of these ecosystem services at a landscape scale, as well as marine and coastal ecosystem services, (out of scope for the LUS Pilot), drives action-planning for this LBAP.

Local community integration is another key driver, recognising that people are also part of ecosystems and need to be involved in decision-making, action and review, as part of an ecosystems approach. A series of consultation workshops with LBAP partners followed the initial review of the old LBAP actions and formal public consultation could assist in informing decisions to be taken at a local level about priority actions for biodiversity. The LBAP also provides a framework to help people and communities to take decisions and action for their local environment.

A Strategic Environmental Assessment undertaken in parallel with the consultation process contributes to the ecosystems approach and considers the likely significant environmental effects of the LBAP, in the context of other strategic plans and policies.

4. ACTION FOR BIODIVERSITY: 2020 AND BEYOND

We depend on the benefits biodiversity provides for our economic prosperity and our wellbeing, but some of the ways we use the land, water and seas have had a negative impact on biodiversity. The six steps of the SBS 'Routemap to 2020' are intended to help address these negative impacts and to maintain and enhance the state of nature.[5]

The LBAP adopts these steps as key drivers for action alongside the LUS policy drivers. The LBAP also looks beyond 2020, since it is clear that we will need to continue to adapt to the impacts of climate change on biodiversity in the long-term. Our relationship with the EU is also set to change, but we will still need to contribute to global efforts to halt biodiversity loss, and to protect and enhance ecosystems.

The six big steps for nature that the LBAP actions are set within are based around practical, collaborative action for:

1. Ecosystem Restoration
2. Investment in Natural Capital
3. Quality greenspace for health and education benefits
4. Conserving wildlife in Scotland
5. Sustainable management of land and freshwater
6. Sustainable management of marine and coastal ecosystems


© Keith Robeson


© Paths for All


© Lewis Tharme


© Tweed Forum


© Keith Robeson

Each of these steps for nature is discussed below in the context of the Scottish Borders. A summary of proposed objectives and actions is outlined. A more detailed summary of all LBAP actions is provided in Section 5, below.

Progress in undertaking the LBAP actions as outlined will be assessed at a local level via annual meetings of the LBAP partnership, in order to inform ongoing local biodiversity action planning, and to share good practice, lessons learned and results. Outcomes from annual meetings of the LBAP partnership can be shared with the public via the Council's website.

4.1 RESTORATION OF HEALTHY ECOSYSTEMS

Restored, healthy ecosystems will help support the complex interactions between species and their movement throughout the environment. This will help to increase their resilience to climate change and to the additional pressures that result from the demands of an increasing human population. It will also help secure and enhance the multiple benefits we derive from ecosystem services.

By restoring and enhancing the health of our ecosystems, we can work towards a national ecological network that is bigger, better and more joined up,[23] in line with the Scottish Government's commitments in *Scotland's Biodiversity – A Routemap to 2020*[5], and as outlined by Scottish Environment Link[24].

The LBAP actions for ecosystem restoration reflect the need to:

- Reduce pressures on ecosystems in the Scottish Borders
- Make space for natural processes
- Improve connectivity and habitat availability
- Improve habitat management and support species diversity
- Improve general water and river catchment management and avoid nutrient enrichment in priority catchments
- Increase resilience to climate change, (employing adaptive management and planning for unavoidable changes such as sea level rise)

Work has been ongoing in the Scottish Borders by members of the LBAP partnership to reverse the degradation and fragmentation of habitats and protected places. The new LBAP actions build on earlier work, for example, woodland restoration projects that have included native tree planting and exclusion and management of deer and livestock to reduce grazing pressure. The LUS Pilot project also encouraged land managers to maintain awareness of the land's overall capacity and to nurture ecosystem services at a landscape scale and outcomes from this project have been in corporated into the new LBAP actions.

Restoring native woodland in the Scottish Borders

Borders Forest Trust (BFT) is leading a project to help regenerate native woodland at a 1823ha site at Talla and Gameshope, a former upland sheep farm, devoid of woodland. BFT's project is restoring native woodland tree species and montane scrub rich in heather and blaeberry. Following survey, planning and restoration, the area will eventually become self-sustaining, with hillsides and valleys returned to a natural, wild state, that people can walk through and enjoy.

BFT has already undertaken a large restoration project on the southern border of this site at Carrifran Wildwood, so together the two woodlands contribute to a more resilient ecological network.

New actions to restore and enhance woodland in the Scottish Borders will be undertaken with consideration of the range of demands on how land is used, particularly in the uplands where other activities and interests include livestock grazing, renewable energy, peatland restoration, field sports and recreation.

The LUS Pilot maps will again be crucial in informing where woodland creation takes place and the type of native woodland that should be restored. For example, in some montane areas, there is an opportunity to enhance stocks of native juniper. In other areas, woodland restoration may be at the expense of other biodiversity, therefore the overall approach will be to consider how best to support fully functioning ecosystems and enhance natural capital to enable the greatest benefit from ecosystem services.

New LBAP actions will seek opportunities to reward land managers and farmers for restoring habitats and reducing runoff from nutrients and agricultural waste, encouraging creation of buffer strips, hedgerows, woodlands and wetlands to help reduce diffuse pollution, and bring added benefits for biodiversity.

LBAP actions will support the work of the Tweed Forum and the Scottish Environmental Protection Agency (SEPA) to restore aquatic habitats by tackling rural diffuse pollution, for example by raising awareness of what constitutes pollution and encouraging reporting of incidents by the public. The LUS Pilot outputs will assist in identifying priority areas for restoration.

River Champion 2017: Best practice in land and water managerment

The Tweed Forum awarded Jim Sinclair of Crookston Farm near Stow the 2017 River Champion award in recognition of his efforts to integrate farming, forestry and conservation and for his enthusiasm for land and water management education.

Mr Sinclair and his son Graeme are tenants of Lord Borthwick and their farm is on the Armet Water, a tributary of the Gala water. They have used natural flood management techniques to slow the flow of surface water and cut the risk of downstream flooding after heavy rainfall to Galashiels and Stow, planting over 52 hectares of native woodland on the flood plain and hill slopes of the Gala water to reduce water run-off rates. Four ponds have been created, 2,200m of fencing erected and a mix of wetlands and woodlands has resulted, providing ideal habitat for otter, brown trout, lamprey, reed bunting and great crested newt.

The work, part-funded by Scottish Borders Council's biodiversity offset project, also safeguards streams vital to maintaining salmon populations in the Scottish Borders, a natural resource that is worth £24 million per year to the local economy, as well as 500 jobs.

Priority Objectives & Actions for Ecosystem Restoration		
Objectives & Actions	**Lead Partners**	**Review Date**
ER1 Reduce pollution of aquatic ecosystems:		
ER1.1 Increase awareness amongst farmers, land managers and the public of the Water Framework Directive requirements and benefits, pollution prevention good practice, key problems and when to report an incident particularly in the priority catchments.	SEPA, Tweed Forum (TForum)	2023
ER1.2 Promote the LUS Framework maps for use in targeting pollution prevention measures in priority catchments	SBC, SEPA, TForum	2023
ER2 Restore woodland ecosystems:		
ER2.1 Increase coverage of and improve connectivity between native woodlands to enhance the Forest Habitat Network.	Scottish Forestry (SF), Borders Forest Trust (BFT), TForum	2023
ER2.2 Develop a strategic approach to restore and create cleuch woodland, juniper and montane / heathland scrub in upland areas.	SF, BFT, Southern Uplands Partnership (SUP), TForum	2023
ER2.3 Promote integration of aspen into action plans for riparian habitats (and other habitats where appropriate) to help mitigate future loss of ash and enhance the Forest Habitat Network	SF, BFT, TForum, SBC	2023
ER3 Assess development impacts on ecosystems:		
ER3.1 Develop a methodology to assess impacts from development on ecosystem services, including opportunities for enhancements and offsetting to inform the updated Local Development Plan	SBC, Scottish Natural Heritage (SNH), SEPA	2023
ER4 Enhance the ecological network:		
ER4.1 Use LUS Pilot maps to target management and restoration of habitats to enhance the ecological network within and surrounding protected areas and Local Biodiversity Sites	SBC, TForum, SEPA, SNH, SF, The Wildlife Information Centre (TWIC)	2023
ER5 Restore farmland habitats:		
ER5.1 Encourage investment in the restoration and appropriate management of species-rich hedgerows, individual tree planting, riparian margins and farm ponds	TForum, SF, SBC	2023

4.2 INVESTMENT IN NATURAL CAPITAL

Whilst the practice of calculating the value of productive sources of capital such as machinery, or buildings, or human capital is long established, the value of nature is difficult to calculate via financial metrics. Modern economies are built around productivity and growth, therefore efforts to value ecosystem services have focussed on establishing the cost of having to provide for ourselves the multiple benefits that nature provides freely, in order that these can be considered in government and business accounting.

For example, peatlands are a stock of natural capital central to a flourishing low carbon economy in Scotland. Blanket bog and raised bog peatlands are the most important terrestrial carbon store in the UK, and their conservation value is of international importance. Considering their value as natural capital, they store ten times more carbon than all the UK's trees[16] and a loss of just 1% is equivalent to the total annual human emissions in Scotland. Soils in Scotland also store up to 42 billion cubic metres of water, an amount which can be put into perspective by the fact that one cubic metre of water is roughly the amount used daily by six people in a household. From a natural capital perspective, it begins to be possible to calculate the value of Scottish soils and the cost when soil structure (such as deep peat) is damaged or lost.[10]

Investing in the natural capital of the Scottish Borders through peatland restoration:

Peatland restoration has been successfully undertaken by Tweed Forum, through the Peatland Action Fund provided by Scottish Natural Heritage (SNH). Work has included peat-depth surveying, ditch-blocking and re-profiling of peat haggs to counteract erosion, which provides an 'instant fix'.

At least 250ha of eroding peat haggs have so far been re-profiled at Megget Bog and work has also taken place at Whim Bog, with further sites identified in the upper Yarrow, at the SSSIs Threepwood Moss and Din Moss, and at Drone Moss, Coldingham.

Although ecological restoration takes longer, the ecosystem service benefits of peatland restoration can be quickly realised. Investing in further peatland restoration is vital – currently only 0.3% of the world's peatlands are damaged, but they account for 5% of all carbon emissions globally. With the possibility of instantly fixing the problem, more investment in peatland restoration in the Scottish Borders can make a swift contribution to tackling carbon emissions.


© Tweed Forum

The Scottish Government has stated that 'Protecting and enhancing stock[s] of natural capital, which includes our air, land, water, soil and biodiversity and geological resources is fundamental to a healthy and resilient economy'[14]. Natural capital also provides such intangible benefits, supporting a flow of ecosystem services that deliver health and wellbeing, enjoyment through recreation, a sense of place and national identity.

Not only healthy soils, but healthy wildlife is important for these intangible benefits. Insect pollination of food crops is an example of one benefit nature provides freely, giving us food we enjoy, which forms part of the rural economy and which visitors come to the region to sample. Pollinator species are vital to Scotland's biodiversity and natural capital, but are increasingly under threat from land-use changes, land management, pesticides, pollution, invasive non-native species, diseases and climate change.

The updated LBAP will support the *Pollinator Strategy for Scotland (2017)*[25] to address the causes of decline in populations of pollinator species, their diversity and range and help them thrive in the future and will help support landscape-scale mapping initiatives for pollinators in the Scottish Borders, such as Buglife's *B-Lines* project.[26]

By continuing to invest in ecosystems as natural capital, we can help protect biodiversity and support wellbeing and wealth creation in a sustainable way, which will benefit future generations.

2 Priority Objectives & Actions for Natural Capital		
Objectives & Actions	**Lead Partners**	**Review Date**
NC1 Enhance peatland ecosystems as carbon stores:		
NC1.1 Develop a Peatland Action Plan for the Scottish Borders, making use of the LUS pilot maps, incorporating enhancements for biodiversity and wildlife	TForum, SNH, SBC, SEPA	2023
NC1.2 Adopt the Peatland Code and utilise the carbon market to restore peatland sites	TForum, SNH, SBC, SEPA	2028
NC1.3 Establish long-term monitoring projects in both previously restored and existing degraded peatland sites	SEPA, TForum	2028
NC2 Invest in natural flood management (NFM):		
NC2.1 Use LUS Pilot maps to prioritise areas for NFM at a catchment level including tree planting in areas where multiple benefits may be delivered for biodiversity, water quality and recreation.	SEPA, TForum, SBC, BFT, SF	2023
NC2.2 Raise awareness of NFM opportunities amongst key stakeholders/land managers in priority catchments	SEPA, TForum, SBC	2023
NC3 Increase diversity of trees to enhance woodland ecosystems:		
NC3.1 Promote productive broadleaves; selective retention of mature conifers; increased planting/retention of non-spruce conifers for biodiversity as viable components of new forests	SF, FLS, SBC, BFT	2023
NC3.2 Promote better integration between different woodland types and other land uses to deliver multiple benefits adopting the principles of the Land Use Strategy.	SF, FLS, SBC, BFT, TForum	2023
NC4 Invest in habitat for pollinators:		
NC4.1 Encourage mechanisms to increase "unimproved grassland", grassland margin, roadside verges and hedgerow habitat and improve their management for pollinators	Butterfly Conservation Scotland (BCS), Buglife, Bumblebee Conservation Trust (BBCT)	2023
NC4.2 Establish long-term monitoring projects for pollinators across habitats to encourage good practice in habitat management	BCS, TWIC, Buglife, BBCT	2028

4.3 QUALITY GREENSPACE FOR HEALTH AND EDUCATION BENEFITS

The Scottish Government has committed to creating a wealthier, fairer, smarter, healthier, safer, stronger, and greener Scotland. *Good Places, Better Health (2008)*[3] recognises the need for a greater connection with the physical environment to influence health and emphasises the importance of shaping places that can nurture positive wellbeing and resilience. The Chief Medical Officer has stated that, 'how people feel about their physical surroundings, can impact on not just mental health and wellbeing, but also physical disease'.[27]

The Scottish Government's regeneration strategy envisages 'a Scotland where our most disadvantaged communities are supported and where all places are sustainable and promote wellbeing'.[27] The updated LBAP aims to help create and enhance 'places which engender good physical and mental health'.[28]

Investment in greenspace, nature and landscapes will help to improve the health and quality of life of all groups, so everyone, equally, can experience and enjoy nature. Investing in greenspace for health and wellbeing could contribute to addressing key health issues in the Scottish Borders such as obesity, which can lead to Type 2 diabetes, and support improved mental health.[29]

Walking for health and relaxation across the Scottish Borders:

Walking in nature and greenspace helps people to relax and de-stress and gain a sense of well-being. Regular walking helps increase energy and leads to a better night's sleep, as well as offering the opportunity to appreciate nature, from wildflowers and birds to rivers and coastlines.

The Scottish Borders operates the Walk It scheme to encourage sociable walks in local communities that help people lose weight, feel fitter and reap the benefits that walking offers. There are over 1000 walkers registered with Walk It and 27 major walking groups across the Scottish Borders. All Walk It walks are listed on a new interactive map on the Paths for All website,[30] which was developed with the help of the Peebles Walk It group.

With hundreds of miles of paths across the Scottish Borders, and many low-intensity and Walk It guided walks and groups, as well as online resources and maps, there are many opportunities for people to get out walking and gain direct experiences of nature, which leads to improved health and wellbeing.

The public consultation on the LBAP will help to refine local actions to improve greenspace for health and wellbeing in the Scottish Borders, for example, through discussing management of greenspace with local communities to improve the local environment, enhance biodiversity and support enjoyment of recreational activities.

Experiences of nature and greenspace that support improved health and wellbeing also bring financial benefits, in terms of helping to reduce the amount of time people take off from work with illness, or reduced health service costs. In addition, outdoor recreation provides direct revenue; in 2012, recreation visits to the outdoors generated about £2.6 billion of expenditure in Scotland, with people contributing directly to local economies through spending money on food, fuel, trip and accommodation.[31] As outlined in the Scottish Borders Economic Strategy, encouraging visitors to make repeated visits to the outdoors and recommend locations to their friends is dependent on having a high-quality environment.[17]

Direct experiences of nature are important for biodiversity. Outdoor learning, linked to the Curriculum for Excellence policy of Learning for Sustainability, and harnessing 'citizen science' can help increase understanding of the environment, as well as contribute to science through increased gathering of biological records – outcomes that will support biodiversity in the long term. The updated LBAP includes actions aimed at encouraging conservation volunteers and recreational countryside users to record biodiversity and submit data, helping to improve the picture of the state of Scotland's nature.

Awareness of the importance of following the Scottish Outdoor Access Code and of the needs of local biodiversity also needs to be raised as part of encouraging people to enjoy spending time in greenspaces. This is important as recreational activities can sometimes have an adverse environmental impact, especially in popular destinations, through littering, wildlife disturbance such as via dogs running off leads, and erosion of sensitive sites.

Other ongoing actions include encouraging investment in green infrastructure in line with Scottish Planning Policy[32], the National Planning Framework[33], and the Scottish Borders Local Development Plan[34] for the benefit of biodiversity and well-functioning ecosystems. Infrastructure such as Sustainable Drainage Systems (SUDS) and living roofs or walls provide opportunities to support biodiversity as well as benefits such as clean water and air and contribute to providing an attractive, high-quality environment. Evidence that more green infrastructure and interaction with the outdoors helps improve physical and mental wellbeing is shown in NHS Scotland's efforts to 'green' parts of their estate through the NHS Greenspace Demonstration Project.[35]

3 Priority Actions for Greenspace		
Objectives & Actions	**Lead Partners**	**Review Date**
GR1 Enhance greenspace and green infrastructure in towns:		
GR1.1 Raise awareness and promote establishment of infrastucture including green roofs and living walls under the Planning system	SBC	2023
GR1.2 Promote sustainable management of greenspace and green networks including appropriate planting and protection of pollinator habitats, including wild flower planting in amenity areas	SBC, BCS	2023
GR1.3 Increase awareness of SUDS potential for biodiversity and promote the creation of high quality SUDS for biodiversity, supported by additional training resources	SBC, SEPA, Amphibian and Reptile Conservation Trust (ARC Trust),	2023
GR1.4 Develop business and biodiversity initiatives for green spaces and urban habitats	SBC	2028
GR1.5 Develop a new strategy for the management and enhancement of road verges and similar areas for the benefit of pollinators and other insects, including appropriate mowing regimes and improving plant diversity.	SBC, BCS, Buglife, BBCT	2028
GR2 Enhance and improve green networks around towns:		
GR2.1 Restore local green networks and enable permeation of landscape barriers (e.g. roads), for the benefit of wildlife, linking to Local Biodiversity Sites and Protected Areas and contributing to the development of a National Ecological Network for Scotland	SBC	2028
GR3 Improve communal land, including community woodlands and urban tree resource:		
GR3.1 Establish a protocol for native tree species selection and management in community woodlands, streets and settlements	SBC, BFT, SF	2028
GR3.2 Building on SBC's localities work, pilot a biodiversity project to manage communal land, opening it up for more innovative approaches to enhancing communities in the Scottish Borders	SBC	2028
GR4 Explore links with recreation, learning and greenspace:		
GR4.1 Set up a River Tweed walk to support tourism, recreation and increased biodiversity awareness, including on INNS and pollinators	TForum, SBC, Tweed Foundation (TFn), SNH	2028
GR4.2 Expand on Historic Land Use Value Project and explore links with recreation and greenspace and historic/contemporary land use to support health and wellbeing	SBC	2028
GR4.3 Promote nature based tourism opportunities to raise awareness and help protect biodiversity.	SBC, TForum, SF, FLS	2028
GR4.4 Encourage use of Global Footprint Network www.footprintnetwork.org and calculator, promoting individual action to help the environment	SBC, SEPA, TForum	2023
GR5 Information-sharing:		
GR5.1 Enable improved data gathering and sharing in relation to development applications.	SBC, TWIC	2028

4.4 CONSERVING WILDLIFE, HABITATS AND PROTECTED PLACES

In the Scottish Borders, internationally important protected areas include six Special Protection Areas (SPA) for birds, three of which are also Ramsar sites for wetlands and nine Special Areas of Conservation (SAC) for threatened habitats and species. There are also two National Scenic Areas (NSA), one National Nature Reserve (NNR) at St Abb's Head and 95 protected Sites of Special Scientific Interest (SSSI). The Council has also worked with local partners and landowners to identify potential new Local Biodiversity Sites. The Scottish Borders Notable Species List contains local species, including those considered as representing some of the key issues for wildlife conservation and land management in the Scottish Borders.

Maintaining and restoring protected habitats to good condition and improving their connectivity will help support ecosystem health, protect natural capital and underpin vital ecosystem services. Enhancing and extending important local habitats may contribute to creation of a national ecological network, support biodiversity and improve access to greenspace, with additional public benefits in terms of physical and mental wellbeing. Bigger, better and more joined up protected sites and habitats would contribute to a high-quality local environment, helping support the local economy by building on Scotland's reputation as a top destination for wildlife and outdoor activity.

Actions from the original LBAP included ongoing monitoring of site condition and key species, which will be ongoing in the new LBAP for 2018 to 2028 and encouraged through citizen science actions. Biological records within the Scottish Borders are collated by The Wildlife and Information Centre (TWIC) and are a vital source for informing decisions on land management practices, restoration projects and planning applications for development. TWIC has administered the Local Biodiversity Sites programme for the Council working with an expert Steering Group of local partners including BSBI, Butterfly Conservation, RSPB, SWT, Tweed Forum and SNH. The BSBI has been instrumental in producing site registers such as the Berwickshire Botanical Site Register upon which many of the Local Biodiversity Sites are based.

Conserving Notable Species – The Small Blue Butterfly:

Butterfly Conservation Scotland (BCS) has been monitoring the small blue butterfly, a UKBAP species with a thinly-scattered distribution outside of southern Britain. Having been thought extinct in the Borders, it was rediscovered at a site on the Berwickshire coast in 2007. Intensive survey work by local volunteers followed, along the coast and inland. Five breeding colonies of the small blue butterfly have been discovered and are monitored annually, with the committed and active support of the local community.

© Iain Cowe

Other key actions include addressing the threat to native wildlife from the spread of Invasive Non-Native Species (INNS) and supporting research into the possible benefits and challenges of native species re-introductions, such as beaver.

The protection of species and habitats is challenging in the context of balancing land-use demands. However, as outlined above, helping nature will also support our prosperity, health and wellbeing.

Protecting the black grouse population in southern Scotland:

Black grouse are an iconic Scottish species. Lekking males with their bubbling call and bobbing black and white-feathered display for potential mates are a charismatic sight and sound of Scottish moorlands. Numbers have fallen dramatically from an estimated 25,000 males across Britain in the early 1990s to just 5,100 in 2005. Two-thirds of the remaining birds are found in Scotland and numbers in south-eastern Scotland have since declined by almost 70% due to loss, degradation or fragmentation of moorland habitat through agricultural intensification and commercial afforestation. Only an estimated 257 males now remain in south-east Scotland.[36]

The Game & Wildlife Conservation Trust (GWCT), SNH and the Southern Uplands Partnership (SUP) undertook a desk-top survey project in 2013/14 which concluded that a landscape-scale strategic approach to conserving black grouse was required, and a plan to conserve black grouse was set-up in 2016 by GWCT, SNH, SUP, SBC, FCS, RSPB Scotland, and the Lammermuirs Moorland group.

The objectives of the new plan are to secure and protect core populations of black grouse that are associated with larger moorland areas, then instigate measures to increase population size and connectivity with other moorland in the landscape. Implementing this plan will help to conserve and enhance a charismatic Scottish species that is currently red-listed as a species of conservation concern and help ensure our wild landscapes retain the special character for the enjoyment of both local communities and visitors to the region.


© John Savory

4. Priority Objectives & for Wildlife and Habitats		
Objectives & Actions	**Lead Partners**	**Review Date**
WH1 Improve habitats and ecological connectivity across the landscape:		
WH1.1 Identify and adopt Local Biodiversity Sites (LBS) and develop a communications plan to promote their protection and enhancement	SBC, TWIC LBS steering group partners	2023
WH2 Support the recovery of native species in the Scottish Borders:		
WH2.1 Explore potential for a water vole recovery project to increase recording and improve habitat, identifying areas for possible translocation, linking with the National Water Vole Monitoring Programme and building on research from the Tweed Water Vole Initiative (Tweed Forum).	Lothian and Borders Mammal Group SWT	2028
WH2.2 Develop a programme to deliver the priority actions of the south Scotland black grouse conservation strategy	SUP, SF, FLS, BFT, SNH, GWCT, RSPB, SBC	2023
WH2.3 Conduct a survey of the Northern Brown Argus butterfly (UKBAP species) across the Scottish Borders to identify sites or landscape areas for focussing conservation action	BCS	2023
WH2.4 Support the South of Scotland Golden Eagle recovery project through promotion and public awareness raising	SUP	2023
WH2.5 Consider setting up a beaver working group to prepare for beavers naturally moving into the catchment and enable positive benefits such as creation of standing open water in the River Tweed's upper catchment	TForum, SWT, Lothian and Borders Mammal Group, TFn	2028
WH2.6 Ensure delivery of Marvellous Mud snail project at key Borders site.	Buglife	2023
WH3 Improve monitoring of species and habitats across the Scottish Borders:		
WH3.1 Develop a programme of citizen science projects to raise awareness and understanding of biodiversity and how to look after it	TWIC	2028
WH3.2 Establish a project to record road kill on strategic routes, to aid identification of suitable locations for improving green networks linking with work done by national initiatives	TWIC	2028
WH3.3 Set up community monitoring projects for wildlife through Conservation Area Regeneration Schemes – e.g. Jedburgh CARS swifts monitoring	SBC, TWIC, SWT	2023
WH3.4 Establish and maintain a Borders Wader Initiative to address declines in breeding waders in the region.	SBC, TForum, RSPB	2023
WH3.5 Continue to monitor great crested newt populations via traditional methods and eDNA sampling at known and potential sites	SBC, SWT, TWIC, TForum, ARC Trust	2023
WH3.6 Establish a follow-up project based on the outcomes of the Southern Scotland Bat Survey (2016), to assess the status of edge of range and locally rare species in the Scottish Borders	SBC, TWIC, SWT	2023
WH4 Raise awareness of actions for wildlife and habitats across the Scottish Borders:		
WH4.1 Disseminate information to partner organisations, developers, land managers and the public regarding biodiversity projects and good practice including via e-newsletters	SBC	2023

4.5 LAND AND FRESHWATER MANAGEMENT

In the Scottish Borders, the catchment of the River Tweed is central to most land and freshwater management and is an internationally protected habitat. However, rural diffuse pollution, together with modification of freshwater bodies for a variety of land uses and INNS are the biggest threats to this freshwater ecosystem and achieving 'Good Ecological Status'[37] throughout the catchment.

The Scottish Government sees River Basin Management Planning as a priority for integrating land and water management and dealing with pressures such as diffuse pollution, flood risk, soil protection, peatland and woodland restoration. The *Solway-Tweed River Basin Management Plan 2015-2027*[37] along with the *Tweed Catchment Management Plan*[38] will continue to inform the updated LBAP to help tackle these issues. LBAP partners will also continue to work with land managers to access SRDP funding up to 2020, based around priorities for water management, management of soils and support for a low carbon economy.

The Eddleston Water Project:

Flooding and habitat degradation can be devastating for communities and wildlife. The Eddleston Water is a tributary of the River Tweed and was severely straightened at the start of the 19th century. Combined with agricultural intensification, building of a railway embankment, afforestation and other land changes this has resulted in increased flood risk downstream and habitat loss/degradation.

The Eddleston Water Project[39] is led by the Tweed Forum, with the Scottish Government, SEPA and University of Dundee. Other key partners include British Geological Survey, SBC, SNH, Scottish Forestry, National Farmers Union of Scotland, the Tweed Foundation, Forest Carbon and the Woodland Trust. Landowners and the local community also contribute ideas and support to help reduce flood risk and restore the Eddleston Water through natural flood management, for the benefit of people and wildlife.

Practical re-meandering has been undertaken throughout the Eddlestone catchment in order to restore the river and valley and the project is exploring how land management changes may help reduce flood risk for communities downstream. So far over 2km of river has been re-meandered working with around 20 farmers. In addition, some 200,000 native trees have been planted, 22 ponds created as well as 101 log structures. The project is also on track to help restore the river from Bad to Good Ecological Status, in line with the requirements of the Water Framework Directive.[40]

© Tweed Forum

The Scottish Forestry Strategy aims to plant 100,000 ha of new woodland by 2022, with 50% native trees. The updated LBAP will support national targets and build on successful work already undertaken since the original LBAP was published. Actions relate to delivery of the Scottish Borders Woodland Strategy, which aims to achieve 25% woodland cover as a total of the land area by 2050, with an emphasis on integrating planting with other land uses, reducing fragmentation and linking riparian woodland habitat. This will support biodiversity and help support forestry related businesses, which in the Scottish Borders, contribute £24million to the local rural economy through harvesting, processing, haulage and tourism.[1]

In Scotland, 98% of land mass is classed as rural and 85% of this land is considered to be in a 'less favoured area', where, owing to soils and vegetation, crop or food production is more difficult. Farmers and land managers also face the challenge of producing tangible, profitable commodities, without damaging the less tangible, non-marketable benefits provided by ecosystem services. Stocks of valuable natural capital such as clean water, carbon storage, flood protection and fertile soil have been depleted in the past, in order to maximise production of marketable goods from farming or other land management activities, such as those relating to arable crops, livestock and timber.

In relation to farmed land, the LBAP proposes actions to help protect deep peat and soils from erosion, and to support sensitive soils and plant habitats by raising awareness of how to combat air pollution through nitrogen deposition. This will support the Scottish Government and Scotland's Rural College initiative, *Farming for a Better Climate.*[41]

New actions for creating individual farm and estate land use plans are proposed, to support better management of both land and water. The LUS Pilot maps will assist in identifying priority areas for improved management. The aim will be to work towards High Nature Value farming and forestry by providing advice on best practice to farmers and land managers. Adaptive land management will also be increasingly required up to 2020 and beyond, in order to respond to the unpredictable challenges that climate change may present to well-functioning ecosystems.

Grazing for diverse grasslands:

In order to protect a mosaic of grasslands at St Abb's Head and meet the original LBAP target of maintaining and enhancing 40km of cliff-top habitats, a flexible approach to grazing has been adopted at the National Nature Reserve. By purchasing 50ha of nearby grazing land with no conservation interest, farmers have been able to graze that area, and to graze at St Abb's Head in accordance with the management prescriptions set by Reserve staff. This helps not only helps support diverse grassland species such as wild thyme and rockrose, but also maintain conditions for important populations of northern brown argus butterflies, which feed and lay eggs on these plants.

© Keith Robeson

5. Priority Objectives & Actions for Sustainable Land and Freshwater Management		
Objectives & Actions	**Lead Partners**	**Review Date**
LF1 Promote woodland ecosystem management improvements:		
LF1.1 Promote effective herbivore management and tree-thinning to encourage natural regeneration, Continuous Cover Forestry (CCF) and species and age structure diversity	SF, FLS, BFT, TForum	2023
LF1.2 Raise awareness of and promote better integration between different woodland types and other land uses to deliver multiple benefits amongst foresters, farmers and land managers	SF, FLS, BFT, TForum, SBC	2023
LF1.3 Work with partners to ensure effective screening of proposed tree-planting areas to avoid damaging important grassland, heathland and wetland sites.	SF, FLS, SBC, TWIC	2023
LF2 Promote improved farmland management:		
LF2.1 Use the LUS Pilot maps to develop individual farm and estate land use plans, and raise awareness of and incorporate ecosystem services into farm accounting	SBC, TForum	2023
LF2.2 Use the LUS Pilot maps to identify priority areas for targeted, local, sustainable land management projects	SBC, TForum, SUP, BFT	2023
LF3 Encourage creative land and freshwater management projects:		
LF3.1 Consider a regional Strategic Woodland Creation project, integrating large-scale forestry with other land uses to deliver multiple benefits	SBC, SF	2028
LF3.2 Develop a series of community-led local plans for sustainable land use in and around settlements	SBC	2028
LF3.3 Continue local participation in the National Stream Temperature monitoring programme organised by Marine Scotland Science (MSS), who will provide map-based information on where riparian tree planting will be most effective in controlling water temperatures	TFn	2023
LF4 Manage INNS		
LF4.1 Maintain the Tweed Biosecurity Plan to monitor and manage INNS, focussing on giant hogweed and Himalayan balsam	SEPA, TForum, SNH, SBC, TFn	2023

4.6 MARINE AND COASTAL ECOSYSTEMS

Marine and coastal areas in the Scottish Borders have international importance. St Abb's to Fast Castle SPA is designated for regularly supporting a population of almost 80,000 seabirds, including nationally important populations of razorbill, common guillemot, black-legged kittiwake; herring gull and European shag. The eponymous SAC is designated for the special vegetation of the sea cliffs. Within the coastal waters, the sea caves and cold-water coral reefs, which are home to northern wolf fish and cup corals are designated as part of the Berwickshire Coast and North Northumerland SAC, as are the populations of grey seal. Other important coastal species include Atlantic salmon and harbour porpoise.

In addition to their importance for biodiversity, the species and ecosystems found in our seas and on our coasts underpin the fishing industry. The blue spaces and natural environments of marine and coastal areas also support the economy and jobs by offering opportunities for recreation and tourism, which lead to beneficial impacts on mental and physical health and wellbeing, as demonstrated in projects like *Blue Gym* (2009).[42]

Marine research at St Abb's Head

The National Trust for Scotland (NTS), have been working in partnership with Edinburgh Napier University to study possible effects of human disturbance on the breeding seabirds at St Abb's Head. The research is to ascertain the extent to which large number of visitors to the area, who are active on both land and sea, have an impact upon the breeding success of the internationally important seabird colony at St Abb's Head.

© Natural Trust for Scotland

Marine ecosystems face pressures including pollution from sewage and nitrate discharges, overfishing, recreational disturbance, dredging, dumping and trawling. Increasingly, INNS and offshore windfarms pose a threat, along with climate change.

On the coastal strip, issues facing coastal ecosystems include intensification of land use through higher grazing levels, and, conversely, the abandonment of land, leading to scrub encroachment, which can impact important plant and butterfly species. Development pressure is also a threat to coastal habitats and features in some locations.

Beautiful Beaches

Coldingham Bay has held the Seaside Award from Keep Scotland Beautiful for 11 consecutive years. The award is a benchmark for quality, celebrating clean, well-managed sustainable beaches that demonstrate excellent environmental best practice. The beach is within the St Abbs and Eyemouth Voluntary Marine Reserve, renowned for an abundance and diversity of wildlife. On the shore, there are rock-pools, sand dunes and coastal grasslands with flowers such as restharrow and butterflies including the small copper. It is managed by the Council and, in addition to its beach award, has been recommended by the Marine Conservation Society due to its high standards.

© Keith Robeson

The new LBAP will contribute to efforts to protect Scottish strongholds for marine life and ensure marine resources are used sustainably. The LBAP aims to promote integrated and adaptive marine and coastal zone management, and to raise awareness of the importance of Marine Protected Areas. An ecosystems approach to management of marine and coastal ecosystems also means ensuring all stakeholders are involved in decision-making. Cross-border work as part of the Berwickshire and Northumberland Marine Nature Partnership will continue to protect both marine and coastal ecosystems in our region.

Ongoing actions include improving the co-ordination of terrestrial and marine planning, through linking local management plans for flood risk, river basins and shorelines. The LBAP will include new actions to raise awareness of the varied biodiversity of marine and coastal ecosystems and encourage people to both protect and record it. Addressing threats to these ecosystems and encouraging compliance with codes of conduct aimed at protecting the marine environment are also key and vital to this work are partners such as the National Trust for Scotland, the St Abbs and Eyemouth Voluntary Marine Reserve and the Berwickshire and Northumberland Marine Nature Partnership.

6. Priority Objectives & Actions for Marine and Coastal Ecosystems		
Objectives & Actions	**Lead Partners**	**Review Date**
MC1 Support for Marine Protected Areas:		
MC1.1 Ensure Marine Protected Areas form effective protection by reviewing and where necessary establishing codes of conduct (in addition to ongoing enforcement of legislative requirements)	BNMNP, St Abbs & Eyemouth Voluntary Marine Reserve (VMR), NTS	2023
MC2 Promote research in marine and coastal areas:		
MC2.1 Enhance links with universities by developing and publicising a list of themes / potential research topics for Masters and PhD students	BNMNP, NTS	2023
MC3 Raise awareness of marine and coastal ecosystems:		
MC3.1 Raise awareness of the marine and coastal environment, specifically, why and how to gather and submit wildlife records to ensure a wide range of users are engaged with monitoring and recording in marine and coastal habitats	BNMNP, TWIC, NTS	2023
MC3.2 Raise awareness of factors that pressurise the biodiversity of the marine and coastal environment, specifically diffuse pollution, plastic waste, and invasive non-native species, with clear advice on action to be taken	BNMNP, NTS	2028
MC4 Marine and coastal direct action and monitoring:		
MC4.1 Continue to monitor the seabird populations on the Berwickshire Coast, contributing to records for the National Seabird Count.	NTS	2023
MC4.2 Promote The Great Nurdle Hunt and support public participation in the initiative (www.nurdlehunt.org.uk)	BNMNP, RSPB, SWT, NTS	2023
MC4.3 Undertake a series of beach litter surveys and beach cleans in Berwickshire	BNMNP, SBC, NTS	2023
MC4.4 Establish a marine biosecurity project to tackle INNS	BNMNP, NTS	2028


© Paula Lightfoot

5. SUMMARY OF ACTIONS

The table below organises LBAP objectives and actions under each of the six broad themes and shows the key LUS policy driver per action. Priority areas for action link to the Landscape Character Areas for the Scottish Borders (see map overview in Appendix C).[43]

SBS Theme	Objectives & Actions	Key Partners	Priority Action Areas (Landscape Character Areas)						Key LUS Policy Driver	Review Date
			Midland Valley	Tweed Lowlands	Lammermuir & Moorfoot Hills	Central Southern Uplands	Cheviot Hills	Coast		
Ecosystem Restoration	**ER1 Reduce pollution of aquatic ecosystems:**									
	ER1.1 Increase awareness amongst farmers, land managers and the public of the Water Framework Directive requirements and benefits, pollution prevention good practice, key problems and when to report an incident particularly in the priority catchments.	SEPA, TForum		✓	✓			✓	Diffuse Pollution Control	2023
	ER1.2 Promote the LUS Framework maps for use in targeting pollution prevention measures in priority catchments	SBC, SEPA, TForum		✓				✓	Diffuse Pollution Control	2023
	ER2 Restore woodland ecosystems:									
	ER2.1 Increase coverage of and improve connectivity between native woodlands to enhance the Forest Habitat Network.	SF, BFT, TForum	✓	✓	✓	✓	✓	✓	Timber & Woodland	2023
	ER2.2 Develop a strategic approach to restore and create cleuch woodland, juniper and montane / heathland scrub in upland areas.	SF, BFT, SUP, TForum			✓	✓	✓		Biodiversity	2023

SBS Theme	**ER2.3** Promote integration of aspen into action plans for riparian habitats (and other habitats where appropriate) to help mitigate future loss of ash and enhance the Forest Habitat Network	SF, BFT, TForum SBC	✓	✓	✓	✓	✓	✓	Biodiversity	2023
Ecosystem Restoration	**ER3 Assess development impacts on ecosystems:**									
	ER3.1 Develop a methodology to assess impacts from development on ecosystem services, including opportunities for enhancements and offsetting to inform the updated Local Development Plan	SBC, SNH, SEPA	✓	✓	✓	✓	✓	✓	Development/ Renewables	2023
	ER4 Enhance the ecological network:									
	ER4.1 Use LUS Pilot maps to target management and restoration of habitats to enhance the ecological network within and surrounding protected areas and Local Biodiversity Sites	SBC, TForum, SEPA, SNH, SF, TWIC	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	ER5 Restore farmland habitats:									
	ER5.1 Encourage investment in restoration and appropriate management of species-rich hedgerows, individual tree planting, riparian margins and farm ponds	TForum, SF, SBC	✓	✓	✓	✓	✓	✓	Biodiversity	2023
Natural Capital	**NC1.1 Enhance peatland habitats as carbon stores**									
	NC1.1 Develop a Peatland Action Plan for the Scottish Borders, making use of the LUS pilot maps, incorporating enhancements for biodiversity and wildlife	TForum, SNH, SBC, SEPA	✓	✓	✓	✓	✓	✓	Carbon Storage	2023

Natural Capital	**NC1.2** Adopt the Peatland Code and utilise the carbon market to restore peatland sites	TForum, SNH, SBC, SEPA	✓	✓	✓	✓	✓	✓	Carbon Storage	2028
	NC1.3 Establish long-term monitoring projects in both previously restored and existing degraded peatland sites	SEPA, TForum	✓	✓	✓	✓	✓	✓	Carbon Storage	2028
	NC2 Invest in natural flood management (NFM):									
	NC2.1 Use LUS Pilot maps to prioritise areas for NFM at a catchment level including tree planting in areas where multiple benefits may be delivered for biodiversity, water quality and recreation.	SEPA, TForum, SBC, BFT, SF	✓	✓	✓	✓	✓		Natural Flood Management	2023
	NC2.2 Raise awareness of NFM opportunities amongst key stakeholders/land managers in priority catchments	SEPA, TForum, SBC	✓	✓	✓	✓	✓		Natural Flood Management	2023
	NC3 Increase diversity of trees to enhance woodland ecosystems:									
	NC3.1 Promote productive broadleaves; selective retention of mature conifers; increased planting/ retention of non-spruce conifers for biodiversity as viable components of new forests	SF, FLS, SBC, BFT	✓	✓	✓	✓	✓		Timber and Woodland	2023
	NC3.2 Promote better integration between different woodland types and other land uses to deliver multiple benefits adopting the principles of the Land Use Strategy.	SF, FLS, SBC, BFT, TForum	✓	✓	✓	✓	✓		Timber and Woodland	2023

Natural Capital	**NC4 Invest in habitat for pollinators**									
	NC4.1 Encourage mechanisms to increase unimproved grassland, grassland margin, roadside verges and hedgerow habitat and improve their management for pollinators	BCS, Buglife, BBCT	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	NC4.2 Establish long-term monitoring projects for pollinators across habitats to encourage good practice in habitat management	BCS, Buglife, BBCT	✓	✓	✓	✓	✓	✓	Biodiversity	2028
Greenspace	**GR1 Enhance greenspace and green infrastructure in towns**									
	GR1.1 Raise awareness and promote establishment of infrastructure including green roofs and living walls under the Planning system	SBC	✓	✓	✓	✓	✓	✓	Development/ Renewables	2023
	GR1.2 Promote sustainable management of greenspace and green networks including appropriate planting and protection of pollinator habitats, including wild flower planting in amenity areas	SBC, BCS	✓	✓	✓	✓	✓	✓	Local Community Integration	2023
	GR1.3 Increase awareness of SUDS potential for biodiversity and promote the creation of high quality SUDS for biodiversity, supported by additional training resources	SBC, BCS, ArcTrust,	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	GR1.4 Develop business and biodiversity initiatives for green spaces and urban habitats	SBC	✓	✓	✓	✓	✓	✓	Local Community Integration	2027

Greenspace	**GR1.5** Develop a new strategy for the management and enhancement of road verges and similar areas for the benefit of pollinators and other insects, including appropriate mowing regimes and improving plant diversity.	SBC, BCS, Buglife, BBCT	✓	✓	✓	✓	✓	✓	Biodiversity	2028
	GR2 Enhance and improve green networks around towns:									
	GR2.1 Restore local green networks and enable permeation of landscape barriers (e.g. roads), for the benefit of wildlife, linking to Local Biodiversity Sites and Protected Areas and contributing to the development of a National Ecological Network for Scotland	SBC	✓	✓	✓	✓	✓	✓	Development/ Renewables	2028
	GR3 Improve community woodlands and urban tree resource:									
	GR3.1 Establish a protocol for native tree species selection and management in community woodlands, streets and settlements	SBC, BFT, SF	✓	✓	✓	✓	✓	✓	Timber & Woodland	2028
	GR3.2 Building on SBC's localities work pilot a biodiversity project to manage communal land, opening it up for more innovative approaches to enhancing communities in the Scottish Borders	SBC	✓	✓	✓	✓	✓	✓	Local Community Integration	2023
	GR4 Explore links with recreation, learning and greenspace:									
	GR4.1 Set up a River Tweed walk to support tourism, recreation and increased biodiversity awareness, including on INNS and pollinators	TForum, SBC, Visit Scotland, TFn, SNH	✓	✓	✓	✓	✓	✓	Recreation	2028

Greenspace	**GR4.2** Expand on Historic Land Use Value Project and explore links with recreation and greenspace and historic/contemporary land use to support health and wellbeing	SBC	✓	✓	✓	✓	✓	✓	Recreation	2028
	GR4.3 Promote nature based tourism opportunities to raise awareness and help protect biodiversity	SBC, TForum, SF, FLS	✓	✓	✓	✓	✓	✓	Biodiversity	2028
	GR4.4 Encourage use of Global Footprint Network www.footprintnetwork.org and calculator to promote individual action to help the environment	SBC, TForum, SEPA	✓	✓	✓	✓	✓	✓	Local Community Integration	2023
	GR5 Information sharing:									
	GR5.1 Enable improved data gathering and sharing in relation to development applications	SBC, TWIC	✓	✓	✓	✓	✓	✓	Development/ Renewables	2028
Wildlife & Habitats	**WH1 Improve habitats and ecological connectivity across the landscape:**									
	WH1.1 Identify and adopt Local Biodiversity Sites (LBS) and develop a communications plan to promote their protection and enhancement	SBC, TWIC LBS steering group partners	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	WH2 Support the recovery of native species in the Scottish Borders:									
	WH2.1 Explore potential for a water vole recovery project to increase recording and improve habitat, identifying areas for possible translocation, linking with the National Water Vole Monitoring Programme and building on research from the Tweed Water Initiative	LBMG, SWT	✓	✓					Biodiversity	2028

Wildlife & Habitats	**WH2.2** Develop a programme to deliver the priority actions of the south Scotland black grouse conservation strategy	SUP, SF, FLS, BFT, SNH, GWCT, RSPB,			✓	✓			Biodiversity	2023
	WH2.3 Conduct a survey of the Northern Brown Argus butterfly (UKBAP species) across the Scottish Borders to indicate sites or landscape areas for focussing conservation action	BCS	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	WH2.4 Support the South of Scotland Golden Eagle recovery project through promotion and public awareness raising	SUP			✓	✓			Biodiversity	2023
	WH2.5 Consider setting up a beaver working group to prepare for beavers naturally moving into the catchment and enable positive benefits such as creation of standing open water in the River Tweed's upper catchment	TForum, SWT, LBMG, TFn			✓	✓			Natural Flood Management	2028
	WH2.6 Ensure delivery of Marvellous Mud snail project at key Borders site	Buglife		✓					Biodiversity	2023
	WH3 Support the recovery of native species in the Scottish Borders:									
	WH3.1 Develop a programme of citizen science projects to raise awareness and understanding of biodiversity and how to look after it	TWIC	✓	✓	✓	✓	✓	✓	Local Community Integration	2028
	WH3.2 Establish a project to record road kill on strategic routes, to aid identification of suitable locations for improving green networks linking with work done by national initiatives	TWIC	✓	✓	✓	✓	✓	✓	Local Community Integration	2028

Wildlife & Habitats	**WH3.3** Set up community monitoring projects for wildlife through Conservation Area Regeneration Schemes (CARS) – e.g. Jedburgh CARS swifts monitoring	TWIC, SWT	✓	✓	✓	✓	✓	✓	Local Community Integration	
	WH3.4 Establish and maintain a Borders Wader Initiative to address declines in breeding waders in the region.	SBC, TForum, RSPB	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	WH3.5 Continue to monitor great crested newt populations via traditional methods and eDNA sampling at known and potential sites	SBC, SWT, TWIC, TForum	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	WH3.6 Establish a follow-up project based on the outcomes of the Southern Scotland Bat Survey (2016) to assess the status of edge of range/ locally rare species in the Borders	SBC, TWIC, SWT	✓	✓	✓	✓	✓	✓	Biodiversity	2023
	WH4 Raise awareness of actions for wildlife and habitats across the Scottish Borders:									
	WH4.1 Disseminate information to partner organisations, developers, land managers and the public regarding biodiversity projects and good practice including via e-newsletters	SBC	✓	✓	✓	✓	✓	✓	Local Community Integration	2023
Land & Freshwater Management	**LF1 Promote woodland habitat management improvements:**									
	LF1.1 Promote effective herbivore management and tree-thinning to encourage natural regeneration, CCF, species/age structure diversity	SF, FLS, BFT, TForum	✓	✓	✓	✓	✓	✓	Timber & Woodland	2023

Land & Freshwater Management	**LF1.2** Raise awareness of an promote better integration between different woodland types and other land uses to deliver multiple benefits amongst foresters, farmers and land managers	SF, FLS, BFT, TForum SBC	✓	✓	✓	✓	✓	✓	Timber & Woodland	2023
	LF1.3 Work with partners to ensure effective screening of proposed tree-planting areas to avoid damaging important grassland, heathland and wetland sites.	SF, FLS, SBC, TWIC	✓	✓	✓	✓	✓	✓	Timber & Woodland	2023
	LF2 Promote improved farmland management:									
	LF2.1 Use the LUS Pilot maps to develop individual farm and estate land use plans, and raise awareness of and incorporate ecosystem services into farm accounting	SBC, TForum	✓	✓	✓	✓	✓	✓	Food Production	2023
	LF2.2 Use the LUS Pilot maps to identify priority areas for targeted, local, sustainable land management projects	SBC, TForum, SUP, BFT	✓	✓	✓	✓	✓	✓	Local Community Integration	2023
	LF3 Encourage creative land and freshwater management projects:									
	LF3.1 Consider a regional Strategic Woodland Creation project, integrating large-scale forestry with other land uses to deliver multiple benefits	SBC, SF	✓	✓	✓	✓	✓	✓	Local Community Integration	2028
	LF3.2 Develop a series of community-led local plans for sustainable land use in and around settlements	SBC	✓	✓	✓	✓	✓	✓	Local Community Integration	2028

Land & Freshwater Management	**LF3.3** Continue local participation in the National Stream Temperature monitoring programme organised by Marine Scotland Science (MSS), that will provide map-based information on where riparian tree planting will most effectively help control water temperatures	TFn	✓	✓	✓	✓	✓	✓	Carbon Storage	2023
	LF3.3 Ensure delivery of Marvellous Mud snail project at key Borders site. Lead partners: Buglife			✓					Biodiversity	2023
	LF4 Manage INNS:									
	LF4.1 Maintain the Tweed Biosecurity Plan to monitor and manage INNS, focussing on giant hogweed and Himalayan balsam	SEPA, TForum, SNH, SBC, TFn	✓	✓	✓	✓	✓		Biodiversity	2023
Marine & Coastal Ecosystems	**MC1 Support Marine Protected Areas:**									
	MC1.1 Ensure Marine Protected Areas form effective protection by reviewing and where necessary establishing codes of conduct (in addition to ongoing enforcement of legislative requirements)	BNMNP, NTS						✓	Biodiversity	2023
	MC2 Promote research in marine and coastal areas:									
	MC2.1 Enhance links with universities by developing and publicising a list of themes / potential research topics for Masters and PhD students	BNMNP, NTS						✓	Local Community Integration	2023
	MC3 Raise awareness of marine and coastal ecosystems:									
	MC3.1 Raise awareness of the marine and coastal environment, specifically, why and how to gather and submit wildlife records to ensure a wide range of users are engaged with monitoring and recording in marine and coastal habitats	BNMNP, TWIC, NTS						✓	Local Community Integration	2023

Marine & Coastal Ecosystems	**MC3.2** Raise awareness of factors that pressurise the biodiversity of the marine and coastal environment, specifically diffuse pollution, plastic waste, and invasive non-native species, with clear advice on action to be taken	BNMNP, NTS						✓	Biodiversity	2028
	MC4 Marine and coastal direct action and monitoring:									
	MC4.1 Continue to monitor the seabird populations on the Berwickshire Coast, contributing to records for the National Seabird Count	NTS						✓	Biodiversity	2023
	MC4.2 Promote The Great Nurdle Hunt and support public participation in the initiative (www.nurdlehunt.org.uk)	BNMNP, RSPB, SWT, NTS						✓	Local Community Integration	2023
	MC4.3 Undertake a series of beach litter surveys and beach cleans in Berwickshire	BNMNP, SBC, NTS						✓	Local Community Integration	2023
	MC4.4 Establish a marine biosecurity project to tackle INNS	BNMNP, NTS						✓	Local Community Integration	2028

REFERENCES:

[1] Scottish Borders Council (2005). *Scottish Borders Woodland Strategy: New Ways for Scottish Borders Trees, Woodlands and Forests.* Scottish Borders Council, Melrose.

[2] Forestry Commission Scotland (2013). *Native Woodland Survey of Scotland.* Forestry Commission Scotland, Edinburgh.

[3] The Scottish Government (2008). *Good places, Better health: A new approach to environment and health in Scotland: Implementation Plan*. The Scottish Government, Edinburgh.

[4] Scottish Borders Council (2001) Biodiversity in the Scottish *Borders: Overview and First Steps. Local Biodiversity Action Plan. Scottish Borders Council, Melrose.*

[5] The Scottish Government (2015). *Scotland's Biodiversity: A Routemap to 2020.* The Scottish Government, Edinburgh. Available at: http://www.biodiversityscotland.gov.uk/doing/route-map-to-2020.

[6] Nature Conservation (Scotland) Act (2004).

[7] Scottish Borders Council (2006). *Supplementary Planning Guidance for Biodiversity.* Scottish Borders Council, Melrose.

[8] Available at: http://www.gov.scot/About/Performance/scotPerforms/purpose

[9] The Scottish Government (2004). *Scotland's Biodiversity: It's in Your Hands. A strategy for the conservation and enhancement of biodiversity in Scotland.* The Scottish Government, Edinburgh.

[10] 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.

[11] 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

[12] European Commission (2011). *The EU Biodiversity Strategy to 2020.* European Union, Luxembourg.

[13] The Scottish Government (2011, 2016). *Getting the Best from Our Land: A Land Use Strategy for Scotland 2016-2021*. The Scottish Government, Edinburgh.

[14] The Scottish Government (2015). *Scotland's Economic Strategy.* The Scottish Government, Edinburgh.

[15] Spray, C. (2016). *Scottish Borders Pilot Regional Land Use Framework*. Scottish Borders Council, Scottish Borders.

[16] UK National Ecosystem Assessment (2011). *The UK National Ecosystem assessment: Synthesis of the Key Findings.* UNEP-WCMC, Cambridge

[17] Scottish Borders Council (2013). *Scottish Borders Economic Strategy 2023.* Scottish Borders Council, Melrose.

[18] Scottish Borders Council (2017). *Connected Borders: The vision of Scottish Borders Council's Administration*. Scottish Borders Council, Melrose.

[19] Edwards, T., Hughes, J., Keegan, M. Pike, J. & Wilson, B. (2017). *Land Stewardship: A Blueprint for Government Policy.* Scottish Wildlife Trust, Edinburgh.

[20] Scottish Borders Council Corporate Plan 2018-2023 https://www.scotborders.gov.uk/info/20062/strategies_plans_and_policies/252/corporate_plan/1

[21] Available at: http://www.gov.scot/About/Performance/scotPerforms/purpose

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

[23] Lawton, J. H., Brotherton, P.N.M., Brown, V. K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010). *Making Space for Nature: a review of England's wildlife sites and ecological network*. Report to Defra.

[24] Available at: http://www.scotlink.org/wp/files/SEL_A-Roadmap-for-Adopting-a-National-Ecological-Network-in-Scotland.pdf

[25] The Scottish Government, (2017). *Pollinator Strategy for Scotland 2017-2027.* The Scottish Government, Edinburgh.

[26] Details available at: https://www.buglife.org.uk/b-lines-hub/john-muir-pollinator-way

[27] The Scottish Government (2007). *Health in Scotland 2006: Annual Report of the Chief Medical Officer.* The Scottish Government, Edinburgh.

[28] The Scottish Government (2011). *Achieving a Sustainable Future: Regeneration Strategy.* The Scottish Government, Edinburgh.

[29] The Scottish Borders Community Planning Partnership (2017). *Our Scottish Borders: Your Community Plan November 2017.* Scottish Borders Council, Melrose.

[30] Available at: www.pathsforall.org.uk/pfa/health-walks/health-walks.html

[31] Wilson, V. and Stewart, D. (2013). Scottish Recreation Survey: Annual summary report 2012. *Scottish Natural Heritage Commissioned Report No. 604.*

[32] The Scottish Government (2014). *Scottish Planning Policy.* The Scottish Government, Edinburgh.

[33] The Scottish Government (2014). *Ambition. Opportunity. Place. Scotland's Third National Planning Framework.* The Scottish Government, Edinburgh.

[34] Scottish Borders Council (2016). *Scottish Borders Local Development Plan.* Scottish Borders Council, Melrose.

[35] Available at: http://www.paha.org.uk/Feature/nhs-greenspace

[36] Warren, P. (2016). *Black grouse conservation in southern Scotland – Phase 2 Development of a regional strategic conservation plan.* The Game & Wildlife Conservation Trust, Durham. Available at: https://www.gwct.org.uk/media/641731/black-grouse-in-southern-Scotland.pdf.

[37] SEPA (2015). *The river basin management plan for the Solway Tweed river basin district: 2015 update.* Available at: https://www.sepa.org.uk/media/218890/rbmp_solway_tweed_2015.pdf

[38] Tweed Forum (2015). *Tweed Catchment Management Plan 2015-2021.* Tweed Forum, Melrose.

[39] Details available at: http://www.tweedforum.org/projects/current-projects/eddleston

[40] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.
Available at: http://eur-lex.europa.eu/eli/dir/2000/60/oj.

[41] Available at: http://www.gov.scot/Topics/farmingrural/Agriculture/Environment/climatechange/Advice

[42] Depledge M.H. and Bird W.J. (2009) *The Blue Gym: health and wellbeing from our coasts.* Marine Pollution Bulletin 58, 947–948.

[43] ASH Consulting Group (1998). *The Borders landscape assessment. Scottish Natural Heritage Review No 112.* Scottish Natural Heritage, Perth.

APPENDIX A: KEY POLICIES

Plan, programme or strategy	Links to the 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.
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) (as amended)	The objectives of the LBAP are to be compliant with the Act as they will contribute to its requirements
Wildlife and Natural Environment (Scotland) Act 2011	The Act amends the above Act in relation to legislation concerning non-native species, enabling Scotland to adopt a 3-stage approach to dealing with INNS, which the LBAP will seek to support.
Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	These directives and convention 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)	
Conservation (Natural Habitats &c.) Regulations 1994 (as amended)	This legislation transposes the above Habitats Directive into specific legal obligations for the UK, with which the LBAP and its related actions will accord.
The Scottish Forestry Strategy (2006) (and associated SEA)	The LBAP will contribute towards the aims of the strategy in helping to achieve a "high quality, robust and adaptable environment".
Scottish Borders Woodland Strategy (2005)	The LBAP will help contribute towards the aims of the strategy that "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 Scottish Government National Outcomes	The LBAP aims to contribute to each of the National Outcomes, for example in terms of: 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.

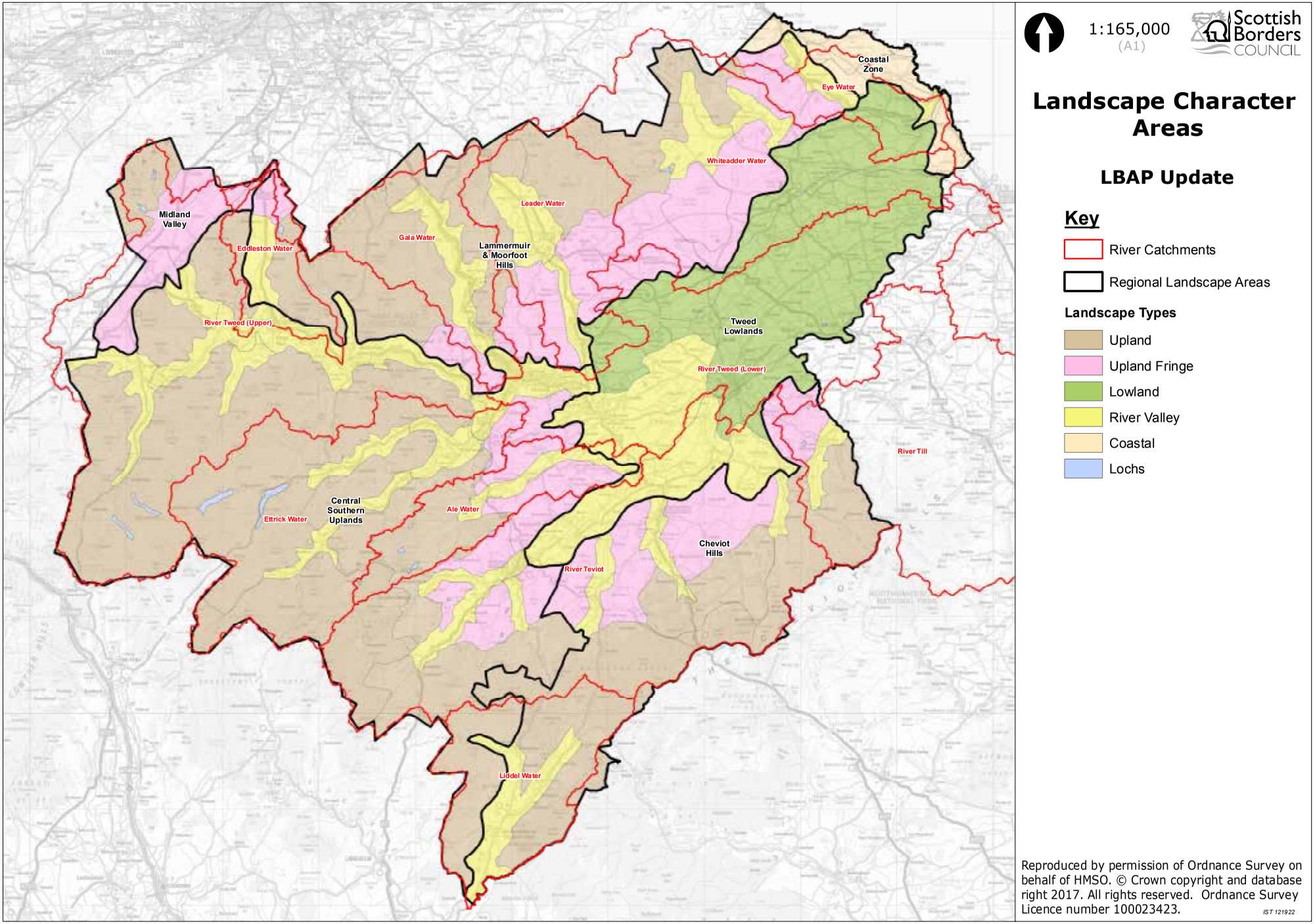
Plan, programme or strategy	Links to the LBAP
Scottish Soils Framework	The purpose of the framework is to ensure more sustainable management of the soil resource. It identifies 13 outcomes of threats to the soil resource and provides action to tackle these outcomes. The LBAP aims to be aware of these threats and assist in tackling them in line with the actions where appropriate.
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 Water Environment (Controlled Activities) (Scotland) Regulations 2005 (as amended)	
Scotland River Basin Management Plan and Solway Tweed River Basin Management Plan (RBMP)	The two RBMPs are the documents that 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 Scottish Borders the Tweed is subject to a separate RBMP to the rest of Scotland and thus the LBAP aims to take account of the objectives of both documents.
Flood Risk Management (Scotland) Bill 2008	The bill sets national policy and actions undertaken in relation to the LBAP will be required to take flood risk into account.
Scottish Water, Water Resource Plan (2015)	Sets Scottish Water's plan to ensure a resilient supply of drinking water to 2040. 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 the work intended to meet this challenge.
National Marine Plan 2010	The LBAP aims to support 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 aim to assist in achieving the strategy.
Low Carbon Scotland – Meeting the Emissions Reduction Targets 2010-202	The LBAP aims to 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.
NPPG5 Archaeology and Planning (1998)	Sets national policy on archaeology and the historic environment, which actions in the LBAP will need to take account of as appropriate.
NPPG18 Planning and the Historic Environment	

Plan, programme or strategy	Links to the LBAP
Historic Environment Scotland Policy Statement (2016)	The LBAP should impact as little as possible on the historic environment and seek to promote the HESPS vision.
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, which in turn informs key objectives of the LBAP.
Scottish Climate Change Adaptation Programme (2014)	The document has a vision to which the LBAP aims relate: "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".
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 will maintain awareness of the need for forestry to provide biomass.
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.
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.
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.
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 should take cognisance of these and their potential enhancement for biodiversity and people.
European Landscape Convention (2000)	The LBAP will aim to support the convention in its requirement to protect and enhance landscapes.

APPENDIX B: Acronyms

ARC Trust	Amphibian and Reptile Conservation Trust
BCS	Butterfly Conservation Scotland
BCT	Bumblebee Conservation Trust
BFT	Borders Forest Trust
BNMNP	Berwickshire and Northumberland Marine Nature Partnership
BSBI	Botanical Society of Britain & Ireland
FLS	Forest and Land Scotland
GWCT	Game and Wildlife Conservation Trust
INNS	Invasive Non-Native Species
LBAP	Local Biodiversity Action Plan
LUS	(The Scottish Government's) Land Use Strategy
LUS Pilot	Scottish Borders' Land Use Strategy Pilot Regional Land Use Framework Project
NNR	National Nature Reserve
NSA	National Scenic Area
NTS	National Trust for Scotland
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SBC	Scottish Borders Council
SBS	Scottish Biodiversity Strategy
SEPA	Scottish Environmental Protection Agency
SF	Scottish Forestry
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Drainage Systems
SUP	Southern Uplands Partnership
SWT	Scottish Wildlife Trust
TForum	Tweed Forum
TFn	Tweed Foundation
TWIC	The Wildlife Information Centre
UKBAP	UK Biodiversity Action Plan

APPENDIX C: LANDSCAPE CHARACTER AREA MAP



APPENDIX D: The Local Biodiversity Action Plan Partnership

The following organisations have been involved in undertaking and monitoring the impacts of actions relating to the original LBAP (2001) and have contributed to the formation of new actions for the new LBAP (2018):

Berwickshire and Northumberland Marine Nature Partnership
Borders Forest Trust
Botanical Society of Britain & Ireland
Butterfly Conservation Scotland
Forest Enterprise Scotland (now Forest and Land Scotland)
Forestry Commission Scotland (now Scottish Forestry)
Game and Wildlife Conservation Trust
LIVE Borders
National Trust for Scotland
RSPB Scotland
Scottish Borders Council
Scottish Environmental Protection Agency
Scottish Land & Estates
Scottish Natural Heritage
Scottish Wildlife Trust
Southern Uplands Partnership
St Abbs and Eyemouth Voluntary Marine Reserve
The Wildlife Information Centre
Tweed Forum
Tweed Foundation

APPENDIX E: Summary of the 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)[i]

- 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 1quatic1* 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 1quatic*, and a large number of red data and nationally notable beetles Cranefly, hoverfly and moths **Plants:** Fibrous tussock sedge *Carex appropinquata* 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
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:** Rugged collar-moss *Splachnum 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; Hamatocaulis 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 mamillata* **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 *Deschampsia 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 stolonifera;* **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:** Heath dog-violet *Viola canina*; Bog bilberry *Vaccinium uliginosum;* **Chickweed wintergreen *Urocystis trientalis*** **Invertebrates:** **Sword grass Xylena exsoleta** 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*	**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 amarella;* 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***	• Inappropriate grazing • Afforestation – including native woodland • Abandonment • Fertilising, ploughing and reseeding • Increased slurry use • Silage (rather than hay) cropping • Agricultural intensification

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.	***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*** **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;*** Alpine saw-wort *Saussurea alpina*,, Bearberry Arctostaphylos uva-ursi *S*heathed 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*	**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	• Inappropriate grazing, cultivation and abandonment • Overgrazing (sheep, cattle, rabbits) • Scrub encroachment

pilosella- Thymus praecox grassland CG10 *Festuca ovina-Agrostis capillaris-Thymus polytrichus* grassland.	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 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*	• Reduction of natural zonation at cliff edges • Local eutrophication • Pesticide applications • Dumping of rubble and rubbish • 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.	**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.*	

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


© Lewis Tharme

You can get this document on audio CD, in large print, and various other formats by contacting us at the address below. In addition, contact the address below for information on language translations, additional copies, or to arrange for an officer to meet with you to explain any areas of the publication that you would like clarified.

REGULATORY SERVICES
Council Headquarters | Newtown St Boswells | MELROSE TD6 0SA
tel: 01835 825060 | email: ecology@scotborders.gov.uk

Scottish Borders COUNCIL

Designed by Scottish Borders Council Graphic Design Section. February 2020