

Corporate Policy and Strategy Committee

10.00am, Tuesday, 12 April 2016

Edinburgh Biodiversity Action Plan Phase 4 2016-2018

Item number	7.5
Report number	
Executive/routine	
Wards	All

Executive Summary

The Council has a duty to further the conservation of biodiversity under the Nature Conservation (Scotland) Act 2004. This is achieved through the delivery of the Edinburgh Biodiversity Action Plan (EBAP). Production of the EBAP is a key action of the Edinburgh Biodiversity Partnership.

This report seeks committee approval for the Edinburgh Biodiversity Action Plan Phase 4 2016-2018. The updated Action Plan details the actions that partners have signed up to, which will benefit the natural environment by increasing biodiversity and raising awareness of biodiversity across the city.

The Action Plan is appended.

Links

Coalition Pledges	P48
Council Priorities	CO19
Single Outcome Agreement	SO2 SO4

Edinburgh Biodiversity Action Plan Phase 4 2016 - 2018

1. Recommendations

- 1.1 It is recommended that the Committee:
- (a) approves the Edinburgh Biodiversity Action Plan Phase 4 2016 - 2018; and
 - (b) notes the contributions made by members of the Edinburgh Biodiversity Partnership, including the significant contributions delivered through joint working by Council Service Areas; and
 - (c) notes that a celebration event to promote the Action Plan, involving partners and local schools, is planned to take place on 25 May 2016 as part of Biodiversity Week.

2. Background

- 2.1 The Nature Conservation (Scotland) Act 2004 places a duty on all public bodies, including the City of Edinburgh Council, to further the conservation of biodiversity in the course of carrying out their responsibilities.
- 2.2 In complying with this Biodiversity Duty, public bodies must have regard to the Scottish Biodiversity Strategy. The 2004 document, 'Scotland's Biodiversity: It's in Your Hands' and the 2013 supplement, '2020 Challenge for Scotland's Biodiversity' together comprise the Scottish Biodiversity Strategy. The Strategy encourages local authorities to support fully Local Biodiversity Action Plans as a mechanism for local delivery.
- 2.3 The Edinburgh Biodiversity Action Plan (EBAP) is produced by the Edinburgh Biodiversity Partnership (the Partnership), which is represented on the Edinburgh Sustainable Development Partnership, one of the strategic partnerships of the Edinburgh Partnership. The current EBAP details actions for the period 2010-15. Over the last 15 months, the Partnership has reviewed achievements from Phase 3 of the EBAP and engaged with stakeholders to shape and agree the work required for Phase 4. This work is now complete and Appendix 1 details the actions for 2016 - 2018.

3. Main report

- 3.1 Biodiversity is the variety of all life and includes wildlife, habitats and other forms of nature. On a global scale, human activity is causing biodiversity to be lost at an accelerated rate, with irreversible losses that can damage the vital ecosystem services on which our lives depend. International targets to halt biodiversity losses are reflected in Scottish Biodiversity Strategy.
- 3.2 Local authorities are well placed to deliver biodiversity conservation as land managers and planning authorities that can have a significant positive impact on biodiversity through protection and expansion of a high quality, biodiverse natural environment. Across a range of functions there are opportunities for education, community engagement, sustainable resource management and projects and initiatives which can have positive benefits for biodiversity.
- 3.3 Partnership is at the heart of the biodiversity action planning process. In Scotland, most local authorities support and lead a Local Biodiversity Partnership in their area. The role and importance of these Partnerships is recognised and supported in the Scottish Biodiversity Strategy. Through the production and delivery of Local Biodiversity Action Plans, these Partnerships are well placed to identify the local priorities for action and act as vehicles for community engagement and co-ordinated action.
- 3.4 The Edinburgh Biodiversity Partnership, chaired by the Council, was one of the first in Scotland and has been in place for 15 years. Edinburgh is fortunate in having a strong partnership of local organisations and access to a wealth of expertise and specialist knowledge through national conservation organisations such as RSPB and Scottish Wildlife Trust, research bodies such as Royal Botanic Garden Edinburgh and Forest Research, environmental trusts such as the Water of Leith Conservation Trust and a significant number of voluntary nature conservation interest groups which contribute a huge amount of knowledge to the work of the Partnership. A full list of partners can be found in Appendix 2.
- 3.5 Delivery outcomes from Phase 3 EBAP (2010-2015) have seen an emphasis on community greenspace projects, as well as larger scale habitat creation work. Key outcomes from Phase 3:
 - Partnership project delivered woodland expansion across the north east slopes of the Pentland Hills, including on Council owned land at Bonaly Country Park.
 - Naturalisation of parks and greenspace through the early stages of the Edinburgh Living Landscape Initiative.

- Contribution to a UK wide study on urban pollinators with research sites in city parks.
 - Numerous partnership and community projects to create natural habitats and greenspace carried out by Water of Leith Conservation Trust, Edinburgh and Lothian Greenspace Trust, Council Neighbourhood teams and Friends of Parks groups.
 - Delivery of the Edinburgh Rare Plants Project with rare native plants reintroduced to historic sites across the city, in partnership with Historic Environment Scotland, Royal Botanic Garden Edinburgh and other stakeholders.
 - Volunteer groups lead on conservation work and monitoring for a number of our priority species, e.g. bats.
- 3.6 The work to review the current EBAP was launched with a stakeholder event in November 2014. This event was attended by over 50 delegates, including voluntary groups, individuals, conservation organisations, statutory agencies and Council Service Areas. Following the event, a series of stakeholder focus groups met to develop action plans in detail. This process of stakeholder engagement and action plan development has been overseen by the Edinburgh Biodiversity Partnership Steering Group.
- 3.7 Phase 4 of the EBAP aims to build on previous success and continues long-term conservation projects as well as developing actions which aim to embrace national and global targets for habitat creation and biodiversity gain. The publishing of 'Scotland's Biodiversity: a Route Map to 2020' has also informed Phase 4 by prioritising a suite of six 'Big Steps for Nature' and identifying projects that relate to these. A landscape scale approach has been adopted to: improve connectivity of natural places; enhance biodiversity which underpins ecosystem services; build in environmental resilience and value natural capital. New sections within the EBAP include blue and green networks and the built environment. Community involvement remains fundamental to the delivery of the plan by adopting opportunities such as Citizen Science projects.
- 3.8 Appendix 1 contains the EBAP Phase 4 2016-2018 with the actions to be undertaken by the Partnership to enhance Edinburgh's biodiversity. The Plan demonstrates the breadth of activities to be delivered by the Partnership. Particular strengths in Edinburgh are high levels of community involvement in greenspace projects and the extent of partnership working both within and out with the Council.

3.9 Particular initiatives for Phase 4 include:

- Strengthening green networks through reviewing the management of the Local Biodiversity Sites network;
- Identification of landscape and river catchment scale strategic habitat projects with a focus on woodland creation, natural flood management opportunities and invasive species control;
- Continuing to protect, monitor and conserve the coastal and marine areas which are of international importance;
- Promotion of green infrastructure particularly in the built environment to deliver biodiversity gain and climate change adaptation;
- Further engaging communities in long term biodiversity monitoring and data collection through training and capacity building, with an initial focus on monitoring important pollinating insects; and
- Expanding the naturalisation of Parks and Greenspace through the Edinburgh Living Landscapes initiative.

3.10 The Action Plan will be available as a web based document on the Council and partner websites. A series of public engagement events to promote the work of the Partnership and new Plan is programmed for 2016, starting with a celebration event during Edinburgh Biodiversity Week on 25 May 2016.

4. Measures of success

4.1 The status of biodiversity and activity of biodiversity conservation in Edinburgh is monitored through:

4.1.1 The submission of the Biodiversity Duty Report to Scottish Government. This is required on a 3 year cycle and the next is due for submission on 1 January 2018.

4.1.2 The annual progress report on the delivery of the Edinburgh Local Biodiversity Action Plan which is reported as a Planning Information Bulletin.

5. Financial impact

5.1 The production of the EBAP Phase 4 2016-2018 is met within existing budgets.

5.2 Implementation is through partner organisations and grants from a range of sources.

6. Risk, policy, compliance and governance impact

- 6.1 There is a risk the Council could fail in its statutory duty for biodiversity. The EBAP Phase 4 2016-2018, by maintaining its flexible and responsive approach and the continued support of the Partnership, will ensure the Council complies with this duty.

7. Equalities impact

- 7.1 There are no predicted impacts on rights and equality.
- 7.2 The conservation of biodiversity directly enhances the rights of life and health by protecting the essential ecosystem services our natural environment provides. There is also the potential to enhance other associated rights such as education and standard of living through local biodiversity projects.

8. Sustainability impact

- 8.1 The impacts of this report in relation to the three elements of the Climate Change (Scotland) Act 2009 Public Bodies Duties have been considered and the outcomes summarised below. Relevant Council sustainable development policies have been taken into account and noted in background reading.
- 8.2 Compliance with the statutory biodiversity duty will help achieve a sustainable Edinburgh by incorporating biodiversity into many of the Council's existing activities and actions, thus helping to create a resilient natural environment, reduce carbon emissions and improve social justice, economic wellbeing and environmental stewardship.

9. Consultation and engagement

- 9.1 The EBAP Phase 4 2016-2018 has been prepared following extensive stakeholder consultation and engagement. Stakeholders include statutory agencies, conservation and research organisations, academic bodies, voluntary groups, individuals and Council Service Areas. A programme of public engagement events to promote the work of the Partnership and new EBAP is planned for 2016, starting with a celebration event during Edinburgh Biodiversity Week on 25 May 2016.

10. Background reading/external references

[Scotland's Biodiversity: It's in Your Hands - A strategy for the conservation and enhancement of biodiversity in Scotland 2004](#)

[2020 Challenge for Scotland's Biodiversity - A Strategy for the conservation and enhancement of biodiversity in Scotland 2013](#)

[Edinburgh Local Biodiversity Action Plan 2010-15](#)

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11. Links

Coalition Pledges	P48 – Use green flag and other strategies to preserve our greenspaces.
Council Priorities	CO19 Attractive Places and Well Maintained - Edinburgh remains an attractive City through the development of high quality buildings and places and the delivery of high standards.
Single Outcome Agreement	SO2 – Edinburgh’s citizens experience improved health and wellbeing, with reduced inequalities in health. SO4 - Edinburgh's communities are safer and have improved physical and social fabric.
Appendices	Appendix 1. Edinburgh Biodiversity Action Plan Phase 4 2016-2018 Appendix 2. Members of the Edinburgh Biodiveristy Partnership

Appendix 1

Edinburgh Biodiversity Action Plan Phase 4 2016-2018

Edinburgh Biodiversity Action Plan 2016-2018

Introduction

The Edinburgh Biodiversity Action Plan (EBAP) outlines a partnership approach to biodiversity conservation across the city. In 2000, Edinburgh was among the first places in the UK to produce an action plan for biodiversity. This fourth edition continues the trend toward an action plan that is streamlined, focussed and deliverable. Partnership working and community involvement are still key elements. More than 30 members of the Edinburgh Biodiversity Partnership contribute to delivery, including Council departments, government agencies, national and local environmental charities, volunteer conservation bodies and community groups.

The Edinburgh Biodiversity Partnership is represented on the Edinburgh Sustainable Development Partnership, which sits within the wider Edinburgh Partnership family.

This fourth EBAP aims to build on previous successes and continue with long term conservation projects such as the installation of swift nesting bricks. It also includes actions which help to achieve national and global targets for habitat creation and biodiversity gain, such as meadow creation and management.

A landscape scale approach is required to achieve the vision of a city with:

- a natural environment valued for its natural capital and which aims to deliver multiple benefits, including social and economic;
- improved connectivity of natural places;
- enhanced biodiversity which underpins ecosystem services; and
- a natural environment resilient to the threats of climate change, invasive species, habitat fragmentation, pests and diseases.

To support this approach, the EBAP includes sections on green and blue networks, emphasising the importance of co-ordinating work across different habitat types and increasing the connectivity of habitats. For the first time, an action plan for the Built Environment is included. This reflects the importance of the built environment in supporting some of our rarer species, such as swifts and bats. It recognises the relationship between the built and natural environment, particularly in terms of water management, flooding and pollution. There are also opportunities for creating green infrastructure in the built environment to support climate change adaptation and placemaking.

Action for species conservation continues to focus on some of Edinburgh's rarest species. Valuable ongoing species survey and monitoring work is supported by expert naturalist volunteer groups and The Wildlife Information Centre, contributing to the National Biodiversity Network and Atlas of Living Scotland. Conservation activity for species is delivered through partnership working and is mainly delivered by dedicated volunteers.

Land use has a fundamental impact on biodiversity. To maximise biodiversity and the ecosystem services it supports, this plan seeks to influence a range of land uses:

- Land affected by development – new, existing and previously developed brownfield sites;
- Open space, parks and greenspaces, including school grounds;

- Land for food growing;
- Rural areas;
- Water environment including the internationally important coastal area;
- Forestry and urban woodlands;
- Greening of the built environment.

To achieve this, the plan promotes tools and standards such as the British Standard for Biodiversity BS: 42020, Edinburgh Open Space Strategy standards, Sustainable Urban Drainage Scheme standards, and emerging standards for measuring natural capital. It also includes delivery programmes such as the Edinburgh Living Landscape.

There is a new emphasis on addressing the impacts of climate change in the Plan. Biodiversity and the natural environment will be affected by climate change as weather patterns change, temperature rises and new species spread to Edinburgh. These new species will include invasive species, pests and diseases. However, the natural environment also offers opportunities to mitigate and adapt to the impacts of climate change. For example, increased naturalisation and connectivity of green spaces. Planting 'smart' in line with national guidance will help create a resilient natural environment which can better cope with new pests, diseases and weather patterns.

Finally, through delivery of this Plan, the Edinburgh Biodiversity Partnership seeks to raise awareness of biodiversity by involving communities in projects, events and activities. We will also offer opportunities for Citizen Science projects and learning. We aim to build on the existing contributions of committed volunteer experts and groups, engage with the next generation of naturalists and continue to collect valuable data to monitor changes in our biodiversity.

The Vision for 2030: Edinburgh – The Natural Capital of Scotland

By 2030 Edinburgh will have a species-rich system of green and blue networks from the uplands of the Pentland Hills to the coastal waters of the Firth of Forth. It will be an environment abundant in wildlife that is enjoyed and respected by people, making Edinburgh a beautiful place to live, work and visit. Other benefits will be diverse: from ensuring climate change resilience; resistance to invasive species; forming a foundation for ecosystem services; supporting healthy lifestyles and a vibrant, sustainable economy. People will be able to easily access, learn about and engage with their local biodiversity directly contributing through conservation action to protect and enhance it.

Aspirations for 2030

Climate change

Habitats and species are resilient to the impacts of climate change. The suite of designated sites is connected and well-managed, buffering species against climate change where possible, and allowing them to adapt through moving to new areas. Habitats providing important ecosystem services, such as carbon storage or flood mitigation are maintained and enhanced. Native woodland and wetlands are conserved and managed. Degraded areas of local natural heritage interest are restored to as near natural condition as possible. These actions will be effective at preserving carbon storage and other ecosystem services such as soil erosion and water regulation. Research into key indicator species has provided a better understanding of the real impacts of climate change on the region. Edinburgh is a national leader in renewable energy whilst ensuring all developments avoid significant impacts and actually benefit local biodiversity.

Ecosystem approach

The Edinburgh Biodiversity Action Plan priority species and green and blue networks are stable in population size, range and quality. The ecosystem work programmes successfully achieve a balance between the interests of nature conservation, the local economy, landowners and tourism, with all sectors working together. Habitat quality and connectivity have been developed, allowing the species that were previously facing population declines to expand back into original areas of distribution.

Landscapes and ecosystems

The landscapes of Edinburgh are diverse with healthy ecosystems, rich in biodiversity, geodiversity and built heritage. Land-use planning, business and the tourism industry all integrate the needs of productive ecosystems with economic development. The coastal ecosystems are self-sustaining and protected under the Marine Act, harbouring a large variety of species, with protected and regulated areas ensuring sensitive species continue to maintain healthy populations in our waters. The beautiful and varied landscapes, coupled with exceptional biodiversity have resulted in an expansion in sustainable eco-tourism.

Designated sites

The network of sites with Local Nature Conservation Site designation has been extended, reducing fragmentation and ensuring key habitats and species are protected. More community nature sites are established and afforded Local Nature Reserve designations where appropriate. All designated sites are in favourable conservation status.

Invasive species

The spread of invasive non-native species have been halted or slowed via control and removal. Using the latest science and research we have a greater understanding of the ecology of invasive species and partnership working has ensured effective management. Biosecurity measures are embedded in routine activities and international, national and regional co-operation and legislation has led to invasive species being eradicated from key sites for native biodiversity.

People & Partnership

The conservation and enhancement of biodiversity lies at the centre of all communities and business development throughout Edinburgh. People and communities are fully involved in maintaining local biodiversity, directly contributing through conservation management action by volunteering and recording species groups. The health and wellbeing benefits of engaging with local biodiversity are well recognised and are paying dividends in improving indicators of wellness.

Education

There are many programmes to raise public awareness of their local biodiversity, and the projects working to enhance this invaluable resource. Information about biodiversity and sustainability is widely available and easily accessible to children, researchers, students and other members of the public. All schools have hands-on environmental education features and are directly participating by providing habitats for wildlife. Awareness of biodiversity priorities and legislation is widespread amongst planners, landowners and other professionals, and specialist resources are available to ensure full consideration of Edinburgh's species and habitats in all land management and business development.

Knowledge

Wildlife recording and monitoring are well established and supported by the public through, for example Citizen Science. Citizen Science has enabled everyone from experts to amateurs, school children and enthusiastic beginners to be involved in the science of biodiversity action planning. Expert naturalist recorders and professionals will continue to be involved. High-quality data are collected and a continuous flow of new knowledge informs the ongoing conservation projects, and identifies new priorities. Necessary research is well-funded and knowledge about all aspects of the environment continuously enhanced. Existing data are widely distributed and easily accessible to all, to inform appropriate development, land management, conservation action, eco-tourism and scientific research.

Progress reporting

Annual progress reports will be produced over the life of this action plan. These will report on delivery of the EBAP by the Edinburgh Biodiversity Partnership.

In addition, all public bodies are legally required to report on how they meet their statutory duty to “further the conservation of biodiversity” every three years. This requirement is included in the Wildlife and Natural Environment (Scotland) Act 2011. The next report is due in January 2018. City of Edinburgh Council and other public bodies in the Edinburgh Biodiversity Partnership will therefore also produce reports at this time.

Monitoring and indicators

There is a programme of national and local monitoring schemes, and local survey schemes, which generate information for Edinburgh about species and habitats. Most of this data is held by The Wildlife Information Centre, which co-ordinate the work of expert surveyors and provide data to national schemes such as the National Biodiversity Network and the Atlas of Living Scotland.

Much of this survey effort is carried out by dedicated volunteers and this Plan seeks to increase the involvement of local people in surveys and knowledge creation. In particular, opportunities to learn about and survey plants, insects and birds will be developed to help generate new data about the state of biodiversity in Edinburgh.

While it is not feasible or meaningful to report on all local changes to biodiversity, it is useful to use a suite of indicators to provide guidance on the main biodiversity trends for Edinburgh. These will be made available as part of annual progress reporting and shall include:

- Species diversity and abundance measures
- Site condition monitoring assessments
- Ecological Status of Water Bodies
- Indices of habitat connectivity (when available)
- Proportion of land under positive management for nature conservation/habitats or species subject to positive management
- Any other relevant emerging data.

Geodiversity

Biodiversity is fundamentally linked to underlying geological features. The term 'geodiversity', or geological diversity, encompasses rocks, minerals, fossils, soils, sediments, landforms and processes; all of which are the foundation for habitats, niches, landscapes and ultimately biodiversity. Soils are a key component here; soils are essentially a non-renewable resource and a vital asset to Edinburgh. We are dependent upon soils to support the range of ecosystem services that provide us with clean water, food, building materials and a healthy environment.

Great advances have been made in recognising how geodiversity supports biodiversity and underpins ecosystem services. In order to make progress with biodiversity, our understanding of geodiversity must increase in order to improve the management and care of nature. We are especially reliant upon the interactions of soil biodiversity such as fauna, fungi and bacteria with soil chemicals e.g. pH and nitrogen and physical properties such as pore structure to maintain the functioning of our ecosystems, whether they be agricultural or natural habitats.

For example, Holyrood Park is sited on and around the Arthur's Seat volcano and is composed of a range of different bedrocks and sedimentary rocks. As a result, acid, neutral and calcareous grasslands have all developed on the site depending on the underlying rock types.

Geodiversity is internationally recognised by the Recommendation of the Committee of Ministers of the Council of Europe (2004) that: "geological heritage constitutes a natural heritage of scientific, cultural, aesthetic, landscape economic and intrinsic values, which needs to be preserved and handed down to future generations". There are key gaps in our knowledge of geodiversity, including the functional links between geodiversity and biodiversity and research is required to improve our understanding of the role geodiversity plays in providing benefits to ecosystems. The importance of soils has been recognised by Scottish Government. 'The Scottish Soil Framework' http://www.soils-scotland.gov.uk/documents/17130508_Framework_final.pdf was published in 2009 and provides a setting for outcomes related to the function, value, diversity and policies for soils.

[Scotland's Geodiversity Charter](#) addresses the benefits of recognising the value of geodiversity, outlining its wide relevance and the benefits it delivers to biodiversity through support of habitats and ecosystems. The Charter aims to promote integration of geodiversity within the ecosystem approach, and for the importance of geodiversity to be acknowledged through policy and guidance documents at a national and local level, including Local Plans and guidance for biodiversity.

The Charter also recognises the value of partnership formations between local authorities and local geodiversity groups, to audit sites, develop geodiversity action plans and involve local communities in collating information about sites of geological interest. City of Edinburgh Council is responding to the "Charter" in collaboration with Lothian and Borders GeoConservation Group by identifying and designating Local Geodiversity sites.

While Holyrood Park and Arthur's Seat are exceptional examples of geodiversity, many other important geodiversity sites in Edinburgh are recognised as nationally or locally important, including: Castle Rock, Calton Hill, parts of the Firth of Forth, Agassiz Rock, Corstorphine Hill, Torphin Quarry and many more. Although there is no action relating specifically to soils, there are a number of

actions within the blue networks section; e.g. flood mitigation and peatland management for carbon storage, green networks such as meadow creation, allotments that rely on healthy soils.

Geodiversity Action Plan 2016- 18

Action No	Activity/Target	Partners (lead in bold)	Timescale
Geodiversity GD1	Continue to develop definitive list and map of all designated Local Geodiversity Sites, with basic information on location, geodiversity value, access and site condition. Publish on website.	Lothian and Borders GeoConservation Committee	2016
Geodiversity GD2	Identify further Local Geodiversity Sites including geomorphologic and building stone sites and maintain list of potential sites in Edinburgh. Designate further sites as appropriate.	CEC Planning and Transport	2018
Geodiversity GD3	Publish overview leaflet / poster detailing all Local Geodiversity Sites, following adoption of Edinburgh Local Development Plan.	Lothian and Borders GeoConservation Committee	2016
Geodiversity GD4	Promote Local Geodiversity Sites to partners – e.g. within CEC, nature conservation groups, local groups with an interest in geology, local communities following adoption of Edinburgh Local Development Plan	Lothian and Borders GeoConservation Committee	2018
Geodiversity GD5	Ensure Local Geodiversity Sites are included in Local Plans and that there is specific mention of the need to protect Local Geodiversity in Local Plans and other policies.	CEC Planning and Transport	Local Development Plan Cycle
Geodiversity GD6	Monitor condition of Local Geodiversity Sites. Use GeoConservation UK site monitoring form to record site visits and note issues with access, vandalism, vegetation etc.	Lothian and Borders GeoConservation Committee Lothian and Borders GeoConservation Volunteer Group	Ongoing until 2018

Geodiversity GD7	Collate record of site monitoring visits; notify concerns to CEC and landowners.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Annual
Geodiversity GD8	Establish a programme to review all existing LGS.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Annual
Geodiversity GD9	Collaborate with partners e.g. CEC Natural Heritage Service, SRUC, SNH, landowners etc to encourage use of Local Geodiversity Sites for formal and informal education.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Ongoing
Geodiversity GD10	Attend local environment fairs and events to promote awareness of local geodiversity.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Annual
Geodiversity GD11	Maintain range of leaflets and posters for the general public, supply to distribution network.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	2018
Geodiversity GD12	Evaluate effectiveness of existing leaflets and develop further leaflets and web resources etc.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Annual

Geodiversity GD13	Continue to promote the work of LBGeoConservation to attract new volunteers.	Lothian and Borders GeoConservation Committee , Lothian and Borders GeoConservation Volunteer Group	Annual
Geodiversity GD14	Liaise with other GeoConservation Groups in Scotland to arrange regional meetings including training.	Scottish Geodiversity Forum	Annual

Introduction to Green Networks

The Edinburgh LBAP 2016-18 presented an opportunity for review with partners and has resulted in an all-encompassing section on green networks that includes the former terrestrial habitats and embraces a network approach. This integrated method takes into account not only habitats and the links between these, but also the additional economic and social benefits delivered by green networks.

Green networks provide many benefits such as helping wildlife move between habitats and protecting sites that are important for nature by designating them. Green networks also include existing parks and greenspaces, golf courses, churchyards and brownfield sites as well as active travel routes such as cycleways. The green network may improve the economic status of an area by making it a more attractive place to live and work.

Networks form part of an important approach to tackling climate change where species need to move to new areas to find the right climatic conditions; therefore integrated habitat networks form a key component of Edinburgh's green networks. Legislation in the form of the Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC) underpin protected sites and provide direction in ecological coherence. The Central Scotland Green Network under the National Planning Framework 3 is also in place to counter fragmentation and assist species migration.

A good example of delivery across green networks is the action to naturalise 15% of public parks and greenspace using appropriate measures such as relaxed grass cutting, planting to create habitats such as nectar borders and berry hedges to benefit bees and other species, as part of Edinburgh Living Landscapes.

Action Plan for Green networks

Action number	Site type, topic or habitat	Action/activity	Partners (Leads in bold)	Timescale
G1	All - Local Biodiversity Sites	Review the Local Biodiversity Sites network across Edinburgh and identify where positive management, projects or management plans should be implemented, with an initial focus on Council owned sites.	CEC Planning and Transport , SNH, CEC Environment, TWIC, SWT	2017
G2	All	Identify, develop and support strategic green network and landscape scale partnership projects to restore, create or reconnect habitats.	CEC Planning and Transport, SNH, LFGNP , ELGT, RAFTS, WOLCT, SEPA, FCS	2018
G3	All	Respond to casework relating to all protected sites, windfarms and other relevant issues.	RSPB, SWT, SNH, CEC Planning and Transport	2018
G4	All	Produce a draft update of the Open Space Strategy and Action Plan.	CEC Planning and Transport	2017
G5	All - New developments	Promote the integration of green networks and infrastructure within new developments in Edinburgh. Identify opportunities for new greenspace using the Open Space quality standards or other natural capital standards.	CEC Planning and Transport , LFGNP, ELGT, RBGE, ELL	2018
G6	All	As part of the work to update the Open Space Strategy, review access to natural greenspace across Edinburgh, and use findings to prioritise improving public access to nature and counter habitat fragmentation. This work should include identifying areas of Edinburgh which do not yet meet the recommendation that people should live within 400m walk of their nearest natural greenspace. Prioritise enhancement projects which help to fill any gaps.	CEC Planning and Transport, Edinburgh Living Landscape Initiative, SWT, CEC Environment	2017

G7	All - Monitoring	Develop a suite of ecosystem health measures & indicators such as – 1) Indices of habitat connectivity 2) % cover by trees/ Native Woodland Survey of Scotland 3) ecological status of water bodies 4) species indicators 5) Phenology study (online herbarium species indexing project) 6) measures of community engagement	SWT, CEC Environment, CEC Planning and Transport, SNH, Forestry Commission Scotland, SEPA, RSPB, University of Edinburgh, TWIC, ELL, RBGE	2018
G8	All	Promote the use of SNH integrated habitat network data.	Lothian and Fife Green Network Partnership	2018
G9	All	Prepare a list of project topics for undergraduate and postgraduate research programmes which support EBAP research and delivery. Engage with key academic staff to develop a suitable list and promote this to students.	CEC Planning and Transport, Heriot Watt University, University of Edinburgh, Napier University, SRUC Edinburgh, Edinburgh College, RBGE.	2016
G10	All	Promote links between EBAP student research projects and decision makers, conservation practitioners, grounds staff and green space managers within Edinburgh.	CEC Planning and Transport, RBGE, ELL, Heriot Watt University, University of Edinburgh, Napier University, SRUC Edinburgh, Edinburgh College	2017
G11	All	Undertake research into site connectivity for key plant species within the city to understand the ecological dynamics of greenspace.	RBGE	2016 ongoing
G12	All	Manage meadows, ponds, invasive plants, reedbed and scrub encroachment at Scottish Wildlife Trust reserves at Johnston Terrace, Pepper Wood, Bawsinch and Red Moss.	SWT Lothians	Annually
G13	All	Prepare a Biodiversity Action Plan/ Biodiversity Strategy Botanic Garden as a central node of greenspace habitat (>70 acres).	RBGE	2018
G14	Climate Change	Assess the effects of climate change and their impact on the natural environment and green and blue spaces to inform adaptation policy and management.	CEC Planning and Transport, EBP, SWT	2017

	resilience			
G15	Climate Change resilience	Embed climate change adaptation considerations, and potential responses such as habitat networks and green networks, into wider land use planning decisions through the use of Forestry and Woodland Strategies, regional land use strategies, Strategic/Local Development Plans and development masterplans.	CEC Planning and Transport, EBP	2017
G16	Climate Change resilience	Review Habitat Action Plans, Species Action Plans, site management plans and other conservation strategies, plans and projects to ensure that a) all risks from adverse climate change have been identified, b) future changes in these pressures are assessed, c) that these are being explicitly addressed wherever possible incorporating adaptation measures, c) carbon capture within habitats is considered.	CEC Planning and Transport, CEC Environment, Site Managers	Annual
G17	Climate Change resilience	Promote green infrastructure to help nature to adapt to climate change by strengthening habitat networks, reducing habitat fragmentation and providing opportunities for species to migrate.	CEC Planning and Transport, CEC Environment, ELL	Annual
G18	Gardening allotments and food growing	Identify and create community gardens in areas of deprivation (SIMD)	ELGT	Ongoing dependent on funding.
G19	Gardening allotments and food growing	Increase the number of people growing their own food and/or the number of food growing areas, targeting areas of deprivation.	CEC Environment, Edible Edinburgh, ELGT, Edinburgh Living Landscape	2018
G20	Gardening allotments and food growing	Increase the number of allotment sites/plots in the city and encourage the lease of appropriate sites to engaged communities, e.g. Pilton Gardeners, Duddingston Field.	CEC Environment, Edible Edinburgh, ELGT, Edinburgh Living Landscape	2018
G21	Gardening allotments and food growing	Increase the number of people growing their own food in Saughton Park through working with RCHS and SRUC who will provide learning and teaching resources and courses.	CEC Environment, Site Managers	Annual

G22	Gardening allotments and food growing	Continue to engage people in growing their own food through training and participation as part of the Botanics Edible Garden.	RBGE	Annual
G23	Grasslands and meadows	Continue to implement Site of Special Scientific Interest (SSSI) grassland management plan for Holyrood Park as agreed with SNH.	Historic Environment Scotland Ranger Service	Ongoing
G24	Grasslands and meadows	Through active management, continue to increase diversity within meadow habitats at the following CEC Natural Heritage Service-managed sites: Meadows Yard LNR, Craigmillar Castle Park, Hermitage of Braid and Blackford Hill LNR, Easter Craiglockhart Hill LNR, Wester Craiglockhart Hill SSSI, Burdiehouse Burn Valley Park LNR, Cammo Estate and Bavelaw Marsh SSSI.	CEC Environment	Ongoing
G25	Grasslands and meadows	Establish three new wildflower meadows in areas of Holyrood Park outwith the SSSI.	Historic Environment Scotland Ranger Service	2018
G26	Grasslands and meadows	Restore the species-rich grassland at Murder Acre using grazing.	SWT Lothians	Ongoing
G27	Grasslands and meadows	Undertake student led research into the impact of grassland mowing regimes on botanical diversity.	RBGE	Ongoing
G28	Hedgerows	Hedgerows and hedgerow trees: Carry out a programme of enhancement and creation of hedgerows to improve, extend and link existing habitats.	ELGT	Ongoing as funding opportunities arise.
G29	Invasive species	Identify third party organisations and suitable funding for a city-wide invasive non native species (INNS) project. Develop a partnership project to control priority INNS.	CEC Planning and Transport, SNH, RFFTS, SEPA, ELL	Funding dependent, 2017
G30	Invasive species	Initiate the establishment of baseline data for INNS on Council owned Parks & Greenspace land, i.e. Himalayan Balsam, Giant Hogweed, Japanese Knotweed. Include other areas such as cyclepaths and river corridors where possible.	CEC Environment, CEC Planning and Transport, RAFTS, SEPA, WOLCT.	2017
G31	Invasive species	Monitor and control invasive plant species on CEC Natural Heritage Service-managed sites.	CEC Environment	Ongoing

G32	Invasive species	Continue to enable community involvement and volunteer participation in the control of INNS on Natural Heritage Service sites.	CEC Environment	Ongoing
G33	Invasive species	Start the process of mapping and recording INNS data on P&GS sites identified as having the most biodiversity value and record any treatment undertaken.	CEC Environment	2017
G34	Invasive species	Provide information about INNS identification and removal as part of Edinburgh Living Landscapes training for Council grounds maintenance staff.	CEC Environment, ELL, CEC Planning and Transport	2017
G35	Invasive species	Develop an online Scottish Plant Hub, improving accessibility of information (from scientific literature and conservation practice) on conservation issues such as invasive species, plant diseases and translocations of rare species.	RBGE	2018
G36	Monitoring	Further analyse the connectivity of urban green spaces through mapping and analysis of vegetation in domestic gardens as part of the Green Surge project. This will help to identify gaps in the suitable habitat for insect pollinators and therefore priority habitat improvement areas.	Forest Research, Edinburgh Living Landscape.	2017
G37	Monitoring	Map the tree resources within Edinburgh in relation to pollinator/insect abundance.	Forest Research, University of Edinburgh, CEC Environment, SWT	Funding dependent
G38	Monitoring	Carry out a Bioblitz within the Botanic Garden.	RBGE	2017 or 2018
G39	Monitoring	Develop lichen bio-indicators as an engagement tool, empowering communities and individuals to appraise the environmental quality of their neighbourhoods.	RBGE, CEC Air Pollution	2016
G40	Monitoring	Monitor and evaluate the range of species present in Saughton Park and any increase /decrease based on baseline data recorded for the HLF funding application.	CEC Environment, Saughton Park Project Team	from 2016

G41	Monitoring	Co-ordinate training for Friends of Parks Groups, Eco-Schools and other groups in meadow monitoring training using a Citizen Science approach that allows a broad picture to be built up of the benefits that the different meadows offer.	CEC Environment	2017
G42	Monitoring	University of Edinburgh to continue monitoring insects on specific 'pollinator' meadow trial sites.	University of Edinburgh	ongoing
G43	Moorland	Implement a heather management, grazing and muirburn programme in Bonaly Country Park.	CEC Environment	Ongoing
G44	Parks and greenspace	Identify opportunities for new greenspace associated with housing development. Use open space quality standards or other natural capital standards.	CEC Planning and Transport, ELGT, SWT, ELL	Ongoing
G45	Parks and Greenspace	Urban meadows - Edinburgh Living Landscapes programme: Manage and maintain up to 70 urban meadow sites across the city incorporating mixed floral meadows, native wildflower meadows and grass meadow sites.	CEC Environment, CEC Localities, SWT, ELL	2017
G46	Parks and Greenspace	Deliver the 'Giving Nature a Home' initiative in Edinburgh, including education project such as Species Ambassadors, Urban biodiversity workshops and city bioblitz.	RSPB	to 2018
G47	Parks and Greenspace	Engage with Neighbourhood Partnerships environmental sub groups. Identify projects or sites with potential for biodiversity enhancement or potential for inclusion in ELL.	CEC Planning and Transport, CEC Environment, ELL, CEC Localities	2017
G48	Parks and Greenspace	Update the 'Biodiversity in Parks and Greenspace' guidance and promote to site managers, Neighbourhood and other relevant staff, community groups and external partners.	CEC Planning and Transport, CEC Environment, ELL, CEC Localities	2016
G49	Parks and Greenspace	Develop accessible spatial data on biodiversity priorities and projects for stakeholders and communities.	CEC Planning and Transport	2017

G50	Parks and Greenspace	Encourage and support Friends of Parks and other community groups to deliver biodiversity improvements in their local greenspace.	CEC Environment, ELGT	ongoing
G51	Parks and greenspace	Naturalise 15% of public parks and greenspaces (excludes floral meadows) as part of the Edinburgh Living Landscapes programme. Relax grass cutting in appropriate sites. Compliment biodiversity-friendly sustainable planting to create and maintain habitat features (e.g. berry hedges, 'nectar borders') which will benefit bees and other nectar- and pollen-feeding species.	CEC Environment, Neighbourhood teams, ELL	2018
G52	Parks and Greenspace	Provide biodiversity training for CEC grounds maintenance staff to raise awareness of biodiversity issues and best practices. Include biodiversity awareness modules as part of ongoing Edinburgh Living Landscapes annual training.	CEC Environment, CEC Biodiversity Officers	Annually
G53	Parks and greenspace	Manage Local Nature Reserves and other natural heritage parks to benefit biodiversity.	CEC Environment	Ongoing
G54	Parks and Greenspace	Delivery greenspace projects across the city as opportunities arise - e.g. new Portobello park, allotments, etc.	ELGT, CEC Environment	Funding dependent
G55	Parks and Greenspace	Develop wildlife projects such as bird, bee and bat boxes, habitat creation or similar.	CEC Localities, CEC Environment	Ongoing
G56	Parks and Greenspace	Produce awareness raising materials and online information for parks using e.g. noticeboard posters and QR codes.	CEC Environment, Community Parks Officers, CEC Biodiversity Officers	2017
G57	Parks and Greenspace	Liaise with Parks Events team to ensure that events are well managed and do not damage any valuable habitats on Natural Heritage Sites.	CEC Environment	Ongoing
G58	Parks and Greenspace	Promote use of the Edinburgh native meadow Species Mix to maximise benefits to invertebrates.	CEC Environment, CEC Planning and Transport, ELL	Ongoing
G59	Parks and Greenspace	Temporary greening: Identify sites or projects for temporary greening on vacant and derelict land.	ELGT, CEC Planning and Transport, ELL	Ongoing dependent on funding.

G60	Parks and Greenspace	Identify sites or projects with community groups to enhance local urban greenspaces.	ELGT, ELL	Ongoing dependent on funding.
G61	Parks and Greenspace	Designate Cammo Estate as a Local Nature Reserve.	CEC Environment, CEC Planning and Transport	2016
G62	Parks and Greenspace	Create new wildflower meadows and grasslands in Saughton Park.	CEC Environment, Saughton Park Project Team	Ongoing
G63	Parks and Greenspace	Install beepols for at least four bumble bee colonies within South West Neighbourhood Parks.	South West Neighbourhood	2016
G64	Parks and Greenspace	Deliver biodiversity training to New Town garden committees, facilitating the transition from amenity space to biodiversity habitat.	RBGE	2016
G65	Path networks	Cyclepath management: Carry out biodiversity enhancement/conservation enhancement projects along Edinburgh's Cyclepath Network.	ELGT, CEC Planning and Transport, CEC Neighbourhoods, ELL	Ongoing as funding opportunities arise.
G66	People engagement and communications	Support the use of long-term datasets and publication and promotion of information describing the implications of climate change on Edinburgh's biodiversity through websites, public information etc.	Edinburgh Biodiversity Partnership	Annual
G67	People engagement and communications	Increase the number of Friends of Parks groups across the city. Continue to support existing groups to deliver practical conservation and awareness raising activities.	CEC Environment, ELL	Ongoing
G68	People engagement and communications	Promote the link with ELL to domestic and community gardens and offer guidance, promoting locally important native species, local nurseries and organic methods.	CEC Environment, CEC Biodiversity Officers, RSPB ('Giving Nature a Home') RBGE	2016

G69	People engagement and communications	Produce webpages with gardening hints/tips, including a PDF version of the 'Gardening for Biodiversity' booklet and promote this to Allotment Holders, Friends of Parks, Eco-Schools and at relevant events.	CEC Environment , CEC Biodiversity Officers, RSPB ('Giving Nature a Home')	2016
G70	People engagement and communications	Include biodiversity awareness material in any Schools and Group education packs produced for Saughton Park. Provide biodiversity information in the Park interpretative materials and signage.	CEC Environment, Saughton Park Project Team	Within timescale of project
G71	People engagement and communications	Introduce six permanent beehives and one observation hive into Saughton Gardens and run beekeeping courses and taster sessions.	CEC Environment, Saughton Park Project Team	Within timescale of project
G72	People engagement and communications	Edinburgh Living Landscape school participation: Up to 10 schools with access to high quality 'naturalised' school grounds, green infrastructure and local greenspace for outdoor learning, linked to ELL initiative and supported by learning resources.	CEC Environment, ELL	2016
G73	People engagement and communications	Redevelop the Edinburgh Outdoors website to make mobile responsive and allow the public to submit their own images of biodiversity from across the city.	CEC Environment	2016
G74	People engagement and communications	Support schools with Learning for Sustainability through the Eco-Schools programme, and other award programmes such as John Muir Award, to include learning about local biodiversity.	CEC Environment	Ongoing

G75	People engagement and communications	Edinburgh greenspace, biodiversity and ELL to form major part of participatory exhibition at John Hope Gateway.	RBGE	2016 onwards
G76	People engagement and communications	Prepare inspirational outreach material on the implementation of ELL with contributions from community groups, NGOs, schools, CEC, universities and colleges, institutions, individuals to cover full spectrum of work undertaken.	RBGE	Ongoing
G77	University and college campus management	As part of co-ordinated work on a national biodiversity duty delivery agreement, identify opportunities to support Edinburgh LBAP objectives on the Edinburgh campus.	SRUC Edinburgh campus	2016
G78	University and college campus management	Support property management teams to identify opportunities for biodiversity enhancements on the University estate, e.g. living landscape creation, providing nest spaces for swifts.	University of Edinburgh, City of Edinburgh Council Biodiversity Officer, Edinburgh Living Landscape	2018
G79	University and college campus management	Continue to develop the campus Community Gardens to maximise biodiversity gain.	Edinburgh College	Annual
G80	University and college campus management	Continue to support students through recognised award schemes such as John Muir Trust and DofE awards, and undertake conservation tasks as required.	Edinburgh College	Annual
G81	University and college campus management	Contribute to RSPB Giving Nature a Home programme on campus through habitat creation and similar.	Edinburgh College	2020

G82	University and college campus management	Develop material to encourage biodiversity surveys on-campus aiming to learn more about biodiversity on our sites.	Edinburgh College	2018
G83	University and college campus management	Produce an updated Biodiversity Policy/Action Plan for Heriot-Watt University's Edinburgh Campus, co-ordinating with City of Edinburgh Biodiversity Officer to support attainment of LBAP objectives.	Heriot Watt University, EBP	Ongoing
G84	Scottish Parliament biodiversity enhancement	Ongoing collaboration between the Scottish Parliament's Real Action on Carbon Emissions (RACE) and RBGE establishing herbaceous plants from locally sourced seeds for Scottish Parliament wildflower meadows and green roof areas.	RBGE, SP	Ongoing
G85	Woodlands	Develop long term management plans for CEC forest estate.	CEC Environment	Funding dependent
G86	Woodlands	Continue to delivery woodland network expansion projects.	ELGT, LFGNP, FCS, CEC	Funding dependent
G87	Woodlands	Progress delivery of the Edinburgh and Lothians forestry and Woodland Strategy action plan and reporting. Identify cross-boundary opportunities where possible.	LFGNP, CEC Environment, FCS	Ongoing
G88	Woodlands	Identify key woodland projects and sites to direct FCS WIAT funding.	CEC Environment, ELGT, LFGNP	2016
G89	Woodlands	Deliver WIAT funding to enable management of urban woodlands.	FCS	Funding dependent
G90	Woodlands	Secure WIAT funding for qualifying Council owned woodlands.	CEC Environment, FCS	Funding dependent
G91	Woodlands	Deliver the 'Tree for every child' project.	CEC Environment, ELGT	Funding dependent
G92	Woodlands	Run tree nursery project to provide new tree stock for CEC parks and woodlands.	CEC Environment, New Caledonian woodlands.	Ongoing
G93	Woodlands	Continue to deliver the Conifer Trust project to plant endangered Conifers in Council owned parks and greenspace.	RBGE, CEC Environment	Ongoing

G94	Woodlands	Identify sites or projects which require a woodland management plan and can be funded under Woodlands in and around towns (WIAT).	ELGT	Ongoing
G95	Woodlands	Identify sites or projects which would benefit from woodland management as part of the WIAT scheme from FCS.	ELGT	Ongoing

Introduction to Blue Networks

The Edinburgh LBAP 2016-2018 has been shaped by events and changes in priorities since the previous plan for 2010-2015. This fourth phase continues the theme of creating an action plan that is focussed, streamlined and deliverable. Partnership working and community involvement remain key elements in the plan. It is also vital that the plan reflects the global and national framework that local biodiversity sits within.

In line with green networks, adopting a network approach recognises the importance of taking a more integrated, landscape-scale approach e.g. river basin management on a catchment scale. Previous legislation such as the Water Framework Directive (2000) and The Water Environment and Water Services (Scotland) Act 2003 has advocated a network approach. A network approach recognises that species depend on each other in complex relationships; that movement across or through the environment requires proximity or connectivity of habitats and that some species require different habitats for different aspects or life stages. There is also recognition 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 and inter-dependent ways. This is logically linked in the concept of blue networks, freshwater streams, ponds, lochs, wetlands connecting to estuarine, coastal and marine.

The key pressures on biodiversity such as pollution, spread of invasive species and wildlife disease, climate change and marine exploitation all require to be addressed using an integrated, adaptive approach on a much broader scale.

This new section on Blue Networks incorporates the previous Habitat Action Plans for Freshwater and Wetlands, and Marine and Coastal. Some new actions relating to climate change resilience are also included here.

As an example in the Edinburgh context, the project to remove barriers to fish passage along the River Almond fits well into the network approach and delivers benefits from an environmental and economic viewpoint.

Action plan for Blue Networks

Action number	Site, topic or habitat type	Action/activity	Partners (Leads shown in bold)	Timescale
B1	Green and blue networks - all	Identify and develop landscape scale partnership projects to restore, create or reconnect habitats. Promote SRDP funding to rural areas as collaborative projects can now be funded. Investigate opportunities for habitat creation in the upper catchment of the Water of Leith, including woodland creation.	CEC Planning and Transport, SNH, LFGNP, ELGT, RAFTS, WOLCT, SEPA, FCS	2018
B2	Blue networks - climate change resilience	Produce guidance on the effects of climate change and their impact on the natural environment, to inform adaptation policy and management.	CEC Planning and Transport, EBP, SWT	2017
B3	Blue networks - climate change resilience	Review Habitat Action Plans, Species Action Plans, and other conservation management strategies, plans and projects to ensure that a) all climate risks of adverse climate change have been identified, b) future changes in these pressures are assessed and c) that these are being explicitly addressed wherever possible.	CEC Planning and Transport, EBP	2017
B4	Blue networks - Marine/coastal	Ensure appropriate emphasis placed on the Firth of Forth SPA when dealing with casework and conservation projects arising from the LBAP. The SPA is the most important area within CEC boundary and is of international importance.	SNH, CEC Planning and Transport, RSPB, FEF	Ongoing
B5	Blue networks - Marine/coastal	Undertake promotional and awareness raising activities relating to the Firth of Forth SPA. Identify opportunities for interpretation.	FEF, SNH, CEC Planning and Transport, RSPB	Ongoing
B6	Blue networks - Marine/coastal	Undertake work to progress creation of a Marine SPA in the Forth.	SNH, FEF	2018
B7	Blue networks - Marine/coastal	Undertake all Natura casework associated with Firth of Forth SPA, as required.	SNH	ongoing
B8	Blue networks - Marine/coastal	Identify opportunities to ensure that biodiversity data are collected in advance of regional marine planning and consistency is maintained across the Forth and Tay Scottish Marine Region.	FEF, Marine Scotland, Universities, CEC Planning and Transport, SNH	2018

B9	Blue networks - Marine/coastal	Promote awareness of the importance of the marine environment through communications and events.	FEF	Ongoing
B10	Blue networks - Marine/coastal	Deliver a litter campaign and programme of clean up events, highlighting links between riparian and coastal litter.	WOLCT, FEF, CEC Environment.	2018
B11	Blue networks - Marine/coastal	Replace or create tern rafts at Port Edgar or Granton to increase the number of breeding sites available to terns in the Firth of Forth in addition to the Forth Islands SPA and Imperial Dock SPA.	RSPB, CEC Planning and Transport, Forth Seabird Group, FEF	Funding dependent
B12	Blue networks - Marine/coastal	Liaise with harbour authorities and Forth Seabird Group to encourage annual monitoring of use of rafts and repairs as required.	RSPB, CEC Planning and Transport, Forth Seabird Group, FEF	Ongoing
B13	Blue networks - Marine/coastal	Protect intertidal habitats and shorebirds through casework and monitoring.	SNH, CEC Planning and Transport, RSPB, FEF	Ongoing
B14	Blue networks - Marine/coastal	Access existing surveys (SOC/BTO) of high tide roosts to identify important sites. Carry out further studies if required possibly as a student project. Identify development and disturbance pressures, opportunities for artificial roosts and interpretation and measures to minimise disturbance on important sites.	SNH, CEC Planning and Transport, FEF, Universities	2018
B15	Blue networks - Marine/coastal	Act to conserve the coastal sand dunes (a UKBAP Priority Habitat) at Cramond, focussing on the control of invasive species (Japanese Rose, bracken, Japanese knotweed, sycamore). Identify any other threats to this habitat such as visitor pressure, fly-tipping and erosion.	CEC Environment	Annually
B16	Blue networks - Marine/coastal	Carry out WeBs counts on CEC Natural Heritage sites to help monitor coastal habitat and bird populations.	CEC Environment	Ongoing
B17	Blue networks - Riparian	Identify opportunities for natural flood management or other enhancement projects arising from the flood risk plans.	CEC Planning and Transport; SEPA	2016
B18	Blue networks - Riparian	Identify opportunities for river restoration which can be funded through the Water Environment Fund.	RAFTS, SEPA, CEC Planning and Transport	2016
B19	Blue networks - Riparian	Manage River Almond woodlands in partnership with Friends group.	CEC Environment	Ongoing

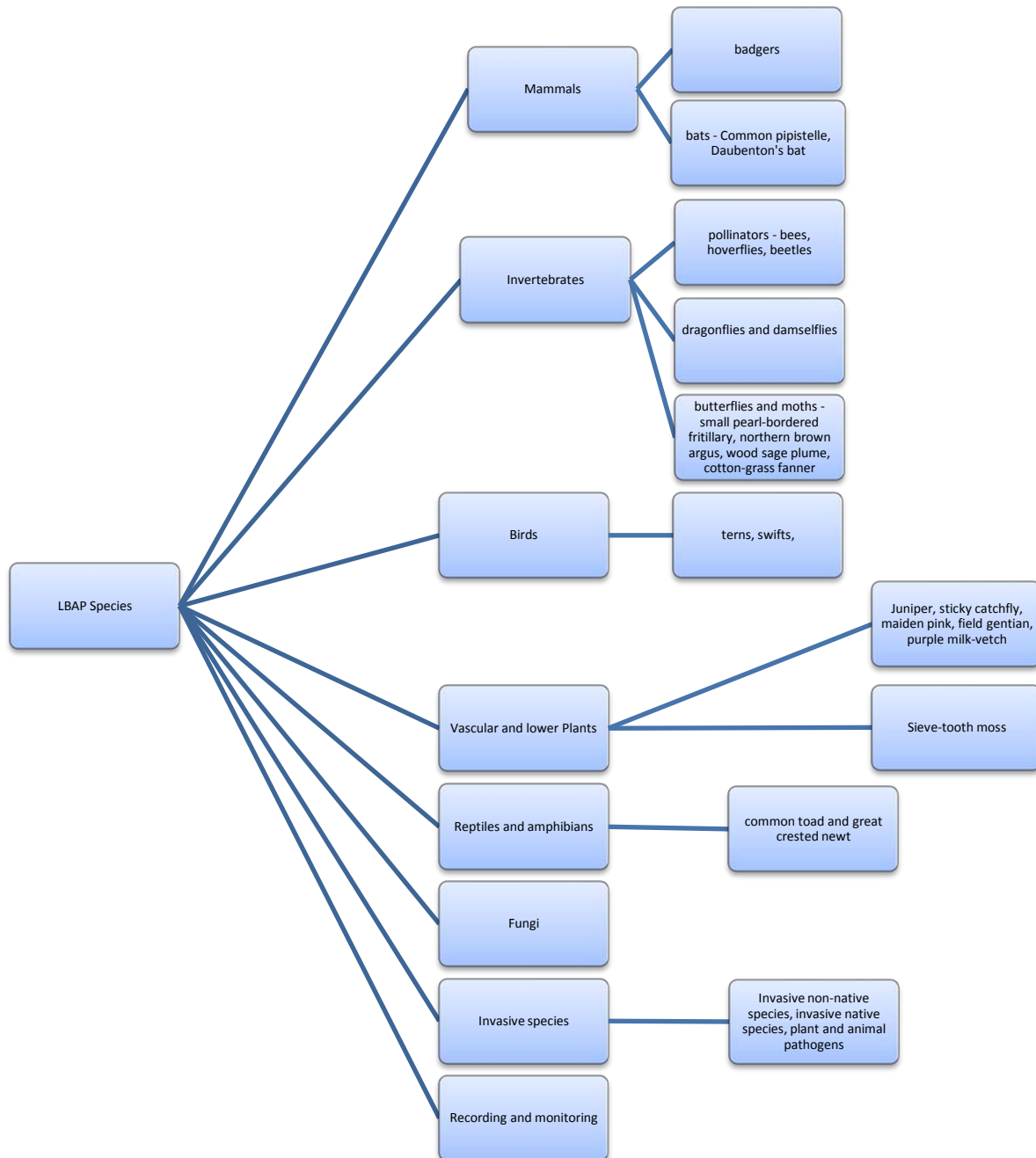
B20	Blue networks - Riparian	Manage 3 reservoirs within Pentlands Hill Regional Park which are owned by CEC.	CEC Planning and Transport, CEC Environment	Ongoing
B21	Blue networks - Riparian	Assess feasibility of developing a water vole project. Survey to confirm presence at previously reported sites. Consider feasibility of catchment wide project, mink issues etc.	CEC Planning and Transport, RZSS, LABMAG	Funding dependent
B22	Blue networks - Riparian	Encourage student research projects on Otters.	CEC Environment	2018
B23	Blue networks - Riparian	Management of Water of Leith corridor in partnership with Water of Leith Conservation Trust	CEC Environment	Ongoing
B24	Blue networks - Riparian	Ensure the implementation of the Water of Leith Management Plan to 2020. Report on actions to be delivered under the Biodiversity Topic.	Water of Leith Action Group, WOLCT, CEC Environment, SEPA	annually to 2020
B25	Blue networks - Riparian	Maintain the 5 Biodiversity Boost habitat improvement sites along the Water of Leith. Seek funding to extend this network to more sites.	WOLCT, CEC Environment	2018
B26	Blue networks - Riparian	Ensure monitoring of habitat restoration works associated with the Water of Leith flood prevention schemes is carried out.	CEC Planning and Transport, SEPA, WOLCT, CEC NHS, CEC Planning	Ongoing up to 2018
B27	Blue networks - Riparian	Remove, monitor and prevent the spread of invasive plant species along the Water of Leith. Establish a co-ordinated framework for the management of invasive species with the aim of spraying Giant Hogweed and Japanese Knotweed annually and to continue the programme of volunteers' hand pulling Himalayan balsam.	Water of Leith Action Group, WOLCT, CEC NHS, CEC Structures and Flooding, SEPA etc	Ongoing

B28	Blue networks - Riparian	Develop and implement an ecological management plan, which should include: Identification of ecological management compartments along the Water of Leith valley (to be conducted in conjunction with the survey of woodland along the river that has been conducted); Identification of areas where there is the potential for habitat enhancement/creation or the restoration of habitat links; Production of detailed ecological objectives and prescriptions for each management compartment.	Water of Leith Action Group , WOLCT, CEC NHS, CEC NET, CEC Forestry, SEPA etc.	Funding Dependent 2017
B29	Blue networks - Riparian	As part of annual water course inspections, record locations of INNS and any wildlife features observed.	CEC Planning and Transport , TWIC	Annual
B30	Blue networks - Riparian	Ensure all ecological data from the Water of Leith Flood Prevention Scheme Phase 2 is passed to TWIC and to WOLCT for dissemination to interested parties.	CEC Planning and Transport, Contractor, WOLCT, CEC Environment, SEPA, TWIC.	Ongoing up to 2018
B31	Blue networks - Riparian	Deliver the River Almond barriers project by identifying the best solution for improved fish passage on the river, either removal of obstructions or construction/repair of fish passages.	CEC Environment, Rivers and Fisheries Trust, SEPA.	Ongoing up to 2018
B32	Blue networks - Riparian	Identify sites suitable for riparian woodland creation or enhancement.	ELGT, CEC Environment, Landowners	ONGOING AS funding opportunities arise. (SRDP funding required)
B33	Blue networks - Riparian	After completion of the River Almond barriers removal project, monitor fish species and numbers moving up and down river post construction.	RAFTS, SEPA	2018
B34	Blue networks - Riparian	Develop a Gogar Burn reinstatement project.	RAFTS, SEPA, CEC	2017

B35	Blue networks - lowland raised bog	Continue to block ditches and remove encroaching trees at Red Moss lowland raised bog.	SWT	Ongoing
B36	Blue networks - wetlands	Identify opportunities to manage and restore wetlands and peatlands for species enhancement and carbon storage.	ELGT, CEC Environment, CEC Planning and Transport, Landowners	Ongoing as funding opportunities arise. (SRDP funding required)
B37	Blue networks - ponds	Manage and enhance ponds and wetlands at Cammo canal, Blackford Pond, Easter Craiglockhart Hill wetland.	CEC Environment	Ongoing up to 2018
B38	Blue networks - SUDS	Ensure all SUDS schemes meet the standards outlined in the SUDS manual C753.	CEC Planning and Transport	Ongoing

Introduction to species

The previous Local Biodiversity Action Plan (LBAP) for Edinburgh 2010-2015 prioritised a number of species that are particularly threatened, rare or important locally. These range from the badger to the juniper. The overall picture of work related to species is represented in the diagram below:-



The approach to the LBAP 2016-2018 has been to continue to focus on realistic delivery of actions within a defined timescale that will have direct benefit to species. This has encompassed 'SMART' objectives and acknowledged that partners within the Edinburgh LBAP may be reliant on volunteers or have limited resources in terms of staff and funding.

As an example in the Edinburgh context, work in relation to swifts is continuing with artificial nest boxes being incorporated into suitable new developments. Going forward, there are opportunities

for other partners to be involved in the biodiversity process with new projects related to the delivery of the plan.

Action Plan for species

Action number	Species	Action/activity	Partners (Leads shown in bold)	Timescale
SP1	All	Edinburgh Zoo to host a bioblitz event at RZSS Edinburgh as well as promotion of the Wild About Scotland bus and Conservation Action Team programme. Develop interpretation about local biodiversity for display at RZSS Edinburgh.	RZSS	from 2016
SP2	Amphibians and Reptiles	Monitor invasive amphibian species in Edinburgh and the Lothians.	LARG	Ongoing
SP3	Amphibians and Reptiles	Increase awareness of migrating toads in Edinburgh and Lothians.	LARG	Ongoing
SP4	Amphibians and Reptiles	Monitor and survey new populations of reptiles in the Lothians.	LARG	Ongoing
SP5	Amphibians and Reptiles	Carry out survey and advisory work at known or potential Great Crested Newt sites as required.	LARG	Ongoing
SP6	Amphibians and Reptiles	Monitor existing priority sites for amphibians.	LARG	Ongoing
SP7	Birds	Continue to monitor populations of terns breeding and nesting around the Firth of Forth.	RSPB	Ongoing
SP8	Birds - raptors	Continue to monitor the breeding habitat, distribution and success of breeding raptors (Sparrowhawks, Buzzards and Peregrines) in Edinburgh.	Edinburgh Raptor Study Group	Ongoing
SP9	Birds - RSPB Species Study	Develop a model of predicted changes in distribution and population size of bird species due to climate change. Raise public awareness of climate change impacts and adaptation	RSPB	2018
SP10	Birds and All Nature	RSPB to co-ordinate a Bioblitz at Duddingston in June 2016 as well as a number of mini-bioblitz events throughout 2016.	RSPB, Edinburgh Biodiversity Partnership	from 2016
SP11	Birds and bats	Provide low cost nesting and habitat boxes for community greenspace projects.	HMP Saughton wood workshop	Ongoing as required

SP12	Birds, butterflies and plants	Continue to encourage members of the public to join Natural Heritage Officers on surveys - Breeding birds, Green Hairstreak, Small pearl-bordered fritillary and wildflower meadows.	CEC Environment	Ongoing
SP13	Birds: Breeding birds	Continue breeding bird survey on Bonaly Moor at Bonaly Country Park as a way of monitoring heather management and contributing to national monitoring scheme.	CEC Environment	Ongoing
SP14	Birds: Breeding birds	Encourage student to research data collected from the Breeding Bird Survey (BBS).	CEC Environment, Universities	Ongoing
SP15	Birds: Breeding birds	Encourage other BBS in the CEC area, in both urban and peri-urban sites, to build up monitoring data.	CEC Planning and Transport, RSPB, SOC.	Ongoing
SP16	Fungi	Fungus Group of South East Scotland (FGSES) to provide habitat management advice for fungi. FGSES to provide records from forays and promote recording at locations important for fungi.	FGSES	from 2016
SP17	Invertebrates	Buglife creating a grassland habitat map for John Muir Pollinator Way regarding habitat creation and management.	Buglife	from 2016
SP18	Invertebrates	Organise training on how to integrate deadwood and its biodiversity into urban greenspace and design.	Buglife and RBGE	from 2016
SP19	Invertebrates: Bees	Bumblebee Conservation Trust (BBCT) to provide habitat management advice and to train Bee Walkers to monitor sites across the City with support from RBGE and RZSS.	BBCT, RBGE, RZSS	Ongoing
SP20	Invertebrates: Bees	Increase knowledge of bee populations by recording the presence of bee species at Ranger-managed sites throughout Edinburgh.	CEC Environment, HESRS	Ongoing

SP21	Invertebrates: Butterflies	Continue to carry out generic butterfly surveys to build an understanding of changing populations at the following managed sites: Holyrood Park, Cammo Estate LBS, Meadows Yard LNR, Craigmillar Castle Park and Hermitage of Braid & Blackford Hill LNR.	HESRS, CEC Environment	Annually to 2018
SP22	Invertebrates: Butterflies	Continue to carry out butterfly transects to build an understanding of changing populations and monitor habitats at the following Natural Heritage Service-managed sites: Burdiehouse Burn Valley Park, Cammo Estate LBS, Meadows Yard LNR, Craigmillar Castle Park and Hermitage of Braid & Blackford Hill LNR.	CEC Environment	Ongoing
SP23	Invertebrates: Butterflies	Continue to utilise volunteers in the surveying of butterfly species on NH Service sites.	CEC Environment, Butterfly Conservation Scotland	Ongoing
SP24	Invertebrates: Butterflies	Suitability assessment of introduction sites for Common Rock-rose (<i>Helianthemum nummularium</i>) as food plant for Northern Brown Argus.	RBGE	2016 ongoing
SP25	Invertebrates: Butterflies	Butterfly Conservation's 'Urban Butterfly Project' will encourage the recording of butterflies in a range of urban green spaces. Survey volunteers will be trained to identify butterflies, and a provided with identification materials. The results of these surveys may influence habitat creation and management work.	Butterfly Conservation Scotland	2018
SP26	Invertebrates: Butterflies and moths	Butterfly Conservation carry out survey and monitoring work across Edinburgh including transects across key sites and habitat management projects to benefit butterflies and moths. Monitor spread of Small Skipper and Speckled Wood. To increase the recording effort for moths especially in the uplands, grasslands (including day-flying moths) and valley woodlands.	Butterfly Conservation Scotland	Ongoing
SP27	Invertebrates: Dragonflies	British Dragonfly Society carries out a range of projects relating to dragonfly conservation in the area including recording and practical conservation management and will continue to develop projects throughout the plan.	British Dragonfly Society	Ongoing

SP28	Invertebrates: Green hairstreak butterfly (<i>Callophrys rubi</i>)	Continue to monitor the known populations of Green hairstreak in the PHRP via butterfly transects.	CEC Environment	Ongoing
SP29	Invertebrates: Holyrood Park, bees	Increase knowledge of bee populations by recording the presence of bee species at Natural Heritage Service managed sites throughout Edinburgh. Continue to carry out generic bumblebee transects within Holyrood Park.	HESRS, CEC Natural Heritage Service	Annually to 2018
SP30	Invertebrates: Holyrood Park, Bordered brown lacewing (<i>Megalomus hirtus</i>)	Undertake annual survey for Bordered brown lacewing to establish ecology and distribution. Organise an identification workshop with Buglife. Undertake further surveys on Blackford Hill and other suitable habitats with CEC Natural Heritage Service.	HESRS, Buglife, CEC Environment	Annually to 2018
SP31	Invertebrates: Holyrood Park, Micromoth (<i>Glyphipterix minorella</i>)	Commission a specialist survey to establish if this nationally scarce micromoth remains extant within Holyrood.	HESRS, EBP	Funding dependent, by 2018
SP32	Invertebrates: Holyrood Park, Northern Brown Argus (<i>Aricia artaxerxes</i>)	Survey for the presence of Northern Brown Argus (<i>Aricia artaxerxes</i>), a UKBAP Priority Species found at Holyrood Park and act to conserve known populations of Common Rock-rose (<i>Helianthemum nummularium</i>).	HESRS	Annually to 2018
SP33	Invertebrates: Holyrood Park, Wood Sage Plume Moth (<i>Capperia britanniodactyla</i>)	Establish distribution map for wood sage (<i>Teucrium scorodonia</i>), the foodplant of this plume moth, and distribution of the plume moth caterpillar.	HESRS	By 2018
SP34	Invertebrates: Small Pearl-bordered Fritillary (<i>Boloria selene</i>)	Continue to monitor the known population of Small Pearl-bordered fritillary at Balerno Common SSSI via butterfly transects.	CEC Environment	Ongoing

SP35	Invertebrates: Small Pearl-bordered Fritillary (<i>Boloria selene</i>)	Continue to implement the site management plan to benefit Small Pearl Bordered Fritillary at Red Moss Reserve, and monitor the population.	SWT, Butterfly Conservation	Ongoing
SP36	Invertebrates: Small Pearl-bordered Fritillary (<i>Boloria selene</i>)	Encourage research into identifying habitat improvements to help species spread.	CEC Environment	Ongoing
SP37	Mammals	The Mammal Group will take part in BioBlitz undertaking small mammal trapping -subject to members being available. They will also verify all mammal records (terrestrial and marine) for the area that come in via iRecord and iSpot. The Mammal Group will also share data with TWIC and verify any mammal records that come into TWIC. The group will host a workshop focusing on specific species. The group would support a small mammal trapping weekend.	Lothians and Borders Mammal Group	Ongoing
SP38	Mammals: Badgers	Provide advice to landowners and developers on appropriate habitat management that is beneficial to badgers and allows free movement for feeding. Identify and mitigate where possible, known badger accident black spots on roads. Raise awareness of badgers and issues relating to them.	Lothians Badger Group	Ongoing
SP39	Mammals: Badgers	Raise awareness of issues affecting badgers and provide interpretation.	RZSS	from 2016
SP40	Mammals: Badgers (<i>Meles meles</i>)	Ensure all CEC woodland management plans fully take account of badger setts, foraging habitats and routes and connectivity to other foraging sites.	CEC Environment	Ongoing
SP41	Mammals: Badgers (<i>Meles meles</i>)	Continue to map and monitor badger setts for activity and disturbance.	CEC Environment	Ongoing
SP42	Mammals: Bats	Continue to work with the Lothian Bat Group to monitor bats on CEC Natural Heritage Service sites.	CEC Environment, Lothians Bat Group	Ongoing
SP43	Mammals: Bats	Continue to monitor bat boxes as part of the bat roost scheme. Continue to liaise with land owners and land managers to identify suitable sites for the provision and erection of bat boxes. To carry out ad hoc recording and roost visits.	Lothians Bat Group	Ongoing

SP44	Mammals: Otters	Continue to pass all sightings and records to TWIC.	CEC Environment, WOLCT	Ongoing
SP45	Mammals: Water vole	Assess potential for water vole reintroductions at historic sites.	CEC Planning and Transport, LABMAG, RZSS	from 2016
SP46	Mammals: Water vole (<i>Arvicola terrestris</i>)	Investigate previous water vole sites to identify any unknown remnant populations, possibly as a student project or training opportunity.	CEC Planning and Transport, LABMAG, RZSS	from 2016
SP48	Monitoring	TWIC play a key role in recording and provision of monitoring data. In addition public surveys will continue e.g. moles. Potential for owl pellet collection programme to identify small mammals. Using previous programmes to provide advice e.g. hedgehog data and simple habitat measures e.g. holes in fences to allow dispersal.	TWIC	Ongoing
SP49	Plants and Fungi	Run participatory events to enthuse and engage the public with plants and fungal biodiversity e.g. National Fungi Day.	RBGE	Annually to 2018
SP50	Plants and Fungi including Field gentian	Edinburgh Natural History Society is actively involved in species recording and site visits. They forward records from these events.	Edinburgh Natural History Society	Ongoing
SP51	Plants: All vascular plants	Aim to record all native and alien vascular plants in the wild and public areas of Edinburgh. Contribute to the National Plant Monitoring Scheme. Input to Atlas of British and Irish Flora and Midlothian Rare Plants Register. Communicate data to landowners and relevant partners as required.	BSBI	Ongoing

SP52	Plants: All vascular plants	Develop an online Scottish Plant Hub, improving accessibility of information (from scientific literature and conservation practice) on conservation issues such as invasive species, plant diseases and translocations of rare species.	RBGE	By 2018
SP53	Plants: Holyrood Park, Adder's-tongue fern (<i>Ophioglossum vulgatum</i>)	Act to conserve the known population of Adder's-tongue fern (<i>Ophioglossum vulgatum</i>) at Holyrood Park.	HESRS	Annually to 2018
SP54	Plants: Holyrood Park, Maiden Pink	Attempt to establish new populations of Maiden Pink at historical sites around the city.	HESRS, RBGE, CEC Biodiversity Officers, CEC Environment	By 2018
SP55	Plants: Holyrood Park, Maiden Pink (<i>Dianthus deltoides</i>)	Act to conserve the existing and newly established populations of Maiden Pink at Holyrood Park.	HESRS	Annually to 2018
SP56	Plants: Holyrood Park, Purple milk-vetch (<i>Astragalus danicus</i>)	Act to conserve known populations of Purple milk-vetch (<i>Astragalus danicus</i>), an Endangered and UKBAP Priority Species found in Holyrood Park, via trial management regime.	HESRS	Annually to 2018
SP57	Plants: Holyrood Park, Rock Whitebeam (<i>Sorbus rupicola</i>)	Manage habitats around confirmed Rock Whitebeam trees to reduce threat of fire damage.	HESRS	Annually to 2018
SP58	Plants: Holyrood Park, Sieve-toothed moss (<i>Coscinodon cribrosus</i>)	Act to conserve known populations of Sieve-toothed moss (<i>Coscinodon cribrosus</i>), a Nationally Scarce species found in Holyrood Park.	HESRS	By 2018

SP59	Plants: Holyrood Park, Spring Sandwort (<i>Minuartia verna</i>)	Act to conserve known populations of Spring Sandwort (<i>Minuartia verna</i>) in Holyrood Park. This species is Near Threatened and Nationally Scarce.	HESRS	By 2018
SP60	Plants: Holyrood Park, Sticky Catchfly	Establish new populations at sites where Sticky Catchfly occurred in the past.	HESRS, RBGE, CEC Biodiversity Officers, CEC Environment	By 2018
SP61	Plants: Holyrood Park, Sticky Catchfly (<i>Silene viscaria</i>)	Act to conserve existing populations of Sticky Catchfly at Holyrood Park.	HESRS	Annually to 2018
SP62	Plants: Invasives	Monitor invasive non-native plant species on CEC Natural Heritage Service-managed sites.	CEC Environment	ongoing
SP63	Plants: Invasives	Continue to control invasive plant species on Natural Heritage Service-managed sites.	CEC Environment	ongoing
SP64	Plants: Invasives	Continue to enable community involvement and volunteer participation in the control of invasive species.	CEC Environment	ongoing
SP65	Plants: Juniper	Work with Inch Nursery on growing new plants and replacement of failed plants where appropriate.	CEC Environment	ongoing

SP66	Plants: Juniper	Investigate additional locations for new plantings e.g. Bonaly, Hillend Country Parks.	CEC Environment	By 2018
SP67	Plants: Juniper (<i>Juniperus communis</i>)	Continue to monitor Juniper in Pentland Hills Regional Park.	CEC Environment	ongoing
SP68	Plants: Pillwort	Monitor the re-introduction of Pillwort to SWT Bawsinch reserve. Progress the reintroduction of Pillwort to other historical sites in Edinburgh.	SWT Lothians	ongoing
SP69	Plants: Rare Plants project	Review rare plants list and scope future monitoring and habitat conservation work. RZSS to support with interpretation and re-introductions where appropriate.	CEC Biodiversity Officers, RBGE, HESRS, CEC Environment, BSBI, RZSS	from 2016
SP70	Plants: Sticky catchfly	Establish more colonies on Wester Craiglockhart Hill and Blackford Hill.	CEC Environment	By 2018
SP71	Plants: Sticky catchfly	Liaise with Historic Scotland on seed collection for propagation by Inch Nursery.	CEC Environment, Historic Environment Scotland RS	ongoing
SP72	Plants: Sticky catchfly (<i>Silene viscaria</i>)	Monitor populations of Sticky catchfly (<i>Silene viscaria</i>).	CEC Environment	ongoing

Invasive species

Invasive non-native species (INNS) are considered to be the second biggest threat to global biodiversity after habitat loss (Defra, 2008). Species introduced outwith their natural distribution can have a devastating effect by out-competing native species, disrupting ecosystem services and changing our landscape. Introductions to the UK have intensified as a result of increases in trade, transport, travel and tourism, exacerbated by climate change. The significance of this threat has been recognised in law and under the Wildlife and Natural Environment (Scotland) Act 2011 it is an offence to plant or cause to grow in the wild any non-native plant species.

In Edinburgh, control of INNS has been focussed on plants such as Giant Hogweed, Himalayan balsam and Japanese Knotweed. Treatment has mainly been on land owned by City of Edinburgh Council or as part of flood prevention works along the Water of Leith. Volunteers have undertaken work to prevent the spread of Himalayan balsam by hand-pulling plants.

However, since the previous plan was written, a number of increasing threats to ecosystem health have been recognised. These are **competitive native species** and **pests and diseases**.

Competitive native species - some competitive native species that may be regarded as 'invasive' within their natural range include any native plant or animal that, in certain circumstances spreads to such an extent that it causes significant damage to other species of nature conservation value, the environment, the economy or to human health. In contrast to invasive non-native species, such competitive native species have evolved over extended periods of time within the land or aquatic environment in which they occur, and are thus a natural part of the biodiversity. This is a key distinction, as such native species are likely to support many other species and have a range of competitors, predators and parasites that have evolved with them, and that in many circumstances serve to keep their abundance in check. This is unlikely to be the case for invasive non-native species that have been artificially introduced from another part of the world. Locally, this is seen in plants such as bracken and some grass species that, in some circumstances can out-compete other native species that are being encouraged. Some wildflower meadows can be difficult to establish due to strong competition from grasses.

Pests and diseases

Our local ecosystems are also threatened by pests and diseases such as ash dieback and *Phytophthora ramorum*. It is not only plants that are susceptible, but animals such as toads and frogs may be affected by diseases such as the *Chytrid* fungus. Global trade and travel combined with the effects of climate change can have serious implications for habitat health. New species of pest are being identified regularly and it is vital that land owners and land managers maintain vigilance for the presence and control of these potential threats.

Actions to address invasive species

INNS, pests, diseases and competitive native species need management on an international, national or regional scale through collaborative effort between partner organisations and land owners.

Biosecurity plays a key role in preventing most non-native pests and diseases from entering the country but wind and water may carry some.

Implementing biosecurity measures for tree pests and diseases is complex, requiring plant health authorities to work closely with private sector bodies. Ash dieback (*Hymenoscyphus fraxineus*) and *Phytophthora* are well advertised.

Maximisation of genetic diversity The maximisation of genetic diversity across all species, and particularly within species, is a fundamental attribute of potential “resilience”. Single species and monocultures should be avoided or reduced, especially at large and increasing spatial scales, with cultivated and other farmed species (including tree species, e.g. effect of *Phytophthora ramorum* outbreaks on Larch plantations).

Genetic resilience

Diversification of species or sub-species within designated habitats will need to be considered to maximise genetic diversity and increase resilience. This will require greater knowledge about the range of species present and especially the within-species genetic diversity, for example through establishing comprehensive inventories of the same. For example, in the face of the spread of ash dieback disease, we urgently need to know the genetic diversity present in our existing populations of ash trees so that any that show disease resistance or tolerance can be identified as soon as possible.

Habitat resilience

Increasing habitat resilience – diversification plays an important role by broadening the choice of genetic material and mixing species in different ways, to varying management systems and the timing of operations. Some trees may be naturally resistant to a particular disease and careful consideration needs to be given to whether to remove diseased trees before they die naturally.

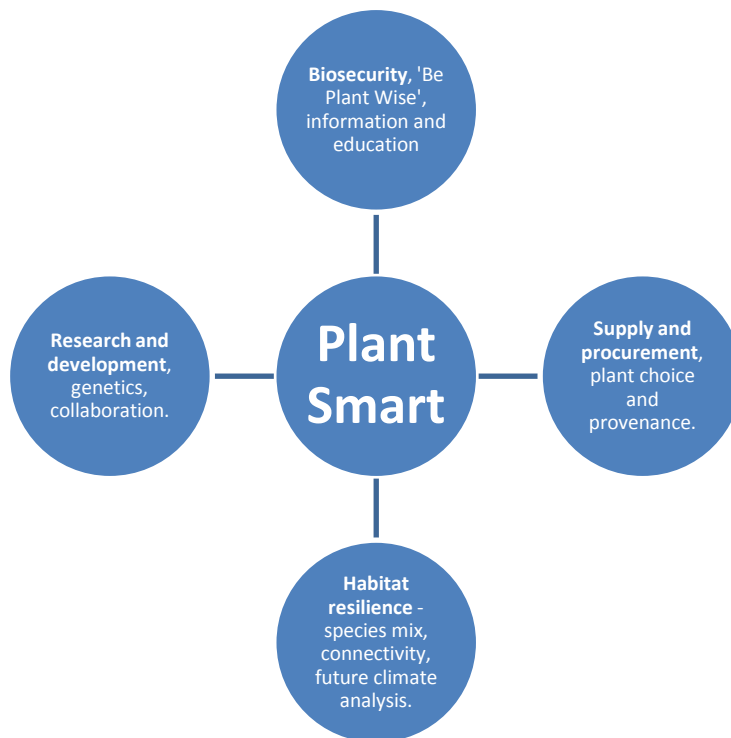
Preventing habitat fragmentation and increasing habitat connectivity are likely to be beneficial.

Plant choice and procurement

Ensuring that adaptation, in the form of habitat designs that embrace a structure and composition that is resistant to climate change as well as to invasive species, may help to provide resilience. This can begin at choice of species, moving through to choice of supplier and provenance.

In general, both legal obligations and good practice guidelines from SNH, Defra, and FC etc. must be followed in tackling invasive species. Schemes such as ‘Be Plant Wise’ and ‘Check, Clean and Dry’ and following Integrated Pest Management Guidelines. Collaboration at international, national, regional and local level must underpin this approach.

All of the above actions can be summarised as Plant Smart, see below:



Further information regarding invasive species may be found via the following links:

INNS and news regarding strategies and Plant Wise

<http://www.nonnativespecies.org/home/index.cfm>

Plant choice and source

<http://www.gov.scot/Resource/Doc/46729/0024255.pdf>

Integrated Pest Management Handbook

<http://www.snh.org.uk/pdfs/publications/heritagemanagement/Integrated%20Pest%20Management%20Handbook.pdf>

Plant Health Risk Register

<https://secure.fera.defra.gov.uk/phiw/riskRegister/>

Biosecurity in forests and woodlands

<http://www.forestry.gov.uk/biosecurity>

Built Environment

The built environment has an important part to play in supporting and enhancing biodiversity. Some species rely on the built environment for breeding or roosting sites, such as swifts and bats. There is also a strong relationship between the built and natural environment in relation to water, where surface water run off can cause flooding and increase pollution in our water environment. As climate change is expected to increase the frequency and volume of rainfall, these impacts are expected to get worse. Adapting the built environment through the use of green infrastructure such as living roofs, Sustainable Urban Drainage, raingardens and other innovations helps to alleviate these effects. Greening of buildings can also help with insulation against heat and cold, as well as offering new habitats to wildlife. Street trees and other vegetation can also absorb air pollution and also help with shading and cooling in the built environment, as our climate warms.

New and existing developments should make the most of the opportunities to promote biodiversity through green infrastructure, and to maximise its contribution to establishing a sense of place and the quality of people's lives. New developments of any size can have significant effect on wildlife and the ability for people to interact and experience nature.

Local planning policy requires new developments to demonstrate protection and enhancement of biodiversity. Even when there are no significant habitats or protected species present on site, biodiversity is still an important consideration. All new development should contribute to the enhancement of biodiversity and create habitats wherever possible. Some examples include retaining and enhancing existing features of value to nature; use of native species in landscaping; provision of nest sites for wildlife.

For example the use of the Edinburgh Meadow Mix has been incorporated into landscape schemes for developments in Green Dykes; this has made a contribution to the [Edinburgh Living Landscape Project](#).

Older properties such as those in the World Heritage Site, undergoing maintenance and renovation also provide opportunities to make provision for biodiversity e.g. Swift Bricks.

Action Plan for Built Environment

Action Number Habitat/location	Action/activity	Partners (Leads shown in bold)	Timescale
BE1	<p>Climate resilience - Assess the likely impacts of climate change and their effect on the built environment and use it to inform adaptation policy. Increase the climate resilience of the built environment through natural greening measures in new developments such as the use of natural features (e.g. street trees, green roofs, rain gardens etc) and other materials such as permeable paving.</p>	<p>CEC Planning & Transport, Edinburgh World Heritage Trust</p>	<p>Annual ongoing</p>
BE2	<p>Green Infrastructure - Promote green infrastructure in the built environment to help nature to adapt to climate change by strengthening habitat networks, reducing habitat fragmentation and providing opportunities for species to migrate.</p>	<p>CEC Planning & Transport, Edinburgh Sustainable Development Partnership, Edinburgh Living Landscape initiative</p>	<p>2018</p>
BE3	<p>Ecosystem Approach-</p> <ul style="list-style-type: none"> • Produce a policy statement on the ecosystem approach and planning in Edinburgh. • New developments planned and delivered to create low carbon, walkable neighbourhoods and work places containing high quality green and blue infrastructure, increasing the number of green exterior of buildings where appropriate. 	<p>CEC Planning & Transport, Edinburgh Sustainable Development Partnership, Edinburgh Living Landscape initiative</p>	<p>2017</p>

BE4	<ul style="list-style-type: none"> • Work with developer to showcase high quality, wildlife rich developments including meadows, ponds, native trees etc. • Introduce a Natural Capital Standard for Green Infrastructure 	Scottish Wildlife Trust, Edinburgh Living Landscapes, CEC Planning and Transport.	2018 (funding dependent)
BE5	Sustainable Urban Drainage (SUDS). Update SUDs design requirements within Edinburgh Design Guidance.	CEC Planning & Transport	2016
BE6	Sustainable Urban Drainage (SUDS). Undertake training for planning, transport and building standards staff.	CEC Planning & Transport	2016
BE7	Street Trees -Ensure street trees and greening are included in the detailed sections of the Street Design Guidance.	CEC Planning & Transport	2017
BE8	Street Trees - In line with Street Design Guidance incorporate guidance on street trees and greening in the updated Edinburgh Design Guidance. Undertake monitoring.	CEC Planning & Transport; CEC Forestry Service	Ongoing until 2018
BE9	Living roofs - In line with the Edinburgh Design Guidance promote the installation of green roofs and living walls.	CEC Planning & Transport, Edinburgh Living Landscape	Ongoing/ monitor annual
BE10	Living wall - Create a living wall as part of the Edinburgh Festival.	Lymbus	<i>subject to funding</i>
BE11	Birds and bats - request the installation of boxes in new developments for bats and birds such as swifts and house sparrows.	CEC Planning & Transport	ongoing to 2018

BE12	Swifts - request the installation of boxes in buildings undergoing repair and/or maintenance.	CEC Planning & Transport , Edinburgh World Heritage Trust	ongoing to 2018
BE13	Swifts - Monitor and record use of new boxes.	Scottish Ornithologists Club, CEC Planning & Transport, University Project, RSPB, TWIC.	ongoing to 2018
BE14	Insect boxes - Request the installation of boxes in new developments, parks and school grounds.	CEC Planning & Transport , Neighbourhoods Teams and Education	ongoing to 2018
BE15	Brownfield site habitats - based on the Buglife study of previously developed land, carry out further assessment of the ecological value of brownfield sites in Edinburgh.	Edinburgh Biodiversity Partnership, University project, Buglife	subject to funding
BE16	Brownfield site habitats - promote the importance of brownfield sites for biodiversity, including having a network of 'stepping stone' sites as some sites are developed.	CEC Planning and Transport, Buglife	2017
BE17	Brownfield site habitats - to compensate for loss of brownfield habitats, include living roofs which replicate brownfield habitats in the promotion of green infrastructure, including in the Edinburgh Design Guidance. Recommend all developments over a minimum size to include Living Roofs.	CEC Planning & Transport, Buglife	2017
BE18	Lighting - Active Travel Action Plan / Cycle Capital Programme. As part of scheme design incorporate lighting which takes account of ecological constraints.	CEC Planning & Transport - Cycling Team	Ongoing/ monitor annual

BE19	British Standard BS: 42020 Planning and Biodiversity. Raise awareness and Understanding of BS:42020 and promote its use by including reference to it in the Edinburgh Design Guidance.	CEC Planning & Transport, SNH, Association of Local Government Ecologists	2017
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Appendix 2 Members of the Edinburgh Biodiversity Partnership

Acronym	Partner
ALGE	Association of Local Government Ecologists
BBCT	Bumblebee Conservation Trust
BCS	Butterfly Conservation Scotland
BDS	British Dragonfly Society
BSBI	Botanical Society of Britain and Ireland
Buglife	Buglife
CEC	City of Edinburgh Council
EBP	Edinburgh Biodiversity Partnership
EC	Edinburgh College
Edible Edinburgh	Edible Edinburgh
ELGT	Edinburgh and Lothian Greenspace Trust
ELL	Edinburgh Living Landscape initiative
ENHS	Edinburgh Natural History Society
ERSG	Edinburgh Raptor Study Group
ESDP	Edinburgh Sustainable Development Partnership
EWH	Edinburgh World Heritage
FCS	Forestry Commission Scotland
FEF	Forth Estuary Forum
FGSES	Fungus Group South East Scotland
FR	Forest Research
FSG	Forth Seabird Group
HESRS	Historic Environment Scotland Ranger Service (Holyrood Park)
HMPS	Her Majesty's Prison Saughton
HW	Heriot Watt University
LABMAG	Lothian and Borders Mammals Group
LARG	Lothian Amphibian and Reptile Group
LBG	Lothian Badger Group
LBG	Lothian Bat Group
LFGNP	Lothian and Fife Green Network Partnership
Lothian and Borders Geoconservation Committee	Lothian and Borders Geoconservation committee
MS	Marine Scotland
NCW	New Caledonian Woodlands
NU	Napier University
RAFTS	Rivers and Fisheries Trust Scotland
RBGE	Royal Botanic Garden Edinburgh
RSPB	Royal Society for the Protection of Birds
RZSS	Royal Zoological Society Scotland (Edinburgh zoo)
Saughton Park Project Team	Saughton Park Project Team
SEPA	Scottish Environment Protection

Appendix 2 Members of the Edinburgh Biodiversity Partnership

	Agency
SNH	Scottish Natural Heritage
SOC	Scottish Ornithologists Club
SRUC	Scottish Rural University College
SWT	Scottish Wildlife Trust
TWIC	The Wildlife Information Centre
UoE	University of Edinburgh
WOLCT	Water of Leith Conservation Trust