# ITEM No …7…..

**REPORT TO:** **NEIGHBOURHOOD SERVICES COMMITTEE- 13 JANUARY 2020**

**REPORT ON:** **BIODIVERSITY ACTION PLAN**

**REPORT BY:** **EXECUTIVE DIRECTOR OF NEIGHBOURHOOD SERVICES**

**REPORT NO:** **14-2020**

## 1.0 PURPOSE OF REPORT

1.1 To seek approval of the draft ten year Biodiversity Action Plan for Dundee to 2030 as at Appendix 1 and approval to take forward the actions contained in the Plan.

## 2.0 RECOMMENDATIONS

2.1 It is recommended that the committee approves the draft Biodiversity Action Plan.

## 3.0 FINANCIAL IMPLICATIONS

3.1 There are no direct additional financial implications associated with the approval of this report.

## 4.0 MAIN TEXT

4.1 Reference is made to Article IV of the minute of the Neighbourhood Services Committee of 12th June 2017 which agreed that the Executive Directors of City Development and Neighbourhood Services bring forward a Biodiversity Duty Plan to committee during 2018 (report 188-2017), as well as agreeing to update the biodiversity survey of Locally Important Nature Conservation Sites and Local Nature Reserves, as contained in the Local Development Plan.
Reference is also made to Article II of the minute of the Policy and Resources Committee of 24th June 2019. In this Council Plan 2017-2022 Progress Report (report 198-2019) it was recommended to develop a Biodiversity Action Plan - with a revised timescale for delivery of 31st December 2019. This delayed timescale was due to the recommended widened scope of the Plan. The draft Biodiversity Action Plan now provides a broader more holistic scope and aligns with other Local Biodiversity Action Plans.

4.2 The Nature Conservation (Scotland) Act 2004 places a duty on public bodies 'to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions.' In addition, Local Authorities in Scotland have a requirement to report on their Biodiversity duty every three years as outlined in the Wildlife and Natural Environment (Scotland) Act 2011. The report should be publicly available and should outline the actions the public body has taken to meet this biodiversity duty. The next round of reports are required to be submitted before 1st January 2021.

4.3 The draft Biodiversity Action Plan builds on the biodiversity survey of the Locally Important Nature Conservation Sites and Local Nature Reserves in Dundee, as referenced above, incorporating a number of corporate and local actions to benefit biodiversity in Dundee as a whole. This action plan will be used as the framework for Dundee City Council to report on their biodiversity duty every three years.

4.4 In order to prepare this plan, other Local Biodiversity Action Plans, relevant international, national and local reports were reviewed. Advice was sought from national organisations and local groups. Council service areas were also consulted to inform the corporate approach to the draft plan. This informed the format of the plan which incorporates best practice and acknowledges the unique opportunities and constraints provided in a small, urban local authority area.

4.5 The resulting draft plan has been subject to internal consultation, and has also been sent to appropriate national organisations such as Scottish Natural Heritage, Scottish Environmental Protection Agency, Scottish Forestry, Butterfly Conservation and the Royal Society for the Protection of Birds. A draft copy was also sent to a list of local environmental groups who were also invited to a consultation event on the 23rd October 2019.

4.6 In so far as has been practicable, comments from the consultation above have been considered and incorporated into the draft plan.

4.7 Alongside the preparation of the Draft Biodiversity Action Plan, a screening exercise for Strategic Environmental Assessment was carried out. This concluded that a SEA was not needed.

## 5.0 POLICY IMPLICATIONS

This report has been subject to an assessment of any impacts on Equality and Diversity, Fairness and Poverty, Environment and Corporate Risk. A copy of the Impact Assessment is available on the Council's website at www.dundeecity.gov.uk/iia

## 6.0 CONSULTATION

6.1 The Council Management Team have been consulted in the preparation of this report and agree with its contents.

## 7.0 BACKGROUND PAPERS

7.1 None.

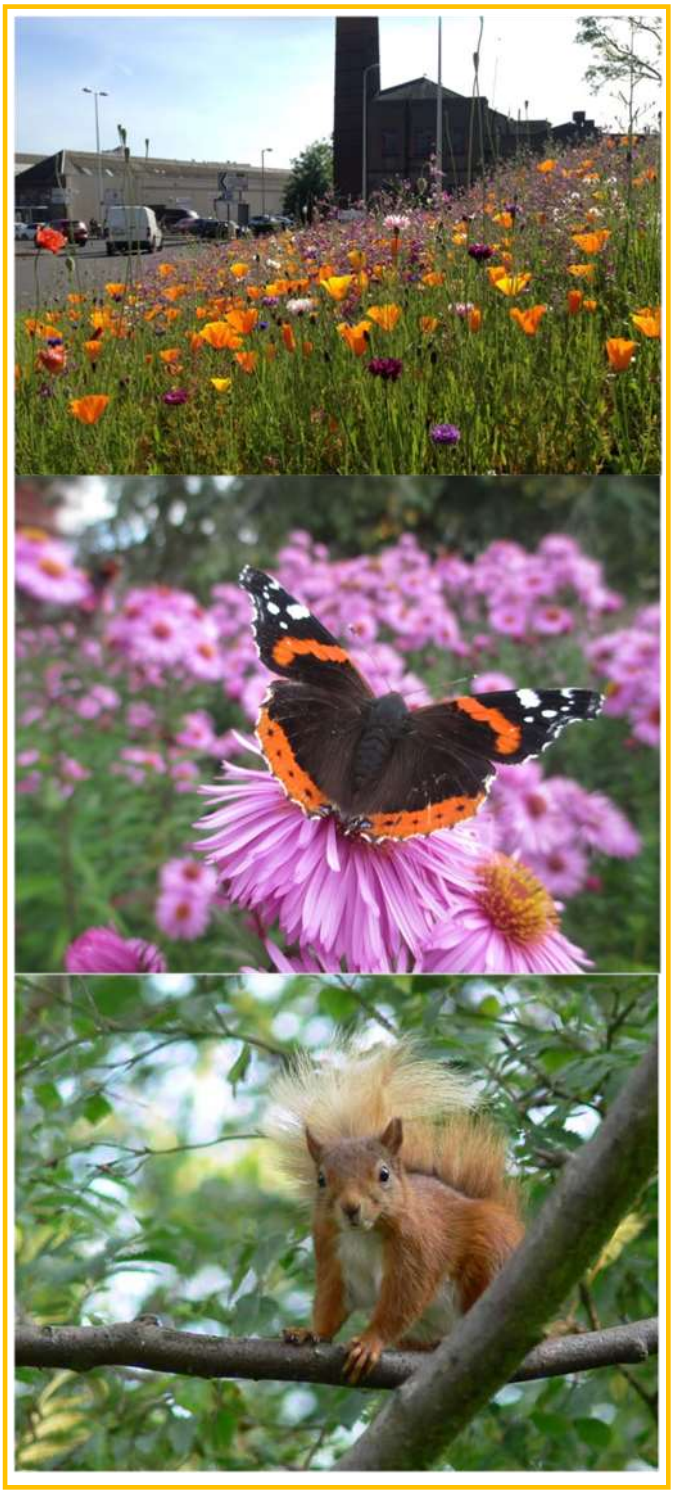
Elaine Zwirlein
**Executive Director of Neighbourhood Services**

Tony Boyle
**Head of Environment**

19 November 2019

**Appendix 1.**

# Dundee City's Biodiversity Action Plan- Draft



# Contents

# Foreword

Dundee was voted as the best place to live in Scotland 2019 by the Sunday Times. I have no doubt that part of this is due to the fact that our city of Discovery is also a very green city. We are lucky to have a very high amount of accessible greenspace. We also have an enviable, south facing aspect on the banks of the river Tay overlooking both the nationally and internationally important habitats found there. Not only does this enhance the overall aesthetic of the city, but contributes greatly to the health and wellbeing of the people who live and work here.

The range of different types of habitat within our greenspaces, such as woodland, grassland, beach and wetland, means that we have a high level of biodiversity. Last year Dundee City Council recognised the serious and accelerating environmental, social and economic challenges faced by climate change and declared a climate emergency. Protecting and enhancing our local biodiversity helps to reduce and mitigate against the effects of climate change.

Everyone can do their part to help biodiversity from gardening for wildlife at home to volunteering in a local greenspace. If you would like to help increase our knowledge, both locally and nationally, about how our wildlife is faring you can help by signing up for a variety of different surveys aimed at members of the public. As Tree Champion for the council I have been involved in various tree planting days in the city and have derived immense pleasure from knowing that I am contributing to the landscape both now and in the future.

This plan shows the importance of protecting our biodiversity and will help us to manage and increase it over the next 10 years. The plan will also enable us to contribute to national and international biodiversity targets as well as improving the environment in which we live.

Councillor Anne Rendall
Convenor, Neighbourhood Services

# Introduction

## What is Biodiversity?

Biodiversity is the variety of all living things and includes diversity within a species, between different species, between habitats and the ecosystems of which they are a part. Greater levels of biodiversity helps to ensure the natural sustainability of all life, which is especially important in a time of global climate change.
In this plan we refer to the conservation of biodiversity as the care and protection of all habitats and species, i.e. wildlife, in the city. This includes both common and rare plants, invertebrates, mammals and birds.

## Context

### *Background*

At the Earth Summit in Rio de Janeiro in 1992 the UK signed up to the Convention on Biological Diversity (CBD). This led to the first UK biodiversity Action Plan being published with the goal –
*"to conserve and enhance biological diversity within the UK and to contribute to the conservation of global biodiversity through all appropriate mechanisms"*.
In 2004 'The Scottish Biodiversity Strategy, It's in Your Hands' was published. In 2010 during a Conference of Parties in Aichi, Japan, an updated strategic plan for Biodiversity for 2011-2020 was adopted including 20 'Aichi Targets'. Following this 'The 2020 challenge for Scotland's Biodiversity' was published in 2013, which sets out the six major steps we need to take to improve the state of nature in Scotland and achieve the Aichi targets.
The UK and Scottish plans are implemented through Local Biodiversity Actions Plans (LBAPs), which seek to ensure that internationally, nationally and locally important species and habitats are conserved through local action.
Previously Dundee was part of the Tayside Biodiversity Partnership, however, this is the first LBAP just for Dundee City.

### *Current State*

The State of Nature Report 2019 revealed that 41% of UK species studied have shown strong or moderate declines since 1970, while 15% of species assessed in the UK are under threat of disappearing from our shores altogether with 2% already extinct. It also shows that most of the Aichi targets for 2020 will not be met.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) recently published the first inter-governmental global assessment of biodiversity, ecosystems and their contributions to people. This assessment of nature, nature's contribution to people and drivers of their changes aims to inform decision makers and end users at all scales and sectors. It also assessed progress towards the current Aichi Biodiversity Targets and will inform the next set of targets for the post 2020 biodiversity framework. The key messages in this report are:

- Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide
- Direct and indirect drivers of change have accelerated during the past 50 years
- Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may

only be achieved through transformative changes across economic, social, political and technological factors
- Nature can be conserved, restored and used sustainably while simultaneously meeting other global societal goals through urgent and concerted efforts fostering transformative change

The effects of contact with nature on our physical and mental wellbeing have been widely studied and increasingly policymakers are seeing the value our natural heritage as a resource for improving public health. This can be achieved through a combination of increased physical activity and contact with nature in the outdoors and through better planning, design and management of places to provide quality greenspaces and increased biodiversity on people's doorsteps. Increasing the proportion of adults enjoying the outdoors each week is now a key target of the Scottish Government. Ensuring that Dundee has a high level of biodiversity with well managed greenspaces is not only important for our environment but is also important for the wellbeing of the people who live here.

## Current Legislation

Dundee City Council (DCC) is bound by the following legislation:

- **Nature Conservation (Scotland) Act 2004** *Section 1 (1)* states:
  "It is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions."
- **Wildlife and Natural Environment (Scotland) Act (WANE) 2011**, *Part 5 Section 36* states:
  (1) "A public body must prepare and publish a biodiversity report within 3 years of…the base date;
  (2) A biodiversity report is a report on the actions taken by the body in pursuance of its duty under section 1 during the period to which the report relates.
  (3) The base date is – (a) the date on which section 36 of the WANE (Scotland) Act 2011 (asp 6) comes into force, or (b) where the body is established after that date, the date on which the body is established."

Under the legislation above, DCC is required to report on their actions to conserve biodiversity every three years. The next report is due in 2020 and this plan will enable us to measure our progress in all future reports in a uniform manner.
In July 2019 The Scottish Government and Dundee City Council declared a 'Climate Emergency'. Climate change and biodiversity are interconnected. Biodiversity is negatively affected by climate change but the ecosystem services it supports make an important contribution to climate change mitigation and adaptation. As such, this plan will be a key document in the delivery of the city-wide 'Climate Action Plan'.

### *Future*

The 2020 Biodiversity Conference will be held in October in Beijing, China. At this conference agreements will be made to update the conventions current strategic plan and adopt a post 2020 global framework working towards the 2050 vision of "Living in Harmony with Nature". Current proposals suggest that this framework, although possibly based on the current Aichi targets, should be more ambitious than the current strategic plan.

# Benefits of a Local Biodiversity Action Plan (LBAP)

Having an LBAP will raise awareness of the wildlife (flora and fauna) of Dundee in an international, national and local context. This plan aims to highlight the contribution and influence of our local biodiversity on the quality of life and economic opportunities of everyone who lives in the city.

This plan will focus action on the ecosystems, habitats and species most in need and ensure prioritisation of resources at a local level. It will set out clear objectives and targets to enable us to measure any achievements. The plan will build on current Dundee City Council plans and strategies and aims to inform any future plans.

# Vision for 2030

Working together to protect, enhance and raise awareness of biodiversity in Dundee for the benefit of all.

How this will be achieved:

- Dundee City Council, in partnership with other organisations, continues to maintain and enhance a biodiverse, healthy and sustainable environment.
- By protecting, enhancing and incorporating quality green infrastructure into our urban setting we will improve biodiversity and help create an environment that is resilient to climate change.
- Greenspaces are managed to preserve their wildlife value, as well as to enhance their contribution to the community and its inhabitants.
- The wider community understands what biodiversity is, what it means to them and how they can contribute.

# Dundee as Part of the Wider Landscape

Although Dundee is a small, urban local authority it is still an important part of the wider landscape in Tayside. The ecosystems within the city provide connectivity to the surrounding areas. The city sits on the Inner Tay Estuary and links the Angus coast to Perthshire. This coastline and estuary are internationally important for many coastal and marine species such as geese and seals. To the west is the Carse of Gowrie with its low lying arable land and good conditions for fruit growing. To the north in Angus there is more arable land leading into the Sidlaw hills. The Local Authorities in the area all work together as part of the TAYplan Strategic Development Plan which sets out the overall planning vision for the area for the next 20 years. This plan helps to deliver better quality development and places which respond to climate change, Local Development Plans, design frameworks and development proposals, all of which have an effect on our biodiversity.

## Designated Areas

**International Designations**
Firth of Tay and Eden Estuary Ramsar Site
Firth of Tay and Eden Estuary- Special Protection Area (SPA)
**National Designations**
Inner Tay Estuary- Site of Special Scientific Interest (SSSI)
Broughty Ferry Beach- Part of Monifieth Bay SSSI
**Local Designations**
Trottick Ponds Local Nature Reserve (LNR)
Broughty Ferry Local Nature Reserve (LNR)
Riverside Nature Park (LNR)
Camperdown Country Park
**Non-statutory Designations**
32 Locally Important Nature Conservation Sites (LINCS)
2 Geodiversity Sites

# Dundee's Biodiversity Resource

Dundee City covers 6300 hectares. 41% of this is greenspace, which is the highest percentage of publicly accessible greenspace of any city in Scotland. Adding private gardens increases this figure to 62% (State of Scotland's Greenspace report 2018). Many of these green areas have considerable biodiversity value and contribute greatly to the character of the city. The contribution and multiple benefits provided by these areas, including mental and physical health benefits, ecosystem services, education and community enhancement is widely recognised. DCC is committed to maintaining these valuable areas both to contribute to biodiversity value and to benefit the residents of and visitors to Dundee.

Dundee's Locally Important Nature Conservation Sites (LINCS) and Local Nature Reserves (LNRs) contain a variety of habitats and species, many of which are important nationally and within the local urban context. Nature does not recognise boundaries, nor confine itself to designated sites, so other green areas provide habitat and connections for species to spread around the city. Connectivity of healthy, species rich urban greenspaces is also hugely important in the context of climate change, where better managed; larger and more connected greenspaces will make the city a more resilient landscape.

Dundee also has 2 geodiversity sites, one of which is also a geological Site Special Scientific Interest (SSSI). These sites are identified by The Tayside Geodiversity Group as the most important places for geology and geomorphology. They are an important educational, historical and recreational resource.

**List of Dundee's LINCS, LNRs and Geodiversity Sites**

| **LINCS** | | | **Candidate LINCS** | **LNRs** |
|---|---|---|---|---|
| 1. Clatto Country Park | 12. Swallow Roundabout Wetland | 22. Dighty Burn | 33. Dundee Crematorium | 43. Trottick Ponds |
| 2. Baldragon Wood | 13. Anton Drive | 23. Drumgeith Meadow/wetland | 34. Clatto Extension | 44. Broughty Ferry |
| 3. Balgay Hill | 14. Barrack Road | 24. Dundee Road West | 35. Medipark Field | 45. Inner Tay Estuary |
| 4. Den o' Mains | 15. Balmuir | 25. Lochee Road | 36. Ninewells Arboretum & Invergorie House | |
| 5. Denhead of Gray | 16. Broughty Ferry Sand Dunes | 26. Technology Park | 37. Balgay Hill Extension | **Local Geodiversity Sites** |
| 6. Drumsturdy Wetland | 17. East Dock Street/Broughty Ferry Road | 27. Longhaugh Quarry | 38. Riverside Wildlife Corridor | A. Dundee Law |
| 7. The Miley | 18. Fithie Burn | 28. Stannergate | 39. Caird Park | B. Stannergate |
| 8. The Law | 19. Pitkerro House Woods | 29. Downfield Golf Course | 40. Scottish Water Field | |
| 9. Middleton Woods | 20. Murroes Burn | 30. Ardler Ponds | 41. Stobsmuir Pond | |
| 10. Tarzan's Island | 21. Riverside Nature Park | 31. Templeton Woods | 43. Broughty Ferry Sand Dunes Extension | |
| 11. Reres Hill | | 32. Camperdown Country Park | | |

# Local Geodiversity Sites, Local Nature Reserves (LNRs) and Locally Important Nature Conservation Sites (LINCS)

# The Ecosystem Approach

The ecosystem approach is the framework of the Convention on Biological Diversity (CBD). It aims to reach a balance between 3 objectives: conservation of biodiversity; its sustainable use; and equitable sharing of benefits arising from the use of natural resources. The ecosystems approach aims to protect individual species and habitats by conserving the whole environment in which they are found. By managing the broad habitat for biodiversity, the associated species should be protected and enhanced too. Thus the Dundee City LBAP will focus on ecosystems rather than single species or habitat plans.

# Ecosystem Services

Biodiverse ecosystems are healthy ecosystems. The natural resources that healthy ecosystems provide people, both directly and indirectly, can be expressed in terms of goods and services.

These services can be classified as four functional groups.

- **Provisioning Services** – these are physical products obtained from ecosystems such as food, fuel, timber and pharmaceuticals.
- **Regulating Services** – these are the benefits obtained from the regulation of ecosystems processes such as air quality maintenance, temperature regulation, water purification, erosion control and pollination
- **Cultural Services** – these are non-physical benefits to humans such as recreation, tourism, aesthetic experiences, spiritual enrichment and inspiration.
- **Supporting Services** – these are necessary for the production of all other ecosystem services. Their impacts are indirect such as soil formation, photosynthesis and water recycling.

An ecosystem statement has been produced for each of the following:

- **Woodlands**
- **Water and Wetlands**
- **Marine and Coastal**
- **Grasslands**
- **Urban Green Network**

There are three main objectives for each.

- To promote sympathetic management to improve the health of Dundee's ecosystems and ensure key sites are managed to a high standard for biodiversity
- To ensure no net loss of habitat and, where appropriate, increase the extent of the distribution and connectivity of all habitats
- To find a balance between providing for biodiversity and providing public amenity for all users within the city

Actions to enable these objectives to be achieved and how the outcomes from these will be measured can be seen in the Action Plan.

# Key Topics which affect all Ecosystems

A number of key topics relating to all ecosystems became apparent on the production of this plan. An outline statement for each is provided.

The objectives for each of these topics will be the same as those for the Ecosystem Statements, although some will have additional specific objectives.
Actions to enable these objectives to be achieved and how the outcomes from these will be measured can be seen in the Action Plan.

- Planning and Development
- Invasive Non-Native Species
- Communication and Awareness Raising
- Biological Records and Recording
- Geodiversity

# Ecosystem Statements

"An ecosystem is all the plants and animals that live in a particular area together with the complex relationship that exists between them and their environment"- Collins Dictionary

- Woodlands
- Water and Wetland
- Marine and Coastal
- Grasslands
- Urban Green Network

# Woodland

## Current Status and Extent:

Currently there are 3.17 million hectares of woodland in the UK with nine thousand hectares of new woodland planted in 2017-2018. In Scotland 19% of the land area is woodland, this has increased from 5.6% in the last hundred years or so. (Forestry Statistics 2018, Forestry Commission). These figures show that woodland habitat is increasing and whilst this may seem positive, the UK is still one of Europe's least wooded nations (State of Nature 2016).
Dundee has many areas of urban woodland. The biodiversity survey carried out in 2018 identified around 318 hectares of woodland in LINCS and LNRs. This comprises a mix of semi-natural and plantation woodlands as well as a mix of broadleaved and coniferous trees. They vary in terms of species composition and age but many of the areas of established woodland provide excellent provision against climate change. They also provide good quality habitat for many woodland species particularly red squirrels, birds, invertebrates and bats. There are other smaller areas of woodland which, along with street trees and private gardens, hedgerows and shrub beds help with connectivity between habitats in the city. These should all be managed sensitively and at appropriate times of the year but the ones included in the survey are felt to have the highest biodiversity value. The biodiversity value of dead wood is also recognised and both standing and cut deadwood is left in situ when it is deemed safe to do so. This is determined on a site by site basis.
Dundee has 238 hectares of ancient woodland. Ancient woodland sites are irreplaceable. The interactions between plants, animals, soils, climate and people are unique and have developed over hundreds of years. These ecosystems cannot be recreated and as Scotland only has 2% of land area covered by ancient woodland we cannot afford to lose any more of it.
Dundee has received around 250k of funding through the Forestry Commission Scotland Woodlands In and Around Towns scheme in the past. This funding has helped to pay for important forestry management as well as new footpaths and signs.
Woodland within LNR's, LINCS and Wildlife corridors are afforded the same level of protection as other habitats in these areas. In addition to this, trees which are deemed by the council to make a special contribution to the landscape or are threatened with removal or damage may be issued with a Tree Preservation Order (TPO). Trees under these orders require special permission from the council for any pruning, lopping or felling. Dundee also has 17 Conservation Areas to ensure that any new development or alterations will not negatively impact on the existing character of these areas. Work to trees in Conservation Areas require similar permission from the council as those with a TPO.
**Priority Habitat:** Semi-natural broadleaved woodland, Semi-natural mixed woodland
**Key sites:** Balgay Hill, Greater Camperdown, Reres Park,
**Associated species:** red squirrel, various fungi, brown long-eared bats, pipistrelle bats, numerous bird species

## Benefits Provided Through Ecosystem Services:

- Provisioning services-
    - Timber for construction and fuel.
    - Wild food in the form of leaves, fruits, nuts and fungi.
- Regulating Services-
    - Regulation of water quality through filtration.
    - Flood management and control.
    - Carbon sequestration in soils and biomass.
    - Reduction in soil erosion.
    - Climate and air quality regulation.

- Cultural Services
    - Recreation and leisure.
    - Health benefits to users.
    - Tourism.
- Supporting services-
    - Photosynthesis- using sunlight, carbon dioxide and water to produce nutrients and oxygen.
    - Habitats for other wildlife.

# Historic and Known Threats

There are many challenges faced by urban woodland today, the main issues are listed below. To address these challenges and increase biodiversity and sustainability, management needs to be proactive, collaborative, long term and strategic.

- **Unsympathetic/lack of management**- lack of management can lead to loss of biodiversity through loss of open habitat and a mixture of canopy layers. Unsympathetic management can lead to monoculture, removal of all deadwood, damage caused by management activities at the wrong time of year and the planting of undesirable species.
- **Development and fragmentation**- development can reduce the amount of woodland cover but can also cause it to become fragmented. Inappropriate or insufficient mitigation during development can lead to damage of healthy mature trees or see mature trees replaced with a new, much smaller specimens.
- **Climate change-** leads to an increase in periods of drought, extreme winds, high temperatures and shifting species distribution.
- **Invasive Non-native Species (INNS), pests and disease**- INNS includes *Rhododendron ponticum* and Japanese knotweed. Dutch elm disease is present in Dundee but other diseases such as *Chalara* die back of ash, P. *ramorum* on larch and *Dothistroma* needle blight are not. However, vigilance must be maintained.
- **Deer Management**- overgrazing can prevent the natural regeneration of woodland as well as reducing its diversity.
- **Poorly managed recreation**- can lead to erosion of sensitive areas, fragmentation by path networks and damage caused by irresponsible access (fires, litter).

# Case Study

Grey Squirrel Control

Dundee City Council applies to Scotland's Rural Payments and Services for a Forestry Management grant for the sustainable management of forests through grey squirrel control. This scheme runs on a five year basis with trapping taking place in the spring and the autumn by DCC's pest control services. The grant is managed by Scottish Forestry who agree on the number and placement of traps at various woodland sites across the city and records are sent back to them annually. This application is also supported by Scottish Wildlife Trust's Red Squirrel Project who also benefit from the data gathered in this scheme. Some grey squirrel control has been undertaken since around 2006 but it is with the support of external funding that formal trapping has been possible on a scale that has seen a measurable difference in grey squirrel numbers (falling) and red squirrel dispersal throughout the city. Continuation of

formal grey squirrel control under the programme will help to ensure that the red squirrel recovery is maintained.

Both grey and red squirrels are present throughout Dundee, as evidenced by the trapping returns. The number of grey squirrels is higher, though they have declined, and they are a constant threat to red squirrels. Given the high numbers of grey squirrels caught when large scale trapping started, it would be a large risk to red squirrels if large scale trapping was to stop or reduce in intensity now.

# Water and Wetland

## Current Status and Extent

Scotland's ponds, rivers and wetlands support many important habitats and species. The different habitats create a variety of water depths and nutrient levels which mean that this is one of the most biodiverse ecosystems with numerous species depending on it for food and reproduction. All life requires water and this ecosystem is connected with all others, providing essential support to biodiversity. Water and wetlands are often areas of intense human activity leading to issues with pollution. For Scotland, 55.7% of water bodies meet the EU water quality standard of being at either good or high status. (SEPA). The sub basin district for the Tay has around 48% of water bodies meeting this criteria.

After the River Tay, the Dighty Burn is the most important water course in the city. It runs almost the full length of the city, creating a riparian wildlife corridor that connects many LINCS and greenspaces. The river originates in the Sidlaw Hills and is approximately 12.5 miles long. The Fithie and Gelly Burns are tributaries to the Dighty and extend this connectivity even further. There are also many ponds throughout Dundee. These ponds vary in size from the large mill ponds at Trottick Ponds LNR to small Sustainable Urban Drainage System (SUDS) ponds created as part of new developments across the city. The 2018 biodiversity survey identified around 25 hectares of water, swamp and marginal vegetation. This figure only includes LINCS, LNR's and other significant sites in the city and the actual figure is likely to be much higher.

**Priority Habitats in Dundee-** ponds and pools, rivers, marsh/damp grassland

**Key sites**- Dighty Wildlife Corridor (incl Trottick LNR), Ardler Ponds, Riverside Nature Park, Den O Mains

**Associated species**- otter, lampreys, dippers, kingfishers, salmon, brown trout, Daubenton's bat, common frog and toad

## Benefits Provided Through Ecosystem Services

- Provisioning Services
    - Clean water -wetlands store water and replenish ground water levels.
    - Food- fish
- Regulating Services
    - Wetlands are often a barrier between land and open water and can act as a sink for suspended solids, nitrogen and potassium preventing large quantities getting into rivers and lochs. This has been harnessed in the creation of SUDS and reed bed filtration.
    - Flood management control- attenuation of water, wetlands can store floodwater reducing the peak levels and releasing water gradually rather than as quick run off.
- Cultural Services
    - Water based recreation such as water sports, fishing and wild swimming.
    - Water edge recreation such as bird watching, fishing.

## Historic and Known Threats

- **Climate change**- leads to an increase in periods of drought, increased number of flooding events and shifting species distribution.
- **Pollution** – has significantly reduced from the time when Dundee's water courses were heavily industrialised by mills. However, there is still a potential threat from others industries along the burn. There is also an issue of litter and fly tipping.

- **Nutrient enrichment**- Increased levels of nitrogen and potassium from groundwater run-off in our freshwater systems can lead to algal blooms which deprive plants of light and in some cases can be toxic. This has become an issue particularly at Clatto Reservoir and Stobsmuir Ponds.
- **Development** - Draining of wetlands to provide land for development. An area adjacent to Trottick Ponds LNR was drained for development to the east of the site in 1996.
- **Invasive non-native species (INNS)** - pose a significant problem in aquatic environments, partly as rivers allow for their rapid spread. INNS outcompete native species and can lead to bank erosion in the winter months.
- **Recreation pressure** – this can be from both managed recreation such as water sports to unmanaged recreation such as fishing and feeding wildfowl.
- This needs to be carefully managed and some ponds or rivers may require occasional, sympathetic dredging.
- **Unsympathetic/lack of management**- lack of management can lead to loss of biodiversity through natural silting and succession. Rivers and ponds naturally accumulate silt and organic matter over time leading to a reduction in water levels, changes to water courses and potentially the loss of a water body. This requires careful management and permissions to maintain a balance as over management in the form of too much dredging can also lead to a loss of biodiversity. Damage can also be caused by management activities at the wrong time of year and the planting of undesirable species.

# Case Study

*Dighty Connect*

*This local charity works along the Dighty burn and its associated greenspaces. The group have two regular volunteering groups that actively work to promote or record biodiversity: the conservation group and the citizen science group. The former carries out regular conservation tasks, such as planting trees, sowing wildflowers, creating and maintaining ponds, removing litter and removing invasive Himalayan balsam. The citizen science group records wildlife through bird ringing programs (in particular a dipper project that has spanned a number of years); butterfly, moth and insect monitoring; bat walks and river surveys. In addition, the charity works with a large number of groups and individuals from nursery aged to those who have retired. They carry out improvements and creative projects led by the local community's ideas, to encourage people to reconnect with wildlife and to use the spaces by the Dighty.*

# Marine and Coastal

## Current Status and Extent

The Firth of Tay Estuary has been described as the least modified of the large east coast estuaries in Scotland. Combined with the Eden Estuary, it forms a mosaic of estuarine and coastal habitats of local, national and international significance. This had led to numerous scientific designations for the habitats here and the flora and fauna that live in them.
The Firth of Tay and Eden Estuary is a designated Ramsar site. This means it is a wetland site designated to be of international importance under the UNESCO Convention signed in 1971 at Ramsar, Iran. It was designated due to internationally important populations of wading birds such as common redshank, pink-footed goose, greylag goose and bar-tailed godwits. Other bird populations noted to be of national importance include ringed plovers, greenshank, eider and grey plover. It also contains nationally important populations of common and grey seals. The estuary is one of only 3 Scottish rivers that are home to smelt or sparling and in the summer is home to members of the extended Moray Firth bottlenose dolphin family.
The estuary is designated as a Special Area of Conservation (SAC) which is protected under the EC Habitats Directive. This directive requires that there be an established network of high quality conservation sites across Europe. The quality of the estuarine habitat is the main reason for this designation along with different types of sandbanks.
It is also a Special Protection Area (SPA) in accordance with the EC Birds Directive. This is due to the bird species mentioned above but also for populations of Marsh Harriers and Little Terns amongst others.
The final designations are the Monifieth Bay and Inner Tay Estuary Sites of Special Scientific Interest. This is a national designation and covers areas of land or water that is felt to best represent the UK's natural heritage. Monifieth Bay was designated due to the importance of the extensive mud flats with its rich invertebrate population. These provide a feeding ground for wintering waders, specifically important numbers of sanderling. The Inner Tay Estuary was designated due to its importance for certain bird species such as the bearded tit and areas of reed bed.

The estuary forms an important part of a network of habitats and provides connectivity between habitats for organisms which move between them such as salmon and lamprey which travel from the sea to breeding grounds further upstream in the River Tay, another designated SAC.

Scotland has a large amount of coastline and Scotland has the majority of the UK's sand dunes. The 2018 biodiversity survey identified around 59 hectares of coastal habitat, including intertidal habitats and coastal grassland habitat. In the urban context of Dundee, this is a valuable component of green infrastructure, as well as habitat.
Substantial investment has been made within the last 5 years in Dundee's coastal defences, protecting the City from the potential impact of climate change. This has affected a proportion of the dune habitat at Broughty Ferry Esplanade with areas of rock armour / rip rap being installed along the seaward edge of the dune habitat. However, current engineering works are seeking to protect and enhance the remaining natural dunes through further fencing, planting and restricting pedestrian access.

**Priority Habitats in Dundee-** Intertidal mudflats, estuarine beds and sand dunes, remnant coastal marsh
**Key sites**- Inner Tay Estuary, Broughty Ferry LNR,

**Associated species**- Migratory and wintering waders and wildfowl, pink footed goose, eider, bar-tailed godwit, greylag goose, common and grey seals, coastal invertebrates, kidney vetch

# Benefits Provided Through Ecosystem Services:

- Provisioning services
    - Food – Fish, including shell fish and other wild food.
- Regulating Services
    - Coastal flood protection – by absorbing the impact of high energy storms they protect inland areas by acting as a resilient barrier to the destructive forces of wind and waves.
    - Regulation of water quality – Many coastal habitats act as a sink for nitrogen and potassium before it reaches the sea.
- Cultural Services
    - Recreation and tourism – Such as wildlife watching, sailing, walking, swimming and play.
    - Cultural heritage and diversity- providing links to our fishing and whaling past.
    - Landscape aesthetic- The visual quality which influences human well-being, the sense of beauty and inspiration.

# Historic and Known Threats

- **Pollution** – Much of the coastal pollution comes from the land as a result of run off. This can be from roads or agricultural area of from industrial pollution in our rivers. Plastic is a major source of pollution in our oceans and on our beaches, causing damage to wildlife.
- **Development** – Coastal development can lead to increased recreation usage, decrease and fragmentation of habitat as well as pollution. Reclamation of land for development also leads to a loss in estuarine habitats.
- **Invasive Species** – Both native and non-native invasive species can colonise coastal areas with a detrimental effect. This includes giant hogweed, shrubs and trees.
- **Climate change**- Rising sea levels, increasing number and intensity of storms and an increase in rainfall all contribute to the erosion of our coasts and particularly sand dunes.
- **Poorly managed recreation** – Coastal areas are a huge draw for both onshore and offshore recreation. If not appropriately managed, engines from boats and jet-ski's may have a detrimental impact on fish and sea mammal populations. Access by large numbers of people can lead to erosion and an increase in antisocial behaviour such as litter and inappropriate fires. Disturbance of feeding/roosting birds by walkers and dogs.
- **Over exploitation of resources**- Species such as ragworm and lugworm are in danger of overcollection by anglers for bait. In recent years the popularity of razor clams for food has led to unrestricted collection on some Scottish beaches. Poor fisheries management can have a negative impact on seals.
- **Unsympathetic management-** Cleaning of beaches can lead to a loss of vegetation and habitat and make beaches more prone to erosion. In the past large areas of Broughty Ferry beach were swept clean to provide suitable areas for recreation. This swept area has been significantly reduced and is now carefully monitored.

# Case Study

Soft Flood Defences

In 2013 it was identified that there was a need to increase the level of flood protection at Broughty Ferry. Soft engineering techniques are being utilised to restore and develop the existing dunes to act as a natural flood defense, avoiding the need for more costly wall structures or stone cores. After investigation a programme of works has been put in place to increase the height and width of the dunes through a combination of dune recharge works and measures taken to help the natural growth of the dunes. Chespale fencing will be used to trap moving sand and allow the dunes to grow. It will also be used to create beach access points and prevent public access in order to help protect and stabilise the dunes and prevent erosion. These works will be complemented by a programme of planting new grasses and inspection regimes. Work on this started in 2019. A similar project is in place at St Andrews and has been very successful.

# Grasslands

## Current Status and Extent

Grasslands cover 2.38 million hectares or 29.8% of Scotland's land area. Most of this is intensively managed or improved to enhance productivity and, as a consequence, tends to be low in biodiversity. Improvement for productivity can involve draining, ploughing or the application of fertilisers or slurry to an area. The majority of the remaining grassland is semi-improved having been worked in the past and true unimproved grasslands are now rare. Management of grassland is crucial to enhancing biodiversity, particularly pollinating insects, this can involve grazing of livestock or maintaining appropriate cutting regimes.

Many different types of grassland are found in Dundee from short amenity grassland in parks and sports pitches to wildflower meadows such as those at Riverside Nature Park (coastal grassland is covered in the Marine and Coast Ecosystem Statement). The 2018 biodiversity survey identified 287 hectares of different types of grassland in Dundee's LINCS, LNR's and other significant sites. The majority of grassland (63%), in Dundee is amenity grassland. This reflects the urban nature of our local authority which provides amenity spaces such as sports pitches, parks and urban greenspace. It also shows a legacy of historic greenspace management where neat and tidy grass was seen as highly desirable.

Around 16% is semi-improved neutral grassland. This is due to Dundee's past expansion into agricultural land. There are also other areas of more neutral grassland not surveyed, including road verges, which can be of high quality and support important plant species such as orchids and other wildflowers.

**Table 1. Different Types of Grassland found in Dundee**

| Name | Grassland Type | Description | Example | Potential Biodiversity Value |
|---|---|---|---|---|
| Amenity grassland | Improved | Sports pitches, recreational areas that are regularly cut | Camperdown Park, Baxter Park | Low |
| Low maintenance grassland | Improved | Areas that are cut on a low frequency but arisings are not removed | Some areas at Riverside NP | Low-medium |
| Unmown grassland (naturalised grass) | Semi-natural | Grassland that has not been mown or grazed in recent years | Middleton Community Woodlands | Low -medium |
| Exotic Meadow | Flower meadow | An annual or perennial mix of predominantly non-native species designed for colour, impact and nectar provision | Road verges at Riverside Drive and Claypotts | Variable |
| Acid Grassland | Semi-natural | Nutrient poor soil with a pH lower than 5.5. Grassy-mossy vegetation with fewer flowers than neutral and calcareous grassland. | Areas within Downfield Golf Course, Medi park field at Ninewells | High (UK biodiversity priority habitat) |
| Neutral Grassland | Unimproved | Grassland that has not been subject to agricultural improvement. Supports a wide range of grasses and can support a number of scarcer plant species. | Broughty Ferry Local Nature Reserve | High (UK biodiversity priority habitat) |
| Neutral Grassland | Semi -natural Wildflower meadow | A diverse mix of grasses and wildflowers such as meadow buttercup, ox eye daisy and knapweed | Trottick Ponds LNR, Riverside Nature Park, | High (UK biodiversity priority habitat) |
| Calcareous grassland | Semi-natural | Grassland on thin basic soil. Plants are typically short and hardy. | On the rocky, southern slopes of The Law | High (UK biodiversity priority habitat) |

**Priority Habitats in Dundee**- semi-improved acidic grassland, semi-improved calcareous grassland, semi-improved neutral grassland and unimproved neutral grassland.
**Key sites**- The Law, Broughty Ferry Local Nature Reserve, Riverside Nature Park, Clatto extension
**Associated species**- various invertebrates (including pollinators), hedgehogs, skylark, greater yellow rattle, orchids

# Benefits Provided Through Ecosystem Services:

- Provisioning Services
  - Opportunity for foraging.
- Regulating Services
  - Carbon sequestration and storage in soils.
  - Pollination.
  - Flood management control through attenuation of water and gradual release.
- Cultural Services
  - Recreation/ tourism.
  - Spiritual /religious.
  - Aesthetic/ inspiration.

- Supporting services
    - Soil formation.
    - Photosynthesis - using sunlight, carbon dioxide and water to produce nutrients and oxygen.
    - Primary production- providing food for herbivores and the basis for many food chains.

## Historic and known threats-

- **Pollution**- Fly Tipping, nutrification
- **Development** - Many areas of grassland next to urban areas are not the most suitable for agriculture so they become targets for development.
- **Excessive and unmanaged recreational use**- off road motorbikes and quadbikes, camping and fires, BBQs,
- **Invasive Non-Native Species (INNS) –** lack of control can lead to monocultures and loss of diversity.
- **Poor management/Lack of management**- amenity grassland management in species rich grassland areas can lead to lack of diversity however a lack of mowing can lead to an increase in coarse grasses, ruderal (weedy)vegetation and scrub.

## Case Study

Flower Panels

*Dundee's Neighbourhood Services have been developing annual mixes and perennial wildflower areas within appropriate parks, open space and nature reserves over the last few years. The objective is to establish the optimum approach for developing and converting areas of grass to annual mixes and/or perennial naturalised displays. These panel have had a range of benefits. Creating areas of flower displays can help increase the variety of wildlife in green/natural/spaces. Meadow flowers will attract many different kinds of insects and these, together with plant seeds, will be food for birds and small mammals such as voles and hedgehogs.*

# Urban Green Network

# Definition

Dundee is one of the smallest Local Authorities in Scotland. Its boundary follows the urban edge fairly closely, however the urban environment is not devoid of biodiversity. It contains a variety of ecosystems, some of which have their own Ecosystem Statement in this plan, but it also includes private gardens, allotments, community gardens, cemeteries, parks, sports pitches, roadside verges, urban orchards and street trees. All these small areas and corridors are interwoven and provide vital connectivity which is why they are referred to as an urban green network. In Dundee almost 150 thousand people need to co-exist with nature in a relatively small area, which can bring many challenges.

# Current Status and Extent

In many ways increasing urbanisation is a threat to biodiversity but it also provides new opportunities for many species. Urban areas are not a designated priority habitat in either the UKBAP or the Scottish BAP, however in a local context it is vital we manage these areas with biodiversity in mind. Urban habitats may be left over fragments of historical landscapes, providing insight into the biological heritage of an area. They may also contain the seeds of biodiversity for new areas. Some habitats may be entirely man-made and provide new niches for a species to exploit. Many smaller areas of green infrastructure such as gardens, allotments and street trees provide connectivity to larger parks, LINCS and other protected areas. This is highlighted in the Council's Green Network Guidance. These urban areas are often great places to inspire people about biodiversity and where visible impacts can be demonstrated.

**Priority Habitats:** Community gardens and allotments, flower panels, shrub beds, cemeteries, buildings

**Key sites**- The Riverside Wildlife Corridor, The Howff, Dawson Park

**Associated species**- pollinators, house sparrow, swifts, bats,

# Benefits Provided Through Ecosystem Services:

- Provisioning services
    - Food production- both privately in gardens and allotments but also in community gardens and urban orchards.
- Regulating services
    - Clean air- street trees.
    - Carbon storage and sequestration- in vegetation and soil.
    - Water filtration and flood management.
    - Pollination- a range of nectar rich planting found around the city and in gardens.
- Cultural services-
    - Aesthetic- provides a feeling of wellbeing and living in a looked after place.
    - Health and wellbeing.
    - Recreation- sport.
    - Tourism- visits to see rare species such as red squirrels, green infrastructure contributing to an inviting city environment.

# Historic and Known Threats

- **Climate Change**- leads to an increase in periods of drought, increased number of flooding events and shifting species distribution.
- **Pollution** - run off water, litter, soil contamination, also light and noise pollution.
- **Development** - garden sizes are shrinking and increasingly paved over for driveways and ease of maintenance. Brown sites are targeted for development. New building methods have reduced the opportunities for bat

and swifts roosts within built structures. Also, renovation or demolition of old buildings often exclude urban species such as swifts and bats.

- **Invasive Non-Native Species (INNS)** – often most abundant in urban areas as many are garden escapes.
- **Habitat fragmentation**- green areas are often separated by road or rail networks making it difficult for species to move around between sites freely.
- **Unsympathetic/lack of management-** In an effort to make our urban areas look well care for they can often be over managed with a prevalence of herbicide use and grass mowing. Areas such as shrubs and hedges can also be lost in an effort to improve sight lines and make people feel safer. It is also important to ensure species selection is suitable and that management is carried out at appropriate times of the year. Lack of management can also lead to an increase in coarse grass and the spread of invasive species.

# Case Study

Community Gardens

Since the first council-built community garden was established in 2014, other gardens have been set up in 10 locations across the city. DCC has invested £200k of capital expenditure in their construction. Each garden location is unique in its size, aspect, fertility and the people involved. Many of these gardens provide specific space for biodiversity. Volunteers at the garden in Whorterbank in Lochee have embraced biodiversity as part of the garden installing bird boxes and feeders and applying for funding to expand on this. They have purchased a trail camera and regularly post video of the various birds and foxes which visit. The Tay View garden at Robertson Street is also a fantastic space for biodiversity, forming a productive green oasis in a polluted urban area. Alongside the growing space is a pond, installed with help and funding from Froglife. An information session was also held to educate the volunteers in the kind of wildlife they might hope to find here. There is also a wildflower area underneath the orchard to encourage pollinators.

# Key Topics which affect all Ecosystems

The following topics are all important in relation to biodiversity and how we manage it. These cannot be looked at in isolation for each ecosystem but require a city wide approach.

- Planning and Development
- Invasive non-native species
- Communication and Awareness raising
- Biological Records and Recording
- Geodiversity

# Planning and Development

## Definition

Dundee City Council is responsible for many areas of planning and development across the city. This includes new projects funded by both the council and through private individuals and businesses. It also includes managing changes to land and the use of buildings. Much of this planning is guided by the local development plan and national legislation/guidance. Planning also includes how the council manages the different services it provides from housing to greenspace.
Housing associations and private developers also have a role to play when it comes to planning for biodiversity and should be aware of where their responsibilities lie.

## In what way does planning and development affect biodiversity?

When planning and development do not take biodiversity into account it can easily result in habitat loss and fragmentation on both a local and a landscape scale. Protected species can be adversely affected when developers do not follow legislation and local guidelines. It is also important to recognise that biodiversity includes all species not only those protected by legislation and that even locally abundant species should be considered as important. Good planning and development can help to protect and enhance our biodiversity resources. If biodiversity is built into all stages of planning, decisions can be taken to conserve biodiversity and even restore it. New projects and developments should consider impacts on biodiversity from the start. This also allows for proper planning of ecological surveys and mitigation and can reduce potential delays.
The Local Development Plan (LDP) includes a chapter on Sustainable Natural and Built Environment. This includes policies on green infrastructure, outdoor access, maintenance, development within the open countryside, protected species and trees and urban woodland. All planning applications must show how they reflect policies within the LDP and must not be contrary to them.
Planning for biodiversity can provide new opportunities by building green infrastructure into developments to develop better habitat connectivity, naturalness and structural diversity at building, neighbourhood and city scales. Combining green and grey infrastructure can add value and provides tangible benefits to neighbourhoods and the city as a whole. Green Infrastructure can include gardens, verges, green roofs and street trees as well as parks, allotments, rivers, burns and urban forest. There is scope to look for new and innovative ways to incorporate biodiversity in to people's everyday lives. Dundee City Council provides a Green Network Guidance document (link in appendix 2) which highlights areas in Dundee where the green network could be enhanced and ways in which to achieve this.

Good planning can also help to make the most of brownfield sites. These are areas of land which have been previously used or developed but have subsequently become vacant, derelict or contaminated. These sites, although often temporary, can become home to many species of invertebrates and act as important reservoirs of wildlife and pioneer communities. These sites usually contain a mosaic of habitats such as bare ground, nutrient poor soil and small areas of water and scrub within a small area which is important to invertebrates with complex lifecycles. These sites are often viewed as ugly and can suffer from antisocial activities such as fly tipping and graffiti. Complaints can lead to landowners importing topsoil and seeding with grass to turn them into a greenspace. However, recognising the biodiversity value of such sites and looking for innovative ways to reduce some of the antisocial behaviour whilst maintaining some habitat until the time comes to develop them will help to provide a patchwork of different habitats across the city.

Incorporating biodiversity at a strategic level means that benefits can be accumulative and work at a landscape or ecosystem level. Including actions for biodiversity when producing or updating new strategies and policy sets appropriate guidelines and provides examples of best practice.

When setting such policies into guidance there must be an appropriate method of enforcement. The level and type of enforcement will depend on whether a policy is statutory or good practice and follow the Enforcement Charter where appropriate. Members of the public should feel confident in reporting any breaches of policy or legislation and council officers should feel supported and confident when explaining decisions made in response to complaints.

## Additional Objectives

- To balance biodiversity issues with sustainable development within the city.
- To ensure that any plans and strategies produced by Dundee City Council protect and enhance biodiversity.

**See appendix for full list of relevant plans and strategies for Dundee and Tayside**

# Invasive Non-Native Species

## Definition

Any plant or animal that has been introduced (either deliberately or by accident) by human activity to an area in which they do not naturally occur.
An **invasive non-native species is** any **non-native** animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live. (GB non-native species secretariat)

## Legislation:

Section 14 of the Wildlife and Countryside Act 1981, which makes it an offence to:

- Release or allow to escape from captivity any animal to a place out with its native range;
- Cause any animal out with the control of any person to be at place out with its native range;
- Plant or otherwise cause to grow any plant in the wild out with its native range.

## In what ways do INNS affect biodiversity?

Invasive non-native plants can spread very quickly, particularly through habitats associated with waterways. They out compete our native species and can create areas with monocultures reducing the overall biodiversity. Often these plants die back completely in the winter and can leave large patches of bare earth which can increase flooding and are open to increased pressures from erosion. This also leaves little of the cover or habitat that many of our native and over wintering species rely on.
Non-native animals can create havoc in our delicate native ecosystems and food chains. Predators can devastate native populations that are unused to such pressure, some carry diseases which are deadly for native species and other simply outcompete our native animals for the food sources they rely on.

## Current Status and Extent

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report in 2019 identified invasive non-native species as one of the top 5 global culprits driving biodiversity loss around the world.
A recent report by Scottish Natural Heritage (SNH) showed that invasive species remain the single biggest reason for protected nature sites, including habitats, species and earth sciences features such as fossil beds and caves, being assessed as in unfavourable condition.

**Invasive Non-native species known to be present in Dundee:**

| Name | Distribution | Threat level |
|---|---|---|
| Giant Hogweed *Heracleum mantegazzianum* | Mainly along the Dighty and its tributaries, but also spreading along the Dundee to Aberdeen railway line and the A92. Occasional plants found in pockets across the city | High |
| Japanese Knotweed *Fallopia japonica* | Pockets found along the Dighty and along the Fithie and Murroes Burns. Clumps have been identified in the The Miley SWT reserve, Templeton Woods | High |
| Himalayan Balsalm *Impatiens glandulifera* | Along the Dighty Wildlife Corridor, Trottick LNR, Balgay Hill, Camperdown Park, Templeton Woods. Other smaller patches occur throughout the city but have never been formally mapped. | High |
| Rhododendron *Rhododendron ponticum* | Camperdown Park | Low |
| American Mink *Mustela vison* | Trottick LNR, Dighty | Intermediate |
| New Zealand Flatworm *Arthurdendyus traingulates* | Unknown, widespread in Scotland | Intermediate |
| Red eared terrapin *Trachemys scripta elegans* | Clatto Reservoir, Ardler SUDS | Low |
| Signal Crayfish *Paciastacus leniusculus* | Dighty | Low |
| Himalayan Knotweed *Persicaria wallichii* | Several clumps found on the Law and at Trottick, along the Dighty | Low |
| American Skunk Cabbage *Lysichiton americanus* | Small number of plants found next to the Dighty. | Very Low |

## Key sites of concern:

Dighty wildlife corridor

## Case Study

Dundee Conservation Volunteers (part of the local Scottish Wildlife Trust)

Have carried out an annual Giant Hogweed control day on the Dighty since 2010. The control uses a manual root cutting technique. Starting on a pilot site in 2010, which had not previously received spray control, giant hogweed has reduced and now the volunteers cover a wider area in one day. This wider area includes Trottick Ponds Local Nature Reserve, helping to reduce the use of herbicide there, in line with the Green Flag Management Plan. On the banks of the Dighty between the pilot site and the Nature Reserve. This is in addition to spraying carried by council operatives and work carried out by the Scottish Invasive Species Initiative throughout the catchment.

A risk assessment and carefully controlled safe working practices protect volunteers from the possibility of sap burns, with training, protective clothing and clean water for washing on site. The task is open to members of the public who wish to join in and people have been given the training and confidence to safely remove giant hogweed in their own garden

# Communication and Awareness Raising

# Why is it important for people to know about and value biodiversity?

The ecosystem services that biodiversity provides are wide ranging and for everyone. From the air we breathe and the water we drink to the places we go for recreation and our mental wellbeing, biodiversity affects us all.

"We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well- for we will not fight to save what we do not love" -Stephen Jay Gould

People need to have access to information about biodiversity in order to make informed decisions about how they interact with it. It is easy to become overwhelmed by the scale of this topic and the current news stories surrounding it. Whilst international and national legislation play a part in conserving our biodiversity, local and individual action also has benefits. We all need to play our part.

It is important to recognise that people who live, work and visit Dundee will come from a diverse range of backgrounds and have differing priorities and perspectives. This needs to be considered when raising awareness of the benefits of biodiversity as a range of methods may be needed to reach the same goals. The State of Nature Report 2019 states that "*Understanding how to influence human behaviour is a priority for conservation.*" The report also highlights the importance of connecting people to nature, which is more than just getting people outside it is a complex and multidimensional issue. The report states "*Overall, improving understanding about the relationship between connection and action, how connection varies and consequences for behaviour, is vital for conservation success.*"

**Additional Communication Objectives**

- Communicate and engage with local communities, groups, businesses and organisations regarding biodiversity, supporting and educating them where necessary and encouraging them to consider the impacts of their actions.
- Celebrate Dundee's biodiversity through community engagement and publications.

**What do people in Scotland think/know about Biodiversity?**

In a 2007 a survey conducted by SNH found that 83% of adults were interested in biodiversity and concerned about its loss.

Greenspace Scotland regularly carry out surveys regarding greenspace use and attitudes in urban areas. In 2017 66% of people surveyed agreed strongly that greenspace should provide the opportunity to see nature, however only 33% agreed that their local greenspace allows them to explore nature on their doorstep (State of Scotland's Greenspace Report 2018).

The Reroute survey (young Scot and SNH)in 2018 found that a large proportion of young people did not know what biodiversity means (63%) and had some misconceptions about it, largely confusing it with recycling or ethnic diversity.

**What do people in Dundee think/know about Biodiversity?**

There have been no surveys in Dundee that specifically mention biodiversity however in the 2017 Citizen Survey was carried people were asked about the natural environment in their neighbourhood. 100% of respondents said they were either satisfied or very satisfied with it. They were also asked about the quality and maintenance of open spaces in the city and 98% of respondents said they were either satisfied or very satisfied. It should be noted however that what people consider to be a good natural environment is not always a biodiverse environment.

Active participation in voluntary projects that protect, improve and monitor biodiversity is a strong measure of the value people put on the natural heritage. Volunteering is also an important opportunity to raise awareness and build commitment to biodiversity conservation. Many organisations offer opportunities for involvement, including environmental organisations, local community groups and Countryside Ranger Services. Activities range from clean up campaigns to wildlife surveys.

2% of people surveyed in the Dundee Citizen Survey had undertaken unpaid work in environmental protection.
In 2018 The Countryside Ranger Service logged around 120 volunteer hours on sites around Dundee and there were around 620 volunteers hours spent at various litter pick events supported by the council.

**Current methods of communication**

- Events- run by Dundee City Council and local community groups
- Conservation Volunteering afternoons- run by the Countryside Ranger Service, local groups and national organisations
- Printed leaflets- provided by Dundee City Council, local groups and national organisations
- Information on websites and through social media- provided by Dundee City Council, local groups and national organisations
- Education- Ecoschools, training events, Countryside Ranger visits

**Examples of Current Partnership working**

- Green Health Partnership
- 'Friends of' groups working with Dundee City Council and each other
- Scottish Wildlife Trust and Dundee City Council- The Miley, Red Squirrel Project, Conservation Volunteers
- Community Gardens
- Dundee Naturalists and Dundee City Council- support for Bioblitz events
- Tayside Biodiversity Partnership and various groups which also cover Dundee
- Tay Estuary Forum
- Woodland Trust, Dundee City Council and local groups- Free tree packs, tree of the year competition and species champions
- Scottish Forestry and Dundee City Council – Funding, Woods4Yew Marque at Dundee Food and Flower Festival
- British Dragonfly Society and Dundee City Council- promoting Trottick Ponds as a Dragon Hotspot
- Dundee City Council and Bonnie Dundee
- Butterfly conservation urban butterfly survey
- Bumblebee conservation Society urban transect surveys
- Citizen Science Projects

# Case Study

## Countryside Ranger Service

The Rangers are responsible for helping to manage Templeton Woods, Trottick Ponds Local Nature Reserve and Broughty Ferry Local Nature Reserve. They provide educational activities for a wide range of groups such as schools, nurseries, colleges, Scouting and Guiding groups and holiday clubs. They also support environmental education projects such as The John Muir Award, Learning in Local Greenspace and Ecoschools. They organise a number of events across Dundee promoting the nature that can be found locally, biodiversity and biological recording and encourage the celebration of our diverse range of greenspaces. They also support a number of 'green health' projects such as Branching Out (in partnership with Scottish Forestry) and have pioneered Family Fresh Air Clubs across the city to engage families in health and wellbeing using outdoor activities.

# Biological Records and Recording

## Definition:

A biological record is a set of information that tells us where, when and what types of species was found and by whom. This information is held by a variety of organisations across Scotland and the UK. A record can be submitted in a number of ways. Expert naturalists might be regularly recording and sending that information directly to the relevant organisations such as Butterfly Conservation or the British Trust of Ornithology. Experts and members of the public might both contribute records to national monitoring schemes such as the RSPB's Garden Bird Watch. Some individuals might submit the occasional record to the National Biodiversity Monitoring (NBM) database through a digital recording app like i-Record.

## How does Biological Recording Affect Biodiversity?

To ensure that effects on biodiversity are considered in all decision making and management, as required by legislation, easily accessible and reliable data is required. It is also impossible to monitor the outcome of such decisions and management without looking at any changes over time.

With good biological records we can give meaningful and powerful consideration to biodiversity. Good records can lead to targeted action and further inspire existing, and new, volunteers, by showcasing how their biological records contribute to the conservation of their local area. When the information is robust it enables informed and defensible decisions to be made in light of competing pressures.

## Current Status of Biological Records

Record centres support biological recording for all plant and animal groups. They can help the recording community publish atlases, datasets and online resources as well as providing the data required for informed research, policy and the conservation of biodiversity. Some also organise training events which help to raise awareness of biological recording to the public.

One of the key issues that has been highlighted in the preparation of this plan is the lack of biological records and a recording centre for Dundee.

Historically all local species records were held by the McManus Museum in a system called Nature Base. However this became too expensive and time consuming to maintain and verify.

Since then there has not been a local records centre in the area. Some records are sent to the National Biodiversity Network (NBN), and others are held by individual species interest groups. This makes it difficult to promote wildlife recording for local benefits and can mean that developers struggle to find the environmental information they require for planning. This may lead to important information being missed and the unintended loss of biodiversity.

The Dundee Habitat and Nature Survey of all potentially important nature sites in Dundee was carried out in 2000. This survey informed the creation of LINCS or LNR's and was used in the Local Development Plan. However, although useful as baseline data it is now considered historical. An update to this was commissioned in 2017/18 and the results have helped to inform this plan and focus action where it is required. However this data alone is not enough.

In 2008 a public petition was submitted to the Scottish Parliament to "Urge the Scottish Government to establish integrated local and national structures for collecting, analysing and sharing biological data to inform decision making processes to benefit biodiversity".

As a result the Scottish Government's Biodiversity Science Group was asked by the Environment Minister to consider the issues and to make observations and recommendations for future action to be provided to the Petitions Committee.

This led to the establishment of The Scottish Biodiversity Information Forum (SBIF). This forum created an action plan which culminated in a review of the biological

recording infrastructure in Scotland. This review investigated the issues and mechanisms and presented a business case for their resolution.

Main recommendations from SBIF report:

- That the NBN Atlas remain the primary platform for the submission, dissemination and discovery of biological records supported by data flow from national and regional recording schemes and casual records through apps like i-Record.
- A National Hub for Scotland should be established alongside a network of Regional Hubs. All services should operate in a consistent manner and be supported by the NBN Trust.
- Sufficient public funding should be provided to cover the core operating costs where these are providing public services and support of the National Outcomes for Scotland. A potential source of this funding could come from those who gain value from biodiversity or those who cause harm to biodiversity.

# Case Study

Riverside Nature Park Bioblitz

A Bioblitz is a nationally recognised format of a public biological recording event. The aim is to gather together local recorders and members of the public to record as many species as possible in a set area over 24 hours. This not only provides an opportunity to gain more information about the biodiversity of a site but helps to promote the importance of biodiversity and biological recording to members of the general public. In August 2019 the DCC Greenspace Officer supported the Friends of Riverside Nature Park to hold the second Biobitz at the nature park. A number of organisations were present including The Woodland Trust, Froglife, Butterfly Conservation and the Bumblebee Conservation Trust. There were also recorders from the Dundee Naturalists Society. One hundred and fifty four species were recorded and this information will be used to inform a new management plan for the park.

# Geodiversity

## Definition

Geodiversity is defined by the International Union for Conservation of Nature (IUCN) as "the variety of the geological and physical elements of nature, such as minerals, rocks, soils, fossils and landforms and geological and geomorphological processes. Together with Biodiversity, geodiversity constitutes the natural diversity of planet earth."
An area of geodiversity has examples of geological deposits and features that can be seen and show the interactive relationships between geology and other interests. They may show the location and nature of past mineral workings or the influence of geology in shaping the built and man-made environment or the historical legacy of geological research within the area.

## How Does Geodiversity Affect Biodiversity

The earth's geology helps us to understand the evolution of life and the present biodiversity.

Soil is a key part of geodiversity. Whilst soil biodiversity refers to the vast complex of organisms which live underground, this biodiversity is reliant on the interactions between the physical and chemical properties of the soil based on the underlying geology.

## Current Status and Extent

Dundee currently has 2 geodiversity sites, however it has been noted that there are other sites which may have the potential to become geodiversity sites which should be investigated.

**Key sites-** The Law, Stannergate

## Benefits Provided Through Ecosystem Services:

- Provisioning Services-
    - Donation of a growth medium suitable for all food production
    - Building Material- quarries etc
- Regulating Services-
    - Structuring soil and contributing to climate regulation- soil can store or release carbon, helping to regulate the flux of greenhouse gases. The second largest pool of carbon on earth, after the oceans. Scottish soils alone contain more than 3,000 megatonnes of stored carbon (SNH)
    - Storing and Purifying water- soils without earthworms can be 90% less effective at soaking up water.
    - Cleaning contaminated land – Bioremediation can convert pollutants in the soil into non-toxic molecules
    - Controlling pests- a soil rich in biodiversity contains a range of predator species and a varied supply of nutrients.
    - Cultural Services- Aesthetic value, The Law is not only a Geodiversity site but is an iconic local landmark.
    - Supporting Services- Soil formation
- Cultural Services-
    - Geodiversity sites should be publicly accessible to enable the site to be used for education
    - Geodiversity sites are often areas of historical industries such as quarries

## Historic and Known Threats-

Unlike biological species, geological objects are not-living and cannot reproduce themselves. This means that once an object has deteriorated or is lost it has gone forever. Preservation of important sites must be complimented with promotion of, or education on, its significance to ensure that future generations also place value on it.

- **Loss of geological exposures**- due to human action, such as inappropriate development or infilling of quarries, as well as natural action such as encroachment of vegetation or natural weathering
- **Loss of information/lack of public understanding**- When the reason for a site's importance and conservation is lost or misunderstood it becomes more vulnerable.
- **Damage to the physical landscape-** through development such as housing, industry and transport links.
- **Damage to soil features and processes-** through pollution or poor farming practices

# Dundee's Biodiversity Action Plan

The following action plan is intended to be a working document. One of the main actions in the plan is to create a partnership or steering group to ensure the other actions are monitored and completed with the intended outcomes. This group will also make recommendations on new actions for the future. Dundee City Council's next Biodiversity Duty Report is due at the end of 2020 and an update to the action plan at this time will allow us to refine any issues after its first year and amend timescales as details of new projects become clearer. It is anticipated that the Action Plan will be updated around every 3 years after this, in line with Dundee City Council's Biodiversity Duty Reporting. This will enable outcomes to be collated for both the Duty Report (DCC actions only) and as an update to the plan (all actions). The timescales given for most actions reflect this although some actions have timescales set by external factors.

| **Timescale for action completion** | **Years** |
|---|---|
| Already started/Immediate term | 2020 |
| Short term | 2021-2023 |
| Intermediate term | 2024-2026 |
| Long term | 2027-2030 |

The Action Plan is intended as a framework with brief outlines of each project. Further details of projects will be held by the lead partners and reported on as necessary. Actions have been set out according to the ecosystem or topic to which they are most relevant however it is recognised that some actions will have outcomes that benefit more than one of these.

Funding is not mentioned in the tables below. Funding for Biodiversity projects can be obtained from a variety of sources. Each funding stream usually has a set criteria to qualify and each project or action in the plan will have to seek the most appropriate source. Some projects may be able to apply to multiple sources and partnership working is a great way to ensure that applications achieve the most benefits for biodiversity. Some actions already have funding identified either through capital funding from Dundee City Council or through the Woodlands In and Around Town (WIAT) funding from Scottish Forestry. Responsibility for sourcing funding should fall to the lead partner for each action. The new partnership or steering group can also help to identify potential funding for future actions.

**Woodland**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity. | To apply for Woodlands In and Around Towns (WIAT) funding from Scottish Forestry for woodland management to increase the diversity and health of our urban woodlands | Woodland with a range of species, age and canopy layers to provide an attractive and suitable habitat for wildlife | The amount of funding received and % of woodland in active management to UK Forest Standard | DCC, Scottish forestry, Scottish Rural Payments and Services | 2020 |
| | To continue to update and work to the Strategic Forest Plan | A Strategic Forest Plan which continues to inform best practice for managing the woodland in Dundee | An up to date and relevant Forest strategy as required by Scottish Forestry for funding | DCC | Every 10 years, next update 2025 |
| | To update Dundee's Tree and Urban Forestry Policy | All trees and urban woodlands in Dundee are managed in a strategic manner | A current Tree and Urban Forestry Policy | DCC | 2021-2023 |
| | To monitor the health of trees, in particular the species which are potentially at threat from new diseases. Assisting with the promotion and recruitment of volunteers for the Observatree project | Regulating bodies are informed when reportable diseases are found to ensure swift and appropriate action to prevent spread | Number of areas surveyed, any action taken if necessary | DCC, Woodland Trust, volunteers | Ongoing |
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for | Continue to apply for funding to control grey squirrels | A healthy and sustainable red squirrel population | The amount of funding that continues to be received. The number of squirrels controlled | DCC, Scottish forestry, Scottish Rural Payments and Services, SWT | Apply every 5 years, Next application due 2022 |
| | Continue to update the Deer Management Plan | Deer are under control in Dundee and best practice and evidence based actions are undertaken in the control of deer | Deer management plan is current | DCC | Every 5 years, next update in 2023 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| biodiversity. | | | | | |
| | Record, monitor and protect bat populations and known roosts | Healthy bat populations that are protected in line with relevant legislation | The number of bat boxes regularly monitored. The number of known roost location within woodlands and the wider city | DCC, volunteers | Ongoing |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Apply for WIAT funding from Scottish Forestry to extend current woodland areas and connect smaller compartments in line with the Strategic Forest Plan | A healthy and well connected woodland area within Dundee | The amount of funding received, the number of trees planted, combination of LPIDS | DCC, Scottish forestry, Scottish Rural Payments and Services | 2020 |
| | Investigate the possibility of an iTree project to assess the forestry canopy cover in Dundee and use this to set new targets | An increase in tree canopy cover from 17.8% measured in 2015 | % of canopy cover | DCC, Forestry Research and volunteers | 2021-2023 |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | To monitor the impact of new development on woodland, seeking to retain and protect as much tree cover as possible, especially in conservation areas and areas with TPO's | A balance between sustainable development of the city and biodiversity | Area of woodland or numbers of trees lost/ planted through new development | DCC | Ongoing, regular reports submitted to city development |
| | Investigate a project to plant an urban orchard and oak woodland area at Riverside Nature Park. | An increase in woodland area in the city which is managed by the local community and partners. | Area planted | Dundee urban orchards, Friends of Riverside Nature Park, DCC | 2020 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | Maintain and manage paths and access within woodland | Woodlands which are used responsibly, with limited access to sensitive areas | Visitor surveys, Green Flag assessments (internal and external) | DCC | Ongoing |
| | Update and promote park management rules for all woodlands and parks within the city | Management rules which are eye catching, easy to understand and which promote responsible access and reduce antisocial behaviour in Dundee's Greenspaces | Visitor surveys, Green Flag assessments (internal and external) | DCC | Next update due in 2029 |

**Rivers and Wetland**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity. | Regularly survey all rivers and open water within Dundee's LINCS and LNR's to ensure they managed to a high standard | A healthy wetland ecosystem and designated areas which provide a mosaic of habitats and have a high biodiversity value | Survey Results | DCC, TayARG and volunteers | 2024-2026 |
| | Investigate and source funding for a project to sensitively deal with silted up areas of the Gelly Burn in Den O Mains | A healthy and free flowing burn that contributes to the mosaic of riparian habitats at Caird Park | Before and after surveys | DCC, SEPA, volunteers | 2020 |
| | To investigate management regimes for SUDS ponds to ensure their potential for biodiversity is realised | SUDS ponds fulfil both flood prevention and biodiversity goals. | Surveys | DCC, TayARG and volunteers | 2021-2023 |
| | Capital project to improve the biodiversity value of the northern pond at Stobsmuir Park | Increased value for biodiversity | Pond survey | DCC and volunteers | 2020 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Identify all rivers and ponds managed by the council including SUDS and record this on GIS layer. Ensure this information is updated as development occurs | Informed management and records | An accessible GIS map layer of all the ponds on council managed land in Dundee | DCC and volunteers | 2021-2023 |
| | Continue to develop new ponds and wetland at suitable sites | A well connected blue network | Number of new ponds created. | DCC, TayARG and Local groups | Ongoing |
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | Ensure appropriate access is maintained along rivers and around ponds to protect both wildlife and the safety of the public | People can easily access their local blue spaces responsibly. Wildlife using rivers and ponds are protected | Green Flag assessments | DCC | Ongoing |
| | Support communities to develop plans for their ponds/wetlands so actions can developed at grass roots level | Communities that are knowledgeable and active in promoting biodiversity in their riparian ecosystems | Number of community projects | DCC and Local groups | Ongoing |

**Coast and Marine**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity. | To continue to manage the sand dune section of coastal defences at Broughty Ferry in the most natural way possible | A sand dune system which is adaptable to changing sea levels and weather events as well and providing good wildlife habitat. Invasive and non-native species are eradicated | Ongoing surveys | DCC and volunteers | Ongoing |
| | Project to improve and increase the area of coastal grassland at Broughty Ferry Esplanade | Increase the area of coastal grassland. Improve connectivity along the Riverside Green Corridor | Area managed as coastal grassland | DCC | 2020 |
| | Continue to keep beaches free of litter and reduce the amount of plastic by organising regular beach cleans | The beach is clean and free from harmful litter | Ongoing surveys | DCC, Friends of the Earth Tayside, Marine Conservation Society, volunteers | Annually |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Review the viability of the sand martin nesting bank at Broughty Ferry | Recommendations implemented on maintaining or adapting the habitat | Habitat either restored as sand martin banks or converted for another use. | DCC and volunteers | 2020 |
| | Continue to encourage establishment of coastal plant species e.g kidney vetch and sea pea at appropriate coastal locations | Re-introduction of small blue butterflies to Dundee | Area/number of plants planted. | Volunteers | Ongoing |
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | To manage public access across the sand dunes at Broughty Ferry using chestnut rail fencing | Members of the public access the dunes in a responsible manner and allow coastal plants and invertebrates that live there to establish and spread. | Number of desire lines off the approved routes | DCC | 2020 |

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| | Monitor summer beach cleaning methods to ensure no damage to the structure of the beach | The beach is suitable for public use but also structurally undamaged. | Surveys | DCC | Annually |
| | Continue to achieve Scotland's Beach Award for Broughty Ferry Beach | The beach is a clean and welcoming place for both people and wildlife. | Independently Judged each year by Keep Scotland Beautiful. | DCC, KSB, Volunteers | Annually |
| | Continue to achieve 'Excellent' EU Bathing Water Quality at Broughty Ferry Beach | An attractive beach with high water quality for both swimmers and wildlife | SEPA | DCC, SEPA | Monitored throughout the Summer months, rating based on data from the previous 4 years. |

**Grassland**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity. | Reduce the use of herbicide in management practices | Less chemicals impacting on biodiversity, particularly pollinators | Initial baseline report produced with recommended actions. Quantity of herbicide purchased annually | DCC | 2020 for the report 2021-2023 for recommendations implemented |
| | Review grassland management across the city. Increase in the amount of grass managed to improve biodiversity | Increase in the area of grassland habitat managed for biodiversity. Reduction in the cost of management | Via mapping of management areas. Volunteer surveys of pollinators | DCC | 2020 for initial review 2021-2023 for increasing the amount of grass managed for biodiversity |
| | To develop a tool box talk/training/updates to operations staff to ensure successful management of perennial meadows | Grassland areas that are well managed for biodiversity | Number training events and talks carried out | DCC, Butterfly Conservation | 2020 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Expand and protect a population of the endangered plant greater yellow rattle at Riverside Nature Park | A sustainable population of greater yellow rattle. | Surveys, management | DCC, Friends of Riverside Nature Park | Ongoing |
| | Continue to maintain and expand areas of native perennial meadow | An increase in biodiversity | Area of meadow, volunteer surveys | DCC, Friends of Baxter Park, Friends Of Dundee Law, volunteers, Butterfly Conservation | Ongoing |
| | Continue to maintain and expand annual flower areas throughout the city | Roadside verges which are attractive for both people and wildlife. A reduction in the cost of management | Area and annual reports. Regular surveys | DCC, Butterfly Conservation, Volunteers | Ongoing |
| | Continue to maintain and increase the diversity of bulb panels in the city | A diverse range of spring bulbs providing colour and an early source of nectar in the city | Area and species number | DCC | Ongoing |
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | To continue to restrict access to dogs off leads at Riverside Nature Park during skylark nesting season | A healthy breeding population of skylarks | Surveys | DCC, Friends of Riverside Nature Park | Ongoing |

**Urban Green Network**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity. | Continue to promote and support the 'Take Pride' Campaign | High quality greenspaces with reduced litter and pollution. | Number of promotional and practical events | DCC, Volunteers | Ongoing |
| | Promote the incorporation of swift and bat boxes, both integral and external, into buildings and encourage people to report sightings | Healthy swift and bat populations | Number of boxes installed, Survey | DCC, Tayside biodiversity partnership, Tayside Swifts, volunteers | Ongoing |
| | Review the management of habitats within older cemeteries to increase their biodiversity value | Cemeteries that are managed for historical and biodiversity value | Number of cemeteries managed for biodiversity, pollinator survey | DCC, Leisure and Culture, Butterfly Conservation | 2021-2023 |
| | Review the management of council maintained hedges across the city | Hedges in the city are retained and provide good green infrastructure and increase biodiversity | Metres of hedges retained and maintained for biodiversity | DCC | 2021-2023 |
| | Review the management and storage of green waste (leaf litter, grass cuttings and wood chip) in Dundee's parks to reduce fuel costs, provide a resource and prevent damage to biodiversity | Green Waste is stored correctly and efficiently | Number of sites with set areas identified | DCC | Ongoing |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | To find innovative ways to incorporate green infrastructure into new projects across the city. For example bat and swift boxes, green roofs, rain gardens and establishment of appropriate habitats along cycle and roadways. | An urban green network that takes advantage of new ideas and technology to develop a biodiverse and attractive city | The number of projects incorporating new green infrastructure ideas | DCC, private developers, University of Dundee, Tayside Swifts | Ongoing |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | Identify and correctly manage Open Mosaic Habitats on Previously Developed Land (OMHPDL) | Brownfield sites with high biodiversity value are correctly identified and maintained | Identify potential sites and survey | DCC and volunteers | 2021-2023 |
| | Promote community growing and identify suitable sites for new projects | A community which is healthy and aware of gardening for wildlife as well as food | Land Audit (as part of the growing strategy), number of new projects | DCC | Ongoing |
| | Ensure that council managed ornamental flower and shrub beds are appropriately managed for biodiversity- including planting more native, wildlife friendly species and ensuring that cover is maintained for breeding and roosting birds | Formal planting within the city is vibrant, attractive and good for biodiversity | Number of native species and pollinator friendly varieties being used, A survey of pollinators and breeding birds | DCC, Butterfly Conservation | Ongoing |
| | Maintain current cemeteries for both biodiversity and visitors in an empathetic manner | Cemeteries have an increased biodiversity value whilst remaining calm and pleasant places to visit | Changes in grass cutting and spraying regimes. Feedback and citizen science surveys | DCC | 2023-2026 |
| | Maintain Green Flag status for current parks and look to increase sites with Green flag | Sites managed to a high standard for both amenity and biodiversity | Independently judged scores, number of flags gained/retained | DCC, Green Flag, Friends of groups | Ongoing |
| | Investigate a potential project regarding the use of amphibian ladders in roadside gully pot drains | Amphibian populations are better protected from drainage solutions without compromising the functionality of the drains | Regular surveys | DCC, TayARG | 2020 onwards. |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| | Continue to evaluate all Council parks internally using Green Flag judging criteria | All council parks managed to a high standard for both amenity and biodiversity. Action plans drawn up to address any issues. - Increase in scores each year | Judging Scores | DCC, Friends Of groups | Ongoing |
| | Continue to support local Friends of groups to improve and manage biodiversity within their parks | Supported, successful and educated Friends groups | The number of Friends groups involved in biodiversity projects across the city | DCC | Ongoing |

**Planning and Development**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity | Continue to protect and extend designated sites within and adjacent to Dundee, review of the current LINCS and LNRs based on the 2018 Biodiversity Survey | Areas of high biodiversity value are protected and cared for | Number of sites, hectares of designated land | DCC | In line with the next Local Development Plan (LDP) update in 2024 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Update all Local Nature Reserve management plans | Local Nature Reserves are well managed with all stakeholders working towards common goals | Number of plans that are up to date | DCC, Friends of groups | Start in 2020 and ongoing as plans become out of date. |
| | To review any planning applications which have an impact on the biodiversity or geodiversity of Dundee seeking to reduce to amount of negative impacts | All relevant planning applications will take biodiversity into account. Net gain of biodiversity through development is increased | Set up a database to monitor comments and actions relating to trees and other biodiversity in relation to planning applications | DCC | Ongoing |
| | To continue to update and promote the Green Network Guidance | New developments increase the connectivity of habitats across Dundee | The number of developments incorporating green infrastructure | DCC | Next update in 2024 with the LDP |
| | Ensure that TPO's are upheld and that new orders are granted where necessary | Designated important trees and woodlands are protected | The number of new TPO's, how often recommendations for tree retention were followed | DCC | Ongoing |
| To find a balance between providing for biodiversity and providing public amenity for all users within the city | Agree appropriate mitigation measures to put in place where development leads to a loss of biodiversity | Any adverse effects on biodiversity will be mitigated for in an appropriate manner and to a sufficient level | An agreement for appropriate mitigation | DCC | 2021-2023 |
| To balance biodiversity issues with sustainable development within the city | To map Council owned sites across the city which are not recorded as greenspace but are unsuitable for development | A potential increase in areas managed for biodiversity | Areas mapped | DCC | 2020 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| | Ensure that Site Briefs for development sites accurately record the habitats present and encourage potential developers to include these and successfully mitigate for them | Development in Dundee is well informed | Number of developments where recommendations are followed | DCC | In line with next LDP in 2024 |
| | To monitor progress on introducing Biodiversity Net Gain to new developments across the UK and research how this might be implemented in Dundee | Development leaves biodiversity in a better state than before | To be included in discussions relating to the Local Development Plan | DCC, SNH | In line with the next LDP in 2024 |
| To ensure that plans and strategies produced by Dundee City Council take biodiversity in to account | All new plans and strategies should show a link to biodiversity. When older plans and strategies are updated efforts should be made to introduce or enhance links to biodiversity | Dundee City Council fully incorporates biodiversity across all areas of operation and provides an example of best practice | Reduction in the number of plans and strategies which do not mention biodiversity | DCC | Ongoing as and when plans are produced or updated |

**Invasive Non-native Species**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
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| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity | To promote the recording and mapping of INNS within Dundee | An up to date record of distribution, informing effective management | Number of hectares/species/habitats mapped | DCC, Volunteers | Ongoing |
| | Work with private landowners to increase the area of control and prevent re-colonisation | Control is strategic and collaborative | Number of private landowners controlling INNS | DCC, Private Landowners | Ongoing, reviewed annually |
| | Encourage awareness of INNS and where our statutory duties lie in regards to them | The spread of INNS is controlled | The number of information/training sessions held | DCC | Ongoing, several initial sessions followed up by at least 1 session every 2 years |
| | Ensure effective biosecurity measures are in place for DCC staff | The spread of INNS is controlled. | Biosecurity policy is put in place, review staff awareness | DCC | 2020 |
| | Raise awareness of possible new invasive species through regular updates of species threatening Scotland | Land managers are able to quickly react and prevent new invasive non-native species becoming established in Dundee | Number of new invasive non-native species recorded in Dundee | DCC, SNH | Ongoing, annual updates |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | To carry out an effective programme of eradication of INNS | Biodiversity in Dundee is protected from issues arising from INNS | Number of areas treated, reduction in hectares effected | DCC, SNH, Volunteers | Ongoing |

**Communication and Awareness Raising**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
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| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| Communicate and engage with local communities, groups, businesses and organisations regarding biodiversity, supporting and educating them where necessary and encouraging them to consider the impacts of their actions | Create a group with detailed knowledge of ecology and biodiversity to monitor the progress of the actions in this plan and to make recommendations on new actions for the future | A partnership which is committed to preserving and promoting biodiversity through exchange of ideas and action on the ground | Number of meetings held | DCC to chair | 2020 |
| | The Environment Department continues to work with communities to promote and enhance biodiversity | A council service capable of working with a range of people to help raise awareness of biodiversity in the city | Number of events, groups and projects | DCC | Ongoing |
| | Develop relationships with schools in terms of environmental education and involvement | Schools which incorporate biodiversity into their outdoor learning experiences. Children who are engaged and knowledgeable about biodiversity | Number of schools engaged, gained Eco School Status | DCC, SNH | Ongoing |
| Communicate and engage with local communities, groups, businesses and organisations regarding biodiversity, supporting and educating them where necessary and encouraging them to consider the impacts of their actions | Work with volunteers, including those with physical and mental health issues in biodiversity projects across Dundee | Members of the public are directly involved with biodiversity in their local area. People with health issues are supported and encouraged to use greenspace to aid in their recovery | Number of volunteers and volunteer hours | DCC, local groups | Ongoing |
| | Continue to support and develop the Green Health Partnership to make the links between Biodiversity, greenspace and people's health | People with health issues are supported and encouraged to use greenspace to aid in their recovery | Reports from the Green Health project | DCC, NHS, SNH, SF | Current project due to end 2021 |

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| Celebrate Dundee's Biodiversity through engaging events and publications | Set up an annual workshop event on Biodiversity within the Council | A local Authority which is knowledgeable about biodiversity and its responsibilities in regards to it | Number of staff attending an annual event | DCC, Butterfly Conservation | Annually |
| | Have an annual programme of events that is widely promoted and well attended | People are actively engaged with biodiversity. | attendance no's, no. of events | DCC, Local Groups, Volunteers, Butterfly Conservation | Annually |
| | Set up a group to review current printed material about biodiversity | People are well informed on biodiversity issues and places to go to experience it | Number of items reviewed and recommendations made. | DCC | 2021-2023 |
| | Review the information on the DCC website relating to greenspace and biodiversity | The council website is a source of up to date information and clearly signposts members of the public to the appropriate information | Number of hits each page receives annually | DCC | 2020 |
| | Collate information and feedback from the public regarding biodiversity | More knowledge of public opinion on biodiversity | Feedback received | DCC | Ongoing |

**Biological Records and Recording**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
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| To promote sympathetic management to improve the health of Dundee's Ecosystems and ensure key sites are managed to a high standard for biodiversity | Explore the establishment of a Regional Hub for biological records in partnership with a number of organisations | A data centre which hold records for Dundee | Action plan developed for realisation of regional hub | DCC, NBN, SBIF, Tayside Biodiversity Partnership, Fife Nature, Angus Council, Perth and Kinross Council | 2021-2023 |
| To ensure no net loss of habitat and, where appropriate, increase the distribution and connectivity of all habitats | Engage people in monitoring and surveying of nature across Dundee, creating a volunteer base which is enthusiastic and knowledgeable | Up to date species records for sites within the city. Records which allow us to see when and where biodiversity loss may occur | no. of promotional events, number of new volunteers recording | DCC, Dundee Naturalists, volunteers, Butterfly Conservation | Ongoing |

**Geodiversity**

| Objective | Actions | Outcomes | Monitoring | Lead partners | Timescale |
|---|---|---|---|---|---|
| To promote sympathetic management of Dundee's Geodiversity sites and ensure they are managed to a high standard | To survey and assess the condition of the current sites in Dundee, making recommendations on any remedial action required | Dundee's geodiversity sites are well cared for and managed appropriately | Survey results | DCC and Tayside Geodiversity group | 2020 |
| | To audit geological skills in the local area and the information that is available which is relevant to Dundee | Dundee's geodiversity information is accurate and appropriately recorded | A record of resources | DCC and Tayside Geodiversity group | 2024-2026 |

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| | Dundee City Council will consider becoming a signatory to the Scottish Geodiversity Charter | Dundee City Council encourages the promotion and management of Scotland's geodiversity and better integration of geodiversity into policy and guidance. | DCC becomes a signatory | DCC and Scottish Geodiversity Forum | 2020 |
| To ensure no net loss of geodiversity and, where appropriate, increase the number of sites in Dundee | To survey any potential new geodiversity sites. | Dundee has a good range of geodiversity sites | Number of new sites | DCC and Tayside Geodiversity group | 2021-2023 |
| | To ensure that geodiversity is taken into consideration when new planning application are considered | No significant areas of geodiversity are lost to development | Number of geological features under threat from development | DCC and Tayside Geodiversity group | Ongoing |

# Appendix 1.

## List of Acronyms

- BAP- Biodiversity Action Plan
- CBD- Convention on Biological Diversity
- DCC- Dundee City Council
- EU -European Union
- GB- Great Britain
- INNS- Invasive No-Native Species
- IPBES- Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services
- IUCN- International Union for the Conservation of Nature
- KSB- Keep Scotland Beautiful
- LBAP- Local Biodiversity Action Plan
- LDP- Local Development Plan
- LINCS- Locally Important Nature Conservation Site
- LNR- Local Nature Reserve
- MCS- Marine Conservation Society
- NBN- National Biodiversity Network
- RNP- Riverside Nature Park
- RSPB- Royal Society for the protection of Birds
- SAC- Special Area of Conservation
- SBIF- The Scottish Biodiversity Information Forum
- SEPA- Scottish Environmental Protection Agency
- SF- Scottish Forestry
- SNH- Scottish Natural Heritage
- SPA- Special Protection Area
- SRPS- Scottish Rural Payments and Services
- SSSI- Special Site of Special Scientific Interest
- SUDS- Sustainable Urban Drainage Systems
- SWT- Scottish Wildlife Trust
- TPO- Tree Preservation Order
- UNESCO- United Nations Educational, Scientific and Cultural Organisation
- WANE- Wildlife and Natural Environment (Scotland) Act
- WIAT- Woodlands In and Around Towns

# Appendix: 2

## List of Relevant Documents

| Document | Brief Description | Further information |
|---|---|---|
| **International** | | |
| **The Convention on Biological Diversity (CBD) strategic plan for Biodiversity 2011-2020, including Aichi Targets** | This plan provides an overarching framework on biodiversity, not only for the biodiversity conventions, but for the entire United Nations system and all other partners engaged in biodiversity management and policy development. | https://www.cbd.int/sp/ |
| **The European Biodiversity Strategy (EUBS)** | Aims to halt the loss of biodiversity and ecosystem services in the EU and help stop global biodiversity by 2020. It reflects the commitments taken by the EU in 2010, within the International Convention on Biological Diversity | https://ec.europa.eu/environment/nature/biodiversity/strategy/index_en.htm |
| **National** | | |
| **UK Post- 2010 Biodiversity Framework (2012-2019)** | Developed in response to the CBD Strategic Plan for Biodiversity and the EUBS. Consists of a Framework and an implementation plan. | https://hub.jncc.gov.uk/assets/587024ff-864f-4d1d-a669-f38cb448abdc |
| **2020 Challenge for Scotland's biodiversity:** A strategy for the conservation and enhancement of biodiversity in Scotland **(2013)** | ***Aims & Key Outcomes***<br>Maximise benefits of a diverse natural environment<br>Engage people with the natural world<br>Support biodiversity and ecosystems | https://www.cbd.int/doc/world/gb/gb-nbsap-v3-p2-en.pdf |
| **Biodiversity Scotland – Scottish Biodiversity List** | List of nationally important species in Scotland | http://www.biodiversityscotland.gov.uk/advice-and-resources/scottish-biodiversity-list/ |
| **Pollinator Strategy for Scotland 2017-2027** | Main aim: to address the causes of decline in populations, diversity and range of our pollinator species, and to help them thrive into the future. | https://www.nature.scot/pollinator-strategy-2017-2027 |
| **Scotland's Geodiversity Charter** | This charter encourages the promotion and management of Scotland's geodiversity and better integration of geodiversity into policy and guidance, consistent with the economic, social, cultural and environmental needs of Scotland. | https://scottishgeodiversityforum.files.wordpress.com/2019/06/scotlands-geodiversity-charter2018-2023.pdf |

| Document | Brief Description | Further information |
|---|---|---|
| **The River Basin Management Plan for the Scotland River Basin District 2015-2027** | A route map for protecting and improving the water environment of the Scotland river basin district. | https://www.sepa.org.uk/media/163445/the-river-basin-management-plan-for-the-scotland-river-basin-district-2015-2027.pdf |
| **Scotland's Forestry Strategy 2019-2029** | The long term framework for the expansion and sustainable management of Scotland's forests and woodlands. | https://www.gov.scot/publications/scotlands-forestry-strategy-20192029/ |

## Regional

| | | |
|---|---|---|
| **Tayside Biodiversity Action Plan (2016-2026) 2nd Edition** | A number of action plan documents have been produced by the **TBP** regarding the habitats and species in Tayside. A number of these relate directly to Dundee. | http://www.taysidebiodiversity.co.uk/action-plan/action-plan-new-lbap-2015/ |
| **Tay Estuary Forum – Management Plan (2009 – 2014)** | The Tay Estuary Forum (TEF) is a voluntary and non-statutory Local Coastal Partnership established in 1997, dedicated to promoting the wise and sustainable use of the Tay Estuary and adjacent coastline. | http://tayestuary.org.uk/wp-content/uploads/sites/9/2014/04/TEF-Management-Plan.pdf |
| **TAYPlan – Strategic Development Plan 2012** | **Main objectives** include:<br>• Protect and enhance the quality of the TAYplan area's built and water environments, landscape, **biodiversity** and natural resources;<br>Safeguard habitats, sensitive greenspaces, forestry, watercourses, wetlands, floodplains (in-line with the water framework directive), carbon sinks, species and wildlife corridors, geodiversity, landscapes, parks, townscapes, archaeology, historic buildings and monuments and allow development where it does not adversely impact upon or preferably enhances these assets. | Regional statutory partnership with Fife, Perth and Kinross and Angus Councils, sitting under Part 2 of the Planning etc (Scotland) Act 2006.<br>http://www.tayplan-sdpa.gov.uk/system/files_force/publications/Approved_TAYplanSDP_June2012_0.pdf |
| **Improving the Quality of Scotland's Water Environment-Tay Area Management Plan 2009-2015** | **Requires Updating but is still relevant**<br>The purpose of this plan is to maintain and improve the quality of the rivers, lochs, estuaries, coastal waters and ground waters in the Tay Area Advisory Group area. | https://www.sepa.org.uk/media/76571/doc-12-tay_amp_overview.pdf |

## Local

| Document | Brief Description | Further information |
|---|---|---|
| **Local Development Plan 2019** | Section on Sustainable and Built Environment. Policies include: Protecting and Enhancing the Dundee Green Network, National and International Nature Conservation Designations, Protected Species, Trees and Urban Woodland, Protecting and improving the Water Environment. | https://www.dundeecity.gov.uk/sites/default/files/publications/local_development_plan_2019_for_web.pdf |
| **Dundee Public Open Space Strategy 2008 - 2011** | **Requires updating but is still relevant.**<br>**Outcome 2**: Dundee's open spaces provide a network of diverse, attractive and inspiring greenspaces which add colour and life to the city including the urban environment.<br>*** 7.1 *Greenspace Network and The Planning Framework***<br>Building Stronger Communities<br>Improve the quality of Neighbourhoods, Improve access to healthy green and open spaces, | http://www.dundeecity.gov.uk/environment/pos |
| **Dundee City Plan 2017-2026** | | https://www.dundeecity.gov.uk/sites/default/files/publications/cityplan.pdf |
| **Dundee Tree and urban Forestry Policy 2009** | **Requires updating but is still relevant.**<br>Sets out a vision for tree and Urban woodlands in the city:<br>"A varied and diverse tree and woodland resource, which is well looked after and sustainably managed to the highest standards. This will deliver multiple benefits to the residents of the City. The trees and woodlands will be valued by the citizens of Dundee who will be able to have input, ownership and involvement as to how these assets will be managed" | https://www.dundeecity.gov.uk/sites/default/files/publications/urbanpolicy.pdf |
| **Strategic Forest Plan for Dundee City Woodlands 2015-2025** | Sets out management objectives for a number of woodlands across Dundee. | https://www.dundeecity.gov.uk/sites/default/files/publications/STRATEGIC%20FOREST%20PLAN.pdf |
| **Dundee Sustainable Energy and Climate Change Action Plan** Consultation Draft | Section on Resilience deals with Biodiversity<br>Actions R.1, R.2, R.15, r.16, R.17, R.18, R.19, R.20 | https://www.dundeecity.gov.uk/sites/default/files/publications/consultative_draft_secap-lowres.pdf |

# Appendix 3.

## Priority Species and Habitats

| AppTaxa | Species | Status | Information |
|---|---|---|---|
| Bird | **Sky Lark** (*Alauda arvensis*) | UK Biodiversity Action Plan (BAP) Priority species. IUCN Red Listed. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP | Species Action Plan (SAP): Long term decline (>25%) with no recovery. Present at Riverside Nature Park (RNP). |
| Bird | **Common Linnet** (*Carduelis cannabina*) | UK BAP Priority species. IUCN Red Listed. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP | SAP: No recovery from past decline. Affected by intensification of arable regimes. Present in several areas including RNP and Broughty Ferry LNR. |
| Bird | **House sparrow** (*Passer domesticus*) | UK BAP Priority species. IUCN Red listed. On Scottish Biodiversity list- Watching brief only. Tayside LBAP | Marked decline in UK (>50%). Little recovery. Limited by urban development and inadequate management and removal of urban scrub. Present city-wide in gardens, roadside verges and small areas of urban scrub where present. |
| Bird | **Dunnock** (*Prunella modularis*) | UK BAP Priority species. IUCN Amber Listed. | International responsibility (>90% of European population in UK) and moderate decline in UK (>25%). Present city-wide in gardens and parks. |
| Bird | **Song Thrush** (*Turdus philomelos*) | UK BAP Priority species. IUCN Red listed. On Scottish Biodiversity list- avoid Negative impacts. Tayside LBAP | SAP: International responsibility (>25%) of population in UK and moderate decline (>25%) over 25 years. Little recovery from past decline. Affected by insecticides and loss of adequate feeding areas through poor grassland management. Present in Dundee in several areas including RNP, Broughty Ferry LNR, Camperdown Park; will utilise some gardens. |
| Bird | **Yellowhammer** (*Emberiza citronella*) | UK BAP Priority species. IUCN Red Listed. On Scottish Biodiversity list- watching brief only. Tayside LBAP | SAP: Marked decline (>50%) in UK. Present in several areas including RNP and Broughty Ferry LNR. |
| Bird | **Reed bunting** (*Emberiza schoeniclus*) | UK BAP Priority species. IUCN Amber Listed. On Scottish Biodiversity list- watching brief only. Tayside LBAP | SAP: No recovery from past decline. Affected by intensification of arable regimes. Present in several areas including RNP and Broughty Ferry LNR. |

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| Bird | **Grey wagtail** (*Motacilla cinerea*) | IUCN red list. | Moderate declines in UK. Inhabitants of rivers and marshy farmland. Present on Dighty burn in Dundee. |
| Bird | **Spotted flycatcher** (*Muscicapa striata*) | UK BAP Priority species. IUCN Red Listed. On Scottish Biodiversity list- Conservation action needed; avoid negative impacts. Tayside LBAP | SAP: Marked decline (>50%) in UK continuing. Little known of causes. Unknown presence in Dundee. |
| Bird | **European Dipper** (*Cinclus cinclus*) | No designation | In UK populations doing well. Important within Dundee - localised distribution - present only along the Dighty and Fithie burns (also Invergowrie burn in Perth and Kinross). Indicator of healthy waters. |
| Bird | **Swift** (*Apus apus*) | IUCN Amber listed. On Scottish Biodiversity list- conservation action needed; avoid negative impacts Tayside LBAP | Breeding population decline (1981 - 2007); >25% in Scotland. Present city-wide but prefers old buildings with suitable breeding sites. Affected negatively by new building and development removing breeding sites. |
| Bird | **Sand martin** (Riparia riparia) | IUCN Amber listed. Tayside LBAP | Species of European concern. Limited breeding habitat. Present in colony at Broughty Ferry beach. |
| Bird | **Bullfinch** (*Pyrrhula pyrrhula*) | UK BAP Priority species. IUCN Amber listed. On Scottish Biodiversity list- watching brief only. Tayside LBAP | SAP: International responsibility (70% population in UK) and moderate decline in UK (>40%). Little recovery from decline. Present in Dundee in several parks such as RNP, Broughty Ferry LNR, Balgay Hill and Templeton Woods. |
| Bird | **House martin** (*Delichon urbicum*) | Amber listed. Tayside LBAP | Species of European concern. Recent breeding population decline. Present city-wide in small numbers in Dundee. |
| Bird | **Herring gull** (*Larus argentatus*) | IUCN Red Listed. On Scottish Biodiversity List- Conservation action needed; avoid negative impacts. Tayside LBAP S5 >25% Scottish decline | Widespread and breeding across Dundee. |
| Bird | **Lesser redpoll** (*Carduelis cabaret*) | UK BAP Priority Species. IUCN Red Listed. On Scottish Biodiversity List- Conservation action needed; avoid negative impacts. S5 >25% Scottish decline. | Breeds across Dundee in small numbers. Breeds at RNP. |
| Bird | **Siskin** (*Carduelis spinus*) | On Scottish Biodiversity list- Conservation action needed; avoid negative impacts. >25% decline in Scotland. | . Breeds in small numbers in woodland but possibly not every year. |

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| Bird | **Kestrel** (*Falco tinnunculus*) | IUCN Amber Listed. On Scottish Biodiversity list- Conservation action needed. Tayside LBAP. >25% decline in Scotland. | Breeds in small numbers in the city. |
| Bird | **Kingfisher** (*Alcedo atthis*) | IUCN Amber listed. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP. S2 International obligation | Present on the Dighty burn. Possibly breeds. |
| Tree | **Juniper** (*Juniperus communis*) | UK BAP priority Species. On Scottish Biodiversity list- Watching brief only. Tayside LBAP. International obligation | |
| Fish | **Salmon** (*Salmo salar*) | On Scottish Biodiversity list- conservation Action Needed; avoid negative impacts. Tayside LBAP | 44% decline in GB (internationally important location). Considered vulnerable, endangered or threatened in 16 European countries. Present in Dighty burn and River Tay. |
| Fish | **River lamprey** (*Lampetra fluviatilis*) | On Scottish Biodiversity list- Avoid negative impacts. Tayside LBAP. International Obligations | Long-term declines - few populations existing under threat. Present in Dighty burn and River Tay. |
| Fish | **Brown trout** (*Salmo trutta fario*) | UK BAP Priority species. Tayside LBAP | Present in the Dighty burn and River Tay. |
| Fish | **Common eel** *(Anguilla anguilla)* | UK BAP Priority species. On Scottish Biodiversity list- Watching brief only. | Present in the Dighty burn and Trottick Ponds LNR. |
| Mammal | **Otter** (*Lutra lutra*) | UKBAP priority Species. IUCN near threatened species. On Scottish Biodiversity list- Avoid negative impacts. Tayside LBAP. International obligations | Present on the Tay estuary and along the Dighty burn. |
| Mammal | **Red squirrel** (*Sciurus vulgaris*) | UKBAP Priority species. On Scottish Biodiversity list- Conservation action needed; avoid negative impacts. Tayside LBAP | Present in several areas of woodland in Dundee such as Templeton Woods, Camperdown Park, Balgay Hill, as well as some gardens. Have spread due to control of grey squirrels. |
| Mammal | **Common pipistrelle** (*Pipistrellus pipistrellu*s) | European Protected Species. UKBAP Priority Species. On Scottish Biodiversity list- Avoid negative impacts. Tayside LBAP. International obligations. | Present widely in Dundee including Camperdown Park, Templeton Woods, Balgay Hill, Stobsmuir Park and Riverside Nature Park. |
| Mammal | **Soprano pipistrelle** *(Pipistrellus pygmaeus)* | European Protected Species. UK BAP priority Species. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP. International obligations. | Present widely in Dundee including Camperdown Park, Templeton Woods, Balgay Hill, Stobsmuir Park and Riverside Nature Park. |

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| Mammal | **Brown long-eared bat** (*Plecotus auritus*) | European Protected Species. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP. International Obligations. | Present on the Dighty burn and River Tay. Known roosts in Templeton Woods Visitor Centre and Camperdown Wildlife Centre. |
| Mammal | **Daubenton's bat** *(Myotis daubentonii)* | European protected Species. International Obligation | Present on the Dighty burn. |
| Mammal | **Water vole** *(Arvicola terrestris)* | UK BAP Priority Species. On Scottish Biodiversity List- Conservation Action Needed; avoid negative impacts. Tayside LBAP. >25% Scottish Decline. | Declines due to presence of non-native species- namely Mink. Historical records in Dundee but presence in Dundee currently is unknown. Present in fens, swamps, rivers and ponds. |
| Mammal | **Hedgehog** (*Erinaceus europaeus)* | UKBAP priority species. On Scottish Biodiversity List- Watching brief only | Unknown distribution in Dundee. |
| Amphibian | **Common frog** (*Rana temporaria*) | Tayside LBAP | Declines due to development and inadequate management of pools and ponds. Unknown distribution in Dundee. Found in Trottick Ponds LNR, Broughty Ferry LNR, Caird Park, Barnhill Rock Garden, Middleton woods. |
| Amphibian | **Common toad** (*Bufo bufo*) | UK BAP Priority species. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP | Serious declines in many areas of UK. Unknown distribution in Dundee. Found in Trottick Ponds LNR, Broughty Ferry LNR, Caird Park, Barnhill Rock Garden, Middleton Woods. |
| Reptile | **Slow-worm** (*Anguis fragilis*) | UK BAP Priority species. On Scottish Biodiversity list- avoid negative impacts. Tayside LBAP | Scarce; threatened by brownfield site loss and development pressure. Declining UK-wide. Unknown presence in Dundee. Found in rough grass including woodland edges; mature gardens; allotments. |
| Vascular Plant | **Northern marsh orchid** (*Dactylorhiza purpurella*) | No designation. Tayside LBAP | Important in a local urban context; present in several areas including Broughty Ferry LNR, Riverside Drive and Nature Park. |
| Vascular Plant | **Common spotted orchid** (*Dacylorhiza fuschii*) | No designation | Important in a local urban context; present in several areas including Broughty Ferry LNR, Riverside Drive and Nature Park. |
| Vascular Plant | **White-ramping fumitory** (*Fumaria capreolata*) | On Scottish Biodiversity list- Conservation Action needed. >25% Scottish Decline | Present in small amount at Grassy Beach |
| Vascular Plant | **Shepherd's cress** (*Teesdalia nudicaulis*) | IUCN Near Threatened (NT) On Scottish Biodiversity list- Conservation Action Needed. >25% Scottish Decline. | Has been present at Grassy beach and Broughty Ferry LNR but needs surveying. |

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| Vascular Plant | **Dwarf mallow** (*Malva neglecta*) | No designation | Present at Broughty Ferry but has suffered large decline. Needs surveying and management. |
| Vascular Plant | **Meadow cranesbill** (*Geranium pratense*) | No designation | |
| Vascular Plant | **Sea pea** (*Lathyrus japponicus*) | On Scottish Biodiversity list- watching brief only. Tayside LBAP. <6 Scottish 10km squares | Present at Broughty Ferry - very localised distribution. Needs surveying. |
| Vascular Plant | **Dropwort** (*Filipendula vulgaris*) | On Scottish Biodiversity list- Watching brief only. < 6 scottish 10Km squares | Very localised distribution. |
| Vascular Plant | **English stonecrop** (*Sedum anglicum*) | No designation | Regionally important - Present on Grassy beach - only site in Dundee and Angus. |
| Vascular Plant | **Meadow saxifrage** (*Saxifraga granulata*) | No designation. Tayside LBAP | Regionally important - huge decline over Dundee and Angus. Present at Broughty Ferry LNR. |
| Vascular Plant | **Cornsalad** (*Valerianella locusta*) | No designation | Important locally - present at Grassy beach but threatened. |
| Vascular Plant | **Greater knapweed** (*Centaurea scabiosa*) | On Scottish Biodiversity list- Conservation Action Needed. >25% Scottish decline. | Important regionally - main area in Scotland for this plant. |
| Vascular Plant | **Greater celandine** (*Chelidonium majus*) | On Scottish Biodiversity list- Conservation action needed. >25% Scottish decline. | Sparse in the city. Declined greatly. |
| Vascular Plant | **Sun spurge** (*Euphorbia helioscopia*) | On Scottish Biodiversity list- Conservation action needed. >25% Scottish decline. | Present at RNP but rare |
| Vascular Plant | **Large-flowered hemp nettle** (*Galeopsis speciosa*) | IUCN Vulnerable species (VU). On Scottish Biodiversity list - Conservation action needed. >25% Scottish decline | Present in seedbank at RNP |
| Vascular Plant | **Field madder** (*Sherardia arvensis*) | On Scottish Biodiversity list- Conservation action needed. >25% Scottish decline. | Present in small numbers at RNP |
| Vascular Plant | **Milk thistle** (*Silybum marianum*) | On Scottish Biodiversity list - Conservation action needed. >25% Scottish decline. | Present at RNP |
| Vascular Plant | **Charlock** (*Sinapis arvensis*) | On Scottish Biodiversity list- Conservation action needed. >25% Scottish decline. | Present at RNP, scarce elsewhere |
| Vascular Plant | **Scarlet pimpernel** (*Anagallis arvensis*) | On Scottish Biodiversity list- Conservation action needed. >25% Scottish decline. | Present at Stannergate |

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| Vascular Plant | **Dropwort** (*Filipendula vulgaris*) | On Scottish Biodiversity list- Watching brief only. < 6 Scottish 10Km squares. | Very rare on the railway line at Grassy Beach. Locally important if genuinely wild. |
| Insect - moth | **Garden tiger** (*Arctia caja*) | UKBAP priority species. On Scottish Biodiversity list- Watching Brief Only. Tayside LBAP. >25% Scottish Decline. | Present at RNP |
| Insect - moth | **Cinnabar** (*Tyria jacobaeae*) | UKBAP Priority species. On Scottish Biodiversity list- Watching brief only. | |

| Broad Habitat | Habitat | Information |
|---|---|---|
| Woodlands | Semi-Natural Broadleaved | Many dominated by native species, high conservation value, some ash-elm woodlands. |
| Woodlands | Semi-Natural Mixed | Mixed Scots pine and larch woodlands, with birch, sycamore and oak. |
| Woodlands | Scattered Shrub | Extensive patches of scrub along woodland edges. Botanically enriched in certain places. |
| Grasslands | Unimproved Acidic | Mainly on hill sites, such as the Law. Generally rare. High conservation value in Dundee. Lowland dry acid grassland UKBAP List priority habitat. On Scottish Biodiversity List. Significant decline/unfavourable condition in Scotland. |
| Grasslands | Calcareous Grassland | Fragments found on Dundee Law. High conservation value in Dundee. Conservation action needed. Significant decline/unfavourable condition in Scotland. Rare in Dundee. UKBAP list priority habitat. On Scottish Biodiversity List. |
| Grasslands | Improved Neutral – Lowland Meadows | Present at Riverside Nature Park. UKBAP list priority habitat. On Scottish Biodiversity List. |
| Grasslands | Unimproved Neutral | Most common grassland. Many in transition to tall herb and scrub. |
| Heath | Heathland | Rare in Dundee. UKBAP list priority habitat. Conservation action needed. Significant decline in Scotland. Important for supporting species. On Scottish Biodiversity List. |

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| Tall Herbs | | Most common along railway lines. With most common species common hogweed, nettle and rosebay willowherb. |
| Rivers | | The Dighty burn provides habitat for many species and is an important green corridor. Rivers are on UKBAP list of priority habitats and on the Scottish Biodiversity List. |
| Coastland | Intertidal Mud/Sand | At Broughty Ferry Beach. Little vegetation except seaweeds. |
| Coastland | Intertidal Boulders/Rocks | At Broughty Ferry Beach. Dense beds of seaweeds. |
| Coastland | Sand Dune, Coastal grassland | At Broughty Ferry LNR. Sand dunes show significant decline/unfavourable conditions in Scotland. UKBAP list priority habitat. Conservation action needed in Scotland. On Scottish Biodiversity List. |