

SCOTTISH PLANT BIODIVERSITY STRATEGY

ROYAL
BOTANIC
GARDEN
EDINBURGH



NatureScot

Scotland's Nature Agency
Buidheann Nàdair na h-Alba

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FOREWORD

Our society, economy and well-being depend on biodiversity – the variety of life on Earth in all its forms. From provision of food and renewable energy to regulation of water and climate, biodiversity is critical for all humanity, but often undervalued and underappreciated. Plants and lichens are the foundation of life, converting sunlight into chemical energy, the basis of food. We value plants for shade and shelter, creating and stabilising soil, ameliorating climate and water levels, and providing multiple goods including timber, fibres and medicines. We appreciate plants for their beauty, the landscapes they help create, and the positive emotions and art they inspire. In Scotland we are fortunate to have access to exceptional, internationally important habitats, of which plants are the foundation, such as temperate rainforest, peatlands, machair, and Caledonian pine forest.

Since 1970 the distribution of almost half (47%) of flowering plant species in Scotland has decreased; even worse for mosses (bryophytes) (62%) and lichens (57%). Forty-five percent of flowering plant species are threatened with extinction globally. This crisis has been driven by human actions, particularly pollution, land use change and climate change. The world’s wild and diverse habitats are under threat.

There is global agreement on the reality and causes of biodiversity loss, and on the actions needed to halt and reverse these losses. The Scottish Biodiversity Strategy sets out bold ambitions by the Scottish Government to support thriving biodiversity in Scotland by 2045, and Scotland’s Natural Environment Bill defines biodiversity targets to be achieved. But thriving biodiversity depends on clear delivery plans, so I am delighted to introduce Scotland’s Plant Biodiversity Strategy and Delivery Framework, a key component of national implementation planning, directly aligned to the Scottish Biodiversity

Strategy and Global Strategy for Plant Conservation, and therefore also the Global Biodiversity Framework.

I welcome the global leadership demonstrated by this strategy, following a strong track record of biodiversity innovation in Scotland: Beinn Eighe was recognised as the UK’s first Gene Conservation Unit. Scotland developed the world’s first Genetic Scorecard for Wild Species, now being replicated abroad.

The Strategy lays out ten mutually supportive objectives, and I applaud the strong connections to people and society throughout. Each objective identifies priorities alongside key steps, data gaps, indicators, delivery mechanisms and actors to take ownership of delivery. In many places delivery builds on existing and successful systems – an evolutionary approach that will help initiate, target, prioritise and monitor action for plants at the rapid pace that is required.

The success of the Strategy relies on broad engagement with the people of Scotland. It prioritises connecting to multiple organisations, building capacity widely, urban transformations, and citizen and community science. Technology offers exciting opportunities for mapping biodiversity and bringing innovators into plant conservation. But we also need to celebrate and encourage the love of being in nature, enjoying plants, and collecting information to share, as so many do in our volunteer recording societies.

My appreciation goes to the team involved in developing the Strategy. I now encourage government agencies, local authorities, NGOs, trade bodies and individuals to engage with it and explore how it can help them to thrive alongside Scotland’s plant life.

Prof. Mathew Williams
Chief Scientific Adviser, Environment, Natural Resources and Agriculture, Scottish Government

1 <https://stateofnature.org.uk/countries/scotland/>
2 <https://kew.org/sites/default/files/2023-10/State%20of%20the%20World%27s%20Plants%20and%20Fungi%202023.pdf>
3 <https://www.nature.scot/information-hub/indicators-trends/genetic-scorecard-indicator>



INTRODUCTION

Why do we need a Plant Biodiversity Strategy for Scotland?

Plants are integral to the wellbeing of climate, nature and people. It is therefore essential that Scotland's plant biodiversity is conserved and sustainably managed in the face of threats including climate change; habitat loss, damage and fragmentation; invasive alien species; pathogens; and pollution. While many of these challenges are addressed broadly through the Scottish Biodiversity Strategy, targeted, prioritised actions are needed to ensure that the most important components of plant biodiversity in Scotland are protected. Helping people, plants and places to become resilient to climate changes will support the goals outlined in the Scottish National Adaptation Plan (SNAP3).

This Strategy outlines objectives for Scotland's plant biodiversity, following the Global Biodiversity Framework (GBF) targets and corresponding Global Strategy for Plant Conservation (GSPC) voluntary complementary actions, and is aligned to the Scottish Biodiversity Strategy (SBS). The agreed set of objectives will move us towards the vision of healthy and sustainable plant biodiversity in Scotland, in turn supporting livelihoods, culture and wellbeing. We aim to halt the loss of plant biodiversity by 2030 and to have restored and regenerated plant biodiversity across the country by 2045. The supporting Delivery Framework details data gaps and potential delivery mechanisms and will be reviewed regularly.

The Scottish Plant Biodiversity Strategy (SPBS) and Delivery Framework empower us to pursue ambitious actions to deliver its objectives; however, to achieve success, it is essential to foster strong partnerships. Thus, for each objective, we outline priorities, key steps and potential lead partners for delivery including any partner actions already identified. This information is not exhaustive, and we encourage you to reflect on your skills and interests and identify additional actions by which you can contribute to the protection, restoration and sustainable management of the nation's plant biodiversity.

Embedding plant and lichen conservation within the Scottish Biodiversity Strategy establishes a robust foundation for policy and implementation through 2030 and beyond. Achieving these objectives will require considerable effort and may present both financial and practical challenges in the short term. Nevertheless, ensuring a sustainable future for our botanical assets is a challenge worth rising to.

Left:
Birch (*Betula*) forest at Beinn
Eighe National Nature Reserve

VISION FOR SCOTLAND'S PLANT BIODIVERSITY

Our vision is that by 2045:

People from all walks of Scottish society actively participate in plant conservation and enjoy the benefits of a rich and diverse natural environment. Policymakers, land managers and citizens all recognise the value of the services plants provide. Plants are viewed as essential to urban and rural environments, delivering social and economic advantages. Plant science is recognised as important to the economy, attracting more students to education at all levels.

Scotland has robust taxonomic expertise providing accessible information for decision-makers and communities, and up-to-date 'Red Lists' for plants and lichens, which help direct management and recovery efforts. We work to conserve genetic diversity in both natural settings and cultivated environments to ensure species' survival and adaptation. Monitoring data on habitats, species, and genetic variation is available for everyone to access. We understand, track, and value the ecosystem services provided by plants and lichens.

Scotland's important sites for plants and lichens form a well-managed, countrywide network that safeguards habitats, species, and genetic diversity in collaboration with land managers and local communities. This ensures that our plant populations are safeguarded. We work to avoid conflicts between important habitats based on evidence, including predictions for future climate conditions. Local and national plans include ways to protect plant life; planners understand the importance of plants and have the necessary tools and information available; they are required to use them to safeguard key plant areas and improve connections between them.

Right:
Machair with bird's foot trefoil (*Lotus*) and daisy (*Bellis perennis*), Benbecula, Western Isles

Below:
Native lichens including *Ramalina farinacea* (shaggy strap lichen) growing in the Royal Botanic Garden Edinburgh - showing remarkable recovery following reduced pollution since the Clean Air Act.



People from all walks of Scottish society actively participate in plant conservation and enjoy the benefits of a rich and diverse natural environment.

Degraded areas in Scotland have recovered and support appropriate species diversity providing climate resilience places and opportunities for connection with nature. Restoration efforts boost local economies in both rural and urban areas through farming, forestry, and land-care practices, while also improving biodiversity. These projects are helping to increase native plant diversity across Scotland. We have a reliable supply of suitable native plants and seeds for use in ecological restoration and urban greening, and the horticultural trade promotes the cultivation of climate-resilient and pollinator-friendly species, replacing potentially invasive species. Native plants are being used to tackle climate change and adapt to its effects both urban and rural.

Scotland's farms and forests are well-managed to provide economic and societal benefits and flourishing biodiversity. Agricultural land supports high plant diversity and connects vital habitats. We protect traditional varieties of garden and crop plants.

Pollution levels in Scotland are at safe levels. Land managers have strategies to reduce nutrient loss, helping both the economy and the environment. We use herbicides responsibly.

The spread of invasive plants has been halted, and those already established are effectively controlled. New invasive species are quickly identified and managed to minimize negative consequences.

We have reduced our harmful impact on global biodiversity. Scottish organisations are leaders in collaborating for plant conservation worldwide, offering training and resources to support global conservation, sharing of research benefits, and the sustainable use of plant diversity. They also encourage the sharing of knowledge and plant and lichen materials to ensure fair benefits for everyone. Scotland has sustainable supply chains for both local and international products.

Towns and cities in Scotland feature diverse groups of native plants and lichens that help manage extremes of water and heat, while also creating beautiful living and working environments and enhancing human-nature connection. Developers and communities see the benefits of native or archaeophyte plants and green spaces, incorporating them into existing projects, meaning that local communities take part in conserving plant species that are culturally and economically important, whilst we maintain genetic diversity.

Businesses and investors understand the importance of using plants sustainably and are accountable. This has reduced Scotland’s global environmental impact and made our economy more resilient to biodiversity challenges, whilst delivering economic benefits from initiatives that enhance biodiversity. Public and private investments in Scotland’s plant and lichen diversity are leading to significant positive changes through effective projects as well as incentives to encourage the use of diverse native plants and protect important habitats.

People in Scotland value and enjoy the benefits of wild plants and lichens for recreation and responsible foraging, which helps them connect with nature. Strategies to reduce poverty and enhance wellbeing include ensuring access to and enjoyment of native plants. People across Scotland appreciate, survey, and monitor plants and lichens, recognising their importance. There is a strong network of citizen and community scientists and plant recorders of all ages and backgrounds, supporting plant conservation. The people of Scotland understand the value of plant and lichen diversity and the essential services it provides, taking responsibility to protect and sustain it.



Top:
Green roofs can support biodiversity and climate adaptation in urban settings

Bottom:
A Greenlink health walk near Motherwell, Lanarkshire

Right:
Tree lungwort (*Lobaria pulmonaria*) in Scotland’s rainforest



GOVERNANCE, MONITORING AND REPORTING

Delivery of the Scottish Plant Biodiversity Strategy Objectives will be overseen by a governance group including representatives from NatureScot, the Royal Botanic Garden Edinburgh (RBGE), Plantlife Scotland and Plantlife Link Scotland (PLinkS).

Regular monitoring will be used to assess progress using metrics described in the accompanying Delivery Framework, which also details data and research gaps and potential delivery mechanisms.

To track progress and adapt to change, we will monitor outcomes through established mechanisms, meaning that we can attribute actions contributing to the Scottish Plant Biodiversity Strategy alongside the Global Biodiversity Framework, Global Strategy for Plant Conservation and Scottish Biodiversity Strategy. The Scottish Plant Biodiversity Strategy will need to be responsive to the pressures of global and local change as well as meeting the needs of Scotland's people.

Below:
Oblong-leaved sundew
(*Drosera intermedia*) growing
in the Flow Country



ACKNOWLEDGEMENTS

Thanks to all who contributed to the development of the Strategy and Delivery Framework, generously sharing thoughts and ideas, commenting on consultations and championing plants in Scotland.

- Including:
- Alliance for Scotland's Rainforest, Botanical Society of Scotland, British Bryological Society, British Lichen Society, British Phycological Society, British Pteridological Society, Botanical Society of Britain and Ireland, Cairngorms National Park Authority, Centre for Ecology & Hydrology, Chartered Institute of Ecology and Environmental Management, Convention of Scottish Local Authorities, Forestry and Land Scotland, Horticultural Trades Association, James Hutton Institute, John Muir Trust, Loch Lomond & The Trossachs National Park, Ministry of Defence, Mountaineering Scotland, National Biodiversity Network, National Farmers' Union Scotland, National Trust for Scotland, NatureScot, Plantlife Scotland, Plantlife Link Scotland, Royal Society for the Protection of Birds, Scotland's Rural College, Scottish Environment LINK, Scottish Forestry, Scottish Gamekeepers Association, Scottish Land & Estates, Scottish Wildlife Trust, Trees for Life, Wild Scotland, Woodland Trust.

We also thank all who commented in an individual capacity, representing the wider botanical community.



Above:
Caring for *ex-situ* collections

THE OBJECTIVES

	OBJECTIVE 1 SPATIAL PLANNING AND TOOLS
Priorities for Scotland's plants	Plant conservation and plant populations are robustly and appropriately protected and defended within the national and local planning system. Connectivity is increased through important plant areas (including Nature30 sites and Gene Conservation Units [GCU]). The loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, is brought close to zero by 2030. The planning system ensures enough adequately sized greenspaces are created and plants are utilised in urban areas/future cities, to mitigate air pollution and extreme weathers (e.g. flooding). Local communities are equitably represented in planning plant conservation initiatives. Climate change and nature recovery are the primary guiding principles for all plans and decisions, in alignment with the National Planning Framework 4 (NPF4).
Key steps	By 2030, include plant conservation within all national and local planning frameworks. Scope and build a system for capturing plant data and integrating this with local, regional and planning mechanisms. Feed botanical information into planning tools such as the NPF4 and regional land use partnerships. Integrate nature networks into regional plans. Increase protection of, and funding for, public parks and urban green space for health outcomes and biodiversity. Include access to and enjoyment of native plant diversity in poverty-reduction strategies.
Key partners	Environmental NGOs (eNGOs), NatureScot, Convention of Scottish Local Authorities (COSLA), recording societies, Plantlife Scotland, Chartered Institute of Ecology and Environmental Management (CIEEM), National Biodiversity Network (NBN), RBGE.

	OBJECTIVE 1 SPATIAL PLANNING AND TOOLS
Partner contributions / actions	NatureScot: supporting development of Nature Networks (https://nature.scot/home/nature-networks-toolbox/what-are-nature-networks/nature-networks-explained); supporting the Botanical Society of Britain and Ireland (BSBI) through annual grants to ensure data is available to decision makers – botanical heatmapping will deliver this in an easy-to-use way. Plantlife Scotland: publishing guidance on incorporating plants into Nature Networks. CIEEM: driving industry standards for commercial data availability and use. The Better Biodiversity Data (BBD) project: developing a strategic approach to the collection, collation and sharing of biological data across Scotland.

Below:
Cicerbita alpina (alpine-blue sowthistle)



	OBJECTIVE 2 ECOLOGICAL RESTORATION
Priorities for Scotland's plants	At least 30% of degraded areas of each priority ecosystem are restored to good condition, and the existing area of priority habitat is maintained in good condition using native and genetically appropriate plant and lichen species. List of priority ecosystems for targeted restoration programmes (IUCN Global Ecosystems Typology types in brackets): • Oceanic temperate rainforest (Oceanic cool temperate rainforest T2.3) • Pine woodland and mountain woodland (Boreal and temperate high montane forests and woodlands T2.1) • Riparian woodland (included in Forested wetlands TF1.2) • Ancient stand-alone trees (not categorised by IUCN) • Montane scrub (Temperate alpine grasslands and shrublands T6.4) • Peatland (Boreal, temperate and montane peat bogs TF1.6) • Atlantic liverwort heath (included within Polar tundra and deserts T6.3 and Cool temperate heathlands T3.3) • Upland calcareous grassland and upland tall herbs (included in Temperate alpine grasslands and shrublands T6.4 and Cool temperate heathlands T3.3) • Species-rich grassland (Derived semi-natural pastures and old fields T7.5) • Arable field margins and hedgerows (Annual croplands T7.1) • Machair (within Coastal shrublands and grassland MT2.1 but to be reported separately within RLE) • Sand dunes (included in Sandy shorelines MT1.3) • Seagrass beds (Seagrass meadows M1.1) • Freshwater lochs (Small permanent freshwater lakes F2.2 and Seasonal freshwater lakes F2.3) • Rivers (Permanent lowland rivers F1.2) • Post-industrial and other urban sites, including vacant and derelict land (Urban and industrial ecosystems T7.4). The proportion of soil-sealed land is reduced through restoration. Restoration follows guidelines to avoid spread of pests and pathogens (see https://planthealthcentre.scot/siteswww.planthealthcentre.scot/files/2023-09/biosecurity_best_practice_for_conservation_web.pdf). Restoration and other land management projects incorporate diverse native plant use.

	OBJECTIVE 2 ECOLOGICAL RESTORATION
Key steps	Introduce a programme of ecosystem restoration, as part of the SBS. Ensure that the six proposed landscape-scale projects to be taken forward by 2026 under the SBS contain plant-specific actions, that relevant plant conservation organisations are consulted on and involved in their development, and that delivery contains specific plant actions. Implement Riverwoods programme for riparian habitats. Implement Scotland's Invasive Non-Native Plants (INNS) action plan.
Key partners	Alliance for Scotland's Rainforest (ASR), NatureScot, landowners and managers including commercial forestry organisations, Plantlife Scotland, recording societies, including BSBI, British Bryological Society (BBS), British Lichen Society (BLS), and the National Plant Monitoring Scheme (NPMS), as well as the Horticultural Trades Association (HTA), Scottish Invasive Species Initiative (SISI) and Forestry and Land Scotland (FLS).
Partner contributions / actions	NatureScot: coordinating new INNS plan for Scotland.

Below:
Ptychostomum cyclophyllum (round-leaved bryum), one of Scotland's rarest mosses



	OBJECTIVE 3 IMPORTANT AREAS FOR PLANT BIODIVERSITY
Priorities for Scotland's plants	A network of protected areas including Important Plant Areas (IPAs), OECMs and GCU is functioning effectively for plant conservation. 30% of Scotland's land area is effectively protected and has a current management plan for plant biodiversity (in favourable condition), including all IPAs, and additional areas that will become IPAs. Zones of opportunity are implemented to complement IPAs. Improved connectivity (with appropriate biosecurity) has been delivered.
Key steps	Include all IPAs within Scotland's 30x30 target, as well as zones of opportunity. Designate IPA networks (including zones of opportunity) not currently under legal protection as SSSIs, or secure meaningful, resourced and long-term OECMs over these areas by 2030. Support the Local Nature Conservation Sites (LNCS) designation process across Scotland through data provision and survey work. Prioritise local authorities without an effective process in place. Identify measures needed to improve the condition of existing and proposed protected areas and secure these through site-based actions. Compile a Red List of Ecosystems, starting with key Scottish assets such as machair, heathlands, oceanic temperate rainforest and seagrass meadows. Incentivise arable archaeophyte conservation through OECMs, other land management agreements and schemes, involving practical measures such as rotational herbicide application and set-aside.
Key partners	Plantlife Scotland, recording societies, NatureScot, FLS, Forest Research.
Partner contributions / actions	NatureScot: ensuring that designated sites are monitored, allowing the condition of the plants they support to be assessed and ensure they rapidly return to or remain in favourable condition. BSBI and other recording societies: providing data to support site identification and designation as part of this process.

	OBJECTIVE 4 PLANT SPECIES CONSERVATION
Priorities for Scotland's plants	All Scotland's known plant and lichen species have been assessed for their extinction risk, with updates in line with IUCN guidance. Recovery plans are created for known nationally Critically Endangered and Endangered plant and lichen species. Management plans have been developed and implemented for species groups for which Scotland has international responsibility, including: • Oceanic bryophytes • Seagrasses • Lichens • Rare species which occur in Scotland at the edge of their European range (near/extreme range edge species) • Endemic species/microspecies/subspecies to Scotland. Important genetic diversity <i>in-situ</i> and <i>ex-situ</i> in Scotland is captured and monitored. Genetic erosion is prevented and adaptive potential safeguarded. By 2030, Ellenberg scores for bryophytes, lichens and vascular plants are increased for plants sensitive to pollution. Priority archaeophyte populations are stabilised across the farmed landscape by 2030 and increased by 2045.
Key steps	Develop effective species recovery, reintroduction and reinforcement programmes drawing on partnership work such as Species at Risk prioritisation, Species on the Edge programme, and evaluation of drivers. Create and implement recovery plans for all priority species. Develop and implement successor projects to Species on the Edge by 2030, building on lessons learned and best practice implementation. Deliver <i>ex-situ</i> conservation programmes including collections and seed banks (for all nationally threatened species). Create a network of seed orchards with a range of genetic provenances (e.g. for conservation priority tree species). Fully integrate translocation into this Objective, as it can be key to have proactive recovery following best practice codes. Use the Species at Risk list to guide actions. Publish regular indicators of the status of sensitive bryophytes and lichens. Develop nature-based solutions to have a role in alleviating pollution.
Key partners	NatureScot, RBGE, botanical recording societies, James Hutton Institute (JHI), HTA.

Partner contributions / actions	RBGE: Scottish Plant Recovery programme.
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Below:
Seagrass meadow



	OBJECTIVE 5 NATIVE PLANT USE IN CLIMATE MITIGATION AND ADAPTATION
Priorities for Scotland’s plants	The use of appropriate native species and habitats for carbon capture is increased in all suitable habitats, with future climate envelopes considered and ensuring that species planted are likely to be resilient. The adverse effects of non-native species used for carbon capture are minimised. Targeted urban greening programmes are developed for climate mitigation and a nature-positive future. Long-term maintenance and monitoring programmes are developed for Nature-based Solutions. There are improved guidance and regulation of commercial conifer planting on and around priority semi-natural habitats vulnerable to colonisation, e.g. bogs and heaths, along with a clear chain of responsibility for invasive regeneration removal across landowner boundaries.
Key steps	Support development of a supply chain for native species and genetic provenance stock (through seed orchards and tree nurseries). Re-establish <i>Sphagnum</i> bogs and peatlands on appropriate sites. Support native woodland regeneration, acknowledging that there are important areas of other priority habitats of high biodiversity value. Accelerate protection, management and restoration of species-rich grasslands. Manage riparian corridors, including but not limited to riparian woodland creation, flood-resistant catchment design, and management of riparian INNS. Deliver research, capacity building and knowledge exchange to support urban planting of native species. Deliver seagrass restoration programmes. Provide clear industry guidance on which species to use in planting programmes to promote climate resilience and the biodiversity benefits of native species. Produce guidance for and enforcement of appropriate commercial conifer planting, with application of appropriate decision-making tools such as botanical heatmapping.
Key partners	COSLA, RBGE, HTA, NatureScot, Scottish Forestry, Scottish Water.
Partner contributions / actions	NatureScot: developing native planting guides for sustainable drainage systems (SuDS) with RBGE. RBGE: Plants with Purpose programme to support implementation of urban nature-based solutions.

	OBJECTIVE 6 PLANTS FOR PEOPLE
Priorities for Scotland's plants	Crop wild relatives and heritage varieties are catalogued and conserved, with representative specimens held in Scottish institutes and made available to interested parties. Heritage orchards and associated lichen species are in favourable condition with secure future management. Scottish institutes hold 100% of domesticated socio-economically and culturally valuable plant taxa (landraces). Focal species to include bere barley, soft fruits, apples. By 2030 no plant species listed on Scotland's Genetic Scorecard are classed as at serious risk (currently one) and the number classed as moderate risk (currently four) has declined by half. The proportion of plants and lichen-forming fungi on the list continues to increase as it expands. There is an understanding of the vulnerabilities of monocultures and oligocultures and of using narrow genetic bases in planting. There is recognition that ecosystem services go beyond climate mitigation and include windbreaks, pollution remediation, nursery habitats, water filtering and flood protection, and include these in natural capital assessments. Riparian woodland is restored. Seagrass meadows are created and enhanced. High-quality plant biodiversity is accessible to all. Scotland's people are aware of the value of plant biodiversity and the ecosystem services it provides, and recognise their responsibility for its protection and the steps that can be taken to conserve and use plants sustainably. Habitats within Scotland are mapped and monitored to allow for planning and to anticipate the effects of fragmentation, climate change and land use change on characteristic species.



	OBJECTIVE 6 PLANTS FOR PEOPLE
Key steps	Support global initiatives to share resources, data and training opportunities. Include plant conservation within all national and local planning frameworks. Integrate commercial use of plant data into the planning system and standardise this across Scotland. Include access to and enjoyment of native plant diversity in poverty reduction strategies. Deliver mountain woodland restoration as nature-based solutions for flood risk mitigation and extreme events such as landslides (e.g. Rest and Be Thankful, Argyll). Deliver urban planting of native species, including road verges and grassland green spaces managed for biodiversity, climate, and bio-circularity benefits. Deliver habitat restoration (see Objective 2). By 2030, publish a comprehensive Scottish flora and status assessment, and repeat on a decadal basis. Make second national species Red Lists available for all plant groups by 2030. Digitise the RBGE herbarium collection and other important biological collections across Scotland. Recruit and inspire new botanists and community scientists. Maintain and develop the existing NPMS. Make available a site-based genetic monitoring tool. Deliver nature-based solutions to alleviate pollution.
Key partners	Plant Heritage (for national collections), RBGE, botanical recording societies, HTA, NatureScot, NBN Trust, JHI.
Partner contributions / actions	NatureScot: developing native planting guides; supporting BSBI to update plant distribution mapping via the BSBI's Distribution Database (DDb) and NBN using citizen and community scientist data. RBGE: support seagrass restoration programmes and urban greening (Plants with Purpose) programme; herbarium digitisation.

Far left:
 Planting alpine-blue sowthistle (*Cicerbita alpina*) in protective cages at Mar Lodge Estate National Nature Reserve

Left:
 Isle of Arran Wildlife Festival

	OBJECTIVE 7 URBAN GREEN INFRASTRUCTURE
Priorities for Scotland's plants	Infrastructure projects are established focused on plant diversity and encouraging the use of native species, including retrofitting in towns and cities. Support and training are provided for long-term maintenance of urban blue-green infrastructure. Biodiversity-rich accessible green spaces are developed and promoted in urban areas by establishing new, and strengthening existing, parks, greenways and botanic gardens to support biodiversity conservation. Urban flora is valued and managed sympathetically. The quality and area of urban green and blue spaces is increased, to deliver biodiversity, aesthetics, equitability and accessibility for all. Community leadership of urban biodiversity projects is enhanced.
Key steps	By 2030, ensure 75% of Scotland's people have access to high quality green or blue spaces within a 20-minute round trip, including urban nature reserves, botanic gardens and arboreta, and community growing spaces. Ensure every park, urban reserve or publicly owned green space is covered by a management plan which includes plant biodiversity. Ensure poverty reduction strategies include access to and enjoyment of native plant diversity. Construct and maintain new and renovated buildings with plants in mind (e.g. green roofs, gardens) to reduce the energy signatures of buildings, support urban cooling and flood mitigation. Deliver greater protection of, and funding for public parks and urban green spaces for health outcomes and biodiversity. Enhance planning system to ensure enough adequately sized greenspaces are created and plants are utilised in urban areas/future cities, to mitigate air pollution and extreme weather (e.g. flooding, heatwaves). Deliver better planting guidance for developers around, for example, SuDS, raingardens, to deliver drought resilience, including functional trait studies. By 2030, incorporate diverse native plant use into 80% of hazard mitigation restoration projects (e.g. watersheds, coastal, wetlands, cities etc.). Manage road verges in a coordinated manner for native and archaeophyte plant diversity.

	OBJECTIVE 7 URBAN GREEN INFRASTRUCTURE
Key partners	Plantlife Scotland, BSS, RBGE, COSLA, CIEEM, NBN, NatureScot.
Partner contributions / actions	NatureScot: supporting development of Nature Networks https://nature.scot/home/nature-networks-toolbox/what-are-nature-networks/nature-networks-explained. RBGE: delivering Plants with Purpose programme. CIEEM and the BBD (NBN) project: driving industry standards for commercial data availability and use.

Below:
 Many arable weeds - such as corncockle (*Agrostemma githago*) and corn marigold (*Glebionis segetum*), shown here with common poppy (*Papaver rhoeas*) and others - are now threatened in Scotland



	OBJECTIVE 8 SUSTAINABLE PRACTICES IN PLANT USE
Priorities for Scotland's plants	Road verges and wildflower meadows, e.g. at business parks and retail areas, are managed for botanical diversity. These can also be retrofitted. A supply chain has been established for suitable native species and stock of known genetic provenance, including a focus on drought and future climate scenario-tolerant species. Scotland's negative impacts on global plant biodiversity (e.g. unsustainable harvesting to supply Scottish businesses and consumers) are reduced. Botanists collecting for herbaria and scientific research are supported through appropriate guidance to minimise impact whilst enabling research and maximising benefit to national collections. Resources are redirected from harmful to beneficial subsidies. Pesticide risk is reduced through better targeting. Responsible tree planting is implemented, e.g. avoiding destruction of species-rich grasslands. Biosecurity is in place to prevent the establishment of INNS and pathogens. Woodland is managed for more than trees (including ground flora and epiphytes). Species-rich grassland is managed appropriately, restored and created. The diversity of crop wild relatives is safeguarded.
Key steps	Invest smartly to realise economic benefits from biodiversity-positive measures whilst delivering long term biodiversity improvements. Ensure global impacts of plant use in Scotland are minimised. Provide guidance to the botanical community to maximise the scientific value of modern botanical collecting, whilst upholding conservation and legal requirements. Develop construction industry standards and best practices to promote plant conservation. Support certification schemes that recognise good practice in supply chains. Support grazing management. Include a wider range of native species and habitats in environmental grant schemes. Reduce the impacts on plant diversity from peat extraction and moss harvest globally.

	OBJECTIVE 8 SUSTAINABLE PRACTICES IN PLANT USE
Key partners	NatureScot, HTA, RBGE, Scottish Government, botanical recording societies, NTS.
Partner contributions / actions	NatureScot: licensing collection of scheduled species; promoting collecting codes, such as ‘Foraging for wild plants’ (https://www.nature.scot/doc/foraging-wild-plants), the Scottish Moss Collection Code and Scottish Bulb Collection Code; working with BSBI to produce a Scottish botanical heatmap; providing a biodiversity audit tool (https://nature.scot/professional-advice/social-and-economic-benefits-nature/natural-capital/farming-nature/biodiversity-audit).

Below:
Bog bilberry (*Vaccinium uliginosum*)



	OBJECTIVE 9 CAPACITY BUILDING
Priorities for Scotland's plants	Accurate, up-to-date and accessible information on the status of native plants and lichens is available at a Scotland level. The talent pool of people able to survey and monitor plant and lichen diversity is well supported. Partnerships and networks between industry, practitioners, researchers and citizen scientists are maintained and strengthened. Collaboration is strong, particularly with the Global South and Middle East. Scotland-wide coverage of plant recording is maintained, with a focus on data deficient areas. Plant recording data gaps across Scotland are addressed, using a targeted approach focused on data gaps for conservation-priority species and sites, and species trend uncertainties identified in the <i>Plant Atlas 2020</i> (BSBI). Digitisation provides access to preserved plant collections and associated literature. Plant data are provided and used to enable robust decision making in planning. Botanical hotspot mapping is developed and made available to all, especially planners. Scottish institutes have increased support facilitating efficient and effective international and other exchange and transfer of plant materials. All known native and archeophyte plant and lichen species in Scotland have been assessed for their extinction risk and conservation status. Scotland's people value plant diversity and ecosystem services, understand their responsibility, and are committed to sustainable conservation and use. Investment in training in identification and habitat survey skills is increased, alongside education for plant sciences including whole organism studies and horticulture. Public and private funding for plant conservation is increased.

Right:
Plant propagation at Royal Botanic Garden Edinburgh

Far right:
Birch (*Betula*) sapling growing in *Sphagnum* moss

	OBJECTIVE 9 CAPACITY BUILDING
Key steps	By 2030, publish a comprehensive Scottish Flora and status assessment on a decadal basis. By 2030, make second national species Red Lists available for all plant groups. Scottish institutes provide training and other resources to promote global conservation, research benefit sharing and sustainable use of plant diversity. Increase digitally available cataloguing, including provision of collection data and digital linking of records across collections Increase the number of students in higher or further education studying plant science and in horticultural training or apprenticeships. Fund and deliver skills-based botanical training and assessment, targeted at surveyors and recorders, to support habitat and botanical survey skills. Develop provision of the Field Identification Skills Certificate (FISC) in Scotland to ensure retention and growth of specialist taxonomic and identification skills. Adequately compensate data providers for their work including data gathering, analysis and collation and storage. Make data available to the planning system. Increase private funding of plant conservation in real terms by 2030.
Key partners	Plantlife Scotland, botanical recording societies, RBGE, education providers, NatureScot.
Partner contributions / actions	NatureScot: supporting BSBI to update plant distribution mapping via the DDb and NBN using citizen and community scientist data; providing opportunities for collaboration with student placements. RBGE: strengthening practical skills in conservation and horticulture via the Biodiversity Skills Centre.



	OBJECTIVE 10 PLANT CONSERVATION AND TRADITIONAL KNOWLEDGE
Priorities for Scotland's plants	Traditional knowledge and cultural habitats, e.g. machair and orchards, are maintained. Barriers to participation in plant conservation and botanical recording are identified and addressed across under-represented communities. Sustainable use of native species, e.g. wild berries, is encouraged.
Key steps	Catalogue and promote traditional plant names, stories and cultural uses, as well as other regional traditions, e.g. in Gaelic, Scots, Doric and the Northern Isles. Co-design plant conservation actions and protected areas with stakeholders. Make citizen and community science projects accessible to all, including ethnic minority groups, women, youth and under-served communities. Plant conservation and recording partners in Scotland join and support Equality, Diversity and Inclusion (EDI) partnerships across the conservation sector. Monitor impacts of sustainable harvesting, specifically at peaks throughout the season.
Key partners	Plantlife Scotland, botanical recording societies, RBGE, education providers, NatureScot, grass-roots community groups, local heritage groups, deer management groups.
Partner contributions / actions	NatureScot: promoting responsible collecting guidance, e.g. ‘Foraging for wild plants’ publication.

Below:
 Raised bog at Flanders Moss
 National Nature Reserve, Stirling

Right:
 Woodland trail at Beinn Eighe
 National Nature Reserve



GLOSSARY OF TERMS

30X30	Commitment to protect 30% of our land and seas for nature, by 2030	IPM	Integrated Pest Management
AECS	Agri-Environment Climate Scheme	IUCN	The International Union for Conservation of Nature
ASNW	Ancient Semi-Natural Woodland	JHI	The James Hutton Institute
ASR	Alliance for Scotland’s Rainforest	LENS	Landscape Enterprise Networks
BBS	British Bryological Society	LNCS	Local Nature Conservation Sites
BLS	British Lichen Society	NBN	National Biodiversity Network
BSBI	Botanical Society of Britain and Ireland	NBS	Nature Based Solutions
CIEEM	Chartered Institute of Ecology and Environmental Management	NGO	Non-Governmental Organisation
COSLA	Convention of Scottish Local Authorities	NPF4	National Planning Framework 4
DDb	Distribution Database	NPMS	National Plant Monitoring Scheme
EDI	Equality, Diversity and Inclusion	NRF	Nature Restoration Fund
eDNA	Environmental DNA	NTS	National Trust for Scotland
eNGO	Environmental non-governmental organisations	PAWS	Plantation on Ancient Woodland Sites
FIRNS	Facility for Investment Ready Nature in Scotland	PFI	Private Finance Initiative
FISC	Field Identification Skills Certificate	PLinkS	Plantlife Link Scotland
FLS	Forestry and Land Scotland	RBGE	Royal Botanic Garden Edinburgh
GBF	Global Biodiversity Framework (UN Convention on Biological Diversity)	SBIF	Scottish Biodiversity Information Forum
GCU	Gene Conservation Unit	SBS	Scottish Biodiversity Strategy
GSPC	Global Strategy for Plant Conservation	SCM	Site Condition Monitoring
HTA	Horticultural Trades Association	SISI	Scottish Invasive Species Initiative
IAS	Invasive Alien Species	SNAP3	Scottish National Adaptation Plan 2024-2029
INNS	Invasive Non-Native Species	SPBS	Scottish Plant Biodiversity Strategy
		SSSI	Site of Special Scientific Interest
		SuDS	Sustainable Drainage Systems
		WEC	Woodland Ecological Condition

Below:
Twinflower (*Linnaea borealis*)
in Caledonian pinewood



Table 1: Alignment between SPBS objectives and GSPC complementary actions

P = Primary – the majority of the GSPC complementary action is included in the SPBS target
S = Secondary – some of the GSPC complementary action is included in the SPBS target.

SPBS OBJECTIVES	1	2	3	4	5	6	7	8	9	10
GSPC 1	P									
GSPC 2		P								
GSPC 3			P							
GSPC 4				P						
GSPC 5						S		S		S
GSPC 6		S	S		S					
GSPC 7			S	S						
GSPC 8					P					
GSPC 9						P				
GSPC 10	S							S		
GSPC 11						P				
GSPC 12							P			
GSPC 13						S			S	S
GSPC 14	P									
GSPC 15								P		
GSPC 16					S			S	S	S
GSPC 17	S					S				
GSPC 18					S	S		S		
GSPC 19						S		S		
GSPC 20									P	
GSPC 21						P				
GSPC 22										P
GSPC 23						S			S	S

Table 2: Alignment between SPBS objectives and Scottish Biodiversity Strategy actions

SPBS OBJECTIVES	SBS ACTIONS					
	1. Accelerate restoration and regeneration	2. Protect nature on land and at sea, across and beyond protected areas	3. Embed nature positive farming, fishing and forestry	4. Protect and support the recovery of vulnerable and important species and habitats	5. Invest in nature	6. Take action on the indirect drivers of biodiversity loss
1 Spatial planning and tools	X	X	X	X	X	X
2 Ecological restoration	X	X	X		X	
3 Important areas for plant biodiversity		X	X			
4 Plant species conservation			X	X		
5 Native plant use in climate mitigation and adaptation		X	X		X	
6 Plants for people	X	X	X	X	X	X
7 Urban green infrastructure	X		X		X	
8 Sustainable practices in plant use	X		X	X	X	X
9 Capacity building						X
10 Plant conservation and traditional knowledge						X

DELIVERY FRAMEWORK

This is a working document, outlining a framework of research and data needs, delivery mechanisms and suggested metrics to achieve the objectives of the Scottish Plant Biodiversity Strategy. These actions will be updated as the Strategy progresses.

Data and research needs

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
N. 1.	Evidence base for effective behavioural changes to support biodiversity recovery.	X					X		X		
N. 2.	Evidence base for optimal design of multifunctional green and blue spaces.	X						X			
N. 3.	Accessible and understandable species and habitat data for people without specialist training.	X									
N. 4.	Understanding of local provenance, genetic diversity and their relevance in the face of climate change – e.g. via genetic inventories for species requiring conservation action, to ensure that interventions retain and enhance genetic diversity.		X		X						
N. 5.	Evaluation of the impact of tree planting and tree regeneration including ecosystem services and soil carbon dynamics, for a broad range of habitat types, altitudes and geographic locations, including naturally non-forested sites.		X			X					
N. 6.	Understanding of the relationship between current distribution of habitats and conditions where they would optimally occur (i.e. refugia).		X								
N. 7.	Understanding of how to balance connectivity with the risk of INNS or pathogen spread.		X								
N. 8.	Understanding of what constitutes “degraded” ecosystems, what needs to be restored, and where.		X								
N. 9.	Understanding of what constitutes “restored”, and how to measure success against an appropriate baseline ⁴ - including mechanisms for long-term monitoring.		X								

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
N. 10.	Understanding of how to reconcile biodiversity and restoration requirements with other land use pressures.		X								
N. 11.	Better understanding of the impacts of herbicides, both directly on vascular plants and lichens and indirectly on invertebrates and beneficial soil organisms.			X	X						
N. 12.	A completed Red List of Ecosystems.			X							
N. 13.	Further research into vulnerable habitats such as montane scrub, grasslands, pasture, arable field margins, aquatic systems.			X							
N. 14.	Understanding the effectiveness of existing designations for plant conservation ⁵ .			X							
N. 15.	Identification of priority ecosystems not included in IPAs.			X							
N. 16.	Identification of important sites for plants, lichens and habitats which are not currently protected, or under legal protection, including local nature conservation sites.			X							
N. 17.	Understanding of how to manage dynamic habitats, which may need regular input to maintain condition.			X							
N. 18.	Understanding of how to manage protected sites designated for species other than plants, to benefit plants and lichens.			X							
N. 19.	Understanding of how best to manage local nature reserves for plant biodiversity and at the same time for botanical education.			X							
N. 20.	More detailed understanding of species diversity distributions, genetic diversity, status and trends for under-recorded species, particularly bryophytes and lichens ⁶ .				X		X			X	
N. 21.	Up-to-date Species Red Lists for all plants and lichens ⁷ , including data for those currently assessed as ‘Data Deficient’ on national and international Red Lists and filling knowledge gaps revealed by the BSBI Plant Atlas (for example, aquatic plants, where systematic recording biases prevent a clear understanding of genuine population trends).				X					X	

4 This is likely to be informed by research related to the EU Nature Restoration Regulations.
5 For example, BSBI are working on a pilot programme to assess the impact of SSSI designation and subsequent management on a set of indicator species of conservation concern, using presence/absence data.
6 There may be potential to use genetic techniques to infer past population size and relatedness from herbarium specimens.
7 i.e. a Scottish Vascular Plant Red List; UK Bryophyte Red List – published 2023; UK Lichen Red List – last published 2012, due an update in 2025.

SPBS Objective	10 Plant conservation and traditional knowledge	9 Capacity building	8 Sustainable practices in plant use	7 Urban green infrastructure	6 Plants for people	5 Native plant use in climate mitigation and adaptation	4 Plant species conservation	3 Important areas for plant diversity	2 Ecological restoration	1 Spatial planning and tools
N. 22. Identifying species of international importance with long-term viability and the potential for successful conservation interventions for prioritisation.							X			
N. 23. Understanding of drivers of habitat change (e.g. in montane habitats this may include snowbed loss, nitrogen deposition, species' genetics, climate change).							X			
N. 24. Understanding of the interactive effects of nitrogen deposition and climate, for example does N deposition reduce hardiness and the risk of frost burn?							X			
N. 25. Understanding of plant functional traits for climate mitigation, particularly in urban settings, and particularly native species, to underpin best practice planting schemes.				X	X	X				
N. 26. Understanding of carbon capture in grasslands and wetlands (in addition to peatlands).						X				
N. 27. Investigation of long-term impact of different habitat restoration techniques on carbon fluxes (atmospheric and below-ground).						X				
N. 28. An evidence-base for the development of supply chains for suitable native species and genetic provenance stock, with a particular focus on drought and future climate scenario-tolerant species.						X				
N. 29. Understanding of mechanisms for conflict resolution where sites could be managed for multiple habitats, e.g. grassland vs. woodland.						X				
N. 30. Evidence to support better planting guidance for developers to deliver drought resilience (e.g. around SuDS, rain gardens, etc.).						X				
N. 31. Protocols for genetic / eDNA-based biomonitoring, and remote sensing.					X					
N. 32. Better evaluation of the natural capital value of plants and lichens.					X					
N. 33. Better understanding of the resilience of nature-based solutions to drought and other extreme weather.					X					
N. 34. Mapping priority areas for nature-based solutions using native plants and habitats.					X					
N. 35. Investigation of how nature-based solutions can minimise the impacts of nitrogen deposition.					X					
N. 36. Understanding of multifunctional woodland management, balancing needs and trade-offs for carbon, biodiversity, timber and people.					X					
N. 37. Understanding of levels of awareness and appreciation of Scotland's native plants ⁸ .					X					

SPBS Objective	10 Plant conservation and traditional knowledge	9 Capacity building	8 Sustainable practices in plant use	7 Urban green infrastructure	6 Plants for people	5 Native plant use in climate mitigation and adaptation	4 Plant species conservation	3 Important areas for plant diversity	2 Ecological restoration	1 Spatial planning and tools
N. 38. Identification of barriers to the enjoyment of and perceptions of native plant diversity.				X						
N. 39. Development of metrics to measure quality of green and blue spaces in terms of biodiversity, aesthetics and social equity.				X						
N. 40. Identification of barriers to community involvement in urban biodiversity initiatives.			X	X						
N. 41. Assessment of the impact of sustainable harvesting on conservation status of species in Scotland.			X							
N. 42. Definition and quantification of harmful subsidies and incentives for plant conservation.			X							
N. 43. Baseline data on Scotland's impact on global plant biodiversity.			X							
N. 44. Knowledge of the volume of wild plants in trade in Scotland.			X							
N. 45. Better understanding of speciation in apomictic groups and how to protect the processes that lead to it.		X								
N. 46. Assessment of data gaps in Scottish plant/herbarium collections, including digitisation.		X								
N. 47. Species and habitat data for remote or difficult-to-access sites.		X								
N. 48. Assessment of the impact of private finance on nature conservation.		X								
N. 49. Baseline data on international students trained in plant science and horticulture.		X								
N. 50. Documentation of the cultural importance of wild plants in Scotland and their role in folklore.	X									
N. 51. Understanding of the health and well-being benefits of exposure to native plants.	X									
N. 52. Baseline information on traditional knowledge of plant and lichen uses and cultural importance ⁹ .	X									

8 Potentially filled via the “Opinions on Scotland’s Countryside” survey.
9 This could be filled by a survey through public facing resources, media, the school curriculum and hobby groups.

Delivery mechanisms

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
DM. 1.	Nature Networks, IPA (and Plantlife guidance on these). Opportunity mapping priority areas and undertaking restoration of threatened/rare habitats, botanical hot spots.	X	X	X		X	X				
DM. 2.	Public funding such as Nature Restoration Fund, environmental grant schemes, Scotland's Marine Environmental Enhancement Fund, Water Environment Fund Scotland, Agri-Environment Climate Scheme, Forestry grant schemes.	X	X		X	X	X		X	X	
DM. 3.	Riparian and catchment resilience management, including Riverwoods programme.	X	X			X					
DM. 4.	Scottish Biodiversity Strategy, including the Scottish Biodiversity List.	X	X						X		
DM. 5.	Existing voluntary recording programmes and organisations National Biodiversity Networks, implementation of the Scottish Biodiversity Information Forum Review of the Biological Recording Infrastructure in Scotland, National Plant Monitoring Scheme, Urban Flora, Pavement Plant Project.	X					X	X			
DM. 6.	National Planning Framework 4.	X					X				
DM. 7.	Local Living and 20-minute neighbourhoods, and supply chains for these, Local Place Plans.	X						X			
DM. 8.	Regional Land-use Partnerships.	X									
DM. 9.	INNS Strategy including SISI.		X			X			X		
DM. 10.	Private Finance Initiatives and private investment.		X			X					
DM. 11.	Developing biodiversity credit mechanisms.		X								
DM. 12.	Genetic Conservation Unit designation.			X	X						
DM. 13.	Site Condition Monitoring / Delivering Healthy Ecosystems data for plants and lichens, and habitats on designated sites.			X			X				
DM. 14.	Local Nature Conservation Site designation.			X							
DM. 15.	Use of the Scottish Vascular Plant Red Data List, Red List of Ecosystems, and other national Red Lists to support meaningful metrics.				X		X			X	

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
DM. 16.	Use of translocation codes (Scottish Code for Conservation Translocations, IUCN Guidelines for Reintroductions and Other Conservation Translocations), and creation of a national database for tracking conservation translocations.				X						X
DM. 17.	Collaborative working with research institutions and industry. Dialogue between government agencies, NGOs, trade bodies and a wide range of stakeholders.				X						X
DM. 18.	A collaborative national approach to deer and grazing management including via the Common Ground Forum.				X						X
DM. 19.	Urban nature-based solutions including guidelines based on plant functional traits for development and retrofitting planting schemes, for example via RBGE Plants with Purpose programme.					X	X	X			
DM. 20.	Scottish Soil Framework.					X	X				
DM. 21.	Guidance for commercial conifer planting.					X					
DM. 22.	Horticultural training and upskilling for planting implementation and maintenance, and promotion of these opportunities.							X			
DM. 23.	Gap analysis of national herbarium collections, to help guide modern botanical collecting, with subsequent updates.								X		
DM. 24.	Sustainable purchasing and use of plant material and the use of plant passports.								X		
DM. 25.	Whole Farm Plans.								X		
DM. 26.	Botanical training and upskilling among specialist groups, the ecology industry and wider botanical community, and engagement with Scottish schools, universities, institutes (such as RBGE), specialist societies, volunteer organisations and others such as CIEEM, FISC, Field Studies Council.									X	X
DM. 27.	Cultural and nature connection events throughout Scotland.										X
DM. 28.	Equity, Diversity and Inclusion partnerships across the conservation sector.										X

Metrics

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
M. 1.	Number of species covered by Gene Conservation Units (GCU).	X			X						
M. 2.	Number of local, regional and national plans and planning frameworks which incorporate plant conservation.	X						X			
M. 3.	Area of Scotland assessed for botanical diversity (e.g. via botanical heat map).	X									
M. 4.	Number of developed sites receiving mitigation for plants and lichens – captured via biodiversity net gain metrics.	X									
M. 5.	Area for which restoration measures are in progress or maintained.		X								
M. 6.	Species trends identified via the BSBI Plant Atlas or National Plant Monitoring Scheme.		X								
M. 7.	Change in condition of ASNW and PAWS networks.		X								
M. 8.	Improvement in assessments of status Red List of Ecosystems.		X								
M. 9.	National-level Ellenberg scores for bryophytes, lichens and vascular plants sensitive to pollution.			X	X						
M. 10.	Area under protection including Other Effective Area-Based Conservation Measures.			X							
M. 11.	Number and range of threatened plant species effectively protected by protected areas (a baseline is needed to assess change via this metric).			X							
M. 12.	Condition of protected areas (e.g. via the Delivering Healthy Ecosystems metric).			X							
M. 13.	Ecosystem connectivity metric.			X							
M. 14.	Proportion of plants and lichens assessed on species Red List indices.				X		X			X	
M. 15.	Numbers of plant species listed on the Genetic Diversity Scorecard classed as serious or moderate risk.				X		X				
M. 16.	Number of species moved from higher to lower national Red List category (note these must represent real change on the ground, rather than paper transactions due to taxonomic change etc.).				X						

SPBS Objective		1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
M. 17.	Species trends identified via the BSBI Plant Atlas or National Plant Monitoring Scheme.				X						
M. 18.	Number of species recovery plans developed.				X						
M. 19.	Number of species recovery projects in development / delivery.				X						
M. 20.	Sales of native provenance stock for publicly funded projects.					X					
M. 21.	Habitat restoration by area – categorised by habitat/ecosystem, and between designated/ attempted restoration area and functioning restored ecosystem area (metric due to be published 2026).					X					
M. 22.	Carbon stocks and annual net greenhouse gas emissions, by land-use category, categorised by natural and non-natural land cover (metric in development).					X					
M. 23.	Number of native plants and lichens with publicly available genome sequences.						X			X	
M. 24.	Bryophyte ecosystem health indicators.						X				
M. 25.	Benefits from the sustainable use of wild species.						X				
M. 26.	Percentage of crop wild relatives catalogued and conserved with representative specimens held in Scottish institutes.						X				
M. 27.	Percentage of domesticated socio-economically and culturally valuable plant species held in Scottish institutes.						X				
M. 28.	Proportion of Scotland’s population with access to high quality green or blue space within a 20-minute round trip, including urban nature reserves, botanic gardens and arboreta and community growing spaces.							X			
M. 29.	Number of annual visitors to nature reserves, national parks and botanic gardens and other protected areas.							X			
M. 30.	Percentage of Scotland’s GDP used in incentives to promote plant and lichen conservation.								X		
M. 31.	Global biodiversity impact of Scottish businesses.								X		
M. 32.	Proportion of Scotland’s agricultural area under productive and sustainable agriculture.								X		
M. 33.	Proportion of Scotland’s forests under sustainable forest management.								X		

SPBS Objective	1 Spatial planning and tools	2 Ecological restoration	3 Important areas for plant diversity	4 Plant species conservation	5 Native plant use in climate mitigation and adaptation	6 Plants for people	7 Urban green infrastructure	8 Sustainable practices in plant use	9 Capacity building	10 Plant conservation and traditional knowledge
M. 34. Proportion of Scotland with good Woodland Ecological Condition (WEC); field edge habitats, riparian woodland.								X		
M. 35. Archaeophyte threat levels on Scottish Species Red List.								X		
M. 36. Proportion of Scottish plant trade adhering to global standards.								X		
M. 37. Level of green investment.								X	X	
M. 38. Level of private funding for plant and lichen conservation.								X	X	
M. 39. Level of public funding for plant and lichen conservation.								X	X	
M. 40. Proportion of key Scottish collections (e.g. RBGE British & Irish collections) digitised, and the level of associated metadata available online.									X	
M. 41. Whether plants and lichens are included in curricula (qualitative).									X	
M. 42. Number of students studying plant science or horticulture in higher or further education.									X	
M. 43. Number of available CPD, higher education and recreational training opportunities.									X	
M. 44. Number of people taking habitat classification courses.									X	
M. 45. Metrics to assess effectiveness of green investment.									X	
M. 46. Participation of plant recorders, number of plant records made, membership numbers for plant conservation and recording organisations in Scotland, number of FISCs, number of training events, data contributions by consultants and developers, number of recording app downloads, website usage data.									X	
M. 47. Proportion of the Scottish flora represented in national collections.									X	
M. 48. Demographics of community/citizen scientists (including representation of ethnic minority groups, women, youth and under-served communities).										X
M. 49. Level of cultural awareness and reference to traditional plant and lichen uses in media.										X



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The Royal Botanic Garden Edinburgh is a
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NatureScot

Scotland's Nature Agency
Buidheann Nàdair na h-Alba

