NHS Lothian

Biodiversity Action Plan 2025 – 2035

Biodiversity Action Plan

Foreword

This Biodiversity Action Plan is our commitment to transforming NHS Lothian's greenspaces into thriving havens for both nature and people. We recognise our role as an anchor institution in fostering healthier communities and tackling the twin threats of climate change and biodiversity loss. The vital connection between outdoor spaces and well-being is now well understood and reinforces our vision to make the most of our estate for people and wildlife.

This plan outlines the development of the greenspaces within the NHS Lothian estate and builds upon successful projects that have already positively impacted patients, staff, and the wider community. We prioritise enhancing our teams' skills in managing diverse grasslands, collaborating with experts, and partnering to improve key sites like Niddrie Burn and the BioQuarter.

Witnessing the dedication of our staff has been inspiring. We share a collective responsibility to create a sustainable future, and I urge everyone to engage with this plan. Recent visits to Midlothian Community Hospital, the Royal Edinburgh, and Belhaven Community Hospital showcased the phenomenal work achieved through partnerships. At Midlothian, I was deeply moved by the stories of patients and volunteers, particularly a wheelchair user whose recovery was significantly aided by access to fresh air and green space.

This plan provides a roadmap for NHS Lothian to lead in creating life-changing opportunities. While resources are limited, this plan must remain a priority. Our patients, staff, and communities deserve the best possible care. Let's work together to make this vision a reality.

Mr George Gordon, Sustainability Champion, Non executive Board Member, NHS Lothian

Acknowledgements

Developing the this Biodiversity Action Plan would not have been possible without the support of the NHS Lothian Charity and its Green Health Programme. This allowed us to bring together support from Estates and Facilities, Capital Planning and Analytical Services along with support from NHS Scotland Assure.

supported by NHS Lothian Charity | Green Health

Biodiversity Action Plan

NHS Lothian

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Introduction

1.0 Purpose & vision

A 10-year Biodiversity Action Plan (BAP) will guide NHS Lothian and partners in tackling climate change and biodiversity loss. It outlines achievable actions to fulfil our legal duty to conserve biodiversity. The BAP supports Estates & Facilities, Capital Planning, and staff engagement in nature-positive actions. Reviewed in five years, it reflects our commitment to tipping the balance in nature's favour. NHS Lothian needs a BAP to:

- **Fulfil our legal obligations and public duties**: Protecting biodiversity is a public duty, and the BAP ensures we're taking concrete steps to achieve this.
- **Empower our teams:** The BAP provides clear guidance and support for staff, helping them make informed decisions that benefit the environment.
- **Connect with communities**: The BAP clearly communicates our actions on biodiversity to partners and stakeholders, fostering collaboration and accountability.

Our vision: NHS Lothian will be nature positive by 2030, and will have restored and regenerated biodiversity across our estate by 2045. Our natural environment, our habitats, ecosystems and species, will be diverse, thriving, resilient and adapting to climate change. Regenerated greenspaces and biodiversity will support the health of thriving communities

To achieve this we will focus on the following central aims:

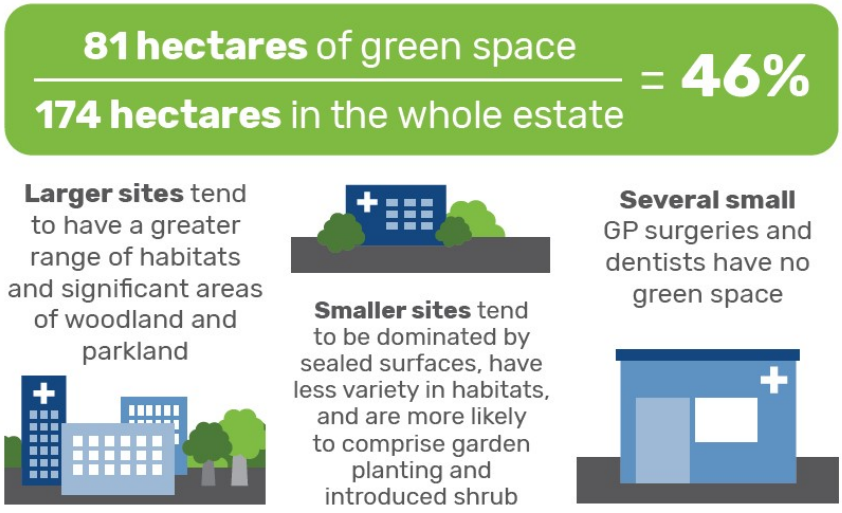
1. **Improve quality** - improving poor condition habitats through better management, and replacing low value biodiversity habitats with high ones
2. **Increase quantity** - increasing the amount of greenspace within the NHS Lothian estate.
3. **Connect habitats** – linking with habitats within and between sites
4. **Encourage use**– facilitating the use of NHS greenspace to deliver health and social benefits

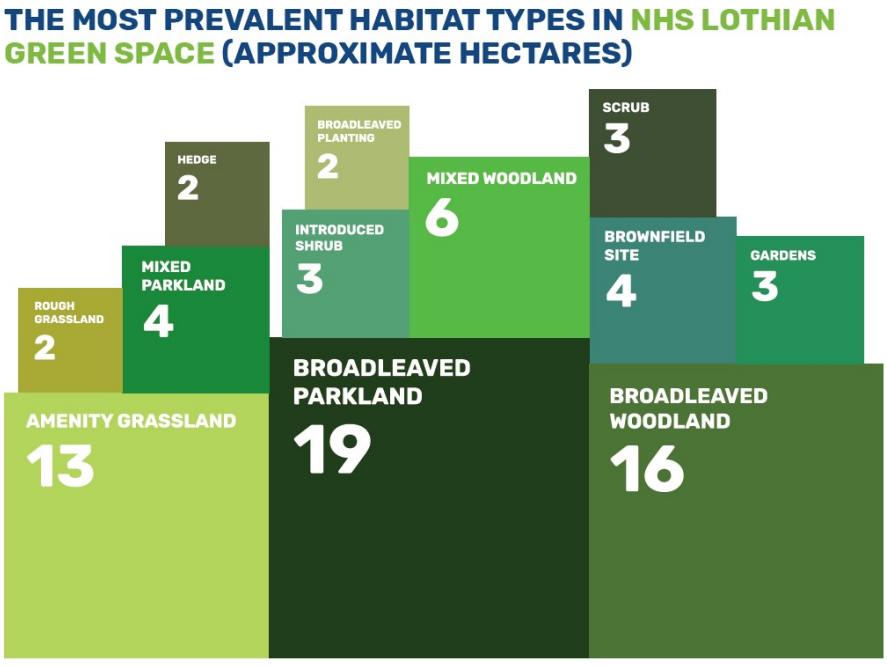
2.0 Background

NHS Lothian's diverse estate spans over 120 sites, from large acute hospitals to local care homes. These sites encompass a surprising 46% of greenspace (a total of 174 hectares).

Nature on our doorstep: This green space isn't just uniform lawns. It ranges from woodlands and wildflower meadows to landscaped gardens and community planting areas. Broadleaved woodlands and parklands are the most common (around 20%), followed by open green spaces such as mown grass (8%).

Varied landscapes, varied opportunities: Larger sites like Astley Ainslie Hospital boast a wider range of habitats, while smaller locations often have more gardens and introduced shrubs. This variety offers a wealth of potential for nature-based activities and habitat improvement across the



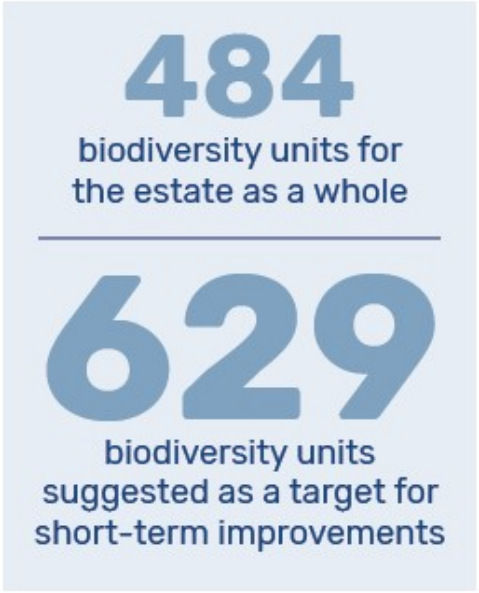


2.1 Natural capital

It is important to consider the estate greenspaces because the natural environment underpins our wellbeing and economic prosperity, providing multiple benefits to society. As a way of identifying how significant these assets are and how they can be managed to meet NHS Lothian's goals and commitments, a natural capital assessment was commissioned of the estate in 2020[1].

In the NHS Lothian estate's green space, growing plants (especially trees, hedges and scrub) capture carbon from the atmosphere, offsetting human emissions. They clean the air of pollution from nearby roads and car parks. The green landscape provides habitats for diverse species, and improves the lives of NHS patients and staff in a multitude of ways that can be measured in better health and wellbeing.

Biodiversity and ecological condition



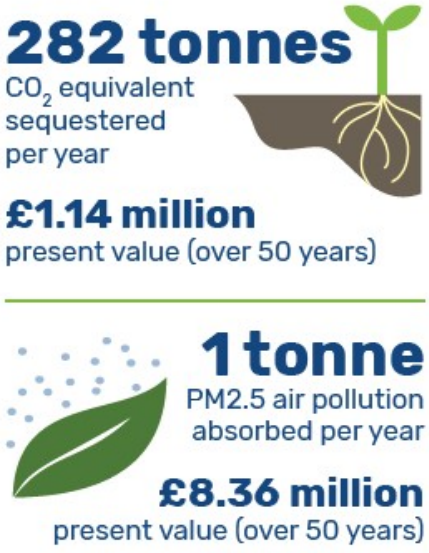
The natural capital assessment measured a total of 484 biodiversity units for the estate ranging across the sites from 0 to 78. As a standalone value this has little meaning, its power comes from comparisons when changes have been made to the estate habitats. Looking further into the condition of the estate habitats, the score can be construed as relatively low. This is because 71.5% habitats were assessed as poor condition, 28.3% were moderate and only 0.2% were assessed as being in good condition.

When focussing on the condition across the estate, it is useful to distinguish between habitats that are considered valuable in terms of biodiversity (e.g. semi-natural habitats) and those that are of low biodiversity value (e.g. amenity grassland). The former can be in poor quality but be managed to achieve medium or good condition. The latter will always be assessed as poor-quality habitats.

Carbon sequestration & air quality

A policy priority for NHS Lothian is achieving net zero carbon by 2040 or earlier and reducing its environmental impact. As a result, the flow of carbon sequestration, air pollution regulation and physical and mental health benefits have been quantified across the estate and their monetary value estimated. The woodland, trees and hedges across the estate capture 282 tCO2e per year, with an annual value of £19,501 and a present value (over 50 years) of £1.14 million (Table 4).

The estate woodland, trees, grassland and shrubs absorb 0.98 tPM2.5 per year, with an annual value of £255,993 and a present value of £8.36 million. This value is a cost saving to the NHS from avoiding air pollution related illness.



[1] Biodiversity and climate change assessment for the NHS Lothian estate, March 2021

Nature Networks

All of NHS Lothian sites fall within Nature Networks which are embedded throughout the fourth National Planning Framework (NPF4) as a key means of ensuring positive effects for biodiversity from development. Nature Networks connect nature-rich sites, restoration areas, and other environmental projects through a series of areas of suitable habitat, habitat corridors and stepping-stones. As well as supporting regional and national approaches to protect and restore nature, they provide local benefits to wildlife and people.

2.2 Policy context

Biodiversity Action Plan will support the delivery of the following key policies & strategies:

International

- **United Nations** have committed to reversing biodiversity loss by 2030 at COP 26

National

- **Nature Conservation (Scotland) Act 2004** - public bodies in Scotland have a duty to further the conservation of biodiversity. Scotland Biodiversity strategy to 2045: tackling the nature emergency - ”nature positive” vision for Scotland
- **National Planning Framework 4** – supporting the delivery of zero carbon, nature positive places.
- **NHS Scotland climate emergency and sustainability strategy: 2022-2026** - plans for NHS Scotland to reduce its greenhouse gas emissions and impact on the environment, adapt to climate change.

Regional

- **NHS Lothian Sustainability Framework and Action Plan** – set the goals for NHS Lothian
- **Greenspace and Health Strategic Framework for Edinburgh and the Lothians** – sets the strategy for the Green Health Programme
- **Local Biodiversity Action Plans** (BAPs) – give local guidance that is region specific

2.3 Species of sites of conservation importance

NHS Lothian carried out a data search with The Wildlife Information Centre to identify and Notable and Protected Species records and internationally, nationally, and locally designated sites within a 50m search radius of it land holdings. Across Lothian there was a diverse range of wildlife recorded on the NHS estate. Some notable species were as follows:

Species	Status
Badgers - One of Scotland's most recognisable mammals, the badger is a member of the mustelid family (the same group as stoats, weasels and otters).	Badgers and their sets are fully protected in the UK under The Protection of Badgers Act 1992.
Hedgehogs - Small, round, brown and famously covered in spines the hedgehog is our only native spiny mammal.	Classified as a Priority Species in the UK Biodiversity Action Plan. Numbers of rural hedgehogs have declined nationally by between 30 – 75% since 2000. They are showing signs of recovery in urban areas.
Barn owls - Perhaps the most familiar owl, the barn owl will often hunt during the daytime and can be seen 'quartering' over fields and grasslands looking for its next small mammal meal.	Protected in the UK under the Wildlife and Countryside Act, 1981. Classified in the UK as an Amber List species under the Birds of Conservation Concern review. Barn Owls are a Schedule 1 and 9 species, meaning it's illegal to intentionally or recklessly disturb them,
Swifts - A medium-sized aerial bird, which is a superb flyer. Sleeping, eating, bathing and even mating on the wing (while flying), Swifts rarely touch the ground.	Swift nest sites are fast disappearing. This, in part, resulted in Swifts being added to the red list in the 2021 UK Conservation Status Report.
Hairy rock cress - Heads straight for the sky but is only usually only 20 -60cm high, with hairy leaves on the lower half of the stem pointing upwards	Vulnerable to threats such as habitat loss and invasive species. As natural habitats are destroyed or degraded, the plant's ability to survive and reproduce is compromised.
Common Toad - Toads are famous for their mass migrations back to their breeding ponds on the first warm, damp evenings of the year, often around St. Valentine's Day.	Protected in the UK under the Wildlife and Countryside Act, 1981, and classified as a Priority Species in the UK Biodiversity Action Plan.
Grayling - The cryptic colouring provides this butterfly with excellent camouflage, making it difficult to see when at rest on bare ground, tree trunks, or stones.	The Grayling is widespread on the coast and southern heaths, but is declining in many areas, particularly inland and is UK BAP Priority Species

2.4 Protected wildlife sites

The following protected areas, also known as designated sites, were identified through the data search. These sites help to ensure that their natural features of special interest remain in good health for all to enjoy, now and in the future.

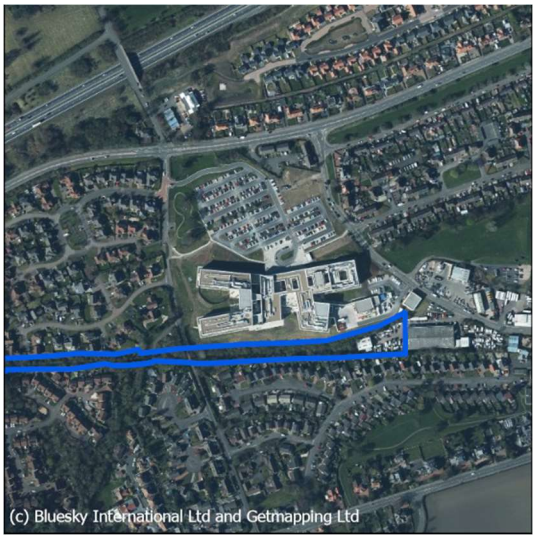
Edinburgh BioQuarter (EBQ)

Little France Park Local Nature Reserve (LNR) is adjacent to EBQ and is an areas locally important natural heritage. It is the city's newest park reclaiming unmanaged and carving out a green corridor from the city centre to Midlothian.

Niddrie Burn Local Biodiversity Site (LBS) runs through the NHS Lothian estate at the BioQuarter. This small shallow burn includes notable riparian habitats with locally rare plants, moths, breeding amphibians as well as a few nationally scarce or Scottish priority plants.

Ellen's Glen House

Burdiehouse Burn Valley Park Local Biodiversity Site (LBS) is adjacent to the hospital and was created after sightings of otters in burn in 2007. It contains areas Ancient Woodland of Semi-Natural that makes up Moredun woods, and semi natural greenspace that create homes for a wide range of wildlife.



East Lothian Community Hospital

The hospital is adjacent to the Longniddry / Haddington Railway Walk Local Biodiversity site. This former industrial landscape is extremely valuable for wildlife industrial with ancient woodland and notable species of birds and plants.

Action Plans

3.0 Woodland and Trees

Woodland and trees provide us with essential ecosystem services[2] including health, wellbeing and recreation, climate regulation, floodwater mitigation, carbon sequestration and air quality regulation. Established woodlands are structurally varied, with mature trees, young saplings, shrubby vegetation and leaf litter providing vital habitat and foraging opportunities for a variety of species. Individual trees can provide vital stepping stones to combat habitat fragmentation, providing corridors for wildlife between larger woodland areas. Combined, they are an essential habitat type to meet the challenges we face from biodiversity decline and the climate emergency. On the NHS Lothian estate there are a wide range of woodland and trees from the arboretum style collection at the Astley Ainslie Hospital through to new native tree planting at the Midlothian Community Hospital.

Woodlands and trees are facing challenges from a growing combination of interacting pressures which includes:

- **Loss & poor care:** Trees are disappearing due to development and reduced management. Replaced trees often struggle to survive.
- **Climate change:** Changing weather patterns disrupt tree growth and increase damage from extreme events.
- **Pollution:** Contaminated soil and water hinders new trees and harms existing ones.
- **Pests & diseases:** More harmful insects and diseases threaten native trees, especially with warmer weather.
- **Invasive species:** Non-native trees can crowd out and harm native species.

[2] https://www.woodlandtrust.org.uk/media/1702/benefits-of-trees-outside-woods.pdf

3.1 Key policies and legislation

Tree Preservation Orders and Conservation Areas: Town and Country Planning (Scotland) Act 1997 (as amended); Town and Country Planning (TPO and Trees in Conservation Areas) (Scotland) Regulations 2011. Where a TPO is in place, prior consent in writing is required from the Council's planning service to carry out any work on the trees.

Common Law Rights: Householders have a Common Law right to remove (abate) the nuisance associated with trees encroaching onto their property. (City of Edinburgh council provide practical advice on to the exercise of Common Law rights with respect to encroaching trees[3]).

BS 3998:2010 'Tree work – Recommendations' – the latest British Standard applying to work carried out on trees.

BS 5837:2012 'Trees in relation to design, demolition and construction. Recommendations' – the latest British Standard applying to tree protection in relation to works carried out close to trees.

Right to light: In law there is no general right to light, except under specific provisions of the High Hedges (Scotland) Act 2013, and there is no right to light in connection with open land, e.g. garden.

Duty of care

NHS Lothian has a duty of care to maintain its trees in a safe condition where that is "reasonably practicable". Proactive management ensures that it is able to meet its Health & Safety liability relating to public trees, allowing people to safely enjoy the amenity, conservation and health benefits that trees provide. Duty of care is defined by several different Acts, including the Occupiers Liability (Scotland) Act 1960 and the Health & Safety at Work Act etc 1974, section 3 (1); Land Reform (Scotland) Act 2003; Roads (Scotland) Act 1984; Town and Country Planning (Scotland) Act 1997; Wildlife & Countryside Act 1981; and Nature Conservation (Scotland) Act 2004. The management of trees is informed by Health & Safety Executive guidance "Management of Risk from Falling Trees" (SIM 01/2007/05) 2007.

The above legislation, together with established case law, means that the NHS Lothian must:

- Survey its trees
- Have this done by a competent person
- Take reasonable action to ensure that they are reasonably safe
- Create individual tree reports to instigate works orders to deal with potentially serious structural faults posing a potentially serious risk to public safety and show that such works have been completed and issues resolved. All trees are to be retained by default but following an inspection it will be determined either that works will be carried out or tree will be removed.

[3] https://www.edinburgh.gov.uk/downloads/file/34092/trees-in-the-city-tree-management-policies

3.2 Action Plan

Objectives

1. To maintain and expand the current extent of woodland
2. To improve the biodiversity of woodland
3. To improve the quality of access to woodlands.

Action	Timescales	Delivery lead & partners	Resources required
Develop an NHS Lothian Tree Management Policy to set out clearly existing and future tree-related policies that will inform how the NHS manages trees and woodlands in its own ownership[4]	1 to 3 years	NHSL Estates & Facilities	Staff time and external advice
Identify opportunities to plant more trees or woodland areas, improve biodiversity and enhance woodland habitat connectivity across campuses.	One year	NHSL Sustainability Team	Staff time and external advice
Develop woodland management plans for the Astley Ainslie Hospital and the Royal Edinburgh Hospital	One year	NHSL Estates & Facilities	External consultants
Establish status management for areas of woodland connected to RIE, MLCH, SJH & Tippethill Hospital	One year	NHSL Sustainability Team; PPP programme support	Staff time
Deliver tree planting as specified in greenspace management plans for AAH, REH, ELCH	1- 5 years	Lead: NHSL Estates & Facilities Partners: TBC	Revenue / project funding (<£50k)
Improve quality of practical woodland management skills and increase knowledge of common sense risk management of trees[5] and Tree Protection Orders	1 to 3 years	NHSL Estates & Facilities	Reorient existing practice & training
Create and/or enhance species-rich hedgerows at sites identified as having best potential to improve wildlife habitat	1 to 3 years	NHSL Estates & Facilities	Reorient existing practice
Identify opportunities to enhance existing orchards and create new ones	1 to 3 years	NHSL Estates & Facilities	Staff time and external advice
Promote incorporation of woodlands, woodland planting and management within development and ensure and adherence to BS 5837:2012 'Trees in relation to design, demolition and construction.'	1 to 3 years	NHSL Sustainability Team/Capital Planning, Estates & Facilities	Reorient existing practice

[4] https://www.edinburgh.gov.uk/downloads/file/34092/trees-in-the-city-tree-management-policies
[5] https://cdn.forestresearch.gov.uk/2011/12/fcms024.pdf

4.0 Fresh water

Fresh water is vital to all life on earth. Freshwater habitats consist of flowing water and standing water such as ponds, rivers and burns which are all present on the NHS Lothian estate.

The habitats associated with fresh water features support a wealth of biodiversity and provide vital corridors for wildlife. For example clean watercourses can provide important routes for otters and marginal and bankside habitats support a variety of wildflowers and animals such as water voles. Fresh water habitats also support ecological services that are crucial for our day to day lives. With more extreme weather predicted they help regulate flooding and also provide us with clean water for domestic, agricultural and industrial activities. Finally freshwater areas such as the Burdiehouse Burn running through the Royal Infirmary of Edinburgh create recreational opportunities supporting patient, staff and community wellbeing.

Canalised river systems exacerbate downstream flash flooding events and reduce the biodiversity capacity of fresh water ecosystems. Invasive non-native species (INNS) such as Japanese knotweed, giant hogweed and North American signal crayfish spread along water courses causing damage to the environment. Riparian woodlands cover is critical for the health of water systems but it is declining in coverage and condition.

Many NHS Lothian's sites are within 50m of a freshwater course and there are also a number of notable examples of fresh water courses include

- **Edinburgh BioQuarter –** The **Niddrie Burn Local Biodiversity Site** runs through NHS Lothian land holdings. This is a small, shallow burn and associated riparian habitats including plantation and semi-natural woodlands and a pond with several locally rare plants and moths, breeding amphibians as well as a few nationally scarce or Scottish priority plants.
- **Astley Ainslie Hospital –** The Jordan Burn is a stream that runs through the ground of the Astley Ainslie Hospital, it is a tributary of the Braid Burn. This is currently canalised but could be an important riparian habitat is a densely urban area.

4.1 Key policies and legislation

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. **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.

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.

4.2 Action plan

Objectives

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

Actions	Timescales	Delivery Lead & partners	Resources required
Develop policies to control INNS species and favour establishment of appropriate native species adjacent to rivers on the NHSL estate	One year	NHSL Estates & Facilities	Re prioritisation of existing resource
Identify sites suitable for riparian woodland creation or enhancement.	One year	NHS Lothian Sustainability Team / NHS Lothian Charity	Staff time
Work with BioQuarter Partners to identify action to improve condition of Niddrie Burn	1 to 3 years	NHS Lothian PPP Contract Management Team /EQUANS	Lifecycle funding / charitable funding
Deliver actions to remove INNS and establish appropriate native wetland species in Niddrie Burn	1 to 2 years	EQUANS (Partners: Edinburgh University, Scottish Enterprises ELGT; CEC)	Revenue funding
Maximise the ecological value of existing SUDS following SEAP best practice guidance[6]	1 to 5 years	NHSL Sustainability Team/Capital Planning, Estates & Facilities	Capital investment
Develop and deliver interpretation project for patients staff and visitors to the BioQuarter	One year	NHSL Charity	Potential for external funding
Work with partners to integrate health benefits into Burdiehouse Burn Restoration Project	1 to 2 years	NHS Lothian Sustainability Team / Public Health	Re-orient existing practice

[6] https://www.sepa.org.uk/media/151336/ponds_pools_lochans.pdf

5.0 Grassland & Parkland

NHS Lothian has extensive areas of amenity grassland and parkland (mown grass and trees). These open spaces are often carefully designed and support historical value, whilst providing important features patients, staff and communities. However, their ecological value can be low and they could serve more functions. Some areas of amenity grassland still retain semi-natural grassland in a suppressed form and can recover to produce species-rich habitats.

These spaces vary across NHS Lothian. Some, like the area around St. John's Hospital, have more amenity grassland and few wildlife benefits. Others, like Astley Ainslie Hospital, have a more diverse landscape with natural features such as woodlands, meadows, and mature trees. These natural spaces offer greater opportunities for wildlife and patient/public enjoyment.

The key threats to these spaces are thorough development pressure and a number of public open space have been lost or are currently threatened. Their value and potential is often under recognised and the area and connectivity of them is reduced through the creation of roads, car parks and new developments. Unsympathetic landscaping and restoration can reduce the semi natural habitats and poor tree management leads to limited age and structural diversity. The future sustainability of the areas is under threat through lack of maintenance and planning of future tree planting.

5.1 Key policies and legislation

These areas may be protected by various pieces of legislation such as Conservation Areas, Tree Preservation Orders, Green Belt, or planning conditions through local plans. Transitioning the NHS estate from short amenity grassland to species-rich tall grassland (more meadows) will contribute to NHS Scotland’s ambition to transition to a more sustainable model, while reflecting the legislative and strategic initiatives.

How to create and manage species rich grassland

A recent report form Health Facilities Scotland aims to encourage and enable change to the management of grassland on NHS Scotland land, on a permanent basis, with long term monitoring and management suggestions specific to increasing biodiversity value. Read the report here.

Key messages

- Simple changes to mowing regimes can have a positive impact on biodiversity and reduce costs but require a planned managed process
- Site specific design considerations are important to ensure the changes are accepted and maintained
- Changes to cutting regimes need to be varied depending on the stage of establishment of the wild flower are

5.2 Action Plan

Objectives

1. Increase the extent and quality of semi-natural habitats in and around grassland and parkland
2. To promote good management practice to maximising wildlife and health benefits

Actions	Timescales	Delivery Lead & partners	Resources required
Identify areas of semi natural grassland and parkland and ensure maintained regimes are in place to enhance them (Known areas include REH, ELCH, AAH, WGH)	One year	NHSL Estates & Facilities	Staff time
Improve the biodiversity of amenity and formal greenspaces through targeted interventions relaxation of grassland cutting, allowing shrubs to develop greater structural diversity	1 to 5 years	NHSL Estates & Facilities	Staff time
Deliver key elements of AAH, REH and ELCH greenspace management plans	1 to 2 years	NHSL Estates & Facilities	Re-orient existing resource
Increase the age and structural diversity of trees through tree planting at key sites.	1 to 3 years	NHSL Estates & Facilities	Lifecycle funding / charitable funding
Increase skills and capacity of teams to manage diverse grassland areas using expert advisors where appropriate	1 to 2 years	NHSL Sustainability Team NHSL Estates & Facilities	Re-orient existing resource
Promote the benefits of biodiversity in public spaces to the public using art and creativity to engage new audiences	1 to 5 years	NHSL Charity	Staff time / revenue funding
Develop integrated weed control methods to reduce herbicide use & ensure staff properly trained in application	1 to 5 years	NHSL Estates & Facilities	Staff time

6.0 Green & blue infrastructure

Integrated green infrastructure, also known as blue-green infrastructure, utilises natural or man-made features to provide environmental and social benefits. This includes vegetated features such as green walls, green roofs, and urban agriculture, as well as water management systems like rainwater harvesting and Sustainable Urban Drainage Systems (SUDS), which comprise stormwater detention basins, swales, filter strips, and tree planting.

Good quality green-blue infrastructure is a vital component of both urban and rural environments. Well-designed and managed green infrastructure generates multiple benefits for people and nature; it creates greener, healthier, more climate resilient and more equitable places to live that in turn support a more productive and sustainable economy. Green infrastructure plays a big role in climate change mitigation by sequestering carbon and to climate change adaptation through urban cooling and reducing flood risk. Improvements to green infrastructure can be delivered as part of new development through the planning process, better management and upgrading of existing green infrastructure, and retrofitting of new green infrastructure, wherever opportunities arise, but particularly in areas where provision is poor.

Green infrastructure offers valuable opportunities to bolster biodiversity and ecosystem services. To fully realize these benefits, it is crucial to design with a deep understanding of local environmental conditions and native flora and fauna, ensuring we avoid the disruptive impacts of invasive non-native species.

The following are helpful examples of green infrastructure in NHS Lothian:

- **Royal Edinburgh Hospital** – Internal courtyards have been introduced as part of the wider development strategy of Phase 1 of the masterplan providing patient and staff amenity. Courtyards are designed to integrate social space, art and natural landscaping.
- **Western General Hospital SUDS** – A sustainable urban drainage system has been introduced within phase 1 of the masterplan at the Western General Hospital to combat the increasing surface water runoff from hard surfaces of the hospital during extreme storm events.
- **East Lothian Community Hospital** – The ‘Green Corridor’ at East Lothian Hospital is integral to the site masterplan and combines green transport opportunities for staff and patients, which integrate pathways with art and natural landscaping.
- **St John’s Hospital Flood Swale** – A flood swale is integral to the surface water collection and discharge strategy for St John’s Hospital. The swale provides storage capacity for the existing hospital and future phases of the site masterplan.

6.1 Key policies and legislation

National Planning Framework 4 - seeks to support and enhance blue and green infrastructure and provide good quality local opportunities with Urban Sustainable, Blue and Green Surface Water Management Solutions being a national priority.

The Water Environment and Water Services (Scotland) Act 2003 (the WEWS Act) which sets out the arrangements for the protection of the water environment in Scotland. The main environmental objectives are to protect and improve Scotland’s water environment.

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.

NHS Scotland Sustainable Design and Construction (SDaC) - promotes the integration of green spaces, biodiversity, and natural habitats within healthcare facilities and recognizes the value of incorporating green infrastructure principles into healthcare facility designs.

6.2 Action plan

Objectives

1. To protect and enhance integrated green infrastructure as a key structural component of site development masterplans for all acute sites.
2. To increase public awareness of the amenity value of open sustainable urban drainage systems (swales) and their connections to rivers and burns.

Actions	Timescales	Delivery Lead & partners	Resources required
Map existing green infrastructure at key sites to inform strategies to enhance water management and flood prevention.	1-2 years	NHSL Sustainability Team / NHSL Capital Planning / Strategic Planning	
Develop public realm and landscape strategies for each acute hospital site to complement strategic service and development masterplans.	2 – 4 years	NHSL Sustainability Team / NHSL Capital Planning / Strategic Planning	Staff time / consultancy support
Implement a proactive communication strategy to disseminate landscape strategies and masterplans to all stakeholders, including project teams, estates and facilities staff, clinical staff, and site management.	2 -4 years	NHSL Sustainability Team / NHSL Capital Planning / Strategic Planning	Staff time / consultancy support
Develop and implement educational programs to raise awareness about the vital role of green infrastructure on health care sites .	2 years	NHSL Sustainability Team	Staff time
Engage Infection Prevention Control colleagues to communicate the multifaceted benefits green infrastructure while also addressing and mitigating any potential healthcare-associated infection.	1 year	NHSL Sustainability Team	Staff time

7.0 Invasive non-native species (INNS)

Non-native species are species introduced 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. There are many non-native species that are not invasive and do not pose a threat. However invasive non-native species occupy and dominate ecological niches and their growth can reduce the biodiversity value of an area.

Non-native invasive species are a threat to native plants and animals and can damage to property and buildings. They can cause direct impacts on human health and indirect impacts thorough increased risk of flooding. INNS can have a negative economic impact through soil, damage to forestry and crops and lead to extensive costs to treat established infestations.

The scale of the NHS Lothian estate means that there will be a range of INNS present however this is not currently quantified. Due to the invasive nature of INNS it is important to work at a landscape scale as reinvasion after initial invasive species control can occur from neighbouring land so working with partners and neighbours is essential.

Key threats to the NHS Lothian estate are:

- Rhododendron ponticum
- Japanese knotweed
- Himalayan balsam
- Snowberry
- Giant hogweed
- Spanish Bluebells
- Grey Squirrel
- American Mink
- North American Signal Crayfish

7.1 Key policies and legislation

The Wildlife and Countryside Act 1981 (WCA) sets out that 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, SNH, SEPA and Marine Scotland all being designated as ‘Responsible Bodies’ in co-ordinating control measures for problem INNS, with SNH 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.

7.2 Action plan

Objectives

- Identify any Invasive Non-Native Species present on NHS Lothian estate or in surrounding areas
- Ensure that NHS Lothian works in partnership to reduce the impact of invasive non-native species in Scotland
- Make sure that NHS Lothian complies with legislation and continuously improves its contribution to the management of non- native invasive species

Objectives 1. Identify any INNS present on NHS Lothian estate or in surrounding areas 2. Ensure that NHS Lothian works in partnership to reduce the impact of INNS in Scotland 3. Make sure that NHS Lothian complies with legislation and continuously improves its contribution to the management of INNS			
Actions	**Timescales**	**Delivery lead & partners**	**Resources required**
Review existing documentation in order to identify any non-native invasive species on NHS Lothian estate or surrounding areas	1 year	NHSL Estates & Facilities	Staff time
Identify and share a list of known INNS to Grounds and Gardens Team and key community and voluntary sector group for awareness (if not already)	1 year	NHSL Estates & Facilities	Staff time
Ensure that awareness of potential NNIS forms part of communications with partners, communities, staff and visitors as part of any engagement in relation to Greenspace and Biodiversity	1 year	NHSL Estates & Facilities	Staff time
Identify key partners in relation to identifying and notifying of NNIS	1-3 years	NHSL Estates & Facilities	Staff time
Work with Environmental Management System Co-ordinator to ensure that NHS Lothian has policies and processes in place to comply with legislation in relation to INNS	1-3 years	NHSL Estates & Facilities	Staff time

8.0 Nature connection

To achieve the aspirations of being a nature positive organisation we need to mobilise actions by our staff, partners and communities. Ensuring biodiversity is mainstreamed and considered across the healthcare system requires an engaging creative approach that considers the benefits to both nature and people.

There is growing evidence that demonstrates the connection between nature and improved health and wellbeing. The strongest evidence concerns the links between contact with greenspaces and improved mental health and wellbeing, stress reduction and the alleviation of dementia symptoms. Research has also found that greenspaces may help mitigate the health impacts of socio-economic inequality and, as such, are a powerful public health tool.

People power can also have a very positive impact on nature protecting and enhances valuable species and habitats. Citizen science can be used to measure our impact and engage people with nature and teams of well training and supported volunteers can enhance habitats for wildlife. Simple activities such meadow management and hedgerow planting can have long term positive

NHS Community Gardens

The community gardens at the Royal Edinburgh, Midlothian Community and Belhaven hospitals connect thousands of people with nature each year and are exemplars of how to enhance biodiversity and engage people with nature on their door steps. Green Health activity at major hospital sites create opportunities for staff and patients to take part in nature based activity that meet their needs. Gardens such as the Maggie's centre at the eastern General Hospital create therapeutic spaces that are critical to people's recovery journeys.

8.1 Key policies and legislation

Connecting more people to nature will support the delivery of the Scottish Biodiversity Strategy so that the natural environment is valued and understood. This work will also support Community Wealth Building as set out Scotland's National Strategy for Economic Transformation - Delivery Plans October 2022 and the Community Empowerment (Scotland) Act 2015.

By enabling access to the NHS estate for communities we will be supporting NHS Lothian's work as an anchor institution and delivering positive health impacts in line with the Lothian Strategic Development Framework.

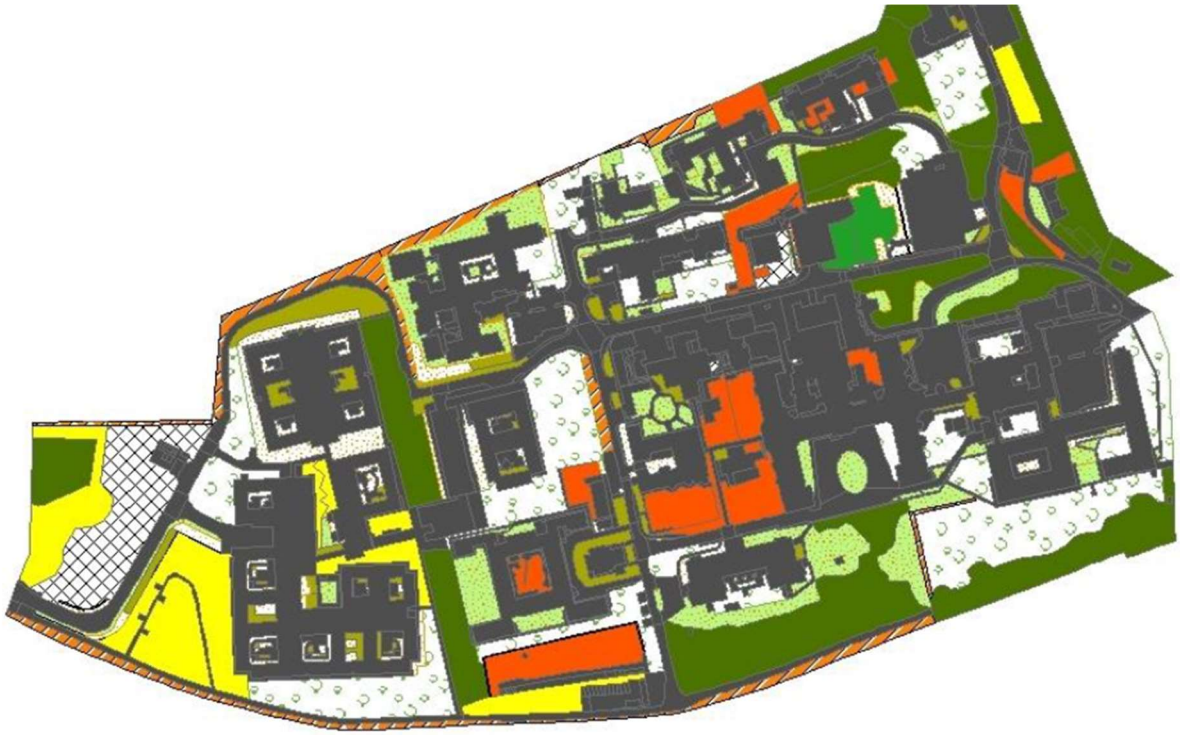
8.2 Action plan

Objectives

1. NHS Lothian outdoor estate is recognised and fully utilised as a heath asset for patients, staff and communities.
2. There are more opportunities for people to connect and learn about nature on the NHS estate
3. We work together with communities and partners to enhance biodiversity

Actions	Timescales	Delivery lead & partners	Resources required
Develop hub for greenspace and biodiversity information in NHS Lothian	1 year	NHS Lothian Charity	Staff time
Review the tenure of the three existing community gardens to ensure that ensure they are supported to be exemplars of nature connection	1 – 2 years	NHSL Public Health	Staff time / legal advice
Enhance the biodiversity of the community gardens and create opportunities to interpret the wildlife found in them	Ongoing	Cyrenians, Sustaining Dunbar	Staff time & external creative support
Identify and develop new community growing spaces	1-3 years	NHSL Estates & Facilities	Staff time
Deliver an ongoing programme of nature based activity at major hospital sites	Ongoing	NHS Lothian Charity; Cyrenians, RSPB, ELGT, TCV	Staff time & partnership funding
Develop the NHS Lothian Green Health Network to support staff and partners deliver nature based activities	Ongoing	NHS Lothian Charity	Staff time
Develop a programme of citizen science linked to national schemes to support the monitoring and evaluation of biodiversity projects.	1-2 years	NHS Lothian Charity	Staff time & partnership funding

9.0 Monitoring and Data



Effective monitoring and data collection are crucial for the success of the NHS Lothian Biodiversity Action Plan. This section outlines the framework for tracking progress, evaluating impact, and ensuring continuous improvement in our biodiversity initiatives. We will use our Natural Capital Asset map to monitor progress**,** work with The Wildlife Information Centre (TWIC) to provide data on species and track our actions through the NHS Lothian Sustainable Development Management Group.

The Natural Capital Asset map is a Geographic Information System (GIS) basemap containing information on habitat type, extent and condition of 96 NHS Lothian sites. From this information the following metrics can be calculated at both the site and estate level:

1. **Summary statistics** - Greenspace factor (or proportion of greenspace to other land uses) and summary statistics
2. **Biodiversity baseline –** Biodiversity metrics can be used to quantify the level of biodiversity at the site
3. **Ecosystem service baseline:** Flows of carbon sequestration and air pollution regulation can be quantified and their monetary value estimated.

Detailed species records are available from The Wildlife Information Centre (TWIC). TWIC is the Local Environmental Records Centre (LERC) for south-east & part of central Scotland that collects, collates and disseminates information on wildlife in our region. Data from TWIC can be used to support environmental decision making, site management and conservation. By providing our data to TWIC we can support the wider Local Biodiversity Action Plan partnerships and the National Biodiversity Network.

The NHS Lothian Sustainable Development Management Group brings together specialists across a wide range of health and environmental fields. This group provides the governance route into NHS Lothian corporate objectives and the NHS Scotland climate emergency and sustainability strategy: 2022-2026.

Actions	Timescales	Delivery lead & partners	Resources required
Implement a data review and update cycle for the Natural Capital Asset Map addressing data gaps and verifying accuracy.	Every 2 years	NHSL Sustainability Team	Staff time
Monitor the progress of Biodiversity Action Plan (BAP) actions through the NHS Lothian Sustainable Development Management Group.	Every 6 months	NHSL Sustainability Team	Staff time
Collaborate with TWIC to design a data flow model that will enable the sharing of ecological survey records.	1 year	NHSL Sustainability Team	Staff time
Establish a centralised digital repository for biodiversity data, ensuring data accessibility and interoperability (SAMS or NHSL sustainability dashboard)	2 years	NHSL Sustainability Team	Staff time / external consultancy
Communicate biodiversity progress and data findings to the public through Biodiversity Duty Report.	Every 2 years	NHSL Sustainability Team	