

Scottish Planning Policy



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Scottish Planning Policy

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Planning Series

The Scottish Government series of Planning and Architecture documents are material considerations in the planning system.

Planning and Architecture Policy

Circulars

SG policy on implementing legislation

Scottish Planning Policy

SG policy on nationally important land use planning matters

National Planning Framework

SG strategy for Scotland's long-term spatial development

<u>Creating</u> <u>Places</u>

SG policy statement on architecture and place

Designing Streets

SG policy and technical guidance on street design

Planning and Design Advice and Guidance

Planning Advice

Technical planning matters

Design Advice

Design matters including practical projects and roles

Web Advice

Best practice and technical planning matters

Further information is available at: www.scotland.gov.uk/planning

This SPP replaces SPP (2010) and Designing Places (2001)

statutory

non-statutory

Scottish Planning Policy (SPP)

Purpose

The purpose of the SPP is to set out national planning policies which reflect Scottish Ministers' priorities for operation of the planning system and for the development¹ and use of land. The SPP promotes consistency in the application of policy across Scotland whilst allowing sufficient flexibility to reflect local circumstances. It directly relates to:

- · the preparation of development plans;
- · the design of development, from initial concept through to delivery; and
- the determination of planning applications and appeals.

Status

The SPP is a statement of Scottish Government policy on how nationally important land use planning matters should be addressed across the country. It is non-statutory. However, Section 3D of the Town and Country Planning (Scotland) 1997 Act requires that functions relating to the preparation of the National Planning Framework by Scottish Ministers and development plans by planning authorities must be exercised with the objective of contributing to sustainable development. Under the Act, Scottish Ministers are able to issue guidance on this requirement to which planning authorities must have regard. The Principal Policy on Sustainability is guidance under section 3E of the Act.

The 1997 Act requires planning applications to be determined in accordance with the development plan unless material considerations indicate otherwise. As a statement of Ministers' priorities the content of the SPP is a material consideration that carries significant weight, though it is for the decision-maker to determine the appropriate weight in each case. Where development plans and proposals accord with this SPP, their progress through the planning system should be smoother.

¹ The Planning (Scotland) Act 2006 extends the definition of development to include marine fish farms out to 12 nautical miles.

iv. The SPP sits alongside the following Scottish Government planning policy documents:

- the <u>National Planning Framework</u> (NPF)², which provides a statutory framework for Scotland's long-term spatial development. The NPF sets out the Scottish Government's spatial development priorities for the next 20 to 30 years. The SPP sets out policy that will help to deliver the objectives of the NPF;
- <u>Creating Places</u>³, the policy statement on architecture and place, which contains policies and guidance on the importance of architecture and design;
- <u>Designing Streets</u>⁴, which is a policy statement putting street design at the centre of placemaking. It contains policies and guidance on the design of new or existing streets and their construction, adoption and maintenance; and
- <u>Circulars</u>⁵, which contain policy on the implementation of legislation or procedures.

v. The SPP should be read and applied as a whole. Where 'must' is used it reflects a legislative requirement to take action. Where 'should' is used it reflects Scottish Ministers' expectations of an efficient and effective planning system. The Principal Policies on Sustainability and Placemaking are overarching and should be applied to all development. The key documents referred to provide contextual background or more detailed advice and guidance. Unless otherwise stated, reference to Strategic Development Plans (SDP) covers Local Development Plans outwith SDP areas. The SPP does not restate policy and guidance set out elsewhere. A glossary of terms is included at the end of this document.

² www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Framework

³ www.scotland.gov.uk/Publications/2013/06/9811/0

^{4 &}lt;u>www.scotland.gov.uk/Publications/2010/03/22120652/0</u>

^{5 &}lt;u>www.scotland.gov.uk/Topics/Built-Environment/planning/publications/circulars</u>

Introduction

The Planning System

- **1.** The planning system has a vital role to play in delivering high-quality places for Scotland. Scotlish Planning Policy (SPP) focuses plan making, planning decisions and development design on the Scotlish Government's Purpose of creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.
- 2. Planning should take a positive approach to enabling high-quality development and making efficient use of land to deliver long-term benefits for the public while protecting and enhancing natural and cultural resources.
- **3.** Further information and guidance on planning in Scotland is available at www.scotland.gov.uk/planning. An explanation of the planning system can be found in A Guide to the Planning System in Scotland.

Core Values of the Planning Service

- **4.** Scottish Ministers expect the planning service to perform to a high standard and to pursue continuous improvement. The service should:
 - focus on outcomes, maximising benefits and balancing competing interests;
 - play a key role in facilitating sustainable economic growth, particularly the creation of new jobs and the strengthening of economic capacity and resilience within communities;
 - be plan-led, with plans being up-to-date and relevant;
 - make decisions in a timely, transparent and fair way to provide a supportive business environment and engender public confidence in the system;
 - be inclusive, engaging all interests as early and effectively as possible;
 - · be proportionate, only imposing conditions and obligations where necessary; and
 - uphold the law and enforce the terms of decisions made.

People Make the System Work

5. The primary responsibility for the operation of the planning system lies with strategic development planning authorities, and local and national park authorities. However, all those involved with the system have a responsibility to engage and work together constructively and proportionately to achieve quality places for Scotland. This includes the Scotlish Government and its agencies, public bodies, statutory consultees, elected members, communities, the general public, developers, applicants, agents, interest groups and representative organisations.

⁶ www.scotland.gov.uk/Topics/built-environment/planning

⁷ www.scotland.gov.uk/Publications/2009/08/11133705/0

- **6.** Throughout the planning system, opportunities are available for everyone to engage in the development decisions which affect them. Such engagement between stakeholders should be early, meaningful and proportionate. Innovative approaches, tailored to the unique circumstances are encouraged, for example charrettes or mediation initiatives. Support or concern expressed on matters material to planning should be given careful consideration in developing plans and proposals and in determining planning applications. Effective engagement can lead to better plans, better decisions and more satisfactory outcomes and can help to avoid delays in the planning process.
- **7.** Planning authorities and developers should ensure that appropriate and proportionate steps are taken to engage with communities during the preparation of development plans, when development proposals are being formed and when applications for planning permission are made. Individuals and community groups should ensure that they focus on planning issues and use available opportunities for engaging constructively with developers and planning authorities.
- 8. Further information can be found in the following:
 - Town and Country Planning (Scotland) Act 1997⁸ as amended, plus associated legislation: sets out minimum requirements for consultation and engagement
 - Circular 6/2013: Development Planning⁹
 - Circular 3/2013: Development Management Procedures¹⁰
 - The Standards Commission for Scotland: Guidance on the Councillors' Code of Conduct¹¹
 - Planning Advice Note 3/2010: Community Engagement¹²
 - A Guide to the Use of Mediation in the Planning System in Scotland (2009)¹³

Outcomes: How Planning Makes a Difference

- **9.** The Scottish Government's Purpose of creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth is set out in the Government Economic Strategy. The aim is to ensure that the entire public sector is fully aligned to deliver the Purpose. The relationship of planning to the Purpose is shown on page 8.
- **10.** The Scottish Government's <u>16 national outcomes</u>¹⁴ articulate in more detail how the Purpose is to be achieved. Planning is broad in scope and cross cutting in nature and therefore contributes to the achievement of all of the national outcomes. The pursuit of these outcomes provides the impetus for other national plans, policies and strategies and many of the principles and policies set out in them are reflected in both the SPP and NPF3.

⁸ www.legislation.gov.uk/ukpga/1997/8/contents

⁹ www.scotland.gov.uk/Publications/2013/12/9924/0

¹⁰ www.scotland.gov.uk/Publications/2013/12/9882/0

¹¹ www.standardscommissionscotland.org.uk/webfm_send/279

¹² www.scotland.gov.uk/Publications/2010/08/30094454/0

¹³ www.scotland.gov.uk/Publications/2009/03/10154116/0

^{14 &}lt;u>www.scotland.gov.uk/About/Performance/scotPerforms/outcome</u>

11. NPF3 and this SPP share a single vision for the planning system in Scotland:

We live in a Scotland with a growing, low-carbon economy with progressively narrowing disparities in well-being and opportunity. It is growth that can be achieved whilst reducing emissions and which respects the quality of environment, place and life which makes our country so special. It is growth which increases solidarity – reducing inequalities between our regions. We live in sustainable, well-designed places and homes which meet our needs. We enjoy excellent transport and digital connections, internally and with the rest of the world.

- **12.** At the strategic and local level, planning can make a very important contribution to the delivery of <u>Single Outcome Agreements</u>¹⁵, through their shared focus on 'place'. Effective integration between land use planning and community planning is crucial and development plans should reflect close working with <u>Community Planning Partnerships</u>¹⁶.
- **13.** The following four planning outcomes explain how planning should support the vision. The outcomes are consistent across the NPF and SPP and focus on creating a successful sustainable place, a low carbon place, a natural, resilient place and a more connected place. For planning to make a positive difference, development plans and new development need to contribute to achieving these outcomes.

Outcome 1: A successful, sustainable place – supporting sustainable economic growth and regeneration, and the creation of well-designed, sustainable places.

- **14.** NPF3 aims to strengthen the role of our city regions and towns, create more vibrant rural places, and realise the opportunities for sustainable growth and innovation in our coastal and island areas.
- **15.** The SPP sets out how this should be delivered on the ground. By locating the right development in the right place, planning can provide opportunities for people to make sustainable choices and improve their quality of life. Well-planned places promote well-being, a sense of identity and pride, and greater opportunities for social interaction. Planning therefore has an important role in promoting strong, resilient and inclusive communities. Delivering high-quality buildings, infrastructure and spaces in the right locations helps provide choice over where to live and style of home, choice as to how to access amenities and services and choice to live more active, engaged, independent and healthy lifestyles.
- **16.** Good planning creates opportunities for people to contribute to a growing, adaptable and productive economy. By allocating sites and creating places that are attractive to growing economic sectors, and enabling the delivery of necessary infrastructure, planning can help provide the confidence required to secure private sector investment, thus supporting innovation, creating employment and benefiting related businesses.

Outcome 2: A low carbon place – reducing our carbon emissions and adapting to climate change.

^{15 &}lt;u>www.scotland.gov.uk/Topics/Government/PublicServiceReform/CP/SOA2012</u>

^{16 &}lt;u>www.scotland.gov.uk/Topics/Government/PublicServiceReform/CP</u>

- **17.** NPF3 will facilitate the transition to a low carbon economy, particularly by supporting diversification of the energy sector. The spatial strategy as a whole aims to reduce greenhouse gas emissions and facilitate adaptation to climate change.
- **18.** The Climate Change (Scotland) Act 2009 sets a target of reducing greenhouse gas emissions by at least 80% by 2050, with an interim target of reducing emissions by at least 42% by 2020. Annual greenhouse gas emission targets are set in secondary legislation. Section 44 of the Act places a duty on every public body to act:
 - in the way best calculated to contribute to the delivery of emissions targets in the Act;
 - in the way best calculated to help deliver the Scottish Government's climate change adaptation programme; and
 - in a way that it considers is most sustainable.
- **19.** The SPP sets out how this should be delivered on the ground. By seizing opportunities to encourage mitigation and adaptation measures, planning can support the transformational change required to meet emission reduction targets and influence climate change. Planning can also influence people's choices to reduce the environmental impacts of consumption and production, particularly through energy efficiency and the reduction of waste.

Outcome 3: A natural, resilient place – helping to protect and enhance our natural and cultural assets, and facilitating their sustainable use.

- **20.** NPF3 emphasises the importance of our environment as part of our cultural identity, an essential contributor to well-being and an economic opportunity. Our spatial strategy aims to build resilience and promotes protection and sustainable use of our world-class environmental assets.
- **21.** The SPP sets out how this should be delivered on the ground. By protecting and making efficient use of Scotland's existing resources and environmental assets, planning can help us to live within our environmental limits and to pass on healthy ecosystems to future generations. Planning can help to manage and improve the condition of our assets, supporting communities in realising their aspirations for their environment and facilitating their access to enjoyment of it. By enhancing our surroundings, planning can help make Scotland a uniquely attractive place to work, visit and invest and therefore support the generation of jobs, income and wider economic benefits.

Outcome 4: A more connected place – supporting better transport and digital connectivity.

- **22.** NPF3 reflects our continuing investment in infrastructure, to strengthen transport links within Scotland and to the rest of the world. Improved digital connections will also play a key role in helping to deliver our spatial strategy for sustainable growth.
- **23.** The SPP sets out how this should be delivered on the ground. By aligning development more closely with transport and digital infrastructure, planning can improve sustainability and connectivity. Improved connections facilitate accessibility within and between places within Scotland and beyond and support economic growth and an inclusive society.

SG Purpose	<u>1</u>	focus govern	To focus government and public servic	ic services on c	reating a more sustains	a more successful country, w sustainable economic growth.	untry, with oppogrowth.	ortunities for all	to flourish, thr	es on creating a more successful country, with opportunities for all to flourish, through increasing sustainable economic growth.	
SG National Outcomes				The planning s	ystem and ser	The planning system and service contribute to all 16 National Outcomes	to all 16 Natio	nal Outcomes			
SG National					Governm	Government Economic Strategy	Strategy				
Policies &					Infrastru	Infrastructure Investment Plan	ent Plan				
Strategies	Scotland's Digital Future	Electricity & Heat Generation Policy Statements	2020 Challenge for Scotland's Biodiversity	Scottish Historic Environment Strategy and Policy	Housing Strategy	National Planning Framework & Scottish Planning Policy	Land Use Strategy	Low Carbon Scotland: Report of Proposals and Policies	National Marine Plan	Regeneration Strategy	National Transport Strategy
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	Town Centres Rural		Heat and	Natural Environment	Travel			Cities	Cities and Towns Rural Areas		
	Development Homes		610.130	Green Infrastructure				Coast	Coast and Islands		
	Business &			Aquacultural				National	National Developments	6	
	Employment		Zero Waste	Minerals	Digital Connectivity	/itv					
	Historic Environment			Flooding & Drainage							
					СОММ	COMMUNITY PLANNING	NING				
Strategic					Strategi	Strategic Development Plans	t Plans				
Local					Local	Local Development Plans	Plans				
Site						Master Plans					

Principal Policies

Sustainability

NPF and wider policy context

- **24.** The Scottish Government's central purpose is to focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.
- **25.** The Scottish Government's commitment to the concept of sustainable development is reflected in its Purpose. It is also reflected in the continued support for the five guiding principles set out in the UK's shared framework for sustainable development. Achieving a sustainable economy, promoting good governance and using sound science responsibly are essential to the creation and maintenance of a strong, healthy and just society capable of living within environmental limits.
- **26.** The NPF is the spatial expression of the Government Economic Strategy (2011) and sustainable economic growth forms the foundations of its strategy. The NPF sits at the top of the development plan hierarchy and must be taken into account in the preparation of strategic and local development plans.
- **27.** The Government Economic Strategy indicates that sustainable economic growth is the key to unlocking Scotland's potential and outlines the multiple benefits of delivering the Government's purpose, including creating a supportive business environment, achieving a low carbon economy, tackling health and social problems, maintaining a high-quality environment and passing on a sustainable legacy for future generations.

Policy Principles

This SPP introduces a presumption in favour of development that contributes to sustainable development.

- **28.** The planning system should support economically, environmentally and socially sustainable places by enabling development that balances the costs and benefits of a proposal over the longer term. The aim is to achieve the right development in the right place; it is not to allow development at any cost.
- 29. This means that policies and decisions should be guided by the following principles:
 - · giving due weight to net economic benefit;
 - responding to economic issues, challenges and opportunities, as outlined in local economic strategies;
 - supporting good design and the six qualities of successful places;
 - making efficient use of existing capacities of land, buildings and infrastructure including supporting town centre and regeneration priorities;
 - · supporting delivery of accessible housing, business, retailing and leisure development;

- supporting delivery of infrastructure, for example transport, education, energy, digital and water;
- · supporting climate change mitigation and adaptation including taking account of flood risk;
- improving health and well-being by offering opportunities for social interaction and physical activity, including sport and recreation;
- having regard to the principles for sustainable land use set out in the Land Use Strategy;
- protecting, enhancing and promoting access to cultural heritage, including the historic environment;
- protecting, enhancing and promoting access to natural heritage, including green infrastructure, landscape and the wider environment;
- reducing waste, facilitating its management and promoting resource recovery; and
- avoiding over-development, protecting the amenity of new and existing development and considering the implications of development for water, air and soil quality.

Key Documents

- National Planning Framework¹⁷
- Government Economic Strategy¹⁸
- Planning Reform: Next Steps¹⁹
- Getting the Best from Our Land A Land Use Strategy for Scotland²⁰
- <u>UK's Shared Framework for Sustainable Development²¹</u>

Delivery

Development Planning

30. Development plans should:

- be consistent with the policies set out in this SPP, including the presumption in favour of development that contributes to sustainable development;
- positively seek opportunities to meet the development needs of the plan area in a way which is flexible enough to adapt to changing circumstances over time;
- support existing business sectors, taking account of whether they are expanding or contracting and, where possible, identify and plan for new or emerging sectors likely to locate in their area;
- be up-to-date, place-based and enabling with a spatial strategy that is implemented through policies and proposals; and
- set out a spatial strategy which is both sustainable and deliverable, providing confidence to stakeholders that the outcomes can be achieved.

¹⁷ www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Framework

¹⁸ www.scotland.gov.uk/Publications/2011/09/13091128/0

¹⁹ www.scotland.gov.uk/Publications/2012/03/3467

^{20 &}lt;u>www.scotland.gov.uk/Publications/2011/03/17091927/0</u>

^{21 &}lt;a href="http://archive.defra.gov.uk/sustainable/government/documents/SDFramework.pdf">http://archive.defra.gov.uk/sustainable/government/documents/SDFramework.pdf

31. Action programmes should be actively used to drive delivery of planned developments: to align stakeholders, phasing, financing and infrastructure investment over the long term.

Development Management

- **32.** The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision-making. Proposals that accord with up-to-date plans should be considered acceptable in principle and consideration should focus on the detailed matters arising. For proposals that do not accord with up-to-date development plans, the primacy of the plan is maintained and this SPP and the presumption in favour of development that contributes to sustainable development will be material considerations.
- **33.** Where relevant policies in a development plan are out-of-date²² or the plan does not contain policies relevant to the proposal, then the presumption in favour of development that contributes to sustainable development will be a significant material consideration. Decision-makers should also take into account any adverse impacts which would significantly and demonstrably outweigh the benefits when assessed against the wider policies in this SPP. The same principle should be applied where a development plan is more than five years old.
- **34.** Where a plan is under review, it may be appropriate in some circumstances to consider whether granting planning permission would prejudice the emerging plan. Such circumstances are only likely to apply where the development proposed is so substantial, or its cumulative effect would be so significant, that to grant permission would undermine the plan-making process by predetermining decisions about the scale, location or phasing of new developments that are central to the emerging plan. Prematurity will be more relevant as a consideration the closer the plan is to adoption or approval.
- **35.** To support the efficient and transparent handling of planning applications by planning authorities and consultees, applicants should provide good quality and timely supporting information that describes the economic, environmental and social implications of the proposal. In the spirit of planning reform, this should be proportionate to the scale of the application and planning authorities should avoid asking for additional impact appraisals, unless necessary to enable a decision to be made. Clarity on the information needed and the timetable for determining proposals can be assisted by good communication and project management, for example, use of processing agreements setting out the information required and covering the whole process including planning obligations.

²² Development plans or their policies should not be considered out-of-date solely on the grounds that they were adopted prior to the publication of this SPP. However, the policies in the SPP will be a material consideration which should be taken into account when determining applications.

Placemaking

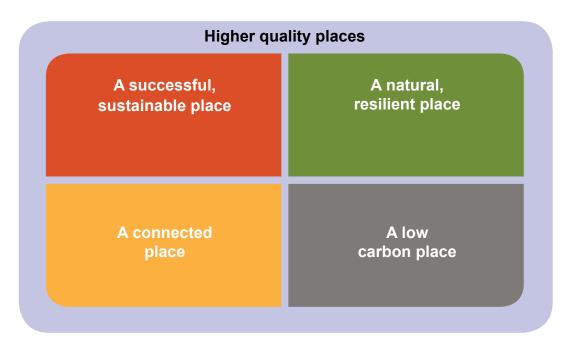
NPF and wider policy context

- **36.** Planning's purpose is to create better places. Placemaking is a creative, collaborative process that includes design, development, renewal or regeneration of our urban or rural built environments. The outcome should be sustainable, well-designed places and homes which meet people's needs. The Government Economic Strategy supports an approach to place that recognises the unique contribution that every part of Scotland can make to achieving our shared outcomes. This means harnessing the distinct characteristics and strengths of each place to improve the overall quality of life for people. Reflecting this, NPF3 sets out an agenda for placemaking in our city regions, towns, rural areas, coast and islands.
- **37.** The Government's policy statement on architecture and place for Scotland, Creating Places, emphasises that quality places are successful places. It sets out the value that high-quality design can deliver for Scotland's communities and the important role that good buildings and places play in promoting healthy, sustainable lifestyles; supporting the prevention agenda and efficiency in public services; promoting Scotland's distinctive identity all over the world; attracting visitors, talent and investment; delivering our environmental ambitions; and providing a sense of belonging, a sense of identity and a sense of community. It is clear that places which have enduring appeal and functionality are more likely to be valued by people and therefore retained for generations to come.

Policy Principles

Planning should take every opportunity to create high quality places by taking a design-led approach.

38. This means taking a holistic approach that responds to and enhances the existing place while balancing the costs and benefits of potential opportunities over the long term. This means considering the relationships between:



39. The design-led approach should be applied at all levels – at the national level in the NPF, at
the regional level in strategic development plans, at the local level in local development plans and
at site and individual building level within master plans that respond to how people use public
spaces.

Planning should direct the right development to the right place.

- **40.** This requires spatial strategies within development plans to promote a sustainable pattern of development appropriate to the area. To do this decisions should be guided by the following policy principles:
 - optimising the use of existing resource capacities, particularly by co-ordinating housing and business development with infrastructure investment including transport, education facilities, water and drainage, energy, heat networks and digital infrastructure;
 - using land within or adjacent to settlements for a mix of uses. This will also support the creation of more compact, higher density, accessible and more vibrant cores;
 - considering the re-use or re-development of brownfield land before new development takes place on greenfield sites;
 - considering whether the permanent, temporary or advanced greening of all or some of a site
 could make a valuable contribution to green and open space networks, particularly where it is
 unlikely to be developed for some time, or is unsuitable for development due to its location or
 viability issues; and
 - locating development where investment in growth or improvement would have most benefit for the amenity of local people and the vitality of the local economy.

Planning should support development that is designed to a high-quality, which demonstrates the six qualities of successful place.

Distinctive

41. This is development that complements local features, for example landscapes, topography, ecology, skylines, spaces and scales, street and building forms, and materials to create places with a sense of identity.

Safe and Pleasant

42. This is development that is attractive to use because it provides a sense of security through encouraging activity. It does this by giving consideration to crime rates and providing a clear distinction between private and public space, by having doors that face onto the street creating active frontages, and by having windows that overlook well-lit streets, paths and open spaces to create natural surveillance. A pleasant, positive sense of place can be achieved by promoting visual quality, encouraging social and economic interaction and activity, and by considering the place before vehicle movement.

Welcoming

43. This is development that helps people to find their way around. This can be by providing or accentuating landmarks to create or improve views, it can be locating a distinctive work of art to mark places such as gateways, and it can include appropriate signage and distinctive lighting to improve safety and show off attractive buildings.

Adaptable

44. This is development that can accommodate future changes of use because there is a mix of building densities, tenures and typologies where diverse but compatible uses can be integrated. It takes into account how people use places differently, for example depending on age, gender and degree of personal mobility and providing versatile greenspace.

Resource Efficient

45. This is development that re-uses or shares existing resources, maximises efficiency of the use of resources through natural or technological means and prevents future resource depletion, for example by mitigating and adapting to climate change. This can mean denser development that shares infrastructure and amenity with adjacent sites. It could include siting development to take shelter from the prevailing wind; or orientating it to maximise solar gain. It could also include ensuring development can withstand more extreme weather, including prolonged wet or dry periods, by working with natural environmental processes such as using landscaping and natural shading to cool spaces in built areas during hotter periods and using sustainable drainage systems to conserve and enhance natural features whilst reducing the risk of flooding. It can include using durable materials for building and landscaping as well as low carbon technologies that manage heat and waste efficiently.

Easy to Move Around and Beyond

46. This is development that considers place and the needs of people before the movement of motor vehicles. It could include using higher densities and a mix of uses that enhance accessibility by reducing reliance on private cars and prioritising sustainable and active travel choices, such as walking, cycling and public transport. It would include paths and routes which connect places directly and which are well-connected with the wider environment beyond the site boundary. This may include providing facilities that link different means of travel.

Key Documents

- National Planning Framework²³
- Getting the Best from Our Land A Land Use Strategy for Scotland²⁴
- Creating Places –A Policy Statement on Architecture and Place for Scotland²⁵
- Designing Streets²⁶
- Planning Advice Note 77: Designing Safer Places²⁷
- Green Infrastructure: Design and Placemaking²⁸

²³ www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Framework

²⁴ www.scotland.gov.uk/Publications/2011/03/17091927/0

²⁵ www.scotland.gov.uk/Publications/2013/06/9811/0

²⁶ www.scotland.gov.uk/Publications/2010/03/22120652/0

^{27 &}lt;u>www.scotland.gov.uk/Publications/2006/03/08094923/0</u>

²⁸ www.scotland.gov.uk/Publications/2011/11/04140525/0

Delivery

47. Planning should adopt a consistent and relevant approach to the assessment of design and place quality such as that set out in the forthcoming Scottish Government Place Standard.

Development Planning

- **48.** Strategic and local development plans should be based on spatial strategies that are deliverable, taking into account the scale and type of development pressure and the need for growth and regeneration. An urban capacity study, which assesses the scope for development within settlement boundaries, may usefully inform the spatial strategy, and local authorities should make use of land assembly, including the use of <u>compulsory purchase powers</u>²⁹ where appropriate. Early discussion should take place between local authorities, developers and relevant agencies to ensure that investment in necessary new infrastructure is addressed in a timely manner.
- **49.** For most settlements, a green belt is not necessary as other policies can provide an appropriate basis for directing development to the right locations. However, where the planning authority considers it appropriate, the development plan may designate a green belt around a city or town to support the spatial strategy by:
 - directing development to the most appropriate locations and supporting regeneration;
 - protecting and enhancing the character, landscape setting and identity of the settlement; and
 - · protecting and providing access to open space.
- **50.** In developing the spatial strategy, planning authorities should identify the most sustainable locations for longer-term development and, where necessary, review the boundaries of any green belt.
- **51.** The spatial form of the green belt should be appropriate to the location. It may encircle a settlement or take the shape of a buffer, corridor, strip or wedge. Local development plans should show the detailed boundary of any green belt, giving consideration to:
 - excluding existing settlements and major educational and research uses, major businesses and industrial operations, airports and Ministry of Defence establishments;
 - the need for development in smaller settlements within the green belt, where appropriate leaving room for expansion;
 - redirecting development pressure to more suitable locations; and
 - establishing clearly identifiable visual boundary markers based on landscape features such as rivers, tree belts, railways or main roads³⁰. Hedges and field enclosures will rarely provide a sufficiently robust boundary.
- **52.** Local development plans should describe the types and scales of development which would be appropriate within a green belt. These may include:
 - development associated with agriculture, including the reuse of historic agricultural buildings;
 - development associated with woodland and forestry, including community woodlands;
 - horticulture, including market gardening and directly connected retailing;

^{29 &}lt;u>www.scotland.gov.uk/Topics/archive/National-Planning-Policy/themes/ComPur</u>

³⁰ Note: where a main road forms a green belt boundary, any proposed new accesses would still require to meet the usual criteria.

- · recreational uses that are compatible with an agricultural or natural setting;
- essential infrastructure such as digital communications infrastructure and electricity grid connections;
- development meeting a national requirement or established need, if no other suitable site is available; and
- intensification of established uses subject to the new development being of a suitable scale and form.
- **53.** The creation of a new settlement may occasionally be a necessary part of a spatial strategy, where it is justified either by the scale and nature of the housing land requirement and the existence of major constraints to the further growth of existing settlements, or by its essential role in promoting regeneration or rural development.
- **54.** Where a development plan spatial strategy indicates that a new settlement is appropriate, it should specify its scale and location, and supporting infrastructure requirements, particularly where these are integral to the viability and deliverability of the proposed development. Supplementary guidance can address more detailed issues such as design and delivery.
- **55.** Local development plans should contribute to high-quality places by setting out how they will embed a design-led approach. This should include:
 - reference to the six qualities of successful places which enable consideration of each place as distinctly different from other places and which should be evident in all development;
 - using processes that harness and utilise the knowledge of communities and encourage active participation to deliver places with local integrity and relevance; and
 - specifying when design tools, such as those at paragraph 57 should be used.

Development Management

56. Design is a material consideration in determining planning applications. Planning permission may be refused and the refusal defended at appeal or local review solely on design grounds.

Tools for Making Better Places

57. Design tools guide the quality of development in and across places to promote positive change. They can help to provide certainty for stakeholders as a contribution to sustainable economic growth. Whichever tools are appropriate to the task, they should focus on delivering the six qualities of successful places and could be adopted as supplementary guidance.

Scale	Tool
	Design Frameworks
	For larger areas of significant change, so must include some flexibility.
STRATEGIC	To address major issues in a co-ordinated and viable way.
	May include general principles as well as maps and diagrams to show the importance of connections around and within a place.
	Development Briefs
	For a place or site, to form the basis of dialogue between the local authority and developers.
	To advise how policies should be implemented.
	May include detail on function, layout, plot sizes, building heights and lines, and materials.
	Master Plans
	For a specific site that may be phased so able to adapt over time.
	To describe and illustrate how a proposal will meet the vision and how it will work on the ground.
	May include images showing the relationship of people and place.
	See Planning Advice Note 83: Masterplanning ³¹
	Design Guides
	For a particular subject, e.g. shop fronts.
	To show how development can be put into practice in line with policy.
•	Includes detail, e.g. images of examples.
	Design Statements
	Required to accompany some planning applications.
SITE SPECIFIC	To explain how the application meets policy and guidance, for example by close reference to key considerations of street design with Designing Streets.
	See <u>Planning Advice Note 68: Design Statements</u> ³²

^{31 &}lt;u>www.scotland.gov.uk/Publications/2008/11/10114526/0</u>

³² www.scotland.gov.uk/Publications/2003/08/18013/25389

Subject Policies

A Successful, Sustainable Place

Promoting Town Centres

NPF and wider context

58. NPF3 reflects the importance of town centres as a key element of the economic and social fabric of Scotland. Much of Scotland's population lives and works in towns, within city regions, in our rural areas and on our coasts and islands. Town centres are at the heart of their communities and can be hubs for a range of activities. It is important that planning supports the role of town centres to thrive and meet the needs of their residents, businesses and visitors for the 21st century.

59. The town centre first principle, stemming from the Town Centre Action Plan, promotes an approach to wider decision-making that considers the health and vibrancy of town centres.

Policy Principles

60. Planning for town centres should be flexible and proactive, enabling a wide range of uses which bring people into town centres. The planning system should:

- apply a town centre first policy³³ when planning for uses which attract significant numbers of people, including retail and commercial leisure, offices, community and cultural facilities;
- encourage a mix of uses in town centres to support their vibrancy, vitality and viability throughout the day and into the evening;
- ensure development plans, decision-making and monitoring support successful town centres;
 and
- consider opportunities for promoting residential use within town centres where this fits with local need and demand.

Key Documents

- National Review of Town Centres External Advisory Group Report: Community and Enterprise in Scotland's Town Centres³⁴
- Town Centre Action Plan the Scottish Government response³⁵
- Planning Advice Note 59: Improving Town Centres³⁶
- Planning Advice Note 52: Planning and Small Towns³⁷

³³ A town centre first policy is intended to support town centres, where these exist, or new centres which are supported by the development plan. Where there are no town centres in the vicinity, for example in more remote rural and island areas, the expectation is that local centres will be supported. The town centre first policy is not intended to divert essential services and developments away from such rural areas. See section on Rural Development.

³⁴ www.scotland.gov.uk/Resource/0042/00426972.pdf

³⁵ www.scotland.gov.uk/Publications/2013/11/6415

^{36 &}lt;u>www.scotland.gov.uk/Publications/1999/10/pan59-root/pan59</u>

^{37 &}lt;u>www.scotland.gov.uk/Publications/1997/04/pan52</u>

Town Centres Masterplanning Toolkit³⁸

Development Plans

- **61.** Plans should identify a network of centres and explain how they can complement each other. The network is likely to include city centres, town centres, local centres and commercial centres and may be organised as a hierarchy. Emerging or new centres designated within key new developments or land releases should also be shown within the network of centres. In remoter rural and island areas, it may not be necessary to identify a network.
- **62.** Plans should identify as town centres those centres which display:
 - · a diverse mix of uses, including shopping;
 - · a high level of accessibility;
 - qualities of character and identity which create a sense of place and further the well-being of communities;
 - · wider economic and social activity during the day and in the evening; and
 - · integration with residential areas.
- **63.** Plans should identify as commercial centres those centres which have a more specific focus on retailing and/or leisure uses, such as shopping centres, commercial leisure developments, mixed retail and leisure developments, retail parks and factory outlet centres. Where necessary to protect the role of town centres, plans should specify the function of commercial centres, for example where retail activity may be restricted to the sale of bulky goods.
- **64.** Local authorities, working with community planning partners, businesses and community groups as appropriate, should prepare a town centre health check. Annex A sets out a range of indicators which may be relevant. The purpose of a health check is to assess a town centre's strengths, vitality and viability, weaknesses and resilience. It will be used to inform development plans and decisions on planning applications. Health checks should be regularly updated, to monitor town centre performance, preferably every two years.
- **65.** Local authorities, working with partners, should use the findings of the health check to develop a strategy to deliver improvements to the town centre. Annex A contains guidance on key elements in their preparation.
- **66.** The spatial elements of town centre strategies should be included in the development plan or supplementary guidance. Plans should address any significant changes in the roles and functions of centres over time, where change is supported by the results of a health check. Plans should assess how centres can accommodate development and identify opportunities.
- **67.** There are concerns about the number and clustering of some non-retail uses, such as betting offices and high interest money lending premises, in some town and local centres. Plans should include policies to support an appropriate mix of uses in town centres, local centres and high streets. Where a town centre strategy indicates that further provision of particular activities would undermine the character and amenity of centres or the well-being of communities, plans should include policies to prevent such over-provision and clustering.

^{38 &}lt;a href="http://creatingplacesscotland.org/people-communities/policy/town-centre-masterplanning-toolkit#overlay-context=people-communities/policy">http://creatingplacesscotland.org/people-communities/policy/town-centre-masterplanning-toolkit#overlay-context=people-communities/policy

- **68.** Development plans should adopt a sequential town centre first approach when planning for uses which generate significant footfall, including retail and commercial leisure uses, offices, community and cultural facilities and, where appropriate, other public buildings such as libraries, and education and healthcare facilities. This requires that locations are considered in the following order of preference:
 - town centres (including city centres and local centres);
 - · edge of town centre;
 - other commercial centres identified in the development plan; and
 - out-of-centre locations that are, or can be, made easily accessible by a choice of transport modes.
- **69.** Planning authorities, developers, owners and occupiers should be flexible and realistic in applying the sequential approach, to ensure that different uses are developed in the most appropriate locations. It is important that community, education and healthcare facilities are located where they are easily accessible to the communities that they are intended to serve.

Development Management

- **70.** Decisions on development proposals should have regard to the context provided by the network of centres identified in the development plan and the sequential approach outlined above. New development in a town centre should contribute to providing a range of uses and should be of a scale which is appropriate to that centre. The impact of new development on the character and amenity of town centres, local centres and high streets will be a material consideration in decision-making. The aim is to recognise and prioritise the importance of town centres and encourage a mix of developments which support their vibrancy, vitality and viability. This aim should also be taken into account in decisions concerning proposals to expand or change the use of existing development.
- 71. Where development proposals in edge of town centre, commercial centre or out-of-town locations are contrary to the development plan, it is for applicants to demonstrate that more central options have been thoroughly assessed and that the impact on existing town centres is acceptable. Where a new public building or office with a gross floorspace over 2,500m² is proposed outwith a town centre, and is contrary to the development plan, an assessment of the impact on the town centre should be carried out. Where a retail and leisure development with a gross floorspace over 2,500m² is proposed outwith a town centre, contrary to the development plan, a retail impact analysis should be undertaken. For smaller retail and leisure proposals which may have a significant impact on vitality and viability, planning authorities should advise when retail impact analysis is necessary.
- **72.** This analysis should consider the relationship of the proposed development with the network of centres identified in the development plan. Where possible, authorities and developers should agree the data required and present information on areas of dispute in a succinct and comparable form. Planning authorities should consider the potential economic impact of development and take into account any possible displacement effect.
- **73.** Out-of-centre locations should only be considered for uses which generate significant footfall³⁹ where:
 - all town centre, edge of town centre and other commercial centre options have been assessed and discounted as unsuitable or unavailable;

³⁹ As noted at paragraph 69, a flexible approach is required for community, education and healthcare facilities.

- the scale of development proposed is appropriate, and it has been shown that the proposal cannot reasonably be altered or reduced in scale to allow it to be accommodated at a sequentially preferable location;
- the proposal will help to meet qualitative or quantitative deficiencies; and
- there will be no significant adverse effect on the vitality and viability of existing town centres.

Promoting Rural Development

NPF Context

74. NPF3 sets out a vision for vibrant rural, coastal and island areas, with growing, sustainable communities supported by new opportunities for employment and education. The character of rural and island areas and the challenges they face vary greatly across the country, from pressurised areas of countryside around towns and cities to more remote and sparsely populated areas. Between these extremes are extensive intermediate areas under varying degrees of pressure and with different kinds of environmental assets meriting protection. Scotland's long coastline is an important resource both for development and for its particular environmental quality, especially in the areas of the three island councils.

Policy Principles

- 75. The planning system should:
 - in all rural and island areas promote a pattern of development that is appropriate to the character of the particular rural area and the challenges it faces;
 - encourage rural development that supports prosperous and sustainable communities and businesses whilst protecting and enhancing environmental quality; and
 - · support an integrated approach to coastal planning.

Key documents

- Getting the Best from Our Land A Land Use Strategy for Scotland⁴⁰
- · National Marine Plan

Delivery

76. In the pressurised areas easily accessible from Scotland's cities and main towns, where ongoing development pressures are likely to continue, it is important to protect against an unsustainable growth in car-based commuting and the suburbanisation of the countryside, particularly where there are environmental assets such as sensitive landscapes or good quality agricultural land. Plans should make provision for most new urban development to take place within, or in planned extensions to, existing settlements.

77. In remote and fragile areas and island areas outwith defined small towns, the emphasis should be on maintaining and growing communities by encouraging development that provides suitable sustainable economic activity, while preserving important environmental assets such as landscape and wildlife habitats that underpin continuing tourism visits and quality of place.

78. In the areas of intermediate accessibility and pressure for development, plans should be tailored to local circumstances, seeking to provide a sustainable network of settlements and a

⁴⁰ www.scotland.gov.uk/Publications/2011/03/17091927/0

range of policies that provide for additional housing requirements, economic development, and the varying proposals that may come forward, while taking account of the overarching objectives and other elements of the plan.

- 79. Plans should set out a spatial strategy which:
 - reflects the development pressures, environmental assets, and economic needs of the area, reflecting the overarching aim of supporting diversification and growth of the rural economy;
 - promotes economic activity and diversification, including, where appropriate, sustainable
 development linked to tourism and leisure, forestry, farm and croft diversification and
 aquaculture, nature conservation, and renewable energy developments, while ensuring that
 the distinctive character of the area, the service function of small towns and natural and
 cultural heritage are protected and enhanced;
 - makes provision for housing in rural areas in accordance with the spatial strategy, taking account of the different development needs of local communities;
 - where appropriate, sets out policies and proposals for leisure accommodation, such as holiday units, caravans, and huts;
 - addresses the resource implications of the proposed pattern of development, including facilitating access to local community services and support for public transport; and
 - considers the services provided by the natural environment, safeguarding land which is highly suitable for particular uses such as food production or flood management.
- **80.** Where it is necessary to use good quality land for development, the layout and design should minimise the amount of such land that is required. Development on prime agricultural land, or land of lesser quality that is locally important should not be permitted except where it is essential:
 - as a component of the settlement strategy or necessary to meet an established need, for example for essential infrastructure, where no other suitable site is available; or
 - · for small-scale development directly linked to a rural business; or
 - for the generation of energy from a renewable source or the extraction of minerals where this accords with other policy objectives and there is secure provision for restoration to return the land to its former status.
- **81.** In accessible or pressured rural areas, where there is a danger of unsustainable growth in long-distance car-based commuting or suburbanisation of the countryside, a more restrictive approach to new housing development is appropriate, and plans and decision-making should generally:
 - · guide most new development to locations within or adjacent to settlements; and
 - set out the circumstances in which new housing outwith settlements may be appropriate, avoiding use of occupancy restrictions.
- **82.** In some most pressured areas, the designation of green belts may be appropriate.
- **83.** In remote rural areas, where new development can often help to sustain fragile communities, plans and decision-making should generally:
 - encourage sustainable development that will provide employment;
 - support and sustain fragile and dispersed communities through provision for appropriate development, especially housing and community-owned energy;

- include provision for small-scale housing⁴¹ and other development which supports sustainable economic growth in a range of locations, taking account of environmental protection policies and addressing issues of location, access, siting, design and environmental impact;
- where appropriate, allow the construction of single houses outwith settlements provided they
 are well sited and designed to fit with local landscape character, taking account of landscape
 protection and other plan policies;
- not impose occupancy restrictions on housing.

National Parks

- **84.** National Parks are designated under the National Parks (Scotland) Act 2000 because they are areas of national importance for their natural and cultural heritage. The four aims of national parks are to:
 - conserve and enhance the natural and cultural heritage of the area;
 - promote sustainable use of the natural resources of the area;
 - promote understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public; and
 - promote sustainable economic and social development of the area's communities.
- **85.** These aims are to be pursued collectively. However if there is a conflict between the first aim and any of the others then greater weight must be given to the first aim. Planning decisions should reflect this weighting. Paragraph 213 also applies to development outwith a National Park that affects the Park.
- **86.** Development plans for National Parks are expected to be consistent with the National Park Plan, which sets out the management strategy for the Park. The authority preparing a development plan for a National Park, or which affects a National Park, is required to pay special attention to the desirability of consistency with the National Park Plan, having regard to the contents.

Coastal Planning

87. The planning system should support an integrated approach to coastal planning to ensure that development plans and regional marine plans are complementary. Terrestrial planning by planning authorities overlaps with marine planning in the intertidal zone. On the terrestrial side, mainland planning authorities should work closely with neighbouring authorities, taking account of the needs of port authorities and aquaculture, where appropriate. On the marine side, planning authorities will need to ensure integration with policies and activities arising from the National Marine Plan, Marine Planning Partnerships, Regional Marine Plans, and Integrated Coastal Zone Management, as well as aquaculture.

Development Plans

88. Plans should recognise that rising sea levels and more extreme weather events resulting from climate change will potentially have a significant impact on coastal and island areas, and that a precautionary approach to flood risk should be taken. They should confirm that new development requiring new defences against coastal erosion or coastal flooding will not be supported except where there is a clear justification for a departure from the general policy to

⁴¹ including clusters and groups; extensions to existing clusters and groups; replacement housing; plots for self build; holiday homes; new build or conversion linked to rural business.

avoid development in areas at risk. Where appropriate, development plans should identify areas at risk and areas where a managed realignment of the coast would be beneficial.

- 89. Plans should identify areas of largely developed coast that are a major focus of economic or recreational activity that are likely to be suitable for further development; areas subject to significant constraints; and largely unspoiled areas of the coast that are generally unsuitable for development. It should be explained that this broad division does not exclude important local variations, for example where there are areas of environmental importance within developed estuaries, or necessary developments within the largely unspoiled coast where there is a specific locational need, for example for defence purposes, tourism developments of special significance, or essential onshore developments connected with offshore energy projects or (where appropriate) aquaculture.
- **90.** Plans should promote the developed coast as the focus of developments requiring a coastal location or which contribute to the economic regeneration or well-being of communities whose livelihood is dependent on marine or coastal activities. They should provide for the development requirements of uses requiring a coastal location, including ports and harbours, tourism and recreation, fish farming, land-based development associated with offshore energy projects and specific defence establishments.
- **91.** Plans should safeguard unspoiled sections of coast which possess special environmental or cultural qualities, such as wild land. The economic value of these areas should be considered and maximised, provided that environmental impact issues can be satisfactorily addressed.

Supporting Business and Employment

NPF Context

92. NPF3 supports the many and varied opportunities for planning to support business and employment. These range from a focus on the role of cities as key drivers of our economy, to the continuing need for diversification of our rural economy to strengthen communities and retain young people in remote areas. Planning should address the development requirements of businesses and enable key opportunities for investment to be realised. It can support sustainable economic growth by providing a positive policy context for development that delivers economic benefits.

Policy Principles

93. The planning system should:

- promote business and industrial development that increases economic activity while safeguarding and enhancing the natural and built environments as national assets;
- allocate sites that meet the diverse needs of the different sectors and sizes of business which
 are important to the plan area in a way which is flexible enough to accommodate changing
 circumstances and allow the realisation of new opportunities; and
- give due weight to net economic benefit of proposed development.

Key Documents

Government Economic Strategy⁴²

^{42 &}lt;u>www.scotland.gov.uk/Topics/Economy/EconomicStrategy</u>

- Tourism Development Framework for Scotland⁴³
- A Guide to Development Viability⁴⁴

Delivery

Development Planning

- **94.** Plans should align with relevant local economic strategies. These will help planning authorities to meet the needs and opportunities of indigenous firms and inward investors, recognising the potential of key sectors for Scotland with particular opportunities for growth, including:
 - · energy;
 - life sciences, universities and the creative industries;
 - tourism and the food and drink sector:
 - · financial and business services.
- **95.** Plans should encourage opportunities for home-working, live-work units, micro-businesses and community hubs.
- **96.** Development plans should support opportunities for integrating efficient energy and waste innovations within business environments. Industry stakeholders should engage with planning authorities to help facilitate co-location, as set out in paragraph 179.
- **97.** Strategic development plan policies should reflect a robust evidence base in relation to the existing principal economic characteristics of their areas, and any anticipated change in these.
- **98.** Strategic development plans should identify an appropriate range of locations for significant business clusters. This could include sites identified in the <u>National Renewables Infrastructure</u> <u>Plan</u>⁴⁵, <u>Enterprise Areas</u>⁴⁶, business parks, science parks, large and medium-sized industrial sites and high amenity sites.
- **99.** Strategic development plans and local development plans outwith SDP areas should identify any nationally important clusters of industries handling hazardous substances within their areas and safeguard them from development which, either on its own or in combination with other development, would compromise their continued operation or growth potential. This is in the context of the wider statutory requirements in the Town and Country Planning (Development Planning) (Scotland) Regulations 2009⁴⁷ to have regard to the need to maintain appropriate distances between sites with hazardous substances and areas where the public are likely to be present and areas of particular natural sensitivity or interest.
- **100.** Development plans should be informed by the Tourism Development Framework for Scotland in order to maximise the sustainable growth of regional and local visitor economies. Strategic development plans should identify and safeguard any nationally or regionally important locations for tourism or recreation development within their areas.

⁴³ www.visitscotland.org/pdf/Tourism%20Development%20Framework%20-%20FINAL.pdf

⁴⁴ www.scotland.gov.uk/Resource/Doc/212607/0109620.pdf

⁴⁵ www.scottish-enterprise.com/~/media/SE/Resources/Documents/Sectors/Energy/energy-renewables-reports/National-renewables-infrastructure-plan.ashx

^{46 &}lt;u>www.scotland.gov.uk/Topics/Economy/EconomicStrategy/Enterprise-Areas</u>

These statutory requirements are due to be amended in 2015 as part of the implementation of Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

- **101.** Local development plans should allocate a range of sites for business, taking account of current market demand; location, size, quality and infrastructure requirements; whether sites are serviced or serviceable within five years; the potential for a mix of uses; their accessibility to transport networks by walking, cycling and public transport and their integration with and access to existing transport networks. The allocation of such sites should be informed by relevant economic strategies and business land audits in respect of land use classes 4, 5 and 6.
- **102.** Business land audits should be undertaken regularly by local authorities to inform reviews of development plans, and updated more frequently if relevant. Business land audits should monitor the location, size, planning status, existing use, neighbouring land uses and any significant land use issues (e.g. underused, vacant, derelict) of sites within the existing business land supply.
- **103.** New sites should be identified where existing sites no longer meet current needs and market expectations. Where existing business sites are underused, for example where there has been an increase in vacancy rates, reallocation to enable a wider range of viable business or alternative uses should be considered, taking careful account of the potential impacts on existing businesses on the site.
- **104.** Local development plans should locate development which generates significant freight movements, such as manufacturing, processing, distribution and warehousing, on sites accessible to suitable railheads or harbours or the strategic road network. Through appraisal, care should be taken in locating such development to minimise any impact on congested, inner urban and residential areas.
- **105.** Planning authorities should consider the potential to promote opportunities for tourism and recreation facilities in their development plans. This may include new developments or the enhancement of existing facilities.

Development Management

- **106.** Efficient handling of planning applications should be a key priority, particularly where jobs and investment are involved. To assist with this, pre-application discussions are strongly encouraged to determine the information that should be submitted to support applications. Such information should be proportionate and relevant to the development and sufficient for the planning authority requirements on matters such as the number of jobs to be created, hours of working, transport requirements, environmental effects, noise levels and the layout and design of buildings. Decisions should be guided by the principles set out in paragraphs 28 to 35.
- **107.** Proposals for development in the vicinity of major-accident hazard sites should take into account the potential impacts on the proposal and the major-accident hazard site of being located in proximity to one another. Decisions should be informed by the Health and Safety Executive's advice, based on the PADHI tool. Similar considerations apply in respect of development proposals near licensed explosive sites (including military explosive storage sites).
- **108.** Proposals for business, industrial and service uses should take into account surrounding sensitive uses, areas of particular natural sensitivity or interest and local amenity, and make a positive contribution towards placemaking.

Enabling Delivery of New Homes

NPF Context

109. NPF3 aims to facilitate new housing development, particularly in areas within our cities network where there is continuing pressure for growth, and through innovative approaches to rural housing provision. House building makes an important contribution to the economy. Planning can help to address the challenges facing the housing sector by providing a positive and flexible approach to development. In particular, provision for new homes should be made in areas where economic investment is planned or there is a need for regeneration or to support population retention in rural and island areas.

Policy Principles

110. The planning system should:

- identify a generous supply of land for each housing market area within the plan area to support the achievement of the housing land requirement across all tenures, maintaining at least a 5-year supply of effective housing land at all times;
- enable provision of a range of attractive, well-designed, energy efficient, good quality housing, contributing to the creation of successful and sustainable places; and
- have a sharp focus on the delivery of allocated sites embedded in action programmes, informed by strong engagement with stakeholders.

Key Documents

- The Housing (Scotland) Act 2001⁴⁸ requires local authorities to prepare a local housing strategy supported by an assessment of housing need and demand
- Planning Advice Note 2/2010: Affordable Housing and Housing Land Audits⁴⁹

Delivery

- **111.** Local authorities should identify functional housing market areas, i.e. geographical areas where the demand for housing is relatively self-contained. These areas may significantly overlap and will rarely coincide with local authority boundaries. They can be dynamic and complex, and can contain different tiers of sub-market area, overlain by mobile demand, particularly in city regions.
- **112.** Planning for housing should be undertaken through joint working by housing market partnerships, involving both housing and planning officials within local authorities, and cooperation between authorities where strategic planning responsibilities and/or housing market areas are shared, including national park authorities. Registered social landlords, developers, other specialist interests, and local communities should also be encouraged to engage with housing market partnerships. In rural or island areas where there is no functional housing market area, the development plan should set out the most appropriate approach for the area.

^{48 &}lt;u>www.legislation.gov.uk/asp/2001/10/contents</u>

⁴⁹ www.scotland.gov.uk/Publications/2010/08/31111624/0

Development Planning

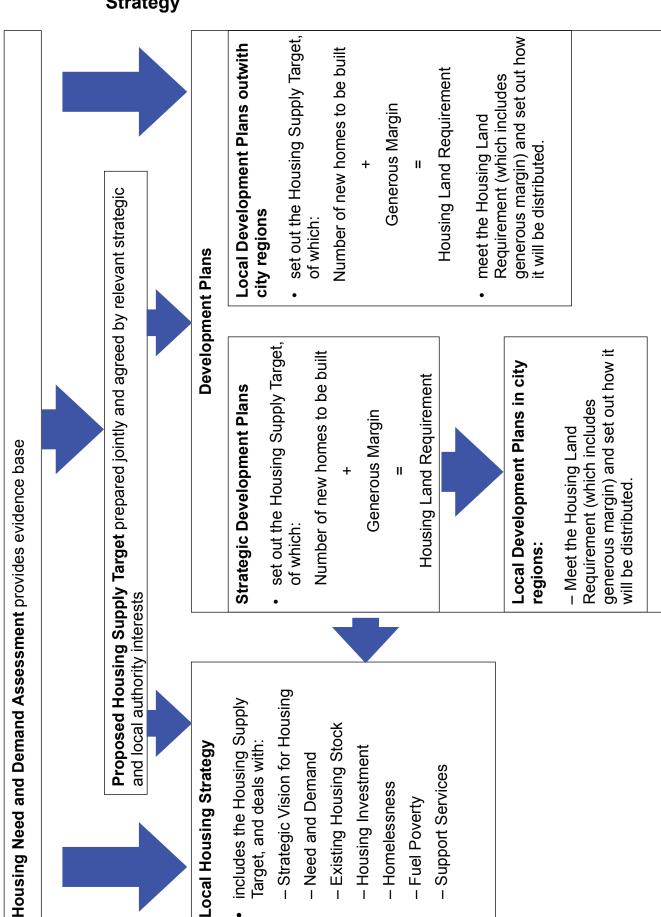
- **113.** Plans should be informed by a robust housing need and demand assessment (HNDA), prepared in line with the Scottish Government's HNDA Guidance⁵⁰. This assessment provides part of the evidence base to inform both local housing strategies and development plans (including the main issues report). It should produce results both at the level of the functional housing market area and at local authority level, and cover all tenures. Where the Scottish Government is satisfied that the HNDA is robust and credible, the approach used will not normally be considered further at a development plan examination.
- **114.** The HNDA, development plan, and local housing strategy processes should be closely aligned, with joint working between housing and planning teams. Local authorities may wish to wait until the strategic development plan is approved in city regions, and the local development plan adopted elsewhere, before finalising the local housing strategy, to ensure that any modifications to the plans can be reflected in local housing strategies, and in local development plans in the city regions.
- **115.** Plans should address the supply of land for all housing. They should set out the housing supply target (separated into affordable and market sector) for each functional housing market area, based on evidence from the HNDA. The housing supply target is a policy view of the number of homes the authority has agreed will be delivered in each housing market area over the periods of the development plan and local housing strategy, taking into account wider economic, social and environmental factors, issues of capacity, resource and deliverability, and other important requirements such as the aims of National Parks. The target should be reasonable, should properly reflect the HNDA estimate of housing demand in the market sector, and should be supported by compelling evidence. The authority's housing supply target should also be reflected in the local housing strategy.
- **116.** Within the overall housing supply target⁵¹, plans should indicate the number of new homes to be built over the plan period. This figure should be increased by a margin of 10 to 20% to establish the housing land requirement, in order to ensure that a generous supply of land for housing is provided. The exact extent of the margin will depend on local circumstances, but a robust explanation for it should be provided in the plan.
- **117.** The housing land requirement can be met from a number of sources, most notably sites from the established supply which are effective or expected to become effective in the plan period, sites with planning permission, proposed new land allocations, and in some cases a proportion of windfall development. Any assessment of the expected contribution to the housing land requirement from windfall sites must be realistic and based on clear evidence of past completions and sound assumptions about likely future trends. In urban areas this should be informed by an urban capacity study.
- **118.** Strategic development plans should set out the housing supply target and the housing land requirement for the plan area, each local authority area, and each functional housing market area. They should also state the amount and broad locations of land which should be allocated in local development plans to meet the housing land requirement up to year 12 from the expected year of plan approval, making sure that the requirement for each housing market area is met in full. Beyond year 12 and up to year 20, the strategic development plan should provide an indication of the possible scale and location of housing land, including by local development plan area.

⁵⁰ www.scotland.gov.uk/Topics/Built-Environment/Housing/supply-demand/chma/hnda

Note: the housing supply target may in some cases include a contribution from other forms of delivery, for example a programme to bring empty properties back into use.

- **119.** Local development plans in city regions should allocate a range of sites which are effective or expected to become effective in the plan period to meet the housing land requirement of the strategic development plan up to year 10 from the expected year of adoption. They should provide for a minimum of 5 years effective land supply at all times. In allocating sites, planning authorities should be confident that land can be brought forward for development within the plan period and that the range of sites allocated will enable the housing supply target to be met.
- **120.** Outwith city regions, local development plans should set out the housing supply target (separated into affordable and market sector) and the housing land requirement for each housing market area in the plan area up to year 10 from the expected year of adoption. They should allocate a range of sites which are effective or expected to become effective in the plan period to meet the housing land requirement in full. They should provide a minimum of 5 years effective land supply at all times. Beyond year 10 and up to year 20, the local development plan should provide an indication of the possible scale and location of the housing land requirement.
- **121.** In the National Parks, local development plans should draw on the evidence provided by the HNDAs of the constituent housing authorities. National Park authorities should aim to meet the housing land requirement in full in their area. However, they are not required to do so, and they should liaise closely with neighbouring planning authorities to ensure that any remaining part of the housing land requirement for the National Parks is met in immediately adjoining housing market areas, and that a 5-year supply of effective land is maintained.
- **122.** Local development plans should allocate appropriate sites to support the creation of sustainable mixed communities and successful places and help to ensure the continued delivery of new housing.

Diagram 1: Housing Land, Development Planning and the Local Housing Strategy



Maintaining a 5-year Effective Land Supply

- **123.** Planning authorities should actively manage the housing land supply. They should work with housing and infrastructure providers to prepare an annual housing land audit as a tool to critically review and monitor the availability of effective housing land, the progress of sites through the planning process, and housing completions, to ensure a generous supply of land for house building is maintained and there is always enough effective land for at least five years. A site is only considered effective where it can be demonstrated that within five years it will be free of constraints⁵² and can be developed for housing. In remoter rural areas and island communities, where the housing land requirement and market activity are of a more limited scale, the housing land audit process may be adapted to suit local circumstances.
- **124.** The development plan action programme, prepared in tandem with the plan, should set out the key actions necessary to bring each site forward for housing development and identify the lead partner. It is a key tool, and should be used alongside the housing land audit to help planning authorities manage the land supply.
- **125.** Planning authorities, developers, service providers and other partners in housing provision should work together to ensure a continuing supply of effective land and to deliver housing, taking a flexible and realistic approach. Where a shortfall in the 5-year effective housing land supply emerges, development plan policies for the supply of housing land will not be considered up-to-date, and paragraphs 32-35 will be relevant.

Affordable Housing

- **126.** Affordable housing is defined broadly as housing of a reasonable quality that is affordable to people on modest incomes. Affordable housing may be provided in the form of social rented accommodation, mid-market rented accommodation, shared ownership housing, shared equity housing, housing sold at a discount (including plots for self-build), and low cost housing without subsidy.
- **127.** Where the housing supply target requires provision for affordable housing, strategic development plans should state how much of the total housing land requirement this represents.
- **128.** Local development plans should clearly set out the scale and distribution of the affordable housing requirement for their area. Where the HNDA and local housing strategy process identify a shortage of affordable housing, the plan should set out the role that planning will take in addressing this. Planning authorities should consider whether it is appropriate to allocate some small sites specifically for affordable housing. Advice on the range of possible options for provision of affordable housing is set out in PAN 2/2010.
- 129. Plans should identify any expected developer contributions towards delivery of affordable housing. Where a contribution is required, this should generally be for a specified proportion of the serviced land within a development site to be made available for affordable housing. Planning authorities should consider the level of affordable housing contribution which is likely to be deliverable in the current economic climate, as part of a viable housing development. The level of affordable housing required as a contribution within a market site should generally be no more than 25% of the total number of houses. Consideration should also be given to the nature of the affordable housing required and the extent to which this can be met by proposals capable of development with little or no public subsidy. Where permission is sought for specialist housing, as described in paragraphs 132-134, a contribution to affordable housing may not always be required.

⁵² Planning Advice Note 2/2010: Affordable Housing and Housing Land Audits sets out more fully the measure of effective sites www.scotland.gov.uk/Publications/2010/08/31111624/5

- **130.** Plans should consider how affordable housing requirements will be met over the period of the plan. Planning and housing officials should work together closely to ensure that the phasing of land allocations and the operation of affordable housing policies combine to deliver housing across the range of tenures. In rural areas, where significant unmet local need for affordable housing has been shown, it may be appropriate to introduce a 'rural exceptions' policy which allows planning permission to be granted for affordable housing on small sites that would not normally be used for housing, for example because they lie outwith the adjacent built-up area and are subject to policies of restraint.
- **131.** Any detailed policies on how the affordable housing requirement is expected to be delivered, including any differences in approach for urban and rural areas, should be set out in supplementary guidance. Where it is considered that housing built to meet an identified need for affordable housing should remain available to meet such needs in perpetuity, supplementary guidance should set out the measures to achieve this. Any specific requirements on design may also be addressed in supplementary guidance.

Specialist Housing Provision and Other Specific Needs

- **132.** As part of the HNDA, local authorities are required to consider the need for specialist provision that covers accessible and adapted housing, wheelchair housing and supported accommodation, including care homes and sheltered housing. This supports independent living for elderly people and those with a disability. Where a need is identified, planning authorities should prepare policies to support the delivery of appropriate housing and consider allocating specific sites.
- **133.** HNDAs will also evidence need for sites for Gypsy/Travellers and Travelling Showpeople. Development plans and local housing strategies should address any need identified, taking into account their mobile lifestyles. In city regions, the strategic development plan should have a role in addressing cross-boundary considerations. If there is a need, local development plans should identify suitable sites for these communities. They should also consider whether policies are required for small privately-owned sites for Gypsy/Travellers, and for handling applications for permanent sites for Travelling Showpeople (where account should be taken of the need for storage and maintenance of equipment as well as accommodation). These communities should be appropriately involved in identifying sites for their use.
- **134.** Local development plans should address any need for houses in multiple occupation (HMO). More information is provided in Circular 2/2012 Houses in Multiple Occupation⁵³. Planning authorities should also consider the housing requirements of service personnel and sites for people seeking self-build plots. Where authorities believe it appropriate to allocate suitable sites for self-build plots, the sites may contribute to meeting the housing land requirement.

Valuing the Historic Environment

NPF and wider policy context

135. NPF3 recognises the contribution made by our cultural heritage to our economy, cultural identity and quality of life. Planning has an important role to play in maintaining and enhancing the distinctive and high-quality, irreplaceable historic places which enrich our lives, contribute to our sense of identity and are an important resource for our tourism and leisure industry.

136. The historic environment is a key cultural and economic asset and a source of inspiration that should be seen as integral to creating successful places. Culture-led regeneration can have a profound impact on the well-being of a community in terms of the physical look and feel of a place and can also attract visitors, which in turn can bolster the local economy and sense of pride or ownership.

Policy Principles

137. The planning system should:

- promote the care and protection of the designated and non-designated historic environment (including individual assets, related settings and the wider cultural landscape) and its contribution to sense of place, cultural identity, social well-being, economic growth, civic participation and lifelong learning; and
- enable positive change in the historic environment which is informed by a clear understanding of the importance of the heritage assets affected and ensure their future use. Change should be sensitively managed to avoid or minimise adverse impacts on the fabric and setting of the asset, and ensure that its special characteristics are protected, conserved or enhanced.

Key Documents

- Scottish Historic Environment Policy⁵⁴
- Historic Environment Strategy for Scotland⁵⁵
- Managing Change in the Historic Environment Historic Scotland's guidance note series
- Planning Advice Note 2/2011: Planning and Archaeology⁵⁷
- Planning Advice Note 71: Conservation Area Management⁵⁸
- Scottish Historic Environment Databases⁵⁹

^{54 &}lt;u>www.historic-scotland.gov.uk/index/heritage/policy/shep.htm</u>

⁵⁵ www.scotland.gov.uk/Publications/2014/03/8522

⁵⁶ www.historic-scotland.gov.uk/managingchange

⁵⁷ www.scotland.gov.uk/Publications/2011/08/04132003/0

^{58 &}lt;u>www.scotland.gov.uk/Publications/2004/12/20450/49052</u>

⁵⁹ http://smrforum-scotland.org.uk/wp-content/uploads/2014/03/SHED-Strategy-Final-April-2014.pdf

Delivery

Development Planning

- **138.** Strategic development plans should protect and promote their significant historic environment assets. They should take account of the capacity of settlements and surrounding areas to accommodate development without damage to their historic significance.
- **139.** Local development plans and supplementary guidance should provide a framework for protecting and, where appropriate, enhancing all elements of the historic environment. Local planning authorities should designate and review existing and potential conservation areas and identify existing and proposed Article 4 Directions. This should be supported by Conservation Area Appraisals and Management Plans.

Development Management

140. The siting and design of development should take account of all aspects of the historic environment. In support of this, planning authorities should have access to a Sites and Monuments Record (SMR) and/or a Historic Environment Record (HER) that contains necessary information about known historic environment features and finds in their area.

Listed Buildings

- **141.** Change to a listed building should be managed to protect its special interest while enabling it to remain in active use. Where planning permission and listed building consent are sought for development to, or affecting, a listed building, special regard must be given to the importance of preserving and enhancing the building, its setting and any features of special architectural or historic interest. The layout, design, materials, scale, siting and use of any development which will affect a listed building or its setting should be appropriate to the character and appearance of the building and setting. Listed buildings should be protected from demolition or other work that would adversely affect it or its setting.
- **142.** Enabling development may be acceptable where it can be clearly shown to be the only means of preventing the loss of the asset and securing its long-term future. Any development should be the minimum necessary to achieve these aims. The resultant development should be designed and sited carefully to preserve or enhance the character and setting of the historic asset.

Conservation Areas

- **143.** Proposals for development within conservation areas and proposals outwith which will impact on its appearance, character or setting, should preserve or enhance the character and appearance of the conservation area. Proposals that do not harm the character or appearance of the conservation area should be treated as preserving its character or appearance. Where the demolition of an unlisted building is proposed through Conservation Area Consent, consideration should be given to the contribution the building makes to the character and appearance of the conservation area. Where a building makes a positive contribution the presumption should be to retain it.
- **144.** Proposed works to trees in conservation areas require prior notice to the planning authority and statutory Tree Preservation Orders⁶⁰ can increase the protection given to such trees. Conservation Area Appraisals should inform development management decisions.

Scheduled Monuments

145. Where there is potential for a proposed development to have an adverse effect on a scheduled monument or on the integrity of its setting, permission should only be granted where there are exceptional circumstances. Where a proposal would have a direct impact on a scheduled monument, the written consent of Scottish Ministers via a separate process is required in addition to any other consents required for the development.

Historic Marine Protected Areas

146. Where planning control extends offshore, planning authorities should ensure that development will not significantly hinder the preservation objectives of Historic Marine Protected Areas.

World Heritage Sites

147. World Heritage Sites are of international importance. Where a development proposal has the potential to affect a World Heritage Site, or its setting, the planning authority must protect and preserve its Outstanding Universal Value.

Gardens and Designed Landscapes

148. Planning authorities should protect and, where appropriate, seek to enhance gardens and designed landscapes included in the Inventory of Gardens and Designed Landscapes and designed landscapes of regional and local importance.

Battlefields

149. Planning authorities should seek to protect, conserve and, where appropriate, enhance the key landscape characteristics and special qualities of sites in the Inventory of Historic Battlefields.

Archaeology and Other Historic Environment Assets

- **150.** Planning authorities should protect archaeological sites and monuments as an important, finite and non-renewable resource and preserve them in situ wherever possible. Where in situ preservation is not possible, planning authorities should, through the use of conditions or a legal obligation, ensure that developers undertake appropriate excavation, recording, analysis, publication and archiving before and/or during development. If archaeological discoveries are made, they should be reported to the planning authority to enable discussion on appropriate measures, such as inspection and recording.
- **151.** There is also a range of non-designated historic assets and areas of historical interest, including historic landscapes, other gardens and designed landscapes, woodlands and routes such as drove roads which do not have statutory protection. These resources are, however, an important part of Scotland's heritage and planning authorities should protect and preserve significant resources as far as possible, in situ wherever feasible.

A Low Carbon Place

Delivering Heat and Electricity

NPF Context

152. NPF3 is clear that planning must facilitate the transition to a low carbon economy, and help to deliver the aims of the <u>Scottish Government's Report on Proposals and Policies</u>⁶¹. Our spatial strategy facilitates the development of generation technologies that will help to reduce greenhouse gas emissions from the energy sector. Scotland has significant renewable energy resources, both onshore and offshore. Spatial priorities range from extending heat networks in our cities and towns to realising the potential for renewable energy generation in our coastal and island areas.

153. Terrestrial and marine planning facilitate development of renewable energy technologies, link generation with consumers and guide new infrastructure to appropriate locations. Efficient supply of low carbon and low cost heat and generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities. Renewable energy also presents a significant opportunity for associated development, investment and growth of the supply chain, particularly for ports and harbours identified in the <u>National Renewables Infrastructure Plan</u>⁶². Communities can also gain new opportunities from increased local ownership and associated benefits.

Policy Principles

154. The planning system should:

- support the transformational change to a low carbon economy, consistent with national objectives and targets⁶³, including deriving:
 - 30% of overall energy demand from renewable sources by 2020;
 - 11% of heat demand from renewable sources by 2020; and
 - the equivalent of 100% of electricity demand from renewable sources by 2020;
- support the development of a diverse range of electricity generation from renewable energy technologies – including the expansion of renewable energy generation capacity – and the development of heat networks;
- guide development to appropriate locations and advise on the issues that will be taken into account when specific proposals are being assessed;
- help to reduce emissions and energy use in new buildings and from new infrastructure by enabling development at appropriate locations that contributes to:
 - Energy efficiency;
 - Heat recovery;
 - Efficient energy supply and storage;

⁶¹ www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/meetingthetargets

^{62 &}lt;u>www.scottish-enterprise.com/~/media/SE/Resources/Documents/Sectors/Energy/energy-renewables-reports/National-renewables-infrastructure-plan.ashx</u>

⁶³ Further targets may be set in due course, for example district heating targets have been proposed.

- Electricity and heat from renewable sources; and
- Electricity and heat from non-renewable sources where greenhouse gas emissions can be significantly reduced.

Key Documents

- Electricity Generation Policy Statement⁶⁴
- 2020 Routemap for Renewable Energy in Scotland⁶⁵
- Towards Decarbonising Heat: Maximising the opportunities for Scotland, Draft Heat Generation Policy Statement⁶⁶
- Low Carbon Scotland: Meeting Our Emissions Reductions Targets 2013 2027⁶⁷

Delivery

Development Planning

- **155.** Development plans should seek to ensure an area's full potential for electricity and heat from renewable sources is achieved, in line with national climate change targets, giving due regard to relevant environmental, community and cumulative impact considerations.
- **156.** Strategic development plans should support national priorities for the construction or improvement of strategic energy infrastructure, including generation, storage, transmission and distribution networks. They should address cross-boundary issues, promoting an approach to electricity and heat that supports the transition to a low carbon economy.
- **157.** Local development plans should support new build developments, infrastructure or retrofit projects which deliver energy efficiency and the recovery of energy that would otherwise be wasted both in the specific development and surrounding area. They should set out the factors to be taken into account in considering proposals for energy developments. These will depend on the scale of the proposal and its relationship to the surrounding area and are likely to include the considerations set out at paragraph 169.

Heat

- **158.** Local development plans should use heat mapping to identify the potential for co-locating developments with a high heat demand with sources of heat supply. Heat supply sources include harvestable woodlands, sawmills producing biomass, biogas production sites and developments producing unused excess heat, as well as geothermal systems, heat recoverable from mine waters, aquifers, other bodies of water and heat storage systems. Heat demand sites for particular consideration include high density developments, communities off the gas grid, fuel poor areas and anchor developments such as hospitals, schools, leisure centres and heat intensive industry.
- **159.** Local development plans should support the development of heat networks in as many locations as possible, even where they are initially reliant on carbon-based fuels if there is potential to convert them to run on renewable or low carbon sources of heat in the future. Local development plans should identify where heat networks, heat storage and energy centres exist or would be appropriate and include policies to support their implementation. Policies should support

⁶⁴ www.scotland.gov.uk/Topics/Business-Industry/Energy/EGPSMain

⁶⁵ www.scotland.gov.uk/Publications/2011/08/04110353/0

⁶⁶ www.scotland.gov.uk/Publications/2014/03/2778

⁶⁷ www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/meetingthetargets

safeguarding of piperuns within developments for later connection and pipework to the curtilage of development. Policies should also give consideration to the provision of energy centres within new development. Where a district network exists, or is planned, or in areas identified as appropriate for district heating, policies may include a requirement for new development to include infrastructure for connection, providing the option to use heat from the network.

160. Where heat networks are not viable, microgeneration and heat recovery technologies associated with individual properties should be encouraged.

Onshore Wind

- **161.** Planning authorities should set out in the development plan a spatial framework identifying those areas that are likely to be most appropriate for onshore wind farms as a guide for developers and communities, following the approach set out below in Table 1. Development plans should indicate the minimum scale⁶⁸ of onshore wind development that their spatial framework is intended to apply to. Development plans should also set out the criteria that will be considered in deciding all applications for wind farms of different scales including extensions and re-powering taking account of the considerations set out at paragraph 169.
- **162.** Both strategic and local development planning authorities, working together where required, should identify where there is strategic capacity for wind farms, and areas with the greatest potential for wind development, considering cross-boundary constraints and opportunities. Strategic development planning authorities are expected to take the lead in dealing with cross-boundary constraints and opportunities and will coordinate activity with constituent planning authorities.
- **163.** The approach to spatial framework preparation set out in the SPP should be followed in order to deliver consistency nationally and additional constraints should not be applied at this stage. The spatial framework is complemented by a more detailed and exacting development management process where the merits of an individual proposal will be carefully considered against the full range of environmental, community, and cumulative impacts (see paragraph 169).
- **164.** Individual properties and those settlements not identified within the development plan will be protected by the safeguards set out in the local development plan policy criteria for determining wind farms and the development management considerations accounted for when determining individual applications.
- **165.** Grid capacity should not be used as a reason to constrain the areas identified for wind farm development or decisions on individual applications for wind farms. It is for wind farm developers to discuss connections to the grid with the relevant transmission network operator. Consideration should be given to underground grid connections where possible.
- **166.** Proposals for onshore wind turbine developments should continue to be determined while spatial frameworks and local policies are being prepared and updated. Moratoria on onshore wind development are not appropriate.

For example, Loch Lomond and The Trossachs and Cairngorms National Parks refer to developments of more than one turbine and over 30 metres in height as large-scale commercial wind turbines.

Table 1: Spatial Frameworks

Group 1: Areas where wind farms will not be acceptable:

National Parks and National Scenic Areas.

Group 2: Areas of significant protection:

Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

National and international designations:

- · World Heritage Sites;
- Natura 2000 and Ramsar sites:
- Sites of Special Scientific Interest;
- National Nature Reserves:
- Sites identified in the Inventory of Gardens and Designed Landscapes;
- Sites identified in the Inventory of Historic Battlefields.

Other nationally important mapped environmental interests:

- areas of wild land as shown on the 2014 SNH map of wild land areas;
- carbon rich soils, deep peat and priority peatland habitat.

Community separation for consideration of visual impact:

 an area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement.

Group 3: Areas with potential for wind farm development:

Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.

Other Renewable Electricity Generating Technologies and Storage

167. Development plans should identify areas capable of accommodating renewable electricity projects in addition to wind generation, including hydro-electricity generation related to river or tidal flows or energy storage projects of a range of scales.

168. Development plans should identify areas which are weakly connected or unconnected to the national electricity network and facilitate development of decentralised and mobile energy storage installations. Energy storage schemes help to support development of renewable energy and maintain stability of the electricity network in areas where reinforcement is needed to manage congestion. Strategic development planning authorities are expected to take the lead in dealing with cross-boundary constraints and opportunities and will coordinate activity between constituent planning authorities.

Development Management

169. Proposals for energy infrastructure developments should always take account of spatial frameworks for wind farms and heat maps where these are relevant. Considerations will vary relative to the scale of the proposal and area characteristics but are likely to include:

- net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities;
- · the scale of contribution to renewable energy generation targets;
- effect on greenhouse gas emissions;
- cumulative impacts planning authorities should be clear about likely cumulative impacts
 arising from all of the considerations below, recognising that in some areas the cumulative
 impact of existing and consented energy development may limit the capacity for further
 development;
- impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;
- landscape and visual impacts, including effects on wild land;
- · effects on the natural heritage, including birds;
- impacts on carbon rich soils, using the carbon calculator;
- public access, including impact on long distance walking and cycling routes and scenic routes identified in the NPF;
- impacts on the historic environment, including scheduled monuments, listed buildings and their settings;
- impacts on tourism and recreation;
- impacts on aviation and defence interests and seismological recording;
- impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;
- · impacts on road traffic;
- impacts on adjacent trunk roads;
- effects on hydrology, the water environment and flood risk;
- the need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration;

- · opportunities for energy storage; and
- the need for a robust planning obligation to ensure that operators achieve site restoration.
- **170.** Areas identified for wind farms should be suitable for use in perpetuity. Consents may be time-limited but wind farms should nevertheless be sited and designed to ensure impacts are minimised and to protect an acceptable level of amenity for adjacent communities.
- **171.** Proposals for energy generation from non-renewable sources may be acceptable where carbon capture and storage or other emissions reduction infrastructure is either already in place or committed within the development's lifetime and proposals must ensure protection of good environmental standards.
- **172.** Where new energy generation or storage proposals are being considered, the potential to connect those projects to off-grid areas should be considered.

Community Benefit

173. Where a proposal is acceptable in land use terms, and consent is being granted, local authorities may wish to engage in negotiations to secure community benefit in line with the Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments⁶⁹.

Existing Wind Farm Sites

174. Proposals to repower existing wind farms which are already in suitable sites where environmental and other impacts have been shown to be capable of mitigation can help to maintain or enhance installed capacity, underpinning renewable energy generation targets. The current use of the site as a wind farm will be a material consideration in any such proposals.

Planning for Zero Waste

NPF and Wider Context

175. NPF3 recognises that waste is a resource and an opportunity, rather than a burden. Scotland has a Zero Waste Policy, which means wasting as little as possible and recognising that every item and material we use, either natural or manufactured, is a resource which has value for our economy. Planning plays a vital role in supporting the provision of facilities and infrastructure for future business development, investment and employment.

Policy Principles

176. The planning system should:

- promote developments that minimise the unnecessary use of primary materials and promote efficient use of secondary materials;
- support the emergence of a diverse range of new technologies and investment opportunities to secure economic value from secondary resources, including reuse, refurbishment, remanufacturing and reprocessing;
- support achievement of Scotland's zero waste targets: recycling 70% of household waste and sending no more than 5% of Scotland's annual waste arisings to landfill by 2025; and
- help deliver infrastructure at appropriate locations, prioritising development in line with the waste hierarchy: waste prevention, reuse, recycling, energy recovery and waste disposal.

Key Documents

- <u>EU revised Waste Framework Directive</u>⁷⁰ (2008/98/EC)
- Waste (Scotland) Regulations 2012⁷¹: a statutory framework to maximise the quantity
 and quality of materials available for recycling and minimise the need for residual waste
 infrastructure;
- Zero Waste Plan⁷² and accompanying regulations and supporting documents;
- Safeguarding Scotland's Resources: A blueprint for a more resource efficient and circular economy;
- Circular 6/2013 Development Planning⁷³;
- SEPA waste data sources: including <u>Waste Data Digests</u>⁷⁴ and <u>Waste Infrastructure Maps</u>⁷⁵;
- SEPA Thermal Treatment of Waste Guidelines 2013⁷⁶;
- Waste capacity tables⁷⁷ (formerly Zero Waste Plan Annex B capacity tables)

Delivery

177. Planning authorities and SEPA should work collaboratively to achieve zero waste objectives, having regard to the Zero Waste Plan, through development plans and development management. A revised version of PAN 63: Planning and Waste Management will be published in due course.

Development Planning

- **178.** Plans should give effect to the aims of the Zero Waste Plan and promote the waste hierarchy.
- **179.** For new developments, including industrial, commercial, and residential, plans should promote resource efficiency and the minimisation of waste during construction and operation.
- **180.** Plans should enable investment opportunities in a range of technologies and industries to maximise the value of secondary resources and waste to the economy, including composting facilities, transfer stations, materials recycling facilities, anaerobic digestion, mechanical, biological and thermal treatment plants. In line with the waste hierarchy, particular attention should be given to encouraging opportunities for reuse, refurbishment, remanufacturing and reprocessing of high value materials and products. Industry and business should engage with planning authorities to help identify sites which would enable co-location with end users of outputs where appropriate.
- **181.** Planning authorities should have regard to the annual update of required capacity for source segregated and unsorted waste, mindful of the need to achieve the all-Scotland operational capacity. However, this should not be regarded as a cap and planning authorities should generally facilitate growth in sustainable resource management.

⁷⁰ http://ec.europa.eu/environment/waste/framework/revision.htm

⁷¹ www.legislation.gov.uk/sdsi/2012/9780111016657/contents

^{72 &}lt;u>www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Waste-1/wastestrategy</u>

⁷³ www.scotland.gov.uk/Publications/2013/12/9924/0

⁷⁴ www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx

⁷⁵ www.sepa.org.uk/waste/waste_infrastructure_maps.aspx

^{76 &}lt;u>www.sepa.org.uk/waste/waste_regulation/energy_from_waste.aspx</u>

⁷⁷ www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Waste-1/wastestrategy/annexb

- **182.** The planning system should support the provision of a network of infrastructure to allow Scotland's waste and secondary resources to be managed in one of the nearest appropriate installations, by means of the most appropriate methods and technologies, in order to protect the environment and public health. While a significant shortfall of waste management infrastructure exists, emphasis should be placed on need over proximity. The achievement of a sustainable strategy may involve waste crossing planning boundaries. However, as the national network of installations becomes more fully developed, there will be scope for giving greater weight to proximity in identifying suitable locations for new waste facilities.
- **183.** Any sites identified specifically for energy from waste facilities should enable links to be made to potential users of renewable heat and energy. Such schemes are particularly suitable in locations where there are premises nearby with a long-term demand for heat. Paragraphs 158 to 160 set out policy on heat networks and mapping.
- **184.** Plans should safeguard existing waste management installations and ensure that the allocation of land on adjacent sites does not compromise waste handling operations, which may operate 24 hours a day and partly outside buildings.
- **185.** Strategic development plans and local development plans outwith city regions should set out spatial strategies which make provision for new infrastructure, indicating clearly that it can generally be accommodated on land designated for employment, industrial or storage and distribution uses.
- **186.** Local development plans should identify appropriate locations for new infrastructure, allocating specific sites where possible, and should provide a policy framework which facilitates delivery. Suitable sites will include those which have been identified for employment, industry or storage and distribution. Updated Scottish Government planning advice on identifying sites and assessing their suitability will be provided in due course.
- **187.** Local development plans should identify where masterplans or development briefs will be required to guide the development of waste installations for major sites.

- **188.** In determining applications for new installations, authorities should take full account of the policy set out at paragraph 176. Planning authorities should determine whether proposed developments would constitute appropriate uses of the land, leaving the regulation of permitted installations to SEPA.
- **189.** SEPA's Thermal Treatment of Waste Guidelines 2013 and addendum sets out policy on thermal treatment plants.
- **190.** All new development including residential, commercial and industrial properties should include provision for waste separation and collection to meet the requirements of the Waste (Scotland) Regulations.

- **191.** Planning authorities should consider the need for buffer zones between dwellings or other sensitive receptors and some waste management facilities. As a guide, appropriate buffer distances may be:
 - 100m between sensitive receptors and recycling facilities, small-scale thermal treatment or leachate treatment plant;
 - 250m between sensitive receptors and operations such as outdoor composting, anaerobic digestion, mixed waste processing, thermal treatment or landfill gas plant; and
 - · greater between sensitive receptors and landfill sites.

192. Planning authorities should:

- consider requiring the preparation of site waste management plans for construction sites;
- secure decommissioning or restoration (including landfill) to agreed standards as a condition of planning permission for waste management facilities; and
- ensure that landfill consents are subject to an appropriate financial bond unless the operator can demonstrate that their programme of restoration, including the necessary financing, phasing and aftercare of sites, is sufficient.

A Natural, Resilient Place

Valuing the Natural Environment

NPF Context

193. The natural environment forms the foundation of the spatial strategy set out in NPF3. The environment is a valued national asset offering a wide range of opportunities for enjoyment, recreation and sustainable economic activity. Planning plays an important role in protecting, enhancing and promoting access to our key environmental resources, whilst supporting their sustainable use.

Policy Principles

194. The planning system should:

- facilitate positive change while maintaining and enhancing distinctive landscape character;
- conserve and enhance protected sites and species, taking account of the need to maintain healthy ecosystems and work with the natural processes which provide important services to communities:
- promote protection and improvement of the water environment, including rivers, lochs, estuaries, wetlands, coastal waters and groundwater, in a sustainable and co-ordinated way;
- seek to protect soils from damage such as erosion or compaction;
- protect and enhance ancient semi-natural woodland as an important and irreplaceable resource, together with other native or long-established woods, hedgerows and individual trees with high nature conservation or landscape value;
- seek benefits for biodiversity from new development where possible, including the restoration of degraded habitats and the avoidance of further fragmentation or isolation of habitats; and
- support opportunities for enjoying and learning about the natural environment.

Key Documents

- Getting the Best from Our Land A Land Use Strategy for Scotland⁷⁸
- The 2020 Challenge for Scotland's Biodiversity⁷⁹
- European Landscape Convention⁸⁰
- Nature Conservation (Scotland) Act 2004⁸¹
- The Conservation (Natural Habitats etc) Regulations⁸²
- The Wildlife and Countryside Act 1981⁸³

^{78 &}lt;u>www.scotland.gov.uk/Topics/Environment/Countryside/Landusestrategy</u>

⁷⁹ www.scotland.gov.uk/Publications/2013/06/5538

⁸⁰ www.coe.int/t/dg4/cultureheritage/heritage/landscape/default_en.asp

⁸¹ www.legislation.gov.uk/asp/2004/6/contents

^{82 &}lt;u>www.legislation.gov.uk/uksi/1994/2716/contents/made</u>

^{83 &}lt;u>www.legislation.gov.uk/ukpga/1981/69</u>

- EU Birds Directive 2009/147/EC⁸⁴
- EU Habitats Directive 92/43/EEC⁸⁵
- Ramsar Convention on Wetlands of International Importance⁸⁶
- National Parks (Scotland) Act 2000⁸⁷
- River Basin Management Plans⁸⁸

Delivery

195. Planning authorities, and all public bodies, have a duty under the Nature Conservation (Scotland) Act 2004 to further the conservation of biodiversity. This duty must be reflected in development plans and development management decisions. They also have a duty under the Water Environment and Water Services (Scotland) Act 2003 to protect and improve Scotland's water environment. The Scottish Government expects public bodies to apply the Principles for Sustainable Land Use, as set out in the Land Use Strategy, when taking significant decisions affecting the use of land.

Development Plans

196. International, national and locally designated areas and sites should be identified and afforded the appropriate level of protection in development plans. Reasons for local designation should be clearly explained and their function and continuing relevance considered when preparing plans. Buffer zones should not be established around areas designated for their natural heritage importance. Plans should set out the factors which will be taken into account in development management. The level of protection given to local designations should not be as high as that given to international or national designations.

197. Planning authorities are encouraged to limit non-statutory local designations to areas designated for their local landscape or nature conservation value:

- the purpose of areas of local landscape value should be to:
 - safeguard and enhance the character and quality of a landscape which is important or particularly valued locally or regionally; or
 - promote understanding and awareness of the distinctive character and special qualities of local landscapes; or
 - safeguard and promote important local settings for outdoor recreation and tourism.
- local nature conservation sites should seek to accommodate the following factors:
 - species diversity, species or habitat rarity, naturalness and extent of habitat;
 - contribution to national and local biodiversity objectives;
 - potential contribution to the protection or enhancement of connectivity between habitats or the development of green networks; and
 - potential to facilitate enjoyment and understanding of natural heritage.

⁸⁴ ec.europa.eu/environment/nature/legislation/birdsdirective/index en.htm

⁸⁵ ec.europa.eu/environment/nature/legislation/habitatsdirective/index en.htm

⁸⁶ www.ramsar.org/cda/en/ramsar-home/main/ramsar/1 4000 0

^{87 &}lt;u>www.legislation.gov.uk/asp/2000/10/contents</u>

^{88 &}lt;u>www.sepa.org.uk/water/river_basin_planning.aspx</u>

- **198.** Local nature conservation sites designated for their geodiversity should be selected for their value for scientific study and education, their historical significance and cultural and aesthetic value, and for their potential to promote public awareness and enjoyment.
- **199.** Plans should address the potential effects of development on the natural environment, including proposals for major-accident hazard sites and the cumulative effects of incremental changes. They should consider the natural and cultural components together, and promote opportunities for the enhancement of degraded landscapes, particularly where this helps to restore or strengthen the natural processes which underpin the well-being and resilience of communities.
- **200.** Wild land character is displayed in some of Scotland's remoter upland, mountain and coastal areas, which are very sensitive to any form of intrusive human activity and have little or no capacity to accept new development. Plans should identify and safeguard the character of areas of wild land as identified on the 2014 SNH map of wild land areas.
- **201.** Plans should identify woodlands of high nature conservation value and include policies for protecting them and enhancing their condition and resilience to climate change. Forestry Commission Scotland's <u>Native Woodland Survey of Scotland</u>⁸⁹ provides information and guidance. Planning authorities should consider preparing forestry and woodland strategies as supplementary guidance to inform the development of forestry and woodland in their area, including the expansion of woodland of a range of types to provide multiple benefits. Scottish Government advice on planning for forestry and woodlands is set out in <u>The Right Tree in the Right Place</u>⁹⁰.

- **202.** The siting and design of development should take account of local landscape character. Development management decisions should take account of potential effects on landscapes and the natural and water environment, including cumulative effects. Developers should seek to minimise adverse impacts through careful planning and design, considering the services that the natural environment is providing and maximising the potential for enhancement.
- **203.** Planning permission should be refused where the nature or scale of proposed development would have an unacceptable impact on the natural environment. Direct or indirect effects on statutorily protected sites will be an important consideration, but designation does not impose an automatic prohibition on development.
- **204.** Planning authorities should apply the precautionary principle where the impacts of a proposed development on nationally or internationally significant landscape or natural heritage resources are uncertain but there is sound evidence indicating that significant irreversible damage could occur. The precautionary principle should not be used to impede development without justification. If there is any likelihood that significant irreversible damage could occur, modifications to the proposal to eliminate the risk of such damage should be considered. If there is uncertainty, the potential for research, surveys or assessments to remove or reduce uncertainty should be considered.
- **205.** Where peat and other carbon rich soils are present, applicants should assess the likely effects of development on carbon dioxide (CO₂) emissions. Where peatland is drained or otherwise disturbed, there is liable to be a release of CO₂ to the atmosphere. Developments should aim to minimise this release.

^{89 &}lt;u>www.forestry.gov.uk/nwss</u>

⁹⁰ www.forestry.gov.uk/pdf/fcfc129.pdf/\$file/fcfc129.pdf

206. Where non-native species are present on site, or where planting is planned as part of a development, developers should take into account the provisions of the Wildlife and Countryside Act 1981 relating to non-native species.

International Designations

Natura 2000 Sites

207. Sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) make up the Natura 2000 network of protected areas. Any development plan or proposal likely to have a significant effect on these sites which is not directly connected with or necessary to their conservation management must be subject to an "appropriate assessment" of the implications for the conservation objectives. Such plans or proposals may only be approved if the competent authority has ascertained by means of an "appropriate assessment" that there will be no adverse effect on the integrity of the site.

208. A derogation is available for authorities to approve plans or projects which could adversely affect the integrity of a Natura site if:

- there are no alternative solutions;
- there are imperative reasons of overriding public interest, including those of a social or economic nature; and
- compensatory measures are provided to ensure that the overall coherence of the Natura network is protected.
- **209.** If an authority wishes to use this derogation, Scottish Ministers must be notified. For sites hosting a priority habitat or species (as defined in Article 1 of the Habitats Directive), prior consultation with the European Commission via Scottish Ministers is required unless either the proposal is necessary for public health or safety reasons or it will have beneficial consequences of primary importance to the environment.
- **210.** Authorities should afford the same level of protection to proposed SACs and SPAs (i.e. sites which have been approved by Scottish Ministers for formal consultation but which have not yet been designated) as they do to sites which have been designated.

Ramsar Sites

211. All Ramsar sites are also Natura 2000 sites and/or Sites of Special Scientific Interest and are protected under the relevant statutory regimes.

National Designations

212. Development that affects a National Park, National Scenic Area, Site of Special Scientific Interest or a National Nature Reserve should only be permitted where:

- the objectives of designation and the overall integrity of the area will not be compromised; or
- any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.

213. Planning decisions for development within National Parks must be consistent with paragraphs 84-85.

Protected Species

214. The presence (or potential presence) of a legally protected species is an important consideration in decisions on planning applications. If there is evidence to suggest that a protected species is present on site or may be affected by a proposed development, steps must be taken to establish their presence. The level of protection afforded by legislation must be factored into the planning and design of the development and any impacts must be fully considered prior to the determination of the application. Certain activities – for example those involving European Protected Species as specified in the Conservation (Natural Habitats, &c.) Regulations 1994 and wild birds, protected animals and plants under the Wildlife and Countryside Act 1981 – may only be undertaken under licence. Following the introduction of the Wildlife and Natural Environment (Scotland) Act 2011, Scottish Natural Heritage is now responsible for the majority of wildlife licensing in Scotland.

Areas of Wild Land

215. In areas of wild land (see paragraph 200), development may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

Woodland

- **216.** Ancient semi-natural woodland is an irreplaceable resource and, along with other woodlands, hedgerows and individual trees, especially veteran trees of high nature conservation and landscape value, should be protected from adverse impacts resulting from development. Tree Preservation Orders⁹¹ can be used to protect individual trees and groups of trees considered important for amenity or their cultural or historic interest.
- **217.** Where appropriate, planning authorities should seek opportunities to create new woodland and plant native trees in association with development. If a development would result in the severing or impairment of connectivity between important woodland habitats, workable mitigation measures should be identified and implemented, preferably linked to a wider green network (see also the section on green infrastructure).
- **218.** The Scottish Government's <u>Control of Woodland Removal Policy</u>⁹² includes a presumption in favour of protecting woodland. Removal should only be permitted where it would achieve significant and clearly defined additional public benefits. Where woodland is removed in association with development, developers will generally be expected to provide compensatory planting. The criteria for determining the acceptability of woodland removal and further information on the implementation of the policy is explained in the Control of Woodland Removal Policy, and this should be taken into account when preparing development plans and determining planning applications.

⁹¹ www.scotland.gov.uk/Publications/2011/01/28152314/0

^{92 &}lt;u>www.forestry.gov.uk/pdf/fcfc125.pdf/%24FILE/fcfc125.pdf</u>

Maximising the Benefits of Green Infrastructure

NPF Context

219. NPF3 aims to significantly enhance green infrastructure networks, particularly in and around our cities and towns. Green infrastructure and improved access to open space can help to build stronger, healthier communities. It is an essential part of our long-term environmental performance and climate resilience. Improving the quality of our places and spaces through integrated green infrastructure networks can also encourage investment and development.

Policy Principles

220. Planning should protect, enhance and promote green infrastructure, including open space and green networks, as an integral component of successful placemaking.

221. The planning system should:

- consider green infrastructure as an integral element of places from the outset of the planning process;
- assess current and future needs and opportunities for green infrastructure to provide multiple benefits;
- facilitate the provision and long-term, integrated management of green infrastructure and prevent fragmentation; and
- provide for easy and safe access to and within green infrastructure, including core paths and other important routes, within the context of statutory access rights under the Land Reform (Scotland) Act 2003.

Key Documents

- Green Infrastructure: Design and Placemaking⁹³
- Getting the Best from Our Land A Land Use Strategy for Scotland⁹⁴
- Planning Advice Note 65: Planning and Open Space⁹⁵
- Reaching Higher Scotland's National Strategy for Sport⁹⁶
- The Play Strategy for Scotland and Action Plan⁹⁷
- Let's Get Scotland Walking: The National Walking Strategy⁹⁸

Delivery

Development Planning

222. Development plans should be based on a holistic, integrated and cross-sectoral approach to green infrastructure. They should be informed by relevant, up-to-date audits, strategies and action plans covering green infrastructure's multiple functions, for example open space, playing fields, pitches, outdoor access, core paths, active travel strategies, the historic environment, biodiversity, forestry and woodland, river basins, flood management, coastal zones and the marine environment.

⁹³ www.scotland.gov.uk/Publications/2011/11/04140525/0

⁹⁴ www.scotland.gov.uk/Publications/2011/03/17091927/0

^{95 &}lt;u>www.scotland.gov.uk/Publications/2008/05/30100623/0</u>

⁹⁶ www.scotland.gov.uk/Topics/ArtsCultureSport/Sport/NationalStrategies/Sport-21

⁹⁷ www.scotland.gov.uk/Publications/2013/10/9424

⁹⁸ www.scotland.gov.uk/Publications/2014/06/5743

Plans should promote consistency with these and reflect their priorities and spatial implications.

- **223.** Strategic development plans should safeguard existing strategic or regionally important assets and identify strategic priorities for green infrastructure addressing cross-boundary needs and opportunities.
- **224.** Local development plans should identify and protect open space identified in the open space audit and strategy as valued and functional or capable of being brought into use to meet local needs.
- **225.** Local development plans should seek to enhance existing and promote the creation of new green infrastructure, which may include retrofitting. They should do this through a design-led approach, applying standards which facilitate appropriate provision, addressing deficits or surpluses within the local context. The standards delivered through a design-led approach should result in a proposal that is appropriate to place, including connections to other green infrastructure assets. Supplementary guidance or master plans may be used to achieve this.
- **226.** Local development plans should identify sites for new indoor or outdoor sports, recreation or play facilities where a need has been identified in a local facility strategy, playing field strategy or similar document. They should provide for good quality, accessible facilities in sufficient quantity to satisfy current and likely future community demand. Outdoor sports facilities should be safeguarded from development except where:
 - the proposed development is ancillary to the principal use of the site as an outdoor sports facility;
 - the proposed development involves only a minor part of the outdoor sports facility and would not affect its use and potential for sport and training;
 - the outdoor sports facility which would be lost would be replaced either by a new facility of
 comparable or greater benefit for sport in a location that is convenient for users, or by the
 upgrading of an existing outdoor sports facility to provide a facility of better quality on the
 same site or at another location that is convenient for users and maintains or improves the
 overall playing capacity in the area; or
 - the relevant strategy (see paragraph 224) and consultation with sportscotland show that
 there is a clear excess of provision to meet current and anticipated demand in the area, and
 that the site would be developed without detriment to the overall quality of provision.
- **227.** Local development plans should safeguard existing and potential allotment sites to ensure that local authorities meet their statutory duty to provide allotments where there is proven demand. Plans should also encourage opportunities for a range of community growing spaces.
- **228.** Local development plans should safeguard access rights and core paths, and encourage new and enhanced opportunities for access linked to wider networks.
- **229.** Local development plans should encourage the temporary use of unused or underused land as green infrastructure while making clear that this will not prevent any future development potential which has been identified from being realised. This type of greening may provide the advance structure planting to create the landscape framework for any future development.

- **230.** Development of land allocated as green infrastructure for an unrelated purpose should have a strong justification. This should be based on evidence from relevant audits and strategies that the proposal will not result in a deficit of that type of provision within the local area and that alternative sites have been considered. Poor maintenance and neglect should not be used as a justification for development for other purposes.
- **231.** Development proposals that would result in or exacerbate a deficit of green infrastructure should include provision to remedy that deficit with accessible infrastructure of an appropriate type, quantity and quality.
- **232.** In the design of green infrastructure, consideration should be given to the qualities of successful places. Green infrastructure should be treated as an integral element in how the proposal responds to local circumstances, including being well-integrated into the overall design layout and multi-functional. Arrangements for the long-term management and maintenance of green infrastructure, and associated water features, including common facilities, should be incorporated into any planning permission.
- **233.** Proposals that affect regional and country parks must have regard to their statutory purpose of providing recreational access to the countryside close to centres of population, and should take account of their wider objectives as set out in their management plans and strategies.

Promoting Responsible Extraction of Resources

NPF Context

234. Minerals make an important contribution to the economy, providing materials for construction, energy supply and other uses, and supporting employment. NPF3 notes that minerals will be required as construction materials to support our ambition for diversification of the energy mix. Planning should safeguard mineral resources and facilitate their responsible use. Our spatial strategy underlines the need to address restoration of past minerals extraction sites in and around the Central Belt.

Policy Principles

235. The planning system should:

- recognise the national benefit of indigenous coal, oil and gas production in maintaining a diverse energy mix and improving energy security;
- safeguard workable resources and ensure that an adequate and steady supply is available to meet the needs of the construction, energy and other sectors;
- minimise the impacts of extraction on local communities, the environment and the built and natural heritage; and
- secure the sustainable restoration of sites to beneficial afteruse after working has ceased.

Key Documents

- Electricity Generation Policy Statement⁹⁹
- Management of Extractive Waste (Scotland) Regulations 2010¹⁰⁰
- PAN 50: Controlling the Environmental Effects of Surface Mineral Workings¹⁰¹
- Planning Advice Note 64: Reclamation of Surface Mineral Workings¹⁰²
- <u>Circular 2/2003: Safeguarding of Aerodromes, Technical Sites and Military Explosive Storage</u> Areas¹⁰³
- Circular 34/1996: Environment Act 1995 Section 96¹⁰⁴

Delivery

Development Planning

236. Strategic development plans should ensure that adequate supplies of construction aggregates can be made available from within the plan area to meet the likely development needs of the city region over the plan period.

237. Local development plans should safeguard all workable mineral resources which are of economic or conservation value and ensure that these are not sterilised by other development. Plans should set out the factors that specific proposals will need to address, including:

- disturbance, disruption and noise, blasting and vibration, and potential pollution of land, air and water;
- impacts on local communities, individual houses, sensitive receptors and economic sectors important to the local economy;
- · benefits to the local and national economy;
- cumulative impact with other mineral and landfill sites in the area;
- effects on natural heritage, habitats and the historic environment;
- landscape and visual impacts, including cumulative effects;
- transport impacts; and
- restoration and aftercare (including any benefits in terms of the remediation of existing areas of dereliction or instability).

238. Plans should support the maintenance of a landbank of permitted reserves for construction aggregates of at least 10 years at all times in all market areas through the identification of areas of search. Such areas can be promoted by developers or landowners as part of the plan preparation process or by planning authorities where they wish to guide development to particular areas. As an alternative, a criteria-based approach may be taken, particularly where a sufficient landbank already exists or substantial unconstrained deposits are available.

⁹⁹ www.scotland.gov.uk/Publications/2013/06/5757

¹⁰⁰ www.legislation.gov.uk/ssi/2010/60/contents/made

¹⁰¹ www.scotland.gov.uk/Publications/1996/10/17729/23424

¹⁰² www.scotland.gov.uk/Publications/2003/01/16122/16256

¹⁰³ www.scotland.gov.uk/Publications/2003/01/16204/17030

^{104 &}lt;u>www.scotland.gov.uk/Publications/1996/11/circular-34-1996-root/circular-34-1996-guidance</u>

- **239.** Local development plans should identify areas of search where surface coal extraction is most likely to be acceptable during the plan period and set out the preferred programme for the development of other safeguarded areas beyond the plan period, with particular emphasis on protecting local communities from significant cumulative impacts. Where possible, plans should secure extraction prior to permanent development above workable coal reserves.
- **240.** For areas covered by a Petroleum Exploration and Development Licence (PEDL), local development plans should also:
 - · identify licence areas;
 - encourage operators to be as clear as possible about the minimum and maximum extent of operations (e.g. number of wells and duration) at the exploration phase whilst recognising that the factors to be addressed by applications should be relevant and proportionate to the appropriate exploration, appraisal and production phases of operations;
 - confirm that applicants should engage with local communities, residents and other stakeholders at each stage of operations, beginning in advance of any application for planning permission and in advance of any operations;
 - ensure that when developing proposals, applicants should consider, where possible, transport of the end product by pipeline, rail or water rather than road; and
 - provide a consistent approach to extraction where licences extend across local authority boundaries.
- **241.** Policies should protect areas of peatland and only permit commercial extraction in areas suffering historic, significant damage through human activity and where the conservation value is low and restoration is impossible.

- **242.** Operators should provide sufficient information to enable a full assessment to be made of the likely effects of development together with appropriate control, mitigation and monitoring measures. This should include the provision of an adequate buffer zone between sites and settlements, taking account of the specific circumstances of individual proposals, including size, duration, location, method of working, topography, the characteristics of the various environmental effects likely to arise and the mitigation that can be provided.
- **243.** Borrow pits should only be permitted if there are significant environmental or economic benefits compared to obtaining material from local quarries; they are time-limited; tied to a particular project and appropriate reclamation measures are in place.
- **244.** Consent should only be granted for surface coal extraction proposals which are either environmentally acceptable (or can be made so by planning conditions) or provide local or community benefits which clearly outweigh the likely impacts of extraction. Site boundaries within 500 metres of the edge of settlements will only be environmentally acceptable where local circumstances, such as the removal of dereliction, small-scale prior extraction or the stabilisation of mining legacy, justify a lesser distance. Non-engineering works and mitigation measures within 500 metres may be acceptable.

- **245.** To assist planning authorities with their consideration of impacts on local communities, neighbouring uses and the environment, applicants should undertake a risk assessment for all proposals for shale gas and coal bed methane extraction. The assessment can, where appropriate, be undertaken as part of any environmental impact assessment and should also be developed in consultation with statutory consultees and local communities so that it informs the design of the proposal. The assessment should clearly identify those onsite activities (i.e. emission of pollutants, the creation and disposal of waste) that pose a potential risk using a source—pathway—receptor model and explain how measures, including those under environmental and other legislation, will be used to monitor, manage and mitigate any identified risks to health, amenity and the environment. The evidence from, and outcome of, the assessment should lead to buffer zones being proposed in the application which will protect all sensitive receptors from unacceptable risks. When considering applications, planning authorities and statutory consultees must assess the distances proposed by the applicant. Where proposed distances are considered inadequate the Scottish Government expects planning permission to be refused.
- **246.** Conditions should be drafted in a way which ensures that hydraulic fracturing does not take place where permission for such operations is not sought and that any subsequent application to do so is subject to appropriate consultation. If such operations are subsequently proposed, they should, as a matter of planning policy, be regarded as a substantial change in the description of the development for which planning permission is sought or a material variation to the existing planning permission. Where PEDL and Underground Coal licences are granted for the same or overlapping areas, consideration should be given to the most efficient sequencing of extraction.
- **247.** The Scottish Government is currently exploring a range of options relating to the effective regulation of surface coal mining. This is likely to result in further guidance on effective restoration measures in due course. In the meantime, planning authorities should, through planning conditions and legal agreements, continue to ensure that a high standard of restoration and aftercare is managed effectively and that such work is undertaken at the earliest opportunity. A range of financial guarantee options is currently available and planning authorities should consider the most effective solution on a site-by-site basis. All solutions should provide assurance and clarity over the amount and period of the guarantee and in particular, where it is a bond, the risks covered (including operator failure) and the triggers for calling in a bond, including payment terms. In the aggregates sector, an operator may be able to demonstrate adequate provision under an industry-funded guarantee scheme.
- **248.** Planning authorities should ensure that rigorous procedures are in place to monitor consents, including restoration arrangements, at appropriate intervals, and ensure that appropriate action is taken when necessary. The review of mineral permissions every 15 years should be used to apply up-to-date operating and environmental standards although requests from operators to postpone reviews should be considered favourably if existing conditions are already achieving acceptable standards. Conditions should not impose undue restrictions on consents at quarries for building or roofing stone to reflect the likely intermittent or low rate of working at such sites.

Supporting Aquaculture

NPF Context

249. Aquaculture makes a significant contribution to the Scottish economy, particularly for coastal and island communities. Planning can help facilitate sustainable aquaculture whilst protecting and maintaining the ecosystem upon which it depends. Planning can play a role in supporting the sectoral growth targets to grow marine finfish (including farmed Atlantic salmon) production sustainably to 210,000 tonnes; and shellfish, particularly mussels, sustainably to 13,000 tonnes with due regard to the marine environment by 2020.

Policy Principles

250. The planning system should:

- play a supporting role in the sustainable growth of the finfish and shellfish sectors to ensure that the aquaculture industry is diverse, competitive and economically viable;
- guide development to coastal locations that best suit industry needs with due regard to the marine environment;
- maintain a presumption against further marine finfish farm developments on the north and east coasts to safeguard migratory fish species.

Key Documents

National Marine Plan

Delivery

Development Planning

251. Local development plans should make positive provision for aquaculture developments. Plans, or supplementary guidance, should take account of Marine Scotland's locational policies when identifying areas potentially suitable for new development and sensitive areas which are unlikely to be appropriate for such development. They should also set out the issues that will be considered when assessing specific proposals, which could include:

- impacts on, and benefits for, local communities;
- economic benefits of the sustainable development of the aquaculture industry;
- landscape, seascape and visual impact;
- biological carrying capacity;
- · effects on coastal and marine species (including wild salmonids) and habitats;
- · impacts on the historic environment and the sea or loch bed;
- interaction with other users of the marine environment (including commercial fisheries, Ministry of Defence, navigational routes, ports and harbours, anchorages, tourism, recreational and leisure activities); and
- cumulative effects on all of the above factors.

252. Applications should be supported, where necessary, by sufficient information to demonstrate:

- operational arrangements (including noise, light, access, waste and odour) are satisfactory and sufficient mitigation plans are in place; and
- the siting and design of cages, lines and associated facilities are appropriate for the location. This should be done through the provision of information on the extent of the site; the type, number and physical scale of structures; the distribution of the structures across the planning area; on-shore facilities; and ancillary equipment.

253. Any land-based facilities required for the proposal should, where possible, be considered at the same time. The planning system should not duplicate other control regimes such as controlled activities regulation licences from SEPA or fish health, sea lice and containment regulation by Marine Scotland.

Managing Flood Risk and Drainage

NPF Context

254. NPF3 supports a catchment-scale approach to sustainable flood risk management. The spatial strategy aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Flooding can impact on people and businesses. Climate change will increase the risk of flooding in some parts of the country. Planning can play an important part in reducing the vulnerability of existing and future development to flooding.

Policy Principles

255. The planning system should promote:

- a precautionary approach to flood risk from all sources, including coastal, water course (fluvial), surface water (pluvial), groundwater, reservoirs and drainage systems (sewers and culverts), taking account of the predicted effects of climate change;
- flood avoidance: by safeguarding flood storage and conveying capacity, and locating development away from functional flood plains and medium to high risk areas:
- flood reduction: assessing flood risk and, where appropriate, undertaking natural and structural flood management measures, including flood protection, restoring natural features and characteristics, enhancing flood storage capacity, avoiding the construction of new culverts and opening existing culverts where possible; and
- avoidance of increased surface water flooding through requirements for Sustainable Drainage Systems (SuDS) and minimising the area of impermeable surface.
- **256.** To achieve this the planning system should prevent development which would have a significant probability of being affected by flooding or would increase the probability of flooding elsewhere. Piecemeal reduction of the functional floodplain should be avoided given the cumulative effects of reducing storage capacity.
- **257.** Alterations and small-scale extensions to existing buildings are outwith the scope of this policy, provided that they would not have a significant effect on the storage capacity of the functional floodplain or local flooding problems.

Key Documents

- Flood Risk Management (Scotland) Act 2009¹⁰⁵
- Updated Planning Advice Note on Flooding
- Delivering Sustainable Flood Risk Management (Scottish Government, 2011).
- Surface Water Management Planning Guidance¹⁰⁷ (Scottish Government, 2013).

Delivery

258. Planning authorities should have regard to the probability of flooding from all sources and take flood risk into account when preparing development plans and determining planning applications. The calculated probability of flooding should be regarded as a best estimate and not a precise forecast. Authorities should avoid giving any indication that a grant of planning permission implies the absence of flood risk.

259. Developers should take into account flood risk and the ability of future occupiers to insure development before committing themselves to a site or project, as applicants and occupiers have ultimate responsibility for safeguarding their property.

Development Planning

260. Plans should use strategic flood risk assessment (SFRA) to inform choices about the location of development and policies for flood risk management. They should have regard to the flood maps prepared by Scottish Environment Protection Agency (SEPA), and take account of finalised and approved Flood Risk Management Strategies and Plans and River Basin Management Plans.

261. Strategic and local development plans should address any significant cross boundary flooding issues. This may include identifying major areas of the flood plain and storage capacity which should be protected from inappropriate development, major flood protection scheme requirements or proposals, and relevant drainage capacity issues.

262. Local development plans should protect land with the potential to contribute to managing flood risk, for instance through natural flood management, managed coastal realignment, washland or green infrastructure creation, or as part of a scheme to manage flood risk.

263. Local development plans should use the following flood risk framework to guide development. This sets out three categories of coastal and watercourse flood risk, together with guidance on surface water flooding, and the appropriate planning approach for each (the annual probabilities referred to in the framework relate to the land at the time a plan is being prepared or a planning application is made):

- Little or No Risk annual probability of coastal or watercourse flooding is less than 0.1% (1:1000 years)
 - No constraints due to coastal or watercourse flooding.

¹⁰⁵ www.legislation.gov.uk/asp/2009/6/contents

¹⁰⁶ www.scotland.gov.uk/Publications/2011/06/15150211/0

^{107 &}lt;a href="http://www.scotland.gov.uk/Publications/2013/02/7909/0">http://www.scotland.gov.uk/Publications/2013/02/7909/0

- Low to Medium Risk annual probability of coastal or watercourse flooding is between 0.1% and 0.5% (1:1000 to 1:200 years)
 - Suitable for most development. A flood risk assessment may be required at the upper end
 of the probability range (i.e. close to 0.5%), and for essential infrastructure and the most
 vulnerable uses. Water resistant materials and construction may be required.
 - Generally not suitable for civil infrastructure. Where civil infrastructure must be located
 in these areas or is being substantially extended, it should be designed to be capable of
 remaining operational and accessible during extreme flood events.
- **Medium to High Risk** annual probability of coastal or watercourse flooding is greater than 0.5% (1:200 years)
 - May be suitable for:
 - residential, institutional, commercial and industrial development within built-up areas provided flood protection measures to the appropriate standard already exist and are maintained, are under construction, or are a planned measure in a current flood risk management plan;
 - essential infrastructure within built-up areas, designed and constructed to remain operational during floods and not impede water flow;
 - some recreational, sport, amenity and nature conservation uses, provided appropriate evacuation procedures are in place; and
 - job-related accommodation, e.g. for caretakers or operational staff.
 - Generally not suitable for:
 - civil infrastructure and the most vulnerable uses;
 - additional development in undeveloped and sparsely developed areas, unless a location is essential for operational reasons, e.g. for navigation and water-based recreation, agriculture, transport or utilities infrastructure (which should be designed and constructed to be operational during floods and not impede water flow), and an alternative, lower risk location is not available; and
 - new caravan and camping sites.
 - Where built development is permitted, measures to protect against or manage flood risk will be required and any loss of flood storage capacity mitigated to achieve a neutral or better outcome.
 - Water-resistant materials and construction should be used where appropriate. Elevated buildings on structures such as stilts are unlikely to be acceptable.

Surface Water Flooding

- Infrastructure and buildings should generally be designed to be free from surface water flooding in rainfall events where the annual probability of occurrence is greater than 0.5% (1:200 years).
- Surface water drainage measures should have a neutral or better effect on the risk of flooding both on and off the site, taking account of rain falling on the site and run-off from adjacent areas.

264. It is not possible to plan for development solely according to the calculated probability of flooding. In applying the risk framework to proposed development, the following should therefore be taken into account:

- the characteristics of the site;
- the design and use of the proposed development;
- · the size of the area likely to flood;
- depth of flood water, likely flow rate and path, and rate of rise and duration;
- the vulnerability and risk of wave action for coastal sites;
- committed and existing flood protection methods: extent, standard and maintenance regime;
- the effects of climate change, including an allowance for freeboard;
- surface water run-off from adjoining land;
- culverted watercourses, drains and field drainage;
- cumulative effects, especially the loss of storage capacity;
- cross-boundary effects and the need for consultation with adjacent authorities;
- effects of flood on access including by emergency services; and
- effects of flood on proposed open spaces including gardens.
- **265.** Land raising should only be considered in exceptional circumstances, where it is shown to have a neutral or better impact on flood risk outside the raised area. Compensatory storage may be required.
- **266.** The flood risk framework set out above should be applied to development management decisions. Flood Risk Assessments (FRA) should be required for development in the medium to high category of flood risk, and may be required in the low to medium category in the circumstances described in the framework above, or where other factors indicate heightened risk. FRA will generally be required for applications within areas identified at high or medium likelihood of flooding/flood risk in SEPA's flood maps.
- **267.** Drainage Assessments, proportionate to the development proposal and covering both surface and foul water, will be required for areas where drainage is already constrained or otherwise problematic, or if there would be off-site effects.
- **268.** Proposed arrangements for SuDS should be adequate for the development and appropriate long-term maintenance arrangements should be put in place.

A Connected Place

Promoting Sustainable Transport and Active Travel

NPF Context

269. The spatial strategy set out in NPF3 is complemented by an ongoing programme of investment in transport infrastructure. The economy relies on efficient transport connections, within Scotland and to international markets. Planning can play an important role in improving connectivity and promoting more sustainable patterns of transport and travel as part of the transition to a low carbon economy.

Policy Principles

270. The planning system should support patterns of development which:

- · optimise the use of existing infrastructure;
- · reduce the need to travel;
- provide safe and convenient opportunities for walking and cycling for both active travel and recreation, and facilitate travel by public transport;
- · enable the integration of transport modes; and
- · facilitate freight movement by rail or water.

271. Development plans and development management decisions should take account of the implications of development proposals on traffic, patterns of travel and road safety.

Key Documents

- National Transport Strategy¹⁰⁸
- Climate Change (Scotland) Act 2009¹⁰⁹
- Low Carbon Scotland: Meeting the Emissions Reduction Targets 2013-2027¹¹⁰
- Infrastructure Investment Plan¹¹¹
- Strategic Transport Projects Review¹¹²
- Transport Assessment Guidance¹¹³
- Development Planning and Management Transport Appraisal Guidance (DPMTAG)¹¹⁴
- PAN 66: Best Practice in Handling Applications Affecting Trunk Roads¹¹⁵

¹⁰⁸ www.scotland.gov.uk/Publications/2006/12/04104414/0

¹⁰⁹ www.legislation.gov.uk/asp/2009/12/contents

¹¹⁰ www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/meetingthetargets

¹¹¹ www.scotland.gov.uk/Publications/2011/12/05141922/0

¹¹² www.transportscotland.gov.uk/strategic-transport-projects-review

^{113 &}lt;u>www.transportscotland.gov.uk/system/files/documents/tsc-basic-pages/Planning_Reform - DPMTAG - Development_Management_DPMTAG Ref_17 - Transport_Assessment_Guidance_FINAL - June_2012.pdf</u>

^{114 &}lt;u>www.transportscotland.gov.uk/development-planning-and-management-transport-appraisal-guidance-dpmtag</u>

¹¹⁵ www.scotland.gov.uk/Resource/Doc/47021/0026434.pdf

- Design Manual for Roads and Bridges¹¹⁶
- Designing Streets¹¹⁷
- Roads for All¹¹⁸
- Cycling Action Plan in Scotland¹¹⁹ (CAPS)
- Let's Get Scotland Walking: The National Walking Strategy¹²⁰
- A More Active Scotland Building a Legacy from the Commonwealth Games¹²¹
- Switched On Scotland: A Roadmap to Widespread Adoption of Plug-in Vehicles
- Tourism Development Framework for Scotland¹²³

Delivery

Development Planning

272. Development plans should take account of the relationship between land use and transport and particularly the capacity of the existing transport network, environmental and operational constraints, and proposed or committed transport projects.

273. The spatial strategies set out in plans should support development in locations that allow walkable access to local amenities and are also accessible by cycling and public transport. Plans should identify active travel networks and promote opportunities for travel by more sustainable modes in the following order of priority: walking, cycling, public transport, cars. The aim is to promote development which maximises the extent to which its travel demands are met first through walking, then cycling, then public transport and finally through use of private cars. Plans should facilitate integration between transport modes.

274. In preparing development plans, planning authorities are expected to appraise the impact of the spatial strategy and its reasonable alternatives on the transport network, in line with Transport Scotland's DPMTAG guidance. This should include consideration of previously allocated sites, transport opportunities and constraints, current capacity and committed improvements to the transport network. Planning authorities should ensure that a transport appraisal is undertaken at a scale and level of detail proportionate to the nature of the issues and proposals being considered, including funding requirements. Appraisals should be carried out in time to inform the spatial strategy and the strategic environmental assessment. Where there are potential issues for the strategic transport network, the appraisal should be discussed with Transport Scotland at the earliest opportunity.

¹¹⁶ www.dft.gov.uk/ha/standards/dmrb/index.htm

¹¹⁷ www.scotland.gov.uk/Publications/2010/03/22120652/0

¹¹⁸ http://www.transportscotland.gov.uk/guides/j256264-00.htm

¹¹⁶ www.transportscotland.gov.uk/strategy-and-research/publications-and-consultations/cycling-action-plan-2013

¹²⁰ www.scotland.gov.uk/Publications/2014/06/5743

¹²¹ www.scotland.gov.uk/Publications/2014/02/8239/0

^{122 &}lt;u>www.transportscotland.gov.uk/report/j272736-00.htm</u>

^{123 &}lt;u>www.visitscotland.org/pdf/Tourism%20Development%20Framework%20-%20FINAL.pdf</u>

- 275. Development plans should identify any required new transport infrastructure or public transport services, including cycle and pedestrian routes, trunk road and rail infrastructure. The deliverability of this infrastructure, and by whom it will be delivered, should be key considerations in identifying the preferred and alternative land use strategies. Plans and associated documents, such as supplementary guidance and the action programme, should indicate how new infrastructure or services are to be delivered and phased, and how and by whom any developer contributions will be made. These should be prepared in consultation with all of the parties responsible for approving and delivering the infrastructure. Development plans should support the provision of infrastructure necessary to support positive changes in transport technologies, such as charging points for electric vehicles.
- 276. Where public transport services required to serve a new development cannot be provided commercially, a contribution from the developer towards an agreed level of service may be appropriate. The development plan action programme should set out how this will be delivered, and the planning authority should coordinate discussions with the public transport provider, developer, Transport Scotland where appropriate, and relevant regional transport partnerships at an early stage in the process. In rural areas the plan should be realistic about the likely viability of public transport services and innovative solutions such as demand-responsive public transport and small-scale park and ride facilities at nodes on rural bus corridors should be considered.
- 277. Disused railway lines with a reasonable prospect of being reused as rail, tram, bus rapid transit or active travel routes should be safeguarded in development plans. The strategic case for a new station should emerge from a complete and robust multimodal transport appraisal in line with Scottish Transport Appraisal Guidance. Any appraisal should include consideration of making best use of current rail services; and should demonstrate that the needs of local communities, workers or visitors are sufficient to generate a high level of demand, and that there would be no adverse impact on the operation of the rail service franchise. Funding partners must be identified. Agreement should be reached with Transport Scotland and Network Rail before rail proposals are included in a development plan or planning application and it should be noted that further technical assessment and design work will be required before any proposed new station can be confirmed as viable.
- 278. While new junctions on trunk roads are not normally acceptable, the case for a new junction will be considered where the planning authority considers that significant economic growth or regeneration benefits can be demonstrated. New junctions will only be considered if they are designed in accordance with DMRB and where there would be no adverse impact on road safety or operational performance.
- 279. Significant travel-generating uses should be sited at locations which are well served by public transport, subject to parking restraint policies, and supported by measures to promote the availability of high-quality public transport services. New development areas should be served by public transport providing access to a range of destinations. Development plans should indicate when a travel plan will be required to accompany a proposal for a development which will generate significant travel.
- 280. Along with sound choices on the location of new development, appropriate street layout and design are key are to achieving the policy principles at paragraph 270. The design of all new development should follow the placemaking approach set out in this SPP and the principles of Designing Streets, to ensure the creation of places which are distinctive, welcoming, adaptable, resource efficient, safe and pleasant and easy to move around and beyond.

- 281. National maximum parking standards for certain types and scales of development have been set to promote consistency (see Annex B: Parking Policies and Standards). Where an area is well served by sustainable transport modes, planning authorities may set more restrictive standards, and where public transport provision is limited, planning authorities may set less restrictive standards. Local authorities should also take account of relevant town centre strategies when considering appropriate parking provision (see paragraphs 64-65 and Annex A: Town Centre Health Checks and Strategies).
- When preparing development plans, planning authorities should consider the need for improved and additional freight transfer facilities. Strategic freight sites should be safeguarded in development plans. Existing roadside facilities and provision for lorry parking should be safeguarded and, where required, development plans should make additional provision for the overnight parking of lorries at appropriate locations on routes with a high volume of lorry traffic. Where appropriate, development plans should also identify suitable locations for new or expanded rail freight interchanges to support increased movement of freight by rail. Facilities allowing the transfer of freight from road to rail or water should also be considered.
- 283. Planning authorities and port operators should work together to address the planning and transport needs of ports and opportunities for rail access should be safeguarded in development plans. Planning authorities should ensure that there is appropriate road access to ferry terminals for cars and freight, and support the provision of bus and train interchange facilities.
- 284. Planning authorities, airport operators and other stakeholders should work together to prepare airport masterplans and address other planning and transport issues relating to airports. Relevant issues include public safety zone safeguarding, surface transport access for supplies, air freight, staff and passengers, related on- and off-site development such as transport interchanges, offices, hotels, car parks, warehousing and distribution services, and other development benefiting from good access to the airport.
- **285.** Canals, which are scheduled monuments, should be safeguarded as assets which can contribute to sustainable economic growth through sensitive development and regeneration. Consideration should be given to planning for new uses for canals, where appropriate.

- **286.** Where a new development or a change of use is likely to generate a significant increase in the number of trips, a transport assessment should be carried out. This should identify any potential cumulative effects which need to be addressed.
- **287.** Planning permission should not be granted for significant travel-generating uses at locations which would increase reliance on the car and where:
 - direct links to local facilities via walking and cycling networks are not available or cannot be made available;
 - access to local facilities via public transport networks would involve walking more than 400m;
 or
 - the transport assessment does not identify satisfactory ways of meeting sustainable transport requirements.

Guidance is available in Transport Assessment and Implementation: A Guide 124

^{124 &}lt;u>www.scotland.gov.uk/Publications/2005/08/1792325/23264</u>

- **288.** Buildings and facilities should be accessible by foot and bicycle and have appropriate operational and servicing access for large vehicles. Cycle routes, cycle parking and storage should be safeguarded and enhanced wherever possible.
- **289.** Consideration should be given to how proposed development will contribute to fulfilling the objectives of Switched On Scotland A Roadmap to Widespread Adoption of Plug-in Vehicles. Electric vehicle charge points should always be considered as part of any new development and provided where appropriate.
- 290. Development proposals that have the potential to affect the performance or safety of the strategic transport network need to be fully assessed to determine their impact. Where existing infrastructure has the capacity to accommodate a development without adverse impacts on safety or unacceptable impacts on operational performance, further investment in the network is not likely to be required. Where such investment is required, the cost of the mitigation measures required to ensure the continued safe and effective operation of the network will have to be met by the developer.
- **291.** Consideration should be given to appropriate planning restrictions on construction and operation related transport modes when granting planning permission, especially where bulk material movements are expected, for example freight from extraction operations.

Supporting Digital Connectivity

NPF Context

292. NPF3 highlights the importance of our digital infrastructure, across towns and cities, and in particular our more remote rural and island areas. Our economy and social networks depend heavily on high-quality digital infrastructure. To facilitate investment across Scotland, planning has an important role to play in strengthening digital communications capacity and coverage across Scotland.

Policy Principles

293. The planning system should support:

- development which helps deliver the Scottish Government's commitment to world-class digital connectivity;
- the need for networks to evolve and respond to technology improvements and new services;
- inclusion of digital infrastructure in new homes and business premises; and
- infrastructure provision which is sited and designed to keep environmental impacts to a minimum.

Key Documents

- Scotland's Digital Future¹²⁵ and associated Infrastructure Action Plan¹²⁶
- Scotland's Cities: Delivering for Scotland¹²⁷
- A National Telehealth and Telecare Delivery Plan for Scotland to 2015¹²⁸

¹²⁵ www.scotland.gov.uk/Resource/Doc/981/0114237.pdf

¹²⁶ www.scotland.gov.uk/Publications/2012/01/1487

¹²⁷ www.scotland.gov.uk/Publications/2012/01/05104741/0

¹²⁸ www.scotland.gov.uk/Resource/0041/00411586.pdf

- Planning Advice Note 62, Radio Telecommunications provides advice on siting and design¹²⁹
- Circular 2/2003: Safeguarding of Aerodromes, Technical Sites and Military Explosives Storage Areas¹³⁰

Delivery

Development Planning

294. Local development plans should reflect the infrastructure roll-out plans of digital communications operators, community groups and others, such as the Scottish Government, the UK Government and local authorities.

295. Local development plans should provide a consistent basis for decision-making by setting out the criteria which will be applied when determining planning applications for communications equipment. They should ensure that the following options are considered when selecting sites and designing base stations:

- · mast or site sharing;
- · installation on buildings or other existing structures;
- · installing the smallest suitable equipment, commensurate with technological requirements;
- concealing or disguising masts, antennas, equipment housing and cable runs using design and camouflage techniques where appropriate; and
- installation of ground-based masts.

296. Local development plans should set out the matters to be addressed in planning applications for specific developments, including:

- an explanation of how the proposed equipment fits into the wider network;
- a description of the siting options (primarily for new sites) and design options which satisfy
 operational requirements, alternatives considered, and the reasons for the chosen solution;
- · details of the design, including height, materials and all components of the proposal;
- details of any proposed landscaping and screen planting, where appropriate;
- an assessment of the cumulative effects of the proposed development in combination with existing equipment in the area;
- a declaration that the equipment and installation is designed to be in full compliance with the appropriate ICNIRP guidelines for public exposure to radiofrequency radiation¹³¹; and
- · an assessment of visual impact, if relevant.

297. Policies should encourage developers to explore opportunities for the provision of digital infrastructure to new homes and business premises as an integral part of development. This should be done in consultation with service providers so that appropriate, universal and future-proofed infrastructure is installed and utilised.

¹²⁹ www.scotland.gov.uk/Publications/2001/09/pan62/pan62-

¹³⁰ www.scotland.gov.uk/Publications/2003/01/16204/17030

¹³¹ The radiofrequency public exposure guidelines of the International Commission on Non-Ionising Radiation Protection, as expressed in EU Council recommendation 1999/519/ EC on the limitation of exposure of the general public to electromagnetic fields.

- 298. Consideration should be given to how proposals for infrastructure to deliver new services or infrastructure to improve existing services will contribute to fulfilling the objectives for digital connectivity set out in the Scottish Government's World Class 2020 document. For developments that will deliver entirely new connectivity for example, mobile connectivity in a "not spot" consideration should be given to the benefits of this connectivity for communities and the local economy.
- 299. All components of equipment should be considered together and designed and positioned as sensitively as possible, though technical requirements and constraints may limit the possibilities. Developments should not physically obstruct aerodrome operations, technical sites or existing transmitter/receiver facilities. The cumulative visual effects of equipment should be taken into account.
- **300.** Planning authorities should not question the need for the service to be provided nor seek to prevent competition between operators. The planning system should not be used to secure objectives that are more properly achieved under other legislation. Emissions of radiofrequency radiation are controlled and regulated under other legislation and it is therefore not necessary for planning authorities to treat radiofrequency radiation as a material consideration.

Annex A – Town Centre Health Checks and Strategies

Town centre health checks should cover a range of indicators, such as:

Activities

- retailer representation and intentions (multiples and independents);
- · employment;
- · cultural and social activity;
- · community activity;
- · leisure and tourism facilities:
- · resident population; and
- evening/night-time economy.

Physical environment

- space in use for the range of town centre functions and how it has changed;
- physical structure of the centre, condition and appearance including constraints and opportunities and assets;
- · historic environment; and
- public realm and green infrastructure.

Property

- vacancy rates, particularly at street level in prime retail areas;
- vacant sites:
- committed developments;
- · commercial yield; and
- prime rental values.

Accessibility

- · pedestrian footfall;
- · accessibility;
- · cycling facilities and ease of movement;
- public transport infrastructure and facilities;
- parking offer; and
- signage and ease of navigation.

Community

attitudes, perceptions and aspirations.

Town centre strategies should:

- be prepared collaboratively with community planning partners, businesses and the local community;
- recognise the changing roles of town centres and networks, and the effect of trends in consumer activity;
- · establish an agreed long-term vision for the town centre;
- · seek to maintain and improve accessibility to and within the town centre;
- seek to reduce the centre's environmental footprint, through, for example, the development or extension of sustainable urban drainage or district heating networks;
- identify how green infrastructure can enhance air quality, open space, landscape/settings, reduce urban heat island effects, increase capacity of drainage systems, and attenuate noise;
- indicate the potential for change through redevelopment, renewal, alternative uses and diversification based on an analysis of the role and function of the centre;
- promote opportunities for new development, using master planning and design, while seeking to safeguard and enhance built and natural heritage;
- consider constraints such as fragmented site ownership, unit size and funding availability, and recognise the rapidly changing nature of retail formats;
- identify actions, tools and delivery mechanisms to overcome these constraints, for example improved management, Town Teams, Business Improvement Districts or the use of compulsory purchase powers¹³²; and
- include monitoring against the baseline provided by the health check to assess the extent to which it has delivered improvements.

More detailed advice on town centre health checks and strategies can be found in the Town Centre Masterplanning Toolkit.

^{132 &}lt;u>www.scotland.gov.uk/Topics/archive/National-Planning-Policy/themes/ComPur</u>

Annex B – Parking Policies and Standards

Parking Restraint Policy – National Maximum Parking Standards for New Development

In order to achieve consistency in the levels of parking provision for specific types and scales of development, the following national standards have been set:

- retail (food) (Use Class 1) 1000m² and above up to 1 space per 14m²;
- retail (non-food) (Use Class 1) 1000m² and above up to 1 space per 20m²;
- business (Use Class 4) 2500m² and above up to 1 space per 30m²;
- cinemas (Use Class 11a) 1000m² and above up to 1 space per 5 seats;
- conference facilities 1000m² and above up to 1 space per 5 seats;
- stadia 1500 seats and above up to 1 space per 15 seats;
- leisure (other than cinemas and stadia) 1000m² and above up to 1 space per 22m²; and
- higher and further education (non-residential elements) 2500m² and above up to 1 space per 2 staff plus 1 space per 15 students.

Local standards should support the viability of town centres. Developers of individual sites within town centres may be required to contribute to the overall parking requirement for the centre in lieu of individual parking provision.

Parking for Disabled People – Minimum Provision Standards for New Development

Specific provision should be made for parking for disabled people in addition to general provision. In retail, recreation and leisure developments, the minimum number of car parking spaces for disabled people should be:

- 3 spaces or 6% (whichever is greater) in car parks with up to 200 spaces; or
- 4 spaces plus 4% in car parks with more than 200 spaces.

Employers have a duty under employment law to consider the disabilities of their employees and visitors to their premises. The minimum number of car parking spaces for disabled people at places of employment should be:

- 1 space per disabled employee plus 2 spaces or 5% (whichever is greater) in car parks with up to 200 spaces; or
- 6 spaces plus 2% in car parks with more than 200 spaces.

Glossary

Affordable housing	Housing of a reasonable quality that is affordable to people on modest incomes.
Anchor development (in the context of heat demand)	A large scale development which has a constant high demand for heat.
Article 4 Direction	Article 4 of the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 gives the Scottish Government and planning authorities the power to remove permitted development rights by issuing a direction.
Biodiversity	The variability in living organisms and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (UN Convention on Biological Diversity, 1992).
Brownfield land	Land which has previously been developed. The term may cover vacant or derelict land, land occupied by redundant or unused building and developed land within the settlement boundary where further intensification of use is considered acceptable.
Civil infrastructure (in the context of flood risk)	Hospitals, fire stations, emergency depots, schools, care homes, ground-based electrical and telecommunications equipment.
Climate change adaptation	The adjustment in economic, social or natural systems in response to actual or expected climatic change, to limit harmful consequences and exploit beneficial opportunities.
Climate change mitigation	Reducing the amount of greenhouse gases in the atmosphere and reducing activities which emit greenhouse gases to help slow down or make less severe the impacts of future climate change.
Community	A body of people. A community can be based on location (for example people who live or work in or use an area) or common interest (for example the business community, sports or heritage groups).
Cumulative impact	Impact in combination with other development. That includes existing developments of the kind proposed, those which have permission, and valid applications which have not been determined. The weight attached to undetermined applications should reflect their position in the application process.
Cumulative effects (in the context of the strategic transport network)	The effect on the operational performance of transport networks of a number of developments in combination, recognising that the effects of a group of sites, or development over an area may need different mitigation when considered together than when considered individually.

Ecosystems services	The benefits people obtain from ecosystems; these include provisioning services such as food, water, timber and fibre; regulating services that affect climate, floods, disease, waste and water quality; cultural services with recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis and nutrient cycling.
Effective housing land supply	The part of the established housing land supply which is free or expected to be free of development constraints in the period under consideration and will therefore be available for the construction of housing.
Energy Centre	A stand alone building or part of an existing or proposed building where heat or combined heat and electricity generating plant can be installed to service a district network.
Essential infrastructure (in a flood risk area for operational reasons)	Defined in SEPA guidance on vulnerability as 'essential transport infrastructure and essential utility infrastructure which may have to be located in a flood risk area for operational reasons. This includes electricity generating stations, power stations and grid and primary sub stations, water treatments works and sewage treatment works and wind turbines'.
Flood	The temporary covering by water from any source of land not normally covered by water, but not including the overflow of a sewage system.
Flood plain	The generally flat areas adjacent to a watercourse or the sea where water flows in time of flood or would flow but for the presence of flood prevention measures. The limits of a flood plain are defined by the peak water level of an appropriate return period event. See also 'Functional flood plain'.
Flood risk	The combination of the probability of a flood and the potential adverse consequences associated with a flood, for human health, the environment, cultural heritage and economic activity.
Freeboard allowance	A height added to the predicted level of a flood to take account of the height of waves or turbulence and uncertainty in estimating the probability of the flooding.
Functional flood plain	The areas of land where water flows in times of flood which should be safeguarded from further development because of their function as flood water storage areas. For planning purposes the functional floodplain will generally have a greater than 0.5% (1:200) probability of flooding in any year. See also 'Washland'.
Green infrastructure	Includes the 'green' and 'blue' (water environment) features of the natural and built environments that can provide benefits without being connected.
	Green features include parks, woodlands, trees, play spaces, allotments, community growing spaces, outdoor sports facilities, churchyards and cemeteries, swales, hedges, verges and gardens.
	Blue features include rivers, lochs, wetlands, canals, other water courses, ponds, coastal and marine areas including beaches, porous paving and sustainable urban drainage systems.

Green networks	Connected areas of green infrastructure and open space that together form an integrated and multi-functional network.
Hazardous substances	Substances and quantities as currently specified in and requiring consent under the Town and Country Planning (Hazardous Substances) (Scotland) Regulations 1993 as amended (due to be replaced in 2015 as part of the implementation of Directive 2012/18/EU).
Historic environment	Scotland's historic environment is the physical evidence for human activity that connects people with place, linked with the associations we can see, feel and understand.
Historic Marine Protected Areas	Areas designated in Scottish territorial waters (0-12 miles) under the Marine (Scotland) Act 2010 for the purpose of preserving marine historic assets of national importance.
Housing supply target	The total number of homes that will be delivered.
Hut	A simple building used intermittently as recreational accommodation (ie. not a principal residence); having an internal floor area of no more than 30m²; constructed from low impact materials; generally not connected to mains water, electricity or sewerage; and built in such a way that it is removable with little or no trace at the end of its life. Huts may be built singly or in groups.
Major-accident hazard site	Site with or requiring hazardous substances consent.
Most vulnerable uses (in the context of flood risk and drainage)	Basement dwellings, isolated dwellings in sparsely populated areas, dwelling houses behind informal embankments, residential institutions such as residential care homes/prisons, nurseries, children's homes and educational establishments, caravans, mobile homes and park homes intended for permanent residential use, sites used for holiday or short-let caravans and camping, installations requiring hazardous substance consent.
National Nature Reserve (NNR)	An area considered to be of national importance for its nature conservation interests.
National Scenic Area (NSA)	An area which is nationally important for its scenic quality.
Open space	Space within and on the edge of settlements comprising green infrastructure and/or civic areas such as squares, market places and other paved or hard landscaped areas with a civic function.
	Detailed typologies of open space are included in PAN65.

Outdoor sports facilities	Uses where sport scotland is a statutory consultee under the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, which establishes 'outdoor sports facilities' as land used as: (a) an outdoor playing field extending to not less than 0.2ha used for any sport played on a pitch; (b) an outdoor athletics track; (c) a golf course;
	(d) an outdoor tennis court, other than those within a private dwelling, hotel or other tourist accommodation; and
	(e) an outdoor bowling green.
Outstanding Universal Value (OUV)	The Operational Guidelines for the Implementation of the World Heritage Convention, provided by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) states that OUV means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. The Statement of OUV is the key reference for the future effective protection and management of the World Heritage Site.
PADHI	Planning Advice for Development near Hazardous Installations, issued by the Health and Safety Executive.
Prime agricultural land	Agricultural land identified as being Class 1, 2 or 3.1 in the land capability classification for agriculture developed by Macaulay Land Use Research Institute (now the James Hutton Institute).
Place	The environment in which we live; the people that inhabit these spaces; and the quality of life that comes from the interaction of people and their surroundings. Architecture, public space and landscape are central to this.
Pluvial flooding	Flooding as a result of rainfall runoff flowing or ponding over the ground before it enters a natural (e.g. watercourse) or artificial (e.g. sewer) drainage system or when it cannot enter a drainage system (e.g. because the system is already full to capacity or the drainage inlets have a limited capacity).
Ramsar sites	Wetlands designated under the Ramsar Convention on Wetlands of International Importance.
Scheduled monument	Archaeological sites, buildings or structures of national or international importance. The purpose of scheduling is to secure the long-term legal protection of the monument in the national interest, in situ and as far as possible in its existing state and within an appropriate setting.
Sensitive receptor	Aspect of the environment likely to be significantly affected by a development, which may include for example, population, fauna, flora, soil, water, air, climatic factors, material assets, landscape and the interrelationship between these factors.
	In the context of planning for Zero Waste, sensitive receptors may include aerodromes and military air weapon ranges.

Setting	Is more than the immediate surroundings of a site or building, and may be related to the function or use of a place, or how it was intended to fit into the landscape of townscape, the view from it or how it is seen from areas round about, or areas that are important to the protection of the place, site or building.
Site of Special Scientific Interest (SSSI)	An area which is designated for the special interest of its flora, fauna, geology or geomorphological features.
Strategic Flood Risk Assessment	Provides an overview of flood risk in the area proposed for development. An assessment involves the collection, analysis and presentation of all existing available and readily derivable information on flood risk from all sources. SFRA applies a risk-based approach to identifying land for development and can help inform development plan flood risk policy and supplementary guidance.
Strategic Transport Nework	Includes the trunk road and rail networks. Its primary purpose is to provide the safe and efficient movement of strategic long-distance traffic between major centres, although in rural areas it also performs important local functions.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The Brundtland Definition. Our Common Future, The World Commission on Environment and Development, 1987.
Sustainable Economic Growth	Building a dynamic and growing economy that will provide prosperity and opportunities for all, while ensuring that future generations can enjoy a better quality of life too.
Washland	An alternative term for the functional flood plain which carries the connotation that it floods very frequently.
Watercourse	All means of conveying water except a water main or sewer.
Windfall Sites	Sites which become available for development unexpectedly during the life of the development plan and so are not identified individually in the plan.



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							Link to									
Main group	Taxon group	Scientific Name	Common name	Conservation action needed	Avoid negative impacts	Watching brief only	Species Records on NBN Gateway	Threatened species	Legally protected species	S1 - on UKBAP list	S2 - Internatni. Obligation	S3 - Rare in the UK (<16 10km sqs)	S4 - <6 Scottish 10km sqs	S5 - >25% Scottish Decline	S6a - Endemic to Scotland	S6b - endemic sub- species/ race
Mammals	land mammal	Arvicola amphibius	Water Vole	Yes	Yes	-	NBN map	-	WCA 1981	Yes	-	-	-	Yes	-	-
Mammals	land mammal	Erinaceus europaeus	European Hedgehog	-	-	Yes	NBN map	-	-	Yes	-	-	-		-	-
Mammals	land mammal	Felis silvestris	Wildcat	Yes	Yes	-	NBN map	-	EPS 1,2,3	-	Yes	-	-	Yes	-	-
Mammals	land mammal	Lepus europaeus	Brown Hare	Yes	-	-	NBN map	-	-	Yes	-	-		Yes	-	-
Mammals	land mammal	Lepus timidus	Mountain Hare	-	Yes	-	NBN map	-	HR 1994 ³	-	-	-	-	Yes	-	-
Mammals	land mammal	<u>Lutra lutra</u>	Otter	-	Yes	-	NBN map	NT	EPS 1,2,3	Yes	Yes	-	-	-	-	-
Mammals	land mammal	Martes martes	Pine Marten	-	Yes	-	NBN map	-	HR 1994 ^{2,3}	Yes	-	-	-	-	-	-
Mammals	land mammal	Microtus arvalis	Orkney Vole	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Mammals	land mammal	Mustela putorius	Polecat	-	Yes	-	NBN map	-	HR 1994 ³	Yes	-	-	-	-	-	-
Mammals	land mammal	Myotis brandtii	Brandt's Bat	-	Yes	-	NBN map	-	EPS 1,2,3	-	Yes	-	-	-	-	-
Mammals	land mammal	Myotis daubentonii	Daubenton's Bat	-	Yes	-	NBN map	-	EPS 1,2,3	-	Yes	-	-	-	-	-
Mammals	land mammal	Myotis mystacinus	Whiskered Bat	-	Yes	-	NBN map	_	EPS 1,2,3	-	Yes	-	-	-	-	-
Mammals	land mammal	Myotis nattereri	Natterer's Bat	-	Yes	-	NBN map	-	EPS 1,2,3	-	Yes	-	-	-	-	-
Mammals	land mammal	Nyctalus noctula	Noctule	-	Yes	-	NBN map	-	EPS 1,2,3	-	Yes	-	-	-	-	-
Mammals	land mammal	Pipistrellus nathusii	Nathusius's Pipistrelle	-	Yes	1-	NBN map	_	EPS 1,2,3	_	Yes	-	-	_	_	-
Mammals	land mammal	Pipistrellus pipistrellus	Pipistrelle	_	Yes	-	NBN map	L	EPS 1,2,3	Yes	Yes				_	
Mammals	land mammal	Pipistrellus pygmaeus	Soprano Pipistrelle	_	Yes	-	NBN map	L	EPS ^{1,3}	Yes	Yes		_	_	-	
Mammals	land mammal	Plecotus auritus	Brown Long-eared Bat	_	Yes	t	NBN map	_	EPS 1,2,3	-	Yes				_	<u> </u>
Mammals	land mammal	Rattus rattus	Black Rat	Yes	-	t	NBN map		-	-	103	Yes	Yes	Yes	-	-
Mammals	land mammal	Sciurus vulgaris	Red Squirrel	Yes	Yes	-	NBN map		WCA 1981	Yes	-	-	-	-	-	-
Reptiles & amphibians	amphibian	Bufo bufo	Common Toad	-	Yes	1-	NBN map	-	WCA 1981	Yes	-	-	-	-	-	- 1
Reptiles & amphibians	amphibian	Epidalea calamita	Natterjack Toad	-	Yes	-	NBN map	_	EPS 1,2,3	Yes	Yes	-	Yes	-	-	- 1
Reptiles & amphibians	amphibian	Triturus cristatus	Great Crested Newt	-	Yes	-	NBN map	-	EPS 1,2,3	Yes	Yes	-	-	-	-	-
Reptiles & amphibians	reptile	Anguis fragilis	Slow-worm	-	Yes	1-	NBN map	-	WCA 1981	Yes	-	-	-	-	-	-
Reptiles & amphibians	reptile	Lacerta agilis	Sand Lizard	-	Yes	-	NBN map	-	EPS 1,2,3	Yes	Yes	-	Yes	-	-	-
Reptiles & amphibians	reptile	Vipera berus	Adder	-	Yes	-	NBN map	-	WCA 1981	Yes	-	-	-	-	-	-
Reptiles & amphibians	reptile	Zootoca vivipara	Common Lizard	-	Yes	-	NBN map	-	WCA 1981	Yes	-	-	-	-	-	-
Birds	bird	Acrocephalus scirpaceus	Reed Warbler	-	Yes	-	NBN map	-	ELD	-	-	-	Yes	-	-	-
Birds	bird	Alauda arvensis	Sky Lark	-	Yes	-	NBN map	Red	ELD	Yes	-	-	-	-	-	-
Birds	bird	Alcedo atthis	<u>Kingfisher</u>	-	Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Anas querquedula	Garganey	Yes	Yes	-	NBN map	Amber	WCA 1981	-	-	-	Yes	-	-	-
Birds	bird	Anser albifrons	Greenland White-fronted	Yes	Yes	-	NBN map	-	ELD	-	Yes	-	-	-	-	-
Birds	bird	Anser fabalis	Bean Goose	Yes	Yes	-	NBN map	Amber	ELD	-	-	-	Yes	-	-	-
Birds	bird	Anthus trivialis	Tree Pipit	-	Yes	-	NBN map	Red	ELD	Yes	-	-	-	-	-	-
Birds	bird	Apus apus	Swift	Yes	Yes	-	NBN map	Amber	ELD	-	-	-	-	Yes	-	-
Birds	bird	Aquila chrysaetos	Golden Eagle	-	Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Asio flammeus	Short-eared Owl	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Aythya ferina	Pochard Secure	Yes	Yes	+	NBN map	Amber	ELD	-	-	-	-	Yes	-	-
Birds	bird	Aythya marila	Scaup	Yes	Yes	-	NBN map	Red	WCA 1981	-	-	Yes	Yes	Yes	-	
Birds	bird	Botaurus stellaris	<u>Bittern</u>	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	Yes	-	-	-	- -
Birds	bird	Branta leucopsis	Barnacle Goose	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds Birds	bird bird	Calidris alpina Calidris maritima	Dunlin Purple Sandpiper	- Yes	Yes Yes	-	NBN map	Red	ELD	-	Yes		- V	-	-	- -
Birds	bird	Calidris maritima Calidris temminckii	Temminck's Stint	Yes	Yes	+	NBN map	Amber	WCA 1981	-	-	Yes	Yes	-	-	-
Birds	bird			Yes	Yes	Ι-	NBN map	Red	ELD	- Voc	- V	Yes	Yes	-	-	-
Birds	bird	Caprimulgus europaeus Carduelis cabaret	Nightjar Lesser Redpoll	Yes	Yes	-	NBN map	Red Red	ELD	Yes Yes	Yes -	-	-	Yes	-	-
Birds	bird	Carduelis caparet Carduelis cannabina	Linnet	res	Yes	-	NBN map	Red	ELD	Yes	-		-	165	-	\vdash
Birds	bird	Carduelis flavirostris subs	Twite	Yes	163	[NBN map	-	-	Yes	-	-	-	Yes	-	
Birds	bird	Carduelis spinus	Siskin	Yes	Yes	<u> </u>	NBN map	-	ELD	-	-	-		Yes		-
Birds	bird	Carpodacus erythrinus	Common Rosefinch	-	Yes	<u> </u>	NBN map	_	WCA 1981	_	_	Yes	Yes	-	_	<u> </u>
Birds	bird	Charadrius morinellus	<u>Dotterel</u>	_	Yes	t	NBN map	Amber	WCA 1981	-	Yes	-	-			-
Birds	bird	Circus aeruginosus	Marsh Harrier	Yes	Yes	 	NBN map	Amber	ELD	-	Yes		Yes	-	-	
Birds	bird	Circus cyaneus	Hen Harrier	-	Yes	 	NBN map	Red	ELD	-	Yes	-	-	-	-	-
Birds	bird	Coccothraustes coccothr	Hawfinch	Yes	-	1-	NBN map	Red	1-	-	-	-	-	Yes	-	-
Birds	bird	Corvus cornix	Hooded Crow	Yes	-	-	NBN map	-	1-	-	-	-	-	Yes	-	-

		1.							T							
Birds	bird	Crex crex	Corn Crake	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	-	-	-	-	-
Birds	bird	Cuculus canorus	Cuckoo	-	Yes	-	NBN map	Red	ELD	Yes	-	-	-	-	-	-
Birds	bird	Cygnus columbianus	Bewick's Swan	-	Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Cygnus cygnus	Whooper Swan	Yes	Yes	-	NBN map	Amber	WCA 1981	-	Yes	Yes	Yes	-	-	-
Birds	bird	Emberiza calandra	Corn Bunting	Yes	-	-	NBN map	Red	-	Yes	-	-	-	Yes	-	-
Birds	bird	Emberiza citrinella	Yellowhammer	-	-	Yes	NBN map	Red	i-	Yes	-	-	-	-	-	-
Birds	bird	Emberiza schoeniclus	Reed Bunting	-	-	Yes	NBN map	Amber	-	Yes	-	-	-	-	-	-
Birds	bird	Falco columbarius	Merlin	_	Yes	-	NBN map	Amber	WCA 1981	_	Yes	-	-	-	-	-
Birds	bird	Falco peregrinus	Peregrine Falcon	-	Yes	_	NBN map	_	WCA 1981	_	Yes	_	_	_	_	<u> </u>
Birds	bird	Falco subbuteo	Hobby		Yes		NBN map		WCA 1981	_	-	_	Yes			<u> </u>
Birds	bird	Falco tinnunculus	Kestrel	Yes	Yes	f	NBN map	- Amber	ELD	-	-		168	Yes		-
	bird			165	Yes	f -	_	Allibei	WCA 1981			- -	- -			
Birds		Fringilla montifringilla	Brambling	-		-	NBN map	-		-	-	Yes	Yes	-	-	-
Birds	bird	Gavia arctica	Black-throated Diver	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Gavia immer	Great Northern Diver	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Gavia stellata	Red-throated Diver	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Haliaeetus albicilla	White-tailed Eagle	Yes	Yes	-	NBN map	Red	WCA 1981	-	Yes	Yes	-	-	-	-
Birds	bird	Hydrobates pelagicus	Storm-petrel	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Jynx torquilla	Wryneck	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	-	Yes	Yes	-	-	-
Birds	bird	Lagopus lagopus subsp.	Red Grouse	Yes	-	-	NBN map	-	-	Yes	-	-	-	Yes	-	-
Birds	bird	Lanius collurio	Red-backed Shrike	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	Yes	Yes	-	-	-
Birds	bird	Larus argentatus	Herring Gull	Yes	Yes	-	NBN map	Red	ELD	-	-	-	-	Yes	-	-
Birds	bird	Larus ridibundus	Black-headed Gull	Yes	Yes	-	NBN map	Amber	ELD	-	-	-	-	Yes	-	-
Birds	bird	Limosa lapponica	Bar-tailed Godwit	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Limosa limosa	Black-tailed Godwit	Yes	Yes	-	NBN map	Red	WCA 1981	-	-	Yes	Yes	-	-	-
Birds	bird	Locustella naevia	Grasshopper Warbler	Yes	Yes	-	NBN map	Red	ELD	Yes	-	-	-	Yes	-	-
Birds	bird	Loxia pytyopsittacus	Parrot Crossbill	Yes	Yes	-	NBN map	Amber	ELD	-	_	Yes	-	-	_	_
Birds	bird	Loxia scotica	Scottish Crossbill	-	-	-	NBN map	Amber	ELD	Yes	Yes	-	_	_	Yes	-
Birds	bird	Melanitta nigra	Common Scoter	Yes	Yes	_	NBN map	Red	WCA 1981	Yes	-		_	Yes	-	-
Birds	bird	Mergellus albellus	Smew	- 100	Yes		NBN map	Amber	ELD	-	Yes		-	-		
Birds	bird	Milvus milvus	Red Kite	-	Yes	<u> </u>	NBN map	1	WCA 1981	-				-		
Birds	bird			- V		-		Amber	ELD ELD	-	Yes	-	-	- V	-	- -
Birds	bird	Motacilla flava	Yellow Wagtail	Yes	Yes	-	NBN map	Red	ELD	Yes	-	-	-	Yes	-	- -
	bird	Muscicapa striata	Spotted Flycatcher	Yes	Yes	-	NBN map	Red	ELD		-	-	-	- V	-	- -
Birds		Numenius arquata	Curlew	Yes	Yes	-		Amber		-	-	-		Yes	-	
Birds	bird	Oceanodroma leucorhoa	Leach's Storm-petrel	Yes	Yes	-	NBN map	Amber	WCA 1981	-	Yes	Yes	-	-	-	-
Birds	bird	Pandion haliaetus	<u>Osprey</u>	-	Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Panurus biarmicus	Bearded Tit	Yes	Yes	-	NBN map	Amber	WCA 1981	-	-	-	Yes	-	-	-
Birds	bird	Passer domesticus	House Sparrow	-	-	Yes	NBN map	Red	-	Yes	-	-	-	-	-	-
Birds	bird	Passer montanus	Tree Sparrow	Yes	-	-	NBN map	Red	-	Yes	-	-	-	Yes	-	-
Birds	bird	Perdix perdix	Grey Partridge	Yes	Yes	-	NBN map	Red	ELD	Yes	-	-	-	Yes	-	-
Birds	bird	Pernis apivorus	Honey-buzzard	Yes	Yes	-	NBN map	Amber	WCA 1981	-	Yes	Yes	Yes	-	-	-
Birds	bird	Phalaropus lobatus	Red-necked Phalarope	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	Yes	Yes	-	_	-
Birds	bird	Philomachus pugnax	Ruff	_	Yes	-	NBN map	Red	WCA 1981	_	Yes	_	_	_	_	_
Birds	bird	Phylloscopus sibilatrix	Wood Warbler	Yes	Yes	-	NBN map	Red	ELD	-	-	_	-	Yes		-
Birds	bird	Plectrophenax nivalis	Snow Bunting	Yes	Yes	L.	NBN map	Amber	WCA 1981	_	_	Yes	_	-		
Birds	bird	Pluvialis apricaria	Golden Plover		Yes	-	NBN map	Amber	ELD	-	Yes	-	<u> </u>	-	-	
Birds	bird	Podiceps auritus	Slavonian Grebe	Yes	Yes	 		1	WCA 1981	-			<u> </u>			-
Birds	bird	Podiceps grisegena	Red-necked Grebe	Yes	Yes	-	NBN map	Amber	ELD	-	Yes	Yes	Von	Yes	-	-
	bird					-	_	Amber			-		Yes	-	-	
Birds		Podiceps nigricollis	Black-necked Grebe	Yes	Yes	-	NBN map	Amber	WCA 1981	-	-	Yes	Yes	-	-	-
Birds	bird	Poecile montanus	Willow Tit	Yes	-	-	NBN map	Red	1-	-	-	- V	-	Yes	-	-
Birds	bird	Poecile palustris subsp. p	Marsh Tit	-	-	Yes	NBN map	-	-	Yes	-	Yes	Yes	-	-	-
Birds	bird	Porzana porzana	Spotted Crake	Yes	Yes	-	NBN map	Amber	WCA 1981	-	Yes	Yes	-	-	-	-
Birds	bird	Prunella modularis subsp	Hedge Accentor	-	-	Yes	NBN map	-	-	Yes	-	-	-	-	-	-
Birds	bird	Puffinus mauretanicus	Balearic Shearwater	Yes	Yes	-	NBN map	CR	ELD	Yes	-	Yes	Yes	-	-	-
Birds	bird	Puffinus puffinus	Manx Shearwater	Yes	Yes	-	NBN map	Amber	ELD	-	-	-	-	Yes	-	-
Birds	bird	Pyrrhocorax pyrrhocorax	Red-billed Chough		Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Pyrrhula pyrrhula	Bullfinch	-	-	Yes	NBN map	Amber	-	Yes	-	-	-	-	-	-
Birds	bird	Scolopax rusticola	Woodcock	Yes	Yes	-	NBN map	Amber	ELD	-	-	-	-	Yes		-
Birds	bird	Stercorarius parasiticus	Arctic Skua	Yes	Yes	-	NBN map	Red	ELD	-	-	-	-	Yes	-	-
Birds	bird	Sterna dougallii	Roseate Tern	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	-	Yes	Yes	-	-
Birds	bird	Sterna hirundo	Common Tern	-	Yes	-	NBN map	Amber	ELD	-	Yes	-	-	-	-	-
Birds	bird	Sterna paradisaea	Arctic Tern	-	Yes	-	NBN map	Amber	ELD	-	Yes	_	-	-	-	
							map		1		. 55			·		

		In the second	I					1	1							
Birds	bird	Sterna sandvicensis	Sandwich Tern	Yes	Yes	-		Amber	ELD	-	Yes	-	-	Yes	-	-
Birds	bird	Sternula albifrons	<u>Little Tern</u>	-	Yes	-	NBN map	Amber	WCA 1981	-	Yes	-	-	-	-	-
Birds	bird	Streptopelia turtur	<u>Turtle Dove</u>	Yes	Yes	-	NBN map	Red	ELD	Yes	-	ï	Yes	Yes	-	-
Birds	bird	Sturnus vulgaris subsp. v	Starling	-	Yes	-	NBN map	-	ELD	Yes	-	-	-	-	-	-
Birds	bird	Tetrao tetrix	Black Grouse	Yes	Yes	-	NBN map	Red	ELD	Yes	-	-	-	Yes	-	-
Birds	bird	Tetrao urogallus	Capercaillie	Yes	Yes	-	NBN map	Red	WCA 1981	Yes	Yes	_	-	Yes	-	-
Birds	bird	Tringa glareola	Wood Sandpiper	Yes	Yes	i_	NBN map	Amber	WCA 1981	_	Yes	Yes	Yes	_		_
Birds	bird	Tringa ochropus	Green Sandpiper	Yes	Yes	†	NBN map	Amber	WCA 1981	_	100	Yes	Yes	_		_
		Troglodytes troglodytes s	Fair Isle Wren	Yes	Yes	F	NBN map		ELD ELD	-	- V			-		
Birds	bird					-		Red	IELD		Yes	Yes	Yes		-	Yes
Birds	bird	Troglodytes troglodytes s	St Kilda Wren	Yes	Yes	-	NBN map	Red	-	-	-	Yes	Yes	-	-	Yes
Birds	bird	Turdus iliacus	Redwing	Yes	Yes	-	NBN map	Red	WCA 1981	-	-	-	-	Yes	-	-
Birds	bird	Turdus philomelos	Song Thrush	-	Yes	-	NBN map	Red	ELD	Yes	-	-	-	-	-	-
Birds	bird	Turdus philomelos s	Hebridean Song Thrush	Yes	-	-	NBN map	Red	-	Yes	-	-	-	-	-	Yes
Birds	bird	Turdus torquatus	Ring Ouzel	Yes	Yes	-	NBN map	Red	ELD	-	-	-	-	Yes	-	-
Birds	bird	Tyto alba	Barn Owl	Yes	Yes	-	NBN map	Amber	WCA 1981	-	-	i	-	Yes	-	-
Birds	bird	Vanellus vanellus	Northern Lapwing	Yes	Yes	-	NBN map	Red	ELD	-	-	-	-	Yes	-	-
Fish	bony fish	Acipenser sturio	Sturgeon	Yes	Yes	-	NBN map	CR	EPS 1,2,3	-	Yes	Yes	Yes	-	-	-
Fish	bony fish	Alosa alosa	Allis Shad	Yes	Yes	l_	NBN map	L	HR 1994 ^{2,3}	Yes	Yes	Yes	Yes	-		_
Fish	bony fish	Alosa fallax	Twaite Shad	Yes	Yes	t_	NBN map		HR 1994 ^{2,3}	Yes	Yes	Yes	Yes	_		
Fish			Enl	103	103	Van	NBN map	- CB	1111 1994	Yes						
	bony fish	Anguilla anguilla	CEI	-	-	Yes		CR	- LUD 4004 23		-	-	-	-	-	-
Fish	bony fish	Coregonus albula	<u>Vendace</u>	Yes	Yes	-	NBN map	EN	HR 1994 ^{2,3}	Yes	-	Yes	Yes	Yes	-	-
Fish	bony fish	Coregonus lavaretus	<u>Powan</u>	Yes	Yes	-	NBN map	-	HR 1994 ^{2,3}	-	-	Yes	Yes	-	-	-
Fish	bony fish	Osmerus eperlanus	Smelt	Yes	-	-	NBN map	-	-	-	-	-	Yes	Yes	-	-
Fish	bony fish	Salmo salar	Atlantic Salmon	Yes	Yes	-	NBN map	-	HR 1994 ³	-	Yes	-	-	-	-	-
Fish	bony fish	Salmo trutta	Sea Trout	Yes	-	-	NBN map	-	1-	Yes	-	-	-	Yes	-	-
Fish	bony fish	Salvelinus alpinus	Arctic Charr	-	-	Yes	NBN map	ļ_	1-	Yes	-	-	-	-	-	-
Fish	jawless fish	Lampetra fluviatilis	River Lamprey	_	Yes	i.	NBN map	L	HR 1994 ³	-	Yes	_	_	_	_	_
Fish	jawless fish	Lampetra planeri	Brook Lamprey		Yes		NBN map	F	ELD		Yes	_	_			
Fish	jawless fish	Petromyzon marinus		-	Yes	 	NBN map	ľ-	ELD	-	Yes		-	-		-
FISH	insect - beetle	Petromyzon mannus	Sea Lamprey	-	162	-	INDIN IIIAD	-	ELD	-	162		-	-		-
Terrestrial invertebrates	(Coleoptera)	Anacaena limbata	Scavenger Water Beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Bembidion (Ocydromus)	Pale Pin-palp	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Calosoma inquisitor	Caterpillar-hunter	-	-	Yes	NBN map	_	_	Yes	_	Yes	Yes	_	_	_
Terrestrial invertebrates	insect - beetle	Chrysanthia nigricomis		Yes	Yes			EN		-						_
Terrestrial invertebrates	(Coleoptera) insect - beetle	Cryptocephalus decemm	a false blister beetle Ten-spotted Pot Beetle	Yes	Yes	-	NBN map		-		-	Yes	Yes	-	-	
	(Coleoptera) insect - beetle		·			-	NBN map	VU	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	(Coleoptera) insect - beetle	Cryptocephalus sexpunct	Six-spotted Pot Beetle	Yes	Yes	-	NBN map	VU	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	(Coleoptera)	<u>Eubrychius velutus</u>	a weevil	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Macroplea appendiculata	a leaf beetle	-	-	Yes	NBN map	-	_	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Meloe violaceus	Violet Oil-beetle	-	-	Yes	NBN map	-	-	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Meotica anglica	Shingle Rove Beetle	Yes	-	-	NBN map	_	_	Yes	_	Yes	Yes	_	Yes	-
Terrestrial invertebrates	insect - beetle (Coleoptera)	Noterus crassicornis	Smaller Noterus	-	-	Yes	NBN map	_	-		_		Yes	_	_	_
Terrestrial invertebrates	insect - beetle	Philorhizus quadrisignatu	Mab's Lantern	Yes	Yes	-		EN	L	Yes	-	Yes	Yes	-	_	_
Terrestrial invertebrates	(Coleoptera) insect - beetle	Procas granulicollis				Yes		DD	<u> </u>		-			-	-	-
Terrestrial invertebrates	(Coleoptera) insect - beetle	Tournotaris bimaculatus	a weevil	-	-	Yes	NBN map	טט	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	(Coleoptera)		a beetle	-	- Yes	103	NBN map	-	-	-	-	-	Yes	-	-	-
	insect - butterfly	Aricia artaxerxes	Northern Brown Argus	-		-	NBN map	VU	WCA 1981	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Boloria euphrosyne	Pearl-bordered Fritillary	Yes	Yes	-	NBN map	EN	WCA 1981	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Boloria selene	Small Pearl-bordered Frit	-	-	Yes	NBN map	NT	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Carterocephalus palaemo	Chequered Skipper	Yes	Yes	-	NBN map	EN	WCA 1981	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Coenonympha pamphilus	Small Heath	Yes	-	-	NBN map	NT	-	Yes	-	-	-	Yes	-	-

	I				ı	ı		1		-		ı		ı	
Terrestrial invertebrates	insect - butterfly	Coenonympha tullia	Large Heath	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	-	-	Yes	-	-
Terrestrial invertebrates	insect - butterfly	Cupido minimus	Small Blue	-	Yes	-	NBN map NT	WCA 1981	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Erebia epiphron	Small Mountain Ringlet	-	Yes	-	NBN map NT	WCA 1981	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Erynnis tages subsp. tage	<u>Dingy Skipper</u>	Yes	-	-	NBN map -	-	-	-	-	-	-	-	Yes
Terrestrial invertebrates	insect - butterfly	Euphydryas aurinia form	Marsh Fritillary	Yes	-	-	NBN map -	-	Yes	Yes	-	-	-	-	-
Terrestrial invertebrates	insect - butterfly	Hipparchia semele	Grayling	Yes	-	-	NBN map VU	_	Yes	-	-	-	Yes	-	-
Terrestrial invertebrates	insect - butterfly	Lasiommata megera	<u>Wall</u>	Yes	-	-	NBN map NT	_	Yes	-	-	-	Yes	-	-
Terrestrial invertebrates	insect - earwig (Dermaptera)	<u>Labia minor</u>	Lesser Earwig	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - flea (Siphonaptera)	Ceratophyllus (Emmareu	Manx Shearwater Flea	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	Yes	-
Terrestrial invertebrates	insect - hymenopteran	Ammophila sabulosa	Red Banded Sand Wasp	-	-	Yes	NBN map -	-	-	-	ı	Yes	ı	-	-
Terrestrial invertebrates	insect - hymenopteran	Ancistrocerus parietum	Wall Mason Wasp	-	-	Yes	NBN map -	-	-	-	1	Yes		-	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Andrena) helvo	a Mining Bee	-	-	Yes	NBN map -	_	-	-		Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Euandrena) ruf	a Mining Bee	-	-	Yes	NBN map -	_	-	-	Yes	-	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Margandrena)	a Mining Bee	-	-	Yes	NBN map -	_	-		-	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Melandrena) ci	Grey Mining Bee	-	-	Yes	NBN map -	-			-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Melandrena) ni	a Mining Bee	-	-	Yes	NBN map -	-				Yes		-	-
Terrestrial invertebrates	insect - hymenopteran	Andrena (Poliandrena) ta	Tormentil Mining Bee	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Anoplius (Anoplius) conc	a Spider-hunting Wasp	-	_	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Anthidium (Anthidium) ma		-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Anthophora (Clisodon) fu	Fork Tailed Flower Bee	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Bombus (Pyrobombus) m	Mountain Bumble Bee	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Terrestrial invertebrates	insect - hymenopteran	Bombus (Subterraneobor	Great Yellow Bumblebee	Yes	-	-	NBN map -	-	Yes	-	-	-	-	Yes	-
Terrestrial invertebrates	insect - hymenopteran	Bombus (Thoracombus)	Moss Carder-bee	-	-	Yes	NBN map -	-	-	-	-	-	Yes	-	-
Terrestrial invertebrates	insect - hymenopteran	Bombus (Thoracombus)	Red-shanked Carder-bee	-	-	Yes	NBN map -	_	-	-	-	Yes	_	-	-
Terrestrial invertebrates	insect - hymenopteran	Ceropales maculata	a Spider-hunting Wasp	-	-	Yes	NBN map -	_	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Chrysura hirsuta	Northern Osmia Ruby-tail	Yes	-	-	NBN map -	-	Yes	-	Yes	Yes	-	Yes	-
Terrestrial invertebrates	insect - hymenopteran	Colletes (Colletes) davies	a bee	-	-	Yes	NBN map -	_	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Colletes (Colletes) floralis	Northern Colletes	-	-	Yes	NBN map -	-	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Colletes (Colletes) fodien	a bee	_	-	Yes	NBN map -	_	-	-	-	Yes	_	-	-
Terrestrial invertebrates	insect - hymenopteran	Crabro peltarius	a solitary wasp	-	-	Yes	NBN map -	_	-	-	-	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Crossocerus (Blepharipus	a Digger wasp	-	_	Yes	NBN map -	_	_	_	_	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Crossocerus (Hoplocrabr	4-Spotted Digger Wasp	-	-	Yes	NBN map -	_	_	-	_	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Diodontus tristis	Melancholy Black Wasp	-	-	Yes	NBN map -	-	-	-	_	Yes	_	-	_
Terrestrial invertebrates	insect - hymenopteran	Dipogon (Deuteragenia)	a Spider-hunting Wasp	-	-	Yes	NBN map -	_	-	-	-	Yes	_	-	-
Terrestrial invertebrates	insect - hymenopteran	Dipogon (Deuteragenia)	a Spider-hunting Wasp	_	_	Yes	NBN map -	_	_	_	_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Dryudella pinguis		_	_	Yes	NBN map -		_	-		Yes			-
	mymenopieran		a Hole nesting wasp	-	ı	L	ן <u>וואון אוטאן</u>	<u> </u>	-	-	-	162	-		

Terrestrial invertebrates	insect - hymenopteran	Ectemnius (Hypocrabro)	a Digger wasp	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	
Terrestrial invertebrates	insect - hymenopteran	Ectemnius (Metacrabro)	a Digger wasp	_	_	Yes	NBN map	-	-	-	_	-	Yes	-	_	_
Terrestrial invertebrates	insect - hymenopteran	Embolemus ruddii	an Aculeate	-	-	Yes	NBN map	-	-	-	_	-	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Epeolus variegatus	a cuckoo bee	_	_	Yes	NBN map	-	-	-	_	-	Yes	-	-	-
Terrestrial invertebrates	insect - hymenopteran	Evagetes crassicornis	a Spider-hunting Wasp	_	_	Yes	NBN map	-	-	-	_	-	Yes	-	_	-
Terrestrial invertebrates	insect - hymenopteran	Formica exsecta	Narrow-headed Ant	Yes	Yes	-	NBN map	EN	_	Yes		Yes	_	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Formica fusca	Negro Ant	-	-	Yes	NBN map	-	_	_	_	_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Formicoxenus nitidulus	Shining Guest Ant	-	-	Yes	NBN map	-	_	Yes	_	_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Harpactus tumidus	a Digger wasp	_	_	Yes	NBN map	-	-	-	_	-	Yes	-	_	-
Terrestrial invertebrates	insect - hymenopteran	Hedychridium ardens	a ruby-tailed wasp	_	_	Yes	NBN map	-	_	_	_	-	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Hylaeus (Prosopis) brevio	Short Horned Yellow-Face	-	-	Yes	NBN map	-	_	_	_	_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Lasioglossum (Dialictus)	a mining bee	_	_	Yes	NBN map	-	_	_	_	_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Lasioglossum (Evylaeus)	a mining bee	-	-	Yes	NBN map	-	_	_	_	_	Yes	_	_	-
Terrestrial invertebrates	insect - hymenopteran	Lasioglossum (Evylaeus)	Shaggy Mining Bee	-	-	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Lindenius albilabris	a Digger wasp	_		Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Mimumesa dahlbomi	a black solitary wasp	_		Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Mutilla europaea	Large Velvet Ant	-	-	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Nomada fabriciana	Fabricius' Nomad Bee	-	-	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Nomada leucophthalma	a Nomad bee	_	_	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Nomada obtusifrons	a Nomad bee	_		Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Nomada roberjeotiana	a Nomad bee	_		Yes	NBN map	_	_	_		Yes	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Chalcosmia) caer	Blue Mason Bee	-	-	Yes	NBN map	_	_	_		-	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Helicosmia) aurul	Gold-Fringed Mason Bee	-	-	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Melanosmia) iner	a Mason Bee	Yes	Yes	-	NBN map	VU		Yes		Yes	Yes		Yes	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Melanosmia) pari	Western Mason Bee	-	-	Yes	NBN map	_		Yes		Yes	Yes	_	-	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Melanosmia) unc	a Mason Bee	Yes	Yes	-	NBN map	VU		Yes		Yes	-	_	Yes	_
Terrestrial invertebrates	insect - hymenopteran	Osmia (Osmia) rufa	Red Mason Bee	-	-	Yes	NBN map	_	_	-		-	Yes	_	-	_
Terrestrial invertebrates	insect - hymenopteran	Oxybelus uniglumis	Common Spiny Digger W	-	-	Yes	NBN map	_	_				Yes	_		_
Terrestrial invertebrates	insect - hymenopteran	Pompilus cinereus	Leaden Spider Wasp	-	-	Yes	NBN map	_	_	_		_	Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Priocnemis (Priocnemis)	a Spider-hunting wasp	_	_	Yes	NBN map	_	<u> </u>	_			Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Pseudomalus auratus	a Ruby-tailed wasp	_	L	Yes	NBN map	_	l.	_	-		Yes	_	_	_
Terrestrial invertebrates	insect - hymenopteran	Sphecodes gibbus	a solitary bee	_		Yes	NBN map	_	l.	_			Yes	_		_
Terrestrial invertebrates	insect - hymenopteran	Stelis punctulatissima	a cuckoo bee	_		Yes	NBN map	_	_	_			Yes	_		_
Terrestrial invertebrates	insect - hymenopteran	Symmorphus bifasciatus	a Potter wasp	_	_	Yes	NBN map	_	<u> </u>	_			Yes	_		_
Terrestrial invertebrates	insect - hvmenopteran	Tachysphex pompiliformi		_		Yes	NBN map	_	_	_			Yes			
Terrestrial invertebrates	insect - lacewing (Neuroptera)	Hemerobius perelegans	a Spider-hunting wasp	<u>-</u>	-	Yes	NBN map	-	-	-	<u> </u>	Vos	162	-	-	-
	(ineuroptera)		a Lacewing	-	-		иви тар	<u> -</u>	-	-	-	Yes	-	-	-	

Terrestrial invertebrates	insect - lacewing (Neuroptera)	Megalomus hirtus	Bordered Brown Lacewin	Yes	-	-	NBN map -	-	-	-	Yes	Yes	-	-	
Terrestrial invertebrates	insect - moth	Acronicta psi	Grey Dagger	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Acronicta rumicis	Knot Grass	-	-	Yes	NBN map -	-	Yes	-		-	-	-	-
Terrestrial invertebrates	insect - moth	Adscita statices	<u>Forester</u>	Yes	-	-	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Aethes rutilana	Juniper Conch	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Agrochola helvola	Flounced Chestnut	-	-	Yes	NBN map -	-	Yes		-	-	-	-	-
Terrestrial invertebrates	insect - moth	Agrochola litura	Brown-spot Pinion	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Agrochola lychnidis	Beaded Chestnut	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Allophyes oxyacanthae	Green-brindled Crescent	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Amphipoea oculea	Ear Moth	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Amphipyra tragopoginis	Mouse Moth	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Anania funebris	White-spotted Sable	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Anarta cordigera	Small Dark Yellow Under	Yes	-	-	NBN map -	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Apamea anceps	Large Nutmeg	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Apamea remissa	Dusky Brocade	-	-	Yes	NBN map -	-	Yes	-	-	-	-	_	-
Terrestrial invertebrates	insect - moth	Apotomis infida	Rannoch Marble	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	_	-
Terrestrial invertebrates	insect - moth	Archinemapogon yildizae	Large Scotch Clothes	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Arctia caja	Garden Tiger	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Atethmia centrago	Centre-barred Sallow	-	-	Yes	NBN map -	-	Yes	-	-	-	-	_	-
Terrestrial invertebrates	insect - moth	Blepharita adusta	Dark Brocade	-	-	Yes	NBN map -	-	Yes	-	-	-	-	_	-
Terrestrial invertebrates	insect - moth	Brachylomia viminalis	Minor Shoulder-knot	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Callisto coffeella	Highland Slender	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	_	-
Terrestrial invertebrates	insect - moth	Caradrina morpheus	Mottled Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	_	-
Terrestrial invertebrates	insect - moth	Celaena haworthii	Haworth's Minor	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	_	-
Terrestrial invertebrates	insect - moth	Celaena leucostigma	Crescent	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Chesias legatella	<u>Streak</u>	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	_	-
Terrestrial invertebrates	insect - moth	Chesias rufata	Broom-tip	-	-	Yes	NBN map -	-	Yes	-	_	_	_	_	-
Terrestrial invertebrates	insect - moth	Chiasmia clathrata	Latticed Heath	-	-	Yes	NBN map -	-	Yes	-	_	_	_	_	-
Terrestrial invertebrates	insect - moth	Cossus cossus	Goat Moth	Yes	-	-	NBN map -	-	-	-	-	Yes	-	_	-
Terrestrial invertebrates	insect - moth	Cymatophorima diluta	Oak Lutestring	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Dasypolia templi	Brindled Ochre	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	<u>Diarsia rubi</u>	Small Square-spot	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Diloba caeruleocephala	Figure of Eight	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	_	-
Terrestrial invertebrates	insect - moth	Ecliptopera silaceata	Small Phoenix	-	-	Yes	NBN map -	-	Yes	-	-	-	_	_	_
Terrestrial invertebrates	insect - moth	Endromis versicolora	Kentish Glory	-	-	Yes	NBN map -	-	_	-	-	Yes	-	_	-
Terrestrial invertebrates	insect - moth	Ennomos erosaria	September Thorn	-	-	Yes	NBN map -	_	Yes	_	_	-	_	_	_
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Second members Seco																
The control inventories Control	Terrestrial invertebrates	insect - moth	Ennomos quercinaria	August Thorn	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Section Sect	Terrestrial invertebrates	insect - moth	Entephria caesiata	Grey Mountain Carpet	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Transfer Providence Provide	Terrestrial invertebrates	insect - moth	Epione vespertaria	Dark Bordered Beauty	Yes	-	-	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Transport involutionals Description (Personal Control of Control o	Terrestrial invertebrates	insect - moth	Epirrhoe galiata	Galium Carpet	-	-	Yes	NBN map -	-	Yes	-	1	-	-	-	1
No.	Terrestrial invertebrates	insect - moth	Eugnorisma glareosa	Autumnal Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Temperature investments Sect - moch Constitution Sect - moch Sect -	Terrestrial invertebrates	insect - moth	Eulithis mellinata	<u>Spinach</u>	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	
Ministration Mini	Terrestrial invertebrates	insect - moth	Euxoa nigricans	Garden Dart	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Provided invertebrook Proced - moth District accessed Care Vee	Terrestrial invertebrates	insect - moth	Euxoa tritici	White-line Dart	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Commentation in investigations Section (Commentation in the commentation in the co	Terrestrial invertebrates	insect - moth	Graphiphora augur	Double Dart	-	-	Yes	NBN map -	-	Yes	-	ı	-	(Yes)	-	-
Temporal inventorians Process	Terrestrial invertebrates	insect - moth	Hadena caesia	<u>Grey</u>	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Temperatural Inventebrates	Terrestrial invertebrates	insect - moth	Hemaris tityus	Narrow-bordered Bee Ha	-	-	Yes	NBN map -	-	Yes	-	Yes	-	-	-	-
Temperaturi Inventebrates Invent - moth Displacifica Bilandia Busilia Page	Terrestrial invertebrates	insect - moth	Hemistola chrysoprasaria	Small Emerald	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Professional Investmentation Professional Residence Professional	Terrestrial invertebrates	insect - moth	Hepialus humuli	Ghost Moth	-	-	Yes	NBN map -	-	Yes	-	1	-	-	-	-
Commentation Prevention P	Terrestrial invertebrates	insect - moth	Hoplodrina blanda	Rustic	-	-	Yes	NBN map -	-	Yes	-	ı	-	-	-	-
Page	Terrestrial invertebrates	insect - moth	Hydraecia micacea	Rosy Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Commentation Comm	Terrestrial invertebrates	insect - moth	Lampronia capitella	Currant-shoot Borer	Yes	-	-	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Propertial invertebrates Insect - moth Macaria carbonaria Nation Moth Ves	Terrestrial invertebrates	insect - moth	Levipalpus hepatariella	Mountain Flat-body	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	1
New Map	Terrestrial invertebrates	insect - moth	Lycia hirtaria	Brindled Beauty	-	-	Yes	NBN map -	-	Yes	-	ı	-	(Yes)	-	1
Presential invertebrates I	Terrestrial invertebrates	insect - moth	Macaria carbonaria	Netted Mountain Moth	Yes	-	-	NBN map -	-	Yes	-	Yes	-	-	-	ı
Part	Terrestrial invertebrates	insect - moth	Macaria wauaria	V-moth	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
	Terrestrial invertebrates	insect - moth	Malacosoma neustria	Lackey	-	-	Yes	NBN map -	-	Yes	-	1	-	-	-	-
Terrestrial invertebrates Insect - moth Mesoligia literosa Rosy Minor -	Terrestrial invertebrates	insect - moth	Melanchra persicariae	Dot Moth	-	-	Yes	NBN map -	-	Yes	-	ı	-	-	-	1
Terrestrial invertebrates insect - moth Nemapogon picarella Pied Ciothes Yes NBN map Yes - Yes Yes Yes NBN map Yes - Yes Yes Yes NBN map Yes - Yes Yes Yes	Terrestrial invertebrates	insect - moth	Melanchra pisi	Broom Moth	-	-	Yes	NBN map -	-	Yes	-	ı	-	(Yes)	-	-
Ferrestrial invertebrates insect - moth Nemapogon picarella Pied Ciothes Yes NBN map Yes - Yes Yes Yes	Terrestrial invertebrates	insect - moth	Mesoligia literosa	Rosy Minor	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates insect - moth Nematopogon magna Scarce Long-horn Yes NBN map Yes - Yes Yes Yes NBN map Yes Yes Yes	Terrestrial invertebrates	insect - moth	Mythimna comma	Shoulder-striped Wainsco	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	1
Terrestrial invertebrates insect - moth Noctua orbona Lunar Yellow Underwing Yes NBN map Yes Yes Yes (Yes)	Terrestrial invertebrates	insect - moth	Nemapogon picarella	Pied Clothes	Yes	-	-	NBN map -	-	Yes	-	Yes	Yes	Yes	-	_
Terrestrial invertebrates insect - moth Orthonama vittata Oblique Carpet Yes NBN map Yes (Yes)	Terrestrial invertebrates	insect - moth	Nematopogon magna	Scarce Long-horn	Yes	-	-	NBN map -	-	Yes		Yes	Yes	Yes	-	
Terrestrial invertebrates insect - moth Orthosia gracilis Powdered Quaker Yes NBN map Yes NBN map Yes NBN map Yes NBN map Yes Yes	Terrestrial invertebrates	insect - moth	Noctua orbona	Lunar Yellow Underwing	Yes	-	-	NBN map -	-	Yes	-	_	Yes	-	_	-
Terrestrial invertebrates insect - moth Pelurga comitata Dark Spinach Yes NBN map Yes NBN map Yes Yes Yes Yes Yes Yes	Terrestrial invertebrates	insect - moth	Orthonama vittata	Oblique Carpet	-	-	Yes	NBN map -	-	Yes	-	_	_	(Yes)	-	-
Terrestrial invertebrates insect - moth Periclepsis cinctana Dover Twist Yes NBN map	Terrestrial invertebrates	insect - moth	Orthosia gracilis	Powdered Quaker	-	-	Yes	NBN map -	-	Yes	-		-	-	_	-
Terrestrial invertebrates insect - moth Perizoma albulata subsp. Grass Rivulet Yes NBN map Yes Yes	Terrestrial invertebrates	insect - moth	Pelurga comitata	Dark Spinach	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates insect - moth Protolampra sobrina Cousin German Yes NBN map Yes	Terrestrial invertebrates	insect - moth	Periclepsis cinctana	Dover Twist	-	-	Yes	NBN map -	-			Yes	Yes		-	
Terrestrial invertebrates insect - moth Rheumaptera hastata Argent and Sable Yes NBN map Yes Yes	Terrestrial invertebrates	insect - moth	Perizoma albulata subsp.	Grass Rivulet	-	-	Yes	NBN map -	-	Yes	-	Yes			-	
Terroptial invertebrates insect moth Districts laters Large Weignest	Terrestrial invertebrates	insect - moth	Protolampra sobrina	Cousin German	Yes	-	-	NBN map -	-	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates insect - moth Rhizedra lutosa Large Wainscot NRN man - Yes	Terrestrial invertebrates	insect - moth	Rheumaptera hastata	Argent and Sable	=	-	Yes	NBN map -	_	Yes			Yes	-		_
	Terrestrial invertebrates	insect - moth	Rhizedra lutosa	Large Wainscot	-	-	-	NBN map -	-	Yes	-	-	-	-	-	-

Terrestrial invertebrates	insect - moth	Scopula marginepunctata	Mullein Wave	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	_
Terrestrial invertebrates	insect - moth	Scotopteryx chenopodiata	Shaded Broad-bar	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Spilosoma lubricipeda	White Ermine	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Spilosoma luteum	Buff Ermine	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Stilbia anomala	Anomalous	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Swammerdamia passere	Scotch Ermel	-	-	Yes	NBN map -	-	_	_	_	Yes	_	-	_
Terrestrial invertebrates	insect - moth	Synanthedon scoliaeform	Welsh Clearwing	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Tholera cespitis	Hedge Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Tholera decimalis	Feathered Gothic	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Thumatha senex	Round-winged Muslin	-	-	Yes	NBN map -	_	_	_	_	Yes	_	-	_
Terrestrial invertebrates	insect - moth	Timandra comae	Blood-vein	-	-	Yes	NBN map -	-	Yes	_	_	-	_	-	-
Terrestrial invertebrates	insect - moth	Trichiura crataegi	Pale Eggar	-	-	Yes	NBN map -	-	Yes	_	_	-	(Yes)	-	_
Terrestrial invertebrates	insect - moth	Trichopteryx polycommat	Barred Tooth-striped	-	-	Yes	NBN map -	-	Yes	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Tyria jacobaeae	Cinnabar	-	-	Yes	NBN map -	-	Yes	-	-	-	-		-
Terrestrial invertebrates	insect - moth	Watsonalla binaria	Oak Hook-tip	-	-	Yes	NBN map -	-	Yes	_	_	-	_	-	_
Terrestrial invertebrates	insect - moth	Xanthia gilvago	Dusky-lemon Sallow	-	-	Yes	NBN map -	-	Yes	_	_	-	_	-	_
Terrestrial invertebrates	insect - moth	Xanthia icteritia	Sallow	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Xanthorhoe decoloraria	Red Carpet	-	-	Yes	NBN map -	-	Yes	-	-	-	(Yes)	-	-
Terrestrial invertebrates	insect - moth	Xanthorhoe ferrugata	Dark-barred Twin-spot Ca	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Xestia agathina	Heath Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Xestia alpicola	Northern Dart	Yes	-	-	NBN map -	-	Yes	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - moth	Xestia castanea	Neglected Rustic	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Xylena exsoleta	Sword-grass	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Terrestrial invertebrates	insect - moth	Zygaena exulans subsp.	Scotch Burnet	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	Yes
Terrestrial invertebrates	insect - moth	Zygaena lonicerae subsp	Narrow-bordered Five-spe	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	Yes
Terrestrial invertebrates	insect - moth	Zygaena loti subsp. scoti	Slender Scotch Burnet	Yes	-	-	NBN map -	-	-	-	Yes	-	ı	-	Yes
Terrestrial invertebrates	insect - moth	Zygaena purpuralis subsp	Transparent Burnet	-	-	Yes	NBN map -	-			Yes	-	-	-	Yes
Terrestrial invertebrates	insect - moth	Zygaena viciae subsp. ar	New Forest Burnet	Yes	-	-	NBN map -	-	-	-	Yes	Yes	-	-	Yes
Terrestrial invertebrates	insect - orthopteran	Leptophyes punctatissima	Speckled Bush-cricket	-	-	Yes	NBN map -	-	-		-	Yes	-		-
Terrestrial invertebrates	insect - orthopteran	Metrioptera brachyptera	Bog Bush-cricket	-	-	Yes	NBN map -	-	-	-	-	Yes	ı		-
Terrestrial invertebrates	insect - spider (Araneae)	Agroeca cuprea	Golden Lantern-spider	Yes	-	-	NBN map -	-	Yes	-	-	Yes	_	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Centromerus levitarsis	a money spider	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Clubiona subsultans	a spider	Yes	Yes	-	NBN map	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Dictyna major	a mesh-webbed spider	Yes	Yes	-	NBN map VU	-	-	_	Yes	Yes	_	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Dictyna pusilla	Small Mesh-weaver	Yes	-	-	NBN map -	-	Yes		Yes	-	-	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Dipoena torva	a spider	Yes	Yes	-	NBN map VU	-			Yes	_	_		_
		-				-			-						

Terrestrial invertebrates	insect - spider (Araneae)	Erigone welchi	Welch's Money-spider	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Haplodrassus soerenseni	a spider	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes		ı	-
Terrestrial invertebrates	insect - spider (Araneae)	Lepthyphantes antronien	a money spider	Yes	Yes	-	NBN map	EN	_	_	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Mecopisthes peusi	Peus's Long-back Spider	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes		•	-
Terrestrial invertebrates	insect - spider (Araneae)	Mecynargus paetulus	a money spider	Yes	Yes	-	NBN map	VU	_	-	-	Yes	-	-		-
Terrestrial invertebrates	insect - spider (Araneae)	Monocephalus castaneip	Broad Groove-head Spide	-	-	Yes	NBN map	-	-	Yes	-	-	-	-		-
Terrestrial invertebrates	insect - spider (Araneae)	Notioscopus sarcinatus	Swamp Lookout Spider	Yes	-	-	NBN map	_	-	Yes	-	Yes	Yes	Yes	-	-
Terrestrial invertebrates	insect - spider (Araneae)	Philodromus margaritatus	Lichen Running-spider	Yes	-	-	NBN map	-	-	Yes	-	Yes	-	-	1	-
Terrestrial invertebrates	insect - spider (Araneae)	Robertus scoticus	a spider	Yes	Yes	-	NBN map	EN	-	-	-	1	Yes	ı	ı	-
Terrestrial invertebrates	insect - spider (Araneae)	Saaristoa firma	Triangle Hammock-spider	-	-	Yes	NBN map	-	_	Yes	-	Yes	-	-		-
Terrestrial invertebrates	insect - spider (Araneae)	Semljicola caliginosus	Cloud-living Spider	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	-		-
Terrestrial invertebrates	insect - spider (Araneae)	Silometopus incurvatus	Bend-bearing Blunt-brow	Yes	-	-	NBN map	-	_	Yes	-	Yes	-	Yes	ı	-
Terrestrial invertebrates	insect - stonefly (Plecoptera)	Brachyptera putata	Northern February Red	-	-	Yes	NBN map	_	_	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates	Insect - trichopteran	Hagenella clathrata	Window Winged Sedge	Yes	Yes	-	NBN map	EN	-	Yes	-	Yes	Yes	-		-
Terrestrial invertebrates	insect - true bug (Hemiptera)	Aquarius najas	River Skater	-	-	Yes	NBN map		-	-	-		Yes		ı	-
Terrestrial invertebrates	insect - true bug (Hemiptera)	Gerris (Gerris) gibbifer	Pond Skater	-	-	Yes	NBN map	-	-	-	-	1	Yes	1	ı	-
Terrestrial invertebrates	insect - true bug (Hemiptera)	Hebrus (Hebrusella) rufic	Sphagnum Bug	-	-	Yes	NBN map	-	-	-	-	-	Yes	-		-
Terrestrial invertebrates	insect - true bug (Hemiptera)	Plea minutissima	a pygmy backswimmer	-	-	Yes	NBN map	-	-	-	-	-	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Anasimyia transfuga	a Hoverfly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Beris morrisii	a Soldier Fly	-	-	Yes	NBN map	_	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Blera fallax	Pine Hoverfly	Yes	Yes	-	NBN map	EN	-	Yes	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Bolitophila bimaculata	a fungus gnat	-	-	Yes	NBN map	NT	-	-	-	Yes	Yes	-	1	-
Terrestrial invertebrates	insect - true fly (Diptera)	Botanophila fonsecai	Fonseca's Seed Fly	Yes	-	-	NBN map	-	-	Yes		Yes	Yes	-	Yes	-
Terrestrial invertebrates	insect - true fly (Diptera)	Brachyopa insensilis	a Hoverfly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Chamaesyrphus caledon	a Hoverfly	Yes	Yes	-	NBN map	EN	-	-	-	-	Yes	-	Yes	-
Terrestrial invertebrates	insect - true fly (Diptera)	Cheilosia chrysocoma	a Hoverfly	-	-	Yes	NBN map	_	_	-	-	-	Yes	_	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Cheilosia latifrons	<u>Hoverfly</u>	-	-	Yes	NBN map	_	-	-	-	-	-	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Cheilosia sahlbergi	a Hoverfly	Yes	Yes	-	NBN map	VU	-	-	-	Yes	-	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Cliorismia rustica	Southern Silver Stiletto-fly	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Clusiodes geomyzinus	Strathspey Clusiid Fly	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	Yes	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Diadocidia valida	a fungus gnat	-	-	Yes	NBN map	NT	_	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Dicranomyia omissinervis	a cranefly	=	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Dictenidia bimaculata	a cranefly	=	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Doros profuges	Phantom Hoverfly	Yes	Yes	-	NBN map	VU	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Dysmachus trigonus	a Robber Fly	=	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Hammerschmidtia ferrugi	Aspen Hoverfly	Yes	Yes	-	NBN map	EN	-	Yes	-	-	-	-	-	-
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Terrestrial invertebrates	insect - true fly (Diptera)	Heringia pubescens	Hoverfly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Hilara medeteriformis	a dance fly	-	-	Yes	NBN map	NT	-	-	-	Yes	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Laphria flava	a Robber Fly	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Leptarthrus brevirostris	a Robber Fly	Yes	-	-	NBN map	-	-	-	-	-	Yes	Yes	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Lipsothrix ecucullata	Scottish Yellow Splinter	Yes	-	-	NBN map	-	-	Yes		Yes	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Lipsothrix errans	Northern Yellow Splinter	Yes	-	-	NBN map	-	_	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Lipsothrix nervosa	Southern Yellow Splinter	-	-	Yes	NBN map	-	-	Yes		Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Lonchaea ragnari	Viking Sword Fly	Yes	-	-	NBN map	-	-	Yes	-	Yes	-	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Medetera excellens	a dolichopodid fly	-	-	Yes	NBN map	NT	-	-	-	Yes	Yes	ı	ı	-
Terrestrial invertebrates	insect - true fly (Diptera)	Melangyna barbifrons	a Hoverfly		-	Yes	NBN map	-	-	-	1	ı	Yes	ı	ı	-
Terrestrial invertebrates	insect - true fly (Diptera)	Melangyna ericarum	a Hoverfly	-	_	Yes	NBN map	-	-	-		-	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Mycomya rosalba	a fungus gnat	-	-	Yes	NBN map	DD	_	-	-	Yes	Yes	-	1	-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma aculeata	a cranefly	Yes	Yes	-	NBN map	VU	_	-	1	Yes	Yes	ı	ı	-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma analis	a cranefly	-	-	Yes	NBN map	-	-	-		-	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma cornicina	a cranefly	-	-	Yes	NBN map	-	-	-		-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma guestfalica	a cranefly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma lunulicornis	a cranefly	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Nephrotoma scurra	a cranefly	-	-	Yes	NBN map	-	-			-	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Nigrotipula nigra	a cranefly	-	-	Yes	NBN map	-	_	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Oxycera pygmaea	a Soldier Fly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Pamponerus germanicus	a Robber Fly	-	-	Yes	NBN map	-	-	-		Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Parasyrphus nigritarsis	a Hoverfly	Yes	Yes	-	NBN map	EN	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Phronia persimilis	a fungus gnat	-	-	Yes	NBN map	DD	_	-	-	Yes	Yes	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Phronia sylvatica	a fungus gnat	-	-	Yes	NBN map	DD	-	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Platycheirus amplus	a Hoverfly	_	-	Yes	NBN map	_	_	_	_	_	Yes	_	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Prionocera pubescens	a cranefly	Yes	Yes	-	NBN map	VU	_	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Rhabdomastix japonica	River-shore Cranefly	Yes	-	-	NBN map	-	-	Yes	-	Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Rhabdomastix laeta	a cranefly	-	-	Yes	NBN map	-		Yes		Yes	Yes			-
Terrestrial invertebrates	insect - true fly (Diptera)	Rhadiurgus variabilis	Northern Robber Fly	-	-	Yes	NBN map	-	-	_	-	Yes	-	-		-
Terrestrial invertebrates	insect - true fly (Diptera)	Rhamphomyia hirtula	Mountain Dance-fly	Yes	Yes	-	NBN map	NT		Yes	-	Yes	-	Yes		-
Terrestrial invertebrates	insect - true fly (Diptera)	Rymosia speyae	a fungus gnat	Yes	Yes	-	NBN map	VU		_		Yes	Yes	_		-
Terrestrial invertebrates	insect - true fly (Diptera)	Sphaerophoria loewi	a Hoverfly	Yes	Yes	-		VU	_	-	-	-	Yes			-
Terrestrial invertebrates	insect - true fly (Diptera)	Sphegina sibirica	a Hoverfly		-	Yes	NBN map	-	-	-	-	1	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Spiriverpa lunulata	Stiletto-fly	-	-	Yes	NBN map	-	-	Yes	-	Yes	-	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Stratiomys chamaeleon	a soldier fly	Yes	Yes	-	NBN map	EN	_	-	-	Yes	Yes	_		-
Terrestrial invertebrates	insect - true fly (Diptera)	Strongylophthalmyia ustu	a tanypezid fly	Yes	Yes		NBN map	EN			-	Yes	Yes	-	-	-
														_	_	

Terrestrial invertebrates	insect - true fly (Diptera)	Tanyptera atrata	a cranefly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Tanyptera nigricornis	a cranefly	-	-	Yes	NBN map	-	-	-		Yes	Yes	-	-	-
Terrestrial invertebrates	insect - true fly (Diptera)	Themira gracilis	a small dung fly	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	_	-
Terrestrial invertebrates	insect - true fly (Diptera)	Thereva handlirschi	a Stiletto fly	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	_	-
Terrestrial invertebrates	insect - true fly (Diptera)	Thereva valida	a Stiletto fly	-	-	Yes	NBN map	_	_	-	-	Yes	Yes	_	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula bistilata	a cranefly	Yes	Yes	_	NBN map	VU	-	-	-	Yes	Yes	-	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula cava	a cranefly	-	-	Yes	NBN map	_	-	-	-	-	Yes	-	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula hortorum	a cranefly	-	-	Yes	NBN map	_	-	-	-	Yes	Yes		_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula invenusta	a cranefly	-	-	Yes	NBN map	_	-	_	-	Yes	Yes	-	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula laetabilis	a cranefly	Yes	Yes	_	NBN map	VU	_	_	-	-	Yes	-	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	<u>Tipula limbata</u>	a cranefly	_	-	Yes	NBN map	_	_	_	_	Yes	_	_	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula luridorostris	a cranefly	_	-	Yes	NBN map	_	_	_	-	Yes	Yes	-	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula marginella	a cranefly	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	_	-
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula melanoceros	a cranefly	-	-	Yes	NBN map	-	-	-	-	-	Yes	_	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Tipula pabulina	a cranefly	-	-	Yes	NBN map	-	-	-	-	-	Yes	_	_	_
Terrestrial invertebrates	insect - true fly (Diptera)	Wiedemannia simplex	a dance fly	Yes	Yes	_	NBN map	EN	_	_	-	Yes	Yes	-	_	_
Terrestrial invertebrates	mollusc	Arion (Kobeltia) hortensis	Southern Garden Slug	-	-	Yes	NBN map	_	-	_	-	-	Yes	_	_	_
Terrestrial invertebrates	mollusc	Azeca goodalli	Three-toothed Moss Snai	-	-	Yes	NBN map	_	-	_	-	-	Yes	-	_	_
Terrestrial invertebrates	mollusc	Candidula gigaxii	a mollusc	-	-	Yes	NBN map	_	-	-	-	-	Yes	-	_	_
Terrestrial invertebrates	mollusc	Cecilioides (Cecilioides) a	Blind (or Agate) Snail	-	-	Yes	NBN map	_	_	_	-	-	Yes	-	_	_
Terrestrial invertebrates	mollusc	Cochlodina (Cochlodina)	Plaited Door Snail	-	-	Yes	NBN map	_	-	_	-	-	Yes	-	_	_
Terrestrial invertebrates	mollusc	Hydrobia ventrosa	Spire Snail	-	-	Yes	NBN map	_	-	Yes	-	-	-	_	_	_
Terrestrial invertebrates	mollusc	Monacha (Monacha) can	Kentish Snail	-	-	Yes	NBN map	_	_	_	-	-	Yes	-	_	_
Terrestrial invertebrates	mollusc	Omphiscola glabra	Mud Pond Snail	Yes	Yes	-	NBN map	VU	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	mollusc	Oxychilus (Oxychilus) nav	Glossy Glass Snail	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Terrestrial invertebrates	mollusc	Pisidium conventus	Alpine Peaclam	-	-	Yes	NBN map	_	_	-	-	Yes	Yes	-	-	-
Terrestrial invertebrates	mollusc	Succinella oblonga	Small Amber Snail	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Terrestrial invertebrates	mollusc	Truncatellina cylindrica	Cylindrical Whorl Snail	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	_	_	-
Terrestrial invertebrates	mollusc	Vertigo (Vertigo) alpestris	Mountain Whorl Snail	-	-	Yes	NBN map	-	-	-	-	-	Yes	-		-
Terrestrial invertebrates	mollusc	Vertigo (Vertigo) genesii	Round-mouthed Whorl Sr	Yes	Yes	-	NBN map	NT	ELD	Yes	Yes	Yes	Yes	-	-	-
Terrestrial invertebrates	mollusc	Vertigo (Vertigo) geyeri	Geyer's Whorl Snail	Yes	Yes	-	NBN map	EN	ELD	Yes	Yes	-	-	-	-	-
Terrestrial invertebrates	mollusc	Vertigo (Vertigo) modesta	Cross Whorl Snail	Yes	Yes	-	NBN map		_	-	-	Yes	Yes	_		-
Terrestrial invertebrates	mollusc	Vertigo (Vertilla) angustio	Narrow-mouthed Whorl S	Yes	Yes	-	NBN map	NT	ELD	Yes	Yes	Yes	Yes	-		-
Aquatic invertebrates	annelid	Hirudo medicinalis	Medicinal Leech	Yes	Yes	-	NBN map	NT	WCA 1981 ³	Yes	Yes	-	Yes	Yes	-	-
Aquatic invertebrates	crustacean	Austropotamobius pallipe	Freshwater White-clawed	Yes	Yes	-	NBN map	EN	WCA 1981	Yes	Yes	Yes	Yes	-	-	-
Aquatic invertebrates	crustacean	Triops cancriformis	Tadpole Shrimp	Yes	Yes	-	NBN map	EN	WCA 1981	Yes	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Agabus (Agabus) uliginos	a water beetle	_	-	Yes	NBN map	NT	_	_	_	_	Yes	_	_	_
L	(Solcopicia)	l .	a mater peede				- TDIT IIIap	1	1				103		-	

Aquatic invertebrates	insect - beetle (Coleoptera)	Augyles maritimus	a water beetle	_	_	Yes	NBN map	NT	_	_		Yes	Yes	_	-	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Bagous (Abagous) lutuler	a water beetle	_	-	Yes	NBN map	-	_	_	-	Yes	_	_	1	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Bagous (Bagous) colligne	a water beetle	_	_	Yes	NBN map	_	_	_	_	Yes	_	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Berosus (Berosus) luridus	a water beetle			Yes	NBN map	NT		_		100	Yes			_
Aquatic invertebrates	insect - beetle	Bidessus minutissimus	Minutest Diving Beetle	Yes	Yes	-			-		-			-		
Aquatic invertebrates	(Coleoptera) insect - beetle	Cercyon (Cercyon) alpinu				Yes	NBN map	VU	-	Yes	-	Yes	Yes	-	-	
Aquatic invertebrates	(Coleoptera) insect - beetle	Cercyon (Cercyon) conve	a water beetle	-	-	Yes	NBN map	DD	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Cercyon (Cercyon) depre	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle		a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
-	(Coleoptera) insect - beetle	Cercyon (Cercyon) melar	a water beetle	-	-	-	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Cercyon (Cercyon) nigrio	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Cercyon (Cercyon) quisqu	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera)	Cercyon (Cercyon) termin	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Cryptopleurum minutum	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Cyphon kongsbergensis	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Cyphon ochraceus	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-		-
Aquatic invertebrates	insect - beetle (Coleoptera)	Cyphon pubescens	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	1	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Cyphon punctipennis	a water beetle	_	_	Yes	NBN map	_	_	-	_	Yes	-	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Donacia aquatica	Zircon Reed Beetle	Yes	-	-	NBN map	_	_	Yes	-	_	Yes	_		-
Aquatic invertebrates	insect - beetle (Coleoptera)	Donacia cinerea	a Reed beetle	_	-	Yes	NBN map	-	_	_	-	Yes	Yes	_		_
Aquatic invertebrates	insect - beetle (Coleoptera)	Donacia crassipes	Water-Lily Reed Beetle	-	-	Yes	NBN map	_		_	_	-	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Donacia impressa	a Reed beetle	_	_	Yes	NBN map	_		_	_	_	Yes	_	_	_
Aquatic invertebrates	insect - beetle	Donacia marginata				Yes	NBN map						Yes			_
Aquatic invertebrates	(Coleoptera) insect - beetle	Donacia obscura	a Reed beetle	-	-	Yes		-	-	-	-			-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Donacia sparganii	a Reed beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
<u> </u>	(Coleoptera) insect - beetle	Donacia thalassina	a Reed beetle	-	-		NBN map	-	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle		a Reed beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Donacia vulgaris	a Reed beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera)	Dryops (Dryops) similaris	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Dryops (Yrdops) nitidulus	a water beetle	-	-	Yes	NBN map	NT	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Elodes minuta	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Elodes pseudominuta	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Enochrus quadripunctatu	a water beetle			Yes	NBN map	-	_	-		Yes	Yes			-
Aquatic invertebrates	insect - beetle (Coleoptera)	Enochrus testaceus	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Gyrinus distinctus	a water beetle	_	-	Yes	NBN map	-	_	-	-	Yes	Yes	_	-	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Gyrinus paykulli	a water beetle	-	-	Yes	NBN map	-	_	_	_	-	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Gyrinus suffriani		Yes	Yes	_	NBN map	VII			<u> </u>	Yes	Yes			_
Aquatic invertebrates	insect - beetle	Haliplus (Haliplinus) apica	a water beetle			Yes		v U	-	-	-	162		-	-	-
L	(Coleoptera)		a water beetle	-	l		NBN map	-	I-	-	-	-	Yes	-	-	-

Aquatic invertebrates	insect - beetle (Coleoptera)	Helochares punctatus	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	_	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Helophorus (Cyphelopho	a water beetle	Yes	Yes	-	NBN map	VU	_	-	-	Yes	Yes	-	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Helophorus (Empleurus)	a water beetle	-	_	Yes	NBN map	_	-	-	-	Yes	Yes		_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Helophorus (Helophorus)	a water beetle	_	_	Yes	NBN map	-	_	_	-	-	Yes	-	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Helophorus (Trichohelopi	a water beetle	_	_	Yes	NBN map	-	_	_	_	-	Yes	-	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Heterocerus flexuosus	a water beetle	_	_	Yes	NBN map	_	_	_	_	Yes	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Heterocerus fossor	a water beetle	_	_	Yes	NBN map	_	_	_	_	Yes	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydraena pulchella	a water beetle	Yes	Yes	_	NBN map	VU	_	_	_	Yes	_	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydraena pygmaea	a water beetle	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	-	_	-
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydrochus angustatus	a water beetle	_	_	Yes	NBN map	_	_	_	_	_	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydrochus brevis	a water beetle	_	_	Yes	NBN map	NT	_	_	_	_	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydrochus elongatus	a water beetle	_	_	Yes	NBN map	NT	_	_	_	_	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydroporus elongatulus	a water beetle	Yes	Yes	-	NBN map	VU	_	_	-	Yes	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydroporus glabriusculus	a water beetle	Yes	Yes	_	NBN map	VU	_	_	_	Yes	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydroporus longulus	a water beetle	_		Yes	NBN map	_	_	_	_	-	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hydroporus rufifrons	Oxbow Diving Beetle	Yes	Yes	-	NBN map	EN	_	Yes	_	Yes	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Hygrotus (Hygrotus) versi	a water beetle			Yes	NBN map	-	_	-	_	-	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Ilybius wasastjernae	a water beetle	Yes	Yes	_	NBN map	EN	_	_	_	_	Yes	_	_	_
Aquatic invertebrates	insect - beetle (Coleoptera)	Laccobius atratus	a water beetle			Yes	NBN map	LIN		-	-	Yes	Yes			_
Aquatic invertebrates	insect - beetle (Coleoptera)	Liopterus haemorrhoidali	a water beetle			Yes	NBN map					-	Yes			_
Aquatic invertebrates	insect - beetle (Coleoptera)	Megasternum concinnum	a water beetle			Yes	NBN map					Yes	- 103			_
Aquatic invertebrates	insect - beetle (Coleoptera)	Ochthebius (Asiobates) a	a water beetle			Yes	NBN map			_		Yes	_			_
Aquatic invertebrates	insect - beetle (Coleoptera)	Ochthebius (Hymenodes)				Yes	NBN map			-	-	-	Yes			_
Aquatic invertebrates	insect - beetle	Ochthebius (Ochthebius)	a water beetle	Yes	Yes			EN	-	-		Yes	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Ochthebius (Ochthebius)	a water beetle			Yes	NBN map	EIN	-	-	-	162	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Oreodytes alpinus	a water beetle	Yes	Yes		NBN map	- VU	-	-	-	Yes	res	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Pelenomus canaliculatus	a water beetle			Yes		VU	-	-	-	162		-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Plateumaris rustica	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Poophagus sisymbrii	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Prionocyphon serricornis	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Rhantus (Rhantus) fronta	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Rhantus (Rhantus) sutura	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Scirtes hemisphaericus	a water beetle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Sphaeridium bipustulatur	a water beetle	-	-	Yes	NBN map	-	-	-	-	- V	Yes	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Sphaeridium lunatum	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
Aquatic invertebrates	(Coleoptera) insect - beetle	Sphaeridium scarabaeoid	a water beetle	-	-	Yes	NBN map	-	-	-	-	Yes	-	-	-	-
, squallo ilivertebrates	(Coleoptera)	Spriachaidin Starabaetil	a water beetle	-	-	100	NBN map	-	-	-	-	Yes	-	-	-	-

Aquatic invertebrates	insect - beetle (Coleoptera)	Thryogenes nereis	a water beetle			Yes	NBN map						Yes			
	(Coleoptera)		a water beetle	-	<u> </u>		INDIN IIIAP	-	F	-	-	-	168	-	-	-
Aquatic invertebrates	insect - dragonfly	Coenagrion hastulatum	Northern Damselfly	Yes	Yes	L										
Aquatic invertebrates	(Odonata)	Occinagnon nacialatam	TOTALISM DAMOSING	100			NBN map	EN	-	_	_	Yes	_	_	-	_
	Insect -					.,										
Aquatic invertebrates	ephemeroptera	Nigrobaetis niger	Iron Blue Mayfly	-	-	Yes	NBN map	-	-	Yes	-	-	-	-	-	-
Aquatic invertebrates	mollusc	Anodonta (Anodonta) cyc	Swan Mussel	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	mollusc	Margaritifera (Margaritife	Freshwater Pearl Mussel	Yes	Yes	-	NBN map	EN	WCA 1981 ³	Yes	Yes	-	-	-	-	-
Aquatic invertebrates	mollusc	Pisidium henslowanum	Henslow's Pea Mussel	_	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Aquatic invertebrates	mollusc	Theodoxus (Theodoxus) t	River nerite	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Ajuga pyramidalis	Pyramidal Bugle	-	-	Yes	NBN map	VU	-	Yes	-	-	-	-	-	-
Vascular plants	flowering plant	Alchemilla glaucescens	Lady's Mantle	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Allium oleraceum	Field Garlic	Yes	Yes	1-	NBN map	VU	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Alopecurus myosuroides	Black-grass	Yes	-	-	NBN map	-	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Anagallis arvensis	Scarlet Pimpernel	Yes	-	1-	NBN map	-	1-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Apium graveolens	Wild Celery	-	ļ	Yes	NBN map	_	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Arabis alpina	Alpine Rock-cress	Yes	Yes	1-	NBN map	EN	WCA 1981	-	_	Yes	Yes	_	_	_
Vascular plants	flowering plant	Arenaria norvegica	Arctic Sandwort	Yes	Yes	1-	NBN map	-	WCA 1981	-	_	Yes		_	-	_
Vascular plants	flowering plant	Artemisia norvegica	Norwegian Mugwort	Yes	Yes	t <u>-</u>	NBN map	VU	-	Yes	_	Yes	Yes	_		_
Vascular plants	flowering plant	Astragalus alpinus	Alpine Milk-vetch	Yes	Yes	-	NBN map	VU	1-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Astragalus danicus	Purple Milk-vetch	-	-	Yes	NBN map	EN	t-	Yes	_	-	-	-		
Vascular plants	flowering plant	Bartsia alpina	Alpine Bartsia	-	t <u> </u>	Yes	NBN map		t-	-	-	Yes		-		-
Vascular plants	flowering plant	Blysmus compressus	Flat-sedge	_	t.	Yes	NBN map	VU	t.	Yes		-		-		-
Vascular plants	flowering plant	Brassica oleracea	Wild Cabbage	-	l_	Yes	NBN map	-	t-	-	-	-	Yes	-		-
Vascular plants	flowering plant	Bromus secalinus	Rye Brome	Yes	Yes	. 103	NBN map	VU	L 	-	-	-	Yes	Yes		-
Vascular plants	flowering plant	Calamagrostis purpurea	Scandinavian Small-reed	165	163	Yes	NBN map	DD	f -		-	Yes	Yes	163		-
Vascular plants		Calamagrostis scotica	Scottish Small-reed	Yes	Yes	163	NBN map	VU	-	Yes	-	Yes	Yes	-	Yes	-
Vascular plants	flowering plant	Calamagrostis stricta	Narrow Small-reed	Yes	Yes	-	NBN map	VU	-	-	-	Yes	-	-	-	-
	flowering plant			res	res	Yes	NBN map	VU	F	-	-	res	Yes	-	-	-
Vascular plants	flowering plant	Callitriche obtusangula Callitriche palustris	Blunt-fruited Water-starwe Narrow-fruited Water-star	Yes	Yes	res		- \/	-		-	- V				
Vascular plants	flowering plant	Campanula glomerata	Clustered Bellflower		res	-	NBN map	VU	F	-	-	Yes	Yes	- V	-	-
Vascular plants	flowering plant	Campanula giomerata Campanula ranunculus	Rampion Bellflower	Yes	- Vee	 -	NBN map	-	+	-	-	- V	- V	Yes		-
Vascular plants	flowering plant	<u>Janipanaia rapandaiao</u>	Tumpion Dominator	Yes	Yes	- V		EN	-	_	-	Yes	Yes	Yes	-	
Vascular plants	flowering plant	Cardamine impatiens	Narrow-leaved Bitter-cres	-	-	Yes	NBN map	NT	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Carex appropinquata	Fibrous Tussock-sedge	-	-	Yes	NBN map	NT	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Carex atrofusca	Scorched Alpine-sedge	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carex buxbaumii	Club Sedge	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carex chordorrhiza	String Sedge	-	-	Yes	NBN map	-	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carex divulsa	Grey Sedge	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Carex elata	<u>Tufted-sedge</u>	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Carex elongata	Elongated Sedge	-	-	Yes	NBN map		-	-	-		Yes	-	-	-
Vascular plants	flowering plant	Carex lachenalii	Hare's-foot Sedge	-	-	Yes	NBN map	NT	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carex maritima	Curved Sedge	Yes	-	<u> -</u>	NBN map	EN	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Carex microglochin	Bristle Sedge	Yes	Yes	<u> -</u>	NBN map	VU	ļ-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carex norvegica	Close-headed Alpine-sed	-		Yes	NBN map	-	 -	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Carex punctata	Dotted Sedge	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Carex rariflora	Mountain Bog-sedge	-	-	Yes	NBN map	-	<u> -</u>	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Carex recta	Estuarine Sedge	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Carum carvi	Caraway	Yes	-	-	NBN map	EN	<u> -</u>	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Centaurea cyanus	Cornflower	Yes	ļ	-	NBN map	-	<u> -</u>	Yes	-	-	Yes	-	-	-
Vascular plants	flowering plant	Centaurea scabiosa	Greater Knapweed	Yes	-	-	NBN map	-	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Centaurium pulchellum	Lesser Centaury	-	-	Yes	NBN map	-	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Cephalanthera longifolia	Narrow-leaved Helleborin	-	-	Yes	NBN map	VU	-	Yes	-	-	-	-	-	-
Vascular plants	flowering plant	Cerastium arcticum	Arctic Mouse-ear	-	-	Yes	NBN map	NT	-	Yes	-	-	-	-	-	-
Vascular plants	flowering plant	Cerastium fontanum subs	Scottish Mouse-ear	Yes	Yes	-	NBN map	VU	-	-	-	Yes	Yes	-	Yes	Yes
Vascular plants	flowering plant	Cerastium nigrescens	Shetland Mouse-ear	Yes	Yes	-	NBN map	EN	-	Yes	-	Yes	Yes	-	Yes	-
Vascular plants	flowering plant	Chelidonium majus	Greater Celandine	Yes	-	-	NBN map	-	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Chenopodium bonus-hen	Good-King-Henry	Yes	-	-	NBN map	VU	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Cicerbita alpina	Alpine Blue-sow-thistle	Yes	Yes	-	NBN map	VU	WCA 1981	-	-	Yes	Yes	-	•	-
Vascular plants	flowering plant	Cichorium intybus	Chicory	Yes	-	-	NBN map	-	-	-	-		-	Yes		-
Vascular plants	flowering plant	Clinopodium acinos	Basil Thyme	Yes	Yes	-	NBN map	VU	-	-	-	-	Yes	Yes		-
Vascular plants	flowering plant	Cochlearia micacea	Mountain Scurvygrass	-	-	Yes	NBN map	-	-	Yes	-	-	-	-		-
Vascular plants	flowering plant	Cochlearia officinalis sub	Scottish Scurvygrass	Yes	-	-	NBN map	-	-	Yes	-	-	-	Yes		-
Vascular plants	flowering plant	Coeloglossum viride	Frog Orchid	-	-	Yes	NBN map	VU	-	Yes	-	-	-	-	-	-
					•			•								

Vascular plants	flowering plant	Coronopus squamatus	Swine-cress	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Crassula aquatica	Pigmyweed	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Crepis mollis	Northern Hawk's-beard	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Crithmum maritimum	Rock Samphire	Yes	_	-	NBN map -	-	_	_	-	-	Yes	_	-
Vascular plants	flowering plant	Dactylorhiza ebudensis	Hebridean Marsh-orchid	Yes	Yes	<u> </u>	NBN map VU			_		Yes	-	Yes	
Vascular plants	flowering plant	Dactylorhiza purpurella si	Welsh Marsh-orchid	Yes	-	-	NBN map -		Yes	-	Yes	Yes	Yes	-	
						-		- WCA 1001	165				163		
Vascular plants	flowering plant	Diapensia lapponica	<u>Diapensia</u>	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	<u>Draba incana</u>	Hoary Whitlowgrass	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Eleocharis mamillata sub	Northern Spike-rush	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Eleocharis parvula	Dwarf Spike-rush	-	Yes	-	NBN map -	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Epipactis leptochila	Narrow-lipped Helleborine	-	-	Yes	NBN map DD	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Epipactis palustris	Marsh Helleborine	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Erigeron borealis	Alpine Fleabane	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Eriocaulon aquaticum	Pipewort	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Erodium lebelii	Sticky Stork's-bill	-	ļ_	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Erodium maritimum	Sea Stork's-bill	_	-	Yes	NBN map -	<u> </u>	_	_	_	Yes	_	_	-
Vascular plants	flowering plant	Erodium moschatum	Musk Stork's-bill			Yes	NBN map -					Yes			+
				Vee	· .	165		- -		-			Von		-
Vascular plants	flowering plant	Eryngium maritimum Euphorbia helioscopia	Sea-holly	Yes	ļ		NBN map -	- -		- -		-	Yes	-	
Vascular plants	flowering plant	<u>Eupriorbia riolioccopia</u>	Sun Spurge	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Euphrasia anglica	English Sticky Eyebright	Yes	Yes	-	NBN map EN		 ,-	-	-	Yes		-	- -
Vascular plants	flowering plant	Euphrasia campbelliae	an Eyebright	Yes	Yes	-	NBN map DD	-	Yes	-	Yes	Yes	Yes	Yes	-
Vascular plants	flowering plant	Euphrasia heslop-harriso	an Eyebright	-	-	Yes	NBN map -	-	Yes	-	Yes	-	-	Yes	-
Vascular plants	flowering plant	Euphrasia marshallii	an Eyebright	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	Yes	Yes	-
Vascular plants	flowering plant	Euphrasia ostenfeldii	an Eyebright	Yes	Yes	-	NBN map DD	-	Yes	-	Yes	Yes	Yes	-	-
Vascular plants	flowering plant	Euphrasia rostkoviana su	an Eyebright	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Euphrasia rotundifolia	an Eyebright	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	Yes	-
Vascular plants	flowering plant	Fallopia convolvulus	Black-bindweed	Yes	_	-	NBN map -	-	-	_	-	-	Yes	-	_
Vascular plants	flowering plant	Filago vulgaris	Common Cudweed	Yes	-	-	NBN map NT	-	<u> </u>	_			Yes		_
Vascular plants	flowering plant	Filipendula vulgaris	Dropwort	-		Yes	NBN map -		 	_		Yes	-		-
		Fumaria capreolata	White Ramping-fumitory	Yes	-	165	NBN map -			-		-	Yes		-
Vascular plants Vascular plants	flowering plant	Fumaria purpurea	Purple Ramping-fumitory	165	-	Yes	NBN map -			-	-	-		-	-
	flowering plant	Furnaria purpurea		-	-	Yes			Yes	-	-	-	Yes	-	-
Vascular plants	flowering plant	Galeopsis speciosa	Large-flowered Hemp-net	Yes	-	-	NBN map VU	-	-	-		-	Yes	-	-
Vascular plants	flowering plant	Gentiana nivalis	Alpine Gentian	-	Yes	-	NBN map NT	WCA 1981		-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Gentianella campestris	Field Gentian	-	-	Yes	NBN map VU	-	Yes	-	-	-	-	-	-
Vascular plants	flowering plant	Gentianella uliginosa	Dune Gentian	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Geranium columbinum	Long-stalked Crane's-bill	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Gnaphalium sylvaticum	Heath Cudweed	Yes	-	-	NBN map EN	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Hieracium attenuatifolium	Laxo Burn Hawkweed	Yes	Yes	-	NBN map CR	WCA 1981	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium backhousei	Backhouse's Hawkweed	Yes	Yes	-	NBN map EN	-	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium calvum	Bald-leaved Hawkweed	Yes	Yes	-	NBN map CR	-	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium graniticola	Granite Hawkweed	Yes	Yes	-	NBN map CR	<u> </u>	_	_	_	Yes	_	Yes	-
Vascular plants	flowering plant	Hieracium grovesii	Grove's Hawkweed	Yes	Yes	_	NBN map EN	<u> </u>	_	_	_		_	Yes	_
Vascular plants	flowering plant	Hieracium insigne	Noble Hawkweed	Yes	Yes		NBN map EN			_		Yes		Yes	_
-		Hieracium kennethii	Kenneth's Hawkweed		Yes	f	NBN map EN			-				Yes	-
Vascular plants	flowering plant			Yes Yes	Yes	-		-	- -	-	-	Yes			- -
Vascular plants	flowering plant	Hieracium larigense	Lairig Hawkweed			F	NBN map EN	- -	-	-		Yes		Yes	-
Vascular plants	flowering plant	Hieracium leptodon	Narrow-toothed Hawkwee	Yes	Yes	-	NBN map EN		-	-	-	Yes	-	Yes	- -
Vascular plants	flowering plant	Hieracium macrocarpum	Large-fruited Hawkweed	Yes	Yes		NBN map VU			-	-	-	-	Yes	- -
Vascular plants	flowering plant	Hieracium milesii	Miles's Hawkweed	-	-	Yes	NBN map NT	-	-	-	-	-	-	Yes	-
Vascular plants	flowering plant	Hieracium northroense	North Roe Hawkweed	Yes	Yes	-	NBN map VU	WCA 1981	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium notabile	Remarkable Hawkweed	Yes	Yes	-	NBN map EN	-	-	-		Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium optimum	Splendid Hawkweed	Yes	Yes	-	NBN map CR		-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium perscitum	Neat Hawkweed	-	-	Yes	NBN map NT	-	-	-	-	-	-	Yes	-
Vascular plants	flowering plant	Hieracium probum	Excellent Hawkweed	-	-	Yes	NBN map NT	-	-	-	-	-	-	Yes	-
Vascular plants	flowering plant	Hieracium pseudocurvatu	Cairngorm Hawkweed	Yes	Yes	-	NBN map CR	-	-	-	-	Yes	_	Yes	-
Vascular plants	flowering plant	Hieracium pseudopetiola	Narrow-leaved Hawkween	Yes	Yes	-	NBN map EN	<u> </u>	-	_	_		_	Yes	_
Vascular plants	flowering plant	Hieracium sect. Alpestria	Hawkweed	Yes	Yes	t -	NBN map -		Yes	-					_
			Chatland Hawlaves -	103	Yes	 	NBN map DD	WCA 1981	-	-		Yes	-	Yes	-
Vascular plants	flowering plant	Hieracium zetlandicum	Shetland Hawkweed	-	162	- V		VVCA 1981	-	-		res	-	res	-
Vascular plants	flowering plant	Hierochloe odorata	Holy-grass	-	-	Yes	NBN map -	10/04 4004	- -	-	Yes	-	-	-	-
Vascular plants	flowering plant	Homogyne alpina	Purple Colt's-foot	Yes	Yes	-	NBN map EN	WCA 1981		-	Yes	Yes	-	-	- -
Vascular plants	flowering plant	Hordelymus europaeus	Wood Barley	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Hydrilla verticillata	<u>Hydrilla</u>	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Hyoscyamus niger	<u>Henbane</u>	Yes	-	-	NBN map VU	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Hypochaeris glabra	Smooth Cat's-ear	Yes	Yes	-	NBN map VU		-	-	-	Yes	Yes		-

Vascular plants	flowering plant	Inula conyzae	Ploughman's-spikenard	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Inula crithmoides	Golden-samphire	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Juncus compressus	Round-fruited Rush	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	_
Vascular plants	flowering plant	Juniperus communis	Juniper	-	_	Yes	NBN map -	<u> </u>	Yes	_	_	-	_	_	-
Vascular plants	flowering plant	Kobresia simpliciuscula	False Sedge			Yes	NBN map -	1		_	Yes				_
Vascular plants	flowering plant	Koenigia islandica	Iceland-purslane	-		Yes	NBN map -	+	_	_	Yes	_			
				-	-	Yes		 				- -			+
Vascular plants	flowering plant	Lathyrus japonicus	Sea Pea	-	-	1	NBN map -	ļ-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	<u>Lathyrus palustris</u>	Marsh Pea	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	<u>Lathyrus sylvestris</u>	Narrow-leaved Everlastin	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Legousia hybrida	Venus's-looking-glass	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Lepidium campestre	Field Pepperwort	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Linnaea borealis	Twinflower	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Vascular plants	flowering plant	Linum perenne	Perennial Flax	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Lithospermum officinale	Common Gromwell	Yes	-	-	NBN map -	1.	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Lotus tenuis	Narrow-leaved Bird's-foot	_	_	Yes	NBN map -	1_	_	_	_	Yes			_
Vascular plants	flowering plant	Luzula arcuata	Curved Wood-rush	Yes	Yes	103	NBN map VU	+	-	-	Yes	-			
						F		- WCA 1001	-	-		Yes	-		
Vascular plants	flowering plant	Lychnis alpina	Alpine Catchfly	Yes	Yes	-		WCA 1981		-	Yes			-	
Vascular plants	flowering plant	Lythrum hyssopifolia	Grass-poly	Yes	Yes	-	NBN map EN	WCA 1981	-	-	Yes	Yes	Yes	-	-
Vascular plants	flowering plant	Melampyrum sylvaticum	Small Cow-wheat	Yes	Yes	-	NBN map EN	-	Yes	-	-	-	Yes		-
Vascular plants	flowering plant	Mentha arvensis	Corn Mint	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Minuartia rubella	Mountain Sandwort	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Minuartia sedoides	Cyphel	Yes	-	-	NBN map VU	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Moneses uniflora	One-flowered Wintergree	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Monotropa hypopitys	Yellow Bird's-nest	Yes	Yes	l_	NBN map EN	1_	_	_		Yes	_		
Vascular plants	flowering plant	Myosotis alpestris	Alpine Forget-me-not	100	100	Yes	NBN map NT	+			Yes	Yes			
		Naias flexilis	Slender Naiad	-	- -	165		FDO 123			165	165			-
Vascular plants	flowering plant			-	Yes	-	NBN map -	EPS ^{1,2,3}	Yes	Yes	-	-		-	-
Vascular plants	flowering plant	Oenanthe fistulosa	Tubular Water-dropwort	Yes	Yes	-	NBN map VU	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Ononis reclinata	Small Restharrow	-	Yes	-	NBN map -	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Ononis spinosa	Spiny Restharrow	Yes	-	-	NBN map -	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Orchis morio	Green-winged Orchid	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Orobanche hederae	Ivy Broomrape	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Orobanche rapum-genist	Greater Broomrape	-	_	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Oxytropis campestris	Yellow Oxytropis	Yes	Yes		NBN map VU	1_	_	_	Yes	Yes			
Vascular plants	flowering plant	Oxytropis campestris	Purple Oxytropis	100	100	Yes	NBN man -	+	_		Yes	-			
		Papaver argemone		Yes	-	165	NBN map VU	-	_	-	165				-
Vascular plants	flowering plant		Prickly Poppy		-	-		ļ	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Papaver hybridum	Rough Poppy	Yes	-	-	NBN map -	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Parentucellia viscosa	Yellow Bartsia	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Phyllodoce caerulea	Blue Heath	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Picris hieracioides	Hawkweed Oxtongue	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Pilosella flagellaris	Shetland Mouse-ear-haw	Yes	-	-	NBN map -	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Plantago media	Hoary Plantain	Yes	-	-	NBN map -	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Platanthera bifolia	Lesser Butterfly-orchid	Yes	-	-	NBN map VU	-	-	-	-	-	Yes	_	-
Vascular plants	flowering plant	Platanthera chlorantha	Greater Butterfly-orchid	Yes	_	-	NBN map NT	-	-	_		_	Yes	_	_
Vascular plants	flowering plant	Poa flexuosa	Wavy Meadow-grass	Yes	Yes	1_	NBN map VU	1.			Yes		- 100		
			Glaucous Meadow-grass	Yes	100	 	NBN map VU	+	Voc	-	169	- -	Von	-	+
Vascular plants	flowering plant	Poa glauca			V	ř-		- WCA 4004	Yes -	-	- V	-	Yes -	-	-
Vascular plants	flowering plant	Polygonatum verticillatum	Whorled Solomon's-seal	Yes	Yes	-	NBN map VU	WCA 1981		-	Yes			-	
Vascular plants	flowering plant	Polygonum rurivagum	Cornfield Knotgrass	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Populus nigra	Black-poplar	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Potamogeton compressu	Grass-wrack Pondweed	Yes	Yes	-	NBN map EN	-	Yes	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Potamogeton epihydrus	American Pondweed	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Potamogeton rutilus	Shetland Pondweed	Yes	-	-	NBN map -	-	Yes	-	Yes	-	-	-	-
Vascular plants	flowering plant	Potamogeton trichoides	Hairlike Pondweed	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Potentilla argentea	Hoary Cinquefoil	Yes	-	-	NBN map NT	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Potentilla rupestris	Rock Cinquefoil	Yes	Yes	1-	NBN map EN	WCA 1981	-	_	Yes	Yes	-		
Vascular plants	flowering plant	Primula scotica	Scottish Primrose	.03		Yes	NBN man -	7.7 5, 1 1301	-	-	-	-	-	Yes	
<u> </u>		Pseudorchis albida	Small-white Orchid	Vaa	-	168	- TOTT THOSE	-		-				162	
Vascular plants	flowering plant	- COGGOTOTHO GIBIGG		Yes	-	ļ-		1	Yes	-	-	-	Yes	-	- -
Vascular plants	flowering plant	Pyrola media	Intermediate Wintergreen	Yes	-	-	NBN map VU	-		-	-	-	Yes	-	
Vascular plants	flowering plant	Ranunculus arvensis	Corn Buttercup	Yes	Yes	-	NBN map CR	-	Yes	-	Yes	Yes	Yes	-	-
Vascular plants	flowering plant	Ranunculus reptans	Creeping Spearwort	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Ranunculus sardous	Hairy Buttercup	Yes	-	-	NBN map -	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Rosa tomentosa	Harsh Downy-rose	Yes		-	NBN map -	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Rubus caesius	Dewberry	Yes	-	-	NBN map -	1-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Rumex aquaticus	Scottish Dock	Yes	Yes	L	NBN map VU	L	_	_	Yes	Yes			<u> </u>
1 Source profite								1			100	100	_	_	

Vascular plants	flowering plant	Rumex maritimus	Golden Dock	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Ruppia cirrhosa	Spiral Tasselweed	Yes	-	-	NBN map N	IT.	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Sagina nivalis	Snow Pearlwort	Yes	Yes	-	NBN map V	/U	I	_	_	Yes	Yes	_	_	_
Vascular plants	flowering plant	Sagina saginoides	Alpine Pearlwort	Yes	-	l_		N.	L	_	_	-	-	Yes	-	_
Vascular plants	flowering plant	Salix lanata	Woolly Willow	Yes	Yes	<u></u>		/U	_	Yes	_	Yes		-		_
Vascular plants	flowering plant	Salix lapponum	Downy Willow	Yes	-			/U	E	-	_	-		Yes		
Vascular plants		Salix myrsinites	Whortle-leaved Willow	165	<u> </u>	Yes		N	f	Yes		-		165		-
	flowering plant	Salsola kali	Prickly Saltwort	- V	-	165	NBN map -	IN	F	165	-	-	-	Yes	-	
Vascular plants	flowering plant		_	Yes		-			-	-	-	-	-		-	-
Vascular plants	flowering plant	Salvia verbenaca	Wild Clary	Yes	-	-	NBN map -		-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Sambucus ebulus	Dwarf Elder	Yes	-	-	NBN map -		-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Sanguisorba minor	Salad Burnet	Yes	-	-	NBN map -		-	-	-		Yes	Yes	-	-
Vascular plants	flowering plant	Saxifraga cernua	Drooping Saxifrage	Yes	Yes	-		/U	WCA 1981	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Saxifraga cespitosa	Tufted Saxifrage	Yes	Yes	-		N	WCA 1981	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Saxifraga hirculus	Marsh Saxifrage	Yes	Yes	-		/U	EPS 1,2,3	Yes	-	Yes	Yes	Yes	-	-
Vascular plants	flowering plant	Saxifraga hypnoides	Mossy Saxifrage	Yes	-	-	NBN map V	/U	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Saxifraga rivularis	Highland Saxifrage	-	-	Yes	NBN map -		-	-	-	Yes	-	-	-	-
Vascular plants	flowering plant	Scheuchzeria palustris	Rannoch-rush	-	-	Yes	NBN map -		-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Schoenus ferrugineus	Brown Bog-rush	-	-	Yes	NBN map -		-	-	-	Yes	Yes	-	-	-
Vascular plants	flowering plant	Scleranthus annuus	Annual Knawel	Yes	-	-	NBN map E	N	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Serratula tinctoria	Saw-wort	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Sesleria caerulea	Blue Moor-grass	Yes	-	-	NBN map -		-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Sherardia arvensis	Field Madder	Yes	-	-	NBN map -		-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Silene gallica	Small-flowered Catchfly	Yes	Yes	-	NBN map E	N	-	Yes	-	Yes	Yes	Yes	-	-
Vascular plants	flowering plant	Silene noctiflora	Night-flowering Catchfly	Yes	Yes	-		/U	İ-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant	Silene nutans	Nottingham Catchfly	-	-	Yes	NBN map N		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Silvbum marianum	Milk Thistle	Yes	-		NBN map -	••	l_	_	_			Yes		-
Vascular plants	flowering plant	Sinapis alba	White Mustard	Yes	-	_	NBN map -		<u> </u>	_	_	_	-	Yes	-	_
Vascular plants	flowering plant	Sinapis arvensis	Charlock	Yes	-	_	NBN map -		L .	_	_	_	_	Yes	_	_
Vascular plants	flowering plant	Sorbus arranensis	Arran Whitebeam	Yes	Yes			/U	E		_	Yes	Yes	-	Yes	
Vascular plants	flowering plant	Sorbus pseudofennica	Arran Service-tree	Yes	Yes	-		/U	-	-	_	Yes	Yes	-	Yes	
Vascular plants	flowering plant	Spiranthes romanzoffiana	Irish Lady's-tresses	- 103	- 103	Yes	NBN map -	0	E	Yes	_	-	-	_	-	-
Vascular plants		Stachys arvensis	Field Woundwort	Yes	-	103	NBN map N	IT		103	_	-	_	Yes	_	-
	flowering plant		Greater Chickweed	Yes	H :	-	NBN map -	4 1	-	-	-		- V		-	-
Vascular plants	flowering plant	Stellaria neglecta Stellaria palustris	Marsh Stitchwort		-	-		// /	F	- V	-	-	Yes -	Yes		-
Vascular plants	flowering plant	Tarayacum clovense	Clova Dandelion	Yes Yes	Yes	-		<u>/U</u>	-	Yes	-	-		Yes		
Vascular plants	flowering plant	Taraxadam diovendo	Olova Balladiloli			-		<u>/U</u>	-	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Taraxacum cymbifolium	Ben Lawes Dandelion	Yes	Yes	-		<u>/U</u>	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Taraxacum geirhildae	Shetland Dandelion	Yes	Yes	-		<u>/U</u>	-	-	-	-	Yes	-	Yes	-
Vascular plants	flowering plant	Taraxacum hirsutissimum	Hairy Dandelion	-	-	Yes	NBN map)D	-	-	-	-	-	-	Yes	-
Vascular plants	flowering plant	Taraxacum serpenticola	Serpentine Dandelion	Yes	Yes	Yes		<u>/U</u>	-	-	-	-		-	Yes	-
Vascular plants	flowering plant	Taraxacum xiphoideum	Parallel-leaved Dandelion	Yes	Yes	-		/U	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Teesdalia nudicaulis	Shepherd's Cress	Yes	-	-		IT	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Thlaspi caerulescens	Alpine Penny-cress	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Torilis nodosa	Knotted Hedge-parsley	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Trifolium fragiferum	Strawberry Clover	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Trifolium micranthum	Slender Trefoil	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Tuberaria guttata	Spotted Rock-rose	-	-	Yes		IT.	-	-	-	Yes	Yes	-		-
Vascular plants	flowering plant	Valerianella carinata	Keeled-fruited Cornsalad	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Vicia bithynica	Bithynian Vetch	-	-	Yes	NBN map V	/U	-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Vicia lutea	Yellow-vetch	-	-	Yes	NBN map N	ΙT	-	-	-	-	Yes	-		-
Vascular plants	flowering plant	Vicia orobus	Wood Bitter-vetch	Yes	-	-	NBN map N	IT	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Viola reichenbachiana	Early Dog-violet	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Vascular plants	flowering plant	Viola tricolor	Wild Pansy	Yes	-	-	NBN map N	IT	-	-	-	-	-	Yes	-	-
Vascular plants	flowering plant	Viscum album	Mistletoe	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
		Wahlenbergia hederacea	Ivy-leaved Bellflower	Yes	-	-	NBN map N	IT	-	-	-	-	Yes	Yes	-	-
Vascular plants	flowering plant				 	Yes		IT.	-	-	-		Yes	-	-	-
	fern		Lanceolate Spleenwort	-	-									- 1	-	
Vascular plants		Asplenium obovatum Cystopteris dickieana	Lanceolate Spleenwort Dickie's Bladder-fern	- Yes	- Yes	- res		/U	WCA 1981	-	-	Yes		-	-	-
Vascular plants Vascular plants	fern fern	Asplenium obovatum		- Yes	Yes	-	NBN map V	/U	WCA 1981	-	-		Yes -		-	-
Vascular plants Vascular plants Vascular plants	fern fern fern	Asplenium obovatum Cystopteris dickieana Cystopteris montana	Dickie's Bladder-fern Mountain Bladder-fern	Yes	Yes	- Yes	NBN map V NBN map -	_	WCA 1981 -		-	Yes	Yes -	-	-	
Vascular plants Vascular plants Vascular plants Vascular plants	fern fern fern fern	Asplenium obovatum Cystopteris dickieana	<u>Dickie's Bladder-fern</u> <u>Mountain Bladder-fern</u> <u>Issler's Clubmoss</u>	- Yes	Yes	- Yes Yes	NBN map V NBN map -	/U IT	WCA 1981 - -	-	-		Yes - Yes	-	-	-
Vascular plants Vascular plants Vascular plants Vascular plants Vascular plants Vascular plants	fern fern fern fern fern	Asplenium obovatum Cystopteris dickieana Cystopteris montana Diphasiastrum complana Gymnocarpium robertian	Dickie's Bladder-fern Mountain Bladder-fern Issler's Clubmoss Limestone Fern	- Yes	Yes	- Yes Yes Yes	NBN map V NBN map - NBN map N NBN map -	IT	WCA 1981 - - -	- - -	-	Yes	Yes -	- - -	-	-
Vascular plants	fern fern fern fern fern fern fern fern	Asplenium obovatum Cystopteris dickieana Cystopteris montana Diphasiastrum complana Gymnocarpium robertian Lycopodiella inundata	Dickie's Bladder-fern Mountain Bladder-fern Issler's Clubmoss Limestone Fern Marsh Clubmoss	- Yes	Yes	Yes Yes Yes Yes Yes	NBN map V NBN map - NBN map N NBN map - NBN map E	IT EN	WCA 1981 - - - -	- - - Yes	- - -	Yes Yes -	Yes - Yes Yes -	- - - -	- - - -	- - -
Vascular plants	fern fern fern fern fern fern fern fern	Asplenium obovatum Cystopteris dickieana Cystopteris montana Diphasiastrum complana Gymnocarpium robertian Lycopodiella inundata Pilutaria globulifera	Dickie's Bladder-fern Mountain Bladder-fern Issler's Clubmoss Limestone Fern Marsh Clubmoss Pillwort	- Yes	- - - -	Yes Yes Yes Yes Yes Yes	NBN map V NBN map - NBN map N NBN map - NBN map E NBN map N	IT EN IT	WCA 1981 - - - - -	- - - Yes Yes	- - - -	Yes Yes	Yes - Yes Yes			- - - -
Vascular plants	fern fern fern fern fern fern fern fern	Asplenium obovatum Cystopteris dickieana Cystopteris montana Diphasiastrum complana Gymnocarpium robertian Lycopodiella inundata	Dickie's Bladder-fern Mountain Bladder-fern Issler's Clubmoss Limestone Fern Marsh Clubmoss	Yes Yes	Yes	Yes Yes Yes Yes Yes	NBN map V NBN map - NBN map N NBN map - NBN map E NBN map N	IT EN	WCA 1981 - - - - - -	- - - Yes	- - -	Yes Yes -	Yes - Yes Yes -	- - - -	- - - -	- - -

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Vascular plants	fern	Trichomanes speciosum	Killarney Fern	-	Yes	-	NBN map -	EPS 1,2,3	Yes	Yes	Yes	Yes	-	-	-
Vascular plants	fern	Woodsia alpina	Alpine Woodsia	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	-	-	-	-
Vascular plants	fern	Woodsia ilvensis	Oblong Woodsia	Yes	Yes	-	NBN map EN	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	stonewort	Chara aculeolata	Hedgehog Stonewort	Yes	-	-	NBN map -	-	-	-	-	Yes	Yes	-	-
Non vascular plants	stonewort	Chara baltica	Baltic Stonewort	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	stonewort	Chara canescens	Bearded Stonewort	Yes	Yes	-	NBN map EN	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	stonewort	Chara rudis	Rugged Stonewort	-	-	Yes	NBN map NT	-	-	-	Yes	-	·	-	-
Non vascular plants	stonewort	Lamprothamnium papulo	Foxtail Stonewort	Yes	Yes	-	NBN map NT	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	stonewort	Nitella gracilis	Slender Stonewort	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	stonewort	Tolypella nidifica	Bird's-nest Stonewort	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	Yes	-	-
Non vascular plants	alga	Actinotaenium adelochor	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Actinotaenium clevei	a Desmid alga		-	Yes	NBN map -	_		-	Yes	Yes	_	-	_
Non vascular plants	alga		a Desmid alga	_	-	Yes	NBN map -	-	_	_	Yes	Yes	_	_	_
Non vascular plants	alga		a Desmid alga	_	<u> </u>	Yes	NBN map -	_	_	_	-	Yes		_	
Non vascular plants	alga	Actinotaenium curtum	a Desmid alga	_		Yes	NBN map -	-		_	_	Yes			
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-			Yes	Yes			
		Actinotaenium perminutu		-	-	Yes	NBN map -	-	-	-		Yes	-	-	
Non vascular plants	alga	Actinotacinam perminata	a Desmid alga	-	-			-	-		Yes			-	
Non vascular plants	alga	Actinotaenium rufescens	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Actinotaenium silvae-nigr	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Actinotaenium turgidum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-		-
Non vascular plants	alga	Closterium anguineum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	Yes	-
Non vascular plants	alga	Closterium archerianum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Closterium calosporum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Closterium didymotocum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Closterium limneticum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Closterium lineatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Closterium navicula	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Closterium nematodes	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Closterium pritchardianur	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Closterium pygmaeum	a Desmid alga	_	-	Yes	NBN map -	-	_	_	Yes	Yes	_	-	_
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	_	Yes	Yes	_	-	-
Non vascular plants	alga	Closterium toxon	a Desmid alga	_	L	Yes	NBN map -				Yes	Yes		_	
Non vascular plants		Cosmarium alpestre	a Desmid alga	-	-	Yes	NBN map -	<u> </u>			Yes	Yes			
Non vascular plants	alga	Cosmarium binum	a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	
	alga	Cosmarium bioculatum		-	-	Yes		 	-	-				-	-
Non vascular plants	alga	- October 1011 Dioconatam	a Desmid alga	-	-		NBN map -	-	-	-	Yes	Yes	-	-	
Non vascular plants	alga	Cosmarium carinthiacum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium crenulatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium cucumis	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium cyclicum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium dentiferum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium dybowskii	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium eductum	a Desmid alga	-	-	Yes	NBN map -	-	ı	-	Yes	Yes	i	-	-
Non vascular plants	alga	Cosmarium eichlerianum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium elegantissimi	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium excavatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium fictopraemon	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium fontigenum	a Desmid alga	i-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium isthmium	a Desmid alga	-	-	Yes	NBN map -	1-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium isthmochond	a Desmid alga	-	-	Yes	NBN map -	1-	_	_	Yes	Yes		_	
Non vascular plants	alga		a Desmid alga	<u> </u>	l.	Yes	NBN map -	1.			Yes	Yes			-
Non vascular plants	alga	Cosmarium novae-semlia	a Desmid alga	-	<u> </u>	Yes	NBN map -	1_			Yes	Yes	-		
Non vascular plants	alga		a Desmid alga	-	E	Yes	NBN map -	-		-	Yes	169	-	-	
		Cosmarium nymannianur		F	ř –			-	-	-		- V	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-			Yes	Yes		-	
Non vascular plants	alga	Cosmarium ochthodes	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium ordinatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium orthostichum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium pachydermur	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium paragranatoi	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium phaseolus	a Desmid alga	-	-	Yes	NBN map -	-		-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium plicatum	a Desmid alga	-	-	Yes	NBN map -	-	1	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pokornyanun	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-

Non vascular plants	alga	Cosmarium praegrande	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pseudamoen	a Desmid alga	-	_	Yes	NBN map -	_	_	_	Yes	Yes	_	_	_
Non vascular plants	alga		a Desmid alga			Yes	NBN map -		_	-	Yes	Yes	_	_	_
		Cosmarium pseudocomm		-	-	Yes	NBN map -	f					-	-	-
Non vascular plants	alga		a Desmid alga	-	-			-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pseudoexigu	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pseudonitidu	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pseudoornati	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pseudoprotul	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium pygmaeum	a Desmid alga	-	-	Yes	NBN map -	-	_	_	Yes	Yes	-	-	_
Non vascular plants	alga	Cosmarium quadrifarium	a Desmid alga	_	_	Yes	NBN map -	_	_	_	Yes	Yes	-	_	_
				-			NBN map -	<u> </u>				103		_	_
Non vascular plants	alga	Cosmarium quadrum	a Desmid alga	-	-	Yes		-	-	-	Yes		-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes		-	-	-
Non vascular plants	alga	Cosmarium rectangulare	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium regnellii	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium regnesii	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium repandum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium speciosum	a Desmid alga	_	-	Yes	NBN map -	_			Yes	Yes	-	_	_
		Cosmarium sphaeroideur	a Desmid alga	-		Yes	NBN map -	F -		-	Yes	-		-	
Non vascular plants	alga			-	-			<u> </u>	<u> </u>				-		-
Non vascular plants	alga	Cosmarium sphagnicolun	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium sphalerostich	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium sportella	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium subarctoum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium subcostatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium subcucumis	a Desmid alga	_	_	Yes	NBN map -	_	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium subimpressul	a Desmid alga			Yes	NBN map -		_	_	Yes	Yes	_	_	_
		Cosmarium subspeciosur		-	-			<u>-</u>		-				-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium tatricum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium tenue	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium tetrachondrui	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium trachypleurur	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium truncatellum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium turpinii var. e	a Desmid alga			Yes	NBN map -				Yes	Yes			
				-	-			f	<u> </u>	-		Yes	-		-
Non vascular plants	alga	Cosmarium tyrolicum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes		-	-	
Non vascular plants	alga	Cosmarium undulatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium variolatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Cosmarium venustum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium vexatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Cosmarium vogesiacum	a Desmid alga	-	_	Yes	NBN map -	-	_	_	Yes	Yes	_	_	_
Non vascular plants	alga	Cosmocladium saxonicur	a Desmid alga	_	_	Yes	NBN map -	_		_	Yes			_	
		Cylindrocystis crassa	a Desmid alga	-		Yes	NBN map -	<u> </u>	-		Yes	Yes			
Non vascular plants	alga			-	-			-	-	-				-	
Non vascular plants	alga	Desmidium aptogonum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Desmidium grevillei	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Desmidium pseudostrept	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Docidium baculum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Docidium undulatum	a Desmid alga	-	-	Yes	NBN map -	-	_	-	Yes	_	-	-	-
Non vascular plants	alga	Euastrum binale	a Desmid alga	_	-	Yes	NBN map -	_			Yes	Yes	-	_	
Non vascular plants	alga	Euastrum boldtii	a Desmid alga	 		Yes	NBN map -	 	 		Yes	Yes	-		-
	-			-	-			F	-				-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Euastrum dubium	a Desmid alga	<u> -</u>	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Tea		Eugetrum gayanum	a Desmid alga	I	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Euastrum gayanum	a Desiliiu aiga												-
		Euastrum gemmatum		-	- 1	Yes	NBN map -	-	-	-	Yes	-	-	-	
Non vascular plants	alga		a Desmid alga	-	-			-	-	-		- Yes	-	-	-
Non vascular plants Non vascular plants	alga alga	Euastrum gemmatum Euastrum groenbladii	a Desmid alga a Desmid alga	-	- -	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants Non vascular plants Non vascular plants	alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum	a Desmid alga a Desmid alga a Desmid alga	-	- - -	Yes Yes	NBN map - NBN map -	-	-	-	Yes Yes	- Yes Yes	- - -	-	-
Non vascular plants Non vascular plants Non vascular plants Non vascular plants	alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme	a Desmid alga a Desmid alga a Desmid alga a Desmid alga	-	-	Yes Yes Yes	NBN map - NBN map - NBN map -	- - -	-	-	Yes Yes Yes	Yes -	-	-	-
Non vascular plants Non vascular plants Non vascular plants	alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum	a Desmid alga	- - - -	- - - -	Yes Yes Yes Yes	NBN map - NBN map - NBN map - NBN map -	- - - -	-	-	Yes Yes Yes Yes	Yes - Yes	-	-	-
Non vascular plants Non vascular plants Non vascular plants Non vascular plants	alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme	a Desmid alga a Desmid alga a Desmid alga a Desmid alga	- - - -	- - - -	Yes Yes Yes	NBN map - NBN map - NBN map -	- - - - -	-	-	Yes Yes Yes	Yes -	-	-	-
Non vascular plants	alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme Euastrum jenneri	a Desmid alga	- - - - -	- - - - -	Yes Yes Yes Yes	NBN map - NBN map - NBN map - NBN map -	- - - - -		- - -	Yes Yes Yes Yes	Yes - Yes	- - -	- - -	- - -
Non vascular plants	alga alga alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme Euastrum jenneri Euastrum pulchellum	a Desmid alga	- - - - -	- - - - - -	Yes Yes Yes Yes Yes Yes Yes	NBN map - NBN map - NBN map - NBN map - NBN map - NBN map -	- - - - - -	- - - -	- - - -	Yes Yes Yes Yes Yes Yes Yes	Yes - Yes Yes Yes	- - - -	- - - -	- - - -
Non vascular plants	alga alga alga alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme Euastrum jenneri Euastrum jenneri Euastrum sinuosum Euastrum sinuosum Euastrum turneri	a Desmid alga		- - - - - -	Yes Yes Yes Yes Yes Yes Yes Yes Yes	NBN map	- - - - - - -	- - - -		Yes	Yes - Yes Yes Yes Yes Yes	- - - -	- - - -	- - - -
Non vascular plants	alga alga alga alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum inerme Euastrum jenneri Euastrum pulchelium Euastrum sinuosum Euastrum tumeri Euastrum tumeri Euastrum ventricosum	a Desmid alga	- - - - - - -	- - - - - -	Yes	NBN map - NBN map -	- - - - - - -		- - - -	Yes	Yes - Yes Yes Yes Yes Yes Yes Yes	- - - - -	- - - - - -	
Non vascular plants	alga alga alga alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladii Euastrum humerosum Euastrum humerosum Euastrum jenneri Euastrum pulcheilum Euastrum sinuosum Euastrum tumeri Euastrum ventricosum Groenbladia undulata	a Desmid alga	- - - - - - -	- - - - - - - -	Yes	NBN map	- - - - - - -	- - - - - - -		Yes	Yes - Yes Yes Yes Yes Yes Yes Yes Yes		- - - - - -	- - - - - -
Non vascular plants	alga alga alga alga alga alga alga alga	Euastrum gemmatum Euastrum groenbladil Euastrum humerosum Euastrum inerme Euastrum jenneri Euastrum julchellum Euastrum sinuosum Euastrum turneri Euastrum ventricosum Groenbladia undulata Micrasterias americana	a Desmid alga		- - - - - - - - -	Yes	NBN map - NBN map -	-			Yes	Yes - Yes Yes Yes Yes Yes Yes Yes	- - - - -	- - - - - -	

Non vascular plants	alga	Micrasterias conferta	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Micrasterias crux-meliten	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Micrasterias fimbriata	a Desmid alga	-	-	Yes	NBN map -	-	_	-	Yes	Yes	-	_	_
Non vascular plants	alga	Micrasterias furcata	a Desmid alga	-	_	Yes	NBN map -	-	_	_	Yes	Yes	_	_	_
Non vascular plants	alga	Micrasterias mahahulesh	a Desmid alga			Yes	NBN map -				Yes	Yes			
Non vascular plants		miorabionab manabalobii		-	-	Yes		-	-	-	165	Yes	-		
	alga	Micrasterias radiosa Micrasterias verrucosa	a Desmid alga	-	-		NBN map -	-					-		
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Pleurotaenium coronatun	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Pleurotaenium rectum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Pleurotaenium tridentulur	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Pleurotaenium truncatum	a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Non vascular plants	alga	Spondylosium papillosum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Spondylosium planum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Spondylosium pulchellum	a Desmid alga	-	-	Yes	NBN map -	-	-	_	Yes	_	-	-	_
Non vascular plants	alga	Staurastrum arachne	a Desmid alga	-	_	Yes	NBN map -	_	_	_	Yes	_	-	_	_
Non vascular plants	alga	Staurastrum arctiscon	a Desmid alga			Yes	NBN map -				100	Yes			
				-	-	Yes	NBN map -			-	Yes	Yes			
Non vascular plants	alga		a Desmid alga	-	-			-	-						
Non vascular plants	alga	Staurastrum asperum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum boreale	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	_	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum brachycerun	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum brasiliense	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum brebissonii	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum capitulum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum cerastes	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum chavesii	a Desmid alga	-	-	Yes	NBN map -	_	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum clepsydra	a Desmid alga	-	_	Yes	NBN map -	-	_		Yes	Yes		_	_
Non vascular plants	alga	Staurastrum coarctatum	a Desmid alga	_	_	Yes	NBN map -	-	_	_	Yes	Yes	_		
Non vascular plants	alga		a Desmid alga			Yes	NBN map -		-	-	Yes	Yes	_	-	_
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-		
				-	-			-	-	-		162	-	-	-
Non vascular plants	alga	Staurastrum cyrtocerum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum dispar	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum disputatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum echinatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum elongatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum erasum	a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum forficulatum	a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum furcatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum gracile	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	_	_	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum hirsutum	a Desmid alga	_	-	Yes	NBN map -	-	_	_	Yes	Yes	_	_	_
Non vascular plants	alga	Staurastrum inflexum	a Desmid alga	_	_	Yes	NBN map -	_	-	-		Yes	-	-	_
Non vascular plants	alga	Staurastrum iotanum	a Desmid alga		L .	Yes	NBN map -	<u> </u>			Yes	Yes			
Non vascular plants	alga	Staurastrum johnsonii	a Desmid alga			Yes	NBN map -	 		-	Yes	100		-	
				-	-			-	-			- V	-	-	
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-		-	Yes	Yes		-	
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Staurastrum longispinum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Staurastrum manfeldtii	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum meriani	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum micron	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum monticulosu	a Desmid alga	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum natator	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum neglectum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum oligacanthur	a Desmid alga	i-	-	Yes	NBN map -	 -	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum ophiura	a Desmid alga	l-	-	Yes	NBN map -	i-	_	-	Yes	-	-	-	
Non vascular plants	alga	Staurastrum oxyacanthur	a Desmid alga	-	-	Yes	NBN map -	<u> -</u>	_	_	Yes	Yes	_	_	_
Non vascular plants	alga	Staurastrum paradoxum	a Desmid alga		_	Yes	NBN map -	t.		-	Yes	Yes	-		
Non vascular plants	alga	Staurastrum pileolatum	a Desmid alga			Yes	NBN map -	<u> </u>	-	-	Yes	Yes	-	-	
				-	F	Yes		-	-				-		
Non vascular plants	alga	Staurastrum pilosum	a Desmid alga	1-	I-	res	NBN map -	1-	-	-	Yes	Yes	-	-	-

Non vascular plants	alga	Staurastrum polymorphui	a Desmid alga	-	-	Yes	NBN map -	l-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum polytrichum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga			Yes	NBN map -		_	-	Yes	Yes		-	-
				-	-	Yes	NBN map -	-	-						-
Non vascular plants	alga		a Desmid alga	-	-			-	-	-	Yes	Yes	-	-	
Non vascular plants	alga	Staurastrum scabrum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	
Non vascular plants	alga	Staurastrum sebaldi	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum senarium	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum setigerum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum sexangulare	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	_
Non vascular plants	alga	Staurastrum sexcostatum	a Desmid alga	_		Yes	NBN map -	_	_	_	Yes	Yes		-	-
Non vascular plants	alga			-		Yes	NBN map -	_	_	-	Yes	Yes	-	_	-
		Staurastrum sirnonyi	a Desmid alga	-	-			-	-	-				-	
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum striolatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum subarcuatun	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum subavicula	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum subcruciatur	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum sublaevispin	a Desmid alga	_	-	Yes	NBN map -	_			Yes	Yes		-	<u> </u>
				-		Yes	NBN map -			-	Yes	Yes		-	1 -
Non vascular plants	alga		a Desmid alga	-	-			-							
Non vascular plants	alga	Staurastrum subpygmaeu	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum subscabrum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum tohopekalige	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum uhtuense	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurastrum verticillatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus aristiferus	a Desmid alga	_	_	Yes	NBN map -	_	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga			Yes	NBN map -		_	_	Yes	Yes	_	_	-
				-	-			-	-						- -
Non vascular plants	alga	Staurodesmus brevispina	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus bulnheimi	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus connatus	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus controvers	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus converger	a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Staurodesmus corniculati	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga			Yes	NBN map -				Yes	Yes			
				-	-	Yes		-	-	-	Yes	Yes			
Non vascular plants	alga	Staurodesmus glaber	a Desmid alga	-	-		NBN map -	-	-	-			-	-	
Non vascular plants	alga	Staurodesmus grandis	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus megacant	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus mucronatu	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus omearae	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Staurodesmus phimus	a Desmid alga	-	_	Yes	NBN map -	-	_	_	Yes	Yes	-	_	-
Non vascular plants	alga	Staurodesmus spenceria	a Desmid alga	_	_	Yes	NBN map -	_		-	Yes	Yes		_	
Non vascular plants		Staurodesmus subtriangu	a Desmid alga	-		Yes	NBN map -	_			Yes				
	alga			-	-			-	-	-		Yes		-	
Non vascular plants	alga	Staurodesmus triangulari	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	alga	Staurodesmus validus	a Desmid alga	-	-	Yes	NBN map -	 -	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Teilingia excavata	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Xanthidium aculeatum	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Xanthidium bifidum	a Desmid alga	l-	-	Yes	NBN map -	l_	_	_	Yes	Yes	_	_	-
Non vascular plants		Xanthidium brebissonii	a Desmid alga			Yes	NBN map -		-	-	Yes	Yes		-	
	alga			-	-			-	-					-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga		a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Xanthidium cristatum	a Desmid alga	<u> -</u>	-	Yes	NBN map -	<u> -</u>	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Xanthidium impar	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Xanthidium robinsonianu	a Desmid alga	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	alga	Xanthidium smithii	a Desmid alga	-	l-	Yes	NBN map -	-	_	_	Yes	_	_	_	<u> </u>
Non vascular plants	alga		a Desmid alga			Yes	NBN map -	<u> </u>		-	Yes	Yes			-
				-	-			-							- -
Non vascular plants	alga		a freshwater alga	ļ -	-	Yes	NBN map -	ļ	-	-	Yes	Yes	-	Yes	
Non vascular plants	alga	Batrachospermum gelatir	a freshwater red alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	alga	Sirodotia suecica	a freshwater red alga	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	1	-
	alga	Coelastropsis costata	an Alga	-	-	Yes	NBN map -	l-	-	-	Yes	Yes	-	-	-
Non vascular plants					l	.,	NBN map -								
		Gonatozygon aculeatum	an Alga	-	-	Yes	INDIN Map I-				- 1	Yes	-	-	
Non vascular plants	alga	Gonatozygon aculeatum	an Alga an Alga	-	-	Yes		-	-	-	- Yes	Yes Yes	-		-
Non vascular plants Non vascular plants	alga alga	Gonatozygon kinahanii	an Alga	-	-	Yes	NBN map -	-		-	Yes	Yes	-		
Non vascular plants Non vascular plants Non vascular plants	alga alga alga	Gonatozygon kinahanii Roya anglica	an Alga an alga	-	-	Yes Yes	NBN map - NBN map -	-	-	-	Yes Yes	Yes -	-	-	-
Non vascular plants Non vascular plants	alga alga	Gonatozygon kinahanii	an Alga	-	- - -	Yes	NBN map -	-		-			-		

Fungi	fungus	Amanita nivalis	Mountain Grisette	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	fungus	Antrodia ramentacea	Honeycomb Crust	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Armillaria ectypa	Marsh Honey Fungus	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	-	
Fungi	fungus	Bankera fuligineoalba	Drab Tooth	-	-	Yes	NBN map -	<u> </u>	Yes	_	-	-	-	_	
Fungi	fungus	Boletopsis perplexa	Black Falsebolete	Yes	Yes		NBN map VU	1	Yes		Yes	Yes	_		<u> </u>
Fungi	fungus	Cainiella johansonii	Mountain Avens Microdot	Yes	Yes	 	NBN map VU	+	-		Yes	Yes		_	
				Yes		ļ-		 						-	
Fungi	fungus	Calocybe onychina	Lilac Domecap	res	Yes	-	NBN map CR	+	-	-	Yes	Yes	-	-	-
Fungi	fungus	Camarophyllopsis atropu	Dotted Fanvault	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Camarophyllopsis foeten:	Stinking Fanvault	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Camarophyllopsis micace	Glittering Fanvault	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Camarophyllopsis schulz	Matt Fanvault	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Cantharellus ferruginasce	Pale Chanterelle	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Fungi	fungus	Cantharellus friesii	Orange Chanterelle	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Cantharellus melanoxero	Blackening Chanterelle	Yes	Yes	i <u>.</u>	NBN map VU	1.	-	-	Yes	Yes	-	-	-
Fungi	fungus	Chrysomphalina chrysopl	Golden Navel	Yes	Yes	<u> </u>	NBN map VU	1_	_	_	Yes	Yes	_	_	+ -
Fungi				103	103	Yes	NBN map NT	<u> </u>	-		Yes	-	-	-	-
	fungus	Chrysomyxa empetri	Crowberry Rust	- V	- V	163	NBN map EN	-	Yes			Yes	-	-	
Fungi	fungus	Chrysomyxa pirolata	Wintergreen Rust	Yes	Yes			ļ-			Yes			-	
Fungi	fungus	Clavaria incarnata	Skinny Club	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Fungi	fungus	Clavaria purpurea	Purple Spindles	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Collybia putilla	Pine Toughshank	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Coprinopsis ammophilae	Dune Inkcap	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Cordyceps sphecocephal	Yellow Waspclub	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Cortinarius cyanites	Blushing Webcap	Yes	Yes	l-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	fungus	Cortinarius laniger	Wooly Webcap	Yes	Yes	1-	NBN map VU	1-	-	-	Yes	Yes	-	-	
Fungi	fungus	Cortinarius limonius	Sunset Webcap	_	t_	Yes	NBN map NT	1.	_	_		Yes	_	_	-
Fungi		Cortinarius orellanus	Fool's Webcap	Yes	Yes	103	NBN map VU	<u> </u>			Yes	Yes			
	fungus			165	163	- -	NBN map NT	F	-				-	-	
Fungi	fungus	Cortinarius porphyropus	a Webcap fungus	Yes	- Yes	Yes		-			Yes	Yes		-	
Fungi	fungus	Cortinarius rubicundulus	Ruddy Webcap			-	NBN map VU	-	-	-	Yes	<u> </u>	-	-	-
Fungi	fungus	Cortinarius saginus	Cloaked Webcap	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Crepidotus caspari	Pale Oysterling	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Cudonia circinans	Redleg Jellybaby	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	fungus	Cudonia confusa	Cinnamon Jellybaby	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	fungus	Cyathus stercoreus	Dung Bird's Nest	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Cystoderma cinnabarinur	Cinnabar Powdercap	-	-	Yes	NBN map NT	1-	-	_	Yes	Yes	-	_	-
Fungi	fungus	Cytidia salicina	Scarlet Splash	Yes	Yes	-	NBN map EN	1.	_	_	Yes	Yes	_	_	-
Fungi	fungus	Dacrymyces ovisporus	Pine Jellyspot	Yes	Yes	†	NBN map VU	+		_	Yes	Yes	_		+
	_			Yes		-		-	-				-		-
Fungi	fungus	Dacryobolus sudans	Weeping Toothcrust	res	Yes	-		ļ-		-	Yes	Yes		-	
Fungi	fungus	Dendrocollybia racemosa	Branched Shanklet	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Encoelia glauca	Green Hazelcup	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Entoloma aethiops	Black Pinkgill	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Entoloma bloxamii	Big Blue Pinkgill	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Entoloma excentricum va	Excentric Pinkgill	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Entoloma indutoides	Rubygrey Pinkgill	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Entoloma tjallingiorum	Hairy Pinkgill	Yes	Yes	İ-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Erastia salmonicolor	Salmon Bracket	Yes	Yes	1_	NBN map EN	1-		_	Yes	Yes	_	-	<u> </u>
Fungi	fungus	Exobasidium expansum	Northern Bilberry Redleaf	Yes	Yes	L.	NBN map VU	1_	_		Yes	Yes		-	
		Exobasidium iuelianum	Dwarfing Redleaf	103	103	Yes	NBN map -	1	-			163	-	-	-
Fungi	fungus			V	- V	res		f			Yes			-	
Fungi	fungus	Exobasidium sydowianun	Bearberry Redleaf	Yes	Yes	- ,,	NBN map VU	+	-	-	Yes	Yes	-	-	-
Fungi	fungus	Fayodia bisphaerigera	Slender Navel	-	-	Yes	NBN map -	-	-	-	Yes	<u> </u>	-	-	-
Fungi	fungus	Flammulaster limulatus v	a fungus	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Galerina harrisonii	a Mossbell fungus	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	fungus	Geastrum fornicatum	Arched Earthstar	-	-	Yes	NBN map -	-	-		-	Yes	-	-	-
Fungi	fungus	Geastrum triplex	Collared Earthstar	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Geoglossum atropurpure	Dark-purple Earthtongue	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Geoglossum elongatum	Elongate Earthtongue	Yes	Yes	1-	NBN map EN	1-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Geoglossum starbaeckii	Star Earthtongue	_	ļ	Yes	NBN map NT	1-	_	_	Yes	-	_	_	-
Fungi	fungus	Gloeophyllum odoratum	Anise Mazegill	Yes	Yes	1_	NBN map VU	1_			Yes	Yes	-		-
				100	100	Yes		+	-		Yes			-	<u> </u>
Fungi	fungus	Gloeoporus dichrous	a fungus	-	-	+		-				Yes	-	-	
Fungi	fungus	Guepinia helvelloides	Salmon Salad	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Gyromitra leucoxantha	Fishtail Cup	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Helvella leucomelaena	Sooty Cup	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Hohenbuehelia culmicola	Marram Oyster	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
E	fungus	Hydnellum aurantiacum	Orange Tooth	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	-	-	-	-
Fungi															

Fungi	fungus	Hydnellum caeruleum	Blue Tooth	Yes	-	-	NBN map NT	-	Yes	-	Yes	-	-	-	-
Fungi	fungus	Hydnellum concrescens	Zoned Tooth	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Hydnellum ferrugineum	Mealy Tooth	Yes	-	-	NBN map NT	-	Yes	-	Yes	-	-	-	-
Fungi	fungus	Hydnellum peckii	Devil's Tooth	-	_	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Hydnellum scrobiculatum	Ridged Tooth	_	-	Yes	NBN map -	t	Yes	_				_	
Fungi	fungus	Hydnellum spongiosipes	Velvet Tooth	_		Yes	NBN map -	_	Yes	_	_	Yes	-	_	_
Fungi	fungus	Hygrocybe calciphila	Limestone Waxcap			Yes	NBN map NT		-	-		Yes	_	-	_
Fungi		Hygrocybe lilacina	Lilac Waxcap		-	Yes	NBN map NT	-		-	Yes	163			
	fungus		_	-	-			 -		-	162		-	-	
Fungi	fungus	Hygrocybe spadicea	Date Waxcap	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Hygrocybe xanthochroa	Alpine Waxcap	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	fungus	Hygrophorus camarophyl	Arched Woodwax	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Hygrophorus nemoreus	Oak Woodwax	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Hypocreopsis rhododend	Hazel Gloves	-	-	Yes	NBN map NT	-	Yes	-	Yes	-	-	-	-
Fungi	fungus	Hypsizygus ulmarius	Elm Leech	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Inonotus nodulosus	a bracket fungus	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Kuehneromyces lignicola	Conifer Woodtuft	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Laccaria maritima	Sand Deceiver	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Lactarius musteus	Pine Milkcap	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	fungus	Lactarius resimus	Rollrim Milkcap	Yes	Yes	_	NBN map VU	1-	_	-	Yes	Yes	-	-	_
Fungi	fungus	Lasiobotrys Ionicerae	Honeysuckle Rash	Yes	Yes	_	NBN map VU	t.	_	_	Yes	Yes		_	
Fungi	fungus	Leccinum salicola	Willow Bolete	_	_	Yes	NBN map -	<u> </u>	_	_	Yes	Yes	_	_	_
Fungi	fungus	Leccinum vulpinum	Foxy Bolete	_	L	Yes	NBN map -	<u>t</u>	-	-	Yes	165			
Fungi		Lentinellus ursinus	Bear Cockleshell	-	-	Yes	NBN map NT	f	-	-	Yes	Yes	-	-	
	fungus	Leucocortinarius bulbiger		-	-			<u> </u>	-					-	-
Fungi	fungus		White Webcap	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Loreleia marchantiae	<u>Liverwort Navel</u>	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Lycoperdon caudatum	Pedicel Puffball	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Marasmius hudsonii	Holly Parachute	-	-	Yes	NBN map -	<u> -</u>	-	-	-	Yes	-	-	-
Fungi	fungus	Melanoleuca schumache	Clouded Cavalier	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Microglossum olivaceum	Olive Earthtongue	-	-	Yes	NBN map -	-	Yes		-	-	-	-	-
Fungi	fungus	Milesina whitei	Shield-fern Rust	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Mycena aurantiomargina	Golden Edge Bonnet	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Mycena picta	Cryptic Bonnet	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Mycena septentrionalis	Pelargonium Bonnet	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Mycena urania	Violet Bonnet	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Nyssopsora echinata	Spignel Rust	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	-	-
Fungi	fungus	Octavianina asterosperm	Chalky False Truffle	-	-	Yes	NBN map -	-	-	-	Yes	Yes	ï	-	-
Fungi	fungus	Ombrophila violacea	Violet Jellydisc	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Omphalina galericolor va	Dune Navel	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Otidea cantharella	Cupped Ear	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Otidea phlebophora	Veined Ear	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Phellodon confluens	Fused Tooth	-	-	Yes	NBN map -	-	Yes	-	-	Yes	-	-	-
Fungi	fungus	Phellodon melaleucus	Grey Tooth	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	fungus	Phellodon niger	Black Tooth	-	_	Yes	NBN map -	-	Yes	-	Yes	-	_	-	-
Fungi	fungus	Phellodon tomentosus	Woolly Tooth	-	_	Yes	NBN map -	1-	Yes	_	_	_	_	-	-
Fungi	fungus	Phylloporus pelletieri	Golden-gilled Bolete	_	<u> </u>	Yes	NBN map -	t.		_		Yes		_	
Fungi	fungus	Piptoporus quercinus	Oak Polypore	_	Yes	l_	NBN map -	WCA 1981	_	_	_	Yes	_	_	_
Fungi	fungus	Plectania melastoma	Corona Cup			Yes	NBN map -	-	_	_		Yes	_		_
Fungi	fungus	Pluteus pellitus	Ghost Shield		<u> </u>	Yes	NBN map -	<u> </u>	-	-		Yes	-	-	
			Mountain Avens Mildew		 	Yes	NBN map -	1	-	-	-	Yes	-	-	-
Fungi Fungi	fungus	Podosphaera volkartii Polyporus umbellatus	Umbrella Polypore	-	-	Yes	NBN map NT	f	-	-	Yes	Yes	-	-	-
	fungus	Psathvrella caput-medus	Medusa Brittlestem	- Yes	Yes	168	NBN map VU		-				-		-
Fungi	fungus			res	162	- V		F		-	Yes	Yes		-	
Fungi	fungus	Pseudoplectania nigrella	Ebony Cup	-	-	Yes	NBN map NT	<u> </u>	-	-	Yes	Yes	-	-	-
Fungi	fungus	Pterula caricis-pendulae	Pendulous Sedge Club		- ,/	Yes	NBN map NT	 -			Yes	Yes			
Fungi	fungus	Puccinia clintonii	Lousewort Rust	Yes	Yes	-	NBN map CR	<u> -</u>	-	-	Yes	Yes	-	-	-
Fungi	fungus	Puccinia eriophori	Deer Grass Rust	Yes	Yes	-	NBN map VU	ļ-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Puccinia moliniae	Purple Moorgrass Rust	Yes	Yes	-	NBN map VU	ļ-	-	-	Yes	-	-	-	-
Fungi	fungus	Puccinia septentrionalis	Alpine Rust	Yes	-	-	NBN map -	-	Yes	-	Yes	-	-	-	-
Fungi	fungus	Pucciniastrum goodyerae	Creeping Ladies Tresses	Yes	Yes	-	NBN map VU	ļ	-	-	-	Yes	-	-	-
Fungi	fungus	Ramaria botrytis	Rosso Coral	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Fungi	fungus	Ramaria stricta	Upright Coral	-	-	Yes	NBN map -	ļ	-	-	-	Yes	-	-	-
Fungi	fungus	Ramariopsis crocea	Orange Coral	Yes	Yes	-	NBN map VU	ļ	-	-	Yes	Yes	-	-	-
Fungi	fungus	Rhodocybe gemina	Tan Pinkgill	-	-	Yes	NBN map -	<u> -</u>	-		Yes	Yes	-	-	-
Fungi	fungus	Rickenella pseudogrisella	Blasia Mosscap	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-

Fungi	fungus	Rimbachia arachnoidea	Spidery Mossear	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Rimbachia bryophila	Veined Mossear	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Ripartites tricholoma	Bearded Seamine	-	-	Yes	NBN map -	1-	-	-	-	Yes	-	-	-
Fungi	fungus	Russula aurantiaca	a Brittlegill fungus	Yes	Yes	_	NBN map VU	1	-	-	Yes	Yes		-	_
Fungi		Russula aurea	Gilded Brittlegill	103	103	Yes	NBN map NT	-			Yes	Yes			
	fungus			-	-			<u> </u>				res			
Fungi	fungus	Russula badia	Burning Brittlegill	-	-	Yes	NBN map NT	<u> -</u>	-	-	Yes	-	-	-	-
Fungi	fungus	Russula intermedia	Intermediate Brittlegill	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	fungus	Russula laccata	Willow Brittlegill	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	fungus	Russula lilacea	Lilac Brittlegill	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Russula minutula	Minute Brittlegill	-	-	Yes	NBN map -	1-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Russula pelargonia	Pelargonium Brittlegill	_	-	Yes	NBN map -	t		_	_	Yes		_	-
Fungi	fungus	Russula raoultii	Pallid Brittlegill	-	-	Yes	NBN map -	-		-	Yes	Yes			
				-	-			-							
Fungi	fungus	Russula rutila	Ruddy Brittlegill	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Russula solaris	Sunny Brittlegill	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	fungus	Sarcodon glaucopus	Greenfoot Tooth	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Fungi	fungus	Sarcodon scabrosus	Bitter Tooth	Yes	-	-	NBN map NT	-	Yes	-	Yes	Yes	-	-	-
Fungi	fungus	Sarcodon squamosus	Scaly Tooth	-	-	Yes	NBN map -	1-	Yes	-	-	-	-	-	-
Fungi	fungus	Sarcoscypha coccinea	Scarlet Elf Cup	_	-	Yes	NBN map -	1-	-	_		Yes		_	
Fungi	fungus	Scytinostroma portentosu	Mothball Crust			Yes	NBN map -	-	_	-	Yes	Yes		-	_
				-				 							
Fungi	fungus	Squamanita paradoxa	Powdercap Strangler	-	-	Yes	NBN map NT	-		-	Yes	Yes	-	-	
Fungi	fungus	Squamanita pearsonii	Strathy Strangler	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Stagnicola perplexa	Puzzling Rootshank	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Stereopsis vitellina	Roothole Rosette	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Stropharia hornemannii	Conifer Roundhead	Yes	Yes	-	NBN map CR	I-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Tricholoma aestuans	Acrid Knight	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Tricholoma apium	Scented Knight	Yes	Yes		NBN map EN	<u> </u>	_		Yes	Yes			-
				Yes		-		-	-						
Fungi	fungus	Tricholoma colossus	Giant Knight		Yes	-		-		-	Yes	Yes	-	-	-
Fungi	fungus	Tricholoma robustum	Robust Knight	Yes	Yes	-	NBN map CR	<u> -</u>	-	-	Yes	Yes	-	-	-
Fungi	fungus	Tricholoma stans	Upright Knight	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Tulostoma niveum	White Stalkball	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Fungi	fungus	Urocystis primulicola	Bird's-eye Primrose Smut	Yes	Yes	-	NBN map EX	-	Yes	-	Yes	Yes	-	-	-
Fungi	fungus	Urocystis trientalis	Chickweed Wintergreen S	Yes	Yes	-	NBN map VU	1-	_	_	Yes	Yes		_	-
Fungi	fungus	Uromyces scutellatus	Cypress Spurge Rust	Yes	Yes	_	NBN map VU	1	-	_	Yes	Yes		-	_
Fungi	lichen			103	103	Yes	NBN map -	-	-			Yes			
		Absconditella annexa	a lichen	-	-			<u> -</u>			Yes				
Fungi	lichen	Absconditella pauxilla	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Absconditella sphagnorui	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Acarospora badiofusca	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Acarospora benedarensis	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Acarospora macrospora s	a lichen	-	-	Yes	NBN map NT	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Acarospora nitrophila	a lichen	_	_	Yes	NBN map DD	1_	-	-	Yes	Yes		_	_
Fungi	lichen	Acarospora rhizobola	a lichen	Yes	Yes	103	NBN map VU	-		-	Yes	Yes			
	+			res	res	-		-		-					
Fungi	lichen	Acrocordia cavata	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Acrocordia subglobosa	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Adelolecia pilati	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Agonimia octospora	a lichen	-	-	Yes	NBN map NT	-	-	Yes	-	Yes	-	-	-
Fungi	lichen	Alectoria ochroleuca	a Lichen	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Anaptychia ciliaris subsp.	a Lichen	Yes	Yes	_	NBN map VU	-	Yes	_	Yes	_	_	_	_
Fungi	licitoti	r triapty or na omario outcop:		100	100	-	INDIA IIIAD VO	¥			103			-	
	lichen	Anisomeridium viridescer	a Lichon		l -	Vec	NRN man -	I-		VΔc I					- 1
	lichen	Anisomeridium viridescer	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	- V			
Fungi	lichen	Aphanopsis coenosa	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi Fungi	lichen lichen	Aphanopsis coenosa Arctomia delicatula	a Lichen a Lichen	- -	- - -	Yes Yes	NBN map - NBN map NT	- - -	-	-	Yes Yes	Yes -	-		-
Fungi	lichen	Aphanopsis coenosa	a Lichen	- - -	- - -	Yes	NBN map -	- - -	-	-	Yes -	-	-	-	
Fungi Fungi	lichen lichen	Aphanopsis coenosa Arctomia delicatula	a Lichen a Lichen	- - - -	- - - -	Yes Yes	NBN map - NBN map NT	- - - -	-	-			-		-
Fungi Fungi Fungi	lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila	a Lichen a Lichen a comma lichen	- - - - - Yes	-	Yes Yes Yes	NBN map NT NBN map -	- - - -	-	- - Yes	Yes -	-	-	-	-
Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica	a Lichen a Lichen a comma lichen a comma lichen a Lichen	- - - - - Yes	- - - - -	Yes Yes Yes Yes Yes -	NBN map	- - - - -	- - -	- Yes -	Yes - Yes	- Yes Yes	- - -		-
Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica Arthonia endlicheri	a Lichen a Lichen a comma lichen a comma lichen a Lichen a Lichen a Lichen	Yes -	- - - - -	Yes Yes Yes Yes Yes Yes Yes	NBN map - NBN map NT NBN map - NBN map - NBN map NT NBN map - NBN map			- Yes - Yes	Yes - Yes Yes -	- Yes Yes Yes	- - - -		- - - -
Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica Arthonia endlicheri Arthonia excipienda	a Lichen a Lichen a comma lichen a comma lichen a comma lichen a Lichen a Lichen a Lichen	Yes	- - - - -	Yes Yes Yes Yes Yes Yes Yes Yes	NBN map - NBN map NBN map - NBN map - NBN map - NBN map - NBN map NBN map NBN map NBN map NT		- - - - -	- Yes - Yes -	Yes - Yes	- Yes Yes Yes			- - - - -
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica Arthonia endlicheri Arthonia excipienda Arthonia liicina	a Lichen a Lichen a comma lichen a comma lichen a Lichen a Lichen a Lichen a Lichen a Lichen	- Yes	- - - - - -	Yes Yes Yes Yes Yes - Yes Yes Yes Yes	NBN map NT NBN map NT NBN map - NBN map - NBN map NT NBN map NT NBN map NT NBN map NT NBN map -			- Yes - Yes - Yes - Yes - Yes	Yes - Yes Yes - Yes - Yes Yes	- Yes Yes Yes	- - - - -		
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia excipienda Arthonia excipienda Arthonia excipienda Arthonia ilicina Arthonia ilicinal	a Lichen a Lichen a comma lichen a comma lichen a	- Yes	- - - - - -	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	NBN map NBN	- - - - - - -	- - - - - - -	- Yes - Yes - Yes Yes	Yes - Yes Yes - Yes - Yes - Yes - Yes	- Yes Yes Yes		- - - - - - -	- - - - - -
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica Arthonia endlicheri Arthonia excipienda Arthonia liicina	a Lichen a Lichen a comma lichen a comma lichen a Lichen a Lichen a Lichen a Lichen a Lichen	- Yes	- - - - - - -	Yes Yes Yes Yes Yes - Yes Yes Yes Yes	NBN map NT NBN map NT NBN map - NBN map - NBN map NT NBN map NT NBN map NT NBN map NT NBN map -	- - - - - - - - - -		- Yes - Yes - Yes - Yes - Yes	Yes - Yes Yes - Yes - Yes Yes	- Yes Yes Yes	- - - - -		
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia excipienda Arthonia excipienda Arthonia excipienda Arthonia ilicina Arthonia ilicinal	a Lichen a Lichen a comma lichen a comma lichen a	- Yes	- - - - - - - - -	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	NBN map NBN	-	- - - - - - -	- Yes - Yes - Yes Yes	Yes - Yes Yes - Yes - Yes - Yes - Yes	- Yes Yes Yes - -		- - - - - - -	- - - - - -
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia atlantica Arthonia excipienda Arthonia illicina Arthonia illicina Arthonia ilicinella Arthonia patellulata	a Lichen a Lichen a comma lichen a comma lichen a	Yes -	- - - - - - - - - -	Yes	NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map NT NBN map ND NBN	- - - - - - - - - - - -		- Yes - Yes - Yes Yes	Yes - Yes Yes - Yes - Yes - Yes - Yes - Yes - Yes	- Yes Yes Yes - -			- - - - - - -
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia endlicheri Arthonia endlicheri Arthonia excipienda Arthonia licina Arthonia liicina Arthonia liicinella Arthonia patellulata Arthonia patellulata Arthonia zwackhii Arthopyrenia atractospora	a Lichen a Lichen a comma lichen a comma lichen a	- Yes	- - - - - - - - - - - - - - - - - - -	Yes	NBN map NT	- - - - - - - - - - - - - - - - - - -		- Yes - Yes Yes	Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes Yes Yes Yes	- Yes Yes Yes Yes Yes Yes Yes			
Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia antentica Arthonia excipienda Arthonia excipienda Arthonia excipienda Arthonia liicine Arthonia ilicinella Arthonia patellulata Arthonia zwackhii Arthopyrenia atractospora Arthopyrenia carneobrun	a Lichen a Lichen a comma lichen a comma lichen a Yes	- - - - - - - - - - - - -	Yes	NBN map	-		- Yes - Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes					
Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi Fungi	lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen lichen	Aphanopsis coenosa Arctomia delicatula Arthonia anombrophila Arthonia apatetica Arthonia endlicheri Arthonia endlicheri Arthonia escipienda Arthonia licina Arthonia liicina Arthonia liicinella Arthonia patellulata Arthonia patellulata Arthonia zwackhii Arthopyrenia atractospora	a Lichen a Lichen a comma lichen a comma lichen a	Yes		Yes	NBN map NT	- - - - - - - - - - - - - - - - - - -		- Yes - Yes Yes	Yes - Yes - Yes - Yes - Yes - Yes - Yes - Yes Yes Yes Yes	- Yes Yes Yes Yes Yes Yes Yes			

Fungi	lichen	Arthothelium macounii	a Lichen	Yes	Yes	-	NBN map VU	-	Yes	Yes	Yes	-	-	i	-
Fungi	lichen	Arthothelium norvegicum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Arthothelium orbilliferum	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Arthrorhaphis vacillans	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Aspicilia melanaspis	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	-	-	-
Fungi	lichen	Aspicilia moenium	a Lichen	-		Yes	NBN map DD	-	_	_	Yes	Yes	_	_	-
Fungi	lichen	Aspicilia recedens	a Lichen	_	_	Yes	NBN map DD	1_	-	_	Yes		_	-	-
Fungi	lichen	Bacidia caesiovirens	a Lichen			Yes	NBN map -		-	Yes	-	Yes			-
Fungi	lichen	Bacidia circumspecta	a Lichen	Yes	Yes	103	NBN map VU	+	Yes	103	Yes	103		_	-
	lichen			res	162	Yes	NBN map -	+	-	-	-	Yes	-	-	-
Fungi		Bacidia fuscoviridis	a Lichen	- ''	-	162	NBN map VU	+		-			-		<u> </u>
Fungi	lichen	Bacidia igniarii	a Lichen	Yes	Yes	-		-		-	Yes	Yes			
Fungi	lichen	Bacidia incompta	Sap-groove Lichen	Yes	-	-	NBN map VU	-	Yes		-	-	-	-	-
Fungi	lichen	Bacidia subcircumspecta	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	-	-	Yes	-
Fungi	lichen	Bacidia subincompta	a Lichen	-	-	Yes	NBN map VU	-	Yes	-		-	-	-	-
Fungi	lichen	Bacidia vermifera	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes		-	-	-
Fungi	lichen	Bactrospora dryina	a Lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Bactrospora homalotropa	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Baeomyces carneus	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Bellemerea alpina	a Lichen	Yes	Yes	-	NBN map CR	-	Yes	-	-	Yes	-	-	-
Fungi	lichen	Biatora carneoalbida	a Lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Biatora efflorescens	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-		-
Fungi	lichen	Biatora subduplex	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Biatora tetramera	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Biatorella hemisphaerica	a Lichen	Yes	Yes	-	NBN map VU	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Biatoridium delitescens	a Lichen	Yes	Yes	-	NBN map VU	1-	-	-	Yes	-		-	-
Fungi	lichen	Biatoridium monasteriens	a Lichen	Yes	Yes	_	NBN map EN	1-	Yes	_	Yes	Yes	-	_	-
Fungi	lichen	Brigantiaea fuscolutea	a Lichen	-		Yes	NBN map NT	-		_	Yes		_	_	-
Fungi	lichen	Brodoa intestiniformis	a Lichen	Yes	Yes		NBN map CR	1_	-	-	Yes	Yes	_	_	-
Fungi	lichen	Bryonora curvescens	a Lichen	Yes	Yes	_	NBN map VU	-	-	_	Yes	Yes	_	_	-
Fungi	lichen	Bryoria furcellata	Forked Hair-lichen	Yes	Yes		NBN map VU	WCA 1981	Yes		Yes	Yes	_		
Fungi	lichen			Yes	Yes	f -	NBN map CR	WCA 1901	Yes	-	Yes	165			-
Fungi	lichen	Bryoria smithii Bryoria tenuis	a Lichen	165	163	Yes	NBN map DD	+	163	-		Yes			-
			a Hair-lichen	-	-	Yes	NBN map DD	+	-	-	Yes	168	-	-	-
Fungi	lichen	Buellia arborea	a lichen	-	-			+		_	Yes	-		-	
Fungi	lichen	Buellia arnoldii	a lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Buellia insignis	a lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Buellia papillata	a lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Buellia pulverulenta	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Buellia sanguinolenta	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Buellia uberior	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Buellia violaceofusca	a Lichen	Yes	-	-	NBN map NT	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Calicium corynellum	a Lichen	Yes	Yes	-	NBN map CR	-	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Calicium diploellum	a Lichen	Yes	Yes	-	NBN map CR	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Calicium lenticulare	a Pinhead lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Calicium parvum	a Pinhead lichen	-		Yes	NBN map NT	-	-	-	Yes	-	-		-
Fungi	lichen	Caloplaca ahtii	a Lichen	Yes	Yes	-	NBN map DD	-	-	-	Yes	Yes			-
Fungi	lichen	Caloplaca approximata	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Caloplaca britannica	a Lichen	_	-	Yes	NBN map DD	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Caloplaca caesiorufella	a Lichen	Yes	Yes	-	NBN map VU	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Caloplaca cinnamomea	a Lichen	Yes	Yes	-	NBN map EN	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Caloplaca concilians	a Lichen	-	-	Yes	NBN map DD	1-	-	-	Yes	Yes	-		-
Fungi	lichen	Caloplaca dichroa	a Lichen	_	l-	Yes	NBN map -	1-	-	-	Yes	Yes	_		-
Fungi	lichen	Caloplaca ferruginea	a Lichen	-	-	Yes	NBN map -	1-	-	Yes	-	-	-	-	-
Fungi	lichen	Caloplaca flavorubescens	a Lichen	Yes	Yes	t	NBN map EN	1-	Yes	-	Yes	_	_		-
Fungi	lichen	Caloplaca irrubescens	a Lichen	-	l	Yes	NBN map DD	†-	-	-	Yes	Yes			-
Fungi	lichen	Caloplaca lucifuga	a Lichen	Yes	Yes	1_	NBN map VU	t	<u> </u>	-	Yes	Yes			-
Fungi	lichen	Caloplaca luteoalba	Orange-fruited Elm-licher	-	Yes	-	NBN map VU	WCA 1981	Yes	-	-	-			-
Fungi	lichen	Caloplaca nivalis	Snow Caloplaca	Yes	Yes	-	NBN map CR	WCA 1981	Yes	-	Yes	Yes	-	-	-
	lichen			162	162	- Vaa		WCA 1961						-	-
Fungi		Caloplaca ochracea	a lichen	- '		Yes	NBN map -	+	-	-	-	Yes	-	-	
Fungi	lichen	Caloplaca virescens	a Lichen	Yes	Yes	-	NBN map EN	+	-	-	-	Yes	-	-	-
Fungi	lichen	Calvitimela armeniaca	a lichen	-	-	Yes	NBN map -	+	-	-	Yes	-	-	-	-
Fungi	lichen	Candelariella superdistar	a Lichen	Yes	Yes	-	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen		a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
												. V			-
Fungi	lichen	Catapyrenium pilosellum	a Lichen	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-

Fungi	lichen	Catapyrenium psoromoid	Tree Catapyrenium	Yes	Yes	-	NBN map CR	WCA 1981	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Catapyrenium rufescens	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Catapyrenium waltheri	a lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	1	-	-
Fungi	lichen	Catillaria alba	a Lichen	Yes	Yes	-	NBN map VU	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Catillaria aphana	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Catillaria gilbertii	a lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	Yes	-	Yes	-
Fungi	lichen	Catillaria minuta	a lichen	-	-	Yes	NBN map DD	-	_	-	Yes	-		-	-
Fungi	lichen	Catillaria modesta	a lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	
Fungi	lichen	Catinaria neuschildii	a lichen	Yes	Yes	-	NBN map VU	1_	<u> </u>		Yes		_	-	-
Fungi	lichen	Catolechia wahlenbergii	a lichen	Yes	Yes	L	NBN map VU	WCA 1981	Yes	-	Yes	-	-	-	-
Fungi	lichen	Cavernularia hultenii	a lichen	103	103	Yes	NBN map -	W CA 1301	-	Yes	-				-
		Cetrariella delisei		-	-	Yes	NBN map NT	-		-				-	-
Fungi	lichen		a Lichen	-	F			<u> </u>	-		Yes				
Fungi	lichen	Chaenotheca chlorella	a Lichen	-	-	Yes	NBN map NT	ļ-	-	-	Yes	-	-	-	-
Fungi	lichen	Chaenotheca gracilenta	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	-	-	-
Fungi	lichen	Chaenotheca laevigata	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	-	-	-
Fungi	lichen	Chaenotheca xyloxena	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Chaenothecopsis savonio	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Chrysothrix chrysophthali	a lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Cladonia alpina	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	ï	-	-
Fungi	lichen	Cladonia arbuscula subs	a lichen	-	Yes	-	NBN map DD	ELD	-	-	Yes	-	-	-	-
Fungi	lichen	Cladonia botrytes	Stump Lichen	Yes	Yes	-	NBN map CR	-	Yes	-	Yes	-	-	-	-
Fungi	lichen	Cladonia cenotea	a Lichen	-	-	Yes	NBN map NT	-	_	-	Yes	-	-	-	-
Fungi	lichen	Cladonia cervicornis subs	a Lichen	_	-	Yes	NBN map -	-	_	_	Yes	_	_	_	-
Fungi	lichen	Cladonia maxima	a Lichen	Yes	Yes		NBN map VU	1_		-	Yes			-	
Fungi	lichen	Cladonia metacorallifera	a Lichen	_		Yes	NBN map DD	L	-	-	Yes	-	_	-	
Fungi	lichen	Cladonia mitis	a Lichen	-	Yes	103	NBN map NT	ELD	<u> </u>		Yes				-
		Cladonia norvegica		-	165	Yes	NBN map DD	ELD	- -	-			-	-	-
Fungi	lichen		a Lichen a Lichen	Yes	Yes	res		 	-		Yes	-			
Fungi	lichen	Cladonia peziziformis		res	res	-	NBN map CR	-	Yes	-	Yes	-	-	-	-
Fungi	lichen	Cladonia stereoclada	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Cladonia stygia	a Lichen	-	Yes	-	NBN map DD	ELD	-	-	Yes	Yes	-	-	-
Fungi	lichen	Cladonia symphycarpia	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Cladonia trassii	a Lichen	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	Yes	-	-	-	-
Fungi	lichen	Cladonia uncialis subsp.	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Cliostomum flavidulum	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Cliostomum leprosum	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Collema bachmanianum	a lichen	-	-	Yes	NBN map NT	-	-	Yes	-	Yes	-	-	-
Fungi	lichen	Collema callopismum var	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Collema ceraniscum	a lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Collema dichotomum	River Jelly Lichen	-	Yes	-	NBN map VU	WCA 1981	Yes	-	-	-	-	-	-
Fungi	lichen	Collema fasciculare	a Lichen	_	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Collema fragile	a Lichen	Yes	Yes	-	NBN map VU	1-	-	-	Yes	-	_	-	-
Fungi	lichen	Collema fragrans	a Lichen	Yes	Yes	-	NBN map EN	<u> </u>	-	Yes	-		_	-	-
Fungi	lichen	Collema limosum	a Lichen	- 103	- 103	Yes	NBN map -	E	<u> </u>	-		Yes	-	-	-
	lichen	Collema parvum		Yes	Yes	103	NBN map VU	+	-	-	Yes	-		-	-
Fungi	+		a Lichen	res	res	- V		+		-		-	-		
Fungi	lichen	Collema subnigrescens	a Lichen	ļ -	-	Yes	NBN map DD	+	-	-	Yes	-	-	-	-
Fungi	11011011	Collolechia caesia	a Lichen	-	-	Yes	NBN map -	1-	-	-	Yes	-	-	-	-
Fungi	lichen	Cresponea premnea	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Cyphelium tigillare	fungus or lichen?	-	-	Yes	NBN map NT	1-	-	-	Yes	-	-	-	-
Fungi	lichen	Cyphelium trachylioides	a Lichen	Yes	Yes	-	NBN map CR	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Degelia ligulata	a Lichen	Yes	Yes	-	NBN map VU	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Dermatocarpon leptophyl	a Lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Dictyonema interruptum	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Diplotomma pharcidium	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Elixia flexella	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Eopyrenula leucoplaca	a Lichen	İ-	-	Yes	NBN map DD	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Ephebe hispidula	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	_	-	-	-
Fungi	lichen	Euopsis granatina	a Lichen	t.	t	Yes	NBN map DD	1_	-	-	Yes			-	_
Fungi	lichen	Euopsis pulvinata	a Lichen	-	L	Yes	NBN map -	-	-	-	Yes			-	-
	lichen	Flavoparmelia soredians		-		Yes	NBN map -	+		-	165			-	-
Fungi			a Lichen	V	V	res		Ŧ				Yes			-
Fungi	lichen	Fulgensia bracteata var.	a Lichen	Yes	Yes	-		+	-	-	Yes	Yes	-	-	
Fungi	lichen	Fuscidea cyathoides var.	a Lichen	-	-	Yes	NBN map -	1-	-	-	Yes	-	-	-	-
Fungi	lichen	Fuscidea mollis	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Fuscopannaria atlantica	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-

Fungi	lichen	Fuscopannaria ignobilis	Caledonian Pannaria	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	Yes	-	-	-	-
Fungi	lichen	Fuscopannaria praetermi	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Fuscopannaria sampaian	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Gomphillus calycioides	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Graphina ruiziana	a Lichen	-	-	Yes	NBN map -	1-	<u> </u>	Yes					
Fungi	lichen	Graphis alboscripta	a Lichen	Yes	_	-	NBN map NT		-	Yes	Yes		_	Yes	-
Fungi	lichen		a Lichen	100		Yes	NBN map DD	+	<u> </u>	-	Yes	Yes	_	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	+		-	Yes	163	-	-	-
				-	-	res		-				-		-	
Fungi	lichen	Gyalecta ulmi	Elm Gyalecta	Yes	Yes	-	NBN map EN	WCA 1981	Yes	-	Yes	-	-	-	-
Fungi	lichen		a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Gyalidea fritzei	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Gyalidea hyalinescens	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Gyalidea lecideopsis	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Gyalidea rivularis	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Gyalidea roseola	a Lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Gyalideopsis muscicola	a lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Gyalideopsis scotica	a lichen	-	-	Yes	NBN map NT	-	Yes	Yes	Yes	-	-	-	-
Fungi	lichen	Halecania alpivaga	a lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen		a lichen	i-	-	Yes	NBN map NT	1-	-	Yes	Yes	Yes	-	Yes	-
Fungi	lichen	Halecania micacea	a lichen	l_	-	Yes	NBN map -	1-	_	Yes	Yes	Yes	_	Yes	-
Fungi	lichen	Halecania rhypodiza	a lichen	Yes	Yes	t	NBN map VU	1_	Yes	Yes	Yes	Yes	-	Yes	-
Fungi	lichen	Halecania spodomela	a lichen	.03	03	Yes	NBN map DD	1 .	-	-	Yes	-	-	-	-
Fungi	lichen	Hertelidea botryosa	a lichen a Lichen	F	Ī	Yes	NBN map NT	+	-	-	Yes		-	-	-
		Hymenelia heteromorpha		- V	- -	res		+		-				-	- -
Fungi	lichen lichen		a lichen	Yes	Yes	 -	NBN map VU	+	-	- -	Yes	-	-	-	
Fungi			a lichen	Yes	Yes	-	NBN map VU	+	-	-	Yes	-	-	-	-
Fungi	lichen	Hymenelia rhodopis	a lichen	-	-	Yes	INDIA IIIAD DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Hypocenomyce anthraco	a lichen	Yes	Yes		NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Hypogymnia farinacea	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	<u> </u>	-	-	-
Fungi	lichen	Hypogymnia vittata	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Hypotrachyna endochlora	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Hypotrachyna taylorensis	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Ionaspis obtecta	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Japewia tornoënsis	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lecanactis latebrarum	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lecanactis subabietina	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Lecania chlorotiza	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Lecania cyrtella	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lecania dubitans	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lecanographa amylacea	a Lichen	-	-	Yes	NBN map VU	-	-	Yes	-	-	-	-	-
Fungi	lichen	Lecanographa lyncea	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Lecanora achariana	Tarn Lecanora	Yes	Yes	-	NBN map CR	WCA 1981	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Lecanora albella	a Lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Lecanora atromarginata	a Lichen	Yes	Yes	ļ.	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lecanora atrosulphurea	a Lichen	i-	l-	Yes	NBN map NT	1-	-	-	Yes	-	<u> </u>	-	<u> </u>
Fungi	lichen	Lecanora chlorophaeode	a Lichen	Yes	Yes	1-	NBN map VU	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen		a Lichen	Yes	Yes	l_	NBN map VU	1-	<u> </u>	_	Yes	Yes	_	-	-
Fungi	lichen	Lecanora epibryon	a Lichen	Yes	Yes	l_	NBN map VU	†-	<u> </u>	-	Yes	-	_	-	-
Fungi	lichen	Lecanora formosa	a Lichen			Yes	NBN map NT	t	-	-	Yes	<u> </u>	-	-	-
Fungi	lichen	Lecanora frustulosa	a Lichen	Yes	Yes	1	NBN map VU	1.	-	-	Yes	-	-	-	-
Fungi	lichen	Lecanora gisleriana	a Lichen	103	103	Yes	NBN map DD	+	<u> </u>	-	Yes	Yes	- -	-	- -
	lichen			-	-	Yes	NBN map NT	+	-	-	res	Yes	-	-	-
Fungi	lichen	Lecanora horiza Lecanora hypoptella	a Lichen	-	-	Yes	NBN map DD	+	-	-			-	-	-
Fungi			a Lichen	-	-			+			Yes	Yes	-	-	
Fungi	lichen	Lecanora marginata	a Lichen	-	-	Yes Yes	NBN map DD	+	-	-	Yes	-		-	-
Fungi	lichen		a Lichen	-	-	1	NBN map NT	+	-	-	Yes	-	-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	+	-	-	Yes		-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	+	-	Yes	-	Yes	-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	 	-	-	Yes	-	-	-	-
Fungi	lichen	Lecidea alpestris	a Lichen	-		Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lecidea antiloga	a Lichen	Yes	Yes	-	NBN map VU	1-	-	-	Yes	-	-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map DD	1-	-	-	Yes	-	-	-	-
Fungi	lichen		a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lecidea haerjedalica	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-

Fungi	lichen	Lecidea leprarioides	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lecidea mucosa	a Lichen	-	-	Yes	NBN map DD	ļ-	-	Yes	Yes	-	-	Yes	-
Fungi	lichen	Lecidea porphyrospoda	a Lichen	_	_	Yes	NBN map NT	t.	_	-	Yes	-	-	_	_
Fungi	lichen	Lecidella flavosorediata	a Lichen	_	_	Yes	NBN map	t.	_	_	Yes	_	_	_	_
Fungi	lichen	Lecidella subviridis	a Lichen			Yes	NBN map -	<u> </u>	_	_	Yes			-	
Fungi	lichen	Lecidella viridans		-	-	Yes	NBN map DD	-	-	-	Yes	-		-	-
		Lecidella wulfenii	a Lichen	Yes	- -	res		 -	-	-		-	-	-	
Fungi	lichen		a Lichen	res	Yes	-	NBN map VU	-			Yes	-			-
Fungi	lichen	Lemmopsis arnoldiana	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lempholemma cladodes	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lempholemma intricatum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lempholemma radiatum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Lepraria nylanderiana	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Leptogium biatorinum	a Lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Leptogium brebissonii	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Leptogium britannicum	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Leptogium burgessii	a Lichen	-	-	Yes	NBN map -	1-	-	Yes	-	-	-	-	-
Fungi	lichen	Leptogium byssinum	a Lichen	_	_	Yes	NBN map -	L	_	-	Yes	Yes		_	
Fungi	lichen	Leptogium cochleatum	a Lichen	-		Yes	NBN map VU	-	-	Yes	-	103	-	-	-
				-	-			-		-		- V			
Fungi	lichen	Leptogium coralloideum	a Lichen	-	-	Yes Yes	TIDIT HIGH	-	-		Yes	Yes	-	-	-
Fungi	lichen	Leptogium cyanescens	a Lichen	-	-		NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Leptogium diffractum	a Lichen	-	-	Yes	NBN map NT	ļ-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Leptogium hibernicum	a Lichen	Yes	-	-	NBN map NT	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Leptogium imbricatum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Leptogium intermedium	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Leptogium saturninum	a Lichen	-	-	Yes	NBN map VU	-	Yes	-	-	-	-	-	-
Fungi	lichen	Leucocarpia biatorella	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lichinodium sirosiphoide	a Lichen	-	-	Yes	NBN map DD	ļ-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lithothelium phaeosporu	a Lichen	-	-	Yes	NBN map NT	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Lobaria amplissima	Parchment lichen	-	-	Yes	NBN map	i-	_	Yes	-	-	_	_	_
Fungi	lichen	Lobaria pulmonaria	Lungwort	_	_	Yes	NBN map -	<u> </u>	-	Yes	_	_	-	-	-
Fungi	lichen		'Lob Scrob'	-		Yes	NBN map -	-		Yes	-	_	-	_	-
	lichen	Lobaria scrobiculata Lobaria virens	Green Satin lichen	-	-	Yes	NBN map -	-							-
Fungi				- V	- \/	res	NBN map VU	-	-	Yes	- V			-	
Fungi	lichen	Lopadium coralloideum	a Lichen	Yes	Yes	-		-		-	Yes				
Fungi	lichen	Lopadium pezizoideum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Megalospora tuberculosa	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Melanelia subargentifera	a Lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Melaspilea atroides	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Melaspilea interjecta	a Lichen	-	-	Yes	NBN map DD	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Menegazzia terebrata	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Micarea alabastrites	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Micarea assimilata	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Micarea contexta	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Micarea crassipes	a Lichen	Yes	Yes	_	NBN map VU	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Micarea elachista	a Lichen	Yes	Yes		NBN map EN	_	-	-	Yes	Yes	-	-	-
	lichen	Micarea eximia		103	103	Yes	NBN map DD	-		-	Yes	Yes		-	
Fungi Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	<u> </u>	-	-	Yes	162	-	-	-
		Micarea hedlundii	a Lichen	-	-			<u> </u>		-		-			
Fungi	lichen	Micarea olivacea	a Lichen	-	-	Yes	NBN map DD	-	-	Yes	Yes	Yes	-	Yes	-
Fungi	lichen	Micarea paratropa	a Lichen	-	-	Yes	NBN map -	ļ	-	Yes	Yes	-	-	-	-
Fungi	lichen	Micarea pycnidiophora	a Lichen	-	-	Yes	NBN map NT	ļ	-	Yes	-	Yes	-	-	-
Fungi	lichen	Micarea stipitata	a Lichen	-	-	Yes	NBN map -	<u> -</u>	-	Yes	-	-	-	-	-
Fungi	lichen	Micarea subconfusa	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Micarea submilliaria	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Micarea synotheoides	a Lichen	-	-	Yes	NBN map -	-	-	Yes		-	-	-	-
Fungi	lichen	Micarea viridiatra	a Lichen	-	-	Yes	NBN map -	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Micarea xanthonica	a Lichen	-	-	Yes	NBN map -	1-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Miriquidica garovaglii	a Lichen	Yes	Yes	-	NBN map VU	ļ-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Miriquidica intrudens	a Lichen	-	-	Yes	NBN map -	1-	_	_	Yes	Yes	-	_	-
Fungi	lichen	Miriquidica nigroleprosa	a Lichen	_	<u> </u>	Yes	NBN map DD	L.		_	Yes	- 100	-	_	-
1a.		quidica riigi olopi osa 1				Yes	NBN map DD	1_	-	-	Yes	Yes	-	-	
Eupai		Multiclavula vargalia								-					1
Fungi	lichen	Multiclavula vernalis	Moss Club	-	-							100			
Fungi	lichen lichen	Mycoblastus alpinus	a Lichen	-	-	Yes	NBN map -	-	- V	-	Yes	-	-	-	-
Fungi Fungi	lichen lichen lichen	Mycoblastus alpinus Nephroma arcticum	a Lichen Arctic Kidney-lichen	- - Yes	- Yes	Yes -	NBN map - NBN map EN	- WCA 1981	Yes	-	Yes Yes	- Yes	-	-	-
Fungi	lichen lichen	Mycoblastus alpinus Nephroma arcticum Nephroma laevigatum	a Lichen	- Yes	- Yes		NBN map -	- WCA 1981 -		- Yes Yes	Yes	-	-		- - -

Fungi	lichen	Ochrolechia arborea	a Lichen		-	Yes	NBN map NT	-	-	-	Yes	Yes	1	-	-
Fungi	lichen	Ochrolechia szatalaensis	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Opegrapha areniseda	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Opegrapha fumosa	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Opegrapha paraxanthode	a Lichen	-	-	Yes	NBN map NT	-	Yes	-	Yes	-	-	-	-
Fungi	lichen	Opegrapha saxigena	a Lichen	_	-	Yes	NBN map -	i -	-	Yes	-	-	-	-	-
Fungi	lichen		a Lichen	_	_	Yes	NBN map NT	l_	-	-	Yes	-	-	-	-
Fungi	lichen	Pannaria conoplea	Mealy Rimmed Shingle lid	_	_	Yes	NBN map -	<u> </u>	_	Yes	-	_	_	_	_
Fungi	lichen	Pannaria rubiginosa	Red-eyed Shingle lichen	-		Yes	NBN map -	-	-	Yes	_		_		-
Fungi	lichen			-	-	Yes	NBN map DD	F	-	-	- Von	Yes	-	-	-
			a Lichen	-	-	Yes		<u> </u>	-		Yes			-	
Fungi	lichen	Parmeliella parvula	a Lichen	-	-		NBN map -	-		Yes		-			-
Fungi	lichen	Parmeliella testacea	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Parmeliella triptophylla	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Peltigera britannica	a Dog-lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Peltigera collina	a Dog-lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Peltigera elisabethae	a Dog-lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Peltigera lepidophora	Ear-lobed Dog-lichen	Yes	Yes	-	NBN map CR	WCA 1981	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Peltigera malacea	Matt Felt Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	-	-	-
Fungi	lichen	Peltigera ponojensis	a Dog-lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Peltigera scabrosa	a Dog-lichen	Yes	Yes	-	NBN map VU	I-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Peltigera scabrosella	a Dog-lichen	-	_	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Peltigera venosa	Pixie Gowns Lichen	Yes	Yes	l-	NBN map VU	-	Yes	-	Yes	-	Yes	-	-
Fungi	lichen	Pertusaria amarescens	a Wart lichen	-	t	Yes	NBN map -	l_	-		Yes		-		-
Fungi	lichen	Pertusaria borealis	a Wart lichen			Yes	NBN map -			Yes	100			-	
Fungi	lichen		Alpine Moss Pertusaria	Yes	Yes	103	NBN map CR	WCA 1981	Yes	-	Yes	Yes			
	lichen	Pertusaria bryontha Pertusaria flavocorallina		163	165	Yes	NBN map DD	WCA 1901	163		Yes	Yes			-
Fungi	+		a Wart lichen	-	-			F		Yes					
Fungi	lichen	Pertusaria geminipara	a Wart lichen	Yes	-	Yes		-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pertusaria glomerata	a Wart lichen		Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pertusaria melanochlora	a Wart lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pertusaria ophthalmiza	a Wart lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Pertusaria velata	a Lichen	Yes	Yes	-	NBN map VU	-	-	Yes	-	Yes	-	-	-
Fungi	lichen	Phaeographis dendritica	a Script lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Phaeophyscia endococci	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Phylliscum demangeonii	a Lichen		-	Yes	NBN map DD	-	-	-	Yes	Yes	ï	-	-
Fungi	lichen	Phyllopsora rosei	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Physcia clementei	a Lichen	-	-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Fungi	lichen	Placidiopsis pseudociner	a Lichen	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Placynthium asperellum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Placynthium lismorense	a Lichen	_	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Placynthium pluriseptatur	a Lichen		-	Yes	NBN map DD	t.	-	_	Yes	Yes	_	_	_
Fungi	lichen	Platismatia norvegica	Old Growth Rag lichen	_	_	Yes	NBN map -	t	_	Yes	-	-		_	_
Fungi	lichen	Pleopsidium chlorophanu	a Lichen			Yes	NBN map DD		_	-	Yes	Yes	_	_	-
	1		a Lichen	Yes	Yes	res	NBN map VU	ļ-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Poeltinula cerebrina Polyblastia agraria		res	168	Yes		F	-		162		-	-	
Fungi	lichen		a Lichen	-	-		NBN map -	-	-	Yes	-	Yes	-		-
Fungi	lichen	Polyblastia efflorescens	a Lichen	-	-	Yes	NBN map NT	-	-		Yes	-	-	-	-
Fungi	lichen	Polyblastia gothica	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Polyblastia helvetica	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes		-	-	-
Fungi	lichen	Polyblastia quartzina	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Polyblastia sendtneri	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Polyblastia terrestris	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Polyblastia verrucosa	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Polychidium dendriscum	a Lichen	Yes	Yes	-	NBN map VU	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Polysporina ferruginea	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Porina byssophila	a Lichen	-	-	Yes	NBN map -	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Porina coralloidea	a Lichen	_	l-	Yes	NBN map -	1-	-	Yes	-	-	-	-	-
Fungi	lichen	Porina grandis	a Lichen	-	-	Yes	NBN map DD	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Porina grandis Porina hibernica	a Lichen	Yes	<u> </u>	-	NBN map NT	<u> </u>	-	Yes	Yes	Yes			-
Fungi	lichen			-		Yes	NBN map NT	[-	Yes	-	-	-	
		Porina mammillosa	a Lichen	V	V	res		F	-	-				-	
Fungi	lichen	Porina sudetica	a Lichen	Yes	Yes	- ,,	NBN map VU	ļ-			Yes	Yes			
Fungi	lichen	Porocyphus kenmorensis	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Porocyphus leptogiella	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes		-	-	-
Fungi	lichen	Porpidia nadvornikiana	a Lichen	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Fungi	lichen	Protoblastenia cyclospora	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-

Fungi	lichen	Protoparmelia atriseda	a Lichen	Yes	Yes	-	NBN map VU	-	-	ï	Yes	Yes	1	-	-
Fungi	lichen	Protoparmelia memnonia	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Protoparmelia nephaea	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pseudocyphellaria crocat	Yellow Specklebelly	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Pseudocyphellaria intrica	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Pseudocyphellaria lacera	Ragged Pseudocyphellar	Yes	Yes	-	NBN map VU	WCA 1981	Yes	Yes	Yes	-	-	-	-
Fungi	lichen		a Lichen			Yes	NBN map -	_	Yes	Yes	-	_	-	-	_
Fungi	lichen	Psora globifera	a Lichen	Yes	Yes		NBN map CR	_	-	-	Yes	Yes	_	_	_
Fungi	lichen	Psora rubiformis	Rusty Alpine Psora	Yes	Yes	ļ -	NBN map VU	WCA 1981	Yes	_	Yes	Yes	_	-	-
Fungi	lichen			165	165	Yes	NBN map NT	WCA 1901	-			Yes			-
		Pterygiopsis lacustris	a Lichen	-	-		NBN map NT	<u> </u>			Yes			-	
Fungi	lichen	Ptychographa xylographo	a Lichen	-	-	Yes		-	-	Yes		-			-
Fungi	lichen	Punctelia borreri	a Lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Pycnora leucococca	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pycnora xanthococca	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pyrenocollema caesium	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pyrenopsis furfurea	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pyrenopsis grumulifera	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Pyrenopsis impolita	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pyrenula coryli	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Pyrenula dermatodes	a Lichen	Yes	Yes	-	NBN map CR	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Pyrenula hibernica	Oil-Stain Parmentaria	Yes	Yes	-	NBN map VU	-	Yes	Yes	Yes	Yes	-	-	-
Fungi	lichen	Pyrenula laevigata	a Lichen	_	-	Yes	NBN map -	<u> </u>	-	Yes		-	_	_	_
Fungi	lichen	Pyrenula microtheca	a Lichen	_	_	Yes	NBN map NT	<u> </u>	_	-	Yes	Yes	_	_	_
Fungi	lichen	Pyrenula occidentalis	a Lichen			Yes	NBN map -			Yes	100	100			
Fungi	lichen			-	-	Yes	NBN map -	<u> </u>	-	-	Yes				
	lichen	Pyrrhospora rubiginans Ramalina capitata	a Lichen	-	-	Yes	NBN map DD	-			Yes			-	
Fungi			a Lichen	-	-	-		-		- V	res	-			
Fungi	lichen	Ramalina fraxinea	a Lichen	-	-	Yes Yes	NBN map -	-	-	Yes	-		-	-	-
Fungi	lichen	Ramalina portuensis	a Lichen	-	-	1	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Ramboldia insidiosa	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Ramonia azorica	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Ramonia chrysophaea	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	Yes	-	-	
Fungi	lichen	Ramonia dictyospora	a Lichen	Yes	-	-	NBN map NT	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Reichlingia leopoldii	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhexophiale rhexoblepha	a Lichen	-	-	Yes	NBN map NT	-	-	ï	Yes	-	ī	-	-
Fungi	lichen	Rhizocarpon amphibium	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon anaperum	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon caeruleoalb	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon caesium	a Lichen	-	-	Yes	NBN map DD	ļ-	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon chioneum	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon cinereonigru	a Lichen	_	_	Yes	NBN map DD	t	_	-	Yes		_	_	_
Fungi	lichen	Rhizocarpon cinereovirer	a Lichen	_	_	Yes	NBN map DD	<u> </u>	_		Yes	Yes		_	_
Fungi	lichen	Rhizocarpon copelandii	a Lichen			Yes	NBN map DD		_		Yes	100	_	_	-
	1			-		Yes	NBN map DD	-	-		Yes			-	-
Fungi	lichen		a Lichen	-	-			-	-				-	-	
Fungi	lichen	Rhizocarpon inarense	a Lichen	-	-	Yes	TIDIT HUD	 -	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon intermediell	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon jemtlandicui	a Lichen	-	-	Yes	NBN map DD	ļ	-	-	Yes		-	-	-
Fungi	lichen	Rhizocarpon ridescens	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon simillimum	a Lichen	-	-	Yes	NBN map DD	<u> -</u>	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon sublavatum	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon submodestu	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rhizocarpon subpostumu	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Rhizocarpon superficiale	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	-	-	-	-
Fungi	lichen	Rimularia fuscosora	a Lichen	-	l-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rimularia globulosa	a Lichen	-	-	Yes	NBN map NT	1-	-	-	Yes	Yes	-	Yes	-
Fungi	lichen	Rimularia sphacelata	a Lichen	Yes	Yes	1-	NBN map CR	1-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rinodina aspersa	a Lichen	-	l-	Yes	NBN map NT	1-	-	-	Yes	Yes	-	_	-
Fungi	lichen	Rinodina degeliana	a Lichen	Yes	Yes	1_	NBN map VU	t.	-		Yes	Yes		_	-
Fungi	lichen		a Lichen	.03	03	Yes	NBN map NT	L	-	-	Yes	Yes	-	-	-
				-	F			f	-	-		169		-	-
Fungi	lichen	Rinodina interpolata	a Lichen	-	-	Yes		 			Yes	- V			
Fungi	lichen	Rinodina isidioides	a Lichen	-	-	Yes	NBN map NT	ļ-	-	Yes	-	Yes	-	-	-
Fungi	lichen	Rinodina laevigata	a Lichen	-		Yes	NBN map DD	ļ	-	-	Yes	Yes	-	-	-
Fungi	lichen		a Lichen	-	-	Yes	NBN map NT	ļ	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rinodina mniaraea var. c	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-

Fungi	lichen	Rinodina mniaraea var. n	a Lichen	 -	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rinodina occulta	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Rinodina parasitica	a Lichen	-	-	Yes	NBN map DD	1-	-	_	Yes	Yes	-	-	_
Fungi	lichen	Rinodina roboris var. robo	a Lichen	-		Yes	NBN map -	1_	_	Yes	-		_	_	_
Fungi	lichen	Ropalospora hibernica	a Lichen	_	_	Yes	NBN map DD	1_	_	-	Yes	Yes	_		_
Fungi	lichen	Sagiolechia protuberans	a Lichen			Yes	NBN map NT	E			Yes	103			
	lichen	Schadonia fecunda		Yes	Yes	165	NBN map VU	+			Yes	Yes			
Fungi			a Lichen	165	165	- V		<u> </u>						-	
Fungi	lichen	Schaereria corticola	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Schaereria fuscocinerea	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Schismatomma cretaceu	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Schismatomma graphidio	a Lichen	Yes	Yes	-	NBN map VU	-	Yes	Yes	Yes	-	-	-	-
Fungi	lichen	Schismatomma niveum	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Schismatomma quercicol	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Schismatomma umbrinur	a Lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Sclerophora pallida	a Lichen	-	-	Yes	NBN map VU	-	Yes	-	-	-	-	-	-
Fungi	lichen	Siphula ceratites	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Solorina bispora	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Spilonema paradoxum	a Lichen	-	_	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Sporastatia polyspora	a Lichen		-	Yes	NBN map NT	1.	_	-	Yes	Yes		-	
Fungi	lichen	Sporastatia testudinea	a Lichen			Yes	NBN map NT				Yes	Yes			
Fungi	lichen	Staurothele arctica	a Lichen	-	<u> </u>	Yes	NBN map DD	L	-	-	Yes	Yes	-		-
	lichen	Staurothele arctica		Yes	Yes	169	NBN map VU	+	-	-			-		-
Fungi			a Lichen	res	168			 			Yes	Yes		-	
Fungi	lichen	Staurothele bacilligera	a Lichen	-	-	Yes	NBN map NT	+	-	-	Yes	- -	-	-	-
Fungi	lichen	Staurothele geoica	a Lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Staurothele rugulosa	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Stereocaulon alpinum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Stereocaulon delisei	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Stereocaulon glareosum	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Stereocaulon plicatile	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Stereocaulon spathuliferu	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Stereocaulon symphyche	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Stereocaulon tornense	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Sticta canariensis sensu	a Lichen	Yes	-	-	NBN map -	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Sticta fuliginosa	a 'stinky' Sticta	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Sticta limbata	Floury Sticta	-		Yes	NBN map -	1-	_	Yes	_	_	_	_	_
Fungi	lichen	Sticta sylvatica	a 'stinky' Sticta	_	_	Yes	NBN map -	1_	-	Yes	_		_	-	-
Fungi	lichen	Strangospora deplanata	a lichen			Yes	NBN map DD	E		-	Yes	Yes			
Fungi	lichen	Strangospora microhaem	a lichen	-	_	Yes	NBN map NT	+	-	Yes	Yes	-	_	_	-
	lichen			-	-	Yes		<u> </u>				-		-	
Fungi	11011011	Strigula confusa	a lichen	-	-		NBN map -	-	-	-	Yes			-	
Fungi	lichen	Strigula muscicola	a lichen	-	-	Yes	NBN map -	ļ-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Strigula taylorii	a lichen	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichen	Strigula thelopsidoides	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Synalissa symphorea	a Lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Fungi	lichen	Thelenella larbalestieri	a Lichen	Yes	Yes	-	NBN map VU	-	-	Yes	Yes	-	-	-	-
Fungi	lichen	Thelenella modesta	Warty Wax-lichen	Yes	Yes	-	NBN map CR	-	Yes	-	Yes	Yes	-	-	-
Fungi	lichen	Thelenella muscorum var	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	•	-
Fungi	lichen	Thelidium fontigenum	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Thelidium papulare forma	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Thelocarpon magnussoni	a lichen	-	-	Yes	NBN map DD	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Thelocarpon opertum	a lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	Yes	_	-	_
Fungi	lichen	Thelopsis melathelia	a lichen	l_	l-	Yes	NBN map NT	1-	_	-	Yes	-	_	_	_
Fungi	lichen	Thelotrema macrosporun	a Barnacle lichen	<u> </u>	t-	Yes	NBN map -	1-		Yes	-	-			
Fungi	lichen	Thelotrema petractoides	a Barnacle lichen	-	<u> </u>	Yes	NBN map -	1_	 	Yes	_	 		_	
Fungi	lichen			-	E	Yes	NBN map NT	L	-	-	Yes	Yes	-	-	
		Thermutis velutina	a lichen	- Yes	- Vaa	168		+							
Fungi	lichen	Toninia coelestina	a lichen	res	Yes			+	-		Yes	Yes		-	-
Fungi	lichen	Toninia diffracta	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Toninia fusispora	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Toninia rosulata	a lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Toninia sedifolia	a Lichen	-	-	Yes	NBN map -	-	Yes	-	-	-	-	-	-
Fungi	lichen	Toninia squalescens	a Lichen	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichen	Toninia squalida	a Lichen	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Trapeliopsis viridescens	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Trimmatothele perquisita		i-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	_
				1	1			1							1

Fungi	lichen	Umbilicaria hirsuta	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Umbilicaria nylanderiana	a lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Umbilicaria spodochroa	a Lichen	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	<u>Usnea ceratina</u>	a Beard-lichen	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	Usnea esperantiana	a Beard-lichen	-	-	Yes	NBN map NT	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	Usnea flavocardia	a Beard-lichen	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Usnea florida	Witches' Whiskers Licher	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Fungi	lichen	<u>Usnea glabrata</u>	a Beard-lichen	-	-	Yes	NBN map DD	-	-	Yes	Yes	Yes	-	-	-
Fungi	lichen	<u>Usnea silesiaca</u>	a Beard-lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Verrucaria degelii	a lichen	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Vestergrenopsis elaeina	a lichen	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Vezdaea stipitata	a lichen	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	lichen	Vulpicida pinastri	a Lichen	Yes	-	-	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichen	Wadeana dendrographa	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichen	Wadeana minuta	a Lichen	-	-	Yes	NBN map NT	-	-	Yes	-	-	-	-	-
Fungi	lichenicolous	Arthonia almquistii				Yes	NDN								
	fungus		a fungus	-	-		NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichenicolous fungus	Arthonia amylospora	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichenicolous fungus	Arthonia cohabitans	a fungus	Yes	Yes	-	NBN map VU	-	-	Yes	Yes	Yes	-	Yes	-
Fungi	lichenicolous fungus	Arthonia graphidicola	a fungus	-	_	Yes	NBN map -	-		Yes	_	-	_	_	_
Fungi	lichenicolous	Arthonia invadens		_		Yes	NBN map NT		_	Yes	Yes	Yes	_	_	_
Fungi	fungus lichenicolous	Arthonia subfuscicola	a fungus	-	-	Yes		<u> </u>		169			-	-	- -
	fungus lichenicolous	Arthonia thelotrematis	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus lichenicolous		a fungus	-	-		NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Cercidospora decolorella	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichenicolous fungus	Chaenothecopsis epithall	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Fungi	lichenicolous fungus	Chaenothecopsis pusiola	a fungus	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Fungi	lichenicolous fungus	Chaenothecopsis vainioa	a fungus	-	_	Yes	NBN map NT	_	_	-	Yes	-	-	-	_
Fungi	lichenicolous fungus	Chaenothecopsis viridirea	a fungus	_	_	Yes	NBN map NT	_	_	_	Yes	_	-		
Fungi	lichenicolous	Cyphelium marcianum				Yes	NBN map DD				Yes	_			_
Fungi	fungus lichenicolous	Dacampia hookeri	a fungus	-	-	Yes		1		-			-		
Fungi	fungus lichenicolous	Dacampia rufescentis	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
- ungi	fungus	<u>Dacampia furescentis</u>	a fungus	-	-	163	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichenicolous fungus	Micarea inquinans	a fungus	_	L	Yes	NBN map -	_		_	Yes	Yes		_	_
Fungi	lichenicolous	Opegrapha brevis				Yes	NBN map NT			Yes					
Fungi	fungus lichenicolous	Opegrapha glaucomaria	a fungus	-	-	Yes		-	-	res	Yes	-	-	-	-
	fungus lichenicolous		a fungus	-	-		NBN map NT	-	-	-	Yes	Yes	-	-	-
Fungi	fungus lichenicolous	Opegrapha pertusariicola	a fungus	-	-	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	fungus	Opegrapha pulvinata	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	lichenicolous fungus	Opegrapha rotunda	a fungus	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	
Fungi	lichenicolous fungus	Opegrapha sphaerophori	a fungus	-	-	Yes	NBN map DD	-	_	-	Yes	Yes	-	-	-
Fungi	lichenicolous fungus	Opegrapha thelotrematis	a fungus	-	_	Yes	NBN map -	-	-	Yes	-	-	-	-	-
Fungi	lichenicolous fungus	Opegrapha zwackhii	a fungus	-	_	Yes	NBN map -	_	_	_	Yes	Yes	_	-	_
Fungi	lichenicolous	Rhizocarpon advenulum				Yes	NBN map -				Yes				
Fungi	fungus lichenicolous	Rhizocarpon ochrolechia	a fungus	-	-	Yes		-	-	-		-	-	-	-
	fungus lichenicolous		a fungus	-	-		NBN map -	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Toninia plumbina	a fungus	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	

Fungi	lichenicolous fungus	Toninia subfuscae	a fungus	_	_	Yes	NBN map -		_	_	_	Yes	Yes	_		_
Fungi	non-lichenised fungus	Arthopyrenia subcerasi				Yes		NT		_	_	Yes		_	_	_
Fungi	non-lichenised	Arthothelium lirellans	a fungus	<u>-</u>		Yes		• •			.,					
	fungus non-lichenised		a fungus	-	-		NBN map -		-	-	Yes	-	-	-	-	-
Fungi	fungus non-lichenised	Chaenothecopsis viridials	a fungus	-	-	Yes	NBN map)D	-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Eopyrenula avellanae	a fungus	-	-	Yes	NBN map -		-	-	Yes	-	-	-	-	-
Fungi	non-lichenised fungus	Eopyrenula grandicula	a fungus	-	-	Yes	NBN map -		-	-	Yes	-	-	-	-	-
Fungi	non-lichenised fungus	Eopyrenula septemsepta	a fungus	-	_	Yes	NBN map N	١T	_	-	Yes	Yes	_	-	-	_
Fungi	non-lichenised	Melaspilea bagliettoana				Yes		NT.		_	_	Yes	Yes	_		_
Fungi	fungus non-lichenised	Melaspilea lentiginosula	a fungus			Yes								-		
	fungus non-lichenised	Mycocalicium subtile	a fungus	-	-	Yes		NT	-	-	Yes	Yes	Yes	-	Yes	-
Fungi	fungus non-lichenised		a fungus	-	-		NBN map -		-	-	-	Yes	-	-	-	-
Fungi	fungus	Mycomicrothelia atlantica	a fungus	-	-	Yes	NBN map N	NT	-	-	-	Yes	-	-	-	-
Fungi	non-lichenised fungus	Mycoporum lacteum	a fungus	-	-	Yes	NBN map	NT	-	-	-	Yes	-	-	-	-
Fungi	non-lichenised fungus	Phaeocalicium populneur	a fungus	-		Yes	NBN map -					Yes				-
Fungi	non-lichenised fungus	Phaeocalicium praecede	a fungus	_	_	Yes	NBN map -		_	-		Yes	_	-	-	_
Fungi	non-lichenised fungus	Stenocybe septata	_			Yes	NBN map -				Yes					_
Fungi	non-lichenised	Sticta canariensis (blue-g	a fungus	-	-	Yes				-		-	-	-	-	
Fungi	fungus non-lichenised		a fungus a fungus	-	-	Yes	NBN map -		-	-	Yes	-	-	-	-	-
	fungus non-lichenised	Sticta canariensis (combi	a rungus	-	-		NBN map -		-	-	Yes	-	-	-	-	-
Fungi	fungus non-lichenised	Tomasellia diffusa	a fungus	-	-	Yes	NBN map -		-	-	-	Yes	Yes	-	-	-
Fungi	fungus	Xerotrema megalospora	a fungus	-	-	Yes		NT	-	-	Yes	Yes	Yes	-	-	-
Non vascular plants	liverwort	Acrobolbus wilsonii	Wilson's Pouchwort	-	-	Yes	NBN map -		-	Yes	-	-	-	-	-	-
Non vascular plants	liverwort	Adelanthus lindenbergian	Lindenberg's Featherworl	Yes	Yes	-		N	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Anastrophyllum alpinum	a Notchwort	-	-	Yes		NT	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Anastrophyllum joergens	Joergensen's Notchwort	-	-	Yes		NT .	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Anastrophyllum saxicola	Curled Notchwort	Yes	Yes	-		/U	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Athalamia hyalina	a liverwort	Yes	Yes	-	NBN map V	/U	-	-	-	Yes	Yes	-	ı	-
Non vascular plants	liverwort	Barbilophozia kunzeana	Bog Pawwort	Yes	Yes	-	NBN map V	/U	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Barbilophozia quadriloba	Four-fingered Pawwort	-	-	Yes	NBN map N	NT.	-	-		Yes	-	-	-	-
Non vascular plants	liverwort	Cephalozia ambigua	Snow Pincerwort	Yes	Yes	-	NBN map V	/U	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Cephaloziella elachista	Spurred Threadwort	-	-	Yes	NBN map -		-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Cephaloziella stellulifera	Heath Threadwort	-	-	Yes	NBN map -		-	-	-	-	Yes	-	-	-
Non vascular plants	liverwort	Cephaloziella turneri	Turner's Threadwort	-	-	Yes		١T	1-	-	-	-	Yes	-	-	-
Non vascular plants	liverwort	Dumortiera hirsuta	Dumortier's Liverwort	Yes	Yes	-		/U	1-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Fossombronia angulosa	Greater Frillwort	-	-	Yes	NBN map -		1-	-	-	-	Yes	-	_	-
Non vascular plants	liverwort	Fossombronia fimbriata	Fragile Frillwort	-	-	Yes		NT T	1-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Fossombronia foveolata	Pitted Frillwort	_	l-	Yes	NBN map -		t_	Yes	-	-	_	-	-	-
Non vascular plants	liverwort	Geocalyx graveolens	Turps Pouchwort	Yes	Yes	l_		/U	WCA 1981	-	-	Yes		-		
Non vascular plants	liverwort	Gymnocolea acutiloba	Welsh Notchwort	Yes	Yes	<u> </u>		/U	-	-	-	Yes	Yes			-
		Gymnomitrion apiculatum	Pointed Frostwort	Yes	Yes	 		/U	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Gymnomitrion corallicide	Coral Frostwort	169	169	- V		NT	W CA 1961	-			162		-	
Non vascular plants	liverwort	Cymnomicnom coramolac	OCIDIT TOOLWOIL	Vac	- Vee	Yes			 			Yes	- V		- V	
Non vascular plants	liverwort	Herbertus borealis	Northern Prongwort	Yes	Yes	 -		/U	- WOA 1001	Yes	-	Yes	Yes	-	Yes	-
Non vascular plants	liverwort	Jamesoniella undulifolia	Marsh Flapwort	Yes	Yes	 -		N	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Jungermannia leiantha	Long-leaved Flapwort	Yes	Yes	-		CR	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Jungermannia polaris	Arctic Flapwort	Yes	Yes	-		/U	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Leiocolea gillmanii	Gillman's Notchwort	-	-	Yes		NT.	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Leiocolea rutheana var. r	Fen Notchwort	Yes	Yes	-		-N	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Lejeunea holtii	Holt's Pouncewort	Yes	Yes	-		/U	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Lejeunea mandonii	Atlantic Pouncewort	Yes	Yes	-		N	-	Yes	-	Yes	Yes	-		-
Non vascular plants	liverwort	Lophozia wenzelii	Wenzel's Notchwort	Yes	Yes	-		/U	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Marsupella arctica	Arctic Rustwort	Yes	Yes	-	NBN map V	/U	-	-	-	Yes	Yes	-	-	

Non vascular plants	liverwort	Marsupella boeckii	Boeck's Rustwort	Yes	Yes	-	NBN map VU	I-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Marsupella condensata	Compact Rustwort	-	-	Yes	NBN map NT	ļ.	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Marsupella sparsifolia	Rounded Rustwort	Yes	Yes		NBN map VU	<u> </u>	-	-	Yes	Yes		_	_
Non vascular plants	liverwort	Nardia breidleri	Book Flapwort	103	103	Yes	NBN man -	-		_	Yes	163		-	-
	 			-	-	res	- TOTT THUS	<u> </u>		-		-		-	-
Non vascular plants	liverwort	Odontoschisma macounii	Macoun's Flapwort	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Pallavicinia lyellii	Ribbonwort	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Pedinophyllum interruptu	Craven Featherwort	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	liverwort	Petalophyllum ralfsii	Petalwort	Yes	Yes	-	NBN map -	WCA 1981	Yes	-	Yes	Yes	-	_	-
Non vascular plants	liverwort	Radula carringtonii	Carrington's Scalewort	Yes	Yes	_	NBN map VU		-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Riccia canaliculata	Channelled Crystalwort	Yes	Yes		NBN map VU			_	Yes	Yes		_	_
				103	103	- -		-	-						-
Non vascular plants	liverwort	Riccia crystallina	Blue Crystalwort	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Riccia huebeneriana	Violet Crystalwort	-	-	Yes	NBN map -	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Scapania curta	Least Earwort	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	liverwort	Scapania gymnostomoph	Narrow-lobed Earwort	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Scapania paludosa	Floppy Earwort	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	liverwort	Scapania parvifolia	Obscure Earwort	-	-	Yes	NBN map DD	<u> </u>	_	_	Yes	Yes		_	_
Non vascular plants	liverwort	Scapania praetervisa	Ciliate Earwort	Yes	Yes	_	NBN map VU	<u> </u>	_	_	Yes	Yes		_	_
		Aloina brevirostris	Short-beaked Aloe-moss	103	103	Yes		-	-	_	-	Yes		-	-
Non vascular plants	moss			-	-		NBN map -	-	-	-	-			-	
Non vascular plants	moss	Aloina rigida	Rigid Aloe-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Amblystegium confervoid	Tiny Feather-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Amblystegium humile	Constricted Feather-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Amblystegium radicale	Swamp Feather-moss	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Andreaea alpestris	Slender Rock-moss	-	-	Yes	NBN map DD	ļ-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Andreaea blyttii	Blytt's Rock-moss	_	-	Yes	NBN map NT	t.	_	-	Yes	-	_	-	-
Non vascular plants	moss	Andreaea frigida	Icy Rock-moss	Yes	Yes	100	NBN map VU		Yes	_	Yes	Yes		_	_
						-		-	165			163			
Non vascular plants	moss	Andreaea nivalis	Snow Rock-moss	Yes	Yes	-		-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Andreaea sinuosa	Small-spored Rock-moss	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Anomodon attenuatus	Slender Tail-moss	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Anomodon longifolius	Long-leaved Tail-moss	Yes	Yes	-	NBN map EN	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Aongstroemia longipes	Sprig-moss	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Aphanorhegma patens	Spreading Earth-moss	_	-	Yes	NBN map -	1-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Anlodon wormskioldii	Carrion-moss	Yes	Yes	_	NBN map CR	L	_	_	Yes	Yes	Yes	_	_
	1	Blindia caespiticia	Dwarf Blindia	Yes	Yes	-		-							-
Non vascular plants	moss			res	res	-		<u> </u>		-	Yes	Yes			
Non vascular plants	moss	Brachythecium erythrorrh	Redfoot Feather-moss	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Brachythecium glaciale	Snow Feather-moss	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Brachythecium reflexum	Reflexed Feather-moss	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Brachythecium starkei	Starke's Feather-moss	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Brachythecium trachypod	Lawers Feather-moss	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Bryoerythrophyllum caled	Scottish Beard-moss	Yes	-	<u> </u>	NBN map NT	t	Yes	-	Yes	-	-	Yes	_
Non vascular plants	moss	Bryum archangelicum	Archangelic Thread-moss	100		Yes	NBN map -	-	-	-	Yes	Yes		-	-
	 	Bryum calophyllum	Blunt Bryum	Yes	Yes	163		-	-	-				-	-
Non vascular plants	moss			res	162	-		-	-	-	Yes	Yes		-	-
Non vascular plants	moss	Bryum creberrimum	Tight-tufted Thread-moss	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Bryum cyclophyllum	Round-leaved Bryum	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Bryum dixonii	Dixon's Thread-moss	l-	I-	Yes	NBN map -				Yes	_			-
Non vascular plants						.00	NDIN IIIap -	<u> </u>			100				
	moss	Bryum donianum	Don's Thread-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants			Don's Thread-moss	-	-	Yes	NBN map -	-	-	-			-	-	-
Non vascular plants	moss	Bryum donianum Bryum elegans Bryum intermedium	Don's Thread-moss Blushing Bryum	-	- - -	Yes Yes	NBN map - NBN map -	-			-	Yes			
Non vascular plants	moss moss	Bryum elegans Bryum intermedium	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n	- - - - -	- - - - -	Yes	NBN map - NBN map DD	- - -			-	Yes Yes	-	-	-
Non vascular plants Non vascular plants	moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss	- Yes	- - Yes	Yes Yes	NBN map - NBN map - NBN map DD NBN map VU	- - - -	- - -		- - - Yes	Yes Yes Yes	- - -	-	
Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii Bryum marratii	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum	- - Yes Yes	- - - Yes Yes	Yes Yes Yes -	NBN map - NBN map - NBN map DD NBN map VU NBN map EN	- - - -			- - - Yes Yes	Yes Yes Yes Yes	-	-	
Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii Bryum marratii Bryum muehlenbeckii	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum Muehlenbeck's Thread-m	Yes -	Yes -	Yes Yes	NBN map - NBN map - NBN map DD NBN map VU NBN map EN NBN map DD	-	- - -		- - - Yes Yes Yes	Yes Yes Yes Yes Yes	- - -	-	
Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii Bryum marratii	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum	Yes - Yes		Yes Yes Yes -	NBN map - NBN map DD NBN map VU NBN map EN NBN map EN NBN map DD NBN map EN	- - - - -			- - - Yes Yes	Yes Yes Yes Yes	- - -	-	
Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii Bryum marratii Bryum muehlenbeckii	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum Muehlenbeck's Thread-m	Yes -	Yes -	Yes Yes Yes -	NBN map - NBN map - NBN map DD NBN map VU NBN map EN NBN map DD	- - - - -			- - - Yes Yes Yes	Yes Yes Yes Yes Yes	- - -	-	
Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowltonii Bryum marratii Bryum muehlenbeckii Bryum salinum	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum Muehlenbeck's Thread-moss Saltmarsh Thread-moss	Yes - Yes	Yes - Yes	Yes Yes Yes -	NBN map - NBN map DD NBN map VU NBN map EN NBN map EN NBN map DD NBN map EN	- - - - - - -		- - - -	- - - Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes	- - - -		
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Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss moss moss	Bryum elegans Bryum intermedium Bryum knowitonii Bryum knowitonii Bryum mehlenbeckii Bryum salinum Bryum seliciheri var. lat Bryum torquescens Bryum varneum Buxbaumia viridis Campylophylium halleri Campylopus pilifer Campylostelium saxicola Cirriphylium icrrosum Coscinodon cribrosus	Don's Thread-moss Blushing Bryum Many-seasoned Thread-n Knowlton's Thread-moss Baltic Bryum Muehlenbeck's Thread-moss Schleicher's Thread-moss Schleicher's Thread-moss Warne's Thread-moss Warne's Thread-moss Green Shield-Moss Haller's Feather-moss Stiff Swan-neck Moss Bent-moss Tendril Feather-moss Sieve-tooth Moss	Yes - Yes Yes - Yes - Yes - Yes Yes Yes - Yes Yes	Yes - Yes Yes Yes Yes -	Yes	NBN map - NBN map - NBN map - NBN map DD NBN map EN NBN map ED NBN map EN NBN map EN NBN map EN NBN map - NBN map - NBN map UU NBN map EN NBN map UU NBN map EN NBN map EN NBN map EN NBN map EN NBN map EN NBN map UU NBN map - NBN map UU NBN map - NBN map - NBN map - NBN map - NBN map - NBN map UU NBN map -		Yes Yes		- Yes Yes Yes Yes Yes Yes Yes Yes Yes - Yes Yes Yes Yes Yes - Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	- - - - - - - Yes - - -		

Non vascular plants	moss	Cynodontium tenellum	Delicate Dog-tooth	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Daltonia splachnoides	Irish Daltonia	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	_	-
Non vascular plants	moss	Dichodontium flavescens	Yellowish Fork-moss	_	_	Yes	NBN map -		-	_		Yes	-	_	
				- V	- -	103			-	-	- V	165	-		-
Non vascular plants	moss	Dicranella grevilleana	Greville's Forklet-moss	Yes	Yes	-		-	1		Yes				-
Non vascular plants	moss	Dicranum bergeri	Waved Fork-moss	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	-	-	-	-
Non vascular plants	moss	Dicranum flagellare	Whip Fork-moss	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Dicranum leioneuron	Fuzzy Fork-moss	-	-	Yes	NBN map DD	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Dicranum spurium	Rusty Fork-moss	Yes	-	-	NBN map VU	-	Yes	-	-	-	Yes	-	-
Non vascular plants	moss	Dicranum subporodictyon	Rusty Bow-moss	_	_	Yes	NBN map NT			_	Yes				_
				-	-	Yes	NBN map -		-	-	-	Yes	-	-	-
Non vascular plants	moss	Didymodon acutus	Pointed Beard-moss	-	-				-	-		165	-	-	-
Non vascular plants	moss	Didymodon icmadophilus	Slender Beard-moss	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Didymodon nicholsonii	Nicholson's Beard-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Discelium nudum	Flag-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Ditrichum flexicaule	Bendy Ditrichum	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Ditrichum plumbicola	Lead-moss	Yes	_		NBN map NT	<u> </u>	Yes	_	Yes	Yes	-	_	_
Non vascular plants	moss	Entosthodon fascicularis	Hasselquist's Hyssop	103	-	Yes	NBN map -		-	-	-	Yes	-		
				-	-					-	-	 		-	
Non vascular plants	moss	Epipterygium tozeri	Tozer's Thread-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Eurhynchium pulchellum	Elegant Feather-moss	Yes	-	-	NBN map -	-	-	-	Yes	Yes	-	-	
Non vascular plants	moss	Eurhynchium schleicheri	Twist-tip Feather-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Eurhynchium striatulum	Lesser Striated Feather-n	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Fissidens polyphyllus	Many-leaved Pocket-mos	_	i-	Yes	NBN map -	-	-	-	-	Yes	-	_	-
Non vascular plants		Fissidens rivularis	River Pocket-moss		t_	Yes	NBN map -		-	-	-	Yes	-		-
	moss			- V	V	100		<u> </u>	- -						
Non vascular plants	moss	Funaria pulchella	Pretty Cord-moss	Yes	Yes	 -			- -	-	Yes	Yes	-	-	
Non vascular plants	moss	Grimmia anodon	Toothless Grimmia	Yes	Yes	-	NBN map EX	-		-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia elongata	Brown Grimmia	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia incurva	Black Grimmia	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia laevigata	Hoary Grimmia	-	-	Yes	NBN map -	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia ovalis	Flat-rock Grimmia	_	_	Yes	NBN map -		-	_	-	Yes	-	_	_
Non vascular plants	moss	Grimmia sessitana	Alpine Grimmia	Yes		100	NBN map -		Yes	-	Yes	Yes			
					-	-		-	165	-			_		-
Non vascular plants	moss	Grimmia tergestina	Dapple-mouthed Grimmia	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia ungeri	a Grimmia	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Grimmia unicolor	Dingy Grimmia	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Habrodon perpusillus	Lesser Squirrel-tail moss	Yes	Yes	-	NBN map EN	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Hamatocaulis vernicosus	Varnished Hook-moss	_	Yes	_	NBN map -	WCA 1981	Yes	Yes		Yes			_
		Hedwigia ciliata	Fringed Hoar-moss		100	Yes		WOA 1301	165	163	- V				
Non vascular plants	moss	- rounigia omata		-	-	res		-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Heterocladium dimorphui	Dimorphous Tamarisk-mo	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Homomallium incurvatum	Incurved Feather-moss	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Hygrohypnum molle	Soft Brook-moss	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Hygrohypnum polare	Polar Brook-moss	Yes	Yes	-	NBN map EN	WCA 1981	-	-	Yes	Yes	-		_
Non vascular plants	moss	Hygrohypnum smithii	Arctic Brook-moss	Yes	Yes	<u> </u>	NBN map VU	-		_	Yes	-	_	-	
		Hygrohypnum styriacum	Snow Brook-moss	Yes	Yes	ļ-	NBN map CR		-	_			_		
Non vascular plants	moss	13 17		162	162	F			- -	- -	Yes	Yes	-	-	-
Non vascular plants	moss	Hymenostylium insigne	Robust Tufa-moss	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Hypnum bambergeri	Golden Plait-moss	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Hypnum revolutum	Revolute Plait-moss	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Hypnum vaucheri	Vaucher's Plait-moss	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Microbryum curvicolle	Swan-necked Earth-moss	_	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Microbryum rectum	Upright Pottia	_	<u> </u>	Yes	NBN map -		t _	_	_	Yes	_	_	
		Microbryum starckeanum	Starke's Pottia			Yes			 	-	<u> </u>	Yes	<u> </u>	_	
Non vascular plants	moss			- 1/	- ,,	res	NBN map -		- -	- -				-	-
Non vascular plants	moss	Mielichhoferia elongata	Elongate Copper-moss	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Mielichhoferia mielichhof	Alpine Copper-moss	Yes	Yes	-	NBN map EN	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Mnium ambiguum	Ambiguous Thyme-moss	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	
Non vascular plants	moss	Mnium spinosum	Spinose Thyme-moss	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Myrinia pulvinata	Flood-moss	_	i-	Yes	NBN map NT	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Myurella tenerrima	Dwarf Mouse-tail Moss	Yes	Yes	t	NBN map EN		 	_	Yes	Yes	_		
				103	103	Vac		<u> </u>	 			163			-
Non vascular plants	moss	Oncophorus wahlenbergi	Wahlenberg's Spur-moss		-	Yes			1	-	Yes		-	-	
Non vascular plants	moss	Orthodontium gracile	Slender Thread-moss	Yes	Yes	-	NBN map VU	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Orthotrichum gymnostom	Aspen Bristle-moss	Yes	Yes		NBN map VU		Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Orthotrichum obtusifoliun	Blunt-leaved Bristle-moss	Yes	Yes	-	NBN map VU	WCA 1981	Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Orthotrichum pallens	Pale Bristle-moss	Yes	Yes	-	NBN map EN	-	Yes	-	Yes	Yes	-	-	-
Non vascular plants	moss	Orthotrichum pumilum	Dwarf Bristle-moss	Yes	Yes	L	NBN map EN	_	T	_	Yes	Yes	_		
	moss			.00		Yes	NBN map NT	- 	 	- -			- -		
Non vascular plants		Orthotrichum speciosum	Showy Bristle-moss	-	-				-	-	Yes	-	-	-	-
Non vascular plants	moss	Orthotrichum sprucei	Spruce's Bristle-moss	-	-	Yes	NBN map -	-	Yes	-		Yes	-	-	-
Non vascular plants	moss	Palustriella commutata va	a Hook-moss	-	-	Yes	NBN map -	<u> </u>			Yes	Yes		-	

Non vascular plants	moss	Palustriella decipiens	Lesser Curled Hook-moss	-	-	Yes	NBN map NT	I-	-	-	Yes	-	-		-
Non vascular plants	moss	Paraleucobryum longifoli	Long-leaved Fork-moss	_	_	Yes	NBN map NT	1-	_	_	Yes	_	-		-
Non vascular plants	moss	Philonotis rigida	Rigid Apple-moss	_	_	Yes	NBN map -	<u> </u>	_	-		Yes	-	- 1	_
	moss	Philonotis tomentella	Woolly Apple-moss	-	-	Yes	NBN map -	-	-			163	-		-
Non vascular plants				-	-			<u> </u>		-	Yes	-	-		_
Non vascular plants	moss	Physcomitrium sphaericu	Dwarf Bladder-moss	-	-	Yes	NBN map NT	-	-	-	Yes	Yes	-		-
Non vascular plants	moss	Plagiobryum demissum	Alpine Hump-moss	Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Plagiomnium medium	Alpine Thyme-moss	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Platygyrium repens	Flat-brocade Moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	_ ·	-
Non vascular plants	moss	Pohlia andalusica	Gravel Thread-moss	_	-	Yes	NBN map NT	1-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Pohlia obtusifolia	Blunt-leaved Thread-mos	Yes	Yes		NBN map EN	<u> </u>	_	_	Yes	Yes	-	_	_
	.	Pohlia scotica						-				103			_
Non vascular plants	moss		Scottish Thread-moss	Yes	Yes	-		-	Yes	-	Yes	-	-	Yes	-
Non vascular plants	moss	Pseudoleskea incurvata	Brown Mountain Leskea	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Pseudoleskeella nervosa	Nerved Leskea	Yes	Yes	-	NBN map CR	-	-	-	Yes	Yes	-	- !	-
Non vascular plants	moss	Pseudoleskeella rupestris	Wispy Leskea	-	-	Yes	NBN map NT	-	-	-	Yes	-	-	[- /	-
Non vascular plants	moss	Pterygoneurum ovatum	Oval-leaved Pottia	-	-	Yes	NBN map DD	-	-		-	Yes	-	-	-
Non vascular plants	moss	Ptychodium plicatum	Plaited Leskea	Yes	Yes	-	NBN map VU	1-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Racomitrium himalayanu	Himalavan Fringe-moss	Yes	Yes	_	NBN map VU	t.	_	-	Yes	Yes	-		_
	t	Pacomitrium macounii		103	103	Yes	NBN map NT	-	-	-	Yes	-	-	-	
Non vascular plants	moss	Racomitrium macounii	Macoun's Fringe-moss	-				-			165				
Non vascular plants	moss	Rhynchostegium megapo	Megapolitan Feather-mos	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Saelania glaucescens	Blue Dew-moss	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-		-
Non vascular plants	moss	Sanionia orthothecioides	St Kilda Hook-moss	-		Yes	NBN map NT	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Schistidium agassizii	Water Grimmia	-	-	Yes	NBN map -	-	-		Yes	Yes	-	-	-
Non vascular plants	moss	Schistidium atrofuscum	Black Mountain Grimmia	Yes	Yes	-	NBN map VU	1-	-	-	Yes	Yes	-		-
Non vascular plants	moss	Schistidium confertum	Compact Grimmia		-	Yes	NBN map -	t.	-	-	Yes	-	-	-	-
Non vascular plants	moss	Schistostega pennata	Luminous Moss			Yes	NBN map -		_	_	100	Yes	-	-	-
				-	-			-		-					-
Non vascular plants	moss	Scleropodium cespitans	Tufted Feather-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	- -	-
Non vascular plants	moss	Scleropodium tourettii	Glass-wort Feather-moss	-	-	Yes	NBN map -	-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Scorpidium turgescens	Turgid Scorpion-moss	Yes	Yes	-	NBN map VU	WCA 1981	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Seligeria acutifolia	Sharp Rock-bristle	-	-	Yes	NBN map -	-	-		-	Yes	-	- 1	-
Non vascular plants	moss	Seligeria diversifolia	Long Rock-bristle	Yes	Yes	-	NBN map VU	-	-	-	Yes	Yes	-	-	-
Non vascular plants	moss	Seligeria trifaria	Trifid Rock-bristle		-	Yes	NBN map DD	l-	-	-	-	Yes	-	-	-
Non vascular plants	moss	Sphagnum balticum	Baltic Bog-moss	Yes	Yes		NBN map EN	WCA 1981	Yes		Yes	Yes		\vdash	
						-		WCA 1961		-		Yes	-		-
Non vascular plants	moss	Sphagnum majus	Olive Bog-moss	Yes	Yes	-		-	-	-	Yes	res		-	-
Non vascular plants	moss	Sphagnum riparium	Cleft Bog-moss	-	-	Yes	NBN map -	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Sphagnum skyense	Skye bog-moss	-	-	Yes	NBN map NT	-	Yes	-	Yes	-	-		-
Non vascular plants	moss	Splachnum vasculosum	Rugged Collar-moss	Yes	-	-	NBN map VU	-	Yes	-	-	-	-	-	-
Non vascular plants	moss	Stegonia latifolia	Hood-leaved Screw-moss	Yes	Yes	-	NBN map VU	-	-	-	Yes	-	-	-	-
Non vascular plants	moss	Syntrichia norvegica	Norway Screw-moss	Yes	Yes	-	NBN map VU	1-	_	_	Yes	Yes	_	<u> </u>	-
Non vascular plants	moss	Syntrichia princeps	Brown Screw-moss			Yes	NBN map -	<u> </u>	_	-	Yes		-		_
	moss	Tayloria lingulata	Tongue-leaved Gland-mo	- '		103	NDN map -								
Non vascular plants		Tayloria lingulata					NDM was EN	+				V		-	
Non vascular plants	moss	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Yes	Yes	-	NBN map EN	-	-	-	Yes	Yes	-	-	-
Non vascular plants		Tayloria tenuis	Slender Gland-moss	Yes Yes	Yes Yes	-	NBN map CR	-	-	-		Yes	-		
	moss	Thuidium abietinum subs	Slender Gland-moss Fir Tamarisk-moss	Yes	Yes -	- - Yes	NBN map CR NBN map -	-	-	-	Yes Yes -	Yes Yes	-		-
Non vascular plants			Slender Gland-moss			- Yes	NBN map CR	- - -	-	-	Yes Yes	Yes	-	-	-
	moss	Thuidium abietinum subs	Slender Gland-moss Fir Tamarisk-moss	Yes	Yes -	- - Yes - Yes	NBN map CR NBN map -	- - - -	-	-	Yes Yes -	Yes Yes	-	-	-
Non vascular plants Non vascular plants	moss moss moss	Thuidium abietinum subs Timmia austriaca	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia	Yes	Yes - Yes	-	NBN map CR NBN map - NBN map EN NBN map NT NT NT NT NT NT NT N	- - - -	-	-	Yes Yes - Yes Yes Yes	Yes Yes	-	-	-
Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss	Thuidium abietinum subs Timmia austriaca Timmia norvegica Tortella fragilis	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss	Yes - Yes -	Yes -	- Yes	NBN map CR NBN map - NBN map EN NBN map NT NBN map VU	- - - - -		- - -	Yes Yes - Yes	Yes Yes Yes -	- - - -	- - - -	- - - -
Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss	Thuidium abietinum subs Timmia austriaca Timmia norvegica Tortella fragilis Tortula canescens	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss Dog Screw-moss	Yes - Yes - Yes - Yes	Yes - Yes - Yes - Yes	-	NBN map CR NBN map - NBN map EN NBN map NT NBN map VU NBN map -		- - - -	- - - -	Yes Yes Yes Yes Yes Yes	Yes Yes Yes - Yes		- - - -	- - - -
Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss	Thuidium abietinum subs Timmia austriaca Timmia norvegica Tortella fragilis Tortula canescens Tortula leucostoma	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss Dog Screw-moss Alpine Pottia	Yes - Yes -	Yes - Yes	- Yes - Yes - Yes	NBN map CR NBN map - NBN map EN NBN map NT NBN map VU NBN map - NBN map VU				Yes Yes - Yes Yes Yes Yes Yes - Yes	Yes Yes Yes - Yes Yes Yes Yes			
Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss moss moss	Thuidium abietinum subs Timmia austriaca Timmia norvegica Tortella fragilis Tortula canescens Tortula leucostoma Tortula marginata	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss Dog Screw-moss Alpine Pottia Bordered Screw-moss	Yes - Yes - Yes - Yes	Yes - Yes - Yes - Yes	Yes - Yes - Yes	NBN map CR NBN map - NBN map EN NBN map NT NBN map VU NBN map VU NBN map UU NBN map - NBN map UU NBN map -	- - - - - - -		- - - -	Yes Yes Yes Yes Yes Yes	Yes Yes Yes - Yes Yes Yes Yes Yes		- - - - - - -	- - - - - - -
Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss moss moss	Thuidium abietinum subs Timmia austriaca Timmia norvegica Tortella fragilis Tortula canescens Tortula leucostoma Tortula marginata Tortula protobryoides	Stender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss Dog Screw-moss Alpine Pottia Bordered Screw-moss Tall Pottia	Yes - Yes - Yes - Yes	Yes - Yes - Yes - Yes	- Yes - Yes - Yes Yes Yes	NBN map CR NBN map - NBN map EN NBN map NT NBN map VU NBN map - NBN	- - - - - - -			Yes Yes - Yes Yes Yes Yes Yes - Yes	Yes Yes Yes - Yes Yes Yes Yes Yes Yes Yes Yes			
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Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss moss moss	Thuldium abletinum subs Timmia austriaca Timmia norvegica Tortella fragilis Tortula canescens Tortula leucostoma Tortula marginata Tortula mracipita Weissia brachycarpa var.	Slender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Britle Crisp-moss Dog Screw-moss Alpine Pottia Bordered Screw-moss Tall Pottia Small-mouthed Beardless	Yes - Yes - Yes - Yes	Yes - Yes - Yes - Yes	- Yes - Yes - Yes Yes Yes Yes	NBN map CR NBN map - NBN map NT NBN map VU NBN map VU NBN map - NBN			- - - - - - -	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes			
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Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants Non vascular plants	moss moss moss moss moss moss moss moss	Thuidium abietinum subs Immia austriaca Immia norvegica Tortella fragilis Tortula canescens Tortula leucostoma Tortula marginata Tortula marginata Tortula protobryoides Weissia controversa var. Weissia controversa var. Weissia longifolia var. lor	Stender Gland-moss Fir Tamarisk-moss Sheathed Timmia Norway Timmia Brittle Crisp-moss Dog Screw-moss Alpine Pottia Bordered Screw-moss Tall Pottia Small-mouthed Beardless Crisped Stubble-moss Wimmer's Stubble-moss Crisp Beardless-moss	Yes - Yes - Yes - Yes	Yes - Yes - Yes - Yes	- Yes - Yes	NBN map CR NBN map - NBN map NT NBN map NT NBN map - NBN map	-			Yes Yes Yes Yes Yes Yes Yes - Yes - Yes - Yes - Yes Yes	Yes Yes Yes - Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes			
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Fungi	slime mould	Physarum mucosum	a Slime mold	-	-	Yes	NBN map -	-	-	-	Yes	Yes		-	-
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2020 Challenge for Scotland's Biodiversity



















A Strategy for the conservation and enhancement of biodiversity in Scotland



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Foreword



Scotland is defined very much by its nature and this is reflected in a wealth of references to nature in our literature and rich cultural heritage. We treasure Scotland's native animals and plants and enjoy the vibrant landscapes and protected areas with their great beauty and complex webs of life. Biodiversity sustains our own lives and is at the core of what makes Scotland so special.

Scotland's people have long known we are part of and reliant upon the natural world around us. However, today, in the 21st Century, we have a deeper awareness of the need to protect Scotland's nature to ensure a healthy and prosperous future for our country. Now, we need to respond to that increased understanding of how nature sustains us, and the connections between biodiversity, healthy functioning ecosystems and wider benefits to individuals and society. We must respect the intrinsic appeal of nature too, because where we lose species or natural habitats we are diminished as a nation and our nature is the poorer. Reversing such changes and restoring nature is a challenge, but it is a hugely rewarding feat.

New international targets place an equal status on the prevention of the loss of species and the preservation of the benefits from nature (which are referred to as 'ecosystem services'). It is my view that consideration of ecosystem services must be part of how we plan all policies that impact on the natural environment.

Scotland's rich and diverse natural environment is a national asset and a source of significant international competitive advantage. We trade on its quality, so its continuing health and improvement is vital to sustainable economic growth. Many of Scotland's growth sectors such as tourism, and food and drink depend on high quality air, land and water.

Scottish Government Economic Strategy (2011)¹

Biodiversity plays an essential role in meeting the Scottish Government's vision of a smart, sustainable and successful Scotland, and lies at the heart of our economic strategy. Our natural environment plays a vital role in the prosperity of Scotland and in our national identity. It supports our tourism, farming, forestry, aquaculture and fishing industries and is crucial to attracting investment and marketing of our food and drink. It adds variety to our urban green spaces and contributes hugely to our health and wellbeing. Scotland's nature can, and does, inspire our people.

There is much that the Scottish Government can still do to improve our response to this biodiversity challenge. We need to move further in aligning policies across a wide range of areas concerned with biodiversity. We need to ensure there is adequate protection of nature. We must seize opportunities to achieve other goals in an effective and low cost way through improvements to the natural environment, e.g. in looking for further opportunities to deploy natural flood management. In working through such opportunities, we should reflect the lessons of the *Christie Commission* (2001)² on public services.

There is also much that can be achieved by local government, agencies and other public bodies. While there are many great examples of progress, I urge our partners to improve the way they work together and to step up to their 'biodiversity duty'. Achieving the desired outcomes for biodiversity is not something that the Scottish Government can do alone. We look forward to continued valuable contributions from the nature charities through their campaigning work and all that they do on their own land. We want Local Biodiversity Action Partnerships to provide a model for effective encouragement and coordination of local action. We urge local communities to seize opportunities to manage and improve their local environment. Businesses are rising to the challenge, but many can do more as part of their wider civic responsibilities. We need more landowners and managers to appreciate that protecting nature is a vital part of their role because so much of our nature relies on their stewardship.

Together, we can make a difference.

Paul Wheelhouse MSP

Minister for Environment and Climate Change

Introduction

Biodiversity – nature to most people – underpins our lives, our prosperity and the very essence of our world. The wildlife, habitats and other forms of nature with which we share planet Earth are valuable in their own right quite apart from the pleasure we take from their existence and the ways in which they support us.

This strategy document is about protecting biodiversity and how we can harness nature and its many processes and functions to improve our prosperity and welfare. It is primarily targeted at decision makers in the public sector, but also aims to draw in those whose business enterprise and work, do so much for the environment. As such it uses some technical language not widely used for communicating with the wider public.

Scotland's Biodiversity: It's in Your Hands (2004)³ is designated as the Scottish Biodiversity Strategy. The Strategy has the aim 'to conserve biodiversity for the health, enjoyment and wellbeing of the people of Scotland, now and in the future.' It sets out a vision for 2030 as well as objectives and desired outcomes leading us there. These are still valid. However, the way in which the Strategy will be taken forward has changed from that set out almost 10 years ago.

Scottish Natural Heritage published a comprehensive assessment of *Scotland's* performance against the 2010 international targets⁴. This showed that good progress had been made towards meeting the UN target of a significant reduction in the loss of biodiversity. Lessons learnt from the 2010 assessment included the need to influence more policy areas and decisions, and in particular to include the many values of nature in decision-making. Accordingly, we need to adopt a more adaptive approach, learning from experience and trying to tackle the causes of biodiversity loss.

Internationally, the 2010 targets to preserve biodiversity were missed. This led to the UN Convention on Biological Diversity setting new targets for 2020, the so-called 'Aichi Targets'(2010)⁵. In addition new 2020 targets were set for the EU and a new European Biodiversity Strategy⁶ was published in 2011. The new international targets call for a step change in efforts to halt the loss of biodiversity and to restore essential services that a healthy natural environment provides.

This 2020 Challenge is a supplement to the Scottish Biodiversity Strategy (2004)³, focused on desired outcomes for 2020. It shows how the Scottish Government, its public agencies, Scottish business and others can contribute to the Strategy's aims as well as supporting sustainable economic growth. With the publication of this document, the Scottish Government hereby designates the two strategy documents together, as comprising the Scottish Biodiversity Strategy. The 2020 Challenge provides greater detail in some areas, responds to new international targets, and updates some elements of the 2004 document. The three-year reporting cycles for the strategy will ensure that progress is recorded and necessary action taken. The Scottish Biodiversity List (2004)⁷ will be reviewed and help focus priorities.



The Nature Conservation (Scotland) Act 2004⁸ places a 'Biodiversity Duty' on public bodies to further the conservation of biodiversity and to have regard to the Scottish Biodiversity Strategy (2004)³. This document provides a clearer view of the types of activities that should be considered with regard to that duty.

The Strategy does not list the huge range of actions, policies and strategies that have an impact on biodiversity. Instead, it sets out the principles and approaches adopted by the Scottish Government with its partners to meet the *2020 Challenge*.

The Scottish Government will develop a 'Delivery Agreement' with partners and invite them to commit to making the Strategy work through new governance arrangements.

Executive summary

This 2020 Challenge is Scotland's response to the Aichi Targets (2010)⁵ set by the United Nations Convention on Biological Diversity (2010)¹⁰ and the European Union's Biodiversity Strategy for 2020 (2011)⁶. These call for a step change in efforts to halt the loss of biodiversity and to restore the essential services that a healthy natural environment provides. Investment in the natural assets of Scotland will contribute to sustainable economic growth and support wellbeing and wealth creation.

Scotland's 2020 Challenge aims to:

- protect and restore biodiversity on land and in our seas, and to support healthier ecosystems.
- connect people with the natural world, for their health and wellbeing and to involve them more in decisions about their environment.
- maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth.

All of this supports the Scottish Government's purpose of 'creating a more successful country, with opportunities for all of Scotland to flourish through increasing sustainable economic growth'. Table 1 shows key outcomes from the chapters of the 2020 Challenge, which contribute towards the Scottish Government's purpose and strategic objectives.

Our understanding of biodiversity has changed since 2004. *The UK National Ecosystem Assessment (2011)*¹¹ (UKNEA) provides the first objective analysis of the benefits of the environment for nature itself, society and economic prosperity. Examples include the ways in which natural riverside habitats help to regulate river flows, and peatlands and woodlands lock up carbon from the atmosphere. Together, these many benefits represent a massive financial asset to Scotland, valued at between £21.5 and £23 billion per year.

Chapter 1 makes the case that **ecosystems need to be protected**, and where necessary restored and enhanced, to ensure that they continue to support nature, wellbeing and a thriving economy. Maintaining nature's capacity to provide vital services costs far less than replacing them. Tackling flooding, erosion and other forms of degradation require broad scale action across entire river catchments, landscapes and marine areas.

Table 1. The contribution of the *2020 Challenge* to the Government's strategic objectives and aims for increasing sustainable economic growth.

		sh Government's purpose: sustainable economic growth	
Strategic	2020 0	Challenge for Scotland's Biod	liversity
Objectives	AIMS	KEY OUTCOMES	CHAPTER
Wealthier and Fairer		Natural resources contributing to strong, sustainable economic growth	Ch 2
anu ranei		Diverse natural environment is a national asset we must protect	
Healthier	Maximise the benefits of a diverse natural	Health and well-being improved through physical activity and contact with nature	Ch 3
пеанне	environment	 Nature providing goods and services which support our lives, welfare and economy 	
Safer and		Healthy natural environment is much more resilient to climate change	Ch 1
Stronger		Communities involved in decision-making take pride in their local environment	
	Engage people with the natural	An integrated approach taken to land and water use	Ch 5
Smarter	world	Healthier local environments more widely understood and supported by communities	Ch 7
	Support bio-	Scotland's internationally re- nowned nature is highly valued and secure	Ch 4
Greener	diversity and ecosystems	We have clean, healthy, safe, productive and biologically diverse seas and coast	Ch 6

The 2020 Challenge takes 'an ecosystem approach' to securing multiple benefits from sustainable management of our land and seas. This approach to planning and decision-making will establish what needs to be done at the landscape scale to solve problems. It provides a unified agenda that public bodies, land managers and marine users can work towards and focuses action on areas in greatest need of restoration based on assessments of ecosystem health. This approach can empower communities by giving them a say on priorities at the local level pursued through a framework of national action.

Growing our natural capital is central to **chapter 2.** Scotland trades heavily on the quality of its natural environment in the imagery used by the food and drink industry, tourism, and to attract new businesses. Nature contributes to all of this in ways that are hard to measure in amounts of money, but we know the value is high.

The *Natural Capital Asset Index* (2012)¹² describes changes across Scotland since the 1950s. This reveals a marked decline in natural capital from 1950-2000 with some encouraging signs of recovery in some habitats since 2000. A key purpose of this Strategy is to extend those signs of recovery to all habitats, to invest in the assets that support wellbeing and wealth creation and to sustain benefits for the future. The importance of natural assets should be reflected in national accounts and ultimately in business accounting. Peatlands are given particular emphasis because of their vital role in storing carbon and thereby contributing to a low carbon economy, and also because of their international conservation importance.

Health, wellbeing and education are key benefits provided by the natural environment. **Chapter 3** describes these, showing how an increase in physical activity is often described as 'the best buy in public health'. A growing number of studies show benefits from outdoor exercise and regular contact with nature, contributing both to physical and mental wellbeing. The educational benefits of out-door learning are now firmly rooted in the Curriculum for Excellence.

Good quality green space and path networks play an important role in place making and regeneration. These need to be provided closer to people who need them, especially in the most deprived areas of Scotland where access to good quality greenspace can be very limited. In addition, providing more of these green spaces in and around National Health Service grounds can add value to health treatment and rehabilitation.

Local communities need greater opportunities to be much more involved in managing 'their' green spaces – around schools, community centres and of course where they live. Public bodies and buinesses are encouraged to play a more active role in realising these benefits.

Chapter 4 considers the vital roles of protected places and action for wildlife and habitats in helping nature itself, as well as supporting our prosperity, health and wellbeing.

There are compelling reasons for protecting and managing wildlife. Iconic species like dolphins in the Moray Firth and white-tailed eagles on the Isle of Mull provide thrilling entertainment for residents and tourists. Beyond such examples we need to improve our understanding of the role of less spectacular plants, animals and other organisms in providing vital services such as recycling nutrients in soils and purifying water.

Much still needs to be done to conserve, manage and reintroduce species to ensure the greatest gains for nature and us. We have indicated some priorities, and recognise in particular that we must tackle the threats posed by invasive non-native species, where early action is vital. A few conflicts between wildlife and people dominate the headlines, and we need to work together creatively to eliminate some of the consequential problems.

Chapter 5 makes the case for a much more integrated approach to **land and freshwater use and management**. The pressures on the natural environment from habitat loss, nutrient enrichment and climate change require concerted action at the landscape scale. Building on the *Land Use Strategy* (2011)¹³, this chapter proposes an ecosystem approach, aimed at securing multiple benefits for nature, businesses and people.

The Scottish Government intends to build on river basin management planning as the basis of more integrated land and water use planning across whole catchments. This will provide a means of integrating public policy objectives in order to tackle issues such as diffuse pollution, flood risk, soil protection, peatland restoration and an expansion of woodland cover. We shall support 'high nature value farming and forestry'. We are looking to provide ways of coordinating action among public bodies and targeting financial incentives at land managers working at the local level. The Scottish Rural Development Programme (SRDP) remains the major source of funding for this.

The marine and coastal environment features in chapter 6. This is especially important for jobs and tourism, particularly in remote parts of the country. Fishing and aquaculture industries, tourism and recreation all rely on marine and coastal environments that are clean, healthy, safe, productive and biologically diverse. Changes in sea temperature, rising sea level and more frequent storm surges are already affecting marine species and coastal habitats adding urgency to the need for effective marine and coastal management. In Scotland we have some of the world's strongholds for marine wildlife so we will be focusing efforts on protecting these.

The *Marine Nature Conservation Strategy for Scotland (2011)*¹⁴ describes much of what needs to be done. We need to establish a network of Marine Protected Areas with an emphasis on adaptive management, improving the status of priority marine features, and introducing a new system of marine planning to improve the management of our seas. Central to this is the sustainable use of marine resources and involvement of stakeholders in decision-making. Coastal areas need special consideration, ranging from maintaining sustainable inshore fisheries to helping habitats adapt to sea level rise. Contingency plans will be put in place to protect our islands, the marine environment and industries from invasion by non-native species.

Chapter 7 considers how we will **track progress towards the 2020 Challenge**. Alreadyestablished UK indicators will feed into reporting at Europe-wide and global levels.

We need good data to measure progress effectively. In Scotland we are very fortunate to have a wealth of biodiversity information, thanks largely to the efforts of specialist volunteers and national recording schemes. Web-based information portals such as Scotland's Environment Web offer excellent opportunities to combine biodiversity information and other environmental data. Indicators for healthy ecosystems will help us to guide adaptive management at the catchment/landscape levels. These indicators will contribute to Scotland's reports on progress against the *Aichi Targets* (2010)⁵, and more widely.

It is vital that we have clear ways to both track progress and identify where there are problems. Where there are success stories we need to share them rapidly and widely not least so we can demonstrate how a more inclusive and joined-up approach to managing nature helps our country, and nature, grow stronger.



1 Healthy ecosystems







Outcome

Scotland's ecosystems are restored to good ecological health so that they provide robust ecosystem services and build our natural capital.

Key steps

- Encourage and support ecosystem restoration and management, especially in catchments that have experienced the greatest degradation.
- Use assessments of ecosystem health at a catchment level to determine what needs to be done.
- Government and public bodies, including SNH, SEPA and FCS, will work together towards a shared agenda for action to restore ecosystem health at a catchment-scale across Scotland.
- Establish plans and decisions about land use based on an understanding of ecosystems. Take full account of land use impacts on the ecosystems services that underpin social, economic and environmental health.

Introduction

Biodiversity is all of life: animals, plants, fungi and microorganisms and their interactions with their environment. Together, these form living systems, called ecosystems, which sustain nature and upon which our own survival depends.

In 2011 a full account of the value of the 'services' we get from ecosystems was published in the *UK National Ecosystem Assessment (2011)*¹¹ *(UKNEA)*. This landmark publication provided many fresh insights into the value of nature. Some key messages included the need for us to:

- value all the services and benefits we get from our environment. This means finding
 ways to account for, and build into decision-making, services that are currently
 undervalued or omitted (and therefore at risk) from conventional economic analysis.
 Chapter 2 expands on this.
- take a more integrated and less sectoral approach to land management. Rather than thinking about 'forestry' or 'farming', or about 'rivers' or 'uplands', it is better to think about 'river catchments', or some other landscape scale. Chapter 5 considers this further.
- find ways to make the ecosystems we depend upon more resilient, as both population growth and climate change are likely to increase the adverse pressures on them.
- take the long view, as land management can have consequences far into the future. We need to do better at understanding what these consequences might be. Restoring damaged ecosystem functions or paying to overcome the loss of function is far more costly than being careful to nurture, and build upon, what we have in the first place.

The evidence base on the changing nature of Scotland.

The Strategy is founded on a substantial evidence-base. *Scotland's 2010 biodiversity assessment (2010)*⁴ concluded that biodiversity loss had been slowed where targeted action had been applied, but halting it would require renewed and sustained effort over a longer period. This systematic account was based on, for example: the Countryside Survey; our knowledge of protected areas and a suite of biodiversity indicators designed specifically for such a factual overview.

The Changing Nature of Scotland (2001)¹⁵, the seventeenth in an annual series of publications from SNH, provides an update of environmental change across the land, water and seas of Scotland. Scotland's Marine Atlas (2011)¹⁶ gives a uniquely comprehensive account of the surrounding seas. Scotland's State of the Environment Report (2006)¹⁷ concludes that, despite a generally good environment, issues continue to affect human health, wildlife and economic success. A key message from the UKNEA (2011)¹¹ is that the natural world, its biodiversity and constituent ecosystems, are critically important to our wellbeing and economic prosperity, but are consistently undervalued in conventional economic analyses and decision making.



An ecosystem approach

All of this is central to what is called an 'ecosystem approach', which is defined in the Convention on Biological Diversity as:

'A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way, and which recognises that people, with their cultural and varied social needs, are an integral part of ecosystems'.

Three key steps guide our use of an ecosystem approach:

- 1. Take account of how ecosystems work. Nature connects across landscapes, so we need to consider the broad and local scales. The capacity of ecosystems to respond to impacts and provide resources is not infinite. Ecosystems are dynamic so we must recognise that change will happen. By using up-to-date information, embracing adaptive management principles, and trying to sustain nature's multiple benefits, we can ensure that nature continues to contribute to Scotland's growth.
- 2. Take account of services that ecosystems provide to people, such as regulating floods and climate, breaking down waste, providing food, fuel and water, and contributing to quality of life, culture and wellbeing.
- Involve people in decision-making, especially those who benefit from ecosystem services and those who manage them. This means valuing people's knowledge, helping people to participate, and giving people greater ownership and responsibility.

Nature connects across landscapes, so we need to consider broad local scales.

Recent progress

Scotland has already begun adopting this approach to national policy. Since 2004, all public bodies have a duty under the *Nature Conservation (Scotland) Act (2004)*⁸ to further the interests of biodiversity. Through the planning system, Planning Authorities have an important role to play in improving the environment, for example by strengthening green infrastructure, safeguarding and enhancing urban and rural biodiversity, and contributing to the improvement of water, air and soil quality. The second *National Planning Framework for Scotland (2009)*¹⁸ highlights the fact that the environment is one of Scotland's chief assets, a source of natural capital that can drive broad-based sustainable growth (chapter 2 gives more detail on this). The *Biodiversity Duty (2004)*⁹ will also provide a general statutory underpinning to the need for public bodies to work together to meet the *2020 Challenge* and achieve its biodiversity outcomes in a cohesive way, and to report on progress (more detail is in chapters 3 and 7).

Scotland's Land Use Strategy (2011)¹² promotes an ecosystem approach, with land management aimed at securing multiple benefits. An information note on an ecosystem approach for decision-makers and managers has been produced to assist in applying the Strategy. A similar ecosystem approach for our seas is discussed further in chapter 6.

The climate change adaptation plans prepared under the *Climate Change Act* (2008)¹⁹ provide sound guidance on a wide range of activities that can improve ecosystem resilience. *Farming for a Better Climate* (2011)²⁰, in particular, deals with critical action at the farm scale.

The Scottish Government's planning policy is set out in the *National Planning Framework* (2009)¹⁸ and *Scottish Planning Policy* (2010)²¹. Planning policy gives significant support for the greater connectivity of habitats, and contains proposals to enhance green infrastructure. Across the central belt, there is a history of a degraded natural environment and a lack of connections between people and nature. The establishment of the Central Scotland Green Network (CSGN), introduced as a National Development in the second National Planning Framework, represents a step change in meeting environmental, economic and social goals through the natural environment.

Scottish Planning Policy (2010)²¹ encourages Planning Authorities to promote green infrastructure that will add value to the provision, protection, enhancement and connectivity of open space and habitats; both within and between towns and cities. Green infrastructure can include lochs, ponds, watercourses and wetlands as well as woodlands, parkland and other open habitats. These provide recreational resources and wildlife habitats, and we need to protect and enhanced them wherever possible.

As a result, Planning Authorities have worked hard to set clear proposals for green infrastructure within their development plans and planning policies. Within the CSGN area there is close collaboration through partnership, involving all the local authorities, Scottish Natural Heritage, Forestry Commission Scotland and Scottish Enterprise. This is considered further in chapter 3.

This landscape-scale approach has also been supported by a number of the non-governmental organisations: the Scottish Wildlife Trust in its 'Living Landscapes' initiative; the Royal Society for the Protection of Birds in its 'Futurescapes' work; the Heritage Lottery Fund through its 'Landscape Partnership' programme; and the Scottish Forest Alliance in its 'Great Trossachs Forest Project'. Such thinking and practical application, show that the opportunity for action is considerable, and its support is wide.

The Flood Risk Management (Scotland) Act (2009)²² supports a catchment level approach to managing flood risk sustainably. Managers are required to consider a wide range of solutions, including natural flood management, which promotes techniques that work with nature to enhance, restore or alter natural features and characteristics. This more sustainable approach ensures opportunities to secure multiple benefits.

Developing an ecosystem approach

This range of examples shows how far we have come since the *Scottish Biodiversity Strategy*³ was published in 2004. It demonstrates the extent to which people have risen to the challenge of taking a more integrated, landscape-scale approach, as advocated in that document.

Through the Scottish Environment and Rural Services (SEARS) initiative, the Scottish Government has sought to bring about a more coordinated rural service in Scotland, aligning the agricultural, forestry and environmental agencies of government. The approach needed to care for nature and safeguard ecosystem services is simply an extension of this. This integrated approach, providing multiple benefits, is reinforced though the *Land Use Strategy* (2011)¹³.

River basin management planning provides information about the current ecological status of Scotland's freshwater systems, highlights pressures on water bodies, and identifies measures to resolve any issues and targets for improvement. It establishes a structure for involving a wide range of organisations in assessing the state of the water environment and in identifying where action is needed. The Scottish Government intends to build on this work to foster further collaboration.

In the coming years we want to determine the status of Scotland's ecosystems more generally, using a broad range of indicators of ecosystem health. These should be assessed on a catchment by catchment basis across Scotland. Applying an ecosystem approach at a river catchment level will secure efficiency by:

- streamlining and integrating stakeholder engagement and work into one process with aligned goals.
- building collaboration amongst SEARS members.
- meeting simpler and more coherent priorities for land managers and land owners.
- helping build confidence in what we mean by ecosystem health.

This should enable us to have more focused regulation and less demanding appraisals in advance of development.

At a national level, this approach should identify catchments most in need of attention. At a more local level, information about particular problems within catchments will help us sharpen local priorities (not least those in the SRDP and Local Biodiversity Action Plans), and identify where investment in ecosystem restoration might be most beneficial. All of this will, in turn, help us enhance or restore ecological health. And if we can do that, we should be able to have:

- a framework for establishing a national ecological network.
- greater resilience against adverse changes, such as those arising from climate change.
- key work underway outside protected places to meet requirements under the EU Habitats Directive.
- agreed regional priorities for the SRDP.
- a means for planning forest expansion.
- Local Biodiversity Action Plans contributing to national priorities.

Towards a national ecological network

The second *National Planning Framework* (2009)¹⁸ proposed the recognition and enhancement of a national ecological network. This idea of a 'network' is grounded in a well-understood feature of nature that species depend on each other in complex relationships; that movement of species across or through the environment requires proximity or connectivity of habitat; and that some species require different habitats for different aspects or stages of their lives. It also recognises the fact that energy and information are carried through natural systems, and that water, nutrients and elements such as carbon are cycled, stored and recycled in complex ways. The term 'network', then, encompasses this idea of functional connectivity, interdependence and the channels of energy, material and information flow that life requires.

Hence, a 'national ecological network' is a way of characterising the nature of Scotland, laying importance on how its different parts relate to each other in ways that best support biodiversity and provide the many benefits (or ecosystem services) to people. This network in the array of woodlands, grasslands, moorlands, wetlands, rivers and lochs across great swathes of countryside, and also the smaller mosaics of hedgerows, marshlands and bogs, woodlands, pastures and arable land on individual farms. This can work well in sustaining diversity and providing multiple benefits of wildlife as well as food, fibre and fuel.

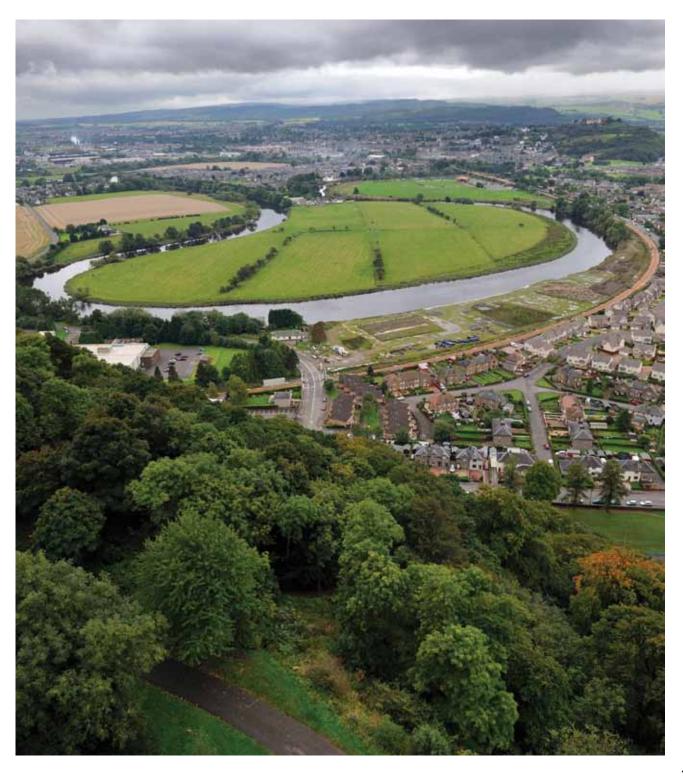
But, as we have seen from the *UKNEA* (2011)¹¹, some ecosystem services are deteriorating. Work on a national ecological network should endeavour to redress and restore these services. Development of green infrastructure in and around our towns and cities will help, as should enhancement of ecosystem health across river catchments.

Improving ecosystem health

There are three simple steps to improve ecosystem health;

- (i) devise a simple but robust way of assessing it;
- (ii) know what needs to be done to maintain or improve it; and
- (iii) ensure that resources follow the priorities so that work gets done.

None of this is straightforward, and we need to learn by doing through adaptive management.



Assessing ecosystem health – the need for indicators

We know from the *UKNEA* (2011)¹¹ that ecosystems across Scotland are not meeting their full potential. It is not that they are close to collapse; rather the evidence suggests degradation across wide areas and so reducing their value. Examples of these extensive issues relate to diffuse pollution (mainly by nitrogen oxides); poor soil quality (compaction, loss of soil biodiversity and reduced soil carbon); reduced water retention on land; siltation and scouring in rivers; fragmentation of habitats; the spread of invasive species, such as rhododendron in woodland or signal crayfish in rivers; and rapid change in land use. We want to reverse these trends, pursuing the Aichi target of restoring 15% of degraded ecosystems.

Ecosystems, by their nature, are extremely complex. No single measure of 'ecosystem health' can usefully be derived. Rather, as for our own health, we need a suite of indicators with which we can make a diagnosis and determine the treatment. In the first instance, we plan to have around 6-12 broad indicators. These will be drawn from time-series data collected routinely, and which can be assessed at the catchment scale. Chapter 7 considers this further.

What needs to be done to improve ecosystem health?

Assessment of catchments using indicators will produce information about what needs to be tackled and where. Action must be informed by science and by practical experience through adaptive management. Science tells us that the following sorts of action are the ones most likely to help;

- reduce adverse pressures on ecosystems, habitats and species.
- make space for natural processes, including geomorphological and soil processes.
- enhance means for species dispersal and genetic adaptation through improving connectivity and habitat availability.
- improve habitat management where it is the cause of decline in species diversity or where it could improve resilience to climate change through increased habitat diversity on farms, in forests and elsewhere in the landscape.
- take an adaptive approach to land and conservation management, changing objectives and management measures in response to new information and by anticipating effects.
- plan for change where assessments indicate that it is likely and unavoidable, for example as a result of sea level rise.

Restoring the quality, or increasing the area, of some habitats, which past land uses have adversely affected is an important way of trying to recover ecosystem health. Some examples of what we need to do to help us meet restoration targets under the CBD, include;

- restoration of the hydrological integrity of peatland.
- restoration of coastal dune systems.



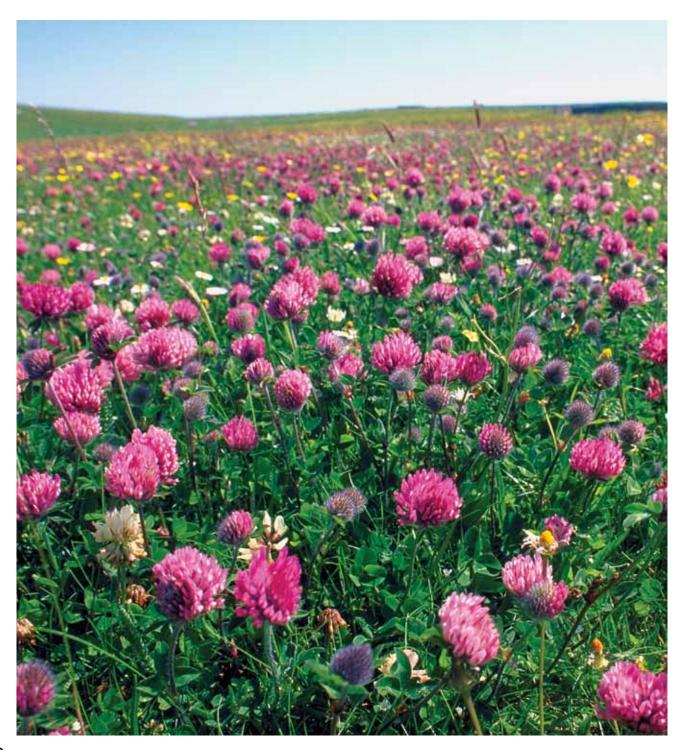
- restoration of native woodland, montane scrub and near-natural treelines where these have been suppressed or eliminated by grazing and burning.
- expansion of woodland in some catchments.
- restoration of riparian and woodland flora where invasive species such as rhododendron or Japanese knotweed are becoming dominant.
- establishment of saltmarsh in some areas where there is coastal inundation.

The importance of adaptive management, and our need to learn, means we should give extra attention to current projects that are tackling land management through an ecosystem approach at the landscape scale. We need to learn from what works well and share the results widely. In addition, we intend to explore this further through the Land Use Strategy regional pilot studies.

Resources needed to meet the priorities.

The Scottish Government intends to target resources where they will have greatest impact in meeting the *2020 Challenge*. From 2015, the revised SRDP will be of key importance in making a difference. Rural priorities may be more targeted towards specific measures that address the issues identified as locally important in individual catchments. The 'greening measures' associated with direct support payments can help ensure that good practice in land and soil management is adopted across the country.

A more cohesive approach by the Scottish Government and its agencies should result in shared common objectives at local and national levels being met. In the early years of the 2020 Challenge, the focus has to be on projects and places already identified as priorities for action among the agencies, local government and NGOs.



Key messages from this chapter

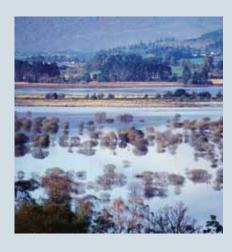
- Ensure we benefit from resilient ecosystems that continue to provide robust ecosystem services and natural capital for future generations.
- Use an adaptive, integrated approach at the ecosystem level, which is best managed at the spatial scale of river catchments.
- Coordinate policies and action across Government and public bodies, and involve others including managers of land and sea and non-governmental bodies.
- Devise an effective means of assessing ecosystem health.
- Restore and enhance ecosystems.

What will be different as a result of applying the principles in this chapter?

- Agencies, including SNH, SEPA, FCS and Local Authorities, will work together to restore ecosystem health in catchments across Scotland.
- Land-use plans and decisions will take better account of how nature functions and provides valuable services to communities and the economy; effective data and analytical tools will support these.
- Resources will be used where they are most needed, to ensure the resilience of ecosystems, and to sustain natural capital for the economic wellbeing of Scotland.
- We will have a far better understanding of the benefits nature provides through the systematic mapping of ecosystem health and ecosystem services at the catchment scale.



2 Natural capital







Outcome

Natural resources contribute to stronger sustainable economic growth in Scotland, and we increase our natural capital to pass on to the next generation.

Key steps

- Encourage wide acceptance and use of the *Natural Capital Asset Index* (2012)¹², including a comparable measure for the marine environment.
- Use this index to influence decision-making and market-based approaches, so that the wider monetary and non-monetary values for ecosystem services are recognised and accounted for.
- Undertake a major programme of peatland conservation, management and restoration.

Introduction

The Scottish Government recognises that Scotland's rich and diverse natural environment is a national asset and a source of significant international competitive advantage. Its continuing health and improvement is vital to sustainable economic growth. Many of Scotland's growth sectors, such as tourism, food and drink, depend on high quality air, land and water. There are many other less tangible ways in which nature sustains us, contributing to our health, wellbeing, enjoyment, sense of place and who we are as a nation.

Once the value of this natural asset is recognised, we need to manage and invest in it to maintain its many functions. We need to sustain and improve the health of the ecosystems that support this (see chapter 1). We need to make efficient use of natural resources, and add to the quality of these to gain better outcomes for our economy and society, now and for the future. In doing this we have to recognise that our impacts on nature and ecosystems extend through trade far beyond our own boundaries.

The value of natural capital – nature's support for prosperity

The value of nature to people and the economic importance of natural systems have been demonstrated by two studies: *The Economics of Ecosystems and Biodiversity (TEEB, 2010)*²³ and the *UKNEA (2011)*¹¹. These evaluated the benefits that flow from nature (ecosystem services), giving a measure of the value of natural capital.

The *UKNEA* (2011)¹¹ showed that over the past 60 years there have been significant changes to Scotland's natural environment and the way people benefit from it. Production of food from agriculture has increased significantly but many other ecosystem services declined, particularly those related to air, water and soil quality. These tend to be the services that are less visible or that have less market value. Some ecosystem services have shown welcome improvements, while others are still in decline or remain in a reduced state, including marine fisheries and native species diversity. Possible responses to this have been discussed in chapter 1.

Monetary values for all ecosystem services are impossible to determine. Some services, such as providing the oxygen we breathe, cannot be given a meaningful value. The services that can be given a monetary value, however, have been estimated to be worth between £21.5 and £23 billion per year to Scotland. The Scottish Government is funding research both to develop and improve techniques to assign monetary values to ecosystem services, and to understand the value of these for Scotland. A recent review of *ecosystem services* (2013)²⁴ has shown the clear linkage between the living and the physical environment, providing many services to society.



Examples of nature's services and their values

- The peatland soils of Scotland are estimated to store ten times more carbon than in all of the UKs trees (UKNEA (2011)¹¹).
- Lochs in Scotland store almost 35 billion cubic metres of water, and Scottish soils up to 42 billion cubic metres of water (*UKNEA* (2011)¹¹). For comparison, one cubic metre equates to the average daily water use of six people in a household.
- The value of insect pollination services in Scotland is estimated at £43 million per year UKNEA (2011)¹¹.
- The value of coastal wetlands in Scotland has been estimated at £49-76 million per year (UKNEA working paper).
- Visits to the outdoors made by people living in Scotland generated around £2.3 billion in expenditure in 2010 (Scottish Recreation Research (2011)²⁵).
- In 2004, the value of marine biodiversity-related industries in Scotland was estimated to be over £1.2 billion (*Sustainable Seas for All (2008)*²⁶).

An important element of Scotland's natural capital is our farmed and cultivated biodiversity and associated genetic diversity. Work to preserve this is taken forward by many bodies, with the Farm Animal Genetic Resources Expert Committee and the UK Plant Genetic Resources Group providing coordination and leadership. Securing genetic diversity in farmed and cultivated biodiversity ensures the robustness of food production. There are important links with traditional knowledge, and with diversity of farmed habitats for wild species. An example of this work is the Scottish Landrace Protection Scheme, administered by Science and Advice for Scottish Agriculture (SASA), which is providing a safety net for the continued use of traditional varieties of farm animals and crops in Scottish island communities.





Principles for sustaining the value of Scotland's natural capital

Taken together, evidence from the TEEB and UKNEA reports points to a series of principles that should be reflected in public policy and decision-making to sustain the benefits from Scotland's natural capital:

- The full benefits from nature should be integrated into cost-benefit appraisal of policy, management or development options. Where the value of nature's benefits cannot be measured, the consequences of different options can still be identified through Strategic Environmental Assessment (2005)²⁷ and Environmental Impact Assessment (2011)²⁸. We want to minimise negative impacts on nature and to enhance natural capital and the benefits from it. Trade-offs between different ecosystem services should be made more explicit to decision makers, so that changes to public benefits from nature are considered alongside other costs and benefits.
- Safe minimum standards and precautionary approaches should be adopted alongside valuations and assessments. This will ensure that the importance of nature for maintaining resilience to future change is captured, and the presence of tipping points or thresholds is recognised, not least where a small change may lead to a long-term irreversible impact. For example, the EC Water Framework Directive (2000)²⁹ and the Marine Strategy Framework Directive (2008)³⁰ both identify ecological status standards, which help to assign priorities for restoring water bodies and to judge the significance of proposals for future use of these natural resources. Nature conservation legislation identifies key sites and species, which need to be protected in order to sustain Scotland's natural assets for current and future generations. The Flood Risk Management (Scotland) Act (2009)²² requires SEPA to consider whether techniques that restore, enhance or alter natural features and characteristics can contribute to managing flood risk.

- The value of nature should be reflected in incentives and price signals. This can include payments for ecosystem services, reform of environmentally harmful subsidies, tax breaks for conservation, or new markets for sustainably produced goods and services. Market-based mechanisms need to be used in a way that sustains public benefits for current and future generations. The Woodland Carbon Code is a voluntary standard for woodland creation projects in the UK, which estimates the carbon dioxide they sequester. Independent certification to this standard provides assurance and clarity about the carbon savings of these sustainably managed woodlands. A peatland carbon code could enable peatland restoration to be promoted within carbon markets in a similar way. Within the UK, the Ecosystem Markets Task Force aims to identify market-based opportunities for business as a contribution towards nature being properly valued and protected.
- Investment in protecting and building up natural capital can bring economic benefits that greatly outweigh the costs. The TEEB (2010)²³ study showed that protected places provide economic returns that are 100 times greater than the cost of their protection and maintenance. Maintaining nature's capacity to provide the functions upon which we rely is often cheaper than having to replace them by investing in infrastructure or technical solutions. Taking preventative action before invasive nonnative species become widespread will be much less costly than dealing with their economic impacts, such as damage to forestry, crops and infrastructure. These impacts have been estimated to cost up to £1.7 billion per year in Great Britain and possibly as much as £250 million in Scotland.
- The value of natural capital assets should be incorporated into national accounting and business accounting to ensure this is fully considered in assessing the effectiveness and sustainability of Government and business. This is a desirable goal that requires development of data, methods and standards. Companies should already be considering changes to the condition of natural assets that could have a significant impact on their business, as part of their review of the main trends and factors likely to affect their performance. There is a commitment at the UK level to putting 'natural capital at the heart of Government accounting' (UK Natural Environment White Paper, 2011)³¹.

Taking account of the benefits from nature: Scottish Government's Principles for Sustainable Flood Management Appraisal (2011)³².

An appraisal of options should support decision-making at all levels of flood risk management planning; from strategic flood risk management plans to individual projects. To ensure sustainable actions are taken, the assessment of options should not be limited to impacts that can be measured easily in monetary terms. Other significant impacts such as on health and the environment must be described and valued. Assessment of environmental impacts should include valuing the environment according to the range of goods and services it provides to people, and how provision of these benefits might be altered by different options.

Resource efficiency - making the most of our natural assets

Resource efficiency means preserving the natural assets while increasing the value obtained from them to enhance our prosperity. Some natural assets, such as the extent of our land area, are fixed, while area of sea is set by international agreements. We have real choices to make about how to balance the uses of these in order to ensure they support a prosperous nation. This echoes the perspective of the European Commission in its strategy document 'A resource-efficient Europe' a flagship initiative under the Europe 2010 Strategy³³.

Natural resources underpin the functioning of the European and global economy and our quality of life. These resources include raw materials such as fuels, minerals and metals but also food, soil, water, air, biomass and ecosystems. The pressures on resources are increasing.

The Scottish Government published its *Land Use Strategy*¹³ in March 2011. This sets out a vision and objectives for Scotland's land resources, and it proposes ten principles to help us meet these objectives in decision and policy-making. 'Responsible stewardship of Scotland's natural resources delivering more benefits to Scotland's people' is one of the three objectives.

Consumer driven innovation can contribute towards more resource-efficient consumption and lead to benefits for biodiversity and ecosystems. For example, the Food and Drink Federation recognises the need to look at the environmental impacts of product sourcing and to consider supply chains (including its global footprint). One cereal company sets a good example of a business which has fully incorporated its commitment to biodiversity into its operations; for over 25 years, it has worked only with grain farmers who dedicate 10% of their land to wildlife habitats.



Several Scottish planning authorities have used planning agreements to secure biodiversity actions to offset damage to sites caused by a development. Scottish Borders Council has been a pioneer of this approach. For a number of renewables developments, the Council reached agreement with developers to pay contributions to fund nearby biodiversity improvements. Partners then took these projects forward, and many yielded multiple benefits including natural flood management, diffuse pollution control and biodiversity gains.

The role of peatlands in a low carbon economy

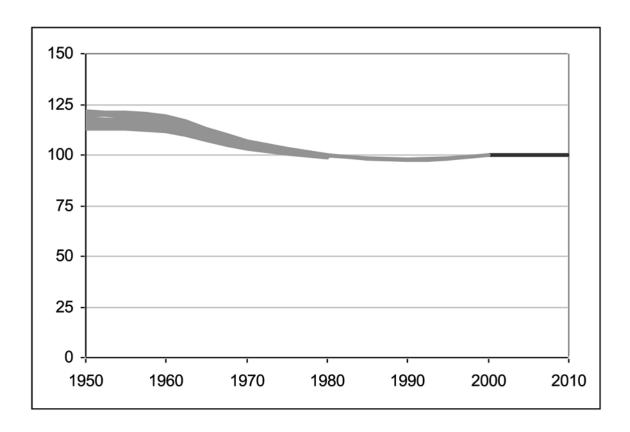
The Scottish Government's *Low Carbon Economic Strategy* (2010)³⁴ sets out plans for a transition to a low-carbon, highly resource-efficient economy for Scotland. The natural environment has a key role to play here. Over 60% of Scotland's land cover has peat or peaty soils, and Scotland has most of the UK's peatlands. Few other countries have more peatland than Scotland. The blanket and raised bog peatlands are together the most important terrestrial carbon store in Great Britain, while 'active bogs' continue to accumulate more carbon, as well as contributing to water regulation, water quality and supporting biodiversity. A loss of only 1% of the carbon locked up in Scotland's peatland would equate to the total annual Scottish human-related emissions of greenhouse gases.

The *IUCN UK Peatland Commission of Inquiry report (2011)*³⁵ urged a speedy response to protect and restore our peatlands, and warned that delay would lead to far greater costs. The important role of peatlands in mitigating and adapting to climate change is recognised under international climate change agreements. Focused action and investment in peatland restoration provides a cost-effective approach to reducing carbon emissions alongside other measures. The Scottish Government has asked SNH to lead a new programme of work on the conservation, management and restoration of peatlands. This £1.7 million demonstration project will focus on achieving carbon savings and biodiversity gains, with 2,000 hectares of peatland restored over 2.5 years. SNH will work closely with land managers to make this happen. This programme should prepare the way for implementation of the proposal in the draft Second Report on *Proposals and Policies (RPP2)(2013)*³⁶.

The Natural Capital Asset Index – looking ahead

SNH has been developing a *Natural Capital Asset Index (2012)*¹² (NCAI) to describe changes across Scotland's ecosystems since the year 2000, with indicative back projections to 1950. Figure 1 shows a broad trend from 1950 to 2010. Analyses of individual ecosystems indicate that three broad habitats (freshwater, coast and urban greenspace) showed an improvement in natural capital between 2000 and 2010, while two declined (moorland and grassland) and two saw little change (woodland and cropland). The NCAI is now being developed in collaboration with the James Hutton Institute and others to improve its robustness, and explore whether regional and marine indices can be produced.

Figure 1. Changes in the Natural Capital Asset of Scotland's principle ecosystems on land since 1950.



Key messages from this Chapter

- Nature supports Scotland's prosperity in ways that are not always visible, but the value is real.
- Scotland should make the most of its natural assets to support sustainable economic growth.
- The economy and wider wellbeing of Scotland's people will benefit from action that enhances nature and ecosystem services.

What will be different as a result of applying the principles in this chapter?

- Public subsidies, incentives and taxes will support the building of natural capital, rather than supporting unsustainable uses of nature.
- Government and large businesses will move towards environmental accounting that shows their impact on natural capital in Scotland and overseas.
- Research and investment will support innovative ways to work with nature and make the most of natural assets to reduce costs and increase benefits to Scotland.
- The NCAI will provide a way of assessing the sustainability of the Scottish economy and its value will be maintained or increased, reversing decades of decline.
- Local Authorities will work towards embracing the NCAI and explore ways of contributing to increase its value.



3 Biodiversity, health and quality of life







Outcome

Improved health and quality of life for the people of Scotland, through investment in the care of green space, nature and landscapes.

Key steps

- Provide opportunities for everyone to experience and enjoy nature regularly, with a particular focus on disadvantaged groups.
- Support local authorities and communities to improve local environments and enhance biodiversity using green space and green networks, allowing nature to flourish and so enhancing the quality of life for people who live there.
- Build on good practice being developed by the National Health Service (NHS) and others to help encourage greenspace, green exercise and social prescribing initiatives that will improve health and wellbeing through connecting people with nature.
- Increase access to nature within and close to schools, and support teachers in developing the role of outdoor learning across the Curriculum for Excellence.
- Encourage public organisations and businesses to review their responsibilities and action for biodiversity, and recognise that increasing their positive contribution to nature and landscapes can help meet their corporate priorities and performance.

Introduction

Connecting with nature enriches our lives. Many benefits arise from this across a range of policy areas, including health, wellbeing, education, community development and regeneration. Better integration of environmental and social objectives will undoubtedly secure long-term benefits for people and nature. This chapter reviews progress and considers the next steps needed to achieve this integration, which offers one of the most exciting challenges as we move towards 2020.

Public bodies have a duty under the *Nature Conservation (Scotland) Act 2004*⁸ to 'further the conservation of biodiversity' as they carry out their work, reporting their actions at least every three-years. This duty is not just beneficial to biodiversity; it can also help meet other public service aspirations and, in the process, provide significant cost savings and efficiencies.

There are many different ways in which public bodies meeting this duty can benefit biodiversity and a range of other policy goals including:

- Health contact with nature can improve physical and mental health and encourage healthier lifestyles.
- Education outdoor learning is a core part of the Curriculum for Excellence.
- Parks and Grounds management of greenspaces and creating wildlife friendly spaces around offices.
- Planning and Development is about more than just protected species, green infrastructure can benefit both people and nature.
- Volunteering encourage staff to take part in local projects and take pride in their local community.
- Transport road and rail verges provide great habitat for wildflowers; nature friendly management can offer potential cost savings as well.

Investment in biodiversity is also good for many business sectors. It links with corporate social and environmental responsibility programmes.

Nature, health, and the economy – the developing evidence base

The long-standing and largely successful approach to environmental health has focused on the minimisation of environmental 'bads', such as air or water pollution. Today, a new extra emphasis is being placed on environmental 'goods'. The accessibility, diversity and quality of much of Scotland's natural environment is now recognised as an important resource for promoting physical and mental health, improving educational outcomes, and supporting community development and regeneration. We can enhance the benefits of these natural assets through:

- better planning, design and management of accessible high quality green spaces, close to where people live, work and learn.
- encouraging greater physical activity and contact with nature through informal recreation and play, environmental volunteering and outdoor learning.
- using the outdoors in programmes for health treatment and rehabilitation, on NHS land and elsewhere.

'A relevant environmental health agenda for the 21st century is as much about the creation of places which engender good physical and mental health, as it is about protection from hazards.'

Annual Report of the Chief Medical Officer Scotland, 2006.



Supporting this thinking is a range of research that describes and quantifies the health benefits from physical activity while in contact with nature. These include:

- improved levels of physical and mental health through regular participation in informal recreation, volunteering and learning in the outdoors.
- improved rates of recovery from physical and mental health problems, and a guard against future illness.
- increased physical and mental wellbeing, capacity and confidence, both in individuals and communities more generally.
- a stronger commitment to healthier lifestyles in young people by stimulating interest in the natural world and promoting outdoor activity and play, especially as part of the early years and primary school intervention.

Evidence suggests that investment in nature and landscapes can also be cost effective. Analysis of an 8-week wildlife and nature activity programme in Perth and Kinross for patients with a variety of mental health problems produced a social benefit of £12.43 for each £1 spent. An analysis of 'Greenlink' – a multi-use path running between Strathclyde Country Park and Motherwell town centre generated a social return of £7.63 for every £1 invested. Similarly, investment in a natural play space at Merrylee High School in Glasgow produced far greater benefits to learning, and physical and emotional wellbeing than the same expenditure on a traditional tarmac playground.

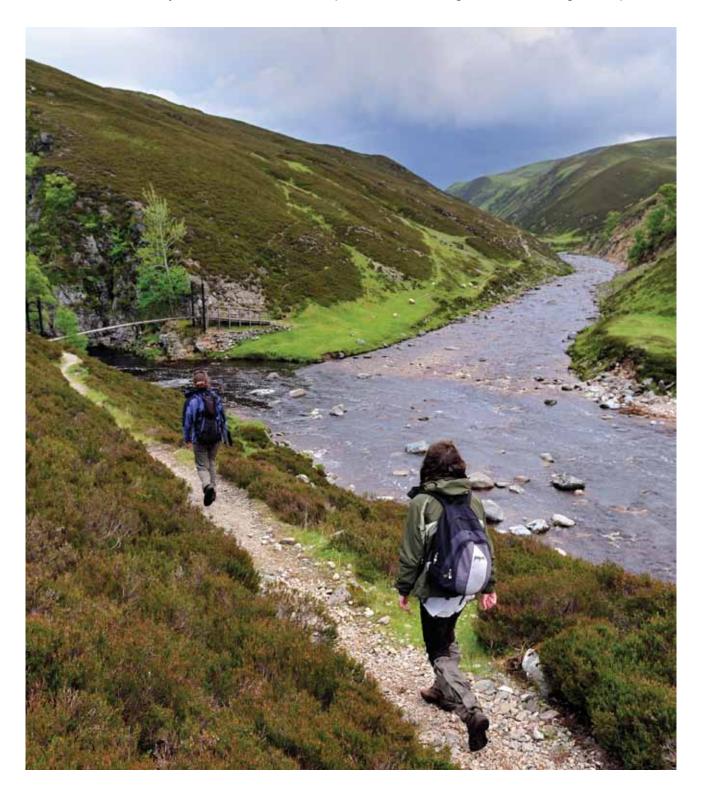
Linking nature and nurture – from policy to action

The contribution that nature and landscapes can make to health and quality of life is increasingly recognised by the medical profession and policy makers more generally. The *Ministerial Task Force on Health Inequalities* (2008)³⁷ recommended that Government, NHS Boards and other public sector organisations should take steps to encourage the use and enjoyment of green space by all, as a means of improving health. Equally, the Scottish Government's strategy on health and the environment, *Good Places, Better Health* (2008)³⁸, recognises that the physical environment has a significant impact on the health of Scotland's people and that action is required to create positive physical environments that nurture better health and wellbeing for everyone. It focused on children's health, setting a vision in which 'children play, explore and relax outdoors in streets, parks, green places and open spaces and have contact with nature in their everyday lives'. These two examples illustrate the significant change in approach that is now emerging across a number of policy areas.

Improving places for people and nature

The Scottish Government's regeneration strategy, *Achieving a Sustainable Future*³⁹, published in December 2011 contains a vision of 'a Scotland where our most disadvantaged communities are supported and where all places are sustainable and promote wellbeing.' Alongside other national policy statements such as *Architecture* and *Placemaking* (2012)⁴⁰ and *Scottish Planning Policy* (2010)²¹, the regeneration strategy also highlights the importance of place making and the impact it can have on the long-term sustainability and quality of the communities created.

The provision of good quality green space, parks and paths, and associated green networks, is an important component of place making and regeneration. This is supported by national planning policy and practice. Most ambitiously, the *National Planning Framework* (2009)¹⁸ proposed the development of a Central Scotland Green Network, with the aim of creating 'an environment to support healthy lifestyles and good physical and mental wellbeing'. More generally, strategic approaches such as open space audits and core path plans are valuable tools for local authorities, especially when complemented by investment programmes targeted at increasing the opportunities for public enjoyment and the biodiversity value of the green space created. In taking this forward, it is vital that communities are fully involved in the development and management of their green spaces.





Encouraging physical activity and contact with nature

Increasing the number of visits to the outdoors has been identified as a key Scottish Government indicator of success. Such visits encourage a stronger outdoor culture and help instil greater personal commitment to biodiversity. SNH's 'Simple Pleasures Easily Found' campaign is aimed at encouraging people to explore and enjoy their local green space and path networks. The celebration of the 'Year of Natural Scotland' (2013) and the 'Year of Homecoming' (2014) provide an important platform for increasing effort across the public sector to encourage more people to enjoy the outdoors and its nature.

Environmental volunteering is another important means of increasing physical activity and engagement with nature. The Scottish Government and SNH are funding the Forum for Environmental Volunteering to help build capacity in organisations to support more volunteers for outdoor tasks. Increased participation in voluntary biological recording is being encouraged through 'citizen science' initiatives. Volunteers benefit from greater physical activity and associated health benefits. But they will also experience the social aspects of working towards a shared goal and gain a stronger pride of place. Volunteer initiatives for young people can help create new skills and provide important training; these will be a priority for the Scottish Government over the coming years.

While participation is increasing across Scotland, it is lowest amongst the most disadvantaged in society. More effort is needed to ensure everyone can enjoy the outdoors, whatever their background, health or age. All public sector bodies are required to consider these issues as part of their new equality duties. Investment in opportunities for natural play are also a recognised part of the *Scottish Government Early Years Framework (2012)*⁴¹.



Developing a natural health service

With its estimated 1,800 properties and 2,900 hectares of land, the NHS has considerable potential to use greenspace within its estate for health treatment and rehabilitation, and for increasing physical activity and contact with nature for patients, visitors and staff. A national programme has been established by the Green Exercise Partnership; made up of SNH, FCS and NHS Health Scotland to help health boards make more use of this resource. This has included an audit of the overall estate and the development and implementation of master plans for specific sites. These include path developments, tree planting and other improvements for people and nature. Continuing effort is needed to integrate this work into policy and practice and to increase recognition within all levels of the NHS of the contribution these greenspace assets can make to health.

Several programmes and projects focusing on physical activity and mental health issues have also been established; involving walking, green gyms, gardening and eco-therapy schemes. Many of these have been set up by voluntary and community groups, with short-term funding and mixed levels of awareness and commitment from health professionals. There is considerable scope to promote and develop the use of nature and landscape in health policy. Businesses across Scotland should also consider similar initiatives on their land, on the basis that a healthy work force is a productive one.

Learning out of doors

The role of outdoor learning is firmly established in the new Curriculum for Excellence and is part of Education Scotland's school inspection programme. There are also good examples of school grounds that encourage physical activity and contact with nature. More needs to be done, particularly in central Scotland, to ensure that all schools either have

such resources or can obtain them locally. School building, refurbishment programmes and estate management plans need to make better provision for greenspace and contact with nature, building on the work of Grounds for Learning, EcoSchools and the Forest Schools Programme.

Developing enthusiasm and skills in teachers through continuing professional development is also important. The 'Teaching in Nature' demonstration project run by SNH and other initiatives by Education Scotland and the National Park Authorities have shown how the capacity of teachers to take learning outdoors can be increased through a peer-led approach. Realising the benefits of outdoor learning for our children, and society more widely, requires this approach to be absorbed into relevant strategies and day-to-day teaching practices.

Key issues and opportunities

The examples above illustrate the potential of Scotland's nature and landscapes to improve public health and quality of life. Relatively little public expenditure is required, especially in comparison to the overall health budget and it represents good preventative spend.

In order to realise this potential we need a sustained commitment to these programmes and projects from the environment, health and education sectors. Greater investment should realise the benefits and cost effectiveness of these nature-based interventions. This is not easy given the small scale of many projects and the many organisations involved. However, it is important to develop this case, especially against the backdrop of increasing financial constraints within the NHS, local authorities, and across the public sector generally.

While the *Biodiversity Duty* (2004)⁹ places important responsibilities on public bodies, real changes in our relationship with the natural world will only come about when we recognise the full public benefits provided by nature. This is beginning to happen in the health sector, helped by a more holistic approach to health care focused on place and communities, the economy and the environment, as well as medical interventions. These lessons need to be taken up in other sectors and businesses.

Public bodies are urged to play their part in realising these outcomes, with a more collaborative approach between sectors and connecting single outcome agreements, community planning and health partnerships. The environment sector has a leadership role here, and the biodiversity community should learn from the demonstration projects that are beginning to win the hearts and minds of the professionals and the public.

Key messages from this chapter

- Scotland's nature and landscapes are key assets for public health and wellbeing and more should be done to use the natural world to help improve the quality of our lives.
- There is a strong case for investing more in nature close to where people live, work, or go to school as this can improve public health and reduce pressure on health budgets in the longer term.
- Sustained investment in good-practice demonstration projects is required if we are to realise the longer-term improvements in physical activity and mental health.
- Investment in the availability of good quality greenspace in and around schools and other centres for learning will improve educational outcomes.
- All organisations with responsibility for biodiversity must work towards bringing this into their mainstream policies and practices.

What will be different as a result of applying the principles in this chapter?

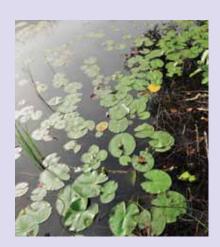
- More people will enjoy nature, and recognise the benefits this brings for their health and quality of life.
- Our health and wellbeing will be improved.
- A greater number of people will enjoy, understand and support nature.
- Nature close to where people live and work will be better cared for, including that on public land owned by the NHS and education authorities.



4 Wildlife, habitats and protected places







Outcome

The special value and international importance of Scotland's nature and geodiversity is assured, wildlife is faring well, and we have a highly effective network of protected places.

Key steps

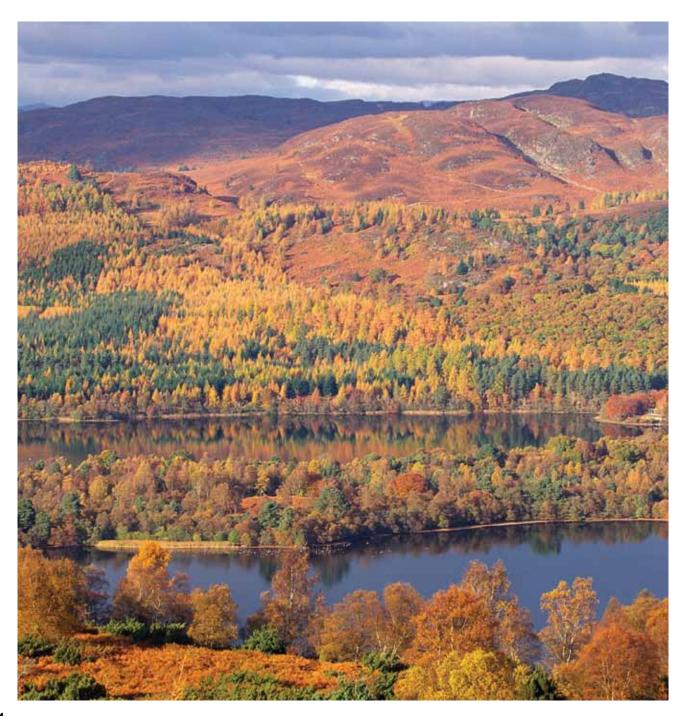
- Ensure that the management of protected places for nature also provides wider public benefits.
- Align habitat restoration on protected areas with national goals for improving ecosystem health, with local priorities determined at the catchment or landscape scales.
- Integrate protected areas policy with action for wider habitats to combat fragmentation and restore key habitats.
- Develop a wildlife management framework to address the key priorities for sustainable species management, conservation and conflict issues, including reintroductions and invasive non-native species.
- Involve many more people than at present in this work and improve our understanding of the poorly known elements of nature.

Introduction

This chapter considers how we can take better care of nature. Scotland has some of the world's best places for wildlife; our seabird colonies, blanket bogs, remnant Scots pine woods, species-rich western woodlands and heaths are world renowned. Heather-dominated moors and machair grasslands are prized as cultural landscapes. These and much more characterise what is best about Scotland.

In the context of wider economic and social demands, we need to be clear about what needs to be done to care for nature and where. This chapter outlines what is needed.

Nature defines what is so special and distinctive about Scotland.



Drivers of change

Scotland's Environment Web identifies the main drivers of environmental change in Scotland, including:

- changing land use and land management practices, resulting in varying degrees of habitat fragmentation and loss.
- eutrophication and pollution of land and water.
- climate change, influencing the functioning of ecosystems.
- trade in plants and animals and globalisation of transport, leading to the spread of invasive non-native species, pests and diseases.
- the rise in environmentalism and its expression through international and national strategies and legislation.

Action for habitats, species and protected places

Ecosystems are made up of a range of habitats, species and processes. Protecting these is essential to support natural capital and to underpin the many ecosystem services discussed earlier. Habitats should be protected through wide measures considered in the next two chapters. However, we also need to have the best areas safeguarded and managed as protected places, and ideally connected within wider ecological networks.

In order to protect special places, we have a suite of Sites of Special Scientific Interest (SSSIs) and 'Natura' sites, established under the *EC Habitats and Birds Directives (1992 & 2009)*^{42,43}. National Nature Reserves (NNRs) showcase the best of nature. A range of other designations; National Parks, Geoparcs and Biosphere Reserves promote sustainable development and local community involvement, and Local Nature Reserves reflect nationally as well as locally important priorities. Most people in Scotland live close to protected places and have great opportunities to visit and enjoy them.

Protected places are especially valuable providers of ecosystem services because the ecosystems within them are in the best condition. They integrate conservation with people's enjoyment of nature, provide jobs, particularly in rural Scotland, and offer many other public benefits to health, education, employment, environmental justice and tourism. They contribute towards many of the Scottish Government's 15 National Outcomes and its overriding purpose of sustainable economic development.

Nature conservation sites cover about 18% of Scotland's land area and are particularly extensive across mountains, moorlands and coasts. SSSIs are the main protective mechanism, and over 75% of our SSSIs (by area) are also designated as Natura sites, highlighting their international importance.

Scotland, along with the rest of the UK, has recently identified a number of Marine Protected Areas (MPAs). These will potentially bring together new areas to add to those covered by other designations such as SSSIs, Special Areas of Conservations and the Ramsar Convention providing an overarching and unifying network of marine protection. The Scottish Government may also consider other suitable areas for MPA designation. The suite offers opportunities for ensuring conservation targets are met, broadening the



sustainable management of marine ecosystems, and deepening public awareness and involvement in marine issues.

SNH monitors the condition of nature conservation sites and reports on this every six years. This gives a good indication of the pressures acting on these sites, and on their habitats, species and other features e.g. grazing levels, agricultural and forestry operations, the spread of invasive species, built developments and human disturbance.

Improving the condition of protected sites is a high priority in the *European Biodiversity Strategy (2011)*⁶. A lot of progress has been made in Scotland, with an overall 6.7% improvement in the condition of protected habitats and species since 2005. Nevertheless, with only 78% of protected features in favourable condition, we need to do much more. Some protected areas are too isolated to be at their most effective, and joining them up through an ecologically coherent network is vital. Networks can ensure resilience and better protection, and improve land and freshwater management. However, we need to ensure these connections do not ease the spread of invasive non-native species.

Great advances have been made in recognising how geodiversity (rocks, soils, landforms and related processes) supports biodiversity and underpins ecosystem services. We must develop our understanding of this in order to improve the management and care of nature. We need to draw on specialist skills and expertise in this area, a lot of which is found in the voluntary sector.

We have many excellent species and habitat atlases and some of these provide fascinating and vital detail on changes across Scotland, often placed in wider UK and international contexts. However, we still have more work to do on habitat mapping. Following the requirements of the *European INSPIRE Directive* (2007)⁴⁴, we want to produce a comprehensive map of Scotland's main habitats.

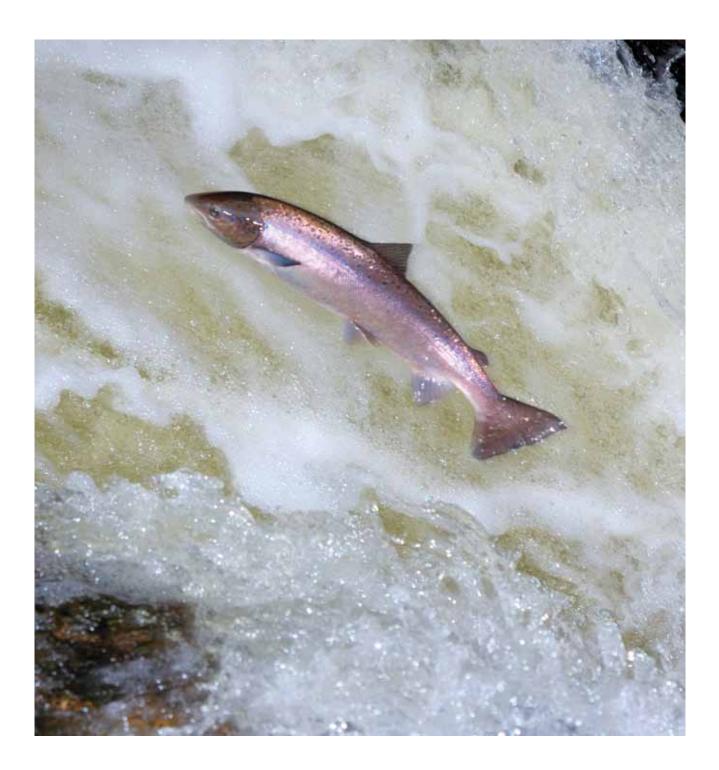


With a core area of green infrastructure already in place, wise investment can restore many natural systems back to near full capacity. We shall produce a priority list of key habitats for restoration, including peatlands and other wetlands, native woodlands, coastal dunes and species-rich grasslands, to support carbon capture, adaptation to climate change and to encourage low impact recreation.

We have great ambitions for nature and to meet these we need to work with the land-use sectors, not least the environmental NGOs, to protect, improve and manage nature. Overall, our priorities for habitats, species and protected places are to:

- conserve at least 18% of land and inland water, and 10% of coastal and marine ecosystems, within protected areas by 2020.
- complete the suite of protected places, and improve their connectivity through a national ecological network centred on these sites.
- meet the targets for favourable condition of Natura sites and SSSIs, and the conservation objectives for priority habitats and species.
- make significant advances in developing the relatively new suite of Marine Protected Areas (MPAs).
- publish a comprehensive terrestrial habitat map of Scotland.
- In the face of climate change, take forward an adaptive management programme for key habitats and species.
- use data from the Native Woodland Survey of Scotland (2012)⁴⁵ to guide expansion, restoration and improvements in all types of priority woodland habitats.

- use NNRs to promote best practice for conservation and adaptive management.
- improve our understanding and strengthen the role of geodiversity in our care for nature.
- Improve and broaden awareness of the many benefits of protected places.



Action for wildlife – setting priorities

Earlier chapters consider the great value of nature for Scottish life not just for the provision of water, food, fuel and timber, but as a defining characteristic of Scotland. There are compelling reasons for at least maintaining and restoring the diversity of wildlife in its own right. Most of us enjoy seeing birds and mammals, insects and flowers; our spectacular

wildlife is a magnetic draw for visitors. The Scottish Government is committed to conserving this rich diversity of wildlife, and there are many examples of this such as its support of the *Wild Plant Horizons* (2010)⁴⁶; the UK's response to the *Global Strategy for Plant Conservation* (2011)⁴⁷, and the *Strategy for Scottish Invertebrate Conservation* (2009)⁴⁸.

The Scottish Biodiversity List (2004)⁷ (SBL) is the statutory list of animals, plants and habitats considered to be most important for conservation in Scotland. Work is already underway to provide greater clarity on priorities for the SBL, which will help public bodies meet their Biodiversity Duty (2004)⁹ and help set priorities for Scottish species and habitats.

In managing wildlife populations, urgent action is often needed to address species conflicts or to manage wildlife resources sustainably. In Scotland we have had considerable successes with the recovery of species such as the corncrake, woolly willow and slender Scotch burnet moth. There are further candidates for action and we have to focus our limited resources on those in most urgent need of help. For red and roe deer and several geese species we have to work at ways of managing populations sustainably.

The Species Action Framework (SAF) (2007)⁴⁹ and Woods for Nature (2008)⁵⁰ laid out strategic approaches to species management in Scotland which are making a real difference for nature. These concentrated work by a range of partners on 34 key species, resulting in great gains for nature and people. A management handbook arising from the SAF programme will set the benchmark for good practice.

SNH is developing a Wildlife Management Framework to help SNH make consistent, targeted and cost-effective decisions on wildlife management - some of these involving sensitive and contentious issues. Through its leadership of the National Species Reintroduction Forum, SNH is developing a code of good practice for species reintroductions to guide its work and proposals from others.

All of this work means we need to focus on clear priorities for wildlife action. We propose to:

- clarify the significant actions for habitats and species arising from the Scottish Biodiversity List, and use this to guide funding.
- integrate species management covering plants, animals and other organisms to ensure far better results for whole ecosystems.
- devise species indicators that reflect the broad state of biodiversity in response to the major drivers of biodiversity loss and monitor these.
- use the Wildlife Management Framework to identify priorities for tackling species conflicts, species conservation issues, reintroductions and sustainable management of wildlife resources.
- develop a strategic programme for re-establishing species lost locally or nationally, or threatened by climate change and other pressures, and take this forward through the National Species Reintroduction Forum.
- put in place a new programme for priority farmland species, recognising that some of these are in a parlous state.



Tackling invasive species, pests and diseases

Invasive non-native species (INNS) are damaging our environment, economy and health. They cost Scotland as much as £250 million annually. INNS are a significant cause of species decline and extinctions worldwide. Although only a small proportion of introduced species become invasive, these can cause great harm by carrying disease, preying on native species, crowding out native vegetation and even damaging buildings and infrastructure. Islands are particularly vulnerable to the impacts of INNS.

The worst invaders are land mammals, aquatic plants and invertebrates. Our top priorities are to identify how these species invade and act quickly to prevent their establishment and spread. Once they take hold, their control is expensive and sometimes not possible. This is particularly the case in the marine environment where we need internationally agreed prevention measures.

Diseases like ash die-back and *Phytopthora* threaten biodiversity as well as rural industries. We need to work closely with plant and animal health colleagues on biosecurity issues not least to maintain the resilience of ecosystems.

Invasive non-native species cost Scotland as much as £250 million annually.

To combat the threat of INNS, we must work to:

- prevent their establishment and spread, identify their means and routes for invasion, raise awareness of the need for biosecurity, and implement legislation and international agreements.
- act quickly to respond to emerging threats; support early detection through monitoring programmes (including 'citizen science), assess risks as these arise, and develop appropriate responses.
- restore terrestrial ecosystems degraded by invasive species, develop strategies to deal with established species (e.g. rhododendron and riverside invasive plants), in a coordinated and cost-effective way that engages the public, landowners and industry in tackling problems at a catchment-scale.
- make concerted efforts to protect Scottish islands and water-dominated environments.



Developing our understanding and awareness of nature

Arguably the least understood parts of our biodiversity are the most important to ecosystem services. Some of the latest research is identifying the role of soil invertebrates, fungi and microbes in supporting decomposition, nitrogen and carbon cycles. Some plants such as bryophytes, need further work because we have world hotspots of some species and uniquely rich communities in the west.

New techniques and technology (such as DNA barcoding and species diagnostic kits) are helping us discover much more about the diversity and role of nature. Much remains to be learnt about life in the soil, which supports many of the ecosystem services described in earlier chapters. We want to see universities and research institutes devoting more resources to this area, and greater efforts to bolster 'small biodiversity research' below ground and in fresh waters.

We must develop the remarkable volunteer base we have in Scotland, to help identify where action is needed for wildlife. And of course involvement in this will reap additional dividends for our health and wellbeing.

Key messages from this chapter

- Protected areas offer many benefits beyond caring for nature, and provide enhanced ecosystem services, create jobs (especially in rural Scotland) extend recreational opportunities, (which benefit health and wellbeing), and contribute to tourism and our quality of life.
- An integrated, adaptive approach to the management of protected places, involving the range of land-use interests, will enhance these benefits.
- More concentrated work is needed on key species and habitats to target threatened native species, species conflicts, invasive non-native species, and potential reintroductions.

What will be different as a result of applying the principles in this chapter?

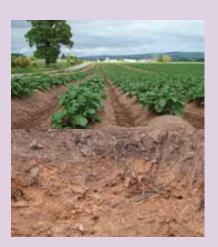
- Protected areas will lie at the heart of healthy landscapes that contribute multiple benefits to the people of Scotland.
- Scotland's ecosystems will be more resilient, and threatened species will be recovering though targeted conservation action.
- The damage to our environment, economy and health from invasive non-native species will be greatly reduced, and contingency plans will be in place to guard against future invasions.
- The public will recognise their vital role in contributing to these outcomes, and volunteer 'experts' will be helped to play a major part in developing knowledge of our wildlife and its role in sustaining life.



5 Land and freshwater management







Outcome

Nature is faring well, and ecosystems are resilient as a result of sustainable land and water management

Key steps

- Promote an ecosystem approach to land management that fosters sustainable use of natural resources and puts biodiversity at the heart of land-use planning and decisionmaking.
- Ensure that measures taken forward under the Common Agricultural Policy encourage land managers to develop and retain the diversity of wildlife habitats and landscape features.
- Support 'High Nature Value' farming and forestry.
- Put in place the management necessary to bring Scotland's protected areas into favourable condition and improve the ecological status of water bodies.
- Ensure that biodiversity and ecosystem objectives are fully integrated into flood risk management plans, and restore wetland habitats and woodlands to provide sustainable flood management.
- Restore and extend natural habitats as a means of building reserves of carbon and to help mitigate climate change.
- Provide clear advice to land and water managers on best practice.

Introduction

Protection, management and enhancement of nature are three pillars for sustainable land and water management. This chapter points to ways in which we can manage ecosystems better.

Developing a strategy for Scotland's land and freshwater

Scotland's *Land Use Strategy* (2011)¹³ promotes the sustainable use of land and water through the integration of land use policies, aimed at securing multiple benefits. It recognises the diverse roles of nature, and urges the adoption of an 'ecosystem approach' in planning and decision-making. The strategy provides a starting-point for public bodies to work together and with businesses at landscape scales.



Pressures on the uplands

There are growing demands on land in Scotland, and these are keenly felt in parts of the uplands, where there are conflicting demands for livestock grazing, forestry, field sports, renewable energy developments, recreation and peatland restoration. Wind turbines and associated tracks can disturb upland habitats and birds, while small hydro-schemes can impact on the ecology of stream and associated habitats. Contributing to the environmentally desirable aim of a 'low-carbon economy', these developments have a key role to play in shaping the future of the uplands.



On more productive agricultural land, market forces, technological developments and certain policies encourage farmers to increase productivity. If this intensification results in a loss of wildlife it is unsustainable. Wildlife and semi-natural habitats are an integral component of some of the most intensively managed landscapes, where they help maintain ecosystem services like pollination and water purification, critical to successful agricultural production.

Best practice and accreditation

By incorporating biodiversity objectives into best practice standards and accreditation schemes we can help raise the general standard of management.

- The *UK Forestry Standard Guidelines* (2011)⁵¹ provide a guarantee that timber and its products originate from woodland managed in a way that supports biodiversity and improves water quality.
- Linking Environment And Farming (LEAF) promotes environmentally responsible farming, helping farmers produce food to high environmental standards in a way that secures a market and may attract a premium.
- Wildlife Estates Scotland demonstrates how sustainable sporting management combined with wildlife conservation objectives can provide multiple benefits for society and rural communities.

On our poorer land there is a trend towards less intensive agricultural use. In response to fluctuating prices and changes in basic support payments livestock farmers in some upland areas have reduced their sheep flocks. In some respects wildlife has benefited from this, but there are indications that the stock remaining are less well managed, and that they congregate in sheltered areas or on the more fertile ground where they still graze and trample vegetation heavily. Crops on in-bye land, which provide food for birds that overwinter or breed in the uplands, has also declined.

High nature value farming and forestry

- High Nature Value (HNV) farming and forestry makes up a large proportion (around 40%) of Scotland's agricultural and forest areas. 'Extensive' production systems have helped shape Scotland's landscapes, and support much of our special wildlife.
- Extensive cropping and cattle grazing on the sandy plains of the Uists, for example, have given rise to the uniquely rich machair.
- In order to maintain the management practices associated with these systems and their benefits for nature, we need to ensure that there are adequate incentives and rewards for land managers. But we must also have regard to the social and economic structures of remote rural areas that sustain them.

Red deer are an economically important part of Scotland's nature for hunting, food and tourism. In many areas, however, their grazing and browsing prevents the regeneration of woodland and damages upland vegetation and soils. *The Deer Code (2012)*⁵² encourages sustainable deer management, balancing commercial and sporting objectives against those of environmental sustainability, and emphasises the need for cooperation between land managers.

Challenges ahead

Climate change is already affecting Scotland's nature and will continue to do so into the foreseeable future. Healthy and resilient ecosystems can be a key factor in ensuring habitats and species adapt to change.

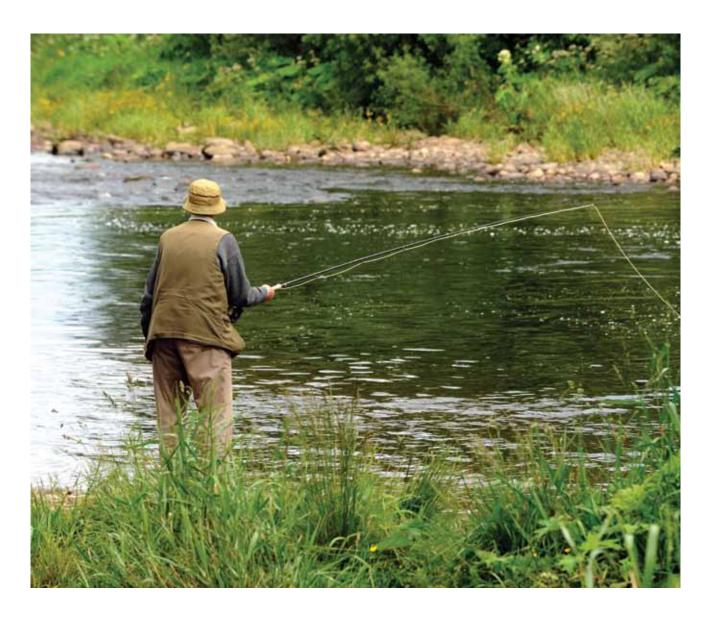
Land

Since 2004, funding available for managing biodiversity on farmland, woodland and upland estates has increased under the Scottish Rural Development Programme (SRDP). The priorities for the next programme (2014-20) are likely to include ecosystem restoration, soil and water management, and promoting a shift to a low carbon economy.

The SRDP will be a major source of funding for the *2020 Challenge*. However, the squeeze on public and private finances means there is likely to be less money to invest in wildlife conservation. Clear priorities need to be set and we need to find additional ways to secure a better future for farmland wildlife. We need to consider how new EC directives can be implemented to benefit biodiversity, for instance by promoting integrated pest management and controls for diffuse pollution.

Changes to the Common Agricultural Policy (CAP) will affect how Scotland responds to the biodiversity challenge. We need to use every opportunity available through the CAP reform package to achieve biodiversity benefits, such as:

taking forward 'greening measures' associated with direct support payments.



- considering appropriate advice and support services for land managers to help yield environmental and biodiversity benefits.
- developing collaborative planning mechanisms to encourage landscape-scale action.

Soil biodiversity plays a key role in maintaining soil fertility and its many ecosystem services (such as providing clean water, nutrient cycling and climate regulation). We need to protect soils from erosion, loss of organic matter, structural damage and pollution to sustain these services.

By restoring and expanding natural habitats we can reduce emissions of greenhouse gases arising from the oxidation and erosion of soil carbon, and we can mitigate some of the effects of climate change by increasing the capacity to lock carbon into soils and vegetation. Upland peat soils contain vast amounts of stored carbon; and SNH will lead demonstration work to restore favourable management of 2,000 hectares of peatlands.

The Scottish Forestry Strategy (2006)⁵³ sets a target to plant 100,000 hectares of new woodland by 2022, which contributes to national carbon sequestration targets. Approximately half of this area is likely to have native trees. Part of the challenge is to determine which types of land are best suited to new planting, but also to ensure that new planting is consistent with other biodiversity objectives.

Fresh water

The *EC Water Framework Directive* (2000)²⁹ (WFD) provides the legal framework for protecting the water environment and for the sustainable use of water, with land management playing a key part in this. It poses the challenge of achieving 'good ecological status' for all water bodies. Many of Scotland's rivers and lochs are classed as having good ecological status (compared with only half of these across Europe) but there are still problems arising from nutrient enrichment, physical modifications to water bodies and colonisation by non-native species.

The WFD is put into practice through river basin management plans. The Scottish Government intends to build on this approach as the basis of more integrated land and water use planning across whole catchments. Ecosystem health indicators will be used to identify priority catchments and identify action to tackle problems at an ecosystem scale. The Glasgow and Clyde Valley Green Network Partnership goes some way in demonstrating how this can be achieved.

Creating buffer strips, hedgerows, farm woodlands and wetlands helps to reduce diffuse pollution, and to increase biodiversity. Reducing the runoff of soil nutrients and agricultural waste will benefit aquatic habitats and species, and will help improve the quality of drinking and bathing waters.

Restoring rivers, floodplains and associated habitats to a more natural state should create natural flood storage within catchments. Such measures need to be fully integrated into flood risk management plans by 2015. Similar principles as those applied by *sustainable urban drainage system (2013)*⁵⁴ (SUDS) can provide benefits for people and nature at a fraction of the cost of hard engineering solutions.

Air

Despite significant improvements, air quality continues to have adverse impacts on the environment with nitrogen deposition still at levels which are damaging to sensitive soils, plants and habitats over much of Scotland. Agriculture is the main source of ammonia with emissions coming principally from animal waste and the application of fertilisers. Reducing these emissions is one of the main aims of the Scottish Government's *Farming for a Better Climate (2012)*²⁰ initiative. Pollutants such as nitrogen oxides, ammonia and ozone can travel great distances and cause damage far from their source, so action is needed both at national and international levels. SEPA will continue to regulate emissions as required by the *EC Industrial Emissions Directive (2010)*⁵⁵.

Continued reductions in emissions from industry and the transport sector will lessen air pollution pressure on ecosystems and their wildlife. Scottish Government and local authorities promote greener transport to help reduce nitrogen deposition. Better nutrient budgeting on farms should reduce nitrogen related eutrophication and reduce farm costs.

Key messages from this chapter

- Land managers, public bodies and communities need to work together to address the challenges facing biodiversity.
- Support and incentives for managing biodiversity need to be better targeted.
- River basin planning should become the basis of a more integrated approach to land and water management across whole catchments.
- Woodland expansion and habitat restoration will benefit biodiversity while serving important social and economic objectives, such as flood risk management and contributing to a low carbon economy.
- More effort is needed to manage arable land in a way that will benefit soil biodiversity and wildlife.
- Land and water managers need to be more aware of the important role nature plays in their business.

What will be different as a result of applying the principles in this chapter?

- Advice about biodiversity will be readily available to land and water managers.
- Land managers will have a clearer understanding of what they can do to sustain nature.
- A greater area of arable farmland will be managed expressly for biodiversity.
- Extensive areas of peatland will be managed to conserve their wildlife, and to improve their capacity for storing carbon.
- The benefits of 'High Nature Value' farming and forestry for biodiversity will be more appropriately reflected in financial support and incentive schemes.
- Native woodland cover will increase and substantial peatland and wetland habitats will be restored
- Deer and habitat management will be more closely integrated to sustain biodiversity.
- There will be an improvement in the state of farmland wildlife conservation.



6 Marine and coastal







Outcome

Scotland's marine and coastal environments are clean, healthy, safe, productive and biologically diverse, meeting the long-term needs of people and nature.

Key steps

- Adopt a Scottish Marine Plan and develop regional marine plans to aid balanced decision-making in the marine environment.
- Establish a coherent network of Marine Protected Areas, promoting sustainable use and conservation.
- Collate information on the location and sensitivity of priority marine features, and make this information available to support their protection.
- Achieve good environmental status for Scottish seas.
- Bring Common Fisheries Policy fish stocks to levels consistent with Maximum Sustainable Yield wherever possible, and take account of biodiversity in managing inshore fisheries.
- Implement a rapid-response framework to prevent colonisation of new invasive species in Scotland's seas and islands.
- Improve the monitoring of the marine environment to identify changes and guide progress towards the above outcomes.
- Improve understanding of how coastal ecosystems are likely to adapt to climate change and develop appropriate strategies for coastal zone management.

Introduction

Scotland's seas support a wealth of marine life, rich in colour and variety. Our coastline and healthy waters support valuable fisheries and internationally important bird colonies. They act as European strongholds for iconic species like the basking shark and support habitats such as cold-water coral reefs.

The marine chapter of the *UKNEA* (2011)¹¹ describes the range of ecosystem services provided by the diversity of organisms in marine habitats, which support important industries and provide benefits to society. Fish and shellfish supply us with essential foodstuffs. Seaweeds protect coasts from erosion by waves, and provide natural food additives, fertilisers and pharmaceuticals. Marine microbes biodegrade wastes, and are increasingly important in biotechnology. Charismatic animals like whales, dolphins, seals and basking sharks underpin local tourist economies. Coasts and shallow waters help engage people of all ages with the natural environment, and provide a source of health, wellbeing and recreational challenge.



Muddy sea-beds rich in life

In places where tidal movement and wave action are weak, the seabed is often covered by deep, soft mud. This muddy habitat is amongst the most productive around the coast, with an abundance of species on the mud surface, and thousands of animals living below, every square metre constantly churning and recycling the mud. One of the largest of the burrowers is the Scottish langoustine or 'prawn', *Nephrops*, the target of the second most valuable fishery in Scotland. Without the burrowers, the mud would be a stagnant 'gloop' with little or no life. Scottish waters contain the bulk of the UK's muddy sea-beds, so we have a special responsibility for their care and protection, not least to ensure that they continue to provide their important seafood bounty.

Predicted changes in temperature are likely to affect the distribution of marine species. Rising sea level, exacerbated by storm surges, is already leading to a greater frequency and intensity of coastal flooding, erosion and habitat loss. This adds urgency to the need for effective marine and coastal management.

The principles described in chapters 1 and 4 apply equally to the marine and coastal environments, but the pressing need for a new focus on marine management has already been recognised by the development of Scotland's *Marine Nature Conservation Strategy* (2011)¹⁴. The outcome identified at the beginning of this chapter is based on the vision of that strategy. It sets out challenging objectives and key steps for achieving these, by a mixture of wider seas policies; such as marine planning, targeted measures for protected areas and species conservation. It will be the main tool for meeting the 2020 Challenge in the marine environment, so this chapter largely mirrors its demanding commitments.

Protected marine biodiversity

The Scottish Marine Nature Conservation Strategy (2011)¹³ explains the approach Marine Scotland and its partners are undertaking to develop a coherent network of Marine Protected Areas (MPAs), with an emphasis on adaptive management. The network will support biodiversity and geodiversity objectives, contribute to measures to achieve good environmental status under the Marine Strategy Framework Directive (2008)³⁰, and help us meet other international obligations.

Protected areas should represent the best of nature around Scotland's coasts and in our seas. New MPAs will be selected not simply to protect examples of threatened habitats and species, but also to safeguard areas important for the wider marine environment. Some areas, for example, are particularly important for fish populations, including commercially valuable species.

In addition, the *Marine Nature Conservation Strategy (2011)*¹⁴ proposes a system of 'priority marine features' to guide the identification of MPAs and provide focus for marine planning and other activities. The strategy recognises the need to improve our understanding of these special features, which will be protected by a range of mechanisms, including licensing and planning. Knowing where Priorty Marine Features (PMFs) are located,

and how sensitive they are, will promote better integration between marine activities and important wildlife. A range of marine habitats and species already receive protection under EC and domestic nature legislation. Voluntary measures, such as wildlife watching codes, will also play an important role.

Invasive non-native species represent a significant threat to our marine biodiversity and industries such as aquaculture. The ease with which they can spread in the marine environment makes them particularly difficult to control. The measures proposed in chapter 4 will help tackle this threat to Scotland's seas.

Planning for sustainable use

A range of sector-based policies and legislation govern the use of the sea. Environmental assessment legislation helps ensure that strategies, plans and projects take account of environmental impacts. However, these different policies have not always been well coordinated within an overall system of spatial planning, despite increasing pressures on maritime space.

A fundamental principle of the Scottish Government's approach to marine nature conservation is sustainable use of marine resources.

The new statutory system of marine planning provided by the *Marine (Scotland) Act 2010*⁵⁶ is designed to deliver significant improvement to the management of our seas. Plans for each of Scotland's marine regions will provide an opportunity to protect and enhance PMFs, contribute to the management of existing and new protected areas, and enable protection of Scotland's wider seas through coordinated licensing and spatial planning for sustainable development.

The *National Marine Plan* (2011)⁵⁷ will help guide the activity of marine industries, to ensure they are sustainable and to direct appropriate developments to the right places. Planners, decision-makers and developers all have a role to play in this process, to ensure the sustainable use of our seas and to support productivity and economic growth. The Scottish Government will work with the European Commission to ensure that sustainability principles are also applied to those fish stocks covered by the Common Fisheries Policy.

Involving people and improving understanding

There is a high level of public interest in the coastal and marine environment, and it is essential to provide opportunities for public involvement. Marine Scotland already takes an inclusive approach to developing policies and initiatives in the marine environment - by involving others at an early stage in the development of proposals; by encouraging the public to get involved; and by active consultation exercises.

Marine policies are assisted at a national level by the Marine Strategy Forum a cross-sectoral group representing Scotland's marine industries and other interests. The Scottish Coastal Forum has a similar role in relation to coastal management.



Marine and coastal biodiversity supports many tourism industries that are economically important to coastal communities. The Scottish Government recognises this and will encourage initiatives aimed at combining improved understanding of Scotland's marine biodiversity with new opportunities for sustainable tourism.

Marine Scotland has published the *Atlas of Scotland's Seas* (2011)¹⁶ as a contribution to UK-wide understanding of marine biodiversity, and funded a new programme of surveys to inform MPA work. Greater effort is needed to improve the monitoring of habitats and species, achieve closer collaboration on surveys and data sharing, and increase our understanding of ecosystems and the services they provide to society. This will be achieved through the implementation of the *Scottish Marine Science Strategy* (2011)⁵⁸, which sets out methods of collaboration and information sharing within Scotland as well as with external partners.

Coasts

Scotland's coasts are of immense value for wildlife and people. Many species are attracted to our coasts as nursery areas, to breed or to feed in, and many of our tourism and recreational industries are shore and coast based. Many of us live near the coast or take our leisure there. Many coastal communities have traditions intimately tied to the marine environment on which they depend, providing an especially rich Scottish cultural heritage.

The Government and its agencies aim to heighten awareness of the role coastal habitats play in providing natural flood protection, erosion control and in supporting distinctive wildlife. Co-ordinated planning, conservation and management across marine and terrestrial environments will ensure the protection and expansion of some of these habitats. We can begin to achieve this through better linkages between existing legislation and policies, such as flood risk management plans, river basin management plans and shoreline management plans.

We need to develop a better understanding of the services that coasts provide.

As sea-level rise accelerates, coastal habitats will move inland, except where barriers exist. It may be necessary to breach some man-made coastal barriers so that this 'roll-back' can operate, recognising that this will inevitably mean local loss of land. We need to plan in advance for coastal adaptation, considering the needs of neighbouring settlements, transport infrastructure and facilities, but also taking account of the valuable protection afforded by coastal habitats and landforms that are allowed to adjust naturally. These issues will predominantly be tackled at a local level, through local flood risk management strategies, and will be coordinated at a national level.

Scotland's islands

Scotland has more than 700 offshore islands. This is the largest European island complex by area, with the significant archipelagos of the Hebrides, Orkney and Shetland. Only 99 of our islands have human settlements so many of these islands are undisturbed strongholds for marine and coastal biodiversity. Surrounded by productive seas, they are home to many endemic races and species. They support internationally important feeding and breeding areas for sea birds and marine mammals - providing key refuges for threatened species. Their extensive coastlines, varied and unique habitats, and isolation make them distinct from the mainland in many regards. Islands are particularly vulnerable to pressures such as habitat loss, climate change and invasive non-native species.

The lack of ground-based predators such as foxes, stoats and weasels makes islands safe havens for ground-nesting birds. The large concentrations of birds are particularly vulnerable to predation by invasive alien species and species native to the neighbouring mainland, but not native to our smaller islands. The combination of biodiversity richness, unique features and vulnerability means that Scottish islands need special attention and protection.

Key messages from this chapter

- Scotland's seas and coasts provide rich natural harvests and varied ecosystem services, including climate control, coastal protection, nutrient recycling, health benefits and leisure opportunities, as well as supporting a diverse biodiversity that adds value to local tourist economies.
- Sustainable management of the seas to deliver multiple benefits will be assured through implementation of the Scottish Marine Nature Conservation Strategy and the National Marine Plan.
- Management of the coastal zone will be increasingly challenged by the impacts of climate change.
- Scotland's islands are especially valuable, but vulnerable, havens of biodiversity.

What will be different as a result of applying the principles in this chapter?

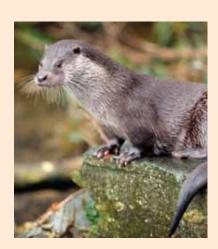
- An ecologically coherent network of Marine Protected Areas will protect the best of Scotland's marine nature, promote sustainable use and aid recovery of commercially valuable fish and shellfish.
- An innovative system of marine planning will include all those with an interest in the marine environment to ensure the sustainable management of our seas, coasts and islands.
- Better understanding of the marine environment will help us identify the marine features most in need of protection, and give better advice on marine and coastal management.
- Coasts will be managed to help adapt to pressures from climate change.



7 Measuring progress







Outcome

A framework of indicators that we can use to track progress.

Key actions

- Put in place a programme of work to measure progress towards the 2020 outcomes, so that we can track progress and deal with problems.
- Work more closely with the growing number of volunteers to develop our understanding of the changing state of nature.
- Develop and support the Scottish Biodiversity Information Forum to bolster the collection and wider use of biodiversity data in Scotland.
- Publish a terrestrial habitat map for Scotland.



Measuring progress

It is crucial that we are able to track progress towards the 2020 outcomes, and use this information to help us adapt our actions and management as necessary. Some of our aspirations are broad and ambitious, and we need to develop new approaches and broad datasets to measure our progress.

The current suite of Scotland's biodiversity and public engagement indicators will be updated, and where appropriate individual indicators will be modified. New indicators of ecosystem health are being devised and the new *Natural Capital Asset Index (NCAI)* (2012)¹² will be used to measure the extent of, and reasons for, change. This suite of indicators will provide us with a clear understanding of our progress towards the 2020 outcomes, and monitor our contribution to Aichi and European biodiversity targets.

Ecosystem health indicators will need to operate at both national and local scales as they will help determine priority ecosystems for restoration. They might cover the quality of soils, water and habitats, extent of semi-natural land, an index of connectivity, a measure of diffuse pollution, the presence or absence of functional groups, some measure of species diversity, and, perhaps, a measure of penetration by invasive non-native species.

We will provide descriptions of progress to supplement the indicators, and rapidly identify problem areas. The Scottish Biodiversity Committee is the focal point for reporting on progress. We shall continue to record activities that support biodiversity through BARS (Biodiversity Action Reporting System). We need more partners to use this as it helps to quantify the breadth of biodiversity action across Scotland and the UK. The spatial mapping of biodiversity action also provides opportunities to identify gaps and potential for collaboration.



Reporting progress against Aichi Targets

The Convention on Biological Diversity sets out five strategic goals and 20 'Aichi' Targets' (2012)⁵. These provide the international framework within which we can develop indicators of progress. At the European level, this monitoring is undertaken through a set of biodiversity indicators to which the UK contributes. We want to have an additional Scottish component, which will include the current biodiversity and engagement indicators, and new ones to reflect ecosystem health. We will link these to UK indicators where they exist.

We shall therefore develop a new biodiversity indicator framework, setting out the metrics required for informed decision taking and reporting up to 2020. Actions to improve our understanding don't necessarily start with new data collection but, instead, with making more effective use of results, expertise and resources. By making existing information more accessible we can focus sharply on genuine knowledge gaps. These include assessments of ecosystem health across conservation related European directives as well as benefits for wildlife through programmes such as SRDP. Bringing information together in one place, keeping it up-to-date and making it accessible for use across sectors, policies and purposes, is now being made possible through Scotland's Environment Web. In this way the results of indicator monitoring will be made available for use in combination with other environmental data across the full spectrum of policy purposes, whether local, catchment or national in scale.

Table 2 shows the relationship between the Aichi Targets, Scottish outcomes from the 2020 Challenge, and proposed and current UK indicators.

Table 2. Links between Aichi targets, strategy outcomes and indicators.

CBD Strategic Goal	Aichi target	Scottish outcomes from 2020 Challenge	Proposed UK 2020 indicator	Current UK 2010 indicator
A. Address the underlying causes of	1, (17)	Ch 1 Engaging people	A1. Awareness, understanding and support for biodiversity conservation	None available
biodiversity loss by mainstreaming biodiversity across government and society	1	Ch 1 Empowering people Ch 3 Improved heath and quality of life	A2. Taking action for nature: volunteer time spent in biodiversity conservation	Volunteer time spent in biodiversity conservation and background information from Defra's public attitude survey
	2, 4, (18)	Ch 2 Valuing Natural Capital	A3. Value of biodiversity integrated into decision making	None available
	4	Ch 2 Efficient resource use	A4. Global biodiversity impacts of UK economic activity/ sustainable consumption	None available

CBD Strategic Goal	Aichi target	Scottish outcomes from 2020 Challenge	Proposed UK 2020 indicator	Current UK 2010 indicator
B. Reduce the direct pressures on biodiversity and promote sustainable use	3, 7, (4)	Ch 5 Sustainable land and water management	B1. Agricultural and forest area under environmental management schemes	Area of land in agri-environment schemes Area of forestry land under sustainable management
	6, (4)	Ch 6 Productive and biologically diverse seas	B2. Sustainable fisheries	UK stocks harvested sustainably and at full reproductive capacity
	4, (2, 3)	Ch 2 Sustainable economic growth	B3. Integration of biodiversity considerations into business activity	None available
	10	Ch 1 Ecosystems are restored to good health	B4. Pressure from climate change	Spring index
	8, 10		B5. Pressure from pollution	Air pollution: sulphur
				Air pollution: nitrogen
		Ch 6 Clean and healthy seas		Marine pollution: heavy metals
	9	Ch 4 Wildlife is flourishing	B6. Pressure from invasive species	Extent of invasive species (terrestrial)
				Extent of invasive species (freshwater)
				Extent of invasive species (marine)
	8, (5, 14)	Ch 5 Sustainable land and water management	B7. Water quality	Biological quality of rivers

CBD Strategic Goal	Aichi target	Scottish outcomes from 2020 Challenge	Proposed UK 2020 indicator	Current UK 2010 indicator	
To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	11		C1. Protected sites	Total area of protected sites (terrestrial and freshwater) Total area of protected sites (marine)	
	5, (11) 5	Ch 1 Ecosystems	C2. Habitat connectivity C3. Status of rare and threatened	Condition of SSSIs Connectivity of woodland and neutral grassland (context only) Baseline data for previous article 17 report	
	12	are restored to good health	habitats C4. Status of rare and threatened species	Previous UK BAP reporting round + background baseline data for previous article 17 report.	
	7, 12, 14, (13)	Ch 4 Quality and quantity of our wildlife is improving and flourishing Ch 5 Sustainable land and water management	C5. Birds of the wider countryside and at sea	Farmland birds Woodland birds Wetland birds Seabirds Wintering water birds	
	7, 12, 14,			Generalist butterflies: woodland, farmland	
	7, 12, 13, 14		C7. Plants in the wider countryside	Change in plant species richness (enclosed farmland) Change in plant species richness (woodland and hedgerows) Change in plant species richness (grassland and boundaries)	
	7, 12, 14, (13)			C8. Bats (and other mammals of the wider countryside)	Widespread bats
	13, (16)		C9. Genetic resources for food and agriculture)	Effective population size (sheep) Effective population size (cattle)	

CBD Strategic Goal	Aichi target	Scottish outcomes from 2020 Challenge	Proposed UK 2020 indicator	Current UK 2010 indicator
D. Enhance the benefits to all from biodiversity and ecosystems	14, 15, (4, 6)	Ch 6 Clean, healthy, safe, productive and biologically diverse	D1. Biodiversity and ecosystem services (marine)	Fish size classes in the North Sea (as a measure of capacity to sustain long-term fisheries)
	14, 15	Ch 1 Ecosystems are restored to good health	D2. Biodiversity and ecosystem services (other)	None available

E. Enhance	19, (2, 3)	Ch 2 Valuing Natural Capital	E1. Biodiversity data for decision making	None available
implementation through planning, knowledge	20	Ch 2 Investing in Natural Capital	E2. Expenditure on domestic and international	Expenditure on domestic biodiversity
management. and capacity building	nagement. and		biodiversity	Expenditure on international biodiversity

Working with volunteers and other people to develop the evidence base – citizen science

In Scotland we are very fortunate to have a highly energetic, broad based and skilled volunteer network. Even some of the little known taxonomic groups have specialists carrying out fundamentally important work on their conservation and ecology. Much of this work is curiosity driven, and we applaud and encourage it.

Volunteer enthusiasts predominantly observe nature and are involved in systematic recording of plants and animals. This has given rise to a wealth of knowledge, and enabled us to establish trends and indicators. Several national recording schemes, such as those for birds, plants and butterflies, have become world exemplars. Scotland's Environment Web (SEWeb) lists at least 19 initiatives reflecting and fostering volunteer based monitoring. The website provides advice on how people can get started in wildlife recording. A vital part of this is to ensure habitat and species information is collected consistently, notably through the National Biodiversity Network (NBN) and its marine counterpart, the Marine Environmental Data and Information Network (MEDIN).

In Scotland we are very fortunate to have a highly energetic, broad based and skilled volunteer network.

With at least 79,000 species present in our land, fresh waters and surrounding seas, we need priorities for monitoring. The habitats and species of European importance, and those named under EU legislation, are clearly at the top of the list. For many of these we already have indicators that are being monitored across a network of sites through a coherent survey programme.





Managing the evidence base

Cross-sectoral approaches to information gathering and cooperative working will be promoted through the CAMERAS (Coordinated Agenda for Marine, Environment and Rural Affairs Science) Environmental Monitoring Coordination Group. A Scottish Biodiversity Information Forum has recently been established to guide key discussions between those involved in data collection (predominantly volunteers but also government and the private sector) and data users (predominantly government, but others as well).

Access to reliable, quality-assured information about Scotland's environment and how it is changing is crucial to inform decision-making by government as well as public bodies, businesses and others. We hope that, as we develop the indicators we can use the SEWeb to see these in context, alongside other environmental facts and figures.

Access to reliable, quality-assured information about Scotland's environment, and how it is changing, is crucial to inform decision-making.

As we have seen in the first two chapters, a growing understanding of the importance of our natural capital can inform good decision-making, for example in development planning and the SRDP. However, the evidence needed to manage our natural capital wisely, and to make the most of the services provided by ecosystems, is incomplete. Therefore, we shall develop a suite of indicators to inform adaptive management and contribute to further reporting on Aichi Targets.

Although we have several excellent atlases showing the distribution of groups of species, ranging from birds, mammals and butterflies to flowering plants, we do not have a comparable atlas for habitats on land (there is an excellent marine atlas of habitats and species). We want to publish a map of Scotland's land habitats based on a pan-European classification (EUNIS-Annex 1). This map (to be completed in 2019) will reflect the great diversity of habitats we have in Scotland and, in time, be used to support surveillance and monitoring. Indeed, this map will become an essential tool in making decisions on planning, policy and land management issues. This is an ambitious proposal, and an appropriate note on which to close the 2020 Challenge - and to begin a truly challenging piece of work.

Aichi Goals and targets

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society.

Target 1

By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4

By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use.

Target 5

By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Target 11

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective areabased conservation measures, and integrated into the wider landscapes and seascapes.

Target 12

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services.

Target 14

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16

By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

Target 17

By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Target 19

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Target 20

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties

Glossary

Adaptive management: management based on regular monitoring, then modifying management to meet agreed objectives.

Biodiversity: the totality of life on earth: the variety of species, including the variation within species, the living systems they form, and the natural processes with which they interact.

Biosecurity: preventive measures designed to reduce the risk of spreading invasive nonnative species, pests and diseases.

Biosphere Reserve: a large area of natural habitat, protected under domestic legislation, to meet the criteria of the UNESCO 'Man and Biosphere' Programme.

Catchment scale: an entire river catchment.

CBD: the UN Convention on Biological Diversity.

CITES: Convention on International Trade in Endangered Species.

Climate change: long-term changes to climate, caused to a significant degree by human activities that release gases into the upper atmosphere where they trap excess heat near the planet's surface.

Ecological network: a system linking ecosystems across geographic areas, taking into account the dispersal ability of the component species of those ecosystems.

Ecologically coherent: operating at such a scale, and with sufficient connectivity, to ensure that dispersed ecosystems can continue to function effectively.

Ecosystem: a dynamic interlinked complex of plant, animal and micro-organism communities, and their associated non-living environment, interacting as an ecological unit.

Ecosystem approach: an approach that encourages the integrated management of land, water and living resources and promotes conservation and sustainable use in an equitable way.

Ecosystem function: the natural workings of an ecosystem, which allow it to be self-sustain.

Ecosystem health: is the status of an ecosystem including the condition of its natural assets (biodiversity, geomorphology), its functional quality and its capacity to sustain both assets and function in the future (i.e. sustainability).

FCS: Forestry Commission Scotland.

Geoparc: a geographic area that is promoted, and has at least a measure of informal protection, because of its geological interest and importance.

Green network: a network of green spaces contributing to the concept of an ecological network.

GSPC: Global Strategy for Plant Conservation, an updated strategy for 2011-2020 with 16 targets.

IUCN: the World Conservation Union, an international non-governmental organisation that promotes scientific action for the conservation of wild living resources.

Landscape scale: a wide-scale, holistic approach, operating across broad areas of countryside integrating biodiversity conservation with local economic and social issues.

Low-carbon economy: an economy that does not rely heavily on the use of fossil fuels.

Natural Capital: a value assigned to the state of natural assets.

Natura site: a site protected under domestic legislation to protect an area of particular value which meets the criteria of the EC Birds Directive and/or the EC Habitats and Species Directive.

NEA: UK National Ecosystem Assessment (2011).

NICE: National Institute for Health and Clinical Excellence.

Peatland: a wetland ecosystem, such as a bog, fen or mire, covered by a peaty soil formed from the partly decayed remains of plants.

The Ramsar Convention: the Convention on Wetlands of International Importance which is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.

River basin management planning: a planning mechanism introduced to protect and improve the water environment by setting improvement objectives for each water body.

River catchment: the entire land area from which water drains into one river system.

Social prescribing: a mechanism for linking patients with non-medical sources of support within the community.

SAC: Special Areas of Conservation – are important high-quality conservation sites. They are designated under the EC Habitats Directive forming a network that significantly contributes towards the conservation of specific habitats and species.

SEPA: Scottish Environment Protection Agency.

SNH: Scottish Natural Heritage.

SSSI: Site of Special Scientific Interest – is a site designated under the Wildlife and Countryside Act 1981 as being of special interest for its flora, fauna, geological or physiographical features.

Sustainable: capable of continuing into the future without damage to the environment or depletion of natural capital.

Water Framework Directive: an EC directive designed to improve the management of surface waters.

TEEB: 'The Economics of Ecosystems and Biodiversity' (2008 report to the CBD).

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Local Development Plan 2

OCTOBER 2019



Biodiversity and Geodiversity

- 4.63 The region's biodiversity and geodiversity are critical components of ecosystems and represent an economic asset and a community resource, as well as being of intrinsic importance. Maintaining and enhancing biodiversity and geodiversity habitats and the wildlife which occurs within them is an important aim of the Plan.
- 4.64 Large areas of the region are afforded statutory protection at the international and national level through a number of designations (Natura sites, SSSIs, Ramsar Sites, NNRs, etc.). The level of protection depends on the designation concerned.
- 4.65 A number of species receive statutory protection through international and national legislation, whether or not they are found within protected sites. The level of protection depends on the species concerned. European Protected Species (EPS) receive the highest level of protection. All proposals will be assessed for their impact on European Protected Species and other

- nationally protected species. All proposals should also adhere to the Code of Practice on Non-Native Species made by the Scottish Ministers under Section 14c of the Wildlife and Countryside Act 1981.
- 4.66 The statutory duty placed on the Council by the Nature Conservation (Scotland) Act 2004 to further the conservation of biodiversity is not restricted to sites, habitats or species that are subject to statutory protection. A number of Local Nature Conservation Sites have been identified and assessed as being of known local importance for biodiversity or geodiversity, further detail is provided in a technical paper. These consist of Local Nature Reserves (LNRs) and nonstatutory Local Wildlife Sites, Local Geodiversity Sites and nature reserves of conservation organisations. However, other features of local importance for biodiversity can be found outside of these sites, but their importance may never have been surveyed or assessed. Any development proposals being submitted in relation to any of these aspects will be considered against Policy OP1: Development Considerations.

Policy NE4: Sites of International Importance for Biodiversity

Development proposals likely to have a significant effect on an existing or proposed Special Protection Area (SPA), existing or candidate Special Area of Conservation (SAC) or Ramsar Site, including developments outwith the site, will require an appropriate assessment and will only be permitted where:

- the development does not adversely affect the integrity of the site; or
- there are no alternative solutions; there are imperative reasons of overriding public interest, including those of a social or economic nature; and compensatory measures have been identified and agreed to ensure that the overall coherence of the Natura network is protected.

The boundaries of these sites are shown on the Proposals Maps.

Policy NE5: Species of International Importance

Development proposals that would be likely to have an adverse effect on a European Protected Species will not be permitted unless it can be shown that:

- there is no satisfactory alternative; and
- the development is required for preserving public health or public safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment; and
- the development would not be detrimental to the maintenance of the population of the species at a favourable conservation status in its natural range.

Policy NE6: Sites of National Importance for Biodiversity and Geodiversity

Development that affects Sites of Special Scientific Interest, not designated as International Sites, and other national nature conservation designations will only be permitted where:

- it will not adversely affect the integrity of the area or the qualities for which it has been designated, or
- any such adverse effects are clearly outweighed by social, environmental or economic benefits of national importance.

The boundaries of these sites are shown on the Proposals Maps.

Trees, Forestry and Woodland

- 4.67 Trees and woodland are important features of a sustainable environment, including contributing to carbon capture. They provide a wide range of social, economic and environmental benefits and are a key part of the region's rich and diverse landscapes. They create employment through the forestry industry and through tourism as well as maintaining and improving the quality of life for residents through the creation of attractive and healthy places. It is therefore important to look after trees, to enhance their condition and to consider their resilience to climate change.
- 4.68 The Council is supportive of appropriate expansion of tree and woodland cover. The Dumfries and Galloway Forestry and Woodland Strategy, which is published as supplementary guidance to the Plan provides guidance on the preferred location of new planting and also economic, social and environmental considerations. It guides the future expansion and restructuring of forests and woodlands in Dumfries and Galloway, to maximise the benefits for the local economy, communities and environment.
- 4.69 Ancient and semi-natural woodlands are important and irreplaceable features which should be protected and enhanced. The same applies

to other native and long established woodlands with high nature conservation value. Other woodlands, hedgerows and individual trees may also have significant biodiversity value and make a significant contribution to landscape character and quality, so should be protected from adverse impacts resulting from development.

Forestry

- 4.70 Forestry is a significant land use covering approximately 28% of the region. Forestry and associated activities also provide a major source of employment within the region. Many of the early softwood plantations have been harvested over the last few years, creating opportunities to improve the design and mix of species. Forests are now designed and managed to meet strong sustainability, biodiversity and landscape standards under the UK Forestry Standard. The Dumfries and Galloway Forestry and Woodland Strategy as supplementary guidance provides further information, advice and guidance in respect of felling, new planting and replanting schemes.
- 4.71 Forests are also increasingly becoming a focus for recreational opportunities and activities. The Galloway Forest Park alone is estimated to attract 1.1 million visitors a year, with Ae Forest attracting approximately 413,000 visitors per annum.

4.105 Policy IN1 provides a general framework for the assessment of all forms of renewable energy whilst Policies IN2 and IN5 address Wind Energy and Energy Recovery from Waste respectively. Future local plans and/or supplementary guidance may require a more tailored policy approach to address other specific forms of renewable energy technology.

4.106 The Council has been supportive of the development of renewable energy and continues to be supportive of a diverse range of renewable energy sources. However support for renewable energy proposals must be balanced against the impacts that such developments can have on the environment and communities. The Council will screen proposals to assess whether an Environmental Impact Assessment (EIA) is required to be undertaken. Factors such as the scale of the proposal and its potential impact on the surrounding areas will be taken into account. In all cases, particular attention will be paid to the need for sensitive siting and design, including the consideration of reasonable alternatives by the developer.

Policy IN1: Renewable Energy

The Council will support development proposals for all renewable energy generation and/or storage which are located, sited and designed appropriately. The acceptability* of any proposed development will be assessed against the following considerations:

- landscape and visual impact;
- cumulative impact;
- impact on local communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;
- the impact on natural and historic environment (including cultural heritage and biodiversity);
- the impact on forestry and woodlands;
- the impact on tourism, recreational interests and public access.

To enable this assessment sufficient detail should be submitted, to include the following as relevant to the scale and nature of the proposal:

- any associated infrastructure requirements including road and grid connections (where subject to planning consent);
- environmental and other impacts associated with the construction and operational phases of the development including details of any visual impact, noise and odour issues;
- relevant provisions for the restoration of the site;
- the scale of contribution to renewable energy generation targets;
- effect on greenhouse gas emissions; and
- net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

The Council will support proposals for district heating systems. Planning applications for major applications will be required to include an energy statement which includes the consideration of the feasibility of meeting the developments heat demand through a district heating network or other de-carbonised alternatives. All proposed developments located adjacent to significant heat sources or proposed/existing heat networks should be designed in such a way as to be capable of connecting to a heat network from that source and any land required for the heat network infrastructure is connected should be protected.

* Acceptability will be determined through an assessment of the details of the proposal including its benefits and the extent to which its environmental and cumulative impacts can be satisfactorily addressed.

Wind Energy

4.107 The Council has developed a spatial framework to identify those areas that are likely to be most appropriate for onshore wind farms, following the requirements of the SPP, Paragraph 161. The Spatial Framework covers all wind turbines in excess of 20m to blade tip and Table 3 below sets out the elements included:

Table 5: Spatial Framework

Group 1: Areas where wind farms will not be acceptable:

NSAs

Group 2: Areas of Significant Protection:

Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.

- Ramsar & Natura 2000
- World Heritage Sites (not directly)
- SPAs/SACS
- SSSIs
- NNRs
- Inventory of Gardens and Designed Landscapes
- Inventory of Historic Battlefields
- Wild land areas
- Carbon rich soils, deep peat and priority peatland (subject to recent SNH consultation)
- 2km area around settlements in the Plan with identified settlement envelope or edge

Group 3: Areas with potential for wind farm development

Areas beyond Groups 1 and 2, where wind farms are likely to be acceptable, subject to detailed consideration against all relevant plan policies.

- 4.108 Policy IN2: Wind Energy, supported by Supplementary Guidance: Wind Energy Development, sets out the issues that will be taken into account for all specific proposals, assessed through the development management process.
- 4.109 Different landscapes will have a different capacity to accommodate new development, and the scale, siting and design of development should be informed by local landscape character. The Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWLCS) is a supportive study and is attached as an appendix to the supplementary guidance. It assesses landscape sensitivity, the capacity of individual landscape units to accommodate change and

provides advice on how the scale, siting and design of development should be informed by local landscape character. Consideration of the DGWLCS does not replace the need to assess the landscape or visual impacts of individual wind energy proposals. Guidance and advice for offshore wind energy developments is also provided within the supplementary guidance.

4.110 Cumulative impacts can occur between two or more developments and this can be a potential constraint to further development. Established patterns of development can also be susceptible to potential cumulative impacts from new development. This could include clusters of similar types of development, a group of turbines within the same landscape character area or

where two groups of wind farms are separated by an undeveloped, distinct landscape feature such as a valley or prominent ridgeline. These considerations are set out in more detail in the supplementary guidance.

Policy IN2: Wind Energy

Assessment of all Wind Farm Proposals

The Council will support wind energy proposals that are located, sited and designed appropriately. The acceptability* of any proposed wind energy development will be assessed against the following considerations:

Renewable energy benefits

The scale of contribution to renewable energy generation targets, effect on greenhouse gas emissions and opportunities for energy storage.

Socio-economic benefits

Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

Landscape and visual impacts

- The extent to which the landscape is capable of accommodating the development without significant detrimental landscape or visual impacts, including effects on wild land; and
- That the design and scale of the proposal is appropriate to the scale and character of its setting, respecting the main features of the site and the wider environment and that it addresses fully the potential for mitigation.

Cumulative impact

The extent of any cumulative detrimental landscape or visual impact or impacts on existing patterns of development from two or more wind energy developments and the potential for mitigation.

Impact on local communities and residential interests

The extent of any detrimental impact on communities, individual dwellings, residents and local amenity, including assessment of the impacts of noise, shadow flicker, visual dominance and the potential for associated mitigation.

Impact on infrastructure

The extent to which the proposal addresses any detrimental impact on road traffic, adjacent trunk roads and telecommunications, particularly ensuring transmission links are not compromised.

Impact on aviation and defence interests

The extent to which the proposal addresses any impacts arising from location within an area subject to potential aviation and defence constraints, including the Eskdalemuir Safeguard Area.

Other impacts and considerations

a) the extent to which the proposal avoids or adequately resolves any other significant adverse impact on the natural environment, including biodiversity, forests and woodland, carbon-rich soils, hydrology, the water environment and flood risk, the historic environment, cultural heritage, tourism and recreational interests and public access.

b) the extent to which the proposal addresses any physical site constraints and appropriate provision for decommissioning and restoration.

Further details on this assessment process, including its application to smaller wind farms and more detailed development management considerations, are provided through supplementary guidance on Wind Energy Development. This will also include separate mapping of the constraints relevant to the considerations above.

The Spatial Framework Map** (Map 8) provides strategic guidance. However, it must be read in conjunction with the supplementary guidance and its Appendix, the Dumfries and Galloway Wind Farm Landscape Capacity Study. The landscape capacity study is a supportive study, the consideration of which does not replace the need to assess the landscape or visual impacts of individual proposals.

- * Acceptability will be determined through an assessment of the details of the proposal including its benefits and the extent to which environmental and cumulative impacts can be addressed satisfactorily.
- ** The Spatial Framework Map relates to one turbine or more over 20 metres.

State Says Shad Sare -Wind Energy Spatial Framework Areas with potential for wind farm development Areas where wind farms will not be acceptable Areas of Significant Protection Scale 1:500,000 Key **d** # **d** = #

Map 8: Spatial Framework



East Ayrshire Local Development Plan

Volume 1:

Strategy & Policy

FEBRUARY 2017

ENERGY & INFRASTRUCTURE

6.1 Delivering renewable energy

Planning has an important role to play in Scotland's transition to a low carbon place. Alongside energy efficiency measures, renewable energy is a key way to help reduce greenhouse gas emissions from the energy sector and in this regard, the Scotlish Government has set ambitious renewable energy targets.



Community Benefits

- Renewable energy in Scotland presents an unprecedented opportunity for communities to share in the benefits of their local energy resources. In this context, paragraph 173 of Scottish Planning Policy states that, where a proposal is acceptable in land use terms and consent is being granted, local authorities may wish to engage in negotiations to secure community benefit in line with the Scottish Government Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments.
- In accordance with the above, the Council has an established framework for community benefits through a two tier approach; with £2,500 per megawatt of installed capacity per annum to be contributed to the Renewable Energy Fund, managed by the Council, and with a further £2,500 per megawatt of installed capacity being paid per annum directly to the community/communities affected by the development. This is not a matter for consideration with respect to any application for planning permission, and applies only in the event that the Council is minded to grant planning permission for wind energy development. Furthermore, whilst the council encourages all wind energy developers and communities to use the established framework for the purpose of securing the most appropriate community benefits, where wind energy developers propose alternative arrangements which have the support of the community, and are in line with the Scottish Government's good practice principles, this would be an acceptable alternative approach.
- Non-statutory guidance on community benefits from wind energy will provide more detailed advice for developers and the community on the council's preferred scheme.

6.1.19 Renewable energy policies

Policy RE1: Renewable Energy Developments

Proposals for the generation and utilisation of renewable energy in the form of new build development, infrastructure or retrofit projects will be supported in standalone locations and as integral parts of new and existing developments where it can be demonstrated that there will be no unacceptable significant adverse impacts on all of the relevant Renewable Energy Assessment Criteria set out in Schedule 1 of the LDP, that the scale of the proposal and its relationship with the surrounding area are appropriate and that all relevant policies are met. In this regard, applications for renewable energy proposals should be accompanied by detailed supporting information.

Note: This policy applies to all types of renewable energy development proposals other than heat (see Policy RE2), energy from waste (see Policy WM6) and wind energy (see Policies RE 3 and RE 4)

Policy RE 2: Heat Generation

The Local Development Plan will support developments associated with the renewable generation of heat. Where non-renewable generation of heat is proposed, the Council will support these developments only where greenhouse gas emissions are significantly reduced, form part of a carbon capture development or where the applicant can demonstrate plans for conversion to renewable or low carbon sources of heat in the future. The Council will also be supportive of the provision of energy centres, where appropriate, within new development.

All new heat generating developments should, where possible, be located close to potential heat users and the possibility of developing heat networks, including district heat networks, should be investigated.

Proposals for new development should ensure that the site can be connected to heat networks, including district heating, which may be developed in the future. This will require developers to safeguard sufficient capacity within the site's infrastructure to allow pipework to be connected to premises within the site and to the future heat supply/network. Developers should also safeguard sufficient land, where appropriate, for the provision of energy centres to enable subsequent connections to heat networks to be made.

ENVIRONMENT

7.1 Protecting and enhancing the natural and built environment

East Ayrshire benefits from a diverse environment, with its wide breadth of natural and built heritage features helping to shape the character and culture of the area. By protecting and enhancing our environment in an effective and meaningful way, we are better able to create successful places which, in turn, attract investment, new visitors and contribute significantly to the quality of life for local residents.



Policy ENV5: Historic Battlefields

Historic Battlefields included in the National Inventory are protected, conserved and managed, so as to conserve their important features and enable greater understanding of their historic importance and role.

Development will not be supported where it will significantly impact upon the key landscape characteristics and important features that underpin understanding and appreciation of the Battlefield.

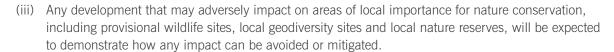
Where development on a Battlefield is deemed appropriate, any adverse impacts should be avoided or mitigated, through location and design details. Where possible, opportunities for positive enhancements should be identified, which will help improve interpretation and understanding of the Battlefield.

7.1.10 Natural Environment Policies

Policy ENV6: Nature Conservation

The importance of nature conservation and biodiversity will be fully recognised in the assessment of development proposals. This will be achieved by ensuring that:

- (i) Any development likely to have a significant effect on a Natura 2000 site which is not directly connected with or necessary to its conservation management must be subject to a "Habitats Regulations Appraisal". Such development will only be approved if the appraisal shows that there will be no adverse effect on the integrity of the site;
- (ii) Any development affecting a SSSI will only be permitted where it will not adversely affect the integrity of the area or the qualities for which it has been
 - designated or where any significant adverse effects on the qualities for which it is designated are clearly outweighed by social, environmental or economic benefits of national importance.



- (iv) If there is evidence that protected species may be affected by a development, steps must be taken to establish their presence. The planning and design of any development which has the potential to impact on a protected species will require to take into account the level of protection afforded by legislation and any impacts must be fully considered prior to the submission of any planning application.
- (v) Any new development must protect, and where appropriate incorporate and/or extend, existing habitat networks, helping to further develop the Central Scotland Green Network in Ayrshire.





The Council will apply 'the precautionary principle' where the impacts of a proposed development on nationally or internationally significant natural heritage resources are uncertain but there is sound evidence indicating that significant irreversible damage could occur.



Policy ENV 7: Wild Land and Sensitive Landscape Areas

Areas of wild land, as identified on the 2014 SNH map of wild land areas, have little or no scope to accommodate new development and are safeguarded on the LDP maps. Any development proposed must be able to demonstrate that any adverse effects on the qualities of wild land can be substantially overcome by siting, design or other mitigation.

The Council will give priority and prime consideration to the protection and enhancement of the landscape in its consideration of development proposals within the Sensitive Landscape Areas identified on the LDP maps.

Any development deemed to have unacceptable impacts on wild land and SLAs will not be supported by the Council. All development proposals within these areas will also require to be assessed against policy ENV 8: Protecting and Enhancing the Landscape.

Non-statutory guidance on **Sensitive Landscape Areas** supports policy ENV 7 by providing further detail on which particular qualities make the SLA valuable and important on a local and regional scale.