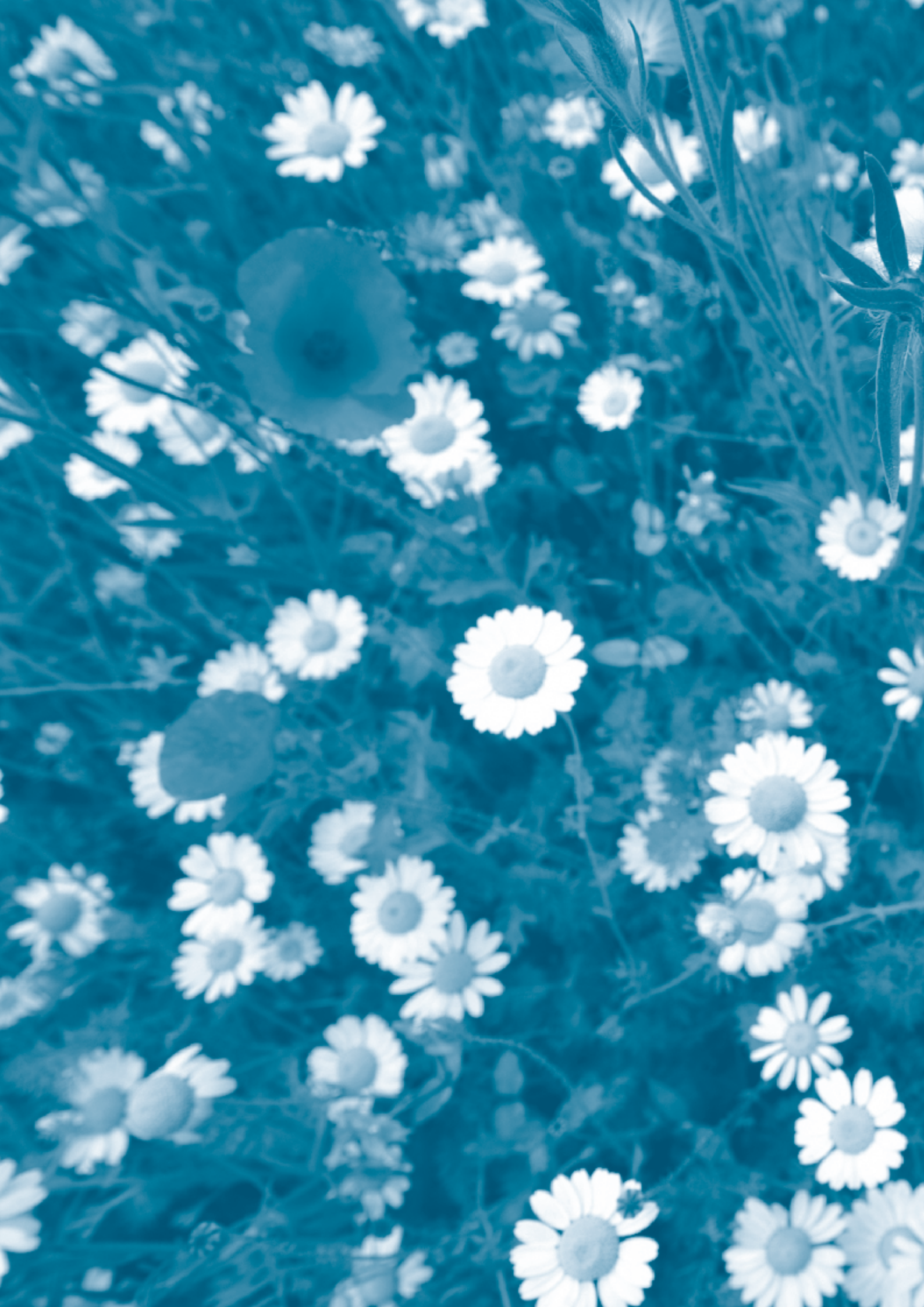




North Lanarkshire Biodiversity Action Plan 2023-2027



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Foreword

The North Lanarkshire Biodiversity Action Plan (NLBAP) sets out a partnership approach to guide the conservation and enhancement of biodiversity in North Lanarkshire to 2027, to ensure a focus on being Nature Positive. It details the actions needed to safeguard vulnerable species in North Lanarkshire, and to protect and enhance key habitats at an ecosystem scale.

The Global Climate Emergency and the Nature Emergency are intrinsically linked. Climate change accelerates the destruction of the natural world and all it provides us with, while the loss and unsustainable use of nature are in turn key drivers of climate change. However, just as the crises are linked, so are the solutions. Nature is a vital ally in the fight against climate change. Nature regulates the climate, and nature-based solutions, such as protecting and restoring wetlands and peatlands, or sustainably managing woodlands and greenspaces, will be essential for emission reduction and climate adaptation. Planting trees and deploying green infrastructure will help us to cool urban areas and mitigate the impact of natural disasters such as flooding.

Just like climate change, the loss of species and degradation of our natural environment is an existential threat to humanity. And just like climate change, the action needed is both urgent and transformative to deal with this Nature Emergency.

A landscape scale approach is necessary to conserve our biodiversity and ecosystem services and the landscape introductions have been included to highlight the links between species, habitats, people and the interconnections between them all. The original species and habitat plans have been updated to reflect upon progress and current key conservation issues, as well as changes in national and local legislation and policy.

We have carried out a community consultation of the plan and made changes to better reflect the concerns of our communities.



Jim Logue

Councillor Jim Logue

Leader of the Council

Objectives of the North Lanarkshire Biodiversity Action Plan

- To maintain and enhance:
 - The populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems.
 - Internationally and nationally important and threatened species, habitats and ecosystems.
 - Species, habitats and managed ecosystems that are characteristic of North Lanarkshire or are of local importance.
 - The biodiversity of natural and semi-natural habitats where this has diminished over the recent decades.
- To increase community awareness of, and involvement in, conserving biodiversity.
- To work with the development industry to identify opportunities for biodiversity enhancement within development proposals.
- To identify priorities for habitat and species conservation in North Lanarkshire and set realistic targets and timescales for these.



Introduction

This fifth edition of the North Lanarkshire Biodiversity Action Plan has been developed to ensure that we continue to conserve and enhance the habitats and species that contribute to the unique character and heritage of North Lanarkshire whilst also contributing to the target to halt the current Nature Emergency. The North Lanarkshire Biodiversity Partnership looks to build on the conservation work that has taken place over the past twenty three years and to take forward positive actions for our priority species and habitats to 2027 and beyond.

There is now an indisputable body of evidence that biodiversity, both globally and in Scotland, is in real trouble. Our efforts to address the crisis to date have generated some lessons and local successes, but we urgently need to accelerate and scale up those efforts to drive landscape scale recovery.

1. Biodiversity

Biodiversity refers to the variety of all living things on Earth.

The Convention on Biological Diversity defines biodiversity as:

“The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems” .

Biodiversity includes the variety of ecosystems such as those that occur in forests, wetlands, mountains, lochs, rivers and urban and agricultural landscapes.

2. Ecosystems

Ecosystems are dynamic complexes composed of plants, animals and micro-organism communities and the abiotic environment interacting together as one¹. Ecosystems are not static, but dynamic systems which continuously evolve spatially and temporally. In each ecosystem living creatures, including humans, form a community, interacting with one another and with the air, water and soil around them. It is the combination of life forms and their interactions with each other and the rest of the environment that has made Earth a uniquely habitable place for humans.

Ecosystems incorporate ecological processes and the resources they provide are known as ‘Ecosystem Services’.



¹ Convention on Biological Diversity <http://www.cbd.int/convention/articles/default.shtml?a=cbd-02>

3. Ecosystem Approach

The phrase 'Ecosystem Approach' was first coined in the early 80s, but found formal acceptance at the Earth Summit in Rio in 1992 where it became an underpinning concept of the Convention on Biological Diversity, and was later described as:

“a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”².

Action must be taken not just in protected areas such as nature reserves but also in the wider landscape – at the ecosystem scale. This does not necessarily mean abandoning traditional methods of conservation such as designating and managing protected areas or protecting priority species and habitats. The ecosystem-scale approach looks at measures spread across all levels of conservation from micro-scale measures such as planting a wildflower meadow to spatial planning at a national or regional scale.

As the Ecosystem Approach is a framework that can be adapted, the approach fits well with Local Biodiversity Action Plans as they are continuously evolving documents. The actions in the individual species and habitat action plans that form the North Lanarkshire Biodiversity Action Plan take into consideration, and are designed to contribute to, ecosystem scale conservation.

4. Ecosystem Services

Living things have a right to exist, even the midges that make our country so renowned. However, biodiversity is also vital for us to survive, providing many services we depend on such as oxygen, clean water and food. These are known as 'Ecosystem Services'.

Ecosystem services can be split into 4 groups: Supporting, Provisioning, Cultural and Regulating.

Provisioning Services – These are the products obtained from ecosystems including food, freshwater and fuels.

Regulating Services – These are the benefits obtained from the regulation of ecosystem services - including climate and air quality regulation.

Cultural Services – These are the nonmaterial benefits people obtain from ecosystems including aesthetic values and recreation.

Supporting Services – These are the services that are necessary for the production of all other ecosystem services such as soil formation and photosynthesis³.



² Convention on Biological Diversity, <https://www.cbd.int/ecosystem/>

³ Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis.

Biodiversity also provides indirect economic benefits. Hillside woods prevent erosion; wetlands play a role in flood defence, act as water treatment plants and help to regulate water flow – all functions which we would otherwise have to pay for. In many cases, acting for biodiversity may reduce direct costs. Sustainable urban drainage systems provide significant benefits for wildlife and may also reduce long-term revenue costs of drainage management. Reducing the frequency of grass cutting for gardens and parts of public open space and roadside verges will enhance such areas for insects and small mammals, and at the same time will decrease annual upkeep costs.

Humans depend on Earth's ecosystems and the services they provide, ranging from wood and water to aesthetic and cultural enjoyment, and regulation of the climate. However, In the past 50 years, the human population has doubled, the global economy has grown nearly fourfold and global trade tenfold, together driving up the demand for energy and materials⁴ increasing pressure on ecosystem services. The global use of natural resources has more than tripled since 1970 and continues to grow.

Whilst many of these services are impossible to value, such as the oxygen provided by plants, those that can be given a value in Scotland are as follows:

- Scotland's natural capital is worth at least £196bn, supporting 240,000 jobs.
- Insect pollination services in Scotland are valued at an estimated £43 million per year.
- Scotland's beaches and salt marshes protect £13bn of coastal buildings and infrastructure, compared to £5bn protected by engineered sea walls⁵.

Today the accessibility, diversity and quality of much of Scotland's natural environment is recognised as an important resource for promoting physical and mental health, improving educational outcomes, and supporting community development and regeneration. Stronger integration of environmental and social objectives will undoubtedly secure long-term benefits for people and nature.

5. Natural Capital

Natural Capital is a concept that recognises Nature as a valuable asset which provides a stock and flows of ecosystem services (for example clean air, carbon storage, flood management, food production and recreational opportunities). Collectively these underpin and benefit our society and economy. Framing the natural environment in this way emphasises the need to invest in, and manage, this asset within safe environmental limits.



'Children in bluebell woods' © Katrina Martin

⁴ IPBES (2019) Global assessment report on biodiversity.

⁵ [Ecosystem services - natures benefits / Nature Scot](#)

6. Nature Based Solutions

Nature-based solutions use nature to help tackle environmental and social challenges, providing benefits to people and nature, and help us to mitigate and adapt to climate change.

Nature-based solutions refer to the use of nature and natural environments to help tackle socio-environmental challenges, providing benefits to people and nature. In particular, these solutions can help us mitigate and adapt to climate change.

In nature-based climate change mitigation, ecosystem services are used to reduce greenhouse gas emissions and to conserve and expand carbon sinks.

In nature-based climate adaptation, the goal is to preserve ecosystem services that are necessary for human life in the face of climate change and to reduce the impact of anticipated negative effects of climate change (e.g. more intense rainfall, more frequent floods as well as heat waves and droughts).

Compared to technology-based solutions to climate challenges, nature-based solutions are often more cost-effective, longer lasting, and have multiple synergistic benefits including:

- Reducing net emissions
- Expanding carbon sinks
- Providing habitats for biodiversity
- Benefiting human health and well-being
- Helping our society and economy adapt to climate change
- Making more resilient and nicer places to live and work

There are a number of different ways nature-based solutions can be implemented both in urban and rural environments.

For example, restoring peat bogs can increase the amount of carbon they store, and Sustainable Drainage Systems (SuDS) manage surface water and take into account water quantity and quality (flooding and pollution) as well as biodiversity and amenity. Nature-based solutions can also provide ecosystem services for urban areas – providing resources, regulating environments, creating habitats, and generating social and cultural activities.

7. Green Infrastructure and Green Networks

Green infrastructure includes the ‘green’ and ‘blue’ (water environment) features of the natural and built environments that can provide benefits without being connected. This includes trees, parks, allotments, hedges, verges, ponds and sustainable urban drainage systems.

Green networks refer to the connected areas of green infrastructure and open space which together form an integrated and multi-functional habitat network. Green networks help define the landscape, providing links with the countryside and allowing the movement of people and wildlife, creating opportunities for physical activity and access to the outdoors. Green infrastructure can deliver multiple environmental benefits, whilst playing a key role in mitigating against climate change. Developing and strengthening green infrastructure will underpin ecosystem services and contribute to healthy and resilient ecosystems.



Ravensraig © Brian Cairns

8. Landscape Scale Conservation

Landscape scale conservation seeks to understand the flow of ecosystem services and consider other land uses such as forestry and housing, in order to deliver benefits for biodiversity and a range of benefits for people.

This Plan aims to consider the landscape scale which our priority species and habitats exist at and deliver actions and targets that contribute to wider conservation targets/initiatives set by government.

9. Biodiversity - Sorting Out a Plan

At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for “*sustainable development*” – meeting our needs while ensuring that we leave a healthy and viable world for future generations. One of the key agreements adopted at Rio was the Convention on Biological Diversity. This pact among the vast majority of the world’s governments sets out commitments for maintaining the world’s ecological underpinnings as we go about the business of economic development.

10. Scotland’s Strategic context

Scottish Government has proposed a new strategy to halt biodiversity loss by 2030 and reverse it by 2045. The most recent draft of the strategy was published in December 2022.

The strategy remains a draft to ensure that the final version reflects any agreement made at COP15. A final version will be published alongside the delivery plan, which will build on the key actions to provide a detailed action plan for the whole of government that will guide work to tackle the nature emergency over the coming years.

The strategy sets out a nature positive vision for Scotland – one where biodiversity is regenerating and underpinning a healthy and thriving economy and society and playing a key role in addressing climate change. The Scottish Biodiversity Strategy will sit

alongside Scotland’s Climate Change Plan and, through developing and driving investment in nature based solutions, will play a significant role in delivering the commitment to Net Zero. In its own right, it sets out how we will protect and regenerate biodiversity to ensure the sustainable flow of ecosystem services on which we all depend. The strategy also speaks to the huge economic and social opportunities regenerating our biodiversity will bring – in terms of new investment, new job opportunities for communities and our overall health and wellbeing. The Scottish Biodiversity Strategy is for everyone – large corporate players, small businesses, land managers, non-government organisations and Scotland’s communities and citizens whose decisions in everyday lives as producers and consumers have an impact on biodiversity. Only by coming together to deliver transformational change in the way we use and manage our resources can we avoid irreversible damage to biodiversity.

Priority Actions for 2030

Five year Delivery Plans will set out in detail the actions needed to deliver these outcomes. The first plan will be published in conjunction with the final strategy. Work on the delivery plan has begun and from this there are a set of priority actions. Cumulatively these will drive the transformation needed to ensure Scotland is on track to meet the 2030 milestone of halting biodiversity loss and being Nature Positive. It will also ensure that Scotland is seen as a global leader in fulfilling its international obligations.

Priority actions include the introduction of Statutory Nature Restoration Targets, implementation of a Scottish Plan for Invasive Non Native Species (INNS) and expansion of protected areas.

A key priority action is to ensure positive effects on biodiversity from our National Planning Framework (NPF4) and that Nature Networks are integrated into the urban fabric, ecologically coherent and are prominent in school, health, neighbourhood and community spaces. Development proposals will contribute to the enhancement of biodiversity including, where relevant, restoring degraded habitats and building and strengthening nature networks

11. Edinburgh Declaration and the post-2020 global biodiversity framework

North Lanarkshire Council became a signatory to the Edinburgh Declaration on 22 June 2021 to show our support and commitments for a post 2020 global agreement that reflects our key role in delivery, implementation and mainstreaming of biodiversity. Signalling a strong commitment to tackling the challenges of the climate and biodiversity crises.

12. European and International context

The EU's biodiversity strategy for 2030 is a comprehensive, ambitious, and long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity on a path to recovery by 2030 and contains specific actions and commitments.

Scottish Ministers have said they are committed to maintaining or exceeding EU environmental standards.

In preparing the new Scottish biodiversity strategy, close account will be taken of the EU Biodiversity Strategy (published in 2021).

International

In December 2022 at the Convention on Biological Diversity (CBD), COP15 in Montreal the Global Biodiversity Framework was adopted. It includes a 2030 set of targets to act as a stepping stone towards the 2050 Vision of "*Living in harmony with nature*". Delegates agreed to protect 30% of Earth's land and oceans for nature by 2030, this commitment is known as 30 by 30.

To put this in context, globally, only 15% of land and freshwaters are protected. In Scotland, protected areas cover around 18% of land consisting of designated sites such as Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), and Special Protected Areas (SPA). If existing National Parks were included, this increases to 23%. This means we need an increase of 7-12% to reach 30% by 2030. For comparison, 37% of Scotland's seas are protected.⁶

Countries will be expected to contribute to this global goal through domestic action. Local Biodiversity Action Plans (LBAPs) provide an appropriate mechanism for identifying habitats and species which are not only important in a national context, but valued by the local community as well. Also, because an LBAP is both a product and a process, it provides a medium for creating and sustaining partnerships to achieve biodiversity objectives. The North Lanarkshire Biodiversity Action Plan is contributing to the overall programme to sustain and enhance biodiversity through Scotland and the UK, and indeed, the world. It is in effect, a direct example of the often-quoted phrase "*think global, act local*".



'St Maurice's' © Laura McCrorie

⁶ 30 by 30 explained | NatureScot

13. Biodiversity... What does it mean for North Lanarkshire?

North Lanarkshire sits at the heart of Scotland's central belt, in what was once a powerhouse of heavy industry and transport: mines and quarries, railways and canals, steelworks and today's open-cast.

Where does wildlife fit in?

In North Lanarkshire, there are:

- 9 Local Nature Reserves**
- 3 Country Parks**
- 380 Sites of Importance for Nature Conservation**
- 3 Special Areas for Conservation**
- 1 Special Protected Area**
- 11 Sites of Special Scientific Interest (SSSIs)**
- 5 Scottish Wildlife Trust reserves**
- 1 Royal Society for the Protection of Birds Reserve**

Many habitats remain...

Riverside glens of ancient woodland with their carpets of bluebells reach into the built-up areas of Motherwell and Cumbernauld. On the windswept peat moorlands east of Airdrie, the lowland raised bogs are considered to be of European importance.

Scotland's only flock of bean geese overwinter on the upland grazing fields south east of Cumbernauld.

And new habitats have been created...

The Forth and Clyde Canal and the remnants of the Monkland Canal are rich in wildlife.

Ambitious land reclamation at Strathclyde Country Park created a habitat for wintering waterfowl, as well as visitor recreation. Former mining areas have been converted into the wildlife-rich Drumpellier Country Park, Greenhead Moss and Dumbreck Marsh.

Conversion of exposed upland farmland to woodland has created a habitat for badgers and roe deer at Palacerigg Country Park, Kingshill Community Woodland, and Arns plantation, as part of the development of the Central Scotland Green Network.

Red squirrels have colonised the Carron Forest plantation in the Kilsyth hills.

Pine martens have arrived in Cumbernauld and are using woodland habitat corridors to move south.

Garrell Burn in Kilsyth has been restored to its original meandering route through what is now Dumbreck Local Nature Reserve helping to restore the wetland habitat and improve water quality there.

Some habitats have arisen by accident

Gartcosh Local Nature Reserve is home to one of Scotland's largest known populations of Great crested newt, a European Protected Species.

Against the odds, North Lanarkshire is rich in wildlife. But we cannot take any of it for granted. The demand for new housing, jobs and transport infrastructure must somehow be accommodated without destroying the key habitats on which our wildlife depends. This is one of the principles of sustainable development.

The nature of North Lanarkshire depends on us all.



14. Biodiversity - Sorting Out a Plan

Local biodiversity action plans are fundamental documents to deliver conservation at a local scale. The Biodiversity Action Plan is a partnership effort to target actions for key habitats and species in North Lanarkshire. Available resources are thereby focussed. This can only be achieved by cooperation between conservation bodies, development agencies, developers, local authorities and communities.

Integral to the success of the LBAP as a working document, is the collaboration of interested parties, sharing knowledge, expertise and resources to deliver action for nature.

The North Lanarkshire Biodiversity Action Plan has maintained individual specie sand habitat actions while promoting landscape scale conservation work. The individual species and habitat actions are designed to be used as building blocks for projects of scale to improve ecosystem health.

Developing Partnerships

The BAP process has allowed existing local partnerships to be further developed, new partnerships to be formed, and priorities for local conservation to be identified.

The successful implementation of Biodiversity Action Planning within North Lanarkshire requires involvement from various sectors and the establishment of partnerships between all those who have an interest, or who have an impact on, land use within the area. Having a partnership approach means that workloads can be shared and a wide range of skills and resources utilised. It also ensures that there is a shared commitment to and ownership of the plan process, and subsequent implementation of the plan's actions.

There is an increased focus on taking action at an ecosystem-scale and working in partnerships that include communities to coordinate joint action, creating a more supportive environment for biodiversity.

This fifth edition of the plan seeks to build on the successful work taken forward in previous plans for our priority species and habitats by identifying key targets and actions for our local biodiversity. By maintaining a flexible and dynamic approach, new projects can be continuously taken forward to benefit biodiversity and the ecosystem services they provide.

Projects taken forward for one key species or habitat will likely benefit many more and have the potential to restore and enhance ecosystems at various scales.



Sectors involved with North Lanarkshire's Biodiversity Action Plan:

- Voluntary conservation organisations
- Statutory agencies
- Local conservation groups
- Industry and commercial organisations (incl. Farmers and land managers)
- Schools, colleges and other educational bodies
- Adjacent local authorities
- Community groups

The North Lanarkshire Biodiversity Action Plan is coordinated by a wide ranging partnership. Partnerships are not only external but also internal. Within North Lanarkshire Council for example, whose service delivery has a significant effect on biodiversity, there is a huge potential for cross directorate awareness raising and sharing of knowledge to enable positive effects on North Lanarkshire's biodiversity to be delivered.

Partnership List

Some of the many organisations involved in biodiversity actions contributing to the NLBAP over the last 7 years.

Buglife

Clyde Bat Group

Concern for Swifts Scotland

Countryside Ranger Service

Cumbernauld Living Landscapes (as that's not just SWT & TCV)

Forestry Land Scotland

Friends of Kelvin Valley

Froglife

Glasgow and Clyde Valley Green Network

Green Action trust

North Lanarkshire Council

Royal Society for Protection of Birds

Scottish Biodiversity Forum

Scottish Environmental Protection Agency

Nature Scot

Scottish Wildlife Trust

Seven Lochs Partnership



The Ranger Service is based within North Lanarkshire's three Country Parks: Drumpellier, Palacerigg and Strathclyde. In addition, the service is involved with Local Nature Reserves (LNRs), including Brownsburn, Dumbreck Marsh and Kingshill, and the historic sites of Colzium-Lennox Estate and Dalzell Estate. The team also have an input towards fifteen other managed greenspace managed sites such as Riccard Johnston and more than 380 SINCS (Sites of Importance for Nature Conservation).

Contributions are made to local and national Biodiversity Action Plans, with a range of projects including biological monitoring and recording, habitat improvement, and tackling invasive non-native species. Recent projects have included creation and monitoring of den boxes for Pine marten, and nesting boxes for many bird species including Barn owls, Peregrine and Sand martin. The team are involved with many local conservation groups and contribute to regional and national initiatives through these.

The Countryside Ranger Service works closely with North Lanarkshire schools to compliment outdoor learning and the Curriculum for Excellence. Offering formal and informal learning opportunities across the Council area to deliver environmental education. Work also extends to colleges, universities, churches, youth and special interest groups.

The Ranger Service is active within local communities, assisting groups to develop and enhance access, biodiversity and facilities of their own parks and greenspaces through consultation and public participation.

Responsible access in line with the Scottish Outdoor Access Code is promoted and together with natural partners initiatives such as the John Muir Trust Award, Duke of Edinburgh Award, Branching Out and Forest School programmes are facilitated and delivered.



15. Small Actions Make Big Differences

In recent years, there has been a large shift in how we view nature. This starts in schools, with Eco Schools and Forest Schools helping to enthuse children about the outdoors and the biodiversity that lives there. This enthusiasm then develops into a lifelong passion for nature and conserving it.

Efforts to address the biodiversity crisis will be made more difficult by peoples' lack of knowledge of nature and of the benefits it provides. A 2017 RSPB Birdwatch survey, assessing nature knowledge in parents, found that of 2,000 adults, half couldn't identify a house sparrow, a quarter didn't know a blue tit or a starling, and a fifth thought a red kite wasn't a bird – but nine out of 10 said they wanted children to learn about common British wildlife.

Many nature conservation charities such as RSPB Scotland, The Scottish Wildlife Trust and Buglife rely on volunteers who are essential to their successful operation. For example, members of the public can assist at regular practical conservation works days at RSPB Baron's Haugh, or help Buglife undertake invertebrate surveys.

There is a wealth of community groups in North Lanarkshire that are making a contribution to biodiversity. Groups such as the Friends of Brownsburn Community Park and Friends of Cumbernauld House Park take forward beneficial conservation action at local sites, taking steps to help improve them for biodiversity and encouraging community involvement and engagement. Groups such as these are beneficial as they further biodiversity action at a local level and help publicise these sites to local people.

There is plenty that you can do, and is already being done, to protect and enhance our local biodiversity.

16. Monitoring and Reporting on Action

The NLBAP 2023 - 2027 takes into account the national framework which includes the Scottish Biodiversity Strategy and Scotland's Biodiversity Indicators, developed by NatureScot and other government agencies (SEPA, Marine Scotland, and Scottish Forestry) to chart changes in Scotland's biodiversity. The indicators are split into two groups. The first group are 'State indicators', which measure changes in biodiversity at the species, habitat and ecosystem level. The second group are 'Engagement indicators' which monitor how people interact with biodiversity through awareness, engagement or activity. In line with these, the NLBAP will be continuously revised and developed on a five year basis. The actions are designed so they can be monitored and reported on through our Biodiversity Action Tracker (BAT).



17. The Local Development Plan

North Lanarkshire's Local Development Plan (LDP), a vital public document which will shape the future of our area. Following a long period of consideration, the Scottish Ministers confirmed in a letter dated 5 July 2022 that the Council could proceed to Adopt the North Lanarkshire Local Development Plan.

The Plan has been duly operative since then, but we were pleased to formally publish the Plan on 2 November 2022. It sets out policies and proposals for the use, development and protection of land in our area. It states what type of development will take place where, and which areas should not be developed. It identifies the best locations for new homes and businesses whilst protecting places of value to people and wildlife.

18. Biodiversity and the Local Authority Planning Process

North Lanarkshire Council Planning Authority ensure that developments comply with all relevant wildlife legislation. Impacts to nationally and locally important species and habitats are considered and, where appropriate, mitigation requested to minimise any ecological impacts.

19. Conservation Legislation

Legislation which reflects the importance of conserving biodiversity in Scotland includes the National Parks (Scotland) Act 2000, the Wildlife and Countryside Act 1981, and the European Birds and Habitats Directive.

Nationally and internationally important national heritage sites are protected through their designation as Sites of Special Scientific Interest, Special Protection Areas and Special Areas of Conservation. The introduction of the Nature Conservation (Scotland) Act 2004 now provides the principal legislative components of a new, integrated, system for nature conservation within Scotland. The Act sets out a series of measures which are designed to conserve biodiversity and to protect and enhance the biological and geological natural heritage of Scotland. In doing so, it locates the conservation of biodiversity and of Scotland's natural environment within a wider British, European and global context. In relation to biodiversity in particular, it requires public bodies and office-holders to consider the effect of their actions at a local, regional, national and international level.



Natural Environment Bill

Scotland's Biodiversity Delivery Framework commits to the establishment of a Natural Environment Bill. This bill will contain provisions to put in place statutory targets for nature restoration and a framework for setting, monitoring, enforcing, and reporting on those targets. These targets, like Scotland's climate targets, will form an important part of the Scottish Government Accountability Framework, driving action across Government. They will be based on the overarching goal of the Scottish Biodiversity Strategy, of halting biodiversity loss by 2030, and restoring Scotland's natural environment by 2045. The targets will be achievable and challenging, developed in consideration of available evidence and through consultation. They are expected to include outcome targets that accommodate species abundance, distribution and 49 at extinction risk and habitat quality and extent. The targets will reflect the challenges of a changing climate.

Wildlife and Natural Environment (WANE) Act 2011

The WANE Act 2011 made significant changes to legislation protecting wildlife and regulating natural resources and amended the Wildlife and Countryside Act 1981.⁷ As a result of the Act, Scotland now leads the way in Europe on non-native species law and has brought focus to the need for enhanced biosecurity. The amendments enable Scotland to adopt the internationally recognised 3-stage approach to dealing with invasive non-native species and aim to:

- Prevent the release and spread of non-native animal and plant species into areas where they can cause damage to native species and habitats and to economic interests;
- Ensure a rapid response to new populations can be undertaken; and
- Ensure effective control and eradication measures can be carried out when problem situations arise.

It also led to the publication of the "*Code of Practice on Non-Native Species*".⁸ The code sets out how individuals can play their part in preventing non-native species from being released and how to act responsibly to ensure non-native species under ownership do not cause harm to the environment.



⁷ Scottish Government, 2011. Wildlife and Natural Environment (Scotland) Act 2011

⁸ Scottish Government, Code of Practice on Non-Native Species

Climate Change (Scotland) Act 2009

The Climate Change (Scotland) Act 2009 set ambitious targets to reduce greenhouse gas emissions by 42% by 2020 and by 80% by 2050.⁹ Part 4 of the Act places duties on public bodies relating to climate change, requiring that a public body must, in exercising its functions, act:

- In the way best calculated to contribute to delivery of the Act's emissions reductions targets;
- In the way best calculated to deliver any statutory adaptation programme; and
- in a way that it considers most sustainable.

Scotland's Land Use Strategy

"Getting the best from our land: A land use strategy for Scotland 2021 to 2026" Scotland's Third Land Use Strategy sets out the vision, objectives and policies to achieve sustainable land use. The strategy aims to provide a more holistic understanding of our land, the demands we place upon it and the benefits we get from our land and forms a key commitment of section 57 of the Climate Change (Scotland) Act 2009.

It moves away from a sector by sector approach towards an overarching holistic picture of what sustainable land use in Scotland could look like. It looks beyond its formal five year duration to our 2032 and 2045 targets and efforts to tackle the twin crises of climate change and biodiversity loss. It also highlights the actions we are taking right now across Scotland.

The vision of the strategy is:

"A Scotland where we fully recognise, understand and appreciate the importance of our land resources, and where our plans and decisions about land use deliver improved and ensuring benefits, enhancing the wellbeing of our nation".¹⁰

It sets out three objectives:

- Land based businesses working with nature to contribute more to Scotland's prosperity
- Responsible stewardship of Scotland's natural resources delivering more benefits to Scotland's people
- Urban and rural communities better connected to the land, with more people enjoying the land and positively influencing land use

The Strategy also lays out Principles for Sustainable Land Use, including:

- Land use decisions should be informed by an understanding of the functioning of ecosystems which they affect in order to maintain the benefits of the ecosystem services which they provide
- Landscape change should be managed positively and sympathetically, considering the implications of change at a scale appropriate to the landscape in question, given that all of Scotland's landscapes are important to our sense of identity and our individual wellbeing and social wellbeing
- Land-use decisions should be informed by an understanding of the opportunities and threats brought about by the changing climate. Greenhouse gas emissions associated with land use should be reduced and land should continue to contribute to delivering climate change adaptation and mitigation objectives

As required by the Climate Change (Scotland) Act 2009, the Strategy must be reviewed within five years.

⁹ Scottish Government, 2009. Climate Change (Scotland) Act

¹⁰ Scottish Government, 2011. Getting the best from our land – A land use strategy for Scotland

The Water Framework Directive

The Water Framework Directive (WFD) is a wide-ranging piece of European legislation which became law in Scotland through the Water Environment and Water Services (Scotland) Act (WEWS) 2003. The Act was supplemented by the Water Environment (River Basin Management planning: Further Provision) (Scotland) Regulations 2013 and the Cross-Border River Basins Districts (Scotland) Directions 2014. The Act created a new River Basin Management Planning (RBMP) process to achieve environmental improvements to protect and enhance our water environment in a sustainable way; The Water Environment (Controlled Activities) (Scotland) Regulations 2011 are in place to manage activities which may impact on the water environment.¹¹

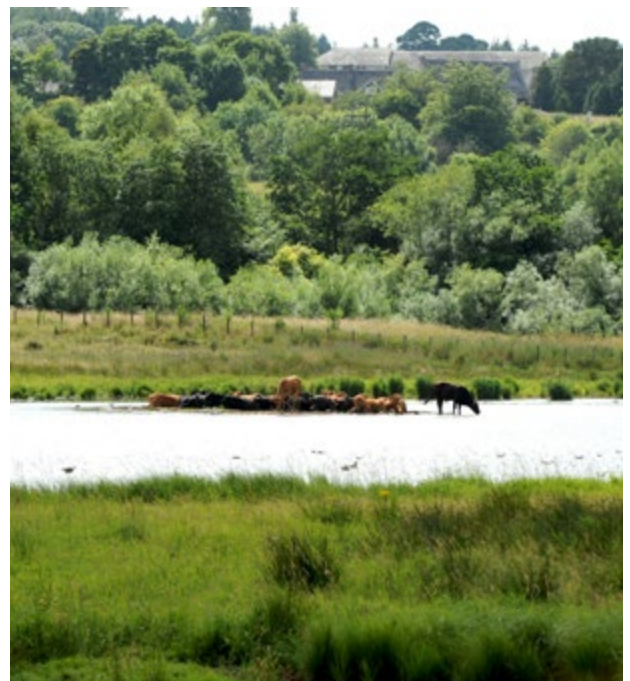
The WFD established a legal framework for the protection, improvement and sustainable use of surface waters, transitional waters, coastal waters and groundwater across Europe. It represents a significant shift in attitude to water resource management, taking a more holistic approach to protection of the water environment, both in terms of the assessment of water status and the scale at which resources are managed.

Under the Directive, water status is determined not only by its chemical condition, but by the health of the animals and plants that live in it. It recognises that there is a need to look more broadly at water use, considering all activities that could pose a risk to water life, including alterations to banks, beds or shores, or to the amount of water in the water body. For the first time controls have been put in place for any activity that abstracts to or impounds water, and engineering or construction works that alter the shape of a water body, as well as discharges into watercourses.

The WFD looks at the water environment on a larger, river basin scale, rather than at rivers or lochs individually. This means consideration of not only local risks posed by activities in one watercourse but also their impacts on the water environment downstream and in water bodies elsewhere in the River Basin District.

The WFD also requires all designated authorities to have specific regard to sustainable flood management in the exercise of their functions.

The Scottish Environment Protection Agency's (SEPA) monitoring shows that overall 64% of our rivers and lochs are in good or better than good condition in 2020. This is based upon an assessment of water quality, flows and levels, physical condition and barriers to fish migration. This is an improvement of three percentage points since 2015. Scotland's third River Basin Management Plan (2021-2027) and the Wild Salmon Strategy are key. The former plan aims to achieve 81% of the water environment being in a good or better condition by 2027 and 90% in the long-term once natural conditions have recovered. Issues which need tackling include increasing water scarcity and abstraction, rising water temperatures, rural diffuse pollution, wastewater, man-made barriers to fish migration and physical modifications to rivers, Invasive non-native species (INNS) such as Japanese knotweed, giant hogweed and North American signal crayfish have considerable impacts on freshwater ecosystems and these are intensifying. Healthy riparian woodlands are critical for the health of water systems and bodies but they are declining in coverage and condition. Poorly vegetated upper catchments and canalised river systems exacerbate downstream flash flooding events.



¹¹ Scottish Government, 2009. The River Basin Management Plan for the Scotland River Basin District 2009-2015, Summary.

The Biodiversity Duty

Under the Nature Conservation (Scotland) Act 2004 all public bodies in Scotland have a duty to “further the conservation of biodiversity” as they carry out their work, reporting their actions at least every three years. This means that all public bodies have a duty to think about their impact on the natural world. Public bodies must reduce any negative effects for biodiversity and look for ways of benefitting biodiversity in the way they go about their business.

This duty is not just beneficial to biodiversity; it can also help meet other public service aspirations and, in the process, provide significant cost savings and efficiencies. This legislation gives the public sector in Scotland a unique leadership role in recognising the impact and dependence on biodiversity and working to protect our biological inheritance. This duty applied to public bodies’ activities and operations, to their plans and policies. The actions that public bodies can take to comply with this duty may be direct practical ones, such as cutting grass less often to provide more shelter and food for wildlife. Some public bodies may decide to carry out more complex actions like auditing the source of all products they use to ensure they are produced as sustainably as possible. This ties in very closely with the duty that public bodies have to act sustainably as part of their duty to achieve Best Value, and safeguarding biodiversity is a key part of that. There is more to do to ensure decision makers across the public sector can understand these added benefits if we are to realise the aspirations for both biodiversity and people in Scotland¹.

20. The Scottish Biodiversity List

The Scottish Biodiversity List is a list of flora, fauna and habitats considered by Scottish Ministers to be of principal importance for the conservation of biodiversity.

The list is an important information resource for everyone with an interest in Scotland’s rich biodiversity. One of the commitments of the new Scottish Biodiversity Strategy is to update this list.

The list identifies species and habitats that should be taken account of in our decision making, particularly in delivery by public bodies of their biodiversity duty.

The development of the list was a collaborative effort involving a great many stakeholders, overseen by scientists from the Scottish Biodiversity Forum. Completion of the list is an exciting development in our knowledge of biodiversity in Scotland as it is the first time such a “stock-take” has been done in Scotland.

Full details of the Scottish Biodiversity List can be found on the Biodiversity Scotland website (www.biodiversityscotland.gov.uk). You can also search the list by species group, habitat type and location and access additional information about the species and habitats from the National Biodiversity Network (NBN) gateway, the UK’s biodiversity information network.

21. Scottish Rural Development Programme

The Scottish Rural Development Programme provides money and support for projects run by businesses, individuals and groups to help:

- create vibrant rural communities
- protect and enhance the environment
- support rural businesses
- help the farming industry grow

Contact

The LBAP is designed to be an evolving, working document with future updates and material to be published on the biodiversity web pages: www.northlan.gov.uk/biodiversity. If you would like to receive updates to the plan, please visit the biodiversity web pages or contact the Biodiversity Officer with your name and address.

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Acknowledgements

This document has been prepared by North Lanarkshire Council, in conjunction with numerous people involved with the North Lanarkshire Biodiversity Partnership. Their assistance and input is greatly appreciated.

Thanks to all the people who kindly provided the images, text and knowledge that allowed this document to be brought together.



'Orange Tip Butterfly' © Laura McCrorie

Glossary of Terms

Blanket bog – area of peat (mainly of bog-moss Sphagnum), spreading over sloping ground

Bryophytes – mosses and liverworts

Calcareous – lime-rich or base-rich (soil)

Carr – wet woodland (willow or alder) on fen or swamp habitat

Eutrophic – nutrient-rich water, often subject to algal ‘blooms’ in summer

Indicator species – usually plants or invertebrates confined to particular ecological conditions prevailing in long established habitats. They may be unable to survive damage (eg. Regular burning) or disturbance to the habitat where they are found and are thus vulnerable.

Local Nature Reserve (LNR) – Local nature reserves are areas of at least locally important natural heritage, designated and managed by local authorities to give people better opportunities to learn about and enjoy nature close to where they live.

Mesotrophic – neutral (not acid or eutrophic/base-rich) water.

Odonata – dragonflies and damselflies.

Raised bog – area of peat on level ground, rising gradually to a central dome.

Red Data Book – list of species of conservation concern based on known rate of decline.

Site of Importance for Nature Conservation (SINC) – local designation covering sites that have a local biodiversity value or notable biodiversity features.

Sustainable Urban – Drainage Systems (SUDs) used as an alternative to conventional urban drainage systems and are designed to reduce pollution and flood risk in watercourse and water bodies. they are man-made structures and receive water run-off.

Vascular plants – all flowering plants, ferns, horsetails and clubmosses.



‘Landscape’ © Laura McCrorie



PEATLAND ACTION PLAN



Peatland Landscape Introduction

A Landscape Perspective...

Peatlands are a special living landscape and are rich in carbon peat soil. The UK is of international importance for peatland habitat with most of this found in Scotland. More than 20% of Scotland's land area is covered in peatland habitat. Most peatland in Scotland is in the form of blanket bog and raised bog which contain the most extensive and deepest peat soils. These bogs are formed over many thousands of years. Our peatlands are significant stores of carbon and play an important role in tackling climate change. The carbon stored in Scotland's peatland is equivalent to over 180 years of greenhouse gas emission from Scotland. Both blanket bogs and lowland raised bogs are found within North Lanarkshire, with the latter being more common.

Why are they important?

Peat bogs are home to a unique array of wildlife, some of which is only associated with this habitat type. As rainwater fed ecosystems, they are acidic and poor in nutrients and therefore support a restricted range of specialist species. Carnivorous plants such as Sundew and Butterwort are found on various bogs on Scotland. Bogs also support a rich abundance of invertebrates and are important for a number of breeding wader birds such as Curlew and Golden Plover. Sphagnum moss is a key driver in the formation of peat bogs, it can thrive in low nutrient conditions and soak up water like a sponge. Carpets of bog moss continue to grow on the surface of the bog, with decaying plant matter forming peat. Blanket bogs and raised bogs are recognised as internationally important habitats and included under the EU Habitats Directive.

Peatlands are not only important for biodiversity, but also provide many benefits to people. The multi-use benefits in terms of ecosystem services include the provision of clean drinking water as much of our drinking water comes from peatland areas. Intact peat bogs play a vital role in flood management by helping to maintain steady flow rates as well as reducing the risk of flooding events downstream.



Peatlands Under Threat....

In Scotland, much of the blanket and raised bog has been damaged by activities such as afforestation, drainage and agriculture. This has resulted in the extent and benefits of this important habitat being much reduced. Degraded bogs do not sequester carbon and fail to act as a carbon sink. In Scotland, it is estimated that up to 70% of blanket bog and 90% of active raised bog has been damaged. The 2020 Challenge for Scotland's Biodiversity includes a key imperative to restore Scotland's peatlands. Extensive areas of peatland will be managed to conserve their wildlife, and to improve their capacity for storing carbon. The Scottish Government has funded a programme of peatland restoration since 2012 (Peatland Action) to mitigate against climate change. In 2020 the Scottish Government announced a multi-annual investment in peatland restoration of more than £250 million until 2030. Delivered by NatureScot, Peatland Action aims to;

- restore and manage peatlands to maintain carbon stores and encourage carbon sequestration (since 2012 the project has helped restore over 35,000 ha);
- restore peatland ecosystem functions;
- enhance ecosystem resilience to climate change; and
- build peatland restoration capacity and understanding amongst land managers, contractors, advisors and the public.

Peatland Action contributes to the objectives of Scotland's National Peatland Plan which sets out Scotland's long term objectives for sustainable use, management and restoration of peatlands.

Peatlands in North Lanarkshire

A notable coverage of lowland raised bogs is present within North Lanarkshire given the size of the region. Unfortunately, the extent and quality of this habitat mirrors national trends and is much reduced and degraded. However, there are 5 sites in North Lanarkshire which are designated as Sites of Special Scientific Interest (SSSI) and 3 have the additional SAC designation (Special Areas of Conservation – a European designation). For example, North Shotts Moss Special Area of Conservation (SAC) is designated for its active raised bog habitat and is one of the best examples of this feature in the country.

The Peatlands Habitat Action Plan aims to protect and safeguard existing peatland sites as well as guide restoration works on degraded sites. The plan also includes objectives and targets for the Small Pearl Bordered Fritillary, found on various bogs in North Lanarkshire, with the aim to improve habitat quality for this priority Action Plan species.

The restoration and enhancement of bog sites in North Lanarkshire will help to contribute to Scotland's targets to reduce carbon emissions and help tackle climate change, as well as improving conditions for a large number of bog associated species.



Bogs Action Plan

Bogs Action Plan

Scottish Biodiversity List Habitat:

Yes

UK Biodiversity List of Priority Habitats:

Yes

Summary

This Habitat Action Plan outlines the conservation status of all lowland raised, intermediate and blanket bogs in North Lanarkshire, known locally as Mosses. Both lowland raised bog and blanket bog are a UK Biodiversity Group priority habitat and are considered the most nationally and internationally important habitat in North Lanarkshire.

Lowland raised bogs are peatland ecosystems that usually develop in lowland areas such as the head of estuaries, along river flood plains, and in depressions in the landscape left by the last glaciation.

Blanket bogs are largely found in upland areas of the world with cool, wet and typically oceanic climates. Most extensively found in the north and west areas of Scotland's uplands.

Raised bogs tend to be deeper than blanket bog but have a lower bulk density.

Approximately 10% of the mosses found locally are in an undisturbed condition; the rest of the resource is in a poor condition.

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- restore peatland ecosystem functions;
- enhance ecosystem resilience to climate change; and
- build peatland restoration capacity and understanding amongst land managers, contractors, advisors and the public.



Habitat Profile

Lowland raised/intermediate bogs are recognisable within the landscape as gently sloping raised mounds of peat. They consist of a deep accumulation (up to 10m) of water-logged peat and, when intact, their surface is covered by a living layer of plants and mosses. As the surface of the moss is raised above the local water table the only source of water and nutrients feeding the bog comes from direct rainfall (ombrotrophic systems). Lowland raised/intermediate bogs can be classified as primary or secondary depending on the degree of damage the bog has been subjected to.

Primary raised bogs are those in which the dome is intact and are usually dominated by actively growing, undisturbed Sphagnum moss-rich vegetation. A secondary moss is one, which has been damaged due to peat extraction, afforestation, agricultural intensification, built or other development, but where the water table has stabilised because the drainage pattern has become blocked. Under these conditions, the surface vegetation may be dominated by a secondary growth of Sphagnum moss species and Cottongrass. Secondary bogs may be either active or degraded (ie: laying down peat, or capable of restoration). Both types are considered to be of European conservation importance.

The characteristic plants of raised/intermediate bogs, such as Heather species, Cotton Grasses, bog (Sphagnum) mosses, Cranberry and Sundews are all specially adapted to live in water-logged, nutrient poor conditions. The abundance of some Sphagnum species is of critical importance to the development of the bog (typically Sphagnum papillosum together with species such as Sphagnum magellanicum). The growth of Sphagnum species helps to create the strongly acidic conditions of ombrotrophic peat and associated bog pools.

Lowland bogs support a distinctive range of animals including many wetland birds such as curlew, and invertebrates such as dragonflies and beetles. Rare and localised invertebrates such as the Large Heath Butterfly may also be found on lowland raised/intermediate mosses. In North Lanarkshire, Longriggend Moss, is noted for its rare spider fauna.

Around 2.25 million ha of blanket bog is found in the UK, most of it in Scotland. Blanket bog is one of Scotland's most common semi-natural habitats, covering some 1.8 million hectares – 23% of our land area. Scotland holds a significant amount of the European and world resource of this rare habitat. Blanket Bogs are generally an upland habitat, it can be found from 1000m down to sea level where peat has accumulated to a depth of at least 0.5m - generally on flat or gently sloping ground where drainage is poor.



Peat accumulation preserves a unique and irreplaceable record of plant and animal remains and some atmospheric deposits from which it is possible to assess historical patterns of vegetation, climate change, and human land use. Many bogs in North Lanarkshire, such as Greenhead Moss, can provide information on such aspects over a period of up to 6000 years.



Current Status

Intact lowland raised/intermediate bogs are one of Europe's rarest and most threatened habitats. They occur throughout the UK and account for less than 5% of the UK's total peatland area, with 87% blanket bog (commonly found in the uplands). Scotland's peat soils cover more than 20% of the country and store around 1600 million tonnes of carbon. However, it is estimated that over 80% of our peatlands are degraded. Peatlands in good condition actively form peat, removing CO₂ from the atmosphere and storing carbon in the soil.

In North Lanarkshire, bogs are most commonly found around Shotts, Eastern Monklands and in the Kelvin Valley. Most of the bogs within North Lanarkshire are lowland raised/intermediate bogs. Blanket bogs are not as common; however, several are located within the district. These types of bog are mostly found in upland areas of Scotland.

Since the start of the 19th century, the area of undisturbed lowland raised bog in the UK has declined from around 95,000 hectares (ha) to around 6,000 ha, a loss of 94%. In Scotland this represents a decline from 28,000 ha to 2,500 ha, a loss of 91% of the original resource with the remaining resource scattered across numerous small sites. In North Lanarkshire, the approximate area of the resource is 187ha, which represents 7% and 5% of the primary lowland raised bog cover in Scotland and Great Britain respectively.

Seven bogs are designated as Sites of Special Scientific Interest and some have the additional cSACs designation (candidate Special Areas of Conservation – a European designation). All have been surveyed for their habitat quality. The sites, site condition and survey dates are shown below:

West Fannyside Moss (SAC) – 34ha. Favourable maintained condition (2017).

Black Loch Moss (SAC) – 95ha. Favourable recovered condition (2012).

Hassockriggs – 45ha. Unfavourable condition (2008).

North Shotts Mosses (SAC) – 35ha. Favourable maintained condition (2013).

Lady Bell's Moss – 54ha. Unfavourable no change (2013).

North Bellstane Plantation – 3ha. Unfavourable condition due to competing designated features on one site (2009).

Longriggend Moss – (around 37ha). Favourable maintained condition (2005).



Legal Status

A number of UK and Scottish lowland raised/intermediate bogs have been notified as Sites of Special Scientific Interest (SSSI's). A number of sites have also been declared as National Nature Reserves (NNRs), although none as of yet in North Lanarkshire.

In Scotland there is a continuing programme of notification to ensure that all key areas which meet the SSSI selection guidelines are notified. Raised bogs, both active and degraded, are listed on Annex 1 of the EC Habitats Directive and the UK Government is presently determining areas that qualify as Special Areas of Conservation (SAC's) under this Directive.

In North Lanarkshire, 7 bogs have been notified as SSSI's by NatureScot, of which 3 are also SAC's. In addition to this there are also 72 bogs, which are, at least in part, designated as Sites of Importance for Nature Conservation (SINC's) by North Lanarkshire Council, including all of the SSSIs. Kingshill, Greenhead Moss and Brownsburn have been designated as Local Nature Reserves. However, despite these designations, many sites are vulnerable to destruction, damage or neglect.



Current Factors Affecting This Habitat

- **Peat extraction** – the extraction of peat and/or underlying mineral deposits for horticultural and fuel uses.
- **Forestry** – in addition to the direct impacts of existing plantations on deep peat, successive rotations dry out neighbouring areas and act as an invasive seed source. Current procedures ensure that new woodland schemes avoid peatland of value in North Lanarkshire.
- **Built development** – Opencast and built development can result in the total destruction of bogs or in serious damage to their hydrology. Another 4 areas are potentially threatened through extensions to quarrying operations and opencast.
- **Agricultural Intensification** – Livestock management/ rough grazing on bogs is common in North Lanarkshire. This is frequently accompanied by drainage, trampling, burning and surface contamination with feed and droppings.
- **Dereliction/Neglect** – Many North Lanarkshire sites suffer from neglect and are being currently drained (either directly or indirectly) and will degenerate without conservation management. Many bogs are burnt as a result of vandalism or accidents.
- **Pollution** – contamination from adjacent landfill, opencast or agricultural drainage. Deposition of atmospheric pollutants, fertiliser drift during its application, or the legacy of past deposition, may be significant at certain sites.
- **Windfarms** – Development on sensitive bog areas.



Current Action

- The Forestry Commission (FC) has produced a guidance note on “*Forests and Peatland Habitats*”. This signals a presumption against new planting on active raised bog and degraded raised bog capable of restoration. It also describes the criteria, which the FC will use to consider supporting the restoration of lowland raised bog from existing woodlands.
- The UK Peatland Strategy 2018 – 2040 aims to drive and co-ordinate action across the UK, supported by country level plans that will establish a course for peatland conservation and management at a more detailed level.
- NatureScot published Scotland’s National Peatland Plan in 2015, This sets out the many benefits of healthy peatlands and how we can improve peatland that is in poor condition.
- NatureScot – Peatland Restoration Fund has been made available since 2012
- North Lanarkshire Council are encouraging composting initiatives as part of a waste minimisation strategy. This is a valuable component for education in reducing horticultural peat use.
- Joint SNH/FC/Central Scotland Forest Trust (CSFT) Guidance: The Assessment of Peatland for Woodland Establishment in the Central Scotland Forest Area has been produced in order to assist in the planning of afforestation schemes.
- Large scale Peatland restoration projects occurred at Fannyside Muir within the Slamannan Plateau by Buglife, NLC, FCS and CSGNT. At least 230 hectares of lowland raised bog was restored through this project with funding from WREN Biodiversity Action Fund, NatureScot and the contribution of the LIFE financial instrument of the European Community delivered as part of the EcoCo LIFE project: LIFE13 BIO/UK/000428.
- Since 2015, Greenspace Development have applied and been granted £89,000 funding from NatureScot’s Peatland Action Fund for the restoration of four sites across North Lanarkshire:
 - Greenhead Moss,
 - Broadwood Moss,
 - Cathburn Moss and
 - North Shotts Moss.
- All of our restored bogs have an interpretation panel associated with them reflecting the interest of the sites. Small scale volunteer work at Brownsburn bog by the Butterfly Conservation’s Bog Squad – installation of dams and scrub removal.
- Feasibility studies were undertaken on 3 urban bogs within Cumbernauld in 2019 and 2020. Works were due to start on these bogs in 2021. Owing to restrictions during the pandemic this has been delayed until to 2022 - 2023. This project is in partnership with CLL.
- Buglife are currently working with landowners at Easter Greenrigg and within a new area of Fannyside Muir to complete a feasibility study for a Peatland Action application.



Proposed Objectives, Targets and Actions

1. Maintain existing area of active peatlands.
2. Improve the condition of degraded peatlands.
3. Increase awareness of peatlands and their importance.

Action	Meets objective number	Action by	Target
Policy and legislation			
1.1 Seek to reduce consumptive use of peat by all NLBAP Steering Group organisations, including contracted work.	1,2	All	A written statement for each organisation by end of 2024.
Habitat management and protection			
2.1 SSSI sites to be in a local bogs management scheme.	1	NatureScot, NLC	All eligible sites to be in scheme by 2024 where private landowners are cooperative.
2.2 Refuse new applications for extraction consents on all European, national and locally designated peatlands.	1	NLC	Ongoing.
2.3 Create and maintain favourable conditions for the conservation and enhancement of Council owned bogs.	1,2	NLC, NatureScot	All four sites to have benefitted from restoration work by 2024.
2.4 Key Forestry Commission sites to be identified for restoration.	1	FC	Three sites to be identified by 2023 and resorted by 2025.
2.5 Create and maintain favourable conditions for the conservation and enhancement of key Forestry Commission sites.	1,2	FC, NatureScot	Three sites to be 2025.
2.6 All primary sites and their owners to be identified.	1	NLC, NatureScot	All sites by 2023.
2.7 All primary, undisturbed sites (P1) to be in a positive management agreement.	1,2	NLC, NatureScot	All sites by 2024 where private landowners are cooperative.
Communications and awareness raising			
3.1 Promote awareness of the biological and cultural importance of Mosses to five local communities adjacent to lowland raised/ intermediate bogs.	1, 3	NLC, NatureScot, SWT	A talk, walk, leaflet, interpretation or practical involvement in restoration, or accessibility to mosses, to be provided annually from 2022, after agreeing an education and awareness strategy.
3.2 Encourage survey of plants and invertebrates on key sites.	1, 3	NLC, NatureScot, SWT	Invite and support specialist to carry out surveys on key sites. Develop volunteer opportunities. Survey events at 3 bogs by 2024.

Authors

Plan updated by Kirsty Mooney, Biodiversity Projects Officer, NLC and Suzanne Burgess, Buglife 2022.

Small Pearl-Bordered Fritillary Action Plan

Boloria selene

Small pearl-bordered fritillary Action Plan

Scottish Biodiversity List habitat:

Yes

UK Biodiversity List of Priority Habitats:

Yes

Watching Brief Only

Summary

The Small pearl-bordered fritillary is widespread locally but restricted to sites where its favoured larval food plant, Marsh violet, grows. The number of known colonies identified in North Lanarkshire has increased from 25 in 1996 to about 50 in 2014. Other than at a few sites, the health of colonies and their habitat is not known and obtaining this data will be a key action of this plan. More survey work is required to identify a more up to date picture of this species in North Lanarkshire.

The butterfly is identified as a high priority for Butterfly Conservation at the UK level, and a medium priority for conservation action in Butterfly Conservation's Scottish Conservation Strategy. The Small pearl-bordered fritillary has also been rated as vulnerable in the revised Red List of British butterflies (Fox, R. et al, 2022).



Species Profile

In Scotland, Small pearl-bordered fritillaries are usually found in flushed rushy grassland, wet rides, glades within or at the edges of woodland and moorland edge. The larvae feed at night on the leaves of violets, particularly Marsh violet, which typically grows on the margins of raised bogs or in wet flushes on acid soils. The adults fly from early June until late July or early August, when they often feed on the flowers of Marsh Thistles.

It is thought that the species may exist as larger metapopulations (many smaller colonies making up a larger population as butterflies move between them) within which adults concentrate around favoured breeding areas. This could explain why there are many small colonies found in our area and is a good reason why conservation action for this species should occur at a landscape level.

Legal Status

The Small pearl-bordered fritillary is not currently listed under Schedule 5 of the Wildlife and Countryside Act (1981), and therefore has no statutory protection.

Current Status

The Small pearl-bordered fritillary can be found across central and northern Europe and through Asia to Korea. Its population appears stable through much of Europe, though it has declined by more than 75% in the Netherlands and by over 50% in Luxembourg and Belgium, in the last quarter of the 20th century (Asher et al., 2001).

At a UK level, the butterfly's range has strongly contracted with an estimated -76% occurrence trend between 1976 and 2014 (Fox, R. et al 2015). The most recent population trend across the UK also showed a worrying 68% decline in abundance between 1976 and 2021 (UKBMS data 2021). Severe declines have occurred in south, central and eastern England. In Scotland the butterfly remains widespread and locally abundant, particularly in the Highlands and other areas north of the central belt. Although it is also thought to have declined in parts of eastern Scotland during the last 50 years.

There are small breeding colonies of the Small pearl-bordered fritillary scattered throughout North Lanarkshire, from the Kilsyth Hills to the West Lothian border by Harthill. With colonies around Croy Hill/ Dullatur; to the south of Cumbernauld; and in the Caldercruix-Hillend Reservoir area, where there are more extensive patches of the preferred habitats. Small numbers still occur in, or close to Strathclyde, Drumpellier and Palacerigg Country Parks.

Several new colonies were confirmed in the early 2010's, and it is likely that there are more sites to be found. This does not indicate the species is spreading, simply that it has been better recorded. The butterfly has been recorded in 44 one-kilometre squares since 1989, but it is not certain how many of these squares still support the species. Overall, the population size of these colonies is poorly known, though most sites are thought to have single figure populations. Survey and monitoring has been irregular, mainly because of the insect's relatively short flight period and the localised habitat requirements.

Monitoring has been carried out at Commonhead Moss (east); the population is the largest known in North Lanarkshire, with counts of 130 adults in May 2004. Commonhead Moss (west) holds the record

for the highest numbers recorded in west central Scotland of 182 in 1997. Unfortunately, these two sites are bisected by the M73.

Only 6 other sites in North Lanarkshire have had records of ten or more adults since 2004. There are no recent records from some other sites which previously had large numbers of individuals, such as Auchinbee Quarry, Dullatur (25 in 1992).

Future Status

With better information on the distribution of this species it will be easier to minimise the impacts of development and degradation of habitats. However, facilitating adequate habitat management for this species will be difficult because of varying land-use and ownership.



Current Factors Affecting This Species

The main threats to this species are loss of breeding habitat from agricultural improvement or afforestation, persistent burning of grassland and bogs, and on some sites, scrub regeneration (of birch and willow), which may occur due to agricultural abandonment. Built development, mining and quarrying have also eliminated or affected North Lanarkshire sites, one of which is between a busy motorway and an A-class road.

Current Action

Efforts have been made to ensure the protection of suitable habitat within the development planning process and the Woodland Grant Scheme consultation arrangements.

- Ongoing collation, by the NLC Community Greenspace, Glasgow Natural History Museum and Butterfly Conservation, of Small pearl-bordered fritillary distribution data.
- Submitting records of this and other species to Butterfly Conservation and accessing their database of butterfly records from North Lanarkshire.



- Site Stewardship programme within NLC Community Greenspace monitoring NLC owned sites, some of which include Small pearl-bordered fritillary populations.
- The presumption against development of SINC's in the NLC local plan. The majority of Small pearl-bordered fritillary sites are designated as SINC's.
- Appropriate mitigation on sites where development or land-use change threatens the species.
- Environmental statements from developments identifying new or prospective sites for this species.
- An identification guide to the butterflies and some of the day-flying moths of Falkirk, North and South Lanarkshire was published by BC and NLC in 2009 and is still available.
- Volunteer habitat maintenance work party held by Butterfly Conservation at St. Maurice's Pond in March 2017 to remove tussocks of grass and rushes to make more room for violets
- Ongoing UK Butterfly Monitoring Scheme transects at Kingshill, Commonhead Moss (west) and Greenhead



Proposed Objectives, Targets and Actions

1. To maintain and enhance the population and distribution of Small pearl-bordered fritillaries in North Lanarkshire.

2. Survey populations and monitor all known sites.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Enter into simple management agreements with owners of sites from where the butterfly is known, particularly where protection of breeding wetlands may be achieved through SRDP.	1	NLC, BC, landowners.	Three targeted management agreements by 2027.
1.2 Press for appropriate mitigation on sites where development or land-use change threatens the species.	1	BC, NLC (Planning), SWT, private landowners	Include in Biodiversity Guidance.
1.3 Apply appropriate management prescriptions on areas adjoining sites to be managed within Glasgow City, i.e. Garnkirk Moss and Gartosh Road Mire/Drumpellier Country Park.	1	GCC, NLC, private landowners	a) Prescriptions agreed. b) Prescriptions implemented at one site annually from 2026.
1.4 Protect habitat corridors between colonies to maintain metapopulations. Ensure known SPBF localities do not become isolated as a result of planning procedures and developments.	1	NLC	Identify habitat corridors, map these out and share them with NLC Planning.
1.5 Investigate possibilities of a green bridge over M73 to link Commonhead Moss (east) and Commonhead Moss (west).	1	NLC, GCC	Renewed connection between the two sites.
1.6 Further Sp-bf sites to be designated as SINC.	1	NLC, BC	New sites designated within a year of identification.
Species Management and Protection			
2.1 Reintroducing the marsh violet at sites where it has become extinct, if sufficient suitable habitat exists.	1	NLC, BC	Assess 3 sites annually for Marsh Violet planting opportunities and undertake where needed.
2.2 Monitor known sites for growth and spread of birch and other invasive trees into key habitat areas, and remove these if necessary.	1	NLC, BC	Annual management of sites. Potential project at St Maurice's Pond.
Advisory			
3.1 Advise site owners / managers on practical management for fritillaries.	1	BC, NLC	Identify and approach landowners to offer advise by 2026.
Survey, research and monitoring			
4.1 Survey all populations at known sites.	2	NLC, BC	Draw up timetable and list of sites to survey by end of 2023. Survey all sites by end of 2024.
4.2 Continue monitoring at least 3 sites. Greenhead, Commonhead Moss (east) and Palacerigg.	2	NLC	Annually
4.3 Maintain 3 existing butterfly transects as part of the UK Butterfly Monitoring Scheme.	2	NLC, BC	Ongoing
4.4 Track down missing records for SPBF in NL, and create and maintain distribution maps of this species on GIS.	1	NLC, BC	By end of 2025 and update annually.
Communications and awareness raising			
5.1 Include members of the public in surveys and provide training with the aim that members of the public can survey sites independently and feedback results.	2	NLC, BC	1 survey annually to include public involvement and training element.

References

Ash Asher J, Warren M, Fox R, Harding P, Jeffcoate G and Jeffcoate S (2001): The Millennium Atlas of Butterflies in Britain and Ireland. OUP. Oxford.

Butterfly Conservation UK Strategy 2025 https://butterfly-conservation.org/sites/default/files/2018-11/bc_2025_conservation_strategy.pdf

Fox, R., Dennis, E.B., Brown, A.F. & Curson, J. (2022) A revised Red List of British butterflies. Insect Conservation and Diversity, 1–11. Available from: <https://doi.org/10.1111/icad.12582>

Fox, R., Brereton, T.M., Asher, J., August, T.A., Botham, M.S., Bourn, N.A.D.; Cruickshanks, K.L., Bulman, C.R, Ellis, S., Harrower, C.A., Middlebrook, I.; Noble, D.G., Powney, G.D., Randle, Z., Warren, M.S.. Roy, D.B. 201 The State of the UK's Butterflies 2015. Butterfly Conservation and the Centre for Ecology & Hydrology, Wareham, Dorset.

Sutcliffe, R Species Action Plan for the Small Pearl-bordered Fritillary in Glasgow City, Glasgow City Council 2000

Thomson G. The Butterflies of Scotland, Crook Helm 1980

UKBMS data 2021 https://ukbms.org/sites/default/files/Country-level%20Summary%20Tables%202021_updated.pdf

Authors

David Hill (Butterfly Conservation), Laura McCrorie (North Lanarkshire Council) 2022.



A dark horse wearing a red blanket is grazing in a field of tall grass. The background features a dense line of trees under a blue sky with some clouds. A purple banner is overlaid on the image, containing the title text.

FARMLAND ACTION PLAN



Farmland Landscape

Introduction

A Landscape Perspective...

Farming has been taking place in the UK for thousands of years, changing the natural landscape and creating a predominately man made environment. Farmland dominates our landscape, with agricultural land accounting for approximately 75% of UK land use cover. Many species of birds, mammals and invertebrates have taken advantage of this change in landscape and certain types of farming can be particularly beneficial to biodiversity, especially traditional low intensity farming and what is known as 'High Nature Value' farmland.

Whilst farmland is not a habitat in itself within the UK Biodiversity Action Plan, it supports a mosaic of habitats which can be of high biodiversity value. The importance of farmland to biodiversity is recognised at a national level. The 2020 Challenge for Scotland's Biodiversity identifies key steps to improve farmland for biodiversity¹². The growing concept of 'High Nature Value' recognises that the conservation of biodiversity in Europe depends on the continuation of low intensity farming systems.



Why are they important?

Farmland provides a diverse range of habitats and supports a wide range of species. Given the extent of farmland, it can be of huge importance to wildlife as this habitat can potentially allow wildlife to move through the landscape. Features associated with farmland such as hedgerows, woodland shelter belts and field margins provide suitable habitat for foraging, sheltering and breeding. If managed appropriately, they can support a large variety of species such as Barn owl, Brown hare and Grey partridge. Wildflower rich hay meadows can be particularly important for wildlife. By supporting grass and flower species such as Meadow foxtail, Lady's bedstraw and Meadow buttercup, meadows can support a rich invertebrate assemblage and be an important food source for a variety of bird species. One such hay meadow is found at Brownsburn Local Nature Reserve, and is managed to optimise wildflower diversity. Annual, late summer cutting produces wildflower meadows that attract a variety of butterfly species such as Peacock butterfly and Orange-tip butterfly.

Farmland is not only beneficial to wildlife. As well as producing food, they have rich cultural value and play an integral role in rural economies. Agricultural landscapes provide public benefits for recreation, improving health and well being and have an important aesthetic value. Scottish farming plays a major part in sustaining rural community networks, as employer, consumer and producer. Farmland provides us with many ecosystem services. Ecosystem services can be described as the benefits society receives from the natural environment. From a farmland perspective, these ecosystem services include soil, water and air quality. For example, farmland can help with water regulation through increased filtration which can reduce the risk of runoff and flooding and help recharge groundwater supplies.¹³

¹² The Scottish Government, 2013, 2020 Scottish Biodiversity Challenge

¹³ Natural England, 2012, Ecosystem services from Environmental Stewardship that benefit agricultural production (NERC102)

Farmlands Habitats Under Threat...

Since the latter part of the 20th Century, modern, intensive farming methods have led to a decline in farmland biodiversity. With a growing human population, there will be an ever increasing demand for food production. This will lead to further pressures on farmland habitat and the ecosystem services that they provide.

Biodiversity is heavily influenced by land use and land management techniques. As traditional methods of farming have declined and agricultural intensification has taken hold, there has been a rapid decline in the wildlife that is associated with our farmed environment. Hedge laying, rotational and diverse cropping, seasonal grazing and leaving winter stubble and field margins are just some of the farming methods that have become less common in recent years, despite having many benefits for wildlife, the environment and food production.

Between the period 1970 – 2013, species highly dependant on farmland habitat in the UK (including Tree sparrow, Corn bunting and Grey partridge) have declined by 70%.¹⁴ This trend continues with the Index of Abundance for Scottish Terrestrial Breeding Birds 1994 to 2018 identifying that there have been some substantial long-term decreases in farmland birds, including more than 50% for greenfinch, kestrel, and lapwing, and between 25-50% declines in oystercatcher, rook and pied wagtail. Pied wagtail had the largest decrease (33%) and another two (dunnock and whitethroat) had decreases of more than 20% on farmland.¹⁵ Changes in farming practices, such as the loss of mixed farming systems, the move from spring to autumn sowing of arable crops, and increased pesticide use, have been demonstrated to have had adverse impacts on farmland birds such as skylark and grey partridge, although other species such as woodpigeon have benefitted. Skylark, once synonymous with many farms throughout the country, has suffered many decades of breeding population decline. It has declined 58% from the period 1970 – 2010 and it is believed that it has declined due to changes in

farming practice, in particular the intensification of grassland management and the switch from spring to autumn sowing of cereals.¹⁶ This declining trend is not only seen in farmland bird species, but also in other groups such as butterflies. Structural variety in sward length, summer nectar sources and areas of scrub are all features which can be incorporated into farmland management that would greatly benefit butterflies.



Farmland In North Lanarkshire

There are over 300 farms in North Lanarkshire which support a diverse range of habitats and wildlife. Biodiversity is not only under threat from intensification, but also the loss of farmland to development such as housing, landfill and wind farms. National trends in the decline of key farmland species groups such as waders are mirrored in North Lanarkshire.

The Farmland Habitat Action Plan aims to protect and safeguard habitats associated with farmland such as lowland flood plain grazing marsh and hedgerow. The plan also includes objectives and targets for key farmland species within North Lanarkshire such as Barn owl and Bean goose, with the aim to not only improve fortunes for these species under threat but to improve habitat quality.

¹⁴ DEFRA, 2014, *Wild Bird Population in the UK, 1970 to 2013*

¹⁵ *Index of Abundance for Scottish Terrestrial Breeding Birds, 1994 to 2018*

¹⁶ Gibbons, D.W., Reid, J. and Chapman, R.A. (1993) *The New Atlas of Breeding Birds in Britain and Ireland; 1988 -1991*. T.&A.D. Poyser, London

Floodplain and Grazing Marsh Action Plan

Floodplain and Grazing Marsh Action Plan

Scottish Biodiversity List Habitat:	Yes
UK Biodiversity List of Priority Habitats:	Yes

Summary

It is estimated that there is 300,000 ha of grazing marsh in the UK. However, only a small proportion of this grassland is semi-natural, supporting a high diversity of native plant species (Estimated 10,000ha in the UK).

The largest area of this habitat in North Lanarkshire is in the Kelvin Valley, with the greatest continuous extent found to the south of Kilsyth between Banknock and Dumbreck Local Nature Reserve. Over the last 2 centuries much of this area has been drained or built on. The remaining extent tends to be in poor condition due to a lack of, or inappropriate, management.

Habitat Profile

Floodplain and grazing marsh can be defined as periodically inundated pasture or meadow with ditches containing standing fresh water, which regulate or maintain the water levels. These ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay and silage. Sites may contain seasonal water filled pools, or less often, permanent ponds such as old ox-bow lakes containing emergent swamp communities.

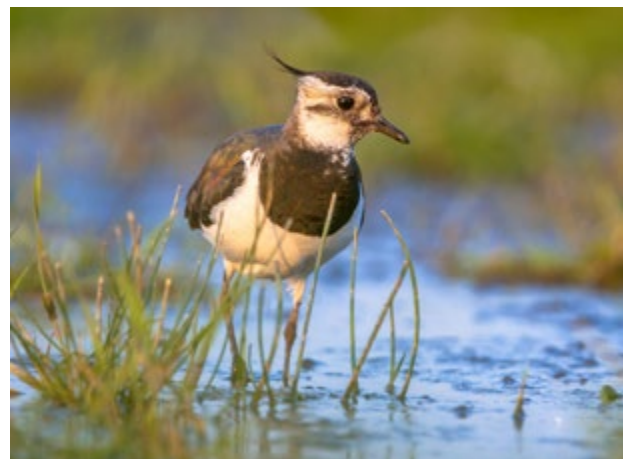
This is a diverse habitat definition, covering drained and improved grassland and marshy habitats, with a high proportion of rushes, sedges or Meadowsweet. All of these habitats are liable to periodic flooding, mainly from October to April. The grasslands are found on alluvial nutrient rich-soil created by the periodic flooding of rivers and streams.

The main grassland groups are:

- Improved grassland, often re-seeded with Ryegrass, Timothy or Clover mixes.
- Fen or marshy grassland with a high proportion of rushes, sedges or Meadowsweet.
- Wet pasture with a predominance of tall herbs such as Valerian or Wild angelica.

Floodplain and grazing marsh supports a wide variety of animals; the species present often dependent upon the type of grassland present. It is particularly important for breeding waders such as Redshank, Snipe, Lapwing and Curlew. Improved grassland that floods on a regular basis supports winter flocks of grazing Greylag geese and Whooper swans.

Grassland comprising of mostly rushes or sedges supports wintering and breeding Reed buntings, whilst wet, herb rich pasture provides habitat for Grasshopper warblers. Emergent plants such as Branched bur-reed provide winter food for a variety of ducks.



Current Status

Floodplain and grazing marsh were common along the larger watercourses in North Lanarkshire prior to the industrial revolution. However, industrial development led to many drainage and water flow control schemes that reduced the flooding of these rivers and the size of their floodplains. The greatest loss of habitat was likely to have been on the Clyde Haughs where Strathclyde Loch now stands and the floodplain of the River Kelvin. The Kelvin Valley, around the Forth and Clyde Canal at Kilsyth, is the largest and most intact area of floodplain grazing marsh in the country. A small area of grazed floodplain grassland with shallow ponds occurs by the River Clyde, south east of RSPB Baron's Haugh Nature Reserve.

The draining of the Kelvin is well documented in the Old Statistical Account of Kilsyth in 1795, *"The Kelvin takes it rise near the center of this parish... in slow, oozing serpentine course... overgrown with fags, rushes and water lilies; so that it frequently overflowed the adjacent valley, giving it the appearance of a great lake, or considerable arm of the sea"*. A new channel was cut in the early 1790's; it was almost straight and much deeper than the original river. This drainage turned 300 acres of meadow into arable land and 60 acres of moss into meadow. The river channel is now largely artificial and the predominant grassland type present in the River Kelvin floodplain is drained, improved grassland used for pasture and silage.

The Water Framework Directive (WFD) is a wide-ranging piece of European legislation which became law in Scotland through the Water Environment and Water Services (Scotland) Act (WEWS) 2003. The Act was supplemented by the Water Environment (River Basin Management planning: Further Provision) (Scotland) Regulations 2013 and the Cross-Border River Basins Districts (Scotland) Directions 2014. The Act created a new River Basin management Planning (RBMP) process to achieve environmental improvements to protect and enhance our water environment in a sustainable way; The Water Environment (Controlled Activities) (Scotland) Regulations 2011 are in place to manage activities which may impact on the water environment.

Scotland's third River Basin Management Plan (2021-2027) and the Wild Salmon Strategy are key. The former plan aims to achieve 81% of the water environment being in a good or better condition by 2027 and 90% in the long-term once natural conditions have recovered. Issues which need tackling include increasing water scarcity and abstraction, rising water temperatures, rural diffuse pollution, wastewater, man-made barriers to fish migration and physical modifications to rivers, Invasive non-native species (INNS) such as Japanese knotweed, giant hogweed and North American signal crayfish have considerable impacts on freshwater ecosystems and these are intensifying. Healthy riparian woodlands are critical for the health of water systems and bodies but they are in declining in coverage and condition. Poorly vegetated upper catchments and canalised river systems exacerbate downstream flash flooding events.

The Water Framework Directive (WFD) aims to improve and protect the water environment on a catchment scale. Its aims are to:

- Prevent deterioration and enhance status of aquatic ecosystems, including groundwater
- Promote sustainable water use
- Reduce pollution
- Contribute to the mitigation of floods and droughts

Scottish Ministers have powers to introduce controls over a range of activities which can have an adverse impact upon the water environment. These regulations are more commonly known as the Controlled Activity Regulations (CAR). If you intend to carry out any activity which may affect Scotland's water environment, you must be authorised to do so. Discharges, disposal to land, abstractions, impoundments and engineering works in inland waters are all regulated by SEPA.

The Scottish Rural Development Programme provides money and support for projects run by businesses, individuals and groups to help:

- create vibrant rural communities
- protect and enhance the environment
- support rural businesses
- help the farming industry grow

Current Factors Affecting This Habitat

- Physical habitat destruction through agricultural improvements such as drainage, ploughing and re-seeding. Dredging, bank reinforcement and bunding of rivers and streams can often lead to drying out of marshy grassland areas. These actions are now regulated by SEPA through CAR.
- Poor water quality of adjacent burns and rivers can have a knock on effect to floodplain and grazing habitat. Pollutants can enter the system via floodwater, which then lodge in the sediment and ultimately within the plants themselves. There is an added danger to waders and other animal life through the introduction of petrochemicals to food-chains via discharge into the river system.
- Neglect in the form of a decline in traditional management. Winter grazing and high-density summer stocking rates can cause severe poaching. This can damage established plants and disturb wildlife.
- Use of inorganic fertilisers on improved grassland adjacent to unimproved tall herb marshy grassland communities, resulting in wetland eutrophication.
- Afforestation of floodplain grazings, leading to loss of habitat, disruptions of flight paths and providing convenient lookout posts for bird predators.
- Agricultural improvements of marshy grassland to drier pastures, through drainage and/or re-seeding. Introduction of insensitively designed cycle ways, walkways and possible golfing facilities on or bordering floodplain grazing habitat could damage plant communities/and or disturb feeding or nesting wetland birds.
- In-filling of low lying floodplain grazing or wetland areas.



Current Action

- There are three sites where conservation measures have been undertaken by North Lanarkshire, at Dumbreck Marsh Local Nature Reserve (LNR), owned by North Lanarkshire Council (NLC), Dullatur Marsh Site of Special Scientific Interest (SSSI), which is mostly a Scottish Wildlife Trust (SWT) Reserve, and Baron's Haugh Royal Society for the Protection of Birds (RSPB) reserve. Various projects were undertaken during the period of the previous LBAP.
- Significant habitat improvements at Dumbreck Local Nature Reserve as part of the Water Environment Fund (SEPA) and NLC funded Garrell Burn river restoration 2022.



Proposed Objective, Targets and Actions

1. Maintain and enhance existing floodplain grazing habitats.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Take forward action to ensure that Dumbreck Marsh is managed appropriately for breeding waders.	1	NLC	Dumbreck Marsh management plan to be updated by 2024.
1.2 Develop a landscape scale initiative focusing on floodplain and grazing marsh	1	NLC	Take forward landscape scale conservation project in the Kelvin Valley with neighboring Local Authority by 2027.
1.3 Restore and sympathetically manage floodplain grazing habitat through management agreements with the owners of local SSSI's, SINC's and other targeted sites.	1	NLC, NatureScot	Three management agreements in place by the end of 2027.
Survey, research and monitoring			
2.1 Identify key areas of grazing marsh in the Kelvin Valley.	1	NLC	Develop a list of key sites by 2025.
Communications and awareness raising			
3.1 Develop and promote awareness and training event on floodplain and grazing marsh with respect to agri-environment schemes for private landowners and farmers.	1	NLC and LBAP partners	Deliver three workshops by end of 2027.

Authors

Updated by Laura McCrorie, Conservation and Biodiversity Manager 2022

Further reference

[Flood management - NatureScot](#) – Technical guidance on management of floodplains.

Hedgerow Action Plan

Hedgerow Action Plan	
Scottish Biodiversity List Habitat:	Yes
UK Biodiversity List of Priority Habitats:	Yes

Summary

Hedgerows are vital to the countryside, playing an important role to biodiversity due to the species and structural diversity they provide. Furthermore, due to their linear nature, they provide a unique opportunity to connect habitats. Major threats to hedgerow habitat in North Lanarkshire include poor management practices, as well as a lack of knowledge of the overall extent and condition of the hedges.

Habitat Profile

Hedgerows play an important role in the countryside in terms of biodiversity. Traditionally used to create field boundaries, they provide a means to connect habitats, as well as providing a wide range of species shelter and foraging habitat. Bats, Hedgehogs and birds are only a few animals that benefit from hedgerows.



A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country. Climbers such as honeysuckle and bramble are recognised as integral to many hedgerows, however they require other woody plants to be present to form a distinct woody boundary feature, as such they are not included in the definition of woody species. The definition is limited to boundary lines of trees or shrubs and excludes banks or walls without woody shrubs on top of them.

As well as hedgerows being rich in species the associated banks, ditches and un-mown margins are also important for wildlife.

The High Hedges Act 2013 came into force on 1 April 2014. A high hedge is defined by the Act as a hedge that is formed wholly or mainly by a row of two or more trees or shrubs, is over two metres in height and forms a barrier to light. The Act aims to provide a solution to the problem of high hedges, where neighbours have not been able to resolve the issue amicably, by providing an effective means of resolving disputes over the effects of high hedges which interfere with the reasonable enjoyment of domestic property. The inclusion of Hedgerow as a priority habitat will ensure the biodiversity value will be fully considered during any planning decision associated with the High Hedges Act 2013.

Normally associated with farmland landscapes, hedgerows can also play an important role in contributing to green corridors within urban landscapes and linking green spaces to protected sites within the wider landscape. They are also extremely important within a lowland farmland setting where they provide semi-natural and structural varied habitat.





Current Status

In Scotland it is estimated that there is 46,000km of hedgerow. This decreased in length by 7% between 1998 and 2007 and a third of actively managed hedges were judged to be in good structural condition in 2007. According to the Countryside Survey (2007), species richness in hedgerow margins decreased by 22%, which included declines in food plants of birds (22%) and butterflies (21%). There is currently no information about the length of hedgerow in North Lanarkshire nor its condition, but it likely reflects the national trends in terms of reduction of habitat and quality.



Current Factors Affecting This Habitat

- Neglect (no cutting or laying) leading to hedgerows changing into lines of trees and the development of gaps. This reflects modern high labour costs and loss of traditional skills.
- Too frequent and badly timed cutting leading to poor habitat conditions, the development of gaps and probable species changes.
- Loss of hedgerow trees through senescence and felling, without encouraging replacements.
- Use of herbicides, pesticides and fertilisers in close proximity to the bases of hedgerows, leading to nutrient enrichment and a decline in species diversity.
- Removal of hedges for agricultural and development purposes.

Current Actions

- Through planning consultation responses Community Greenspace advise, the safeguarding and enhancing of existing hedgerow and further native species rich hedgerow inclusion in new developments.
- The Seven Lochs Volunteers carried out hedgerow enhancement works at Gartcosh Local Nature Reserve this helped to expand the hedgerow and also to fill in any areas of fragmentation.
- RSPB have set out guidance for farmer on Arable Field Margins and Field Margins for Grassland, both emphasise the importance of these margins along hedgerow for birds, mammal and invertebrates.

Proposed Objectives, targets, and actions

1. Maintain and enhance hedgerow habitat.
2. Identify new opportunities for Hedgerow creation.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Maintain and enhance hedgerow habitat on all NLC Local Nature Reserves (LNR).	1	NLC	All LNRs to have hedgerow in favorable condition by 2025.
1.2 Hedge laying training courses for local volunteer groups.	1	NLC, Volunteer groups	Target key sites with established volunteer group –eg. Brownsburn LNR, Cumbernauld Community Park and Greenhead Moss in 2024.
1.3 Plant 20km of new hedgerow.	1,2	NLC	To be completed by 2025.
1.4 Work with colleagues to incorporate new hedgerows alongside Active Travel routes.	2	NLC	All new Active Travel routes to include hedgerow planting.
Survey, research and monitoring			
2.1 Identify extent of hedgerow habitat in North Lanarkshire.	2	NLC	To be completed as GIS exercise by end of 2023.
2.2 Identify key areas to improve habitat connectivity between protected sites e.g. Sites of Importance of Nature Conservations (SINC).	2	NLC	Mapping exercise by end of 2023.
Communications and awareness raising			
3.1 Recommend hedgerow management and planting along new and upgraded roads. Encourage better management of hedgerows especially those within NLC ownership.	2	NLC	Produce guidance note by 2023. To be distributed to land managers and NLC staff that deal with hedgerows.

References

- Countryside Survey, 2007.
 Scotland Results from 2007
 UK Biodiversity Action Plan

Author

Pardeep Chand, Biodiversity Projects Officer
 (2014), Updated by Kirsty Mooney 2022.



Barn Owl Action Plan

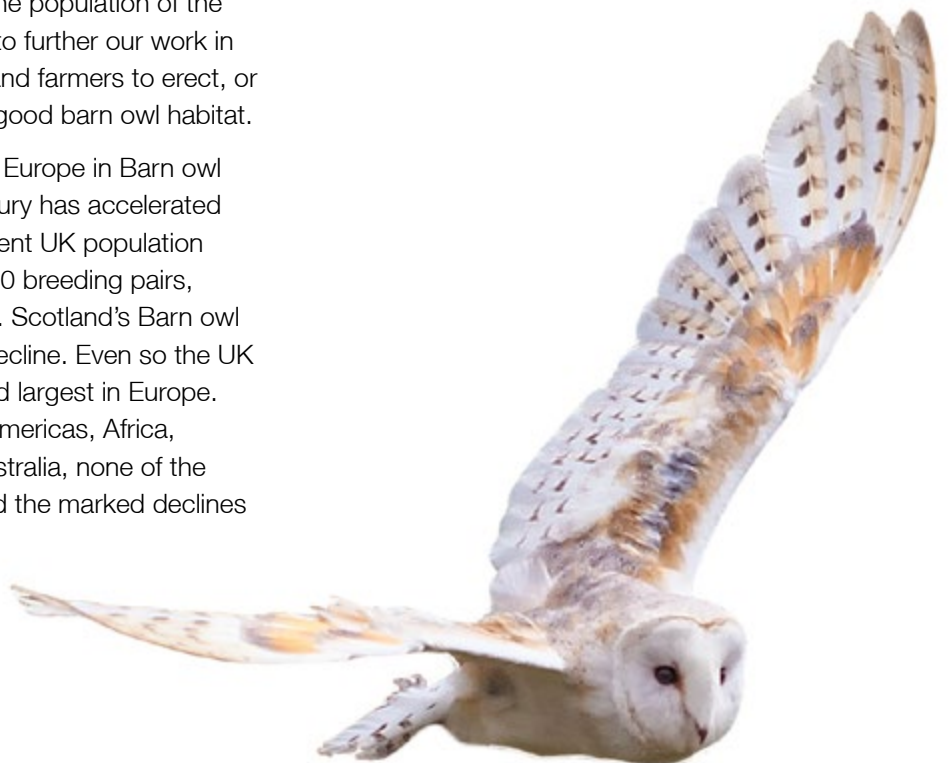
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Barn Owl Action Plan	
UK List of Priority Species:	No
Scottish Biodiversity List:	Yes
Birds of Conservation Concern UK (2020):	Green
European Status:	Species of European concern
Schedule 1 Species, under the Wildlife and Countryside Act 1981 (additional protection during the breeding season, as does their nest, eggs and dependent young)	

Summary

There are regular sightings of Barn owls in North Lanarkshire, and we are beginning to make progress towards attaining a better idea of their numbers. The main limiting factor for breeding is down to the lack of suitable nest sites that are available to them. There is a substantial amount of suitable hunting habitat, within North Lanarkshire, for the population of the species to be higher. We aim to further our work in partnership with landowners and farmers to erect, or install, nest boxes in areas of good barn owl habitat.

A steady decline over most of Europe in Barn owl numbers during the 20th century has accelerated to such a degree that the current UK population is estimated to be around 4000 breeding pairs, from a 1950 estimate of 7000. Scotland's Barn owl numbers have reflected this decline. Even so the UK population is probably the third largest in Europe. The barn owl is found in the Americas, Africa, India, Southeast Asia, and Australia, none of the populations here have suffered the marked declines of the European population.



The UK Biodiversity Group recognises the Barn owl as a “*Species of Conservation Concern*”. The Red Data Book for birds now lists them at the “*green*” level, recovering gradually and, with much needed conservation work, promoting itself upwards from “*amber*”. This still means that they are of medium conservation concern. The criteria for green listing of the barn owl means that they are recovering from being classed as: moderate (25-49%) decline in UK breeding population or range over the previous 25 years; they continue to be classed as a species with an unfavorable conservation status in Europe.

Species Profile

Scottish Barn owls live almost entirely within grasslands, farmlands, and open forests, particularly forest, or woodland edge. Their diet consists almost wholly of small mammals associated with these habitats, such as voles, shrews, mice, and juvenile rats, with 90% of prey, normally, taken within a 1km radius of the nest site. Areas of moist, moderately long grassland are especially important for foraging, as is unmanaged ground below, and alongside, hedgerows. The natural provision of woodland belts for shelter and hunting perches also assists this species

Their feathers are specially structured for silent flight, and by using their extremely sensitive hearing, barn owls can pick out and swoop noiselessly on prey. Although they can see perfectly well in daylight, they tend to hunt at night, the main reasons for this being that it reduces competition, chances of predation and/or getting mobbed by other bird species, crows being an example of this.

Suitable roosting and natural nesting sites can be holes in trees and rock faces, and derelict buildings such as farm buildings, church towers and old chimneys. Sites, such as these, with appropriate space for barn owls, are becoming less common. Artificial nest sites have an important role to play in the conservation and enhancement of breeding populations of Barn owls. Artificial nest sites should be placed in areas of prime, or good quality habitat. Barn owls are not selective when choosing a nest box and will occupy boxes in areas where there is poor foraging habitat; this could possibly lead to the Barn owl being unable to feed its young (owlets), and ultimately failure of the brood. Therefore, it's very important that nest boxes are sited in areas of good foraging habitat.



Barn owl hunting ground includes a mixture of the following habitats:

- rough grassland, supporting a high field vole population
- damp, tussocky grassland in fallow or lightly grazed pasture
- weedy field margins
- hedgerows with rough margins
- woodland edge
- stubble fields
- drainage ditches
- farm grounds
- roadside/motorway verges

Research funded by Barn Owl Trust (BOT) has produced estimates of the quantity of rough grass habitat required by British Barn owls in different landscape types.

In arable landscapes, it is estimated that Barn owls require about 35 km of rough grass field margin within 2 km of a suitable nest site.

In pastoral landscapes, it is estimated that Barn owls require about 78 km of rough grass field margin within 2 km of a suitable nest site.

In pastoral landscapes Barn owls require between 31 and 47 ha of rough grassland within 2 km of a nest site.

In mixed landscapes it is estimate that Barn owls require about 43 km of grassy margin within 2 km of a suitable nest site.

Research has also shown that on all types of site Field voles require the margins to be greater than 4 meters wide, and ideally around 6 meters wide.

Indoor nest sites should be, preferably, dry and warm to prevent the fatal chilling of owlets in wet weather. Boxes that are erected outdoors should be made sturdy and waterproof. These should, ideally, be positioned high on a mature tree within the Barn owl's territory. Outdoor competitors for nest sites are Grey squirrels, Jackdaws, Tawny owls, Pine martens, Stock doves, Goosanders, and Kestrels in natural sites. A major factor influencing Barn owl population levels is the number of voles in any particular year, as vole population levels are cyclical, peaking approximately every 3 years.



Barn owls usually produce between 4-8 eggs, laid at intervals of 2 days. This gives a staggered hatch, with the first hatchling being as much as 2 weeks older than the last. In poor prey years, the youngest chicks are unlikely to fledge. On the other end of the spectrum, in a particularly good "vole year" barn owls can lay twice and rear two broods.

Legal Protection

The Barn owl is on Schedule 1 of both the Wildlife and Countryside Act 1981 and the Wildlife (Northern Ireland) Order, 1985: therefore, the birds, their eggs and young are fully protected, at all times, throughout the UK. It is therefore illegal to release barn owls into the wild, in Britain, without a license.

Current Status

Barn owls are now breeding in a large percentage of suitable areas within North Lanarkshire. The population has increased since we were mainly seeing them around Coatbridge, Cumbernauld, and the Kelvin Valley. We are coming across them more now in areas to our east, like Harthill and Shotts. Within the last 10 years, we have dealt with several Barn owl road kills on the M73 and A73 close to Cumbernauld and, more recently, along the A8/M8 at Eurocentral, where we have had an injured adult rescued from here that recovered and was later released. Barn owl sightings are now on the increase throughout our council area, with our Countryside Rangers receiving data from landowners, local naturalists, and the public in general. Additional data is collated with records from surveys associated with the planning process, development projects and external partners.

The previous Barn Owl Species Action Plan was a success with all actions being met with progress achieved.

As part of the previous 2014-2020 North Lanarkshire Biodiversity Action Plan, another 20 boxes were made and erected in areas of suitable habitat. From these 20 new boxes, some older boxes, that were no longer suitable, or damaged, were replaced. Some boxes are replenished on site. All these boxes, and also other natural sites, are monitored, within guidance, and on a regular basis by the Countryside Ranger Service and Central Scotland Raptor Study Group. The monitoring results are collated and managed by the Countryside Rangers and forwarded to the Biodiversity Team, who then input them in to a GIS layer and associated database so that their location is easily accessed for reference when providing comment on planning applications and projects. From our boxes we now have records of 12 breeding pairs over the last 6 years, these records are from Newhouse, Newarthill, Moodiesburn, Kilsyth Hills, Eurocentral, Kingshill, Overtown, Luggiebank, Morningside, Auchinloch and Chryston and Cumbernauld.

As previously stated, we also keep records of Barn owls breeding in NL that are not in any of our boxes but are still a valuable part of our project.

Future Status

As it seems that the availability of nest sites is the factor limiting the Barn owl population locally, increasing the number of suitable nest sites should lead to an increase in the population. A nest box scheme in Stirlingshire has helped raise the population, of monitored breeding Barn owl pairs, from 4 pairs in 1991 to 47 pairs in 2018.

Continued expansion of urban areas into surrounding farmland will reduce potential feeding areas but this can be mitigated to an extent by the creation and suitable management of Greenspace within these urban areas, and the maintenance of habitat corridors. The population of Barn owls is low at the moment, so this will only become an issue when all available habitats are occupied, and expansion of the population is limited by the lack of suitable habitat.

Pine martin are now recorded in North Lanarkshire, mainly in the Cumbernauld/Palacerigg area. The location of Barn owl boxes should be taken into consideration whenever there is any records of Pine marten in that area, or if there are any provisions made for them at these locations.

Current Factors Affecting This Species

The main factor affecting this species is lack of suitable nest sites caused by the demolition or refurbishment of farm steadings, and old trees either blowing down or being felled for safety reasons.

Other minor factors

- Vermin proof grain storage has lessened the availability of prey around farmyards.
- Land take for new roads, factories and housing schemes has reduced and fragmented suitable grassland habitats around urban areas.
- Secondary poisoning due to the use of toxic rodenticides.
- Barn owls hunting along road verges and railway lines can be killed.
- Egg, owlet thieves, falconers, or illegal breeders.

Current Action

- The construction and distribution of 12 boxes taken forward by North Lanarkshire Biodiversity Partnership since 2020.
- Landowners with boxes have agreed to record use of the boxes by species.
- A fully licensed Countryside Ranger and qualified ringer has been monitoring boxes, liaising with landowners and ringing any Barn owlets that are accessible.
- Pest control firms are currently advised to take into account the risk to fauna when carrying out their work. Increasingly rodenticides less toxic to birds are used and dead rodents are quickly removed.
- Barn owl requirements Incorporated within the North Lanarkshire Local Plan design guidance notes information to encourage the construction of artificial barn owl nest boxes in proposed developments or conversions of rural or agricultural buildings. More detailed guidance and training for Planners would help reinforce this.



Proposed Objectives, Targets and Actions

1. Increase, stabilize and maintain, the number of breeding Barn owls in North Lanarkshire.
2. Improve, monitor and increase barn owl habitat.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Incorporate within updated Local Plan design guidance notes information to encourage the construction of artificial barn owl nest boxes in proposed developments or conversions of rural or agricultural buildings.	1	NLC	Advice and information included in design guidance when reviewed.
Habitat management and protection			
2.1 Work with farmers and land managers to manage and enhance barn owl habitat, through increasing the extent of grass margins and conservation headlands.	1, 2	NLC, SWT, RSPB	6 management schemes, which include habitat improvement for barn owls, implemented by end of 2027.
2.2 Assess current distribution of barn owl boxes and determine if more are needed.	1	NLC, RSPB.	Develop a barn owl box strategy (BOBS) 2024.
2.3 Replace boxes.	1	NLC, RSPB	Annually as determined by the BOBS.
Survey, research and monitoring			
3.1 Monitor barn owl boxes.	1, 2	NLC, CSRSG	Boxes monitored annually by Countryside Ranger Service and Central Scotland Raptor Study Group.
Communications and awareness raising			
4.1 Appeal for sightings of barn owls.	1, 2	NLC, SOC, RSPB	Social Media campaign launched by 2024.

Plan updated by Jackie Gilliland (NLC Countryside Ranger), Laura McCrorie Conservation and Biodiversity Manager, and Scott Shanks RSPB 2022



Kestrel Action Plan

Falco tinnunculus

Barn Owl Action Plan

UK List of Priority Species:	Yes
Scottish Biodiversity List:	Yes
Birds of Conservation Concern UK (2020):	Amber

Summary

It is not rare to see a Kestrel in North Lanarkshire. Through recent raptor study work progress is being made towards identifying their exact numbers. One limiting factor for breeding is the lack of suitable nest sites available. Displacement, mainly through housing development, is also a contributing factor. There remains a substantial amount of suitable hunting habitat available, capable of sustaining a higher population of this species. We aim to continue our successful work with Kestrel, through maintaining good working relationships with landowners and farmers to erect, or install, nest boxes in areas of good Kestrel habitat.

A steady decline in Kestrel numbers over most of Europe during the 20th century has accelerated to such a degree that the current UK population is estimated to be around 45,000 breeding pairs, from a 1950 estimate of 7000. Scotland's Barn owl numbers have reflected this decline. Even so the UK population is probably the third largest in Europe.



Species Profile

Kestrels, in Scotland, can be located within a wide variety of surroundings. It is not uncommon to see a Kestrel on the edge of a city or town and, likewise, perched on the fringe of a secluded woodland. The main prey of the species is small mammals, particularly Field voles. Being very adaptable, they will also take small birds, if they are more easily available and, particularly, if feeding chicks. Insects and worms complete the birds diet. Although generally widespread, the Kestrel is absent in areas of most extreme north and west of the country but adapt well to a wide range of habitats and are commonly found within our urban areas, farmland, open heathland and uplands. Areas of moist, moderately long grassland are especially important for foraging, as is unmanaged ground below, and alongside, hedgerows. Motorway embankments often have a Kestrel hovering above. The natural provision of woodland belts for shelter, nest locations and hunting perches are also of benefit to the species.



It is generally believed that, whilst hunting, “hovering” birds watch for movement and this may, partially, be the case. The Kestrel’s head remains remarkably still whilst carrying out this technique and it concentrates on directly looking at the ground below. Voles constantly dribble urine whilst going about their everyday life, this fluoresces and leaves trails that, to the Kestrel, being equipped with ultraviolet vision, exposes their location. Despite being known for their hovering hunting technique, Kestrels will quite happily just sit and wait on prey from a hunting perch on a building, rock or pylon for example. These latter techniques will help conserve energy. Kestrels have adapted to hunt at daybreak and dawn, this helps reduce competition.

It is more common to class the Kestrel as a cavity nesting bird, this is unusual for a British bird of prey. The bird prefers cracks or crevices on cliffs, tree cavities and holes in buildings. In North Lanarkshire, we also have them successfully breeding on quarry faces, behind signs on buildings and old crow’s nests. They will also, quite happily, use a vacant Barn owl box, however their preference is a nest box built solely for this species alone. We have found that Kestrels take quite quickly to a nest box that is erected within, or close to, good habitat and/or within an existing territory. The correct placement of Kestrel boxes is a key contributing factor in the conservation and enhancement of the breeding population.

Quarries throughout the area often provide suitable habitat, and play a huge role, to the North Lanarkshire council area breeding Kestrels’ needs. Kestrels tend to avoid nesting within woodland where buzzards hold a territory. It is notable that buzzard numbers have plummeted in North Lanarkshire. Grey squirrel populations alongside Kestrel hunting habitat are detrimental to Kestrel populations.

There remains a substantial amount of suitable hunting habitat available, capable of sustaining a higher population of this species. Although Barn owl and Kestrel do come into conflict, and will overlap a territory, they can be found breeding alongside each other and producing fledged owlets/chicks annually. It obviously helps that the Barn owl is nocturnal, reducing competition to some extent.

Kestrel hunting ground, within the North Lanarkshire Council area, includes a mixture of the following habitats:

- rough grassland, supporting a high field vole population
- damp, tussocky grassland in fallow or lightly grazed pasture
- weedy field margins
- hedgerows with rough margins
- woodland edge
- stubble fields
- drainage ditches
- farms and outbuildings
- roadside/motorway verges
- quarries
- large gardens
- urban parks and greenspaces

Kestrels, that are intending to breed, begin to establish nesting territories from March to late April.

During the breeding season, home ranges overlap, the degree of overlap increases with distance from the nest.

Home range size varies from less than 1km squared to over 10km squared and is related to prey abundance.

Kestrels can be tolerant of human activity and will nest in close proximity to people. They will readily use nest boxes, certainly if they are placed near grassy areas that contain a vole population.

Kestrels do not build a nest but will scrape a depression in the nest substrate. A fresh bed of clean, fresh and dry woodchip is added into newly erected boxes. Boxes are preferably placed high, with the entrance facing eastward to reduce wind and direct, lengthy, incoming sunlight. It is also good practise to refresh substrate in boxes annually in winter whilst removing old pellets and spent debris within. It is common practice to locate Kestrel and Barn owl boxes within close proximity. It is much to the preference if boxes are constructed with good quality wood that will stand up well in wet weather, a box like this will last 10 years.



Kestrels mainly lay in April and through to mid-May. Eggs are normally laid in 2-day intervals and clutch size is related to laying date with early clutches being larger (5 or 6 eggs). Later clutches tend to have 4. Clutches of 7 or even 8 can be reached in years when voles are doing really well (good vole years).

Hatching can be synchronous or asynchronous, sometimes taking 4-5 days. Young Kestrels are brooded by the female until they are about 10 days old. After brooding, an average of 13 food items are delivered to the nest in one day. Chicks fledge after 28-35 days and are fed by their parents for a further 2-3 weeks. Most breeding failures take place at the pre-laying or clutch stage.

Around 60% of Kestrels breed in their first year.

Legal Protection

The Kestrel is protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or intentionally to destroy its nest, eggs or young.



Current Status

Kestrels are now breeding in most of the suitable areas that may be available within North Lanarkshire. We have, through recent years, been assisting the species by identifying possible territories and erecting nest boxes. We now have over 24 territories that are monitored, this number was at, around 12 territories, 3 years ago. Most sightings are caught along the motorways and busy roads that dissect our council's countryside. Kestrels, along with other quarry nesting species, are frequently sighted throughout the year within these sites and will produce fledged chicks whilst nesting alongside top predators, like peregrines, or maybe ravens. Breeding Kestrels are more than capable of protecting their nests during the breeding season and their chicks, even at a very young age, are fierce. In saying all this, we have identified suitable areas within our council boundaries where breeding Kestrels are absent and this is what we aim to, either assist with and encourage. In 2022 a comprehensive 3 year study on the Kestrel by Scotland's Raptor Study Group began, the results should provide very useful information to aid their conservation.

National Kestrel Survey 2021 – 2023

This 3-year rolling, survey will be carried out, mainly, by members of Scotland's Raptor Study Groups, of which our council has members. Our Kestrel Local Biodiversity Action Plan will be a major contribution to this study and be of great value. Each study group member is asked to cover a 10km grid reference square within our council area. Casual records, or sightings, are put into BTO BirdTrack online. Breeding pairs are noted and forwarded to the Central Scotland Raptor Study Groups Species Co-ordinator for Kestrel.



Current Factors Affecting This Species

The main limiting factor affecting this species is reduction of suitable nest sites caused by, ever increasing, housing or road development, resulting in loss of good prey habitat and nest site opportunities.

Other Minor Factors

- Vermin proof grain storage has lessened the availability of prey around farmyards.
- Land take for new roads, factories and housing schemes has reduced and fragmented suitable grassland habitats around urban areas.
- Secondary poisoning due to the use of toxic rodenticides.
- Kestrels hunting along road verges and railway lines can be killed.
- Egg, or chick, thief's, or illegal breeders.

Future Status

Continued expansion of urban areas into surrounding farmland will reduce potential feeding areas but this can be mitigated to an extent by the creation and suitable management of greenspace within these urban areas, and the maintenance of habitat corridors. The population of Kestrels is low at present, so this will only become an issue when all available habitats are occupied, and expansion of the population is limited by the lack of suitable habitat.

Pine martin are now recorded in North Lanarkshire, mainly in the Cumbernauld/Palacerigg area. The location of Kestrel boxes should be taken into consideration whenever there is any records of Pine marten in that area, or if there are any provisions made for them at these locations.

Current Action

- The construction and distribution of 10 boxes taken forward by North Lanarkshire Countryside Ranger Service and Central Scotland Raptor Study Group Biodiversity Partnership 2020.
- Landowners with boxes have agreed to record use of the boxes by species.
- A fully licensed Countryside Ranger and qualified ringer has been monitoring boxes, liaising with landowners and ringing any kestrel chicks that may be accessible.
- Pest control firms are currently advised to consider the risk to fauna when carrying out their work. Increasingly rodenticides less toxic to birds are used and dead rodents are quickly removed.
- A national Kestrel survey, within Scotland, began in 2022. All breeding records, and sightings, will be collated by experienced surveyors who are allocated a 10km grid reference square to cover.

Proposed Objectives, Targets and Actions

1. Increase, stabilise and maintain, the number of breeding Kestrels in North Lanarkshire.
2. Improve, monitor and protect Kestrel habitat.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Incorporate Planning and developer guidance to encourage the construction of artificial Kestrel nest boxes in proposed developments or conversions of rural or agricultural buildings.	1	NLC	Advice and information included in planning and developer guidance 2024.
Site safeguard and management			
2.1 Work with farmers and land managers to manage and enhance Kestrel habitat, through increasing the extent of grass margins and conservation headlands.	1, 2	NLC, SWT, RSPB, CSRSG	6 management schemes, which include habitat improvement for Kestrels, will be implemented by the end of 2027.
2.2 Assess the current distribution of Kestrel boxes and determine if more are needed.	1	NLC, RSPB, CSRSG	Develop a Kestrel box strategy 2025.
2.3 Replace boxes.	1	NLC, RSPB	Annually as determined by the strategy.
Monitoring and research			
3.1 Monitor kestrel boxes.	1, 2	NLC, CSRSG	Boxes monitored annually by Countryside Ranger Service and Central Scotland Raptor Study Group.
Communications and awareness raising			
4.1 Appeal for sightings of Kestrels.	1, 2	NLC, SOC, RSPB, CSRSG	Social Media campaign launched by 2024.

Plan written by Jackie Gilliland NLC Countryside Ranger 2022



Farmland Waders Action Plan

Redshank, Lapwing, Snipe and Redshank *Tringa Totanus*,
Vanellus vanellus, *Gallinago gallinago*, *Numenius arquata*

Farmland Waders Action Plan

UK List of Priority Species:

Redshank	No
Lapwing	Yes
Snipe	No
Curlew	Yes

Farmland Waders Action Plan

Scottish Biodiversity List:

Redshank	No
Lapwing	Yes
Snipe	No
Curlew	Yes

Farmland Waders Action Plan

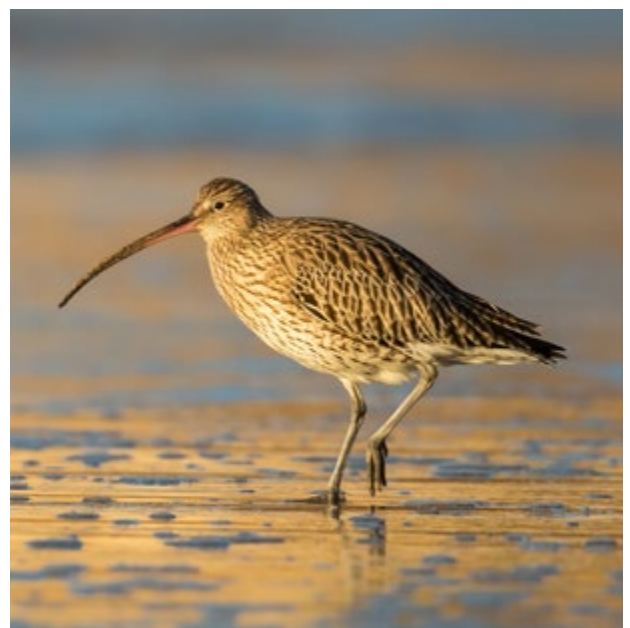
Birds of Conservation Concern UK (2002-2009):

Redshank	Amber
Lapwing	Red
Snipe	Amber
Curlew	Red

Summary

In the UK, farmland waders have declined dramatically over the last century. This is mirrored in North Lanarkshire, due to habitat loss through drainage, changes in land use and development. Much of their remaining populations are now restricted to fragmented habitat and are of particular concern in North Lanarkshire due to dwindling numbers.

Historically, there are two strongholds for these species locally but outside of these locations breeding pairs are scarce and scattered.



Species Profile



Lapwing

This wader has a distinctive green, white and black appearance. The adult bird gives a tumbling display flight over its breeding territories in spring. A distinctive 'pee-wit' call gives this bird one of its numerous alternative names. Lapwings are birds of open farmland requiring bare ground or short vegetation for nesting between mid-March and June. Consequently, they prefer spring-tilled arable land and short grassland, including moorland margins and in-bye when selecting nest sites. Those birds which nest on arable often relocate their young to nearby wet ground and appropriately short vegetation (such as grazed pasture) in order to find suitable feeding. Lapwings require a ready abundance of ground and soil invertebrates throughout the year, their preferences being for earthworms, leatherjackets, insects, and their larva, which are most abundant on wet grassland and grazed pasture.

Snipe

This is a secretive, mottled brown bird with an extremely long straight bill that can sometimes be as long as its body. They use their long bill to probe for invertebrates such as earthworms and leather jackets in soft soil whilst also taking insects from livestock dung. When flushed, it can be distinguished by an erratic zigzag flight pattern. During display flights, male birds make an unusual 'drumming' sound with their tail feathers. Their breeding period lasts from mid-march to early July. Ground nesters, they build their nest in mires, bogs, wet moorland, rough wet grassland with tussocks, sedges, and rushes, and in the marshy marginal areas of wetlands. Winter months find Snipe more commonly on lowland and coastal areas, taking advantage of root crops, stubbles, and wet pasture.



Redshank

This noisy wading bird has long red legs and bill with a brown body. In flight it is easily distinguishable, being the only British wader with a broad white bar across the trailing edge of the wing. It has an extensive white rump and upper tail. Its body appears tapered. It breeds on damp fields with tussocky grass or sedge, especially those prone to flooding, or near open water or wet ditches, wet meadows and moorlands. They have also been known to breed on saltmarsh and gravel pits. They winter on mudflats and rocky shores. The adult food source on breeding grounds includes earthworms, beetles, spiders, aquatic insects, flies and their larvae. Out with nesting times they take worms, molluscs, shrimps and crabs. Breeding season lasts from April to late June, the nests are situated on the ground on tussocks or grassy hollows. The young eat mainly midges and flies with beetles and spiders also being taken. Evidence suggests that invertebrates associated with dung can also be an important dietary constituent.



Curlew

Curlew is a widespread resident in Scotland, breeding on farmland and uplands. Also called the 'whaup' in Scotland, is a large, brown wading bird, distinguished by its long, downward-curving bill. Like all of our waders, it nests on the ground, tending to use rushy pastures and moorland, where eggs and chicks can be camouflaged by the long vegetation. Birds often come down to lower pastures to feed. After breeding, large flocks of birds will gather in our uplands before moving to the coast in the winter. Some wintering Curlew will over winter inland such as the population using Merryton, Royal Society for the Protection of Birds (RSPB) Baron's Haugh and Carbars Pool in the Clyde Valley. Curlews have a haunting, plaintive call of 'cou-lee', from which their name derives. Adult curlews feed on earthworms, leatherjackets, beetles, spiders and caterpillars. Their chicks feed mainly on surface invertebrates, with adult flies, crane-flies, beetles and spiders all featuring prominently in their diet.



Legal Status

Redshank, Lapwing, Snipe and Curlew are fully protected under the Wildlife and Countryside Act 1981 as amended and are covered by Appendix II of the Bonn Convention; Appendix III of the Bern Convention and Article 4.2 of the EU Birds Directive.

Current Status

Current Status of Breeding Populations				
Species	UK Breeding Population	Scotland	Long term population trend (1994 -2011)	Short term population trend (2006 – 2011)
Lapwing	140,000	71,500 – 105,600 pairs	decreasing	decreasing
Snipe	80,000	34,000 – 40,000 pairs	increasing	increasing
Redshank	25,000	11,700 – 17,500 pairs	decreasing	decreasing (slowing)
Curlew	68,000	58,800 pairs	decreasing	decreasing

The overall trend for breeding farmland waders in Scotland is one of steep decline. This decline is also evident within North Lanarkshire. Each species requires different land management techniques to produce habitats conducive to successful breeding. For example, Lapwings generally require freshly ploughed land whereas Redshank require wet areas and wet ditches. Factors such as land management changes, farming intensification and development have led to suitable breeding wader habitat becoming unsuitable and fragmented. Sites that were once known for notable breeding wader numbers are now in sub-optimal condition, with breeding waders uncommon at these sites. During 1984 to 1991, the Scottish Ornithologists' Club (SOC) Clyde Branch undertook surveys of breeding waders over extensive areas of North Lanarkshire, and the fieldwork for a tetrad based Breeding Bird Atlas of the Clyde Area. In 1992, the RSPB/BTO/SOC undertook a survey of Breeding Waders in Lowland Scotland. This survey was repeated in 1997/8.

This trend continues with the Index of Abundance for Scottish Terrestrial Breeding Birds, 1994 to 2018 identifying that there have been some substantial long-term decreases, including declines of more than 50% for lapwing.

In 2002 there was a survey of waders east of the A80 carried out by a student from the University of Edinburgh assisted by RSPB Scotland. However, updated surveys are required to establish numbers of breeding waders in North Lanarkshire.

Based on evidence from site surveys at our key sites the picture continues to be one of decline.

All four species have the potential to benefit from restoration and habitat management works arising from development such as mining or windfarms.

Known Key Areas in North Lanarkshire

- River Kelvin floodplain from Kilsyth to Kirkintilloch, including Dumbreck and Dullatur Marshes.
- Fannyside Muir and Garbethill Muir.
- Gartcosh industrial site.
- Baron's Haugh, RSPB reserve, Motherwell.
- Kingshill, Allanton.

With one exception, key wader areas in North Lanarkshire are not covered by any SSSI designations and therefore are not included in any SACs or SPAs. However, a number of small fragmented sites have been designated as Sites of Importance for Nature Conservation (SINCs). A few sites also have reserve status, although it is recognised that this will only assist a very small numbers of waders.

Current Factors Affecting This Species

- Destruction of habitat due to drainage of wetland areas.
- Autumn sowing, leading to unsuitable breeding habitat in spring and early harvesting, this will severely restrict the birds' opportunity to breed or nest successfully.
- High stocking rates, leading to short pasture and trampling of nests.
- The addition of fertiliser and early cutting, leading to nest and chick losses.
- Use of pesticides and herbicides, leading to loss of insects; their main food source.
- Late spring rolling and harrowing of grassland, this will destroy any nests on the site.
- Move from cattle to sheep grazing, this requires an increase in drainage of habitat, fertiliser use, and winter feeding outside (providing a food source for predators).

- Opencast mineral extraction, which is a threat to some key areas. Although, alternative areas of new wader habitat can be created in the restoration stage.
- Inappropriate woodland planting on agricultural land, this can fragment open habitats and can attract predators.
- Climate change.

Current Action

- Surveys taken forward annually by volunteers.
- Significant habitat improvements at Dumbreck Local Nature Reserve, Kilsyth in 2022 as part of the Water Environment Funded Garrell Burn River Restoration.
- Significant habitat improvements at Barons Haugh, Motherwell.
- Protection of the habitat through the Local Plan and Planning process.



Proposed Objectives, Targets and Actions

1. Maintain and increase the extent of suitable habitats.
2. Maintain and improve the populations of four key lowland waders breeding in North Lanarkshire.
3. Improve wader records database for North Lanarkshire.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Encourage developers to create wader-friendly habitat as part of the restoration of sites, such as mineral workings and windfarms.	1, 2	NLC	Ongoing through planning consultations.
1.2 Ensure that proposed flood alleviation schemes do not damage key wader sites and where possible, are used as an opportunity to create breeding wader habitat.	1, 2	NLC	Ongoing through the Planning system.
Habitat management and protection			
2.1 Encourage land managers to enter agri-environment schemes such as SRDP, and to adopt wetland creation and management options.	1, 2	NLC, RSPB	Engage with 5 landowners by 2027.
Survey research and monitoring			
3.1 Establish baseline for key farmland wader breeding sites in North Lanarkshire.	3	NLC	Agree upon survey methodology by 2023 and complete baseline data by 2025.
3.2 Review established farmland wader sites, identify habitat condition, and identify new privately owned sites such as farms and quarries.	3	NLC	To be completed by 2026.
3.3 Monitor waders at Dumbreck to establish the impact of habitat improvements in the area.	3	NLC	Annually from 2023.
Communications and awareness raising			
4.1 Encourage public to send in records of breeding waders through social media and survey cards to be handed out at events.	3	NLC	Implement by 2023.

References

Balmer, D., Gillings, S., Caffrey, B., Swann, B., Downie, I., Fuller, R. (2014) Bird Atlas 2007 – 2011, BTO Books, Norfolk.

Foster, S., Harrison, P., Buckland, S., Elston, D., Brewer, M., Johnston, A., Pearce-Higgins, J., Marrs, S. (2013) Trends of Breeding Farmland Birds in Scotland.

Gibbons, D.W., Reid, J. and Chapman, R.A. (1993) The New Atlas of Breeding Birds in Britain and Ireland; 1988 -1991. T.&A.D. Poyser, London.

RSPB (ed.) (1996). Birds of Conservation Concern (illustrated brochure).

RSPB/ SAC / SERAD. (1996) A Management Guide to Birds of Scottish Farmland.

Authors

Plan updated by Laura McCrorie NLC, and Scott Shanks RSBP, 2022.

Index of Abundance for Scottish Terrestrial Breeding Birds, 1994 to 2018.

Falkirk Area & North Lanarkshire LBAP Taiga Bean Goose Action Plan

Anser fabalis

Bean Goose Action Plan	
UK List of Priority Species:	No
Scottish Biodiversity List:	Yes
Birds of Conservation Concern UK (2020):	Amber

Introduction

Since the first version of this Action Plan was prepared, the status of the species formerly referred to as the bean goose *Anser fabalis* has changed somewhat radically, increasing the importance of effective protection and conservation measures to safeguard the wintering population associated with the Slamannan Plateau in Central Scotland.

Firstly, as of the 18 January 2018 the British Ornithologists' Union (BOU) announced that taiga bean goose *Anser fabalis* qualified as a full species in its own right. The BOU adheres to the classification of bird species adopted by the International Ornithological Congress (IOC). The IOC had determined that rather than the taiga bean goose, as it was previously, being considered as a sub-species of the bean goose, *Anser fabalis fabalis*, it was a full species and as such this approach was adopted in the UK.

Secondly, as a result of ongoing climate change, the only other wintering population in the UK, that formerly associated with the Yare Valley in Norfolk, is virtually non-existent nowadays due to a phenomena known as 'short-stopping'. Winters are no longer sufficiently cold and hard to justify crossing the North Sea from the Low Countries to East Anglia; the birds opt to stay on the near continent throughout the winter.

Thus this action plan now relates to a species as opposed to a sub-species, and it involves what is now the only extant wintering population of that species in the British Isles.



Species Profile

As indicated, taiga bean goose *Anser fabalis* is now a full species in its own right, and therefore this section concentrates on Taiga bean geese (rather than the other species within the bean goose complex).

These are all found in the Palaearctic ecozone, the natural zoogeographic region which includes Eurasia.

In the Western Palaearctic, (i.e., Europe, North Africa, northern and central parts of the Arabian Peninsula, and part of temperate Asia, roughly to the Ural Mountains) two species are found.

Bean geese breeds across northern Eurasia, from the highlands of Norway in the west to the Kamchatka Peninsula in the east, and at least five sub-species (or races) were formerly recognised.

The two commonly occurring species of bean geese in the Western Palaearctic are the Taiga bean goose *Anser fabalis*, which is (as its name indicates) associated with the boreal forests of Scandinavia and Russia, (i.e., the taiga) and the Tundra bean goose *Anser rossicus*, which is associated with the more open - tundra - habitats further north.

In western Europe, the Taiga bean goose is much less numerous than the Tundra bean goose.

During winter the wintering populations are not easily delimited, and the species can be intermingled.

However, at other times of year there is a reasonable degree of both morphological and ecological separation, which allows the species to be identified and differentiated in terms of, for example, breeding habitat requirements, as suggested, and in particular, the size and shape of the two species differs, with Taiga bean geese being larger with longer necks and subtly different head and bill shapes and bill colour patterns.

Numbers of tundra bean geese appear stable at c.600,000 birds.

However, those of Taiga bean geese appear to be declining, c.100,000 individuals were estimated in the late 1990s, but only c.63,000 were estimated in the late 2000s.





The Taiga bean goose breeds in the Kola Peninsula and taiga areas west as far as Finland, with a breeding range extending south into Norway and Sweden. Non-breeders begin moulting in June, with sub-adults undertaking a moult migration north away from the breeding areas, probably to northern Lapland or the White Sea coasts. The Fennoscandia breeding population moves south through southern Sweden to winter there, in Denmark, northern Germany and The Netherlands. Numbers decline in southern Sweden at times of hard weather, moving first to Denmark and then further south and west. Formerly, two flocks, totaling c.300-400 birds wintered in the UK, originating from the southern Swedish population, and occupied an important part of the traditional winter range of the species.

However, with the decline and virtual disappearance of the Yare Valley wintering population, the Slamannan Plateau wintering population, which currently amounts to some 240 birds, is particularly significant.

The Taiga bean goose is a winter visitor to Britain, which spends the summer months on breeding grounds in Sweden. The Slamannan Plateau flock normally starts to arrive in late September with numbers increasing during October. The flock generally leaves the area by the last week of February.

The Taiga bean goose is a large goose, with an average length of 72 – 90 cm. It is essentially dark in colour with a dark brown head and almost uniformly brown upper wing. The undertail is white and a white line extends along the top of the flanks. Its most striking feature is its legs, which are bright orange in the adult and duller orange in the juvenile. In addition to being hard to differentiate from the Tundra bean

goose, the Taiga bean goose is easily confused with its close relative the Pink-footed goose, which occurs in large numbers in central Scotland. However, its long bill with orange and black colouring distinguishes it from the Pink-footed goose, which has pink legs and pink on the bill. The Taiga bean goose has a cackling flight call, deeper than that of the pink-footed goose and quite different from the honking call of the Greylag goose.

In the past there was evidence that many of the birds used to feed in cereal stubbles and occasionally on potato fields on the winter quarters in the UK. However, on the Slamannan Plateau birds typically use semi-improved fields, although in recent years the main feeding sites have often been intensively managed pastures; the birds now show preference for improved pastures, which contain a high proportion of perennial ryegrass *Lolium perenne* and timothy *Phleum pratense*.

They prefer feeding fields unused by grazing livestock during the winter months. The main feeding sites are scattered throughout the Slamannan Plateau, although there are certain areas which are strongly favoured (though these do progressively change, partly with farming practice).

The birds are intolerant of disturbance and choose mostly open areas with unobstructed sight lines both for feeding and for roosting. Preferred feeding areas are often places where the birds cannot be easily viewed from places readily accessible by people; the birds utilise the topography of the plateau to minimise any risk of disturbance.

Roosting formerly occurred on Loch Ellrig but subsequently it was largely concentrated on Fannyside Loch and pools on Fannyside Muir. However, in the past decade or so at least part of the flock has also used pools on Darnrig Moss. In some circumstances other sites are temporarily used, for instance areas of flooding adjacent to feeding areas. During periods of frost or snow the flock will often remain out in their feeding areas and may not return to the roost. Night feeding does occur during normal winter temperatures but has not been studied closely. In addition, areas of muir within the Plateau are occasionally used as refuges by loafing birds when disturbance is sufficient to cause them to desert nearby feeding areas.

The flock will normally fly at dawn to a selected feeding field where if undisturbed they will spend the day feeding, drinking and resting. If disturbed the birds will fly to another feeding site or as described, if the disturbance is severe, to areas of muir where the birds feel safe loafing amongst the ericaceous vegetation in which they are best camouflaged. At dusk they return to their preferred roosting areas. It is at this time that they are most vocal.



Legal Status

Protected under the Wildlife and Countryside Act 1981. Included on Annex II/I of the EC Birds Directive and Appendix III of the Bern Convention. Whilst it is a quarry species in parts of its range, the Taiga bean goose is not a quarry species in the UK.

Current Status

The Taiga bean goose breeds in northern Eurasia from the highlands of Norway in the west to Kamchatka in the east. Bean geese were regarded as a common winter visitor to northern Britain and East Anglia during the first half of the 19th century, although the then sub-species or race involved was not noted. A widespread decline in numbers began in the 1860's and 1870's until in the early part of the 20th century only a few flocks remained. Until recently the only two regular wintering flocks in Britain have been those in the Yare Valley (Norfolk), and on the Slamannan Plateau – an area of around 3,600 ha divided between Falkirk and North Lanarkshire Council areas. This is now the only site in the UK regularly visited by the birds.

The central Scotland flock numbered around 130 – 150 birds in the 1990s but it progressively increased at peaked at 300 birds in 2006/2007, whilst in recent winters the peak has been c.245.

Ringing results have suggested that the Taiga bean geese wintering in England and Scotland breed in different parts of Scandinavia. The majority of the individuals visiting central Scotland probably belong to a fully wild sub-population, which is clearly distinct from the one (formerly) wintering in Norfolk. A very small number central Scotland flock may have also derived from a re-introduction project, which started in 1974 in central Sweden. Despite being a small proportion of the total northwest European wintering population, the British birds occupy an important part of the traditional range of the species.

Satellite tracking results indicate that the Scottish birds have a discreet staging area in northwest Denmark in the Blokhus/Pandrup area that they use from late February to March. For about two to three weeks, they feed on rough wet grassland, improved pasture and some winter cereal crops, roosting on flooded wet grassland and sedge fields amongst reedbed areas before moving on in mid-March to agricultural areas north of Oslo, Norway mainly in the Akershus/Nikivegen areas. Here they make use of bogland areas when disturbed or for loafing during the day, with birds often roosting on sandbanks of the Glomma River nearby. Later they may stage briefly in late March at areas further north as at Braskeiderfoss before heading northeast into Dalarna County, Sweden and the breeding and moulting areas in late March and early April. The autumn migration seems to be well underway by September and is largely a reverse of the spring route except that Denmark is largely bypassed with the birds heading straight to the UK from Norway. The flock counts made at the staging sites identified to date suggest that there may still be as yet undiscovered sites used by a proportion of the birds wintering at Slamannan.

Current Factors Affecting the Species

From the more recent knowledge built up of the preference for the habitats of Taiga bean geese the most likely threats are:

- Reduction in the area of improved grassland shown to be preferred by the Taiga bean geese;
- Visitor pressure, recreational activity and primary industry operations in the vicinity of the main feeding areas resulting in disturbance to both feeding and roosting areas;
- Other developments which may increase the potential for disturbance;
- Increase in wind turbine, and wind farm, developments; and,
- Livestock pressure.

Current Action and Opportunities

Since the late 1980s individuals such as John Simpson and Angus Maciver have produced annual reports detailing the findings of ongoing Taiga bean goose monitoring work. These annual reports continue to be produced. Funding in recent years has been from North Lanarkshire Council, Falkirk Council and RSPB. For some years, SNH (now NatureScot) also funded monitoring work in relation to their obligation in terms of the Slamannan Plateau Site of Special Scientific Interest (SSSI) / Special Protection Area (SPA).

In recognition of the importance of the Slamannan Plateau for wintering Taiga bean geese a group was established in 1994 representing conservation interests in the area. The broad aim of the Bean Goose Action Group (BGAG) is to help conserve the population of taiga bean geese wintering in Central Scotland. The group seeks to minimise potential land use conflicts in the Slamannan Plateau area. For example, the group meets regularly and discusses current planning issues (such as wind energy development proposals) in the context of potential impacts on the Taiga bean geese. The group now includes representatives from NatureScot (NS), Royal Society for the Protection of Birds (RSPB), Forestry and Land Scotland, SAC Consulting and Falkirk and

North Lanarkshire Councils. In addition, the group calls on the specialist input of people such as Carl Mitchell and Larry Griffin formerly of the Wildfowl & Wetlands Trust (WWT) as necessary.

The RSPB acquired the land at Fannyside Mill adjacent to East Fannyside Loch, in 1996 and now manages the land in ways aimed at maintaining suitable habitat for the geese. In March 2006 part of the Slamannan Plateau was notified as a SSSI for taiga bean geese, In October 2008 this same area was also recognised as being of international importance and classified as a SPA for Taiga bean geese. Unusually within the UK SPA network, this classification includes feeding area which are improved pastures as well as the roost site. These designations ensure that the areas involved are protected from adverse development.

Further information on these designations is available at the NS interactive Site Link website,

SiteLink@nature.scot

In an attempt to understand the population dynamics of this small and vulnerable flock an increased effort has been made since October 2011 to catch, mark and track the taiga bean geese, with 33 having been caught and individually marked since then. Eleven of these have been marked with telemetry devices attached to neck collars – most recently GPS-UHF or GPS-GSM devices. The tracking and ringing has provided a wealth of new data allowing the group to assess survival, individual reproductive success and the route of the international flyway and the previously unknown staging, breeding and moulting sites used by the birds. This work has also stimulated international cooperation and possible research and monitoring opportunities.

A Bean Geese in Scotland website has been established to raise awareness of taiga bean geese and promote responsible watching of the geese on the Slamannan Plateau.

Communication and Awareness

The special importance of the Central Scotland Taiga bean goose flock has created widespread interest both locally and nationally. This interest impacts locally and can create potential problems both in the management of the area for the Taiga bean geese and for those living and working in the area. A delicate balance exists to satisfy the needs of those with an interest in the taiga bean geese whilst being sympathetic to the requirement of the birds. It is recognised that the continuing success in maintaining the flock in the area is dependent on the help and co-operation of those involved in seeking to see that the requirements of the flock are met, and especially local farmers who make considerable efforts to manage grass on which the flock depends. Communication and liaison with local people is seen as a vital step in maintaining the continuous presence of the flock. It is also recognised that local people have a valuable contribution to make in developing a future strategy in relation to the management of the area for the birds, particularly in relation to communication and publicity.

From 2010 the Bean Goose Action Group has initiated annual projects at Greengairs, and Slamannan Primary Schools to raise awareness of the Taiga bean geese while contributing to pupils' education through science, art and communications. This has been very successful and is something the group and the schools both wish to continue.

Objectives and Targets

Objective 1

To protect and maintain the population of Taiga bean geese wintering in Central Scotland by the identification, maintenance, enhancement and protection of habitats used by the taiga bean geese for feeding roosting and loafing purposes.

Target 1.1

Maintain and, where possible, increase the area and quality of habitat favoured by the geese for feeding, loafing and roosting. (ongoing).

Target 1.2

Manage the Fannyside Reserve for Taiga bean geese (ongoing).

Target 1.3

Minimise disturbance of the Taiga bean goose flock caused by recreational use of the area (ongoing).

Target 1.4

Ensure wind turbines and wind farms do not pose a threat to populations of Taiga bean geese.

Objective 2

Minimise potential conflicts between land use and Taiga bean geese in the Slamannan Plateau area by ensuring that planners and other decision makers are fully aware of the importance of the site and the requirements of Taiga bean geese.

Target 2.1

Review of Supplementary Planning Guidance 2016 for use by planners to be undertaken.

Target 2.2

BGAG to continue to liaise with planners and decision makers.



Objective 3

Further the knowledge of Taiga bean goose requirements and behaviour, in particular investigating local movements and behaviour of individual birds and the migration route to Scandinavia (ongoing) building on the successful use of GPS trackers to increase our knowledge on this subject.

Target 3.1

Continue annual monitoring of bird numbers and areas preferred for grazing loafing and roosting (ongoing).

Target 3.2

Assess the feasibility of catching birds on the Swedish breeding and moulting areas identified through the tracking work conducted to date then if possible, tracking them to see if they all return to Scotland or other European wintering areas.

Target 3.3

Achieve a better understanding of roosting and night time movements of the flock by using night vision equipment and camera traps to monitor known sites.

Target 3.4

Develop a strategy for the management of the data collected through this work, considering aspects such as data sharing, methods of recording, and provision of data to key groups.

Objective 4

Raise awareness of the Taiga bean goose flock to increase local awareness and appreciation of the value and needs of the Slamannan Plateau taiga bean geese.

Target 4.1

Work with local schools to inform and engage the local community in this special species.

Target 4.2

Invite selected individuals on a visit to see the Taiga bean goose flock (annually).

Target 4.3

Maintain information on a dedicated Bean Goose website with links to Partners web sites.



Action	Potential Deliverers		Year to be completed or in place							Meets Objective	
	Lead	Partners	2022	2023	2024	2025	2026	2027			
A. Policy and Legislation											
1.1 Ensure that this habitat is afforded adequate consideration and, where possible, protected from damaging development through the planning process by: a) Developing appropriate policies within local and structure plans and other strategies as they are written or reviewed. (Ongoing)	Falkirk (DS) NLC		*	*	*	*	*	*	*		1, 2
1.2 Ensure that this habitat is afforded adequate consideration and, where possible, protected from damaging development through the planning process by: b) Review of supplementary planning guidance. 2023 (NLC only).	Falkirk (DS) NLC		*	*							1, 2
1.3 Influence Scottish Rural Development Programme development to ensure that Rural Priorities contains suitable packages and options for the management of Taiga bean geese.	RPID	NS, FCS	*	*	*	*	*	*	*		1
1.4 Ensure that the development of countryside access does not cause disturbance to sites known to be favoured by Taiga bean geese.	BGAG	Falkirk (DS) NLC (DS)	*	*	*	*	*	*	*		1, 2
B. Site safeguard and management											
2.1 Manage Fannyside Reserve in a way that encourages use by Taiga bean geese.	RSPB	BGAG SAC	*	*	*	*	*	*	*		1
2.2 Identify areas in the Slamannan Plateau, which may be suitable for restoration and management to benefit the Taiga bean goose flock.	BGAG	NS RSPB Falkirk (DS) NLC (DS)	*	*	*	*	*	*	*		
C. Species Management and Protection											
3.1 Promote the Scottish Rural Development Programme Rural Priorities packages and option which are beneficial to Taiga bean geese.	SEARS	BGAG	*	*	*	*	*	*	*		2

Action	Potential Deliverers		Year to be completed or in place							Meets Objective
	Lead	Partners	2022	2023	2024	2025	2026	2027		
D. Advisory										
4.1 Make available woodland guidelines to applicants for forestry grants and to others involved in tree planting on the Slamannan Plateau.	FC	FCS	*	*	*	*	*	*	*	2
4.2 Distribute the information leaflet highlighting the Taiga bean goose, its habitat requirements and appropriate action to benefit the taiga bean geese, to all landowners and occupiers.	BGAG	BGAG		*	*	*	*	*	*	1, 4
E. Survey Research and Monitoring										
5.1 Monitor annually species numbers and fields used for feeding and roosting and produce an annual report. (see action E2)	AM	RSPB NatureScot Falkirk C NLC	*	*	*	*	*	*	*	1, 2, 3
5.2 Continue to update GIS map of key Taiga bean goose feeding and roosting fields based on data from action E1. To be maintained and managed at one location and disseminated from there.	NS		*	*	*	*	*	*	*	1, 2, 3
5.3 Conduct further research into the local movements, behaviour, survival and reproductive success of individual birds in the central Scotland flock by fitting neck collars.	BGAG	NatureScot AM	*	*	*	*	*	*	*	3
5.4 Use tracking to identify other staging areas locally and track birds from Dalarna, Sweden to see if they only come to Slamannan. Also tracking identifies new feeding and roosting areas in Slamannan more efficiently than observation alone. This will help inform Planning and conservation management decisions.	BGAG		*	*	*	*	*	*	*	3
5.5 Use camera traps and / or tagging data to monitor roosting and night time movement of Taiga bean goose flock.	RSPB	BGAG	*	*	*	*	*	*	*	
5.6 Review existing research in the UK and elsewhere on Taiga bean geese and identify the need for future research to be carried out.	BGAG		*	*	*	*	*	*	*	3
5.7 Ensure that the work BGAG have carried out is made available and contributes to research in the UK, and Europe.	BGAG		*	*	*	*	*	*	*	
5.8 Develop contacts with universities, research units and other organisations/individuals with an interest in Taiga bean geese.	BGAG		*	*	*	*	*	*	*	3

Action	Potential Deliverers		Year to be completed or in place							Meets Objective
	Lead	Partners	2022	2023	2024	2025	2026	2027		
F. Communication and Awareness Raising										
6.1 Maintain, develop and manage the Taiga bean geese website as a source of information										
6.3 Develop links with local groups and schools in the Taiga bean goose study area to raise awareness and understanding of the importance of taiga bean geese in the area.	BGAG	*	*	*	*	*	*	*	*	4
G. Plan Monitoring and Review										
7.1 Monitor the implementation of actions in this plan annually.	BGAG	All partners	*	*	*	*	*	*	*	All
7.2 Monitor the completion and effectiveness of the actions in detail and review this plan every 5 years to ensure continued effectiveness.	BGAG	All partners					*	*	*	All

Abbreviations

AM	Angus Maciver	JS	John Simpson
BGAG	Bean Goose Action Group	NLC	North Lanarkshire Council
CSGT	Central Scotland Green Network	RSPB	Royal Society for the Protection of Birds
EARAG	Education & Awareness Raising Action Group	SAC	Scottish Agricultural College
Falk C (DS)	Falkirk Council Development Services	RPID	Rural Payments and Inspections Division
FC	Forestry Commission	NS	NatureScot
WWT	Wildfowl & Wetlands Trust		

Key Contacts

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Bibliography

Brackenridge W.R., 1999, Bean Goose Species Action Plan, North Lanarkshire Biodiversity Action Plan. Updated by Brian Minshull and William Thomson (2022).

Eaton, Mark & Aebischer, Nicholas & A.F., Brown & Hearn, Richard & L., Lock & A.J., Musgrove & Noble, David & Stroud, David & Gregory, Richard. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds. 108. 708-746.

[BB December 2015 - \(britishbirds.co.uk\)](http://britishbirds.co.uk)

Orr-Ewing D., Fraser I & Russell C., 1995, Bean Geese in Central Scotland, published by RSPB on behalf of The Bean Goose Working Group.

Robertson D., & Fraser I., 1995, Bean Goose Field Grazing Sward Species Composition Slamannan, unpublished report for SNH.

Forrester, R.W., Andrews, I.J., McInerney, C.J., Murray, R.D., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C., and Grundy, D.S., (2007), The Birds of Scotland. Scottish Ornithologists' Club. Aberlady. ISBN 978-0-9512139-0-2.

Hearn, R.D., (2004), Bean Goose *Anser fabalis* in Britain and Ireland 1960/61 – 1999/2000. Waterbird Review Series, The Wildfowl and Wetlands Trust/ Joint Nature Conservation Committee, Slimbridge.

BCM Environmental Services Limited, 2011. Report on the delivery of a monitoring programme for bean goose on the Slamannan Plateau 2010/2011. Scottish Natural Heritage Commissioned Report No. 487.

Griffin, L., Maciver, A., Minshull, B.C., Mitchell, C., and Thomson, W., 2022. Population and Distribution of the Taiga Bean Goose on the Slamannan Plateau, Winter 2021/2022. Unpublished Report to the Bean Goose Advisory Group.

Maciver, A., Minshull, B.C., and Thomson, W., 2022. Population and Distribution of the Taiga Bean Goose on the Slamannan Plateau, Winter 2020/2021. Unpublished Report to the Bean Goose Action Group.

Maciver, A., Minshull, B.C., and Goater, R., 2020. Population and Distribution of the Taiga Bean Goose on the Slamannan Plateau, Winter 2019/2020. Unpublished Report to the Bean Goose Action Group.

Maciver, A., Minshull, B.C., and Goater, R., 2019. Population and Distribution of the Taiga Bean Goose on the Slamannan Plateau, Winter 2018/2019. Unpublished Report to the Bean Goose Action Group.

Maciver, A., Minshull, B. C., and Goater, R., 2018. Population and Distribution of Taiga Bean Geese in the Slamannan Area 2017/2018. Unpublished Report to the Bean Goose Action Group.

Maciver, A., Minshull, B. C., and Goater, R., 2018. Population and Distribution of Taiga Bean Geese in the Slamannan Area 2016/2017. Unpublished Report to the Bean Goose Action Group.

Maciver, A., and Goater, R., 2017. Population and Distribution of Taiga Bean Geese in the Slamannan Area 2015/2016. Unpublished Report to the Bean Goose Action Group.

Maciver, A., and Wilson, T., 2015. Population and Distribution of Bean Geese in the Slamannan Area, 2014/2015. Unpublished Report to the Bean Goose Action Group.

Maciver, A., and Wilson, T., 2014. Population and Distribution of Bean Geese in the Slamannan Area, 2013/2014. Unpublished Report to the Bean Goose Action Group.

Maciver, A., and Wilson, T., 2013. Population and Distribution of Bean Geese in the Slamannan Area, 2012/2013. Unpublished Report to the Bean Goose Action Group.

Maciver, A., and Wilson, T., 2012. Population and Distribution of Bean Geese in the Slamannan Area, 2011/2012. Unpublished Report to the Bean Goose Action Group.

Minshull, B. C., 2016. Report on the delivery of a monitoring programme for bean goose on the Slamannan Plateau 2013/2014. Scottish Natural Heritage Commissioned Report No. 889.

Minshull, B. C., Mitchell, C., Maciver, A., and Griffin, L., 2014. Report on the collation of field use data relating to wintering bean geese on the Slamannan Plateau. Scottish Natural Heritage Commissioned Report No. 711.

Minshull, B. C., 2013a. Report on the delivery of a monitoring programme for bean goose on the Slamannan Plateau 2011/2012. Scottish Natural Heritage Commissioned Report No. 607.

Minshull, B. C., 2013b. Report on the delivery of a monitoring programme for bean goose on the Slamannan Plateau 2012/2013. Scottish Natural Heritage Commissioned Report No. 608.

Mitchell, C., Griffin, L., Maciver, A., and Minshull, B. C., 2017. Scotland's Bean Geese and the spring 2017 migration. *Scottish Birds* 37: 221 – 224.

Thornton, M., Mitchell, C., Griffin, L., Briers, R., Minshull, B., Maciver, A. and White, P., 2021. Multi-scale habitat selection and spatial analysis reveals a mismatch between the wintering distribution of a threatened population of Taiga Bean Geese *Anser fabalis* and its protected area. *Bird Study*. 10: 1-17.

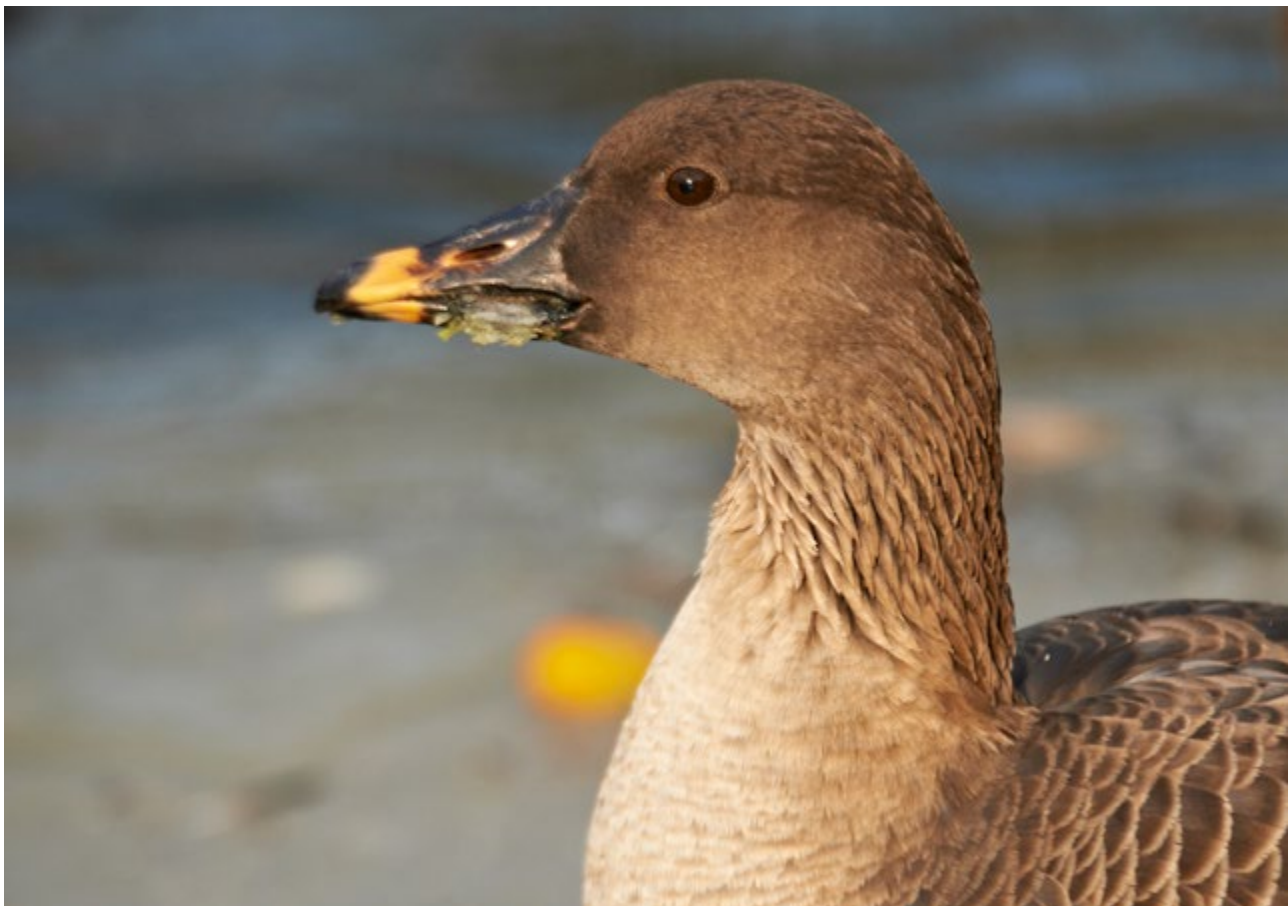
Websites

<http://beangoose.blogspot.co.uk/> - the blog of Angus Maciver, the Bean Goose Monitoring Officer.

[Bean Goose \(*Anser fabalis*\) - BirdLife species factsheet](#) - a website dedicated to the Slamannan Plateau Taiga Bean Geese (where, for instance, many of the reports detailed above can be found).

[Scotland's Bean Geese - Migration](#) - the Bean Goose factsheet on the Birdlife International website.

Plan author: BGAG



FRESHWATER ACTION PLAN





Freshwater Landscape

Introduction

“Partnership projects like the recent Dumbreck Marsh & Garrell Burn are more important than ever in response to our changing climate, harm to our biodiversity and need for more quality greenspace within our communities.”

Francis Hayes, Water Environment Fund (WEF),
Scottish Environment Protection Agency

A Landscape Perspective...

Freshwater is vital to all life on earth. Although only covering 3% of UK’s land surface, it supports 10% of species in the UK.¹⁷ Scotland’s rivers, lochs and wetlands supply drinking water, support fisheries and aquatic biodiversity, generate hydropower, mitigate flood risk, store carbon and are an essential resource for business and recreation. Freshwater habitats consist of flowing water and standing water. Ponds, lochs, canals, rivers and burns are just some of the freshwater habitats present within North Lanarkshire. Freshwater ecosystems affect nearly all aspects of the natural environment and human culture. The intrinsic value of freshwater habitats is recognised at a national level. The 2020 Challenge for Scotland’s Biodiversity identifies the need for a more integrated approach to land and freshwater use and management. Pressures on the natural environment from habitat loss, nutrient enrichment and climate change require concerted action at a landscape scale.¹⁸

The Scottish Environment Protection Agency’s (SEPA) monitoring shows that overall 64% of our rivers and lochs are in “good” or “better than good” condition in 2020. This is based upon an assessment of water quality, flows and levels, physical condition and barriers to fish migration. This is an improvement of three percentage points since 2015. Scotland’s third River Basin Management Plan (2021-2027) and the Wild Salmon Strategy are key. The former plan aims to achieve 81% of the water environment being in a good or better condition by 2027 and 90% in the

long-term once natural conditions have recovered. Issues which need tackling include increasing water scarcity and abstraction, rising water temperatures, rural diffuse pollution, wastewater, man-made barriers to fish migration and physical modifications to rivers. Invasive non-native species (INNS) such as Japanese knotweed, giant hogweed and North American signal crayfish have considerable impacts on freshwater ecosystems and these are intensifying. Healthy riparian woodlands are critical for the health of water systems and bodies but they are in declining in coverage and condition. Poorly vegetated upper catchments and canalised river systems exacerbate downstream flash flooding events.



¹⁷ RSPB. State of Nature, 2013

¹⁸ The Scottish Government, 2020 Challenge for Scotland’s Biodiversity

Why are they important?

The habitats associated within, and around freshwater habitats not only support a wealth of biodiversity but also provides vital ecological corridors for wildlife. This is particularly important for a local authority where many large urban conurbations exist. Clean watercourses can provide important dispersal routes around towns for species such as Otter. Marginal and bankside areas also support a variety of wildflowers and animals such as Water voles and Water shrews. One of the most important sites in North Lanarkshire containing freshwater habitat is Gartcosh Local Nature Reserve. The pond clusters are not only home to an exceptional assemblage of amphibians, but also the largest known population of Great Crested newt in Scotland.

Freshwater habitats are not only important for biodiversity, they provide a host of ecological services which are important to our day to day lives. They regulate flooding and with climate change predicting warmer, wetter summers, good quality wetland habitats will be of huge importance in helping to reduce flooding. They also provide us with clean drinking water, as well as water for domestic, agricultural and industrial activities. Freshwater habitats are of huge recreational value. For example Strathclyde Loch has an excess of 6 million people visit each year, many of which make use of the water sport facilities present.

Freshwater Under Threat

On a global scale, freshwater ecosystems have lost a greater proportion of their species and habitats than that on land or in the sea. The loss and degradation of these ecosystems has been caused by a wide range of pressures. Given North Lanarkshire's rich industrial heritage, historically many water courses were in a polluted state. However, the state of many watercourses and water bodies have much improved, but our freshwater habitats continue to face threats such as waste run off from agricultural practices, which can cause eutrophication. Phosphate in sewage effluent and agricultural run off can cause high levels of nutrients in freshwater habitats, this can lead to significant changes in the aquatic vegetation as an influx of nutrients may result in algal blooms.

Through river basin management planning, information about the current ecological status of Scotland's freshwater systems and pressures on water bodies can be identified and actions to resolve issues and targets for improvement can be identified.



Freshwater in North Lanarkshire

North Lanarkshire has approximately 89 rivers and burns, two main canals and 35 lochs and reservoirs. These environments are integral to landscape ecology as they form corridors between environs and prevent habitat isolation. There are also hundreds of ponds and areas of standing water which are distributed throughout North Lanarkshire.

These watercourses and bodies provide a resource and habitat for the ecology in North Lanarkshire but have also helped to shape its cultural history through industrial activities and the locations of settlements.

The Freshwater Habitat Action Plan aims to protect and safeguard existing freshwater sites and help to enhance and encourage future projects that will increase wetland sites and prevent fragmentation between habitats.

The freshwater landscape contains two habitat plans: Rivers & Burns and Ponds and also includes three species plans: Otter, Great crested newt and Water vole.

Ponds Action Plan

Ponds Action Plan	
Scottish Biodiversity List Habitat:	Yes
UK List of Priority Species:	Yes

Habitat Profile

Ponds are rich habitats for wildlife, in particular amphibians, aquatic invertebrates and aquatic plants. Whether man made or natural, ponds are an important habitat. There are thought to be around 500,000 ponds in our wild landscape in Great Britain, plus around three million ponds in our gardens. In Scotland there are approximately 198,000 ponds (Countryside Survey, 2007). The structural diversity of ponds through aquatic and bankside vegetation provides a wide range of species with food, shelter and breeding habitat.

Ponds, for the purpose of UK BAP priority habitat classification, are defined as permanent and seasonal standing water bodies up to 2 ha in extent which meet one or more of the following criteria:

- Habitats of international importance: Ponds that meet criteria under Annex I of the Habitats Directive.
- Species of high conservation importance: Ponds supporting Red Data Book species, UK BAP species, species fully protected under the Wildlife and Countryside Act Schedule 5 and 8, Habitats Directive Annex II species, a Nationally Scarce wetland plant species, or three Nationally Scarce aquatic invertebrate species.
- Exceptional assemblages of key biotic groups: Ponds supporting exceptional populations or numbers of key species. Based on (i) criteria specified in guidelines for the selection of biological SSSIs (currently amphibians and dragonflies only), and (ii) exceptionally rich sites for plants or invertebrates (i.e. supporting ≥ 30 wetland plant species or ≥ 50 aquatic macroinvertebrate species).

- Ponds of high ecological quality: Ponds classified in the top PSYM category (“high”) for ecological quality (i.e. having a PSYM score $\geq 75\%$). [PSYM (the Predictive SYstem for Multimetrics) is a method for assessing the biological quality of still waters in England and Wales; plant species and / or invertebrate families are surveyed using a standard method; the PSYM model makes predictions for the site based on environmental data and using a minimally impaired pond dataset; comparison of the prediction and observed data gives a % score for ponds quality].
- Other important ponds: Individual ponds or groups of ponds with a limited geographic distribution recognised as important because of their age, rarity of type or landscape context e.g. pingos, duneslack ponds, machair ponds.



For this Local Biodiversity Action Plan, ponds are defined as permanent and seasonal standing water bodies up to 2 ha in size. They are valuable habitats on a local level, being important in wetland creation but also providing stepping-stones for aquatic species associated with ponds to disperse and colonise new areas. The historical decline of pond habitats, not only in the UK but also in Europe, has led to the decline of associated species, in particular amphibians. Ponds provide habitat for UK and North Lanarkshire Biodiversity Action species, Great Crested Newt (*Triturus cristatus*), Otter (*Lutra lutra*) and Water Vole (*Arvicola amphibious*).

Sustainable Urban Drainage Systems (SUDS) are used as an alternative to conventional urban drainage systems and are designed to reduce pollution and flood risk in watercourse and water bodies. They are man-made structures and receive water run-off. Detention basins, retention ponds and swales are a few examples of SUDS. The primary function of SUDS is to deal with water quality and flood prevention but can be designed to enhance biodiversity without detriment to its primary function. To maximise SUDS ponds, a key consideration should be the landscape context which within they sit. SUDS ponds have the potential to be very valuable habitats in themselves or as part of a network of habitats and wildlife corridors.



Current Status

Scotland has many small waterbodies: over 150,000 in total, representing about half of the ponds and pools in the British countryside as a whole.

Ponds may be isolated, or may occur as parts of pond complexes, or form important parts of wetland ecosystems. Ponds have been lost through intensive agriculture, infilling as a result of development and urbanisation as well as through natural processes. Many ponds are also in a degraded state as a result of pollution caused by factors such as agricultural run-off and roads. Ponds are particularly vulnerable to pollution because of their small size and the small volumes of water available to dilute pollutants. Poor management of ponds is also a factor for its reduction in numbers. At times clearing out practices or preventing ponds from drying out may adversely affect aquatic flora and fauna. Creation of new ponds alongside a pond undergoing natural succession is an effective method of ensuring no adverse effects on pond wildlife.

They are a dynamic habitat and in a landscape context, the loss of this habitat has led to a loss of pond dependant biodiversity as they become isolated in the landscape.

Many ponds were lost or degraded during the 20th Century, but a 6% increase in pond numbers occurred between 1998 and 2007, with a considerable number of new ponds being noted in lowland areas.

Key pond habitats in North Lanarkshire include Gartcosh Local Nature Reserve, home to one of Scotland's largest populations of Great Crested Newt.

The Pond mud snail (*Omphiscola glabra*) is found in a pond and wetland at Auchinvalley. A population were also released at Nether Croy. Pond mud snail is nationally scarce, listed as vulnerable in the UK Red Data Books, and is a UK Biodiversity Action Plan species. It is only known to inhabit 7 sites across Scotland so our populations are very important.

Current Actions

- Updated guidance from SEPA on good practice in the management and creation of small waterbodies in Scotland (June 2020).
- Promote the retention and enhancement of existing ponds within planning application responses.
- Encourage the inclusion of above ground Sustainable Urban Drainage ponds into new developments. Designed and landscaped for wildlife.
- The Greenspace Development Team have created over 20 new ponds within the last 5 years, with 10 of these ponds at Gartcosh Local Nature Reserve. They have also maintained over 30 within this time period. The maintenance has usually been in the form of excessive vegetation clearance.

Current Factors Affecting This Habitat

- Development and in-filling of ponds.
- Agricultural run-off and sewage causing eutrophication.
- Succession.
- Drainage as a result of agricultural intensification.
- Invasive species such as New Zealand pygmy weed. Often unknowingly introduced by people emptying their ponds or aquatics.



Proposed Objectives, Targets and Actions

1. Creation of new ponds to form connecting habitats.
2. Identify extent and condition of ponds in North Lanarkshire
3. Undertake positive management of ponds

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Create 10 new ponds.	1	NLC	Identify 10 council owned and private land owned sites by 2023 to undertake pond creation. Enhancement of existing wetland and habitat connectivity must be a key consideration during implementation stage. Project to be delivered by 2026.
1.2 Restore 10 ponds in poor condition.	3	NLC	Identify 10 ponds in poor condition by 2024 and restore by 2027.
1.3 Implement bio-control procedures to prevent spread of aquatic invasive non native plant species and the spread of disease.	2	NLC	Make sure all staff and contractors follow ARG-UK guidance.
Survey research and monitorin			
2.1 Implement a management programme to ensure that ponds in all North Lanarkshire Local Nature Reserves are under positive management.	2, 3	NLC	Produced by 2024.
2.2 Identify extent of pond habitat in North Lanarkshire	2	NLC	Mapping exercise to be complete by the end of 2023.
Communications and awareness raising			
3.1 Encourage and promote the construction of wildlife friendly SUDs ponds as part of any development.	1	NLC	Raise awareness of wildlife friendly SUDs ponds within the planning authority. Aim to deliver 10 high quality wildlife friendly SUDs ponds through planning consultations.
3.2 Offer advice and promote best practice on pond creation and restoration.	1	NLC	Engage in proactive outreach work with private homeowners and landowner to encourage pond creation.

SEPA's - Ponds, pools and lochans – Guidance on good practice in the management and creation of small waterbodies in Scotland.

Updated by Kirsty Mooney, Biodiversity Projects Officer, NLC, and Suzanne Burgess, Buglife 2022.



Rivers and Burns Action Plan

Rivers and Burns Action Plan	
Scottish Biodiversity List Habitat:	Yes
UK Biodiversity List of Priority Habitats:	Yes

Summary

Rivers and burns are frequently the sole remaining semi natural feature in a landscape, and as such they are invariably of great value for wildlife, and our own enjoyment. On the whole our rivers and burns represent the most unmodified natural habitat after our bogs to be found in North Lanarkshire. Their importance is increased by the fact that much of our ancient woodland is found along their banks. Their value as “wildlife corridors” is increasing as development covers more and more land.

The quality of our rivers and burns has improved greatly since the closure of most of the heavy industry, however there is a great deal of scope for further improvement.

There is a UK Biodiversity Broad Habitat Statement for Rivers and Streams.



Ravens Wood

Habitat Profile

In their natural state watercourses are dynamic environments, creating a range of physical habitats which will be determined by factors such as slope, discharge, water velocity, and substratum (hard/soft geology etc.). The habitats created by these factors will support characteristic animal and plant assemblages. In general, the more diverse the range of physical habitats, the more biological diversity there will be. Engineered rivers (in urban areas and industrial or intensively agricultural landscapes) generally have a simplified range of habitats and a reduced biodiversity.

Rivers and burns are impacted by reductions in water quality, quantity, changes to their flow regime, and degradation of the physical structure of their banks and channels. Two aspects of rivers should be considered: the watercourse itself - the 'wetted channel', and the complete corridor of channel and riparian zone (bank and associated land). The linear nature of streams and rivers gives them value beyond their immediate provision of living space for wildlife: they also provide wildlife corridors enabling animals to move to new areas safely to find food, mates, or new habitat. Culverts, bridges, weirs, hard engineering of channels, as well as poor water quality and low flows, threatens this continuity, isolating populations which can lead to their extinction.

Water quality is of some significance to truly aquatic species, although river corridors may retain considerable value to wildlife even where water quality is severely impaired. This is related to their retention of some semi-natural features, for example their riparian vegetation or their production of flying stages of aquatic insects, which are utilised as food. Therefore, poor water quality should not lead to pressures for culverting, as this leads to total loss of the habitat and compounds any water quality problems.

There is a growing recognition of the importance of river habitats both as the supporting physical structures for wildlife, and as key components conferring resilience of the system as a whole, for example enabling polluting materials to be processed and rendered harmless. These latter areas of activity are not covered by current legislation and therefore demand a co-operative approach from all interested parties to achieve effective management.



Strathclyde Park Loch

Legal Status

The Water Framework Directive establishes a legal framework for the protection, improvement and sustainable use of all water bodies in the environment across Europe. That is, all rivers, canals, lochs, estuaries, wetlands and coastal waters as well as water under the ground.

The Directive became law in Scotland during 2003 through the Water Environment and Water Services (Scotland) Act 2003 (the WEWS Act) which sets out the new arrangements for the protection of the water environment in Scotland.

The main environmental objectives are to protect and improve Scotland's water environment. This will include preventing deterioration of aquatic ecosystems and, where possible, restoring surface waters and groundwater damaged by pollution, water abstraction, dams and engineering activities.

The Act provides for new controls over activities such as abstraction, impoundment, engineering, point and diffuse source pollution which directly affect the water environment. These controls will be implemented by the Controlled Activities Regulations. The Act also states that SEPA will be the operator of these regulatory regimes.

Water Environment (Controlled Activities) (Scotland) Regulations 2011 – known as the Controlled Activity Regulations (CAR) – and their further amendments apply regulatory controls over activities that may affect Scotland's water environment. These include discharges of wastewater or industrial effluent, and abstractions for irrigation, hydropower or drinking water, as well as engineering activities in or near rivers.

Current Status

Scotland has more than 125,000 km of rivers and streams (enough to go round the earth three times) varying from small highland burns to deep, wide lowland rivers such as the Tay. There is also a 220 km canal network in Scotland.



There are approximately 89 rivers and burns in North Lanarkshire, two main canals and 35 lochs and reservoirs. Rivers and burns form linear corridors of varying conservation value across North Lanarkshire. However, there is only one river catchment contained completely within the boundaries of North Lanarkshire, the South Calder Water. Other catchments lying partly within North Lanarkshire include the North Calder Water, the River Kelvin, the River Almond and a short stretch of the River Clyde.

Prior to the industrial revolution all of our waterways would have been clean, clear and teeming with life. The quality of the South Calder Water has improved dramatically with the closure of the Ravenscraig steelworks. Also, water quality in the Kelvin catchment has improved with the diversion of sewage treatment works discharges to the Kelvin Valley Sewer.

In the SEPA waterbody classification data 2020 (overall status) the majority of North Lanarkshire's rivers and burns are classified as poor to moderate. With several scoring good – Garnkirk Burn, Forth & Clyde Canal and at least in part the river Clyde (area from Motherwell to Garrion Bridge). One is classified as bad – river Kelvin,

Current Factors Affecting This Habitat

The main pressures currently affecting the condition of rivers and lochs in Scotland are:

- Man-made barriers to fish migration
- physical changes to the beds and banks
- rural diffuse pollution.

Groundwater quality is affected by:

- Diffuse pollution from rural sources
- discharges from industries such as mining and quarrying.

Groundwater flows and levels are affected by:

- Agricultural irrigation
- industry

Physical Habitat Destruction and simplification

Works such as culverting, dredging, inappropriate hard engineering, and land take for development. Rivers are also affected by agricultural practices (e.g. overgrazing of stream banks).

Poor water quality

This falls within the statutory remit of SEPA. Most problems can be rectified given adequate resources, both for identification of the problem and cost of rectification. Urban areas are traditionally difficult to deal with due to complexity of drainage network, multiple sources of pollutants and diffuse pollutants.

Non-native species and species with an affinity for rivers

May be self-colonising such as Giant Hogweed, Himalayan Balsam (a major problem on the Clyde, North Calder and Luggie Water) and Japanese Knotweed, or may be planted as an environmental 'improvement', e.g. cultivated grass species mown right to the riverbank, non-native ornamental species planted for amenity.

Public attitudes to river corridors

These may be seen as 'waste ground' if not maintained as parkland or amenity open space. Hence, they are frequently used as dumping grounds; fly tipping is a major problem locally.

Water quality on council managed sites could be improved by encouraging the establishment of bank side vegetation, improved litter removal and appropriate land use.



Auchinstarry Marina

Current Action

- Scottish Environmental Protection Agency's monitoring of water quality at selected sites locally.
- Native planting along rivers and burns in any Council landscape projects.
- Continued enforcement of pollution control legislation.
- The promotion of SUDS and Green Roofs by Community Greenspace to planners and developers.
- The Council's Biodiversity Team are consulted on relevant planning applications concerning development near rivers and burns – buffer between the watercourses and development also pollution prevention measures.
- Promotion of wildlife friendly Sustainable Urban Drainage Systems in new developments.
- Many parts of North Lanarkshire's watercourses designated as a SINC.
- SEPA water quality targets.
- Recently completed landscape project in Kilsyth to help flood prevention and re-naturalise a canalised area of water at the Garrell Burn. This has created much needed wetland habitat within Dumbreck LNR. This project also includes fish passes, creation of habitat for several wetland species such as water vole and otter. INNS survey and treatment within the same area.
- Project to survey for INNS along the Luggie Water within the Cumberland catchment area – in order to facilitate a further project to treat the INNS.
- Project to survey for INNS along the upper regions of the Garrell Burn from the Kilsyth project and follow-on treatment.



Proposed Objectives, Targets and Actions

1. To protect and enhance the river and burn habitat associated riparian features, and water quality.
2. To increase public awareness of the wildlife and amenity value of rivers and burns.

Action	Meets objective number:	Action by	Target
Policy and Legislation			
1.1 Develop policies to control INNS species and favour establishment of appropriate native species adjacent to rivers and especially on Council owned land.	1	SEPA, NLC	By end of 2025.
Habitat management and protection			
2.1 Promote soft engineering of rivers and presumption against culverting. Through Supplementary design guidance.	1	SEPA, NLC	Provide information through supplementary design guidance by end of 2023.
2.2 Continue to ensure that where appropriate, locally sourced native plant species are used for council planting operations and new developments where it is necessary to impinge on river banks. Generally, no development or works are recommended within 6m of a river, unless these will have a positive effect on the habitat.		NLC	Identify 10 ponds in poor condition by 2024 and restore by 2027.
2.3 Promote adoption of Sustainable Urban Drainage Systems in new developments.	1	SEPA, NLC	Include promotion of SUDS in new Supplementary Design Guidance 2023.
2.4 Identify opportunities for river restoration such as de culverting key sections of river corridors to allow better movement of biodiversity species.	2	NLC, SEPA	Identify 2 key sites and agree implementation with SEPA to be completed by 2024.
2.5 Develop fish passages/ ladders to facilitate movement of fish through obstructions.	2	NLC, SEPA, CRF	Identify a key site and agree implementation with SEPA to be complete by 2025.
2.6 Develop a strategy and identify funding opportunities to deal with the spread of invasives through water courses.	1	NLC, SEPA,	Identify a catchment scale project with SEPA and agree implementation by 2025.
Survey research and monitoring			
3.1 Continue to monitor the quality of streams and burns in North Lanarkshire.	1	SEPA	Annual monitoring of streams and burns, report provided to Biodiversity Officer.
Communications and awareness raising			
3.2 Promote clean-up campaigns to educate local communities on the effects of general litter, fly tipping and sewerage debris on their local environment and wildlife.	1, 2	NLC	2 clean up events annually. Strategic promotion of NLC Freshwater habitats and species at events.
3.3 Establish links with LBAP topic groups from other council areas to ensure an integrated approach to habitat improvements in catchments crossing local authority boundaries.	1, 2	SEPA, NLC	Annual meeting organised by 2023.

Update by Kirsty Mooney Biodiversity Projects Officer, NLC, 2022.

*Although burns are not specifically mentioned in the Scottish Biodiversity List, rivers are included.

Otter Action Plan

Lutra lutra

Otter Action Plan	
Scottish Biodiversity List:	Yes
UK List of Priority Species:	Yes

Summary

The Otter is widespread in North Lanarkshire and is found in nearly all suitable waterways. With continuing efforts to improve water quality the population of Otters should increase further, as all suitable habitat is occupied.

Species Profile

Otters require clean rivers with a plentiful supply of food and bankside vegetation. They are shy, semi-aquatic, mostly nocturnal creatures, although they can be seen during the day in undisturbed locations. Their fur is generally medium to dark brown in colour with a pale underbelly. Adults vary from 1-1.2 metres in length, and 6-8kg in weight. Females are generally smaller than males. They are found in almost all wetland habitats including lochs, rivers, burns, ditches, reedbeds, marshes, estuaries and the coast.



An Otter needs up to 30 holts (dens) or lying up sites in their home range. Large cavities in bankside tree roots, dense impenetrable scrub, rock cavities, peat burrows and old culverts are all examples of typical holt sites. One of the best ways to identify a possible holt is to look for their droppings known as spraints which are black and spiky and have fish bones in them. Footprints and runs are also good indicators of an Otter's presence.

Their main diet is fish, with eels being a favourite, although they will eat amphibians (frogs are an important food source in spring), small mammals and some birds. An adult Otter requires about 1kg of food a day. This high value is due to the amount of energy used hunting their aquatic prey.

Breeding is non-seasonal; therefore, they can breed at any time of the year. The female gives birth to one to four cubs in the safest holt in her home range. The cubs remain there for about 2 months and then begin exploring their territory with their mother. They will stay with her for 12 to 18 months before finding their own territory (the father plays no role in rearing the cubs). They are sexually mature at two years, but life expectancy is short, three years on average, although their potential life expectancy is up to fifteen years. Late sexual maturity, small litter size and a short life expectancy make breeding success critical.

Current Status

The Eurasian Otter has the widest distribution of all otter species. Its range covers parts of three continents: Europe, Asia (as far south as Java) and North Africa. Originally the species was widespread throughout Europe, after the population crashes in the 1960-70's it declined in Central and Northern Europe and is probably extinct in the Netherlands and Switzerland. The population crash was largely due to pollution from farm pesticides and habitat loss. By the late 1970s the otter was almost extinct in the UK apart from a few strongholds in Scotland such as Dumfries and Galloway and the Highlands and Islands. However, by the 1980s Otter populations had begun to recover due to the phasing out and banning of some hydrocarbon pesticides.

There are still good populations in Portugal, Ireland, Greece, Scotland and the northern taiga of Russia. However, over its whole range the Otter is estimated to have declined by at least 20%.

The Scottish population is one of the largest populations in Europe and as the inland populations expand this population is being further bolstered. This makes our population significant in Europe, and globally. The population in 2003 was estimated to be around 8000 otters and there are 44 Special Areas of Conservation (SACs) where otter is a qualifying feature.



Legal Status

The Otter is listed on Appendix I of CITES, Appendix II of the Bern Convention and Annexes II & IV of the Habitats Directive. It is also protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994, and the Nature Conservation (Scotland) Act 2004.

This protection means that it is an offence to deliberately: kill or injure Otters, capture or keep otters, destroy, damage or obstruct their den, disturb them while in the den, sell or advertise for sale, otters and anything derived from them, import or export Otters, whether dead or alive

The above actions can only be carried out with a specially granted licence, issued by NatureScot.

Current Factors Affecting This Species

- Pollution of watercourses from industrial, residential and agricultural sources. Industrial and residential pollution of watercourses is a major issue in the Motherwell, Coatbridge and Airdrie area.
- Existing developments without Sustainable Urban Drainage Systems increasing the run-off going into the drains, overloading the sewage system so that uses the emergency overflows to discharge directly into water courses.
- Habitat loss due to development.
- Acidification of watercourses caused by acid rain and exacerbated by leachate from conifer plantations.
- Changes in fish populations.
- Disturbance is still a major factor as waterways are increasingly used for recreation; people and dogs can cause major problems in some places.
- Roadkill – this is the single biggest source of Otter mortality - excluding natural deaths. Many Otters are killed on the roads in North Lanarkshire several deaths alone at Strathclyde Park.

Current Action

- Scottish Water's upgrading of the sewage infrastructure, leading to improved water quality.
- Scottish Environmental Protection Agency's monitoring of water quality at selected sites locally.
- Ongoing collation of Otter roadkill records.
- All developments affecting Otter habitat are recommended to have an Otter survey undertaken prior to development. If otters are recorded there must be adequate mitigation and compensatory measures are implemented.
- Open water SUDs ponds to create extra habitat for otter and cleaner water environment.
- Provision / enhancement of buffer strips between developments and watercourses – for new developments undertaken during the planning stage.



Proposed Objectives, Targets and Actions

1. Conserve and enhance otter habitat.
2. Maintain and where possible expand the otter population in North Lanarkshire.

Action	Meets objective number:	Action by	Target
Species and habitat management and protection			
1.1 Attempt to limit accidental deaths by providing road underpasses, dyke net guards etc.	2	NLC, SG, NatureScot	Identify key areas by end of 2023. Implement appropriate preventative measures by end of 2026.
1.2 Enhancement to riverbank vegetation, by fencing off to allow regeneration of riverbank habitat. Potential funding through SRDP and SEPA.		NLC, SEPA, Local land owner's	Identify key areas by end of 2023. Implement appropriate preventative measures by end of 2026.
Advisory			
2.1 Advise owners and seek to secure appropriate management of otter sites.	1	SEPA, SWT, NLC	2 Otter related project by 2025.
Survey research and monitoring			
3.1 Continue to monitor Otter populations in key areas.	1,2	SWT, NLC	Annual survey of 3 sites.
Communications and awareness raising			
4.1 Continue to use this popular species to highlight the importance of water quality.	1,2	NLC	One themed talk, walk, leaflet or article annually. Utilise wildlife camera footage to raise awareness.

Updated by Kirsty Mooney, Biodiversity Projects Officer, NLC, 2022



Water Vole Action Plan

Arvicola terrestris

Water Vole Action Plan	
Scottish Biodiversity List:	Yes
UK List of Priority Species:	Yes

Summary

The Water vole was formerly common along the banks of rivers, streams, canals, dykes, lakes, lochs and ponds throughout mainland Britain.

Despite being listed as a species of least concern by the International Union for Conservation of Nature (IUCN) the UK population has undergone a long-term decline since 1900. The Water vole is listed as endangered on the Mammal Society's recently created Red List for Britain's Mammals (more information on this List can be found in the reference section below). However, in Scotland the species is listed as Near Threatened, which acknowledges that Water voles are coping better in the North of Britain, although still a conservation concern.

In North Lanarkshire Mink predation seems to be a major factor in their decline. However, Water Voles have not been extensively surveyed in North Lanarkshire; this makes it difficult to assess the true nature and extent of their decline, and therefore limits our ability to protect the species.



Species Profile

The Water vole is the largest of the British voles, weighing between 200g and 350g, and is frequently mistaken for a rat. They are predominantly herbivorous, primarily feeding on lush waterside vegetation composed of grasses, sedges, rushes and reeds. In the winter months, roots and bark of shrubs and trees form an important part of the diet together with rhizomes, bulbs and roots of herbaceous species. They need to consume up to 80% of their body weight daily. Recent work has shown Water Voles to be more numerous in upland and peatland habitats than formerly thought.

Water voles are found in most freshwater habitats in Scotland, ranging from slow flowing lowland ditches and static burns, to canals and headstreams up to 620m altitude. They typically inhabit watercourses that are less than 3m wide and 1m deep and prefer sites with steep or stepped profiles that they can burrow into and create nesting chambers, away from the water. The bankside and emergent vegetation density is very important, with Water voles preferring a swathe of tall and rich, riparian plants. Ideal habitat consists of layered bankside vegetation with tall grasses and stands of: Willowherb; Purple Loosestrife; Meadowsweet and Nettles. It should also be fringed with thick stands of rushes, sedges or reeds. Sites excessively shaded by shrubs or trees (>20% bankside tree cover) are less favourable.

In waterside populations, each vole utilises a series of burrows dug into the riverbank, preferably where the soil is soft and easily excavated. The burrows comprise of nest chambers, inter-connected tunnels with many entrances and bolt holes consisting of short tunnels ending in a single chamber. Nest chambers occur at various levels in the steepest part of the bank and the nest consists of shredded grass. Occasionally, Water voles will weave a nest into the bases of sedges and reeds. Water voles typically inhabit water courses that don't exhibit extreme water level fluctuations. Sites that suffer total submersion during protracted periods of winter flooding are untenable, but populations may migrate seasonally to avoid flooding of burrow systems.

Water voles can be detected by the presence of burrows, runways up to 9cm wide at the edge of densely vegetated banks, and latrines containing cylindrical faeces with blunt ends, which are typically

found at prominent points along the watercourse. At low population densities, these signs may be difficult to find and water voles can be difficult to detect due to their secretive nature.

Water voles typically live in groups of fewer than ten individuals, known as colonies. Breeding lasts from April to October with a gestation period of 20-30 days. The females may produce 2 to 5 litters annually, with the average litter size 4-6 young. Early born young may breed that autumn, but most reach sexual maturity after their first winter. Exceptionally, Water voles may survive three winters but mortality is thought to be very high among dispersing juveniles.



Population Dynamics

Water vole colonies cannot persist in isolation as individuals disperse to form new colonies. Individual colonies may go extinct but, if near to another colony, recolonisation can take place. If there are no nearby colonies, the species will become locally extinct, leaving surviving populations further isolated. This population structure is known as a metapopulation. Due to this metapopulation structure and the dispersal behaviour of Water voles, management strategies are likely to be more effective if connectivity of colonies is considered.

Legal Status

In Scotland, the Water vole has had limited enhanced statutory protection under Schedule 5, section 9(4) of the Wildlife & Countryside Act 1981 since 1998. This section of the act protects habitat occupied by the species. Under the Nature Conservation (Scotland) Act 2004, the term “recklessly” has been added to the legislation, so the protection now makes it an offence to intentionally or recklessly:

- damage, destroy or obstruct access to any structures or places used by Water Voles for shelter or protection.
- Disturb Water voles whilst they are using any such place of shelter or protection.

This covers only their places of shelter and protection and does not extend to cover the animals themselves. It should be noted that the water vole has been recommended by statutory authority for full individual protection under the Wildlife and Countryside Act 1981 and that this may be enacted at any time.

Under animal welfare laws, cruelty to Water voles is an offence.

Licences are available from NatureScot for:

- Survey, science and research purposes Social, economic or environmental purposes

Current Status

Members of the Council’s Pest Control team in Cumbernauld have linked the Water vole’s decline with the appearance of Mink in the area around 20 years ago.

The Water vole has been recorded at over 50 sites in North Lanarkshire since 2000 including: Forth and Clyde Canal; Gartosh Nature Reserve; near Longriggend; Fannyside Loch; Luggie Water; Brownsburn, Airdrie; Frankfield Loch LNR, Stepps; Chryston and the Drumpellier to Hogganfield wetland complex. It is likely that the upland populations are small and fragmented but the lack of any survey of this area means that this is still conjecture.

Populations of Water voles in the Glasgow area are known to live away from water, almost entirely underground, like moles, in dry, grassland habitats.

They are known as fossorial or grassland water voles. A fossorial water vole population was found in Chryston in 2021, so there could be more Water voles living in grasslands in North Lanarkshire, particularly near Glasgow.

Water vole burrows have recently been recorded further away from watercourses in North Lanarkshire, perhaps up to 65m. While the voles are likely to still associate with the nearby aquatic habitat, these voles appear to be living a partly fossorial lifestyle, and they live further from an aquatic environment than many ecologists might survey for them.

The population in the Drumpellier to Hogganfield wetland complex has one of the highest densities in Central, and perhaps all of, Scotland. Results from Glasgow show that larger populations of Water voles are found in wetland areas, rather than along linear water courses; these areas seem to provide better cover to evade predatory Mink. However, fossorial water voles live at even higher densities and currently Cranhill Park in Glasgow has the highest recorded density of Water voles living in Britain.

Current Factors

- Insensitive river engineering, bank protection, land drainage programmes and maintenance works (e.g. de-silting operations) can damage habitats.
- Urbanisation of floodplains has led to direct habitat loss and containment of the river channel.
- Development on grasslands can lead to habitat loss, fragmentation, and degradation for fossorial water voles.
- Pollution of watercourses reducing breeding success.
- Heavy grazing pressure from domestic livestock denudes riparian vegetation and may make site unsuitable for Water voles by trampling the banks.
- A substantial fringe of waterside vegetation is essential for Water voles, and this can be dramatically reduced through inappropriate management.
- Bank mowing and vegetation clearance may increase the risk of predation.

- A lack of, or inappropriate, river management can lead to habitats becoming over shaded, silted up or dried out.
- Population fragmentation resulting from isolated habitats or local extinction may accelerate the rate of decline. This is due to the decreased genetic variability and increased vulnerability of small populations to disease and external parasites.
- Increasing fluctuations in water levels affecting food, cover and burrows. Fluctuations arise from changing weather patterns and an ever-increasing area of development with no Sustainable Urban Drainage Systems, which can lead to large amounts of run-off.
- Predation by American Mink is likely accelerated by poor riparian habitat. The impact of Mink appears to be less where there is dense cover such as expansive wetlands or interconnecting waterways and ponds, or amongst reedbeds.
- Locally, domestic/feral cats are also known to be predators of Water voles. Dogs, Foxes, Gulls, Herons, Buzzards, and Kestrels, as well as Cats, will also eat fossorial Water voles.
- Where Water voles are found in urban areas, they appear to be very tolerant of disturbance and may even occupy degraded habitats. This is because there are fewer predators in these areas, increasing their chances of survival.
- Poisoning by rodenticides, either directly or indirectly, when used for Brown rat control may be responsible for some localised extinctions, as may control operations for Rabbits or Moles in floodplains. Fossorial Water voles are more likely to be seen by members of the public and misidentified at rats, which can lead to action by pest control companies, which poisons the Water voles.
- Rats can pose a risk by acting as competitors to Water vole, as well as predators of the young voles.

Current Action

- Ongoing recording of Water vole sightings by Community Greenspace, NLC, from organisations, individuals and developer's environmental surveys in North Lanarkshire.
- All developments affecting potential Water vole habitat must undertake a survey for this species prior to development (many new records for Water voles come from these surveys).
- Training of and working with Pest Control staff in North Lanarkshire in the identification of Water voles and their field signs.
- Distribution of copies of the Water vole handbook to Pest Control staff.

Work Done to Date

- Habitat creation and enhancement work as part of the Greenspace for Communities Project. So far:
 - Improvements were made at three known Water vole sites: Brownsburn, Central Park and an additional park north of Central Park.
 - Interpretation produced to raise awareness of the species with local communities about Water voles.
- Ditches and ponds were created at Mosswater Local Nature Reserve, creating 8000m² of suitable Water vole habitat with the potential for natural colonisation.
- De-culverting of the river that runs through Stane Gardens to improve habitat connectivity and encourage water vole colonisation from The Voe. Including specific habitat enhancements for Water vole.
- Two ponds suitable for Water voles, as well as surrounding suitable habitat, were created as mitigation for development at Frankfield Loch.

Proposed Objectives, Targets and Actions

1. To arrest the decline of Water vole populations.
2. To encourage the Water vole population of North Lanarkshire, and Central Scotland, to increase by enhancing riparian habitats, watercourses, wetlands and grasslands.
3. To improve and maintain habitat connectivity between individual Water vole colonies.
4. Increase knowledge of North Lanarkshire's Water vole population and its associated freshwater and grassland habitat and ecology.

Action	Meets objective number:	Action by	Target
Policy and Legislation			
1.1 Pull together existing Water vole guidance and create an electronic map showing existing records – this can be updated when necessary and located on the Council's website.	1, 2	NLC, NatureScot	Produce by end of 2024.
1.2 Work with Scottish Canals to prevent destruction and disruption of habitats by canal dredging and to provide suitable banks or artificial burrow holes.	1, 2	NLC, BW, SWT, NatureScot	1 annual project
1.3 Contribute to the success of the Seven Lochs and Northeast Glasgow Water Vole Conservation Action Plan by undertaking relevant actions.	1, 2, 3, 4	GCC, NLC, NatureScot, 7 Lochs	Ongoing
Habitat management and protection			
2.1 Target existing key areas and potential habitat corridors for river and wetland habitat restoration and creation to benefit Water voles.	1, 2, 3	NLC, SEPA, NatureScot	Identify key sites and corridors by end 2024. One restoration project annually from 2026.
2.2 Inform landowners, who have Water vole populations, of relevant good practice for water vole conservation.	1	NLC, private owners	On going
2.3 Provide additional information on sympathetic bankside management to landowners (e.g. fencing buffer strips to protect from excessive grazing).	1, 2	NLC, private owners, NatureScot.	Provide advice to at least 3 landowners per annum, including any available funding options.
2.4 Work with landowners and funders to manage the Mink population where monitoring shows it is required.	1	NLC	From 2024
Species and habitat management and protection			
3.1 Maintain abundant herbaceous riparian vegetation and management of bankside trees to avoid excess shading at North Lanarkshire and Forestry and Land Scotland sites.	1, 2	NLC, FLS	All known sites in positive management for water voles by 2026.
Plan monitoring and review			
5.1 Gain a better understanding of where water vole populations are in North Lanarkshire, particularly fossorial populations, by organising surveys of suitable habitats.	1, 4	NLC	From 2023
Communications and awareness raising			
6.1 Inform the public about North Lanarkshire's water vole population, it's ecology and the threats posed to it.	1, 4	NLC, Countryside Rangers	Deliver through schools and talks, and on site interpretation.
6.2 Use this popular species to highlight the importance of freshwater habitats.	1, 4	NLC, Countryside Rangers	As appropriate at community events and through promotional activities.
6.3 Raise awareness of fossorial water vole populations and associated guidance with relevant Council staff, such as Rangers, Planners and Land Managers.	1, 4	NLC	Ongoing

References

- Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Series).
- MacDonald, D. and Strachan, R. 1999. The Mink and the Water Vole. Analyses for conservation. Environment Agency.
- Mathews F, and Harrower C. (2020). IUCN – compliant Red List for Britain’s Terrestrial Mammals. Assessment by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough ISBN 978-1-78354-485-1 - <https://www.mammal.org.uk/science-research/red-list/>
- NatureScot - Standing advice for Planning Applications - Water Voles - <https://www.nature.scot/doc/standing-advice-planning-consultations-water-voles> (28/10/21)
- NatureScot – Water Voles - <https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/water-voles> (28/10/2021)
- Stewart, R., Scott. C., Macmillan, S. (2019) Interim Guidelines for the Conservation Management of Urban Grassland Water Voles - <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=45426&p=0>
- Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook. 3rd Edition. Wildlife Conservation Research Unit, Oxford.
- Vincent Wildlife Trust. 1993. The Water Vole *Arvicola terrestris* in Britain 1989-1990: its Distribution and Changing Status.
- Yvonne Grieve, (2014), Water Vole Management Plan, Forestry Commission Scotland.
- Gloucester Wildlife Trust, 2009. Managing land for water voles.

Authors

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Great Crested Newt Action Plan

Triturus cristatus

Great Crested Newt Action Plan	
UK Biodiversity Action Plan List of Priority Species:	Yes
Scottish Biodiversity List:	Yes
European Protected Species:	Yes

Summary

Of the three native species of newt, the Great crested newt is the UK's most threatened and has suffered declines in the UK and Europe since the 1940's.

The distribution of Great crested newts within North Lanarkshire requires further research, and the size of individual populations at known sites has yet to be determined accurately. The exception to this is at Gartcosh Local Nature Reserve, where a great deal of work has been undertaken to translocate the newts to newly created habitat. The population represents one of the largest colonies in Scotland.

More survey work is required for other populations in North Lanarkshire to determine how many newt individuals and populations there are and to help formulate suitable habitat creation schemes that will allow populations to expand.

Species Profile

The great crested newt *Triturus cristatus* is the largest native British newt, reaching up to around 17 cm length. The common name for the Great crested newt is derived from the dorsal crests that the males develop in Spring. The skin is rough and granular (caused by glands which contain toxins making it unpalatable to predators) hence it's other common name of the 'Warty Newt'. It's under belly is a bright orange/yellow colour with black markings, which advertises its toxicity and foul skin, deterring predators. It is dark grey, brown or black over most of the body, with a bright yellow/orange and black belly pattern.



Great crested newts spend the majority of their lives on land, but migrate to water in the spring to breed. A suitable pond for Great crested newt is typically medium to large with some areas of deeper, clear water exposed to sunlight for at least part of the day. Breeding ponds are typically small to medium (50-250m²), but clusters of small ponds can also be used. These ponds should be absent of fish, to prevent predation of larvae and eggs. There should also be a suitable selection of water plants, as the newts use these to lay their eggs.

Great crested newts exhibit a preference for densely vegetated ponds that are well established, with two thirds of the pond covered with submergent plants and between a quarter and a half covered with emergent/floating vegetation. However, open, and less densely vegetated areas within the pond should also be available for the Great crested newts to display during breeding season.

The surrounding terrestrial habitat should have sufficient ground cover, such as scrub, deciduous trees and long grass, containing moist areas, log piles and rocks for the newts to take refuge in during the day. During the winter months, these can provide underground hibernacula which protect them from frost. Newts will stay there from November until returning to their breeding ponds in Spring. The breeding season begins in February-March (dependent on temperature) and continues until June.

The Great crested newt's eggs are small (0.5cm), white and oval and are laid singly and wrapped carefully in aquatic plant leaves by the female. The adults offer no parental care or protection, and the survival rate is often low, with animals such as insects and leeches preying on the young.

Predation by fish, and other aquatic animals, is a large threat to the larvae as they hover mid-water and can be an easy target. The larvae typically metamorphose once they reach 8 cm long and leave the water to seek out terrestrial food and shelter. They can return to water each summer to take advantage of available food and begin breeding when they are in their 2nd or 3rd year.

Adult Great crested newts tend to remain in or around the vicinity of their breeding pond, with an average dispersal distance of around 290m and a maximum distance of approximately 1000m. It is vital that suitable habitat exists between ponds to allow movement, expansion and survival of populations.

The diet of Great crested newts is varied and can include earthworms, beetles, slugs and other terrestrial invertebrates. However, in water they will prey on aquatic invertebrates, frog and toad tadpoles, the other two newt species and even smaller members of their own species.



Legal Status

The Great crested newt is one of the UK's most strictly protected amphibians. It is an internationally important species identified on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. In the UK it is protected under Schedule 2, Regulation 38 of the Conservation (Natural Habitats, etc) Regulations 1994 (as amended). It has protection under Section 9 and Schedule 5 of the Wildlife & Countryside Act 1981 (as amended), where it is protected from trade, injury/killing, capture, disturbance and damage/destruction to its habitat or resting place and disturbance or obstruction access to breeding/resting places. It is an offence to take or destroy great crested newt eggs. A licence is needed to handle them. A conservation licence is required in Scotland, if the intention is to survey them.

Current Status

Great crested newts are widespread throughout England and Wales but are localised in Scotland and absent from Northern Ireland and the Republic of Ireland. One estimate has put the national population at around 400,000 animals in 18,000 breeding sites. Many of the largest populations are centred on disused mineral-extraction sites, but lowland farmland forms the majority of great crested newt habitat in the UK.

It is estimated that there are about 75,000 populations in the UK.

The British Great crested newt population is amongst the largest in Europe.

The majority of newt breeding ponds in the seventeenth to nineteenth centuries were artificial ponds on farmland. It is thought that these artificial ponds were suitable places for the newts to disperse to as their natural wetlands were claimed for farmland.

In recent decades, Great crested newt populations have declined dramatically more than observed for other amphibians. Studies in the UK in the 1960s to 1990s show losses of 0.5% to 4% of the colonies or populations per annum. This gives an estimate of some 40,000 breeding ponds lost during this period in the UK alone.

Estimates of the population size in Scotland range from 1000 to 11,500 individuals and Great crested newt have been recorded at 83 sites in Scotland (2011).

In the last 30 years, Great crested newts have been recorded in 15 locations in North Lanarkshire. However, within the last 15 years only 8 of these sites are known to have existing populations.

There is a medium to large population of Great crested newt at Drumcavel and a management strategy to protect the population has been developed.

Through annual monitoring it is known that the population of Great crested newt at Gartcosh is stable with a slight increase in numbers since 2008. This population is thought to be one of the largest in Scotland

The population of newts that were formerly found at Ravenscraig Steel Works area were part of a translocation and habitat creation management plan. Only 2 adults and 1 larva were recorded and translocated. Many surveys have been undertaken in the past 7 years, owing to development in and around this area. All surveys have come back negative for this species, it is therefore thought that this small population has died out.

The Gartcosh population forms part of a Local Nature Reserve managed by North Lanarkshire Council; this offers some protection. Drumcavel Quarry and Croy Hill are owned by Scottish Forestry, which offers these populations some protection from development.

Future Status

The key to the continuing existence of healthy, viable Great crested newt population lies in ensuring that there is suitable breeding, foraging and hibernating habitat available to colonies with the possibility for expansion. Maintenance or creation of habitat networks allowing the movement of newts between suitable areas would ensure their favourable conservation status and survival.

Current Factors Affecting This Species

- Great crested newt aquatic and terrestrial habitat has become increasingly fragmented due to development. This creates small, isolated populations that are more susceptible to extinction than larger, well-connected populations.
- The loss of grassland, woodland and scrub habitat reduces opportunities for foraging, dispersal and hibernation.
- Introduced fish, such as pike and perch can have a drastic effect on a newt population as many fish will predate Great crested newt larvae and potentially decimate a population in the space of a few years. Some landowners and course fishermen commonly introduce fish to new ponds, leaving Great crested newts vulnerable to predation.
- Great crested newts benefit from new pond creation over a number of years, as part of a wider pond way, providing ponds in various stages of maturity. Success is more likely in an area with several suitable breeding sites in close proximity.
- Quarry sites have provided good habitat within North Lanarkshire for Great crested newts. However, renewed workings and land refill has reduced the available habitat, severely damaging some populations.
- Great crested newts are vulnerable to pollution of water bodies and dumping of rubbish on sites.
- Due to a lack of comprehensive surveying and knowledge, sites harbouring Great crested newts could be developed and unknown populations lost.
- Great crested newts are vulnerable to indirect disturbance due to unsympathetic management, such as nearby felling or planting, altering the composition of light, humidity and temperature conditions at a pond.
- Loss of breeding ponds through destruction or degradation of water quality.
- The natural process of succession in which the pond, through time, fills with vegetation and silt and so dries out.

Current Action

- Surveys of potential habitat conditioned in planning responses and guidance from NatureScot included.
- Continuous management of ponds and terrestrial habitats at Gartcosh. This includes removal of overgrowing pond vegetation which is done on a rotatory basis so that the ponds on site are all at a different stage of succession.
- Continued annual monitoring of Great Crested Newt population at Gartcosh since 2008.
- Creation of 10 new ponds and several hibernacula's at Gartcosh along with enhancements to territorial habitat such as woodland planting extension.
- GIS layer of known Great crested newt sites updated annually.
- Gartcosh Ponds (old cement works) designated as SINC due to known population of Great crested newts.
- Creation of ponds and enhancement of existing ponds at Ravenswood, Gartcosh, Palacerigg, Riccard Johnston.
- Training workshops both indoor and outdoor sessions for staff and volunteers on GCN identification, survey techniques, overall ecology, and biosecurity in 2019.

Proposed Objectives, Targets and Actions

1. To expand the population of Great crested newts within North Lanarkshire.
2. To protect the habitats of all known Great crested newts sites in North Lanarkshire Council and prevent damage to potentially unknown populations.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 All known Great Crested Newt colonies to have their potential colonisation, breeding, foraging and hibernating habitats designated as SINCS.	2	NLC	All reported sites to be surveyed and designated as SINC if GCN found by 2023.
1.2 Encourage all landowners of Great Crested Newt breeding sites to take forward positive management of these sites, including habitat creation and restoration.	1, 2	NLC, NatureScot	Provide advice to landowners when suitable and support in taking forward positive management for GCN. Ongoing.
Survey research and monitoring			
3.1 Identify expansion areas and migration routes beyond the existing core sites and enhance and protect these sites.	1	NLC	All known expansion and migratory routes mapped by 2024. An enhancement project for at least one of the sites to be taken forward by 2026.
3.2 To have surveyed all known and suspected Great Crested Newt sites.	2	NLC	Survey all sites every 2 years from 2023.
3.3 Develop a programme of surveys for ponds in NLC ownership within proximity to known GCN populations.	1, 2	NLC	Complete survey programme by the end of 2024, with all sites surveyed by 2027.
Communications and awareness raising			
4.1 Raise awareness of the status and needs of the great crested newt and promote appropriate habitat management through site interpretation and educational work.	1	NLC, NatureScot, CARG, SWT	2 educational events a year. New interpretation at 2 sites by 2026.

Updated by Kirsty Mooney, Biodiversity Project Officer, NLC, 2022



Further Information

Beebee, T.J.C. 1975. Changes in the status of the Great Crested Newt in the British Isles. *British Journal of Herpetology* 5: 481-490.

English Nature, 2001. Great Crested Newt Mitigation Guidelines.

Gibb, R & Foster, J (2000) *Herpetofauna Workers' Guide 2000*. Halesworth: Froglife.

Griffiths, RA, Raper, SJ & Brady, LD (1996) Evaluation of a standard method for surveying common frogs *Rana temporaria* and newts *Triturus cristatus*, *T. helveticus* and *T. vulgaris*. JNCC Report No 259. Peterborough: Joint Nature Conservation Committee.

Griffiths, RA (1996) *Newts and salamanders of Europe*. Poyser Natural History.

Langton, T, Beckett, C and Foster, J. 2001. *Great Crested Newt conservation handbook*. Froglife. Halesworth.

Nicholson, M. & Oldham, R.S. 1986. Status and ecology of the warty newt (*Triturus cristatus*). Contract report to the Nature Conservancy Council.

SNH Survey. 1995; 1996. Froglife survey performed on behalf of SNH. Information obtained from records held at Stirling SNH offices.

Forestry Commission Scotland, 2011. GCN Management Plan.

Forestry Commission Scotland, n.d. Forest operations and great crested newts in Scotland, FCS Guidance Note 35b.

Websites

Species Interest Features - Special Areas of Conservation

<https://www.nature.scot/plants-animals-and-fungi/amphibians-and-reptiles/great-crested-newt>

www.whose-tadpole.net

www.froglife.org

<http://www.herplite.com/>

<http://www.herpetofauna.co.uk/>

<http://www.ukbap.org.uk/UKPlans.aspx?ID=619>

CARG – Clyde Amphibian and Reptile Group

GCN – Great Crested Newt



A photograph of a residential street with white houses and a field of wildflowers in the foreground. The houses are white with grey roofs and chimneys. The foreground is a lush field of green grass and white daisies, with some purple flowers scattered throughout. The sky is blue with some white clouds.

URBAN ACTION PLAN

Perennials in flower © Suzanne Bairner



Our Urban Landscape

“Working together at a landscape scale, to improve the condition and connectivity of our urban parks, reserves and other natural habitats, ensures that high quality greenspaces, are available for people and nature to thrive. The social, economic and environmental benefits we gain from our greenspaces are vital to sustain healthy towns, cities and people.”

Tracy Lambert, Project Manager, Cumbernauld Living Landscape

A Landscape Perspective

Species populations exist in a habitat network where core areas are surrounded by less suitable habitat. This is often the case in an urban setting, where an area of greenspace is surrounded by urban development and habitats are fragmented by features such as roads. Often, there are corridors linking these areas, creating a permeable matrix and allowing a green network to form.

Green networks provide multiple benefits such as facilitating species dispersal and resilience, improving the environment for people and improving the economic status of an area by making it a more attractive place to live and work.

The National Planning Framework (2009) and the Scottish Planning Policy (2010) encourages the promotion of green infrastructure to improve the connectivity, enhancement, protection and provision of open space and habitats, within and between towns and cities. The Central Scotland Green Network (CSGN) was established to meet environmental, economic and social goals through the natural environment. Brownfield sites, school grounds and even churchyards and golf courses can all contribute to biodiverse urban landscapes.



Six-spotted burnet moth at Fallin Bing © Suzanne Bairner

Why are urban landscapes important?

“Urban biodiversity adds colour and life to our towns and cities. From our garden to parks, brownfields to community woodlands, greenspace in urban areas are important for the health and well-being of both people and wildlife.”

Craig Macadam, Conservation Director

Urban landscapes provide numerous opportunities to connect people with wildlife and green spaces. Urban green space provides breathing spaces in an otherwise developed area. Urban biodiversity has been shown time and time again to have positive impacts on our well-being. Our urban landscape provides opportunities to link people with their surrounding green spaces, providing venues for ecological and environmental education, and places for intrinsic enjoyment. Expanding and managing our urban green space promotes species diversity, increases our quality of life and attracts visitors to North Lanarkshire. Healthy ecosystems are the very foundations on which we build our society and economy, providing us with goods and services on which our quality of life depends.

Research indicates that there are a variety of species living in the urban landscape that have adapted to the unique habitats and ecological conditions in urban areas. Different land uses, a high diversity and abundance of micro-habitats and the influence of people, have created a landscape that allows biodiversity to flourish alongside humans. The species that we find in our schools and backyards form a large part of our ecological and cultural identity.

Cumbernauld Living Landscape – An Example of Ecosystem Scale Conservation

Throughout its short history the new town of Cumbernauld has seen the loss and degradation of many of its important natural habitats.

The Cumbernauld Living Landscape programme aims to reinforce and expand existing green networks and reconnect the people of the town to their natural environment to benefit local people, help wildlife and support the regional economy.

Creating multifunctional ecosystems and quality green spaces through the heart of the town, the Cumbernauld Living Landscape conserves the environment and creates places in which people want to live their lives.

Urban habitats under threat

Development is constantly changing the ecological structure and nature of our urban landscapes, presenting opportunities, and threats, for our wildlife.

Urban habitats are beneficial for vulnerable species including bats, swifts and pollinators. However, unsympathetic development and lack of breeding, nesting and foraging sites is posing a threat to these species. By considering these species on a landscape scale, more beneficial action can be taken forward that will protect and enhance biodiversity over the coming years.

Urban landscapes in North Lanarkshire

The Ecosystem Approach recognises that *“humans, with their cultural diversity, are an integral part of many ecosystems”*. In our urban areas, the people that live and work in North Lanarkshire are a part of the ecosystems around us.

There are nine Local Nature Reserves in North Lanarkshire, each designated to protect the biodiversity value of the site, create educational opportunities and involve the community in local biodiversity. Many community groups have taken ownership of their local green spaces and hold weekly volunteer events and schools are doing more than ever to introduce children to nature.

Bats Action Plan

Bats Action Plan		
Scottish Biodiversity List:	Common pipistrelle	Yes
	Soprano pipistrelle	Yes
	Nathusius pipistrelle	Yes
	Daubenton's Bat	Yes
	Brown Long-eared	Yes
	Natterers Bat	Yes
	Noctule Bat	Yes
	Whiskered Bat	Yes

Summary

Bats are the only true flying mammals in the world, with at least 10 species found in Scotland, 9 of which are known to breed in Scotland. All these species are insectivores. The numbers of bats and bat colonies have declined significantly in recent years, with some species now almost extinct. This is mainly due to loss of roost and hibernation sites, and habitat fragmentation. In North Lanarkshire 8 species have been recorded. However, it is uncertain how many of these species breed here.

Bats need consideration and protection by local communities and the local authority, especially as many roost sites are found in buildings, and may be affected by development such as building alterations. Trees, woodlands, and meadows are of importance to bats. Management of woodland habitat to retain habitat corridors is important, as is the retention of older trees.



Species Profile

Daubenton's Bat

Rarely found away from riparian habitats, Daubenton's forage over open water, taking insects from, on, or near the water surface. The main prey items are small flying insects. On rivers this species shows strong preference for smooth flowing water with tree cover on both banks. It typically forages over a short stretch of river, but their foraging site can be up to 5 – 10km from the roost. Daubenton's also feed over canals, lochs and small ponds. Summer roosts are found in tree holes, the stonework of bridges, and in buildings close to open water. Known hibernation sites are primarily in caves, mines, and bridges as well as large trees.

Pipistrelle Bat

Pipistrelles are Scotland's smallest and most common bat, most commonly associated with human habitation, often using houses for hibernation and roosting. The females roost communally and typically only give birth each year to single young. This lifestyle makes Pipistrelles very vulnerable to local extinction, especial if their roosts are destroyed. Pipistrelles are classified, as species requiring a mosaic of habitats, and as such are excellent biological indicators of the health of a wide range of habitats. Pipistrelles in Scotland are primarily found in river valleys, foraging over water and around trees. Access to these feeding habitats from their urban roost sites is essential and is made possible by linear landscape features such as hedge lines and shelterbelts, known as flyways. Pipistrelles therefore require winter and summer roosts, wetland and watercourses in good condition and a range of terrestrial habitats enabling safe foraging conditions.



Brown Long-eared Bat

Brown long-eared bats are strongly associated with tree cover (Entwistle et al 1996) and select roosts within 0.5metres of deciduous woodland. They select deciduous woodland as foraging habitat but also feed in mixed woodland and on the edges of coniferous plantations. They forage close to the roost (usually within 1.5km) and regularly use a series of sites, between which they move along flyways such as hedges or tree lines (Entwistle et al 1996). Together with pipistrelles, this is the Scottish species most closely associated with houses as summer roosts, although churches and barns are also used. Nursery colonies are occasionally found in trees and bat boxes (Boyd & Stebbings 1989). They hibernate singly or in small groups, generally within crevices (Horacek 1975). They are reported to use caves, both natural and man-made ones such as mines and quarries, and to choose relatively low temperatures (-3 to 11oC, average 7oC).

Natterer Bat

Natterers are a shy bat who often share their roost with other species of bat such as Pipistrelle and Daubenton and have thus been under recorded in Scotland. Nursery colonies live in occupied houses or in bridges, barns and farm buildings (about half the known roosts in Scotland are in occupied houses), but a radio tracking study in Wales has shown that about two thirds of maternity roosts are in trees (Smith 2000b). It is likely trees are also widely used in Scotland, although to date only one tree roost used by a nursery colony has been reported (Howe 1997). Within buildings, bats hide in crevices, often between end beams and gable walls, and one colony roosted deep in the cavity between a stone gable and a lathe-and-plaster wall (S.M.Swift). During hibernation they prefer cool entrance areas and can be found in mines and limestone quarries in southern Scotland (Herman & Smith 1992; Smith 2000a).

Noctule Bat

This is the largest bat in the UK with their head and body usually between 37mm – 48mm and their wingspan between 320mm – 400mm. They primarily, roost within tree structures, however, they have been known to roost within some building structures on rare occasions. They hibernate mainly in trees or rock fissures and hollows, but have also been found in bat boxes, buildings, and other man-made structures in winter. They fly above the tree canopy out in the open with most food caught on the wing. They feed on midges early on in the season and later change to beetles and moths.



Whiskered bat

Whiskered bats often roost in building, trees, churches and use bat boxes within the summer months and hibernate in cave and tunnels usually in small numbers. They fly along regular routes over or alongside hedgerows or woodland edge. They feed on moths, spiders, and other small insects.

Legal Status in Scotland

All bats in Scotland are protected by the Wildlife and Countryside Act 1981, Schedule 6, and under Schedule 2 in Scotland is the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

This protection means that it is an offence to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time).
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

On a local level negative impact can be reduced by activities in accordance with NPPG14 Natural Heritage 1998 and PAN 60 Planning for Natural Heritage, Environmental Impact Assessment (Scotland) Regulations 1999. The presence of bats is a material consideration where a planning authority is considering a development proposal that would be likely to result in significant harm to the species.

Current Status

In the UK bat species have declined considerably over the past century.

Daubenton's Bat

Daubenton's are widely spread through river valleys in North Lanarkshire. The most recent pre breeding population counts for North Lanarkshire estimated a total population of 150,000 individuals. National population levels have been classified as remaining stable over the period 1975-1995. The location of Daubenton's roosts is very hard to determine and only tree roosts have been found to date in the Council area.

Pipistrelle Bat

The most recent, pre breeding, combined Pipistrelle species population estimate for North Lanarkshire

puts numbers at 2 million individuals. National population figures have been estimated at declining by between 60-70% over the last two decades of the 20th century.

Common and Soprano Pipistrelle species in North Lanarkshire represent over 90% of all recorded roosts and 95% of bats encountered by householders. As they are the bats most likely to be encountered by householders and those responsible for the upkeep of housing stock, it is hoped that an improvement of bat PR and information would aid considerably in their protection and population increase.

Nathusius pipistrelle have been recorded at several locations throughout North Lanarkshire, however are still relatively scarce.

Brown Long-eared Bat

These species have a scattered distribution throughout North Lanarkshire, however are not common. They have been recorded throughout North Lanarkshire in areas to the north and to the south, however very few roost sites have been found.

Natterer Bat

Little is known about the current status of Natterer bat in North Lanarkshire it has only been recorded in four sites; two at the far north in Kilsyth, 1 around Greengairs and one bordering South Lanarkshire. They are likely to be under recorded. Under recording could be due to the fact that they are a shy, elusive and relatively quiet bat whose colonies can be overlooked in buildings, particularly when shared with other species of bat.

Noctule Bat

Noctule bat have only been recorded in a few sites in North Lanarkshire. From the far of the region to most southern point.

Whiskered Bat

We are only aware of one record of this presence of this species within North Lanarkshire, this is to the most southern area around Garrion Gill within the Clyde Valley.

Current Factors Affecting This Species

- Reduction in insect prey abundance, due to high intensity farming practices and inappropriate riparian management e.g., river engineering practices, heavy grazing pressures and water pollution.
- Loss of maternity roost sites through damage or destruction resulting from factors such as a lack of public understanding of bats, and due to a misunderstanding of the legislative process, often leading to consultation not occurring with Greenspace development or NatureScot.
- Loss of hibernation and other seasonally important roost sites for the same reasons. These sites include buildings, trees and underground sites.
- Lighting - Illuminating a bat roost can cause disturbance (Downs et al 2003) and this may result in the bats deserting the roost or even becoming entombed within it (Packman et al 2015). Light falling on a roost access point will at least delay bats from emerging and this shortens the amount of time available to them for foraging (Boldogh et al 2007). As the main peak of nocturnal insect abundance occurs at and soon after dusk, a delay in emergence means this vital time for feeding is missed. This has been shown to have direct impacts on bats' reproductive ecology, such as slower growth rates and starvation of young (Duverge et al 2000).
- Lack of professional understanding in Housing, Arboriculture, Planning and Environment staff resulting in accidental roost destruction.
- Loss of insect rich feeding habitats and flyways, due to loss or degradation, isolation of wetlands, riparian, hedgerow, and woodland habitats.



- Climate seriously affects both wintering bats and foraging females. Wet weather in spring is a major factor in reducing breeding viability in certain years.
- Predators such as grey squirrels and cats have had an impact on a North Lanarkshire tree roosts.
- Windfarms can be an issue for bats in the UK, not only because of the risk of direct collision if turbines are placed on migration or commuting routes, but also because of displacement from foraging habitat.

Current Action

- Regular surveying and monitoring. National Bat Monitoring Programme.
- NLC guided walks/events and information provided at events.
- Close working relationship with NatureScot/BCT/ Clyde Bat Group.
- Relevant training provided to CBG members and interested organisations.
- Presumption against development of SINC's in the NLC local plan. Many key bat sites are designated as SINC's.
- Appropriate mitigation on sites where development or land-use change threatens the species.
- Appropriate mitigation in the form of lighting design given in response to all new developments.
- Hedgerow enhancement and creation through planning consultations. Greenspace Development ask for this on all appropriate sites.
- Environmental statements from developments are identifying new colonies of bats.
- Provided Guidance Notes for Planners and other council departments whose activities could affect bats e.g., vets, pest control firms, building industry arboriculturists, planners, professional contractors, developers, and road engineers.
- Maintain and build up a programme of publicity and education activities aimed at least 4 walks and talks per year.
- Creation of a Wildlife Tower at Drumpellier Country Park – with provisions for bats both summer and winter roosts.

Proposed Objectives, Targets and Actions

1. Maintain existing populations and range of bats in North Lanarkshire.
2. Assist in the development and implementation of monitoring procedures for the identification of population trends.
3. Improve public understanding and appreciation of bats.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Continue to encourage favourable management of land adjacent to known breeding sites to benefit foraging bats.	1	NLC, SWT	2 management plans in progress by 2024
1.2 Enhancement of underground sites to increase their suitability for hibernating bats.	1	NLC	3 sites by 2027
1.3 Enhancement of habitat by the addition of hedgerows and tree lines.	1	NLC	4 projects by 2027
Advisory			
2.1 Provide updated training to planners and other council departments whose activities could affect bats.	1, 3	NLC, NatureScot, CBG	By 2024
2.2 Incorporated mitigation for artificial lighting within all planning responses and design all lighting so impact will be minimised for any roosting, foraging and commuting bat features.	1	NLC	Ongoing
2.3 Continue to Integrate bat habitat requirements into woodland management plans.	1	NLC	Ongoing
Survey, research and monitoring			
3.1 Expand on effectiveness of CBG database for bat records; feed this onto relevant organisations	2	NLC, CBG	Incorporated in to NLC GIS system. Ongoing
Communications and awareness raising			
4.1 Continue with publicity and education activities aimed at council departments, building trades, community groups, children, conservation organisations, arboriculturists and general public.	3	CBG, NatureScot, BCT, NLC, RSPB	One event, talk, article etc. per organisation annually.
4.2 Education programme with local school. In conjunction with purpose-built hibernacula if built in school or nearby grounds.	1, 3	NLC	Annually

Updated by Kirsty Mooney Biodiversity Project Officer, NLC 2022.

The Bat Conservations Trusts (BCT) – Fact sheets on individual species.

BCT - Bats and artificial lighting in the UK



Graveyards and Cemeteries Action Plan

Graveyards and Cemeteries Action Plan

Scottish Biodiversity List Habitat:

No

UK Biodiversity List of Priority Habitats:

No

Summary

This Action Plan covers churchyards and cemeteries. Both are burial grounds, churchyards are found within the grounds of a church and cemeteries outside the boundaries of a church. These burial grounds include ornamental trees and shrubs and areas of regularly mown grass. They may also contain rough unmanaged areas of grasses, scrub and woodland, a pond or a wetland area. Burial grounds may be bordered by hedgerows or stone walls. Many of these features are valuable wildlife habitats.

Current Status

The kinds of wildlife that you may find in North Lanarkshire's churchyards and cemeteries include flowering plants, ferns, mosses and liverworts, lichens, fungi, small mammals, birds, insects, amphibians and reptiles. The quiet nature of churchyards and cemeteries in urban and rural areas often results in them becoming havens for biodiversity in what might otherwise be a hostile environment. Due to the antiquity of many burial grounds, they may support rare or uncommon plant species, which were formerly much more widely distributed.



In most burial grounds areas of grassland are kept closely mown, and such areas may provide a suitable habitat for a variety of fungi if they have been left unfertilised for many years. A diversity of wildflowers may also occur, which in turn attracts butterflies and moths. Reptiles and amphibians find shelter under stones, and compost heaps may serve as breeding sites. Church buildings, boundary walls and trees can provide roost and nest sites for bats and birds, including many species characteristic of open woodland and woodland edge.

In previous years North Lanarkshire Council Landscape Architects have undertaken several biodiversity enhancements within existing cemeteries including planting young native trees and shrubs at both Bothwellpark and Benhar cemetery. At Cambusnethan cemetery they created a wildflower meadow, planted several hedgerows and carried out landscape planting using plants with a rich nectar source. A new cemetery was created at Bothwellhaugh, biodiversity enhancements incorporated within this include wildflower meadows, landscape planting using plants with a rich nectar source, wet and dry swales, (very shallow channels that are used to collect and/or move water and also remove pollution from it). Swales can be covered by grass or other vegetation and have shallow side slopes and a flat bottom which means that for most of the time the water flows in a thin layer through the grass or other vegetation. Two sustainable urban drainage systems (SUDS) ponds were created. SUDS are a natural approach to managing drainage in and around properties and other developments.



The benefits of SUDS are:

- preventing water pollution
- slowing down surface water run-off and reducing the risk of flooding
- reducing the risk of sewer flooding during heavy rain
- recharging groundwater to help prevent drought
- providing valuable habitats for wildlife in urban areas
- creating green spaces for people in urban areas.

SUDS work by slowing and holding back the water that runs off from a site, allowing natural processes to break down pollutants.

A green roof was also incorporated into the amenity building on site.

Green roofs have a layer of vegetation or patches of vegetation as part of the roof cover and can:

- reduce or eliminate run-off from roof areas
- extend the life of your roof
- add insulation to your building during the winter months
- cool your building during the summer by evaporation
- provide sound insulation
- reduce the heat island effect in cities
- provide a habitat for wildlife.

Most recently (April 2020) cemetery staff at Bothwellhaugh have worked alongside the Countryside Ranger Service (CRS) to place boxes in woodland borders for both passerines and barn owl. The use of which, are surveyed by the CRS as part of 'Strathclyde Park Woods' site reports.

Distribution

There are 32 Cemeteries and Churchyards in North Lanarkshire and 1 operational crematorium. Ten of which are operational cemeteries, seven closed cemeteries and fifteen closed churchyards. Cumulatively they cover approximately 120 ha of ground.

Legislation and Site Designation

Nationally a few churchyards have been legally designated as SSSIs and some churches and churchyards can also provide habitats for a number of statutorily protected species such as bats, badgers and reptiles.

Current Factors Affecting the Habitat

- Decline in church attendance leading to many smaller churches and chapels being closed, followed often by sale for residential or commercial use / development.
- Lack of resources to meet the costs of maintenance as a whole.
- Poor perception by the public and local authorities of the biodiversity value of burial grounds.
- The need to maintain a “*neat and tidy*” appearance expected by relatives of the interred.
- Lack of biological records for burial grounds.

- Increasing fragmentation of connected greenspaces with churchyards and cemeteries increasingly becoming ‘islands’ in the face of continual surrounding development.

Current Actions

- Our Cemeteries and Churchyards are maintained by cemetery staff and Streetscene. Maintenance within cemeteries includes grass cutting, litter collection, interments, re-instatement, shrub beds, flower beds, trees and weed control.
- Grass is cut throughout the months of April to September inclusive, weather permitting. Litter is collected weekly or when required. Employees also plant-out and maintain soil borders and flower beds/shrub beds as required, which includes weeding, feeding and pruning.
- Advise our Cemetery Staff and other organisations that deal with cemeteries, graveyards and crematoriums as to the potential benefits of these grounds to biodiversity.



Proposed objectives Targets and Actions

1. To increase awareness of the biodiversity value of churchyards and cemeteries.
2. To work with those responsible for managing churchyards and cemeteries to conserve and enhance biodiversity.
3. To work towards linking urban cemeteries with nearby greenspaces to tackle habitat fragmentation, making use of resources such as Buglife's Bee-lines map for Scotland.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Encourage the incorporation of biodiversity objectives within management regimes for churchyards and cemeteries.	2	NLC	New biodiversity objectives incorporated within management contracts for 2 cemeteries annually.
Habitat management and protection			
2.1 Designate sites as SINCs where the site meets criteria and designation would be beneficial.	2	NLC	Assess 3 cemeteries annually against SINC criteria.
2.2 Develop habitat corridors around cemeteries. Potential routes could be through Buglife's National Bee-line's project for insect pollinators.	3	NLC and Biodiversity Partners.	Identify potential partners and corridors by 2023.
Advisory			
3.1 Advise and support managers and workers of burial grounds wishing to conserve and enhance biodiversity.	1	NLC	Provide Habitat Action Plan other general information to managers and relevant staff.
Survey, research and monitoring			
4.1 Where sites meet SINC criteria ask experts along to survey grounds for specific species.	1, 2	NLC	Buglife, Glasgow NATS, Plantlife, Butterfly Conservation etc. to be invited to survey 1 site per year.
Communications and awareness raising			
5.1 Improve public understanding of biodiversity within graveyards.	3	CBG, NatureScot, BCT, NLC, RSPB	One event, talk, article etc. per organisation annually.

Plan updated by Paul Gunn Countryside Ranger and Laura McCrorie Conservation and Biodiversity Manager 2022.

Sources of Information

1. Jackson, D.L. 2000. Guidance on the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types): Definitions and the relationship with other habitat classifications. JNCC Report No. 307.

Other

House of Commons, Select Committee on Environment, Transport and Regional Affairs, Eighth Report – Cemeteries.

Martin Palmer and Nigel Palmer. 1997. Sacred Britain (ICOREC)



Swift Action Plan

Apus apus

Swift Action Plan	
UK List of Priority Species:	No
Scottish Biodiversity List:	Yes
Birds of Conservation Concern:	Red

Summary

Swifts are summer visitors to Britain. These birds, with their distinctive screaming calls, are a localised sight in our towns and villages. Their numbers declined by 59% in Scotland between 1995 and 2020 (BTO survey). In a UK context, it is estimated that the population has declined by 60% from the period 1995 to 2020. Loss of nesting sites is thought to be the main driver of population decline. Action to secure existing nesting spaces and provide new nesting sites is underway, as is a change in the management of urban green space, which will increase the abundance of insects, their main food source. It is possible that factors in the wintering habitat of Swifts could also be responsible for the decline in their numbers.

The nest is built from a collection of feathers and plant debris; these are collected from the air while the Swift is in flight. These materials are bound together with the swift's saliva to form a shallow cup; built on the floor of a roof space or hole. Old nests once belonging to other bird species may also be used when found in spaces that suit the swift's requirements.

Species Profile

Swifts are summer visitors to Britain, arriving in Scotland from Africa from late April to mid-May and leaving in August. During this time, they are notable for their wild aerobatics and shrill calls around roofs and chimneys, when they reach incredible speeds.

Swifts nest almost exclusively in buildings. They generally require an entrance hole at least 5 metres above the ground. They are known to nest in church towers, under tiled roofs, under the eaves of buildings where they gain access via gaps and cracks in stonework, bricks or concrete and holes in walls.



If disturbed or excluded from a nest site, they can find it difficult to relocate to a new nest site, at least for that season. Young pairs find new unoccupied nest sites during their initial summers as adults and return to breed in them when they are 3-4 years old.

Males arrive at the nest site first and females a few days later. Swifts are reported to maintain the same mate year after year, although they only meet at the nest site. Swifts nest semi-colonially and nest sites are thought to be a limiting factor in Swift colonies.

The eggs are laid in late May, and they hatch about 3 weeks after laying. Depending on food supply fledging takes 5-8 weeks, and the young swifts have normally left the nest by the first week in August.

Legal Status

Swifts are protected under the Wildlife and Countryside Act 1981, and by the Nature Conservation Act (Scotland) 2004, in accordance with which it is an offence to recklessly injure or kill any bird or to take its eggs. It is also an offence to disturb an active nest site or to obstruct or prevent any wild bird from using its nest, such disturbance can occur through the erection of scaffolding.

Current Status

Swifts are widespread all over Europe and the Middle East, breeding mainly in the urban environment. However, there is growing concern at the decline in numbers, attributed to the loss of nest sites through building repairs and modernisation, reduction in their insect food source and climate change.

The present population of Swifts in North Lanarkshire is not accurately known. They are mainly concentrated in the lower-lying areas of the region, with smaller colonies in the Motherwell/Clyde Valley area and the largest colonies in populations around Coatbridge, Airdrie and Kilsyth. Strathclyde Park is an important feeding area for local swifts.

Future Status

There are ongoing and future actions in place to ensure that suitable nesting provision is made for Swifts.

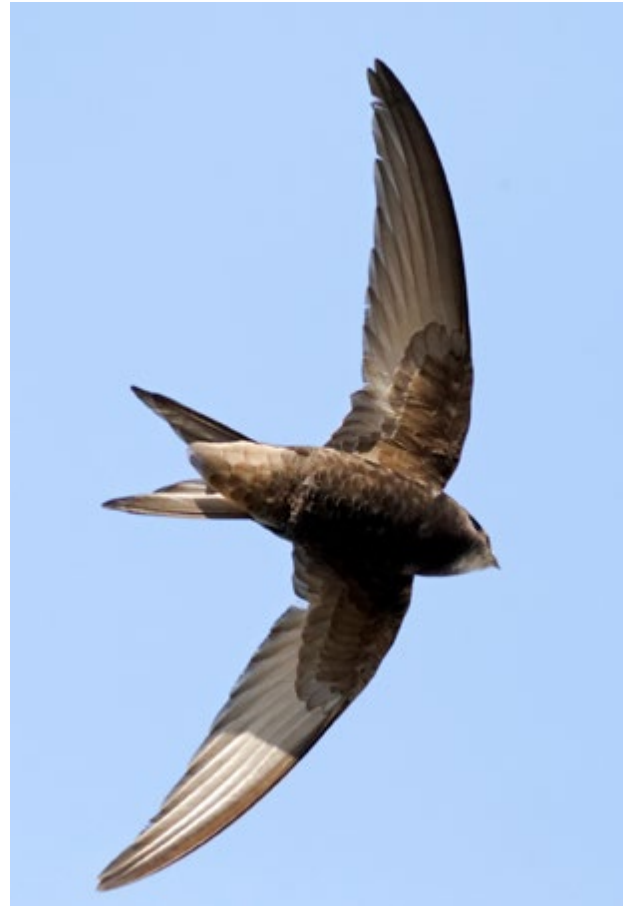


Current Factors Affecting This Species

- It is assumed that a loss of nest sites is leading to their decline, but factors such as climate change and loss of insect prey may also be contributing factors.
- Refurbishment, repairs and demolition of buildings used as swift nest sites. This has led to a decline in nest spaces and hence to a decline in Swift colonies.
- Most new buildings do not provide opportunities for Swifts to nest.
- A reduction in their insect prey possibly linked to pesticides, air pollution and loss of green space.

Current and Past Action

- Surveys undertaken by Concern for Swifts (Scotland) in 2001 and 2002 identified Swift breeding and feeding sites. 2001 data has been added to NLC's GIS system.
- All planning applications within Swift breeding areas are recommended to include Swift breeding provision.
- Swift provision and survey requirements included in Biodiversity Supplementary Planning Guidance for developers.
- Advice and guidance on legislation provided through planning process where demolition is part of a planning application.
- Swift Mapper website and app launched by RSPB, Swift Conservation and Action for Swifts in 2020 to encourage recording of swift nest sites and swift 'scream parties' close to nests. Citizen science data can be used to identify swift breeding hotspots and protect nests.



Proposed Objectives, Targets and Actions

1. Prioritise retention of existing Swift nest sites in repairs and building renovation.
2. To keep the Swift breeding colony data up to date.
3. To increase awareness of Swifts and their requirements.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Ensure Swift nest site retention/provision is considered in all planning applications. Encourage swift nest brick provision in all new builds and redevelopments over 5m in height.	1	NLC	Greenspace development to advise in all relevant planning applications.
Species management and protection			
2.1 Review existing information on swift breeding areas, update and identify any new sites. Review Swift mapper data.	1, 2	NLC	Review to be carried out by 2023.
Advisory			
3.1 Liaise with historic building conservation sections to promote conservation of Swift nest sites when considering grant aid for the repair or renovation of historic building.	1, 3	NLC	Arrange meeting with Historic Scotland and NLC Property and promote conservation and creation of swift breeding sites. Agreement by 2024.
Survey, research and monitoring			
4.1 Encourage use of Swift Mapper to increase North Lanarkshire records and information.	2	NLC	Annual survey promotion to staff and public.
Communications and awareness raising			
5.1 Promote the use of Swift nesting boxes as a tool for education and awareness e.g. on schools and in Country Parks.	1, 3	NLC	Swift nest boxes erected in the grounds of 1 public establishment per year, along with associated talk or discussion from 2024.
5.2 Involve schools in swift surveys and projects where possible. Possible use of Swift mapper to take forward school citizen science surveys.	1, 2, 3	NLC	3 schools involved in Swift projects by end of 2028.

Authors

Plan written by Laura McCrorie North Lanarkshire Council, and Scott Shanks RSPB 2022



Parks and Public Open Spaces Action Plan

Parks and Public Open Spaces Action Plan

Scottish Biodiversity List Habitat:	No
UK Biodiversity List of Priority Habitats:	No

Summary

North Lanarkshire has extensive areas of urban development, within which there is a high proportion of greenspace which is formally managed municipal parkland or mown amenity grassland. These parks and open spaces are often carefully designed and support historical value, whilst providing important features for local communities. However, their ecological value can be variable.

These include the regularly mown Centenary and Westend Parks in Airdrie, with planted trees and some limited planting of exotic shrubs. Sites of this type tend to support little wildlife but are valuable for a range of recreational activities such as children's play and dog walking.

Other sites that incorporate a variety of semi-natural habitats such as woodlands, wetlands, flower-rich grasslands, former wood pasture, tall herb and scrub and collections of old trees. These sites have a higher value for wildlife, providing more opportunities for education and public involvement. Some examples include Cumbernauld House Park, Dalzell Estate in Motherwell, and Colzium House and Estate in Kilsyth. There are also Country Parks, Green Spaces, and Local Nature Reserves (LNRs), owned and managed by North Lanarkshire Council.

Between these two extremes are areas of maintained open space; within housing estates, industrial estates, town centres, road networks, sport pitches, cemeteries and land surrounding other council facilities



These sites provide valuable opportunities to promote habitat creation or act as wildlife corridors in a manner that helps address national targets for various habitats.

The Scottish Household Survey (SHS) (2019) indicates that most adults (66%) lived within a five minute walk of their nearest green or blue space, around the same proportion since 2016.

A smaller proportion of adults in deprived areas lived within a five minute walk of their nearest green or blue space compared to adults in the least deprived areas 62% compared to 67%. More than a third of adults (36%) visited their nearest area of green or blue space every day or several times a week.

Those living closer to their nearest green or blue space were more likely to use it more frequently: 44% within five minutes' walk visited every day or several times a week compared to 13% more than 10 minutes walk away. Furthermore, the proportion of people who live more than 10 minutes walk from their nearest green or blue space and do not use it (38%) more than double the corresponding proportion of people who live within five minutes walk 17%.

Research reported in the “*State of Scotland’s Greenspace (2018)*” highlights the importance of parks to local residents, especially in urban areas, with 90% of people considering spending time in their local park. However, the survey also indicates Scottish parks are deteriorating 40% of Scottish People saying the quality of their local greenspace has deteriorated in the last 5 years. With 43% of urban residents using the greenspace once or more a week the decline of our parks at a national level, and the importance of them to residents, indicates the need to maintain and enhance our parks and public open space.

On behalf of the Environment and Spaces for Public Health Partnership Group, Public Health Scotland (PHS) published a summary report on the use of greenspace during the pandemic, based on surveys carried out by NatureScot, YouGov/University of Glasgow (UofG) and PHS.

This report established that before the pandemic, evidence suggested the availability, quality and use of greenspace was unequal across society. People living in the most deprived areas were less likely to live near greenspace and those experiencing higher levels of socio-economic deprivation less likely visit them at all. This was also the case for other groups in our population such as those with a disability or long-term health condition.



The survey findings suggest that during the pandemic these gaps have widened, with data from the University of Glasgow showing greater rises in use of greenspace among more advantaged groups than disadvantaged.

The PHS surveys also show the impact specifically on children and young people, with a third of children not visiting any greenspace in the previous week. They also show that as well as having less access to and use of greenspace, families from low income backgrounds reported less positive experiences.

It is important to highlight that in relation to mental health, the gap in reported benefits of visiting greenspace between high-income and low-income groups has closed. This suggests access to greenspace has an important contribution to make in tackling health inequalities.

The aim of this Habitat Action Plan is to maximise the wildlife value of parks and public open spaces whilst enhancing the recreational, health and wellbeing value and safety of such areas.

Current Status

Changes to resource targeting as well as alterations to open space management objectives could greatly increase the biodiversity value of some sites.



Legislation and Site Designation

There are various pieces of legislation which protect and enhance habitat potential. These include Conservation Areas, Tree Preservation Orders, Green Belt, SSSIs (Sites of Special Scientific Interest), LNR (Local Nature Reserves) and SINCs (Sites of Importance for Nature Conservation). At a local level the “North Lanarkshire Local Plan” lists and zones specific sites in plan maps. Many of these green spaces are protected through policies relating to Protecting Community facilities, Country Parks, and Areas of Great Landscape Value.

There are 3 recognised Country Parks in North Lanarkshire - Palacerigg Country Park, Strathclyde Country Park, and Drumpellier Country Park. There are also 2 gardens within the Council: Colzium House Estate and Dalzell Estate, as well as 6 town parks.

There are also 9 Local Nature Reserves (LNRs): Braedale Hill, Brownsburn Community Park, Dumbreck Marsh, Gartcosh, Greenhead Moss, Kingshill, Ravenswood, Mosswater and Cambusnethan. A Local Nature Reserve is a statutory designation and refers to a place with special local natural interest, set up to protect nature, and for people to enjoy and appreciate.

Current Factors affecting this habitat

- **Development pressure** – a number of areas of public open space have been lost to development or are currently threatened. The habitat can become fragmented due to roads, car parks or new development, until the area becomes unsustainable for the wildlife that occupies it and the impact increases on the remaining habitat.
- **Unsympathetic landscaping or restoration** – Amongst other problems, this can reduce the extent of semi-natural habitat or the abundance of other ecologically interesting features at a site.
- **Public perception** – local residents can sometimes strongly object to the presence of informal habitat within public open space, seeing it as untidy, a source of hay fever, harbouring vermin, a threat to safety or a fire risk.
- **Restoration potential** – some areas of amenity grassland still retain semi-natural grassland in a suppressed form and can recover to produce species-rich habitat of valuable NVC categories such as MG5 (with plants such as pignut, great burnet, birds-foot trefoil etc). Sites with potential restoration opportunities should be identified.
- **Poor tree regeneration** – leading to limited age and structural diversity as well as gaps in dead wood generation.
- Limited woodland management resulting in loss of structure and re-growth of stands.
- Damage to trees through soil compaction.
- Isolation and fragmentation of parklands, resulting in poor dispersal between sites and low genetic exchange, making populations of species vulnerable to local extinctions.
- **Public pressure** – Vandalism and other inappropriate activities such as motor biking impact wildlife. Unfortunately, people can commonly blame the greenspace rather than look to deal with the source of the anti-social behaviour and other potential solutions.
- Management practices, such as unnecessary mowing, can lead to isolation of habitats and features such as mature trees as well as root and bark damage to trees often leading to the death of the tree.



Current Action

- Specific nature conservation management takes place at a number of sites. This is carried out by North Lanarkshire's Land Maintenance Department, or Community Greenspace and can involve contractors, local residents or groups. The most successful projects are the trial and expansion of areas managed to increase the abundance and diversity of native flowering plants.
- Some sites are regularly used for educational purposes such as Strathclyde Country Park, and Drumpellier Country Park (by the Countryside Ranger Service); Cumbernauld Glen (by the Scottish Wildlife Trust) and Greenhead Moss. Some sites also contain interpretation boards explaining the history of the site, species found on site and/or plans for restoration.
- The popularity of forest schools within North Lanarkshire has seen an increase of educational opportunities for local children to be in an outdoor classroom.
- There have been 20 Woodland in and Around Town (WIAT) schemes completed since 2008. Since 2015, the total area benefitting from WIAT projects totalled 83 hectares.
- Countryside Stewardship Sites – There are 24 Countryside Stewardship sites. The Countryside Ranger Service visits, patrols, monitors and reports on these sites at least once a month. The rangers compile appropriate maps and site histories, and establish contacts with neighbouring communities and other Council staff, especially Land Maintenance, Streetscene and Environmental Wardens.
- The Planning (Scotland) Act 2019 requires planning authorities to prepare and publish an Open Space Strategy (OSS). The OSS is to set out a strategic framework of the planning authority's policies and proposals as to the development, maintenance, and use of green infrastructure in their district, including open spaces and green networks. This provides opportunities to identify biodiversity enhancements for sites and better integrate habitat networks into Local Planning.



- The [Third State of Scotland's Greenspace Report](#) (2018) published by Greenspace Scotland reveals the extent and type of urban greenspace in all 32 Scottish local authority areas.

The report also provides summary information from the [2017 Greenspace Use and Attitude Survey](#) and the Improvement Service [Local Government Benchmarking Framework](#).

- There are 4 green spaces in North Lanarkshire officially designated as Queen Elizabeth Fields: Colzium-Lennox Estate, Kilsyth; Dalzell Estate, Motherwell; Glenboig Village Park and The Langriggs in Cumbernauld. This included community and school involvement and boulders have now been installed to mark the sites.
- Tree avenues were planted as part of the Queens Green Canopy at Palacerigg Country Park, Drumpellier Country Park and Duchess Park.



Proposed Objectives, Actions and Targets

1. To maintain and enhance the extent and quality of semi-natural habitats in and around parks and public open spaces.
2. To promote good management practice in parks and public open spaces, maximising their wildlife value without compromising safety.
3. To encourage local communities to undertake local action for biodiversity.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Protect and enhance designated sites, wildlife corridors and public open space through the planning process.	1	NLC	Ensure biodiversity is considered in all planning applications and developments and sites are protected in the local plan.
1.2 Open Space Report delivered by end of 2024.	1, 2	NLC	Ensure opportunities for biodiversity enhancements and habitat networks are incorporated.
Habitat management and protection			
2.1 Encourage botanical diversification of grassland in parks and open spaces.	1,2	NLC, GM, SWT, RSPB,	20 new diverse grassland sites developed and managed for biodiversity 2027.
2.2 Facilitate the creation and enhancement of accessible wildlife habitat in residential areas.	1, 2, 3	NLC	2 new projects annually from 2023.
2.3 Develop Local Nature Reserves in North Lanarkshire.	1, 2, 3	NLC	Implement management plans for Local Nature Reserves. Monitor through annual meetings.
2.4 Promote Local Nature Reserves.	1, 3	NLC	1 event annually on at least 3 LNRs.
2.5 Support the development of community action groups and advise on nature conservation actions.	1, 2, 3	NLC	Offer support to groups, advise on nature conservation actions. Provide training opportunities to groups. At least one training event annually.
2.6 Implementation of opportunities identified through the Open Space Strategy.	1, 2, 3	NLC	Take forward improvements at 5 locations annually.
Advisory			
3.1 Raise awareness of the importance of roadside verges and encourage more sympathetic management.	1, 2	NLC	Promote successful projects.
Survey, research and monitoring			
4.1 Encourage use of Swift Mapper to increase North Lanarkshire records and information.	2	NLC	Provide at least one annual training opportunity and coordinated survey opportunity.
4.2 Survey wildflower meadows established by NLC to establish importance.	1, 2	NLC	Survey 6 wildflower meadows per year from 2023.
4.3 Develop a programme of survey for the Local Nature Reserves.	2	NLC	Survey programme developed by 2024. Data can be found in site reports to collate accurate survey records.
4.4 Quantify the condition and management of Council owned SINC's and LNRs.	1, 2	NLC	Survey programme developed by 2024. Data can be found in site reports to collate accurate survey records.
Communications and awareness raising			
5.1 Promote the benefits of biodiversity in public spaces to the public.	1, 2, 3	NLC	Annual biodiversity themed event.
5.2 Encourage creative approach to promoting biodiversity.	3	NLC, RSPB, SWT,	Annual photography competition, linked with an LNR, to be developed with local schools from 2024.

Plan written by Aileen McKean and Laura McCrorie North Lanarkshire Council 2022.

Further information

Local Nature Reserves in Scotland: A Guide to their Selection and Declaration, [Local Nature Reserves | NatureScot](#)

References

London Parks and Green Spaces Habitat Action Plan.

Camden Biodiversity Action Plan 2013-2018.

The 2020 Challenge for Scotland's Biodiversity.

Scottish Biodiversity Strategy: It's in Your Hands.

Greenspace Scotland.

Keep Scotland Beautiful-It's Your Neighbourhood.

Cumbernauld Living Landscapes.

2020 Challenge for Scotland's Biodiversity – Scottish Government.

Greenspace Use and Attitudes Survey – Greenspace Scotland 2017.

State of Scotland's Greenspace Report – Greenspace Scotland 2018.

Scottish Household Survey 2016 – Scottish Government.



School Grounds Habitat Action Plan

School Grounds Habitat Action Plan

Scottish Biodiversity List Habitat::

No

UK Biodiversity List of Priority Habitats:

No

Summary

All school grounds, large or small, are potential nature reserves. Within wider rural or urban areas in which wildlife is increasingly under threat, they have the potential to act as “wildlife corridors” and “stepping-stones”, allowing wildlife to migrate between larger areas of suitable habitat.

School grounds can support a range of wildlife including; flowering plants; mosses and liverworts; lichens; fungi; small mammals; birds; insects; amphibians and reptiles. Flowers and shrubs provide food for butterflies and moths, whilst frogs, toads and newts may breed in school ponds.

The “Curriculum for Excellence”, together with the “Curriculum for Excellence through Outdoor Learning” firmly establishes the role of the outdoors in educating pupils. The curriculum encourages young people to study biodiversity within their school grounds, predominately through science and geography. However, natural habitats within school grounds can also provide a context for literacy, numeracy, information communication, technology and art. Therefore, developing school grounds for biodiversity can contribute positive action towards a range of objectives.



The “2020 Challenge for Scotland’s Biodiversity” builds on this, noting more needs to be done, particularly in Central Scotland, to make green space and contact with nature more accessible. The “Curriculum for Excellence through Outdoor Learning” (2010) recognises that school grounds are often the first step in taking pupils outdoors, and envisions creative and progressive outdoor learning being embedded in the curriculum. This can be done by building on the existing work that has been done, for example with Grounds for Learning, Eco Schools and the Forest Schools Programme.

There are clear opportunities to encourage North Lanarkshire’s youth to have direct contact with biodiversity, in a fun and educational way, and to learn how to look after and encourage wildlife



Current Status

Within North Lanarkshire Council area, there are 119 primary schools, 23 secondary schools, 13 special schools, 68 recognised private/voluntary nursery establishments and 105 nursery classes incorporated within mainstream educational establishments and family learning centres.

63% of school ground is land rather than buildings; this is a significant area of land and has the potential to make a large contribution to North Lanarkshire’s biodiversity.

A substantial amount of this land is managed open grassland used to play team sports. However, areas are being developed that focus on biodiversity.

Eco-Schools is the largest sustainable schools programme in the world with 19.5 million children, young people and educators engaged worldwide in 67 different countries. The hugely successful Eco School programme celebrated their 25 year partnership with Keep Scotland Beautiful Scotland and Scottish Schools in 2019. Their most recent report 2017/2018 recognises there are currently 210 schools registered in North Lanarkshire with the Eco Schools programme; 68 that have Green Flag Awards, and 3 that have permanent awards, with 20 schools focussing on school grounds as a topic for their award.

Legislation and Site Designation

There is the potential to designate school grounds as Local Nature Reserves, this has been done in other Local Authorities.

Sharrow School in Sheffield has been designated as a LNR due to the school’s green roof. This shows the massive potential schools have to be developed as nature reserves.

Current Factors Driving Outdoor Learning

The Expansion of Early Years and Childcare in Scotland

The Scottish Government piloted this ambitious new project in 2019. A key aspect of the vision is the free entitlement for Early Learning and Childcare (ELC) of 1140 hours per year for all 3 and 4 year olds. Scottish Government stipulate learning will take place in physical environments, indoors and outdoors. North Lanarkshire Council recognise and embrace a strong connection with the benefits of outdoor learning opportunities.

Education Scotland: The Responsibility of All. 3-18

Curriculum Impact Report June 2019, recognised the benefits of outdoor learning and the need for a more consistent and progressive approach.

Scottish Government: Growing up in Scotland and Obesity at age 10.

Recognising the drivers of overweight and obesity are complex, multi-faceted and shaped by a broad range of factors, the delivery plan for improving diet and weight sits alongside a wide range of government policy and action. Included amongst these is a priority to create 'a Scotland where we eat well, have a healthy weight and are physically active'.

Becoming a Good Food Nation In 2020 Scottish Ministers remain committed to the concept and reality of achieving our vision of Scotland as a Good Food Nation.

Alongside a range of benefits for physical and mental health, regular physical activity helps adults and children maintain a healthy weight. A More Active Scotland: Scotland's Physical Activity Delivery Plan (Scottish Government, 2018) sets out the Scottish Government's ambitions for a Scotland where "*more people are more active, more often*".

Scotland, A Daily Mile Nation. This initiative is delivered within the school grounds. A biodiverse environment promotes the benefits of being physically active outdoors.



Current Factors Affecting the Habitat

- Increase in pupil numbers leading to extension of school buildings and car parking facilities.
- Loss or relocation of schools and sale of land for development.
- Lack of appropriate management.
- Vandalism.
- Pressure for competing land use such as use for sports.
- Lack of long term biodiversity action management plans and commitment may diminish the long term impact of biodiversity action.
- Increase of woodland use for Forest Schools.
- Increase demand for outdoor space for 1140 expansion.

Current Action

- School grounds are areas of protected open space and cannot be put to alternative uses without special permission from the relevant government department.
- Eco Schools is a European-wide project designed to encourage action for the environment by the whole school community. It is a recognised award scheme, rewarding and accrediting schools (including primary, secondary, special and early years establishments) that have made a commitment to continuously improving environmental performance.
- The Eco School project includes a specific Biodiversity component as well as a topic focussing on School Grounds.
- Green flags must now be renewed every two years, encouraging ongoing action for the environment by schools.
- Management and maintenance of school grounds is carried out through Service Level Agreements between schools and NLC Land Maintenance.
- Support for the Eco School Awards is provided by the Quality Improvement Officer-Science Education.
- North Lanarkshire Council's Community Greenspace Service offers advice and support to schools wishing to enhance their school grounds for biodiversity.
- North Lanarkshire Countryside Ranger Service support Forest Schools, Primary, Secondary and Tertiary education establishments to offer advice and support for Outdoor Learning, in developing areas for biodiversity and environmental education including biodiversity improvements at Whitelees in Cumbernauld and working with Nurture groups at St Aidens High in Motherwell.
- Forest Schools in North Lanarkshire are required to sign an agreement with North Lanarkshire Council to confirm a code of conduct and environmental impact assessment.
- "Garden for Wildlife" leaflet produced, and available online, includes information for schools
- Numerous projects on school grounds and local biodiversity areas have been taken forward at local schools. For example, at St Stephen's Primary School in Coatbridge the Countryside Ranger Service helped teachers and pupils create a wildlife garden in an underutilised area of playground by building a bug hotel, providing wildflower seeds for planters, and advised on tree planting and bird feeders.
- Grounds for Learning provides support for outdoor play and learning with a variety of online resources which schools can pay a membership fee to access.
- Every nursery in North Lanarkshire has a Forest Schools resource box.
- Awards for All Scotland funding is open to schools to apply for funding, with an option for projects that focus on improvements or additions to community buildings or play facilities.
- Educational packs produced by the Forestry Commission, including the Wolf Brothers Wildwoods resource pack, which aims to educate children through a story explored indoors and in woodlands.
- Outdoor Woodland Learning (OWLs) provide downloadable resources and case studies of schools using innovative outdoor learning techniques.

Proposed Objectives, Targets and Actions

Objectives

1. To raise awareness and knowledge of biodiversity, and encourage educational opportunities, especially amongst pupils, parents and school staff.
2. To ensure that school grounds within North Lanarkshire are appropriately managed to conserve and enhance biodiversity.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Encourage the incorporation of biodiversity aims within new Service Level Agreements between schools and North Lanarkshire Council Land Maintenance.	2	NLC	2 new schools annually from 2023.
1.2 Increase the number of North Lanarkshire Council Eco- schools focusing on the 'School Grounds' topic.	1, 2	NLC	3 new schools annually from 2023.
1.3 Encourage and support schools to develop and adopt a school grounds biodiversity management plan.	1, 2	NLC	3 new management plan annually from 2023.
1.4 Support schools in development of biodiversity areas.	1, 2	NLC	3 biodiversity areas developed annually from 2023.
Advisory			
2.1 Offer advice and support to schools wishing to manage their grounds to conserve and enhance biodiversity.	2	NLC	Provide advice to at least 10 schools annually from 2023.
Survey research and monitoring			
3.1 Encourage schools to undertake biodiversity audits of school grounds and participate in annual surveys (as part of the Eco-schools programme where appropriate), and encourage the submission of records to the Biodiversity.	2	NLC	Provide at least one annual training opportunity and coordinated survey opportunity.
Communication and awareness raising			
4.1 Develop a School Grounds Biodiversity Competition.	1	NLC	Develop annual competition with local schools from 2024.
4.2 Ensure new schools take on environmental enhancements.	2	NLC	Encourage environmental additions such as wildflower meadows, swift boxes and green roofs where appropriate.

Plan written by Helen Boyle Senior Countryside Ranger and Laura McCrorie Conservation and Biodiversity Manager, North Lanarkshire Council 2022.



Links with Other Policies and Organisations

- Statement of education improvement objectives 2004 - 2007.
- Education service improvement plan 2004-2008
- Curriculum for Excellence, A refreshed narrative Sept 2019. Education Scotland, National Curriculum 3 – 18 year.
- Curriculum for Excellence through Outdoor Learning.
- Grounds for Learning.

Sources of Information

Jackson, D.L. 2000. Guidance on the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types).

Definitions and the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types): Definitions and the relationship with other habitat classifications.

JNCC Report No. 307. British Wildlife in Danger (Resource booklet for teachers-Key stage 2).

International Centre for Conservation Education.

School Grounds Habitat Action Plan for Bexley.

School Grounds Habitat Action Plan for Flintshire County Council.

The 2020 Challenge for Scotland's Biodiversity.

Scotland's Biodiversity Strategy: It's in Your Hands.

Building Excellence: Exploring the implications of the Curriculum for Excellence for School Buildings (2007) 'Aiming for Excellence in School Grounds'.

Curriculum for Excellence through Outdoor Learning.

Curriculum for Excellence.

Grounds for Learning.

Forestry Commission Scotland, 2013. Wolf Brother's Wildwoods, Imagining Mesolithic life in Scotland's forests and woodlands, An Outdoor Learning Resource for Teachers of Curriculum for Excellence Level 2.

<https://education.gov.scot/nih/Documents/hwb14-summary-impact-report.pdf>

Abbreviations

LEA – Local Education Authority,

CSGN – Central Scotland Forest Trust

NLC – North Lanarkshire Council

RSPB – Royal Society for the Protection of Birds.

Training opportunities for Outdoor Learning

SAOPE Supporting Learning Outdoors Course.

A new course from the Scottish Advisory Panel for Outdoor Education for anyone with a role in curricular based outdoor learning. This course will help participants to gain an understanding of the Curriculum for Excellence, and the framework for delivering this to pupils, as well as providing resources and ideas to assist good partnership working. To register and access the course visit the SAOPE website.



Pollinator Species Action Plan

Summary

Pollinators include bees, some wasps, butterflies, moths and hoverflies, some beetles and flies.

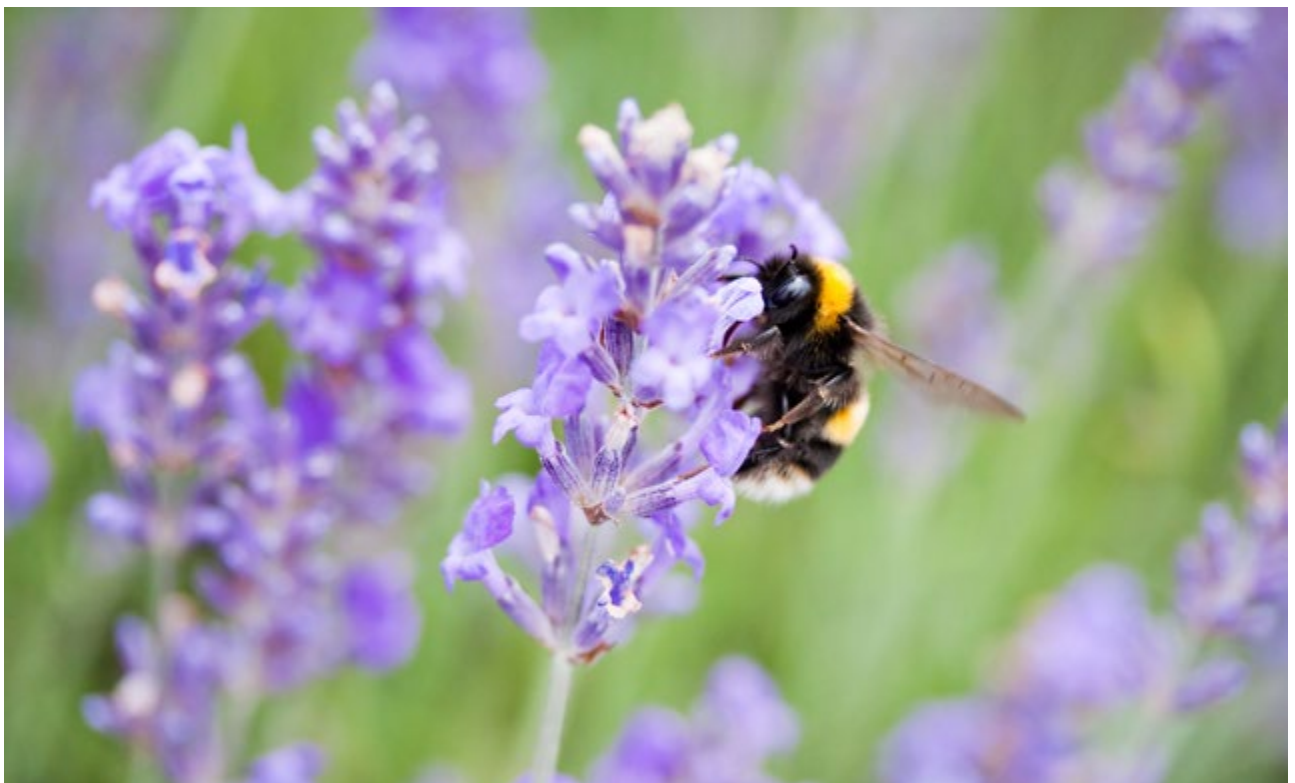
Wild pollinators, which include bumblebees and butterflies are also important pollinators for crops like fruit and oilseed rape, for clovers, which help to improve pastures for livestock grazing and wildflowers. They contribute to the diversity of plant species, habitats and wildlife.

Pollination is a very important service. 80% of flowering plant species depend, at least in part, on animals like insects to transfer pollen and maintain healthy plant populations. 75% of leading food crops (mostly fruit, vegetables, nuts and seeds) need insect pollination to assure the amount, quality and stability of yield. In Scotland this is mostly oilseed rape, soft fruits, apples and beans.

However, pollinator health and declining populations have been increasingly highlighted as a cause for concern in Scotland the UK and globally. The main areas of concern for pollinators are land-use intensification, habitat destruction and fragmentation, disease, the use of agro-chemicals, and climate change, although the importance of each of these and the extent to which they are inter-related is less well known.

The benefits of supporting our pollinators are numerous; they are an essential part of healthy functioning ecosystems, providing, for example:

- food production – directly as honey, and indirectly as crops
- a diverse, functioning and attractive environment and supporting:
 - health and well being
 - tourism
 - rural economies
 - urban green space



Species profiles

Bees and wasps visit flowers to collect pollen and nectar to feed themselves or their developing young. Flowering plants have evolved to take advantage of this by offering nectar to insects most likely to carry their pollen to another plant.

Species focus

Bumblebees are part of the very large insect Order, the Hymenoptera, which also include the honeybee, solitary bees, wasps, sawflies and parasitic wasps. There are 267 species of bee in Britain, which, apart from the bumblebees, are mostly solitary, lacking workers.

There are 24 species of bumblebee in the UK. All our bumblebees are in the genus *Bombus*, which is derived from the Latin word *Bombus*, meaning 'booming'. There are six species of bumblebee known as cuckoo bees - these are not social bumblebees and don't have a queen, instead the females lay their eggs in the nests of other bees.

In Scotland there are at least 19 species of bumblebee.

The Tree Bumblebee (*Bombus hypnorum*) is a fairly recent addition in Scotland. This species was recorded in southern Scotland in 2013 and in recent years its distribution has expanded throughout lowland Scotland and has been recorded as far north as Aberdeenshire and Moray.

Bumblebees are of crucial importance as pollinators of wildflowers, and because they depend on the presence of an abundant and diverse flora, they are useful indicators of the health of the environment. Bumblebees are important economically as pollinators of commercial fruit and vegetables.

Many plants, for example, red clover are largely dependent on bumblebees for pollination and the monk's-hoods are completely dependent on long tongued bumblebees. Bumblebees are also the hardiest of the pollinators, often coming out at low temperatures; their coat of finely branched hair both helps insulate the bee and captures extra pollen.



In Britain, bumblebee colonies tend to last for only one season. Woken by the increase in temperature the queen bees emerge in spring from their underground hibernation and stock up on energy rich nectar before beginning the hunt for a suitable nest. Queen bumblebees are distinctive; they are much larger than your average bee. You will see them flying low to the ground investigating any holes or crevices.

Pollen is very important for a queen bumblebee. It is eaten to aid the development of eggs and collected and carried in pollen baskets on their hind legs and stored in wax cells in the nest to provide food cells for the larvae. Once the queen has established this store, she can begin to lay eggs. The eggs hatch into workers, some workers take over the foraging, bringing home supplies of nectar and pollen to the nest, while others stay at home and maintain the nest and larvae so the queen is free to spend her time at home laying more eggs.

Later in the year the queen begins to lay unfertilized eggs which develop into males, around the same time some of the last fertilized eggs develop into new queens. The males have a short life lounging around on flower heads, consuming nectar and, mating with young queens. Eventually all bees in the colony come to the end of their life except for young mated queens, and these, after having built up their fat reserves, dig into the ground to hibernate until the following spring.



Buff-tailed bee © Suzanne Bairner

Bumblebees are vital for pollinating our wildflowers and crops such as apples and raspberries. Unfortunately, these popular and hard-working insects are in decline and urgent action is required to save them.

Bumblebees have undergone a rapid decline in their range and population. There are 24 species native to the UK, a further three are now extinct and six species have declined by at least 80% in recent years. This is largely due to changes in our countryside, such as loss of habitat and intensive agricultural farming and the loss of valuable flower-rich "brownfield" sites for housing and retail development.

The Honeybee (*Apis mellifera*) is the main managed pollinator of crops. Modern honeybee hives are sometimes moved from crop to crop and beekeepers may charge for the pollination services provided whilst also harvesting the honey and other products.



Crops which benefit from this include orchards and soft fruits (rose family) oilseed rape and other seed brassicas (cabbage family) and peas and beans (legumes).

Bumblebees and solitary bees are very important pollinators that are essential to the maintenance of wild plant populations and to commercial crop production, particularly orchard and soft fruits and protected crops such as tomatoes.

Wasps often feed on nectar whilst on the lookout for other insects to prey upon, many of which are crop pests.



Small copper © Suzanne Bairner

Butterflies and moths pollinate plants to various degrees by the action of the adult feeding on nectar. They are not major pollinators of UK food crops but are pollinators of many wildflowers which like bumblebees make them very valuable in the conservation of native biodiversity.

Hoverflies are abundant on flowers for much of the year and the adults feed on nectar and pollen, carrots and apples being examples of crops that benefit from hoverfly pollination. However, the larvae eat a much more varied diet that often includes other insects. For this reason, predatory species of hoverfly are utilised as part of Integrated Pest Management (IPM) as biological control agents.

Habitat

Pollinators need food in the form of pollen and nectar foraged from a variety of flowering plant species; and diverse vegetation structure, e.g. hedgerows, scrub and tall grass for shelter, nesting and overwintering such as burrows and holes in tree trunks. The larval stages of many pollinators also have many differing requirements. In order to support a variety of pollinator species, nectar sources need to be available from early spring through to late autumn.

Although most honeybees have their shelter provided for them, all pollinators need flowering semi-natural habitats such as wildflower meadows, hedgerows and woodland edges, and agricultural landscapes which include unimproved grassland, hay meadows, clover rich grasslands, orchards, and arable crops. However, many of these habitats and land uses are declining or in short supply in Scotland.

Food and shelter can also be provided in gardens, parks, road verges, and any other open area. Pollinators are relatively easy to provide for, for example by planting or retaining appropriate plant species such as common knapweed in wildflower meadows, red clover in pasture, and hawthorn and bramble in hedgerows and woodlands.

Heathlands and wetlands are very important to pollinators because they provide a great abundance of flowers late in the season.

Legal Protection

Pollinators do not receive legal protection however some individual species are protected by law.

Current Status

Despite their popular appeal, bumblebees have undergone a rapid decline in their range and population – at least nine species are of conservation concern, and one, the Short-haired bumblebee (*Bombus subterraneus*), has not been seen since 1989 and is presumed extinct.

The reasons for the decline have been attributed to the loss of habitat from intensive agricultural farming, collateral pesticide damage, and insensitive development.

This could in time lead to further extinctions of British bumblebees. But all is not lost. Gardens, parks and brownfield sites continue to provide important habitats for bumblebees, especially if they are managed specifically for wildlife.

Current Factors Affecting This Species

There has been a marked decline in bumblebees in the past 20 years largely due to increasing intensification of land use for agriculture and development. However, there is no single factor that is driving pollinator losses. The causes are likely to be complex and involve interactions between different pollinators and various environmental pressures such as:

- Habitat Loss
- Brownfield Development
- Pesticide Use
- Climate Change
- Land Management
- Disease, Pests and Pathogens

Habitat Loss

Changes in agricultural practice, including an increase in the use of chemical fertiliser and pest and weed control, has led to a profound loss of semi-natural habitat in rural areas, particularly in the lowlands.

Rapid urbanisation has had a profound effect on insect populations. The ubiquitous species of bumblebees would be expected to remain abundant, or even increase in abundance, in mature gardens in towns, though it is possible that shortages of food immediately after land clearance for building may have eliminated more local species.



Brownfield development

Brownfield development of previously developed land and now derelict land can mean the loss of important local food sources and habitats. These sites are sometimes replaced with inappropriate landscaping schemes, more often not all the opportunities to utilise engineering solutions such as green roofs means that there is a net loss of biodiversity through the development which will have a negative effect on wildlife in general.

Pesticide Use

The introduction of cheaper and more effective non-selective insecticides may have led to declines in bumblebee populations in urban areas through increasing horticultural use and at an agricultural scale.

Recent research suggests that three neonicotinoid pesticides (clothianidin, imidacloprid and thiamethoxam) may have an adverse impact on the health of bees. Such concerns led the European Commission to restrict the use of the three neonicotinoids for seed treatment, soil application (granules) and foliar treatment on bee attractive plants and cereals. There are a few exceptions in respect of greenhouses and open-air trials.

Climate Change

There is uncertainty about the degree of potential impact of climate change on UK pollinators. Warm, dry summers are likely to have positive effects, while wetter summers are likely to be negative. There could be a mismatch between flowering dates of food plants and emergence dates of pollinators if they respond differently to environmental cues. Blackcurrant and its pollinators have diverged by 28 days since the 1970s. This could expose pollinators to periods of starvation, particularly affecting populations of wild pollinators with little food stored. Bumblebees are particularly sensitive as they are completely dependent on the landscape, without the potential for artificial dietary supplements potentially available for managed honeybees.

Land Management

Many modern horticultural cultivars lack scent and do not produce nectar. These have tended to replace “old-fashioned” varieties, and this will have reduced the available food supply for bumblebees in gardens.

The fashion for decking and paved gardens, and for plants grown for foliage rather than blooms, has reduced the number of flowers available for bumblebees.

General ‘tidying up’ may remove the undisturbed sites required for nesting and over-wintering.

Diseases

Disease, pests and pathogens have been identified as key threats to managed honeybees. This is not only a threat to managed bees but also to wild populations which face a build-up of microbial pathogens and pests that cause disease.

Current Action

- The Pollinator Strategy for Scotland 2017-2027 sets out how Scotland can continue to be a place where pollinators thrive, along with actions that are needed to help achieve that objective. It includes action for everyone, from Scottish Government and its agencies to conservation groups, farmers, landowners, managers, gardeners, agricultural businesses, commercial businesses and members of the public.
- Bumblebee Conservation Trust have published a position statement on the interactions between managed honeybee colonies and wild bumblebees with recommendations for minimising conflict.
- With funding from NatureScot, Buglife Scotland have produced a report titled ‘Scotland’s Wild Bees of Conservation Concern’ that can be downloaded from the Buglife website.
- The Scottish Bee Inspectorate has strong certification procedures to ensure disease and pest freedom of imported bees into Scotland. Furthermore, these certification procedures are bolstered with a risk-based approach to post-import checks. Following Brexit, GB has a third country trading relationship with the EU. Domestic legislation avoids the import of colonies and packages of honeybees directly into GB with the exemption of New Zealand. The only imports of honeybees allowed, other than from New Zealand, are queen bees with up to 20 attendants. Post-import checks on these imported queens have also been strengthened as a result of the third country status.
- Agri-Environment Climate Scheme, under the SRDP. Agri-environment funding for pollinators is being accessed via this scheme. Around 80% of crop and wild-flowering plant species in the EU depend, at least in part, on animal pollination.
- NatureScot are illustrating what public good looks like on Scottish Farms (pollinators are listed as a public good) to demonstrate the public benefits generated by farm support schemes.
- In order to establish further information about the needs, impacts on and management for pollinators, there is much research being carried out globally, in Europe and in the UK. The STEP project (Status and Trends of European

Pollinators), funded by the European Commission aims to assess the current status and trends of pollinators in Europe, quantify the relative importance of various drivers and impacts of change, identify relevant mitigation strategies and policy instruments, and disseminate this to a wide range of stakeholders. In the UK the Insect Pollinators Initiative is a fund of up to £10m supporting several projects to improve understanding and identify priorities for further research and evidence needs.

- There is much work being carried out to support and provide for pollinators. Across the UK initiatives include the Bumblebee Conservation Trust's Local Authority Toolkit, and the Co-operative's Plan Bee.
- Within the last 6 years North Lanarkshire Councils Community Greenspace Biodiversity and Ranger Team has developed or managed a number of wildflower meadows in public spaces such as parks, Local Nature Reserves and School Grounds.
- Community Greenspace has formed partnerships with different organisations to create wildflower/ grassland meadow throughout the region including the Seven Lochs, Cumbernauld Living Landscape, and Buglife.
- Community Greenspace have taken forward a pilot scheme creating different types of wildflower meadow on a range of sites both in parks and roadside verges (over 12 ha in total). The establishment is being monitored and a report will be produced in 2023 detailing the effectiveness of the range of techniques used to enable evidence based decisions to be taken when future grassland management changes are considered.
- Community Greenspace in partnership with Buglife organised an internal and external wildflower and pollinator training days.
- Promote partner organisations surveys and share data through the project with Buglife, CCL and SPRINT, and will continue to carry on.
- Greenspace Projects Team have created a climate ambassadors woodland buffering mature woodland in Strathclyde Country Park as well as a species rich hedge and several wildflower areas. The project aimed to introduce as many new, native species to the site to boost biodiversity with a focus on flowering plants like hawthorn and common vetch which provide support for pollinators.



Proposed Objectives, Targets and Actions

1. Establish distribution of key pollinators in North Lanarkshire.
2. Deliver optimum management of pollinator habitat in North Lanarkshire.
3. Raise awareness of Pollinators and their conservation in North Lanarkshire.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Work with farmers and land managers to manage and enhance habitat, through increasing the extent of flower rich margins and conservation headlands.	2, 3	NLC, Buglife	4 management schemes, which include habitat improvements for bumblebees, implemented by end of 2025.
1.2 To work with the local partners in the creation of at five new wild flowering areas in public open spaces per year.	2, 3	NLC	Five new wildflower verges, meadows, hedgerows, or orchards each year from 2022.
1.3 Increase availability of nectar through the season by promotion of sympathetic planting schemes in public and private gardens and allotments.	2, 3	NLC	Planting schemes promoted through planning conditions, and guidance to the public. Ongoing
1.4 To continue to promote the installation of biodiverse green roofs.	2, 3	NLC	Through planning guidance and conditions 2023.
Survey research and monitoring			
2.1 Establish annual public wildlife survey for key species including pollinators.	1, 3	NLC	From end of 2023.
2.2 Promote partner organisations surveys and share data.	1, 3	NLC	Ongoing
Communication and awareness raising			
3.1 Raise skills level for pollinator ID by establishing and advertising an ID course.	1, 3	NLC	Annual pollinator ID course established from end of 2023.
3.2 Increase public knowledge of sympathetic land management for Pollinators by providing demonstration gardens and allotments.	2, 3	NLC	Demonstration sites identified. Program of events established at demonstration sites from end of 2023.
3.3 Promote pollinators through, websites and other social media outlets, as a 'flagship' urban invertebrate species and highlight ways in which the public can assist pollinators through nest site provision and / or gardening practices.	2, 3	NLC	Website updated. Ongoing social media and events.
3.4 Promote pesticide free labelling scheme in the retail sector.	2, 3	NLC	Promote to local garden centers by 2025.

Plan written by Laura McCrorie 2014, updated by Kirsty Mooney Biodiversity project Officer and Suzanne Burgess, Buglife 2022.



Open Mosaic Habitats on Previously Developed Land Habitat Action Plan

Open Mosaic Habitats on Previously Developed Land Habitat Action Plan

Scottish Biodiversity List Habitat:

Yes

UK Biodiversity List of Priority Habitats:

Yes

Summary

The rich industrial heritage of North Lanarkshire has resulted in over 1,300 hectares of land being listed as vacant or derelict. These brownfield sites can be incredibly important for biodiversity, often supporting nationally important populations of rare and endangered invertebrates, alongside other wildlife such as birds, reptiles, plants and lichens. With the loss of natural habitats in the wider countryside through agricultural intensification and development, wild areas within the urban environment have become crucial to the survival of many increasingly threatened species in the UK. As a result Open Mosaic Habitat on Previously Developed Land (OMHPDL) is a priority habitat and is on the Scottish Biodiversity List.

Vacant and derelict land provides an often-unrecognised contribution to wildlife habitat. Frequently sites have a variety of small-scale habitats within them, such as pools; areas of rocky, exposed soil and scrub. This complex make-up can, in turn, provide home to a wide variety of species. Many of these have only a brief existence, but where heavy disturbance ceases and re-development is delayed, semi-natural habitats such as grasslands, wetlands, ruderal habitats, scrub and secondary woodland start to develop and can evolve in to highly complicated habitat mosaics.



Ravenscraig

As vacant and derelict land sites tend to be in urban environments, the wildlife using them has an added value in being able to be enjoyed by large numbers of people who pass by these sites. Despite this, there is a sometimes a tendency to view them as unsightly areas, leading to a pressure for them to be 'tied up'. Vacant and derelict land is also under significant pressure from redevelopment. Whilst by its nature it can be perceived as a transitory habitat, due to the reduction of heavy industry and current economic climate, the overall amount of this habitat looks as if it will be reduced in North Lanarkshire, along with a number of important species that utilise them.

These sites can be an invaluable resource for local communities by providing easily accessible areas of informal green space in urban parks where a rich variety of wildlife can be appreciated, and the often robust nature of the sites can support heavier recreational usage than many wildlife sites.

Habitat Profile

'Open Mosaic Habitat on Previously Developed Land' (OMHPDL) was designated as a UKBAP priority habitat by the UK Government in 2007 (Biodiversity Reporting and Information Group, 2007). OMHPDL is still a priority habitat and is recognised as such on the Scottish Biodiversity List. For sites to be classed as OMHPDL, a number of criteria must be met (Appendix I). One of the key features is initial disturbance, followed by natural colonisation by plants and animals without human intervention or management. Disturbance from previous land use and remains of building material often adds to the variety of habitat types at different stages of succession found at brownfield sites. Another important characteristic of brownfield sites is a lack of topsoil, which sometimes results from sites being cleared. Other bare habitat includes artificial surfaces such as cracked concrete or rubble, which are poor at retaining water and are low in nutrients. These conditions encourage high floral diversity as fast-growing species are unable to out-compete other plants, which in turn provide many opportunities for invertebrates to exploit. Other wildlife groups like birds and mammals are often attracted by the abundance of invertebrates to feed on. Bare patches are important for warmth-loving (thermophilic) invertebrates as they provide opportunities for

basking as well as for ground nesting species such as solitary bees and wasps (Whitehouse, 2008). Additional features provided include varied drainage, ranging from freely draining gravel and rubble to impermeable substrate such as concrete, where seasonal pools can form. This variety is important for insects that have a complex life history; e.g. some species have aquatic larval and terrestrial adults. A lack of management at these sites allows many species to complete their life cycle within the same site, especially those that over-winter in plant stems or within grass tussocks (Macadam and Bairner, 2012).



'Small Tortoiseshell and Red Admiral' © Tam Stewart

What is characteristic of all vacant and derelict land sites is their transient nature and the fact that they are host to 'new' or successional habitats. In the UK, this habitat is rare, if not unique to vacant and derelict land and can attract uncommon plants and animals, such as orchids, bees and solitary wasps. From a starting point of bare earth or rubble, if the land continues to be undeveloped, later stages of succession can emerge, including scrub and bushes and moving through to woodland. These stages are also important in hosting species such as grasshopper warblers. As well as vegetation or 'soft' habitat, vacant and derelict land can also contain old buildings, which may provide roosting habitats for bats and birds.

OMHPDL is by its nature a temporary habitat. Without management intervention OMHPDL is likely to have an average lifespan of between 15 and 20 years and may take up to 15 years to achieve its biodiversity potential. By prioritising the re-development of brownfield sites it would be possible to produce a redevelopment schedule whereby sites without OMHPDL or those with OMHPDL coming to the end of its natural lifespan were developed first. Where sites with OMHPDL need to be redeveloped, Integrated Habitat Network models may assist in identifying which sites are the most important as “stepping stones”.

In addition to ‘natural’ colonisation, vacant and derelict land can also be seen as an opportunity to actively create a rich habitat for wildlife within a built-up area. There are a number of examples in North Lanarkshire of where former industrial sites are now being at least partly managed for wildlife, such as Gartcosh Nature Reserve, Ravenscraig former steel works, Brownsburn Local Nature Reserve, Dumbreck Local Nature Reserve, and Greenhead Moss Local Nature Reserve.

Legal Status

Vacant and derelict land has no legal protection as a habitat. In fact, reclamation of these sites is encouraged in Scottish planning policy (SPP), the National Planning Framework (NPF) and through the Vacant and Derelict Land Fund. Almost all new development is controlled through the planning system and overseen by the North Lanarkshire Local Plan. This aims to steer development to the most appropriate sites and in doing so avoid damaging important wildlife sites. However, because of the lack of information on brownfield sites and the general perception of them as described above, the habitats and species of vacant and derelict land often fail to be protected.

The Scottish Vacant and Derelict Land Survey (SVDLS) which lists all vacant and derelict sites known to local authorities and is regularly updated is the primary data source for brownfields in Scotland. Across North Lanarkshire 504 sites covering 1,363 hectares (ha) were identified as vacant and derelict land in 2021.



Ravenscraig

With its designation as a UKBAP priority habitat in 2007 and listed as a priority habitat on the Scottish Biodiversity List, Open Mosaic Habitats on Previously Developed Land (aka brownfields) need to be identified and considered for their biodiversity. Fifty seven sites (715 hectares) on the 2011 SVDLS were identified in North Lanarkshire as potentially supporting as OMHPDL. Since then, 18 of these (totalling 59 hectares) have been removed. A further 224 sites on the 2021 SVDLS have yet to be assessed for OMHPDL as these have been added in the last ten years.

Many species that are found on the sites may be protected. The Great Crested Newt is a European Protected Species by virtue of being listed under Annex IVa to the EU Habitats and Species Directive 1992. It is protected under UK law by the Conservation (Natural Habitats &c.) Regulations, which translates the Habitats Directive into UK legislation, and also under the Wildlife and Countryside Act 1981 (as amended). It is also a UK BAP Priority Species. They are often found on these sites, where shallow ponds form. Badgers protected by the Badger Act have been known to form setts in bings. Other protected species that have been found in this habitat in North Lanarkshire are: Water vole, nesting birds such as Sand martins, bats, Common Toad, Common Frog, Palmate Newt, and Smooth Newt.

Current Status

North Lanarkshire is currently one of the biggest contributors to vacant and derelict land in Scotland, with the sites spread across the council area, particularly in its western half. The 2021 SVDLS recorded 1,204 ha of derelict land and 160 ha of urban vacant land within North Lanarkshire. The largest single area is at the former Ravenscraig Steel Works, which is undergoing a huge regeneration programme. As this site is developed, the amount of vacant and derelict land will be reduced, however new sites will appear according to variations in the local economy. In times of economic prosperity or during major infrastructure improvement projects, when development of brownfields is most prevalent, sites with OMHPDL provide important refugia for wildlife. At other times, when redevelopment is at a slower pace there is greater scope for wildlife to

spread out from these refugia to other brownfield sites.

The importance of vacant and derelict land as a wildlife habitat is being increasingly recognised, particularly by the inclusion of OMHPDL as a UKBAP Priority Habitat. A key indicator of this is the drive to replicate some of the small-scale habitats that are found in vacant and derelict land sites within developments. Examples of this are Sustainable Urban Drainage ponds, green roofs and using native plants in landscaping schemes.

There are several projects that will offer the opportunity to reclaim vacant and derelict land as a functional area. Examples are the North Lanarkshire Council Open Space Audit and the Vacant & Derelict Land Investment Programme (VDLIP). VDLIP is a capital programme scheduled over the next five years to help with tackling persistent vacant and derelict land and supporting place based approaches to delivering regeneration and sustainable inclusive growth, as part of a 'just transition' to net-zero by 2045. It is being established in the context of the Scottish Governments economic recovery being a green recovery – tackling climate change and providing opportunities for new work and growth in today's challenging global market.

Future Status

The amount of vacant and derelict land in North Lanarkshire looks set to decrease in the future, particularly with the redevelopment of the Ravenscraig Steel Works. However, the long term extent of the habitat depends on a number of factors such as the economic climate, the development of mechanisms to remove contamination and climate change, which will affect the species which colonise vacant and derelict land sites.

Current Factors Affecting This Habitat

Brownfields are often threatened with development as they are viewed as being low value land that is preferable to develop over more 'green' sites including agricultural fields. The National Planning Framework (NPF) aims to bring "*disused or neglected land and buildings back into productive*

use” (Scottish Government, 2009). Brownfield sites often have a much higher biodiversity value than neighbouring sites including agricultural land or parks. Restoration of ex-industrial sites into green space can be just as damaging to their biodiversity value as more intensive development. The majority of brownfield land can be developed with relatively low impact upon biodiversity, however it is important that sites are assessed for their ecological value so that objective decisions can be made and those of high biodiversity value can be retained.

- Economic and policy pressure to redevelop sites.
- Public perception.
- Lack of information and awareness of the species and habitats that can be found in vacant and derelict land.
- Non-native species.
- Natural succession.
- Recreational pressure – although light disturbance benefits early successional habitats and can increase habitat diversity it can occasionally be a problem for birds and excessive dog-fouling can promote species- poor grassland by enriching the soil. Some sites suffer from regular arson, fly tipping and anti-social behaviour which can result in sites losing popularity with the communities surrounding them.
- Restoration works to buildings, including health and safety issues linked to above.
- Contaminated land and pollution.
- Greenspace management, including landscaping and a drive for woodland planting.

Current action

Sites have been identified as having the potential as Community Nature Parks and Local Nature Reserves. On many of these sites communities are already involved in improving the sites for their use, with assistance from North Lanarkshire Council.

Several sites have been designated as Sites of Importance for Nature Conservation (SINCs).

All Council owned SINCs have been surveyed. Sites are now surveyed where there is a threat from development, or an opportunity to take forward positive action for the biodiversity of the site.

Where a large area of vacant and derelict land is being redeveloped areas are being maintained as wildlife habitats. Part of Gartcosh Industrial site is being managed for its watervole and great crested newt populations and is now an LNR.

Greenspace Development are consulted through Planning applications, council land disposals, demolitions and in relation to development briefs for council properties potentially being sold. Through this process preliminary ecological assessments are requested for sites with any potential wildlife interest, this will then identify any rare or protected habitats, or species and further survey requirements and mitigation recommendations.

There are now 9 Local Nature Reserves (LNRs) in North Lanarkshire, 6 of which are former industrial sites:

Braedale Hill Local Nature Reserve in Newmains to the north east of Wishaw.

Brownsburn Community Park LNR in South Airdrie.

Dumbreck Marsh Local Nature Reserve near Kilsyth and Queenzieburn.

Gartcosh Local Nature Reserve near the village of Gartcosh and nearby Glenboig.

Greenhead Moss Community Nature Park to the east of Wishaw town centre.

Kingshill Local Nature Reserve on the outskirts of Allanton which is near Shotts.

These all have management plans taken forward through Community Greenspace.

The Scottish Government working with the Land Commission set up a Vacant and Derelict Land Taskforce who have made a number of recommendations and written several publications with a particular focus on greening Vacant and Derelict Land and supporting community use of this. <https://www.landcommission.gov.scot/about-us>

The Vacant and Derelict Land Fund has been used to take forward greening projects at Ravenscraig Park, Viewpark, Kirklees Road and Hillrigg allotments.

Proposed Objectives, Targets and Actions

1. Identify derelict sites of particular significance for biodiversity and outline any management needs.
2. Improve information about the biodiversity value of derelict sites for planners and developers.
3. Raise public awareness of the biodiversity value of derelict sites.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Ensure that at any site meeting the habitat criteria is notified as a SINC and is protected through the Planning System.	1	NLC	Identify all potential sites and develop a programme of surveys by 2024.
Habitat management and protection			
2.1 Ensure development proposals do not reduce the nature conservation value of existing sites. Formulate compensatory measures where such damage is unavoidable.	1, 2	NLC	Record this process and produce a report annually for discussion within the council and with biodiversity partners. Encourage improvements with a high biodiversity value such as Green roofs where development is unavoidable.
2.2 Produce management prescriptions for SINC sites.	1	NLC, Buglife	Develop management plans for Council Owned Vacant and Derelict land SINC's in partnership with Buglife by the end of 2025.
2.3 Take forward community greenspace improvement projects using funding streams such as the Vacant & Derelict Land Investment Programme (VDLIP).	1	NLC, Buglife	1 site annually.
Advisory			
3.1 Include information on vacant and derelict land in guidance for planners and developers.	2	NLC	End of 2027.
3.2 Inform landowners/managers of the ecological significance of their sites and advise accordingly, including information on suitable grant aid.	1, 2, 3	Buglife, GATrust	One landowner approached annually from 2024.
Survey research and monitoring			
4.1 Continue to survey and monitor sites, especially where BAP species are present.	1, 2	NLC	Annual survey of known and new sites from 2025.
4.2 Re-assess the vacant and derelict land in North Lanarkshire, with a view to identifying which can be taken off the register due to them having a 'soft' end use (ie nature conservation value).	1, 2, 3	NLC, Buglife	Report produced from survey work with recommendations by 2026.
Communication and awareness raising			
5.1 Encourage volunteer conservation work, and surveys on brownfield sites.	3	NLC, Buglife	Work with partners to provide opportunities for volunteers in annual survey.
5.2 Increase public awareness of the importance of, and threats to, biodiverse brownfield sites and the need for conservation action.	3	NLC, Buglife, GATrust	Through local press releases related to high profile species. Three press releases, and public survey 2025 – 27.

Plan written by Craig Macadam, Susanne Burgess, Buglife and Laura McCrorie, Conservation and Biodiversity Manager (2022)

Golf Course Action Plan

Golf Course Action Plan

Scottish Biodiversity List Habitat:

No

UK Biodiversity List of Priority Habitats:

No

Summary

Golf courses for the purposes of this action plan include the whole area of the land used for playing this sport. There are 16 golf courses in North Lanarkshire; every golf course consists of highly managed areas (the greens and tees), less intensively managed areas (the fairways) and non-playing areas (natural habitat or rough). The extent of each area owes much to the architect who designed the course and subsequent management, but the

non-playing areas generally represent between 25% and 40% of the total area of the course. The location of the course is the significant factor in the opportunities presented by these sites as habitat. The age of the course is also significant as many of the younger courses were developed as a result of growing popularity of the sport and exhaustion of natural habitats. Many were built on heaths, grasslands, and parkland, but this should provide an opportunity to maximise the contribution to habitat enhancement of golf courses.



Habitat Profile

Golf courses can provide an excellent variety of habitats for wildlife. A wildlife friendly course may harbour around 60 species that are recognised as important in local biodiversity plans. Some courses have extensive areas of “rough” ground that are managed for wildlife and include heathland, marsh, woodland, species-rich grassland, ponds, rivers and burns.

Golf course management is much more complicated than just cutting grass and affects all habitats on the site. Maintenance on a landscape basis, particularly on Scottish golf courses encompasses some, if not all, of the following:

Woodland Management

Trees provide definition for fairway edges or low maintenance areas in and around golf courses. In addition, they provide valuable wildlife habitats and corridors. In wet areas, willow species and Alder are often found, whereas in well-drained soils, Scots Pine, Silver Birch, Oak, Ash and Lime trees are often present. A mix of ages and species creates a greater variation in the genetic stock, lessening the risk of the spread of disease and the loss of trees through wind damage. A mix of trees and ages provides a range of canopy heights and provision of habitat areas. Where it's safe to do so, dead timber can be left standing, with fallen timber and branches stacked to create microhabitats, and smaller branches and leaves swept into brush piles.



Grassland Management

Areas of rough grassland can have high biodiversity value and provide invaluable habitat corridors that help to link other semi-natural/natural habitats together both within the golf course and beyond. Grassland also offers excellent water retention opportunities as well as preventing soil erosion. Management of invasive species, such as bracken, can be an important part of management. Once bracken is under control, areas of rough grassland may be managed to not only provide wildlife habitats, but also buffer strips of “rough” for water features, ditches and other sensitive areas. Areas of rough grassland only require annual maintenance, such as one “cut and rake” in September. This lowers maintenance costs, especially if they can also be kept free of chemical applications/drift spray and the depositing of grass cuttings, and will encourage wildflowers. If these species already exist on site it is generally a sign of good management practice for nature. Grasslands can be made more visually interesting and diverse with the addition of native wildflower seed mixes or native wildflower plugs. Careful planting of appropriate species adds visual stimulus and can be valuable bird, mammal and invertebrate habitats in themselves if they adjoin rough grassland.



Kingfisher © Will Peat

Ponds and Wetlands

Ponds and wetlands can be very aesthetically pleasing areas on golf courses in addition to being golfing hazards. However, the long-term management costs of such features are sometimes forgotten at great cost to the wildlife and the golfer. One common mistake is to introduce Common Reedmace into ponds, where it can choke the pond and greatly reduce the wildlife value within a few years and is costly to remove. Management of existing ponds and wetlands, together with the creation of new ponds and wetlands, encourages a wide diversity of wildlife, creates an ecologically sound system, and provides course drainage and primary water treatment. Wetlands are important wildlife habitats. However, they need to be protected from chemical applications and drift spray so that aquatic life and wildlife remain unharmed. The Water Environment (Controlled Activities Regulations) (Scotland) Regulations 2013, the Water Environment (Diffuse Pollution) (Scotland) Regulations 2008, along with SEPA General Binding Rules are set to control the application of pesticides, fertilisers and other turf management products and activities. Under Local Environment Risk Assessments for Pesticides (LERAP), 6m buffer zones have been set for some pesticides. However, this can be reduced when using LERAP-tested and approved jets. The homogenous cover of a plant type is usually an indicator of chemical application or spray drift. In nutrient-rich waters for example, Common Duckweed and Canadian Waterweed are highly invasive species. Where over-nutrication (eutrophication) occurs, algal blooms can be present.

Wetland features are found on many golf courses in Britain and can be natural or man-made. They include lakes, ponds, rivers, streams, ditches and flushes, and can be found anywhere from the coast to the uplands. They are important both for their ecological value and for the playing challenge they present to the golfer. However, they are sensitive environments, which require careful management if their golfing and ecological character is to be maintained over time.

Open water bodies, varying in size from large lakes to small ponds, are often significant features in the landscape, and provide breeding and over-wintering sites for many easily recognised bird species, such as Mallard, Coot, Moorhen and Grey heron. They are also important for a range of other species, such as Tufted duck, Great crested grebe, Water rail and Kingfisher.

Areas of running water found on golf courses may include rivers, streams and ditches, and are often fringed by areas of wet grassland. Birds will breed in the vegetation along the edges of these features, which support rich insect assemblages fed on by birds. Characteristic birds found in such areas include Reed Bunting.



Implementation of any management programme is best done on a rotational basis as part of a long term plan, so that only part of the water body is treated at a time. This applies both to de-silting operations (the frequency of this will depend on rates of siltation), and to vegetation management (again, this will depend on rates of colonisation and vegetation type). Where silt loads are a problem, the best management is to install silt traps in the inlet.

Timing is important. Management is best done in autumn and early winter (September to late November), avoiding the bird breeding season (April to August), and before normal high winter flow rates. Depending on scale, some excavated material should be left on the bank of the lake or pond for

a few days, so that invertebrates can get back into the water, but should be removed after this so that leachate from decomposing plant material does not enter the water, where it would reduce oxygen levels and damage the ecosystem. For the same reason, grass clippings should not be dumped or composted near water bodies or watercourses.

Heathland

Heaths are characterised by nutrient poor, acid soils principally consisting of plants of the Heath family. Heather or Ling is usually one of the most prominent species, although Blaeberry is often found on upland heaths. On lowland heaths, Heather, Bell Heather and Cross-Leaved Heath combine with gorse and grasses to provide a varied habitat, which like the upland heath is sensitive to a number of factors. This habitat may be home to game birds including Grey Partridge, as well as numerous other species such as moths, grasshoppers, crickets, dragonflies, and many other invertebrates, mammals, and reptiles such as the Common Lizard. Changes in golf course management can rapidly benefit heathland in terms of quality, health and species diversity, with benefits arising beyond its high biodiversity value. The slow growth of heathland species enables general maintenance costs to be kept low in comparison to woodland and grasslands. Many different management options can be used in order to regenerate heather. The options for golf courses are dependent on a number of localised factors including climate, land use, viable seed bank and budgets, to name but a few. Some of the options available include restricted burning, seeding, turfing and scarification.

Current Status

There are currently 16 golf courses and 1 footgolf course in North Lanarkshire. The size of each course ranges from 30ha to 115ha. Courses in North Lanarkshire cover approximately just under 100 hectares, with at least half falling into the non-managed areas this presents a significant potential area for conservation. Eleven of these golf courses have a SINC designation that partially covers the course and 4 lie adjacent to at least one SINC.

Legal Status

The golf courses in North Lanarkshire have varying degrees of protection through designation as a SINC (Site of Importance for Nature Conservation). Some courses have trees that are protected through Tree Protection Order.

Current Factors Affecting This Habitat

- Poor spraying practices and lack of buffer zones causes loss of aquatic animals and plant life.
- Poor management of rough grassland can result in loss of native grasses and wildflower populations, leading to dominance by invasive species.
- Poor selection and mixing of trees on golf courses can mean a high loss of existing and newly planted trees, leading to loss of habitats and wildlife corridors.
- Loss of habitats such as heath due to inappropriate management such as use of fertiliser, pesticides, over-watering, excessive traffic on foot and by golf trolley, tree invasion, burning and lack of control of invasive species.
- Habitat fragmentation or destruction through creation of new fairways in sensitive areas.
- Poor tree management leading to damage by trimmers, stakes, etc.
- Damage to trees by golfers due to poor choice of location for tree planting.
- Planting of trees in areas with an existing importance for wildlife, which then leads to loss of the main wildlife value as the habitat changes to one dominated by woodland. Too many conifers can produce too much shade and reduce wildlife value of ground vegetation.
- Nutrient and pesticide run-off into ponds can reduce their wildlife value.
- Canalisation or culverting of burns will make them less wildlife friendly, as will cutting the burn margins short right to the water's edge.

- Sandpits provide potential nest sites for Sand Martins, so sand excavation from open faces during the summer needs to be avoided to prevent nest loss.
- Neglect: in some cases habitats that are not under active conservation management such as wetlands may pass through succession, scrub over, and turn to woodland, so drying out.

Current Action

- Free site visits to golf facilities followed by a detailed biodiversity action plan recommendations by the Scottish Golf and Environment Group (SGEG).
- Advice from North Lanarkshire Council Community Greenspace in managing golf courses for biodiversity species and habitats, and advice on funding applications to take forward actions for biodiversity.



Proposed Objectives, Targets and Actions

1. Promote appropriate environmental management for habitats on golf courses.
2. Promote awareness of the habitat, its public value and conservation issues.

Action	Meets objective number:	Action by	Target
Policy and legislation			
1.1 Survey potential golf course SINC sites and designate where appropriate.	1, 2	NLC	Potential golf course SINC sites identified and surveyed by 2027.
Site safe guard and management			
2.1 Promote Golf Environment Organisation certified programme.	1	NLC	2 new sites by 2027.
2.2 Develop biodiversity projects on council owned golf courses to enhance the habitat on site.	1, 2	NLC	2 projects completed by 2027.
Communication and awareness raising			
3.1 Ensure greenkeepers are aware of the benefit of managing for biodiversity.	1	NLC	Meet greenkeepers to discuss at 5 sites by 2027.
3.2 Promote biodiversity training for greenkeepers.	1	NLC	Invite greenkeepers on species ID and habitat management training. Record attendance on these.
3.3 Encourage clubs to raise the awareness of the value of biodiversity on golf courses to its members, visitors, staff and residents.	1, 2	NLC	Assist in the development of interpretation, potentially utilising score cards at 5 sites by 2027.

Key Contact

Scottish Golf Environment Group (SGEG)
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 St Andrews KY16 8NX
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WOODLAND ACTION PLAN



Woodland Landscape Introduction

A landscape perspective

Scotland's woodland resource is highly fragmented and habitat connectivity and a landscape perspective is needed to ensure habitat networks are created and maintained. Scotland's Biodiversity Strategy to 2045: tackling the nature emergency (published December 2022) states the following as a key outcome of the strategy:

Forest and woodland management will have led to sustainable natural regeneration; a greater diversity of woodland species; increased woodland cover with a healthy understorey, enhanced woodland connectivity; and improved integration of trees into other land uses.

Why are woodlands important?

Woodlands support a large number of ecosystem services including educational, health and wellness opportunities, carbon regulation and have a high cultural heritage and amenity value.

Woodland cover is comprised of multiple components such as mature trees, young saplings and standing and decaying deadwood. A vast variety of species are dependent on these woodland landscapes to survive.

Woodlands not only play an important role providing habitat for a wide variety of species, but also sequester 2% of the UK's annual emissions of greenhouse gases per year. Restoring and enhancing our woodlands will contribute to the Climate Change (Scotland) Act 2009 goals of reducing net greenhouse gas emissions by 80% from the baseline by 2050, as well as helping us meet the goals set out in Scotland's Biodiversity Strategy. Restoration and expansion of woodland is needed for healthy ecosystems.

In 2019, the council declared a Climate Emergency and set a target of net-zero for North Lanarkshire by 2030. net zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away.



Woodlands under threat

Much of North Lanarkshire's woodland area is coniferous plantation, which has limited biodiversity benefits in comparison to native woodland. However, recent and future planting is focused on encouraging native species and connecting existing woodlands to enhance the biodiversity value of existing woodland areas. The Native Woodland Survey of Scotland report identified over-grazing as the major cause of the loss of ancient woodlands and the main impact on native woodland. Controlling over-grazing by domestic stock or deer is required to ensure that natural regeneration is part of the recovery of wooded landscapes.

Woodlands are subject to disease and subsequent fatality, as highlighted by the recent outbreak of Ash Dieback. Diseases such as this have the potential to be fatal, or cause serious reductions in tree function through symptoms such as crown density reduction and leaf loss. Furthermore, disease can make trees more susceptible to further infection by pests and pathogens, prolonging the vulnerability of woodland that has a continued exposure to disease.

The biodiversity value of woodland landscapes is limited by connectivity. Many of the species that inhabit woodlands require large, connected and structurally diverse areas for foraging and breeding. Larger, and more varied landscapes increase the ecosystem resilience of woodlands as well as reducing pressure on competition between and within species populations, allowing population sizes to increase.

Invasive species threaten woodland biodiversity with a minimum of 14.6ha of rhododendron recorded in the Native Woodland Survey of Scotland for North Lanarkshire. Invasive non-native species will often out compete typical native woodland ground flora, changing the composition of woodlands and reducing their suitability for other native species.

Woodlands in North Lanarkshire

The average size of a woodland in North Lanarkshire is 7ha with the largest woodland at Carron Valley being over 1000ha. Woodland of over 20m wide is required in order to provide core woodland free from edge effects.

The Scottish Forestry Strategy 2019-2029 has three main objectives, which our Woodland habitat Plan emulates:

1. Increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth.
2. Improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high quality environment.
3. Increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances.

The objectives are underpinned by 6 priorities as follows:

Priority 1: Ensuring forests and woodlands are sustainably managed.

Priority 2: Expanding the area of forests and woodlands, recognising wider land-use objectives.

Priority 3: Improving efficiency and productivity, and developing markets.

Priority 4: Increasing the adaptability and resilience of forests and woodlands.

Priority 5: Enhancing the environmental benefits provided by forests and woodlands.

Priority 6: Engaging more people, communities and businesses in the creation, management and use of forests and woodlands.

Central Scotland Green Network (CSGN) - 2021 Habitat Connectivity Map

The Habitat Connectivity Map is a new habitat mapping tool which shows existing habitat patches across Central Scotland and predicts opportunity areas where these can be connected. This tool will be a valuable resource when identifying key areas of habitat for protection and habitat creation.

Woodland Action Plan

Woodland Action Plan	
Scottish Biodiversity List Habitat::	Yes
UK Biodiversity List of Priority Habitats:	Yes

Summary

Prior to the conifer plantations of the 20th century North Lanarkshire had only 4.2% woodland cover. This reflected the agricultural and industrial land uses that dominated the area. During the 1980's there was a huge amount of coniferous planting, significantly increasing the woodland cover. However, the importance of native planting and knowledge of its benefits over the last decade has been recognised through a wide range of plans and forestry schemes, and subsequent planting by LBAP partner such as Green Action Trust has been predominately native.

The focus of this plan is to provide continuity for the future following the positive changes which have resulted through Scottish Forestry run grant schemes (Woodland Grant Scheme, Scottish Forestry Grant Schemes (SFGS), Woods In and Around Towns (WIAT) and Scottish Rural Development Programme (SRDP).

The recent Native Woodland Survey of Scotland shows that North Lanarkshire has 2,916 ha of native woodland (6.2% of the LA land area), with an additional 239 Ha as near native. Ancient Woodland only covers 461 ha (1.1%) which is below the national average of 4.2%. Much of the ancient woodland is concentrated along the North and South Calder, linking to the woodlands of the Clyde Valley and the burns around Cumbernauld and the Kilsyth hills. Though discontinuous, these woodlands have the potential to be part of a larger woodland network in North Lanarkshire and subsequently across Central Scotland. Native woodland comprises 29.2% of the woodland cover of North Lanarkshire, suggesting that there is a total woodland cover of 20% of the land area, which is above average.



Habitat Profile

Woodland distribution within North Lanarkshire reveals a large number of small, linear sites. These semi-natural (non-plantation) woods are found in river gorges and on steep slopes where there has been little human intervention, particularly in the north. These sites may represent the only relics of the more extensive, past woodland cover. The semi-natural woods are mixed but mainly broadleaved woods of Oak, Birch and Rowan with Ash, Elm and Alder.

Introduced broadleaves, including Beech and Sycamore are frequently present especially in the policy plantations associated with the public parks of Colzium, Cumbernauld House, Palacerigg, Coltness, Dalzell, and Cambusnethan. There has been, however, opportunities through the grant support system to gradually improve woodland habitats. Since 2008, NLC has taken advantage of grant schemes such as SFGS and WIAT and have been able to undertake management and enhancement works at 20 sites (table 1). Since 2015, the total area benefitting from WIAT projects totalled 83 hectares.

Table 1: WIAT schemes implemented since 2008

1	Broadwood
2	Cairnhill woods
3	Calderbank
4	Cambusnethan and Carbarns Woods
5	Chapelhall
6	Coltness and Branchalwood
7	Colzium Lennox Estate
8	Cumbernauld Community Park
9	Cumbernauld Woods, West
10	Dalzell Estate
11	Drumpellier Woods
12	Glencryan Woods
13	Moodiesburn Glen
14	Newarthill
15	Petersburn Woods
16	Riccard Johnston
17	Shields Glen
18	Strathclyde park
19	Thornwood
20	Viewpark Glen



Only a small percentage of woodlands are protected by formal nature conservation status, Sites of Special Scientific Interest (SSSI). The conditions of these woodlands are as follows:

North Bellstane Plantation (Upland Birch woodland and Raised Bog) – Remains in unfavourable condition (last monitored in 2009). The current area of birch woodland is estimated to be approximately 21 hectares (ha). There is a conflict on site between the two designated features as expansion of one compromises the quality of the other.

Woodend Loch (Wet Woodland) – Designated as a base-rich Loch but has a component of wet woodland within its boundary. There has been no loss of habitat on this site, though the loch itself has been classed as unfavourable declining in the 2010 monitoring.

Garrion Gill (Mixed Broadleaf gorge woodland) – Favourable Condition, 2009 monitoring. Current area of semi-natural woodland 39.75 hectares. Special Area of Conservation (SAC) notification in 2000 as part of the Clyde Valley Woodlands SAC along with 10 other woodlands in South Lanarkshire.

Legal Status

National forestry policy includes a presumption against clearance of any woodland for conversion to other land uses and in particular seeks to maintain the special interest of ancient, semi-natural woodland. The felling of trees is regulated through the issuing of Felling Permissions (formerly Felling Licences). This function is carried out by Scottish Forestry. Felling Permission is required when felling a tree unless an exemption is in place.

Some woods and trees may receive additional protection through policies and strategies within development plans or by being subject to Tree Preservation Orders. Designation as Sites of Special Scientific Interest (SSSI) and SAC ensures compulsory consultation with the statutory nature conservation agencies over management operations and development proposals.

Current Status

The Council owns most of the non-conifer woodland in North Lanarkshire. Between 2007 and 2013, The Scottish Rural Development Programme funded 46.15 ha of woodland creation in North Lanarkshire, with 12.94 ha being native woodland, the remaining is mixed woodland. The area of woodlands on ancient woodland sites (before 1750) or long established (before 1860) woodland stands at 551 ha (5.5% of the woodland cover), 31% of this is of plantation origin.

The expansion of woodland has occurred mainly on unwooded sites, derelict farmland and vacant and derelict land, meaning that the areas of ancient woodland have not been expanded.

In 2006, North Lanarkshire Council carried out an Audit of Council owned woodlands, including an ecological audit. This resulted in the production of 12 woodland management plans and also the development of the Councils Woodland Strategy which has resulted in successful WIAT grants and biodiversity gains. Since 2008, the Council has completed 20 woodland and access improvement projects throughout the local authority under the WIAT initiative. Most recent projects in the last 5 years have included woodland sites at Thornwood, Newarthill, Chapelhall, Calderbank and Broadwood. There is a long-term forest plan for Palacerigg Country Park, which has been developed to coordinate with SWTs forest plan for neighbouring land in Cumbernauld. Phase 1 of the long term forest plan has been completed. Going forwards the Council are carrying out a number of woodland creation projects in response to the Climate Emergency where 40,000 trees will be planted across the local authority.

Table 2: Tree Planting carried out as part of WIAT and Woodland Creation schemes

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Number of Trees Planted	600	1,550	9,350	12,000	12,950	13,000

In recent years, there has been a rise in the quantity and distribution of pests and diseases which affect woodlands. The main concerns in Scotland are: Ash die-back; Sudden Oak death; Red band needle blight; Phytophthora (a range of fungus like diseases which target specific species, such as Larch and Cypress); and Asian Long Horn Beetle. Ash die-back is expected to have a significant impact on woodlands in the future, with an anticipated loss of up to 70% of ash in Scotland in the next two decades. North Lanarkshire Council are developing an Ash Dieback Action Plan to help map diseased trees on Council assets and programme the removal of high risk diseased trees.

These pests and diseases can seriously damage, or kill, host trees, and the spread of some (for example Ash Dieback) has been very rapid. More information on tree pests and diseases, along with the UK's response to each can be found on the Scottish Forestry website: <https://forestry.gov.scot/sustainable-forestry/tree-health/tree-pests-and-diseases>

Future Status

The key to the future of all our woodlands is their landscape scale connectivity to the habitats of North Lanarkshire, and neighbouring Local Authorities. Integrated Habitat Networks (IHN) treat woodlands as part of an interlocking landscape that benefits the movement of wildlife as well as providing a recreational network for people and the communities of North Lanarkshire. A Central Scotland Green Network wide IHN model has been developed to spatially show existing connections in woodlands, grasslands and wetlands and highlight critical connections that are vital to protect and expand in order to secure habitat connectivity into the future, particularly in light of climate change. The connectivity model is available on NatureScots website, and has been used by Glasgow Clyde Valley Green Network to create a Habitat Blueprint that identifies key opportunity areas for habitat creation across the greater Glasgow area:

[Natural Spaces - NatureScot](#)

<https://www.gcvgreennetwork.gov.uk/what-we-do/our-blueprint>



Current Factors Affecting This Habitat

Whilst there are some locally specific factors affecting woodlands in North Lanarkshire (for example, involving people in their local environment, litter and vandalism), the majority of issues are larger scale, either regional or national (control of invasive species, pollution, climate change, habitat fragmentation and development).

Current Action

- On-going consultation on Forest Design Plans and all schemes which are entered on the Scottish Forestry Register.
- Extensive use of woodlands for environmental educational through Forest Schools, environmental education, and Branching Out.
- Investigating improved access to GIS system for ancient woodland maps etc.
- The Council's Greenspace Officers comment, as necessary, on all applications that affect areas of ancient and semi-natural woodland and SINCs.
- Treatment/Control of Invasive Species as part of current and on-going grant schemes.
- Diamond wood project.
- NLC - Green Action Trust partnership to plant woodland on suitable areas of bare ground, particularly vacant and derelict land through available funding channels.
- Woodland Management of sites through WIATS and other grants, for example woodlands at Broadwood Loch and Chapelhall.
- Forestry & Land Scotland woodland management at Croy, Carron Valley, Nether braco, Arns and Longriggend.
- The Clyde Climate Forest will see 18 million trees planted in both urban and rural parts of Glasgow City Region over the next decade.

Targets and Rationale of the Woodland Plan

National targets relate to the creation, expansion and restoration of specific native woodland types. These targets aim to ensure that the right types of woodlands are planted in the right areas when working towards the Scottish Forestry Strategy targets.

The Scottish Forestry Strategy 2019-2029 has three main objectives, which this plan emulates:

1. Increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth.
2. Improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high quality environment.
3. Increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances.

The objectives are underpinned by 6 priorities as follows, with those relevant to this LBAP highlighted

Priority 1: Ensuring forests and woodlands are sustainably managed.

Priority 2: Expanding the area of forests and woodlands, recognising wider land-use objectives.

Priority 3: Improving efficiency and productivity, and developing markets.

Priority 4: Increasing the adaptability and resilience of forests and woodlands.

Priority 5: Enhancing the environmental benefits provided by forests and woodlands.

Priority 6: Engaging more people, communities and businesses in the creation, management and use of forests and woodlands.

Proposed Objectives, Targets and Actions

1. To maintain and expand the current extent of woodland within North Lanarkshire.
2. To improve the quality of woodland within North Lanarkshire.
3. To improve the quality of access to woodlands.
4. To improve the biodiversity of woodlands.

Action	Meets objective number:	Action by	Target
Habitat management and protection			
1.1 Native woodland restoration.	1, 2	NLC, GATrust, SF, SWT	Encourage restoration through management and facilitate natural regeneration through SF and SG grant schemes and Long Term Forest Plans.
1.2 Native woodland expansion.	1, 2	NLC, GATrust, SF, SWT	Encourage expansion through natural regeneration and planting through SF and SG grant schemes and Long Term Forest Plans. Create 4 new woodlands sites by 2023.
1.3 Develop and implement strategies for targeted control or containment of non-native species.	1, 2	NatureScot, SF, GATrust, NLC	3 strategies developed by 2027.
1.4 Woodland Management.	All	NLC, GATrust, SF, SWT	Submit 2 new WIAT applications when the grant scheme reopens.
Survey research and monitoring			
2.1 Use GIS mapping and other spatial datasets to proactively identify woodland expansion and creation areas.	1, 2 and 4	NLC, GATrust	Develop Partnership implementation plans to take forward woodland creation on identified areas where appropriate.
2.2 Improve quality of practical woodland management skills through Grounds Maintenance Apprenticeship Schemes and ILM schemes.	1, 2	NLC	Encourage working between Land Maintenance, Arbor and NLC Ranger Service.
2.3 Promote incorporation of woodlands, woodland planting and management within development, in accordance with good practice guides and grants.	All	NLC, GATrust, NatureScot	Produce guidance for all relevant council departments (planning, developers and architects, roads, flooding etc) on greening within developments by end of 2025.
Communications and awareness raising			
3.1 Deliver environmental education schemes within woodlands.	3	NLC	Continue the Forest Schools and Branching Out programmes until at least 2026.
3.2 Monitor the spread of tree pests and diseases and contribute to the national monitoring programmes.	2, 4	All	Train staff in identification of the main pests and diseases and how to submit records (and to whom) by end 2026.

North Lanarkshire Biodiversity Action Plan: Woodlands. 2022, Pardeep Chand, NLC. Emilie Wadsworth, Green Action Trust.

Pine Marten Action Plan

Martes martes

Pine Marten Action Plan	
Scottish Biodiversity List:	Yes
UK List of Priority Species:	Yes

Summary

The Pine marten was once widespread but became extinct in most areas of Scotland in the 19th century. Persecution and loss of habitat were the main reasons for its decline. The species has recently returned from its last refuges in the north-west of Scotland to more southern parts of Scotland, including North Lanarkshire. Through improving habitat connectivity, the population should further recover in this area and enable the species to expand further into its previous range throughout Scotland.

Species Profile

The Pine marten is a native species of mustelid in Scotland, which was widespread until the 18th century. It is not the first mammalian predator with a population that is naturally recovering and returning to areas where it was once common. Improved legal protection and afforestation are the reasons why Pine martens are now spreading further south. It is still considered to be Britain's second rarest carnivore.



The Pine marten is the size of a small domestic cat. It has dark brown fur and an obvious cream coloured throat patch, rounded ears and a bushy tail.

The Pine marten's diet consists mostly of small mammals, with Field vole one of its main prey species. As an opportunistic species the Pine marten can also take carrion, fruit, passerine birds and eggs. As predators they are an important part of a healthy ecosystem.

Recent research in Ireland has shown that the presence of Pine marten in an area has a negative effect on populations of the invasive Grey squirrel. Also, in areas of Ireland where Pine marten populations have naturally recovered, the native Red squirrel population has also recovered. This indicates that the presence of Pine marten may help the recovery of the native Red squirrel in Scotland, which has been in significant decline. Research into interactions between Pine marten and invasive Grey squirrel in Scotland have shown that non-native Grey squirrel occupancy is strongly negatively affected by exposure to Pine martens. By contrast, exposure to Pine marten predation has an indirect positive effect on Red squirrel populations. Pine marten predation thus reverses the well-documented outcome of resource and apparent competition between Red and Grey squirrels (Emma Sheehy et al. 07 March 2018).

Pine martens are adapted to woodland and prefer habitats with complex three dimensional structures, a high prey abundance and structure suitable for use as dens. Pine martens can also be found in more open areas when scrub is present. Cavities in mature trees are often used as den sites, but the species also uses other structures, such as burrows in tree roots, stone piles, and where present Pine marten den boxes.

Pine martens aren't confined to woodland, but each animal requires from 86 to 166 hectares of woodland within its territory.

The Pine marten is predominately nocturnal, but in the summer months can be active during the day. It is solitary and excludes other pine martens of the same sex from its territory. Sub-adult individuals can be tolerated in a territory, and little is known about dispersal of young. Adult Pine marten are known to travel average distances of 7km within their home range per night.

Mating occurs from June to August. The young are born in April due to delayed implantation and a post-implantation gestation period of 30-35 days. Litters are usually small with three young on average. The young reach adult size after six months but are unlikely to breed successfully in the first two years of their lives.





Legal Status

The Pine marten is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is illegal to intentionally or recklessly capture or kill a wild pine marten. It is also illegal to destroy damage or obstruct access to a pine marten den site or disturb an animal occupying such a site (except within a dwelling house). The species is also listed in Annex V of the EC Habitats Directive and is classified as a Priority Species in the UK Biodiversity Action Plan. A license from Nature Scot is required to trap pine marten.

Current and Future Status

In Scotland

The Pine marten is a native species to Scotland. After becoming extinct due to anthropogenic factors in most parts of Scotland, Pine marten have spread from their remaining populations in the north-west Highlands. They are believed to be the first mammalian predator on a path to natural recovery to their former range and have spread northwards into Caithness and Sutherland, eastwards into Moray, Deeside and elsewhere in Aberdeenshire, through Perthshire, Tayside, the Trossachs, Stirlingshire, Skye,

Argyll onto the Kintyre and the Cowal Peninsulas and to a lesser degree parts of Western Angus and Fife and the Central Belt. Expansion of Pine marten from the Galloway Forest, following a reintroduction of the species in the early 1980, has been limited. Although it has been reported that this reintroduced population may have been the source for records in Ayrshire and South Lanarkshire. The Pine Marten has been present and increasing in range in East Lothian and the borders and appear to have spread north and westward and have reached North Lanarkshire. They are present on Mull due to translocation.

The Pine marten population in Scotland is the only remainder of the species' genetic stock which is unique to Great Britain. Pine marten populations in England and Wales have been lost and therefore all distinct haplotypes of Pine marten in that area have been lost also. The Scottish Pine marten population has therefore a unique place in the genetic diversity of pine martens in Europe as the last remaining UK haplotype. A reduction of the population would lead to a significant reduction of this particular haplotype within a European context.

In North Lanarkshire

Since first recorded in North Lanarkshire in 2014 the Pine marten has increased its range and has now been recorded throughout the Cumbernauld and Kilsyth area including Dullatur in the north and Luggiebank in the south with the species present in all suitable habitat within this area. Pine Marten have been caught on trail cameras further south around Airdrie and Coatbridge and to the west on Croy Hill and Barhill, east Dunbartonshire as well as on the outskirts of Glasgow and in Falkirk district to the east. Surprisingly the Pine marten's recovery into North Lanarkshire is by no means limited to the southern spread from the north. They have also been recorded in the southern part of the county and have been found in and around the Shotts, Allanton and Murdoustoun areas of North Lanarkshire. This apparent separate population is part of a westward spread from the East Lothian and Borders population which is growing in size and range. That there appears to be two separate populations in North Lanarkshire bodes well for the species as a whole within the county although work still needs to be undertaken to better establish their current range

and distribution. Further surveys and monitoring to expand the knowledge of the status of pine marten in North Lanarkshire would help to inform any action to protect the species.

It can be safely assumed that should these two separate populations merge the Pine marten could potentially be present within all suitable habitat in North Lanarkshire in just a few years' time.

Habitat connectivity remains an issue within the central belt of Scotland including North Lanarkshire and this should be a key objective to increase migration for Pine marten. This will of course be of benefit to a range of species.

The Pine marten is susceptible to Road Traffic Accidents (RTA) and several individuals have been recovered from roads in Kilsyth, Cumbernauld, Newmains and Gadloch, Auchinloch.

Through legal protection and improvement of habitat connectivity Pine marten populations within Scotland will be able to further expand into their former previous range within Scotland, including North Lanarkshire. The Pine Martens spread thus far has been remarkable and at a notable pace. This is testament to their adaptability and ability to thrive in habitat once thought to be non-productive.

Although their preferred habitat is mature woodland they have shown that they can adapt and are able to traverse and occupy territories with a mix of habitat types including scrub, moorland and various woodland types including conifer plantation and mature broadleaved woodland.

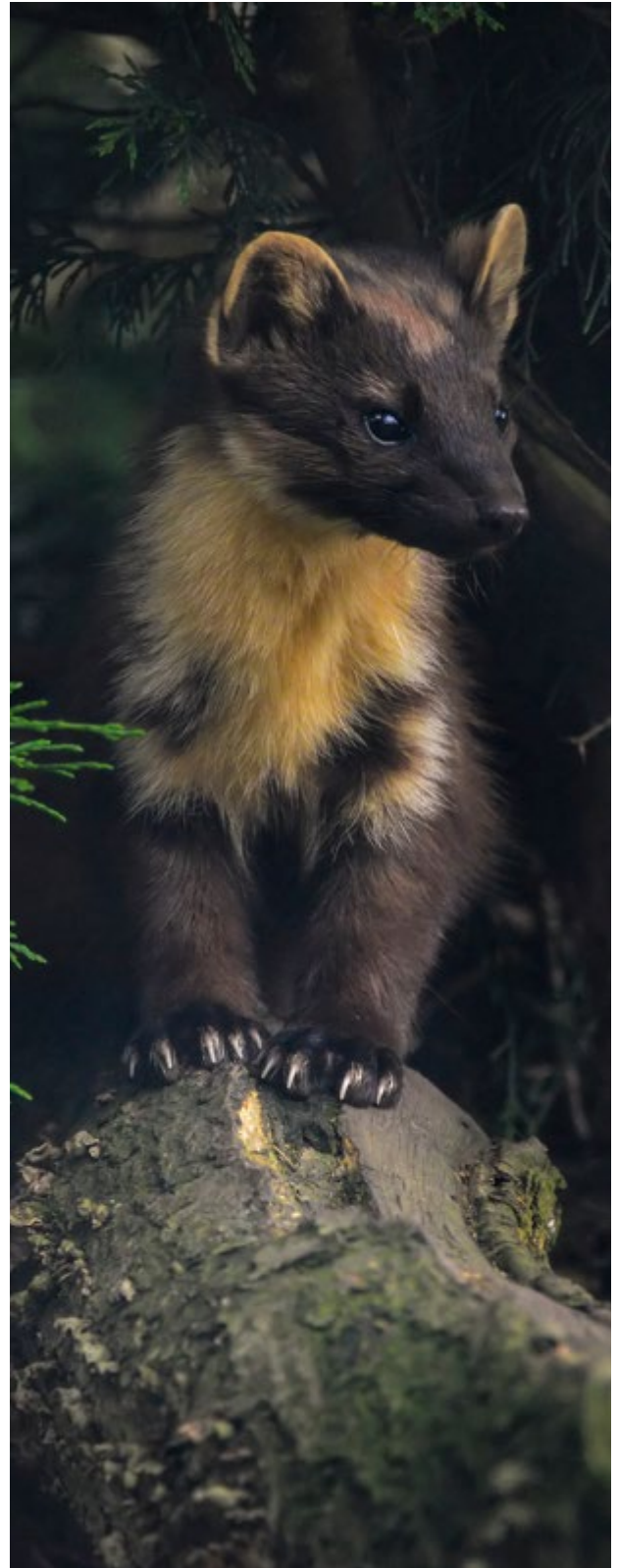
Current Factors Affecting the Species

- Habitat fragmentation resulting from development.
- Habitat fragmentation and poor connectivity effecting the spread of Pine marten to suitable habitat.
- Lack of suitable habitat in the industrialised central belt region. is stopping the species population range spreading to the south of Scotland.
- Threat of illegal persecution.
- Accidental trapping during pest control measures.
- RTA remains the main threat to spread and localised population density and increased mortality.
- Potential for secondary rodenticide poisoning. Though this may not be as high a risk to the Pine marten as its cousin the polecat, due to their predilection for farm buildings and dwellings, there is still the potential for Pine Marten to predate and or scavenge rodents which have been in contact with rodenticides.



Current Action

- Surveys of Scotland to determine population status.
- Scottish Wildlife Trust and the Countryside Ranger Service have surveyed suitable habitat in North Lanarkshire and will continue this action to establish presence of Pine marten across the county.
- Scottish Wildlife Trust have been running a Pine marten course with local schools.
- Camera trapping and Pine marten box construction by the Countryside Ranger Service.
- Raising public awareness of the Pine martens recovery in North Lanarkshire by the Countryside Ranger Service.
- All developments affecting Pine marten habitat are recommended to have a Pine marten survey undertaken prior to development.
- Training provided to NLC Planners by NLC Biodiversity and NatureScot on the likelihood of Pine marten being present and in which habitats and developments this species should be considered.
- Reporting sightings to The Mammal Society and our Local Records Centre.
- Liaise with landowners and farmers on the Pine martens recovery and potential presence within their areas.



Proposed Objectives, Targets and Actions

1. Conserve and enhance Pine marten habitat
2. Maintain and expand Pine marten population in North Lanarkshire

Action	Meets objective number:	Action by	Target
Policy and Legislation			
1.1 Updated Biodiversity Planning Guidance for NLC Planning Officers and developers.	1	NLC	Provided by 2026.
Habitat management and protection			
1.2 Improve habitat connectivity.	1	SWT, NLC	Identify key areas by 2024. Implement appropriate habitat management.
1.3 Improve den availability through old, standing trees and den boxes.	1, 2	SWT, NLC	Retention of old standing trees during any forestry works (where safe). 10 den boxes to be erected in NL in suitable areas in by 2025.
1.4 Advise owners and seek to secure appropriate management of Pine marten sites.	1	NLC, SWT, NatureScot	Engage with landowners where Pine marten are known to be present and provide guidance.
Survey research and monitoring			
2.1 Camera trapping/research.	2	SWT, VWT, NLC	Monitoring of Pine marten population using camera traps and DNA analysis of droppings.
2.2 Monitoring of Pine marten boxes.	2	NLC	One annual pine marten box survey.
Communications and awareness raising			
3.1 Education events.	1	SWT, NLC	One themed education event including information on Pine marten per year for school groups (SWT); one Pine marten awareness event for adults per year (NLC).

Abbreviations

SWT – Scottish Wildlife Trust

NLC – North Lanarkshire Council

SNH – Scottish Natural Heritage

VWT – Vincent Wildlife Trust

Authors

Colin Smith, Countryside Ranger, North Lanarkshire Council 2022.

References

The enemy of my enemy is my friend: native pine marten recovery reverses the decline of the red squirrel by suppressing grey squirrel populations.

Emma Sheehy, Chris Sutherland, Catherine O'Reilly, Xavier Lambin.

Published: 07 March 2018 <https://doi.org/10.1098/rspb.2017.2603>

Bluebell Action Plan

Hyacinthoides non-scripta

Bluebell Action Plan	
Scottish Biodiversity List:	No
UK List of Priority Species:	Yes

Summary

It is estimated that the UK has 25% to 49% of the world's Bluebell population. The plant is common throughout Britain, occurring widely, except in Orkney and Shetland. Bluebells are found scattered throughout western Europe, mainly in France, the Netherlands and Belgium and they have become naturalised in central Europe. This species of Bluebell (*Hyacinthoides non-scripta*) should not be confused with the non-native Spanish bluebell (*Hyacinthoides hispanica*). The latter is frequently planted in gardens. The two species can hybridise with each other.

The Bluebell is widespread within North Lanarkshire. Since the decline of heavy industry there have been few large scale losses of this species, though many populations have become fragmented and limited in size. Recent years have brought increased awareness of Bluebells and new initiatives have taken place to help expand existing woodlands in order to link up isolated populations, and establish new colonies in appropriate woodlands across the area.

Legal Status

Native Bluebells are protected under Schedule 84 of the Wildlife and Countryside Act (1981).



Species Profile

Bluebells typically occur in well drained, deciduous woodland, especially coppice, where they may dominate the ground flora. They can be common in other shady places such as hedgerow banks and under bracken, preferring dappled shade to closed canopy or open sunshine, though they can be found in more open habitats on occasion. Humidity and continuity of habitat are key requirements for this species. Their distribution is tied very closely to that of ancient and long established woodland, with Bluebells used as an indicator species of ancient woodland, and remnants of ancient woodland, such as hedgerows.

Current Status

In North Lanarkshire Bluebells form characteristic 'carpets' in the more mature, semi-natural woodlands. The plants appear to grow best on brown forest soil types overlying clay.

Surveys involving observations from the public in 1997 and 2004 revealed Bluebells to be most common in the Clyde Valley, around Motherwell, Wishaw and Overtown, also in relict woodlands in the Gartcosh / Coatbridge / Airdrie area (such as Gartsherrie Wood), in Cumbernauld Glen and in the Kelvin valley. The plant appears to be absent from the eastern part of the Central and Southern Divisions, where soils are wetter and more acidic.

In 2008, Central Scotland Forest Trust (CSFT) embarked in a programme of works called Alarm for Bluebells throughout central Scotland. The projects key goals were to:

1. Engage with and inform Forest residents on the issues.
2. Train people in spotting different types of Bluebell.
3. Gather information as to the existing Bluebell coverage within our area
4. Train people in planning Bluebells.
5. Source and physically plant lots of Bluebells.

The project was deemed a success and can be considered to have made a marked contribution in the task of ensuring native Bluebells survive in the Central Scotland area for future generations to enjoy.

In North Lanarkshire 7 planting events took place within 4 different sites. These sites are scheduled to be resurveyed over the next 2 years to determine whether the planting has been a success.

Sites were: Brownsburn Community Woodland, Greenfaulds orchard, Shotts Nature Park and Cumbernauld Community Park. Donation also made to the Craighalbert Centre.



Future status

There are many Bluebell woodlands in North Lanarkshire such as such as Coltness and Cambusnethan Woods, Strathclyde Country Park and Colzium Estate. Forestry grants and the drive from within the Council to bring these woodlands into active management means that the populations of Bluebells found there currently have a secure future. With the design and establishment of forest networks, Bluebells will have the potential to naturally colonise new areas of woodland. The hundreds of hectares of new woodland that have been created

locally are mainly on derelict farmland with no woodland flora, once these woodlands have become relatively established there is scope to introducing native woodland plants such as Bluebells. If these woodlands are connected with existing Bluebell woodlands, colonisation will take place naturally over time.

Current Factors Affecting This Species

- The major cause of the loss of this species is historic, as woodland cover gradually made way for agriculture. Grazing and trampling by livestock still affect this plant in unfenced woodlands.
- More significant, in some locations, has been the clearance of land containing small woods to make way for developments (e.g. Strathclyde Business Park) and new roads.
- Competition and hybridisation with its close relative the Spanish bluebell (*Hyacinthoides hispanica*).

Current Action

- Presumption against development of Sites of Importance for Nature Conservation (SINC's) in the various NLC local plans; most large areas of Bluebells are designated as SINC's.
- Mitigation measures through the planning process on sites with Bluebell (areas not designated as SINC's).
- Ongoing programme of woodland management in NLC owned woodlands (WIAT works).
- Site Stewardship programme within NLC Community Greenspace monitoring NLC owned SINC's; approximately 11 have substantial areas of Bluebell ground flora.
- SINC review and survey is ongoing on sites that we know to be threatened or where there is opportunity to take forward positive action. NatureScot have produced Habitat Network and Opportunities mapping highlighting key areas for connecting native habitats. This is linked to the Glasgow Clyde Valley Habitat Blueprint, which aims to create a shortlist of opportunity sites for linking high quality habitats, including native woodland.



Proposed Objectives, Targets and Actions

1. To maintain and enhance the population and distribution of native Bluebells in North Lanarkshire.
2. Extend associated habitats to improve the status and widen distribution.
3. Improve public and employee knowledge of Bluebells.

Action	Meets objective number:	Action by	Target
Species and habitat management and protection			
1.1 Monitor known bluebell populations, report and uproot Spanish bluebells with land owner's permission.	1	NLC, GATrust	Survey to be integrated in to existing woodland surveys. Positive and negative records to be collated.
1.2 Ensure action for bluebell management is considered in all management plans. Undertake management to minimise trampling where this is a problem (e.g. deterrence with brushwood, defining desire lines with branches).	1	NLC, GATrust, SWT	Undertaken in all new management plans.
1.3 Following volunteer survey, identify suitable Ancient and Semi-natural Woodland sites for planting with local schools.	1, 2	NLC, GATrust	Plant 4 new woodland sites with bluebells with help from local schools by 2026.
1.4 Training for council staff and volunteers on species differentiation, for example Grounds Maintenance.	1, 2		Training for staff and volunteers that work within woodlands by 2026.
Survey research and monitoring			
2.1 Survey all areas planted during the Alarm for Bluebells campaign.	1	GATrust, NLC	To determine if the project has been a success and future actions to take forward. Survey undertaken by volunteers in 2027.
2.2 Organise a volunteer survey of all Ancient Woodland sites in North Lanarkshire for both Spanish and Native bluebells.	1, 3	NLC, GATrust	Organise a volunteer training day and survey sheets with maps of Ancient and Semi-natural woodland in North Lanarkshire by 2027.
Communications and awareness raising			
3.1 Encourage the public to choose native bluebells from a supplier who grows from cultivated stock instead of Spanish bluebells.	1	GATrust, NLC	Contact gardening clubs within schools and garden centres-give them leaflets and information on Native Bluebells by 2027.

Authors

Emilie Wadsworth and Laura McCrorie 2022.





INVASIVE SPECIES ACTION PLAN



Invasive Species Action Plan

Summary

Non-native species are species, subspecies or lower taxon, introduced (i.e. by human action) outside their natural past or present distribution. Invasive non-native species (INNS) are 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. It is important to make the definition between non-native and invasive as there are many non-native species that are not invasive and do not pose a threat.

Invasive non-native species occupy and dominate ecological niches where they were not previously part of the flora or fauna, their success often causes local eradication of native species. These species become a concern when their growth reduces the biodiversity value of an area.

Current Status

Globally, INNS have contributed to 40% of the animal extinctions that have occurred in the last 400 years ([CBD, 2006](#)). Many countries including Scotland are now facing complex and costly problems associated with invasive species. Invasive non-native species may cost up to £2 billion pounds each year in Great Britain, and as much as £200 million for Scotland alone.

The main recognised INNS in Scotland, listed in this plan, are commonly found across North Lanarkshire. Some survey work has been undertaken, mainly along the river corridors of the North, South and Rotton Calder, the Kelvin and the Glazert Water. The Native Woodland Survey of Scotland (NWSS) recorded 32.8ha of invasive non-native plant species in North Lanarkshire's native woodlands or plantations on ancient woodlands.



Current Issues

- Threats to native plants and animals.
- Damage to property and buildings.
- Impacts on human health.
- Increased risk of flooding and soil erosion.
- Damage to forestry and crops.
- Extensive costs to treat established INNS.

Reinvasion after initial invasive species control can occur from neighbouring land. Opportunities to work with partners and neighbours to control invasive species will reduce the chances of reinfection by a species.

This is the kind of situation that the WANE Act tries to deal with through voluntary Special Control Agreements (SCAs) and (if they don't work) statutory Species Control Orders (SCOs). For example, it is an offence for plants to escape from a garden (or some other highly managed "non-wild" land) into a woodland or open ground habitat (which is now defined as "wild" land). NatureScot is the usual lead for this, with Forestry Commission Scotland taking the lead for woodland habitats and the two agencies work together. The grounds for action will probably be to prevent an invasive non-native species from becoming established in a location if the landowners have shown clear unwillingness to comply with the law. First contact will be with the local NatureScot office for advice.



Species and their Control

Rhododendron (*Rhododendron ponticum*)

Once Rhododendron has invaded an area, few native plants survive. In woodlands, only those trees which manage to grow above the level of the Rhododendron canopy will persist. When such trees die, they cannot be replaced because seedlings cannot become established under the lightless canopy. At this point, the Rhododendron completely dominates the area. Stands accumulate thick litter layers.

Rhododendron control can be planned by follow the guidance in the Managing and Controlling Invasive Rhododendron Practice Guide. [http://www.forestry.gov.uk/pdf/fcpg017.pdf/\\$FILE/fcpg017.pdf](http://www.forestry.gov.uk/pdf/fcpg017.pdf/$FILE/fcpg017.pdf).

Volunteers often get involved by cutting and burning bushes; to be effective this should be followed up with herbicide application to the stumps. Volunteers also pull seedlings; however this should only be done when all of the root can be removed.



Japanese knotweed (*Fallopia japonica*)

Japanese knotweed damages native riparian communities by reducing light availability, through the alteration of the soil environment and through the release of allelochemicals. Soil Potassium and Manganese is greater under Japanese knotweed than under native vegetation. Japanese knotweed decreases soil bulk density and increases organic matter content, water content and nutrient levels. It affects other trophic levels.

Prolific rhizome and shoot growth can damage foundations, walls, pavements, and drainage works, and causes flood hazards by increasing resistance to water flow and damaging flood prevention structures.

Control should follow the guidance in Scottish Environmental Protection Agency (SEPA) Technical Guidance Note: On-site management of Japanese knotweed and associated contaminated soils. Effective control will require herbicide including follow up after the initial control using stem injection or foliar spraying. Cutting the stems is not an effective control and the control of Japanese knotweed is not a suitable task for volunteers.

Japanese knotweed should not be stockpiled within 10 metres of a watercourse. Any movement of contaminated soil and Japanese Knotweed for treatment could involve the treatment of waste and will require a waste management licence. The relevant local SEPA office should be contacted prior to any such movement and treatment of Knotweed material or associated contaminated soil.

Himalayan balsam (*Impatiens glandulifera*)

This robust species often grows alongside riverbanks and produces showy pink blossoms which bees and other pollinating insects love. For some, bee-keepers included, this appears to be a good thing as native bumblebees and honey bee populations have drastically declined over the last 30 years, partly due to disease, but also as a result of losses of wildflower food sources.

However, pollinating insects and their food plants are locked into a delicate cycle of natural balance, each one depending on the other. Therefore, the loss of native wildflowers in traditionally managed meadows and along riverbanks, hastens the decline of pollinating insects, such as bees. A reduction in populations of pollinators means that wildflowers do not get pollinated and their populations in turn decline.



Introducing a non-native species such as Himalayan balsam can appear to solve one aspect of this problem by providing a food source for pollinators; however, Himalayan balsam is an invasive species and will rapidly spread across vast swathes of countryside, aided by rivers and streams. As this non-native species spreads, so it swamps out the natural variety of wildflowers which provide a diverse food source for pollinating insects.

Eradication of this species is not possible due to reinfection of sites through seed moving in waterways, on people's boots or on animals. Control can be carried out by volunteers hand pulling seedlings. However, larger patches are difficult to manage by hand-pulling as there are many small seedlings among other vegetation, and there can be a large amount of material to remove from site. Therefore, large patches can be sprayed off with Glyphosate and in the following years volunteers could hand pull or spray for up to 3 years.



Giant hogweed (*Heracleum mantegazzianum*)

The species may form dense stands reducing species diversity and has large white umbrella-like flower heads producing 50,000 or more seeds; these remain viable in the soil for up to 15 years and are easily spread along watercourses. It is often found on riverbanks, waste ground or where plant material has been dumped, and can tolerate permanent waterlogging. When the plants die back in the autumn they often leave river banks free of vegetation and liable to erosion. The stems and leaves are covered with small hairs coated with toxic sap containing furocoumarins. The slightest contact with this sap causes severe blistering and skin irritation, triggered by exposure to sunlight. Cut material remains active for several hours after cutting. The economic impact has not been defined but it clearly lowers the recreational value of the landscape due to human health risk.

The most important way of avoiding the problem is to rapidly treat infested areas to prevent further spread. Glyphosate is a very effective treatment if applied sufficiently early to prevent flowering and applications in or near water may be permitted subject to approval from the relevant environment agencies, as long as flowering is prevented.



Snowberry (*Symphoricarpos albus*)

Snowberry is a native of North America and was planted as game cover in the UK in the early 20th century. It is a 1-3m high shrub which spreads by means of suckers to form dense thickets. It has distinctive white berries.

Clearance of snowberry can be done by volunteers cutting the bushes and in the following years spraying the regrowth with glyphosate using certified staff or contractors.

Giant hogweed should be cut or foliar-sprayed, this will require follow up control for 3 or more years. Due to the severe skin reaction in people, control should be by trained staff or contractors.



Spanish Bluebells (*Hyacinthoides hispanica*)

The Spanish bluebell becomes established in woodlands replacing the native bluebell (*Hyacinthoides non-scripta*) as it is larger and more vigorous than our native Bluebell and also hybridises with it. There is concern that it will threaten the local genetic integrity of our native Bluebell.



Grey Squirrel (*Sciurus carolinensis*)

There are no plans to control or manage grey squirrels.



American Mink (*Neovision vison*)

There is substantial evidence of detrimental impacts by American Mink on native fauna including waterfowl and aquatic mammals, especially water voles. Mink may also account for a large proportion of salmonid mortality in some river systems.

Evidence suggests that habitat management may mitigate the effect of minks on water voles; in particular reed beds and isolated ponds may provide refuges.

There is no intention to extend the successful northern Scottish Mink Initiative control project to central Scotland. There will be no mink control, unless the Scottish Mink Initiative, or another similar partnership project, starts in the central belt of Scotland.

North American Signal Crayfish (*Pacifastacus leniusulus*)

Documented harmful impacts include eradication of indigenous population of white-clawed crayfish *Austropotamobius pallipes* through direct competition and transmission of lethal crayfish plague *Aphanomyces astaci*. They will also exclude *salmonids* from their preferred habitat and will undermine the stability of riverbanks through burrowing.

Spreads up and downstream and may cross land to colonise adjacent water bodies. Human transfer, although illegal, still continues.

Trapping is the main method of control.

Relevant National, UK, European policies, legislation, guidance

The Wildlife and Countryside Act 1981 (WCA) provides the primary controls on the release of non-native species into the wild in Great Britain. It is an offence under the act to 'plant' or 'otherwise cause to grow in the wild' a number of non-native plant species.

The Wildlife & Natural Environment (WANE) Bill came into effect in June 2011, with Forestry Commission Scotland, NatureScot, SEPA and Marine Scotland all being designated as 'Responsible Bodies' in co-ordinating control measures for problem INNS, with NatureScot in an overall co-ordinating role. The WANE act strengthens the Wildlife and Countryside Act stating that it is an offence to "allow to grow" rather than just cause to grow.



Aims and objectives of plan

The aim of this plan is to provide context, focus and direction for the management of invasive species in North Lanarkshire. Designated sites such as Sites of Special Scientific Interest (SSSIs), Local Nature Reserves (LNRs) and Sites of Importance for Nature Conservations (SINCs) and UK Biodiversity Action Plan (UKBAP) habitats should be the priority for control.

Prevention is the first level of protection against INNS and therefore should be considered in depth. Comprehensive, appropriate and effective prevention can result in significant financial savings to land managers which include government bodies, agricultural industries, biodiversity partners and broadly the larger community. This also results in the safeguarding of our wildlife and natural environments, as effective prevention avoids INNS becoming a major regional or national issue.

Current Actions

- Landscape scale project was undertaken by Community Greenspace and SEPA in order to naturalise the Garrell Burn and alleviate flooding. Part of this project surveyed and treated INNS within the site. The project finished this year; however, the treatment of INNS will carry on for several years.
- Community Greenspace in partnership with Cumbernauld Living Landscapes employed contractors to undertake a project to survey for invasive species within the Cumbernauld Living Landscapes catchment area – concentrating on the Luggie Water. As part of the project training was also given to external volunteers and internal staff.
- A new project is underway to facilitate the continuation of the Garrell Burn INNS project. This will involve surveying up-stream of the Garrell Burn project and further treatment. It also involves surveys of several of our Local Nature Reserves and treatment to any INNS recorded and training of volunteers in survey and treatment.



Proposed Objectives, Targets and Actions

1. Create catchment based control projects, using partnership working.
2. Increase the information available on the location of invasive species and the control that is occurring in North Lanarkshire.
3. Share information on identification, prevention and good practice for control.

Action	Meets objective number	Action by	Target
Policy and Legislation			
1.1 Encourage the adoption of existing campaigns to prevent the spread of INNS. Including but not limited to 'Be Plantwise', 'Horticultural Code of Practice' and 'Check, Clean, Dry' campaigns.	3	NLC, NatureScot	Promote campaigns at events and on websites annually.
Habitat management and protection			
2.1 Develop partnerships to provide synergy and a coordinated approach to INNS mitigation, control and eradication between land managers and community groups.	1, 2	NLC	Develop existing partnership to include further volunteer engagement.
2.2 Developing a sensible control programme to reduce likely reinfestation from neighbouring ground/up stream using available data.	2	All	Each partner to inform the group of the current extent of non-native invasives & the resources available for control. Produce a map of high risk pathways. By 2025
2.3 Control <i>Rhododendron ponticum</i> in native woodland and designated sites.	2	SF, NatureScot, NLC, SWT	15ha by 2027.
2.4 Control Japanese knotweed in native woodland, key water courses and designated sites.	2	SF, NatureScot, NLC, SWT	4ha by 2027.
2.5 Control Himalayan balsam in native woodland, key water courses and designated sites.	2	SF, NatureScot, NLC, SWT	3ha by 2027.
2.6 Control snowberry in native woodland and designated sites.	2	SF, NatureScot, NLC, SWT	1ha by 2027.
2.7 Establish native vegetation on sites of invasive plant species control.	2	SF, NatureScot, NLC, SWT	23ha by 2025.
2.8 Agree and use methods for invasive species data collection and control planning including follow up monitoring and control that will be necessary to effectively manage invasive species.	3	GATrust, NLC	Encouraging people to submit records directly, through Plantracker and access this data to plan control.
Communications and awareness raising			
3.1 Hold events to train & educate people to ID and map INNS.	4	NLC, NatureScot	6 events, by end of 2027.

Note the area figures are based on the information from the NWSS invasive areas.

References

[EASIN - European Alien Species Information Network](#) Information on invasive species in Europe.

<http://www.nonnativespecies.org/home/index.cfm> Information on invasive species in GB.

<http://www.snh.gov.uk/protecting-scotlands-nature/nonnative-species/>

Scottish Natural Heritage information on invasive species in Scotland, including sections on legislation, local projects, and what you can do to help.

<http://www.cbd.int/doc/gbo/gbo2/cbd-gbo2-en.pdf>

Author

Yvonne Grieve, Forestry Commission (2014), updated by Laura McCrorie Conservation and Biodiversity Manager 2022.

GEODIVERSITY ACTION PLAN

Walton Burn © Mike Browne



Geodiversity Action Plan

Summary

Biodiversity is fundamentally linked to underlying geological features. The term 'geodiversity', or geological diversity, encompasses rocks, minerals, soils, sediments, landforms and processes; all of which are the foundation for habitats, niches, and ultimately biodiversity.

Great advances have been made in recognising how geodiversity (rocks, soils, landforms and related processes) supports biodiversity and underpins ecosystem services. To make progress with biodiversity, our understanding of geodiversity must increase in order to improve the management and care of nature.

Geodiversity is internationally recognised by the Recommendation of the Committee of Ministers of the Council of Europe (2004) that: *“geological heritage constitutes a natural heritage of scientific, cultural, aesthetic, landscape, economic and intrinsic values, which needs to be preserved and handed down to future generations”*. There are key gaps in our knowledge of geodiversity, including the functional links between geodiversity and biodiversity and research is required to improve our understanding of the role of geodiversity in providing benefits to ecosystems.



Life after quarrying © Mike Browne

Habitat Profile

305–355-million-year-old Carboniferous rocks underlie North Lanarkshire with the oldest in the north in the Kilsyth Hills and eastern Campsie Fells. These hilly parts lie to the north of the large Campsie Fault and are mainly formed by lava flows and associated volcanic ashes of air fall and water lain origins. Locally beneath the volcanic rocks, mainly fluvial rocks are seen that were deposited when the climate was of monsoonal character with wet and dry seasons reflecting Scotland's nearness to the Equator. Above the volcanic rocks and flooring most of North Lanarkshire south of the Campsie Fault is undulating land with key river valleys that are underlain by sedimentary rocks. These were laid in wet equatorial conditions, the tropical nature of the climate gave rise to peat swamps and raised bogs that provided the extensive deposits of coal (with associated ironstones) that were mined and dug to fuel the Industrial Revolution and 19th century urban growth. Opencast coal has been a major feedstock to power generation. The rocks also include mudstones and limestones laid down in tropical seas and lakes, deltaic and river sandstones, and wetland soils ('fireclays'). These provided lime for agriculture and building, mudstone/fireclay for brick making, and sandstone as both a building stone and for glass and moulding sands. Intruded into the sedimentary rocks are thick igneous sheets (sills) and narrow vertical dykes that are the youngest rock in the area. These have provided materials used as aggregates in construction, with their extraction still an important element of the local economy.

During the last 2 million years, ice sheets have covered the area. The debris in the moving ice has both moulded the landscape by erosion (acting like sand paper), and then been laid down as 'ground moraine' or till (a mix of clay, sand, stones and boulders). The ice has also sculpted the till into hills known as drumlins. Till has been dug for brick making, fill for construction and as lining for modern landfill operations. Along the main valleys melt waters from the ice have laid down fluvial sand and gravel that have been worked for aggregates. Extensive deposits of peat on higher moorland have been dug or cut for a variety of uses from fuel to horticulture.

Considered management of Scotland's geodiversity aligns with, and supports the Scottish Biodiversity Strategy, Scottish Soil Framework, Land Use Strategy and Scotland's Landscape Charter.

North Lanarkshire's geodiversity is chiefly revealed through rock exposures in river valleys and quarries. Geomorphological features including the lava flow "steps" of the Kilsyth Hills, the gorges and incised meanders of our rivers and burns, and glacial features including drumlins and moraines add to the diversity of our landscape. The Geodiversity Audit report gives a "Top Twenty" selection of sites which give a representative overview of North Lanarkshire's geoheritage.

Legal Status

Geodiversity is not covered by any legal protection.



Corrie Spout © Mike Browne

Current Status

Sites of geodiversity importance can be protected through Sites of Special Scientific Interest (SSSI) protection. There is also the potential to designate a site at a local level as a Local Geodiversity Site (LGS). These sites may be proposed by voluntary geoconservation bodies, such as local Geodiversity groups.

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

The Charter also recognises the value of partnership formation between local authorities and local geodiversity groups to: audit sites, develop geodiversity action plans and involve local communities in collating information about sites of geological interest.

Two Sites of Special Scientific Interest have been designated in North Lanarkshire for their geological features - Mollinsburn Road Cutting: Carboniferous-Permian Igneous (Igneous Petrology) and Corrie Burn: Lower Carboniferous (Stratigraphy).



Calderbank Ironworks © Mike Browne

Current Factors that could affect Geodiversity

- Development
- Changing land use
- Climate change
- Natural erosion or deterioration

Current Actions

Volunteers from Strathclyde Geoconservation, which is a specialist group of the Geological Society of Glasgow, have completed the following action during 2012-2018.

- visited 81 potential geodiversity sites in North Lanarkshire
- provided NLC with Geodiversity Audit Reports for each site
- provided NLC with a Geodiversity Action Plan in 2015
- provided NLC with a full Geodiversity Audit Report for North Lanarkshire in 2018

Volunteers from Friends of Kelvin Valley, which is a specialist group of the Kilsyth and Villages Community Forum, have completed the following actions 2012-2022.

- produced leaflets entitled 'Kelvin Valley Rocks!' and 'Cumbernauld Rocks' which have been distributed to the public via libraries and other popular locations
- given 15 slide shows and twenty displays on local geology and mining to local groups and schools

North Lanarkshire Council biodiversity team have:

- incorporated our geodiversity site reports into their GIS data base for SINC's and flag sites up to Planning where required
- published our Geodiversity Action Plan as part of the NLC Biodiversity Action Plan 2015-2020
- published our full Geodiversity Audit Report on NLC's website

Proposed Objectives, Targets and Actions

1. Identify and report on a representative range of geodiversity sites across North Lanarkshire (completed).
2. Protect these sites.
3. Publicise North Lanarkshire's geodiversity.

Action	Meets objective number	Action by	Target
Policy and Legislation			
1.1 Ensure all geodiversity sites that are also SINC are fully incorporated into the SINC processes.	2	NLC	2025
1.2 Assess the handful of geodiversity sites that are not SINC with a view to designating them SINC.	2	NLC	2025
1.3 Ensure any remaining sites are also flagged up and treated as if they are SINC.	2	NLC	2025
1.4 Add in any further potential geodiversity sites if these are identified.	2	Strathclyde GeoConservation, NLC	2027
Monitoring and Research			
3.1 Monitor geodiversity sites as part of SINC monitoring.	2	NLC	Ongoing
3.2 Encourage research by Universities and local groups.		NLC, Strathclyde GeoConservation	Ongoing
Communications and awareness raising			
4.1 Publicise the 2018 Geodiversity Audit report on NLC website.	3	NLC	Ongoing
4.2 Produce and distribute a geodiversity leaflet for North Lanarkshire.		NLC, Strathclyde GeoConservation	2023
4.3 Add geodiversity information to other NLC publicity including information boards, social media, website and leaflets when possible.	3	NLC, Strathclyde GeoConservation	2025
4.4 Include geodiversity in Ranger led events where appropriate.	3	NLC, Friends of Kelvin Valley	Ongoing

References

Strathclyde Geoconservation Group 2012-2018.
North Lanarkshire Geodiversity Site Assessment Reports.

Strathclyde Geoconservation Group. 2018.

North Lanarkshire Council. Geodiversity Audit Report.

British Geological Survey 1996. Geology of the Airdrie District. Memoire for 1:50,000 Geology Sheet 31W.

British Geological Survey. 1:50,000 Geology Maps 1:50,000 scale- Sheet 31(W).
Solid and Drift editions.

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Photography Credits

Page	Photographer and subject
7	Katrina Martin – Children in bluebell woods
8	Brian Cairns – Ravenscraig
10	Laura McCrorie – St Maurices
21	Laura McCrorie – Orange tip butterfly
22	Laura McCrorie – Landscape
33	Tam Stewart – Small pearl-bordered fritillary
111	Suzanne Bairner – Perennials in flower
113	Suzanne Bairner – Six-spot burnet moth
145	Suzanne Bairner – Buff tailed bumblebee
146	Suzanne Bairner – Small copper
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Notes

