



Urban Rewilding

**The value and co-benefits
of nature in urban spaces**

Contents

| | |
|---|----|
| Preface | 3 |
| Executive Summary | 5 |
| Acknowledgements | 6 |
| Introduction | 7 |
| Delivering urban rewilding | 21 |
| Urban rewilding case studies | 24 |
| Conclusion | 56 |
| Appendix: Interviews and References | 59 |

Cover photo © Ville de Montréal
Frédéric-Back Park in Montréal, Canada, an ambitious rehabilitation project of a former landfill site into a vast re-naturalized public park. The iconic white spheres cover landfill biogas capture wells.



© Ville de Montréal

Preface

Nature sustains life on earth. It also influences all aspects of our lives, from the food and water we consume to our health and well-being, and this is as true in cities as it is in rural areas. But nature is under threat as never before.

“Since 2016, we have invested more than £28 million in green space and tree planting projects, including a Rewild London Fund, which will restore or create over 365 hectares for plants and animals to thrive.”

Cities have the potential to be ideal homes for exciting wildlife and host thriving habitats if we are willing to take on the challenge before us. In London, we are at the forefront of this effort. Since 2016, we have invested more than £28 million in green space and tree planting projects, including a Rewild London Fund, which will restore or create over 365 hectares for plants and animals to thrive. The results will be felt by all Londoners: cleaner rivers to swim in, safer air to breathe, and the joy of sharing our city with more beavers and bugs, bees and bats!

Despite the progress we have made, I am acutely aware that more needs to be done to tackle the ecological emergency, which is why I brought together the London Rewilding Taskforce to explore more opportunities to rewild our city. By identifying large-scale spaces where, with help, nature can recover and by encouraging Londoners to engage with the natural environment around them, we can go further and faster.

As this report shows, city leaders can learn from each other on how we can do more. At the most recent UN Biodiversity Conference (COP15), I signed the Montreal Pledge on Cities United in Action for Biodiversity led by Mayor Plante, which includes 15 actions that cities will take to reduce threats to biodiversity. Through this initiative and C40’s Urban Nature Accelerator, I look forward to sharing lessons from London and learning from other cities.

As C40 Chair, I would like to extend my sincerest thanks to everyone involved for demonstrating once again that cities are doers, not delayers. Our collective efforts to protect nature and address the biodiversity crisis are a template for nations to follow and will help ensure the viability of our planet for future generations.



Sadiq Khan
Mayor of London

Preface

As Mayor of Montréal, C40 Steering Committee Member and Vice Chair for Urban Nature, I am delighted by the release of this report on urban rewilding. Protecting and nurturing urban nature is key to ambitious climate action.

In Montréal, we are accelerating the ecological transition by putting biodiversity, as well as green and blue spaces, at the heart of our decision-making. The city's strategic plan, Montréal 2030, our Climate Plan and our Nature and Sports Plan concretely support this through targeted and large-scale actions.

At the COP 15 in December of 2022, the international community adopted the historic Kunming-Montréal Global Biodiversity Framework (GBF). Cities and local governments have once again recognised the urgency to implement this GBF. The clock is ticking.

To streamline efforts, Montréal has invited cities from across the globe to make a commitment to protecting biodiversity through fifteen tangible actions. Dozens of cities from all over the world have accepted the challenge and signed the Montréal Pledge.

Urban rewilding projects and nature-based solutions are key to fighting biodiversity loss and respond to the climate crisis while promoting human health and well-being. Both large-scale projects and targeted initiatives can have co-benefits that go beyond access to green and blue spaces. We need to let nature lead! Cities are full of great initiatives. I am thrilled that this report will allow some of them to shine and, hopefully, inspire others.



Valerie Plante
Mayor of Montréal

“At the COP 15, in December of 2022, the international community adopted the historic Kunming-Montréal Global Biodiversity Framework (GBF).”

Executive Summary

Transformational change in urban areas is crucial to reversing biodiversity loss and tackling the climate crisis. Cities are increasingly experiencing ecological degradation, often made worse by the effects of the climate breakdown with rising temperatures and more extreme weather. It is widely agreed that the biodiversity and climate crises are inseparable and must be solved together. Urban rewilding is a holistic approach with the potential to increase biodiversity within built-up areas and, at the same time, tackle the climate crisis.

This report defines urban rewilding as ‘restoring natural habitats and their processes in urban spaces, working towards a state of human-nature coexistence’.

Urban rewilding has a multitude of environmental, climatological and social benefits. These benefits include creating biodiverse and self-sustaining ecosystems, helping to mitigate and adapt to climate impacts, and improving human health and wellbeing. Urban rewilding aims to integrate natural processes and structures into urban spaces by creating and restoring habitats and reintroducing indigenous flora and fauna. Urban rewilding projects should be a critical element of a broader ambition to develop a network of interconnected green and blue spaces and corridors across the urban environment, which will facilitate human-nature coexistence.

This report summarises research that comprised three key elements. These were a literature review of online and academic publications, interviews with experts from key organisations and cities, and identification of urban rewilding case studies. The synthesis of this research was used to define urban rewilding and develop a set of principles and project typologies. These principles and typologies were then used to frame the case studies presented in this report. Twenty-two best-practice case studies from both the northern and southern hemispheres are presented. Analysis of these case studies led to the production of guidelines that will help other cities establish urban rewilding projects.

This report provides clarity on when and how urban rewilding projects can be implemented and how they can support city goals linked to environmental improvement and climate resilience. In addition, it will help signatories of the C40 Urban Nature Accelerator to meet their objectives for nature, particularly reversing biodiversity loss. Finally, cities can use this report to inspire and engage residents and other stakeholders on the opportunities and benefits that urban rewilding can deliver.

Acknowledgements

This report was authored and designed by C40 Cities and Arup with valuable contributions from the London Rewilding Taskforce, the Global Rewilding Alliance and a range of experts from international organisations and governments.

C40

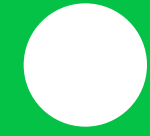
Amanda Ikert, Head of Climate Resilience
Sachin Bhoite, Director of Climate Resilience
Rebecca Ilunga, Senior Adaptation Manager
Amy Buitenhuis, Senior Manager of Urban Heat

Arup

Ben Smith, Director,
Climate and Sustainability Services, Climate
Neil Harwood, Associate Director,
Climate and Sustainability Services, Nature
Lily Ginsberg-Keig, Consultant,
Climate and Sustainability Services, Climate
Ishbel Campbell de Almeida, Senior Consultant,
Climate and Sustainability Services, Nature
Lizzie Meston, Senior Consultant,
Climate and Sustainability Services, Nature
Stewart Ramsdale, Designer

Greater London Authority

Abby Cristostomo, Head of Green Infrastructure
Kristiina Yang, Senior Policy and Programme Officer,
Climate Change and Green Infrastructure
Samantha Davenport, Green Infrastructure Senior Policy
and Programme Officer



One **Introduction**

Introduction

Rewilding follows the principle of letting nature lead by allowing for largely self-sustaining ecosystems and natural processes to become embedded within a landscape. Urban rewilding can bring nature back into cities by strengthening existing ecosystems, creating and supporting new habitats, and providing corridors for wildlife.

More than half of the world's population now lives in cities, and that number is expected to reach 68% by 2050. At the same time, nature is being lost at an unprecedented rate, with an estimated one million species at risk of extinction within the next decade. Human activity is driving this loss of nature through land-use changes, resource extraction driven by consumption, and the climate breakdown. It is estimated that only 3% of the world's ecosystems are functionally intact. The World Economic Forum (WEF) has identified biodiversity loss as the third most significant threat to humanity this decade, preceded only by climate action failure and extreme weather.

Cities have historically been places primarily for humans, with nature overlooked. Over time, this has started to change with the realisation of the importance of green space for human inhabitants. With the growing understanding of the impacts of the climate crisis and human existential ties to nature, cities are now seen as significant places to embed systemic change that works with and for nature.

Over thirty mayors representing the world's megacities have signed the C40 Cities Urban Nature Accelerator, thereby committing to ambitious nature targets to achieve climate resilience and embed an agenda for people and nature to support one another. Incorporating nature into cities through the enhancement and expansion of green and blue spaces can take many forms, such as tree canopies, green streetscaping, gardens and green roofs, urban parks, pocket forests, wetlands, estuaries, naturalised coastlines, hills, ponds, lakes, streams and riversides. Urban rewilding is a valuable tool for cities to achieve their nature targets.

This document defines urban rewilding, presents guidance for city practitioners wanting to promote urban rewilding in their city, and presents inspiring examples from cities worldwide.

“Our world must not only become net zero, but also nature positive, for the benefit of both people and the planet, with a focus on promoting sustainable and inclusive development. Nature, and the biodiversity that underpins it, ultimately sustains our economies, livelihoods and well-being.”

G7 2030 Nature Compact¹

¹ European Council (2021) [G7 2030 Nature Compact](#).

1.1 Why urban rewilding?

A literature review and interviews with experts were undertaken to understand the history of rewilding, its position in the wider context of conservation, and its applicability within urban spaces.

The term rewilding was first coined in 1992 by Dave Foreman, founder of The Rewilding Institute. Rewilding is the latest development in the policy and practice of nature conservation. While conservation seeks to protect and preserve the ecosystems we already have, rewilding looks to restore and create new ecosystems.

There has been wide acknowledgement that most landscapes and processes on the planet have been impacted by human activity. While carrying some of the same tropes as conservation, rewilding emerges as a practice which intentionally engages with varying perceptions of nature and seeks to re-integrate nature back into human spaces.

In 1992, the Earth Summit was held in Rio de Janeiro, and three conventions were formed. The United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD). Urban Rewilding can support countries' commitments to these United Nations Conventions through carbon sequestration, increasing climate resilience, enhancing biodiversity and ecosystem functionality, and combating soil erosion and desertification. In addition, urban rewilding can also contribute to the delivery of the UN Sustainable Development Goals (SDGs), including **SDG 11: Sustainable Cities and Communities**, **14: Life below Water** and **15: Life on Land**.



World leaders came together at the UN Biodiversity Conference, COP-15 (2009), in Montreal to agree on a new set of goals for nature over the next decade through the Kunming-Montreal Global Biodiversity Framework Convention. The framework sets out an ambitious plan to implement broad-based action to bring about a transformation in society's relationship with biodiversity and to ensure that, by 2050, the shared vision of living in harmony with nature is fulfilled. Urban Rewilding contributes to Target 12: 'Significantly increase the area and quality and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature and contributing to inclusive and sustainable urbanization and the provision of ecosystem functions and services'. The framework applies globally, and it highlights how cities and urban environments are important places for biodiversity.

In this report, we define ‘urban’ as spaces, such as cities or towns, with a high population density. The geographical scope of the urban environment includes the ecosystems operating within and around spaces influenced by high density human activity. The International Union for Conservation of Nature (IUCN) has identified urban ecosystems as areas to focus on in enhancing nature. IUCN have also established the [Urban Alliance](#) and developed the [Making Nature’s City Toolkit](#). Other organisations such as [Cities with Nature](#), [Urbanwetlands](#) and [Cities4Forests](#) are supporting the integration of nature within urban spaces. Work is also being undertaken to value and quantify nature, such as through the [Taskforce for Nature-related Disclosures](#). Urbanisation represents one of the biggest threats to the environment; therefore, cities need to become places of transformation for nature.

Over time, urban spaces have developed unique ecosystems as species have learnt to adapt and succeed in these challenging and dynamic environments. Rather than cities being perceived as separate from nature, future planning and development should work towards incorporating nature. Integrating nature within cities has a vital role to play in establishing a sustainable future for both humans and the more-than-human world.

As well as providing crucial spaces for humans to coexist with other species, urban rewilding can increase a city’s resilience to the climate crisis. Self-sustaining and biodiverse ecosystems can regulate temperatures, mitigate extreme weather events, improve a landscape’s ability to filter and store water, and improve air quality.

1.1.1 Defining urban rewilding

Over the last decade, the concept of rewilding has gained publicity and political awareness, leading to the development of organisations specific to its cause, such as the Global Rewilding Alliance, Rewilding Britain and The Wild Foundation. To date, most rewilding projects have been in rural areas, for example, Knepp Wildland, a rewilding farmland project in West Sussex, UK, and Patagonia Park, a rewilding project in Argentina.

Rewilding is seen as a conservation tool to employ on a large-scale whereby natural processes are reinstated and ecosystems become fully functional. These projects are often carried out on brownfield, agricultural, or environmentally degraded land. Typically, projects are implemented on a scale over 1,500 hectares, which supports an ecosystem’s functioning and allows for the reintroduction of keystone species. However, there is an emerging debate about the role rewilding can play in urban settings. This debate is particularly centred in London with the creation of the **London Rewilding Taskforce** and the recent publication ‘Rewilding our Cities’ by the Zoological Society of London.

In December 2021, Sadiq Khan, the Mayor of London and Chair of C40 Cities, announced the establishment of the **London Rewilding Taskforce**. The Taskforce, which comprises 14 experts from across the public and private sector, is exploring how rewilding can be implemented in London to support the recovery of nature and the enhancement of biodiversity. The focus is on larger areas for rewilding, typically over 100ha, and re-imagining the Green Belt around London. To develop its guiding principles, the Taskforce underwent an expert review and a public consultation. This in-depth work has guided the urban rewilding definition and principles developed for this report.

While there are many benefits associated with urban rewilding, there are challenges and limitations to the term and concept. These include:

- The potential conflict of interpretations of more traditional forms of rewilding and urban rewilding. Rewilding outside of cities is seen as a hands-off approach to nature restoration; however, in cities, some level of human intervention is often required, such as removing invasive species. The cityscape is a space that has fundamentally been designed by and for humans; therefore, nature has irrevocably changed and requires maintenance and monitoring.

- The translatability of rewilding across different cultures and societies. For example, rewilding translates to ‘ré-ensauvagement’ in French. Sauvage, meaning wild or untamed, was used historically as a derogatory term for indigenous people, so it has negative connotations. Rather than using the word rewilding, some countries use terms such as ‘re-naturalisation’ or ‘restoration’ to describe urban nature projects.
- The binary between nature/wild and human/civilised is a Eurocentric idea often associated with colonial ideology. However, there are many other ways of thinking about the relationship and interactions between humans and the more-than-human world. For example, many cultures see the worlds of humans and non-humans as interrelated and dynamic rather than representing a dichotomy.
- Perceptions of how nature and cities should look. For example, traditionally, cities are seen as built-up human landscapes, and nature within city boundaries is highly maintained and manicured. This traditional view also regards green space as a sign of gentrification.

Ultimately, urban rewilding is an ecological strategy aiming to restore natural processes and ecosystem functionality, preferably with little human intervention or desired end-state in mind. Instead, it aims for nature to become self-sustaining. The report defines urban rewilding as **‘restoring natural habitats and their processes in urban spaces, working towards a state of human-nature coexistence’**.

1.1.2 What does urban rewilding look like in cities?

Cities are increasingly declaring both a climate and ecological emergency and moving towards a more systemic approach to design. This situation has led to several concepts that give nature a central role in designing and managing urban areas. For example, nature-based solutions aim to ‘work with’ rather than ‘resist’ nature to provide flexible, multi-purpose and resource-efficient urban systems that are truly resilient. In the context of cities today, urban rewilding is not achievable or suitable everywhere. Instead, a patchwork of interconnected urban rewilding interventions combined with nature-based solutions and green infrastructure (broadly defined as human-made green space or environmental features) provides the connectivity required to give nature the freedom to drive change and enable the re-establishment of natural processes. While green infrastructure denotes human-designed interventions and features, urban rewilding aims to integrate existing natural processes.

For urban rewilding to succeed, societies must shift their understanding of what constitutes valuable natural space in urban areas. An interconnected network of green and natural spaces at a landscape scale is essential for biodiversity recovery. Joined-up habitats are essential for the functioning of ecosystems and the reintroduction of natural processes. Urban rewilding efforts can be advanced with the support of established urban greening frameworks, typologies and agendas. These initiatives can provide landscape-scale connectivity of and to rewilded habitats.

For example, connecting urban rewilding sites through a tree-lined rain garden along an urban street, a typical nature-based solutions/green infrastructure typology, will enable certain species to move between interventions and provide a mutually beneficial relationship. Urban rewilding can be combined with nature-based solutions and green infrastructure to maximise biodiversity recovery within cities and improve ecological resilience to the climate crisis.



© Photo by CHUTTERSNAP on Unsplash

1.1.3 Urban rewilding principles and typologies

The following principles have been developed from the literature review, engagement with the London Rewilding Taskforce, interviews with experts, and cities and case study research. These principles underpin successful urban rewilding projects. It is important to note that urban rewilding projects will not necessarily meet each principle exactly; however, over time, they will seek to fulfil each one. The five urban rewilding principles are:

One.

Let Nature Lead.

The reinstatement of natural processes into new and existing ecological spaces, such as the introduction of indigenous plants, species reintroduction or deculverting rivers, supports the functioning of a sustainable, biodiverse and connected ecosystem.

Two.

Work at an appropriate scale for the urban context.

The scale of a project should be determined through consideration of the urban area, such as population characteristics and density, functions and size.

Three.

Create resilient landscapes by considering the past, present, and future.

The restoration and/or creation of habitats and ecosystems should both acknowledge the topography and history of the landscape and the current and future impacts of the climate crisis.

Four.

Ensuring rewilding can be experienced by all.

Urban rewilding projects require initial and ongoing interventions and maintenance to ensure the safety and co-existence of nature and people.

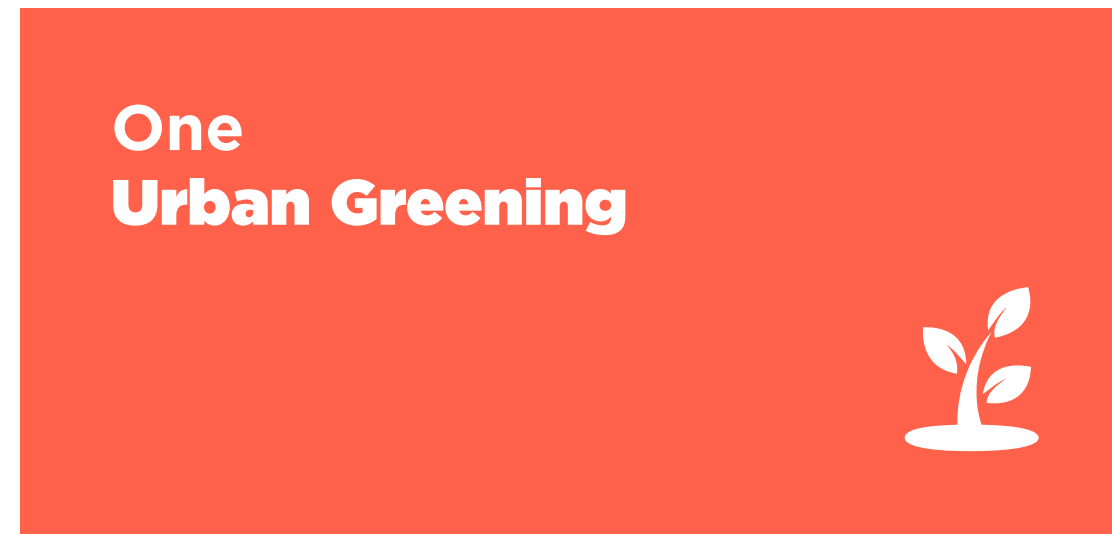
Five.

Recognise opportunities to support local economies.

Urban rewilding projects can provide socio-economic benefits and opportunities, such as access to ecosystem services and green space, and job and skills creations.

1.1.4 Urban rewilding typologies

As guidance for cities, four typologies for urban rewilding have been proposed:



The typologies offer a progressive approach to integrating urban rewilding in cities, starting with urban greening and eventually expanding to large-scale projects.

Urban Greening

Urban Greening projects are the first steps towards reintroducing native plants and natural processes, often in places severely degraded or posing significant physical space constraints. These projects introduce local biodiversity and nature into the urban environment; however, they do not fully meet the definition and principles of urban rewilding.

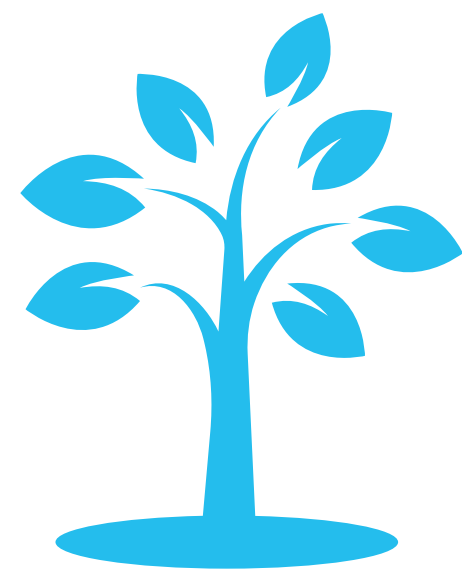
The **First Nations Garden** was implemented in 2019 by the community organisation Chi-Nations Youth Council in Chicago, United States. Plots were planted with indigenous species that hold significance to indigenous communities intending to create a healing space. Plants included prairie sage, sweetgrass, strawberries, echinacea and rose milkweed. The project also encouraged the creation of 'guerrilla gardens' across 100 different urban areas. A proportion of these spaces included plants typical of prairie grassland, which have the added benefit of increasing carbon sequestration. While the project has not yet resulted in habitat creation or self-sustaining regeneration, it uses natural processes, including native plants, sunflowers and tobacco, to detoxify the soil for future ground planting and natural growth.



© Photo by Jonathan Kemper on Unsplash

Small-scale

Small-scale urban rewilding is the ecosystem restoration of specific landscape features, such as pocket forests, wildflower meadows, re-naturalising neighbourhood parks, gardens, roadside verges and hedges. Small-scale urban rewilding projects are typically under 50 hectares (approximately 124 acres). Sites under 50 hectares are appropriate for space-constrained urban environments.



Städte wagen Wildnis is a public-private initiative financed by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Federal Agency for Nature Conservation. The project aimed to restore plots of land, such as building sites, vacant plots and parks across the cities of Dessau, Hanover and Frankfurt in Germany. It focused on creating and restoring specific landscape features, such as wildflower meadows, to increase biodiversity within urban spaces. The sites were designed to become self-sustaining habitats without the need for active management, such as watering and weeding. The team further considered the importance of the areas becoming climate resilient in light of rising temperatures.

- In Dessau, the project was affiliated with the local World Wildlife Fund (WWF) branch and focused on re-establishing wild fruit tree populations in floodplain areas.
- In Hanover, the project became part of the wider community initiative 'Mehr Natur in der Stadt' (More Nature in the City). Eleven areas were chosen for urban rewilding and focused on woodland creation and waterway re-naturalisation.

- In Frankfurt, the key focus was to create educational opportunities for residents through presentations and workshops. In addition, the team wanted to develop sustained interest and engagement with the urban rewilding projects through these events and thorough documentation of the sites.

Detailed monitoring and data collection took place to understand the changes in the landscape and the diversity of plant and animal species. The project increased pollinators such as butterflies and bees and other species such as frogs, bats, birds and hedgehogs.



© Photo by Stephan Eickschen on Unsplash

Corridors

Connecting spaces designed to link the small-scale to the large-scale through creating green corridors, restoring rivers and streams, and ensuring pathways exist between habitats to enable wildlife to move freely across urban spaces.



The **Sanlihe River Ecological Corridor Project** in Hebei Province, China, was designed and implemented by the Landscape Architecture Firm Turenscape and financed by the municipal Government. The Government commissioned Turenscape to recover the Sanlihe River, restore the ecosystem and design an ecological corridor. The main objectives were to increase biodiversity, mitigate flood risk and provide a new area for residents. Originally, the Sanlihe River had connected to the Luan River Watershed; however, accelerated industrial development and population growth in the 1970s had polluted and blocked the river causing the surrounding environment to become severely degraded.

The ecological corridor is 8.3 miles long and extends across the city of Qian'an. Significant interventions were required to restore the area, including sewage removal and management, water treatment, removing concrete surrounding the river and planting of trees and vegetation. The objective was to create a self-sustaining riparian wetland system by protecting existing trees and introducing endemic species. In addition, due to the extent of human damage, a pipe was installed to connect the Sanlihe River to the Luan River to control the water flow during extreme rainfall. The pipe works in tandem with the river restoration work to mitigate flood risk. The river restoration forms part of a series of river and wetland systems throughout the city, enabling the movement of wildlife across the urban environment.

Residents and community groups were engaged throughout the process; this included teaching residents about the cultural and environmental heritage of the river and consulting residents on key amenities for the space. As a result, a boardwalk, observation platform, children's play areas, and walking and cycling paths were constructed to encourage residents to frequent the area. Art installations were included to reflect the culture and history of the province.



Large-scale

Landscape-scale restoration to encourage self-sustaining habitats and species interdependence, such as catchment areas (including river systems), multi-geological typologies, Green Belt, Marine Protected Areas, National Parks, and internationally designated sites. This definition is based on discussions with the London Rewilding Taskforce, where it was agreed that large-scale urban rewilding projects should be over 50 hectares.



In 2002, the **Delhi Biodiversity Parks** was established in response to growing concerns of rapid urbanisation, an increasing population and decreasing biodiverse habitats. The parks were created to protect and restore key habitats, encourage the development of self-sustaining ecosystems and provide ecosystem services. The Delhi Development Authority have created a total of seven Biodiversity Parks:

- **Yamuna Biodiversity Park:** the creation and restoration of wetland habitats for migratory bird species.
- **Aravalli Biodiversity Park:** the reintroduction of butterfly and moth species to improve population numbers and the protection of medicinal plants.
- **Neela Hauz Biodiversity Park:** the restoration of a landfill site into a lake and wetland system through debris removal, detoxification of the water and desilting the lake.
- **Tilpath Valley Biodiversity Park:** the protection of habitat for keystone species, such as leopards.
- **Kamla Nehru Ridge:** the protection of indigenous plant species by removing the invasive tree species, Vilayati Kikar.
- **Tughlaqabad Biodiversity Park:** the protection of the existing underground water systems and wetland habitat.

- **Kalindi Biodiversity Park:** the restoration of riparian forest and floodplain systems.

To support the maintenance of the Biodiversity Parks, the Delhi Biodiversity Foundation and Regulations were established in 2004. Benefits of the parks include improved water and air quality, floodwater management, carbon sequestration and lower temperature levels. They have also helped increase residents' understanding and appreciation of natural resources through educational programmes and events. In addition, the parks form part of a connected mosaic of habitats across the city of Delhi.



1.2 What are the benefits of urban rewilding?

Urban rewilding has a multitude of benefits for both the human and the more-than-human world. It can provide a cost-effective and low-management option for climate mitigation and adaptation and accelerate nature recovery. Urban rewilding can:

- Help towards climate mitigation by reducing carbon emissions and increasing carbon sequestration rates. A biodiverse and structurally complex habitat stores higher quantities of carbon.²
- Support climate adaptation by increasing a city's resilience to extreme weather events. For example, urban rewilding around rivers or coastal areas can act as a natural barrier to flooding, sea surges and storms, and increased canopy cover helps combat the urban heat island effect.
- Improve air quality through plants and trees which filter pollutants.
- Be beneficial for human health and wellbeing by increasing access to green space and creating areas for physical activity, social interaction and community-building. Nature has been shown to be beneficial to both physical and mental health by reducing stress and disease and improving resistance to zoonotic diseases.³

- Provide economic opportunities through job creation, upskilling of local residents and ecotourism.
- Create connections between humans and nature by increasing understanding of the benefits of nature to humans and improving eco-literacy.
- Protect, restore and create key habitats, including the removal of invasive species.
- Enhance biodiversity and increase the resilience of urban habitats as self-sustaining ecosystems.
- Slow species loss, encourage the return of species to urban spaces, and increase the resilience of existing populations of species.
- Improve the connectivity of green and blue spaces by creating a network of habitats across a city.
- Create green and blue corridors between urban and rural areas to allow for the movement of wildlife across the broader landscape.

² UN Environment Programme (2014) The Relationship between biodiversity, carbon storage and the provision of ecosystem services.

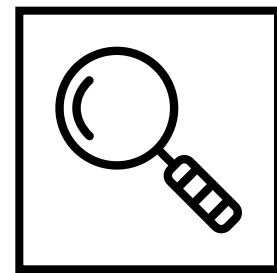
³ Lawler, K. et al. (2021) The COVID-19 pandemic is intricately linked to biodiversity loss and ecosystem health.



© Ville de Montréal

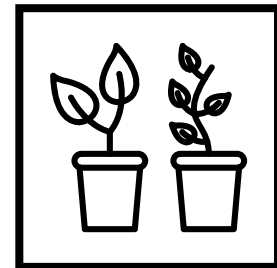
1.3 Measuring the benefits of urban rewilding

The following criteria can be used to measure the success of urban rewilding projects:



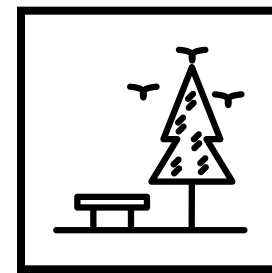
Species density, abundance and distribution

- Number of types of species
- Density of species types
- Extent of species range within urban environment
- Identification of species by habitat type



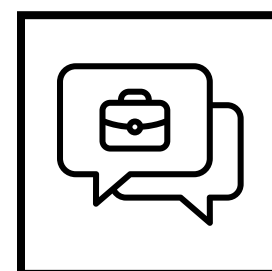
Habitats

- Identification of habitat types
- Area size of habitat types
- Number of types of plant species
- Canopy cover
- Carbon sequestration



Landscape

- Measurement of water quantity and quality
- Measurement of air quality
- Soil testing - both visual and laboratory based
- Identification of natural processes
- Identification and number of corridors



Social

- Number of jobs created
- Number of volunteers
- Number of visitors

For a more detailed analysis of urban rewilding measurement criteria, cities can refer to the [IUCN Urban Nature Indices](#). Cities can also look to involve residents in the measuring and monitoring of urban rewilding projects through a 'resident science' programme.

1.4 What are the challenges and limitations of urban rewilding?

While there are many benefits to urban rewilding, it is also important to consider potential challenges. These could include:

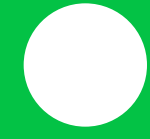
- Barriers to cities' ability to implement projects of an appropriate scale due to existing infrastructure and disconnection between spaces.
- A policy landscape that hinders the implementation of urban rewilding projects, for example, the classification of species and policies that promote traditional forms of conservation.
- Instances of human-wildlife conflict whereby the return or reintroduction of a species causes damage or intrusion in cities.
- Concerns about human safety resulting from the creation of areas in cities with minimal lighting and areas of plants and trees that are not maintained.
- Presenting a viable business case for urban rewilding
 - many urban rewilding projects are funded through a mix of private and public bodies. This can include government grants and philanthropic funds which can be complex to apply for.
- Difficulties of quantifying the value and co-benefits of nature within urban spaces.

While these challenges of urban rewilding exist, it is still an important method of nature restoration as it provides new ways for communities to interact with nature as a cost-effective,⁴ low-maintenance option to make space for nature within cities. Urban rewilding can provide significant benefits and opportunities for both humans and non-human species as evidenced above.



© Ville de Montréal

⁴ Pettorelli (2019) Making rewilding fit for policy.



Two **Delivering** **urban rewilding**

2.1 Guidelines

Cities can utilise the following guidelines, based on 'best practice' case studies, when designing and implementing urban rewilding projects. These guidelines are intended to facilitate the development and implementation of urban rewilding projects and to support the identification of existing urban rewilding projects.



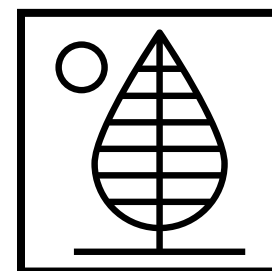
Identifying potential sites for urban rewilding

Urban planners, park administrators, or project developers can consider whether existing green or blue spaces can be transitioned into urban rewilding projects. Additional spaces that can also be considered include abandoned land or underutilised spaces, such as alleyways or parking lots. Cities could also consider areas particularly vulnerable to climate breakdown and no longer desirable for human populations, such as areas of coastal erosion. The scale and number of spaces can also be considered; cities can start to implement urban greening projects before moving onto small, corridor and large-scale urban rewilding projects.



Areas that are identified should undertake an environmental baseline assessment

An environmental baseline assessment involves understanding the quality of the soil, groundwater and existing vegetation. This will enable cities to understand the human interventions that are required to catalyse the urban rewilding.



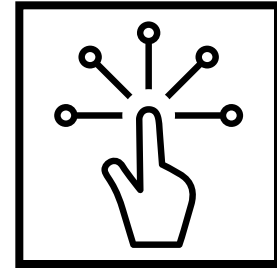
Working at a scale ecologically appropriate to the project

When designing and developing a rewilding project, the individual, organisation, community or government must consider the appropriate scale for the ecosystem they are intending to create. For example, the amount of space that large herbivores need and/or the range of wildflowers that pollinators need to flourish.



Developing a vision or goal for the project

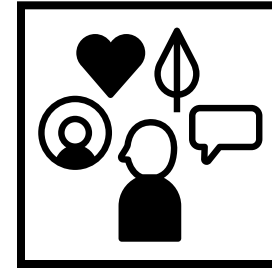
It is essential to have buy-in to the project and to agree upon a vision or goal for its future. Note that this is not an endpoint but rather an indicator of project's health. For example, many rewilding projects identify an environmental baseline they intend to achieve. Moreover, creating a vision/goal facilitates residents and community engagement, safeguards the project for the future and aids the monitoring process.



Identifying key urban rewilding techniques

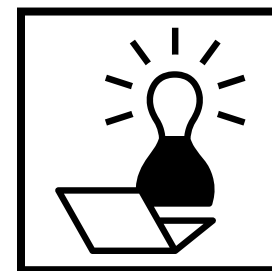
Project developers should seek to identify urban rewilding techniques, including ascertaining key species that can be reintroduced. Techniques include:

- Reintroducing natural processes to repair ecosystems and increase biodiversity, such as restoring wetlands, re-naturalising rivers and removing dams.
- Preserving, connecting, and expanding existing and new habitats.
- Introducing keystone species, such as pollinators, grazing animals or ecosystem engineers, such as beavers.
- Considering species density required for grazing animals.
- Protecting marine environments by creating protection zones, removing fishing pressure and restoring kelp forests and seagrass.
- Creating wildlife-friendly spaces by connecting green spaces, introducing indigenous species, removing invasive species and reducing human maintenance.



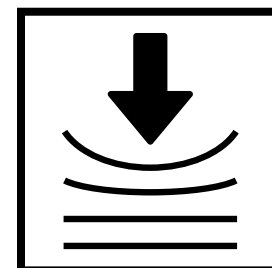
Identifying the necessary human intervention required to kick-start natural processes

Spaces set aside for rewilding often require human intervention to kick-start them to improve the land quality and establish natural processes. For example, removing concrete from a river system to re-establish the natural flow route.



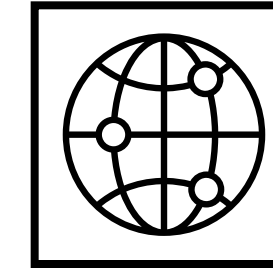
Identifying key ongoing roles for humans (or technology) to rectify historic damage

The introduction of invasive species, degradation of the land and /or the extinction of predator species as a result of human activities means humans having to play a long-term role in rewilding projects, for example, removing invasive plants and animals or controlling species populations.



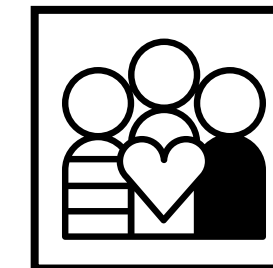
Adding climate resilience to local communities and their economies

Urban rewilding projects can increase a city's resilience to climate change. For example, increased tree cover can counteract the urban heat island effect, or restoration of coastal habitats such as mangroves can protect against sea surges.



Mitigating against the effects of the climate crisis

Urban rewilding projects can help to mitigate against the effects of the climate crisis through increasing the ability of the land and sea to sequester carbon.



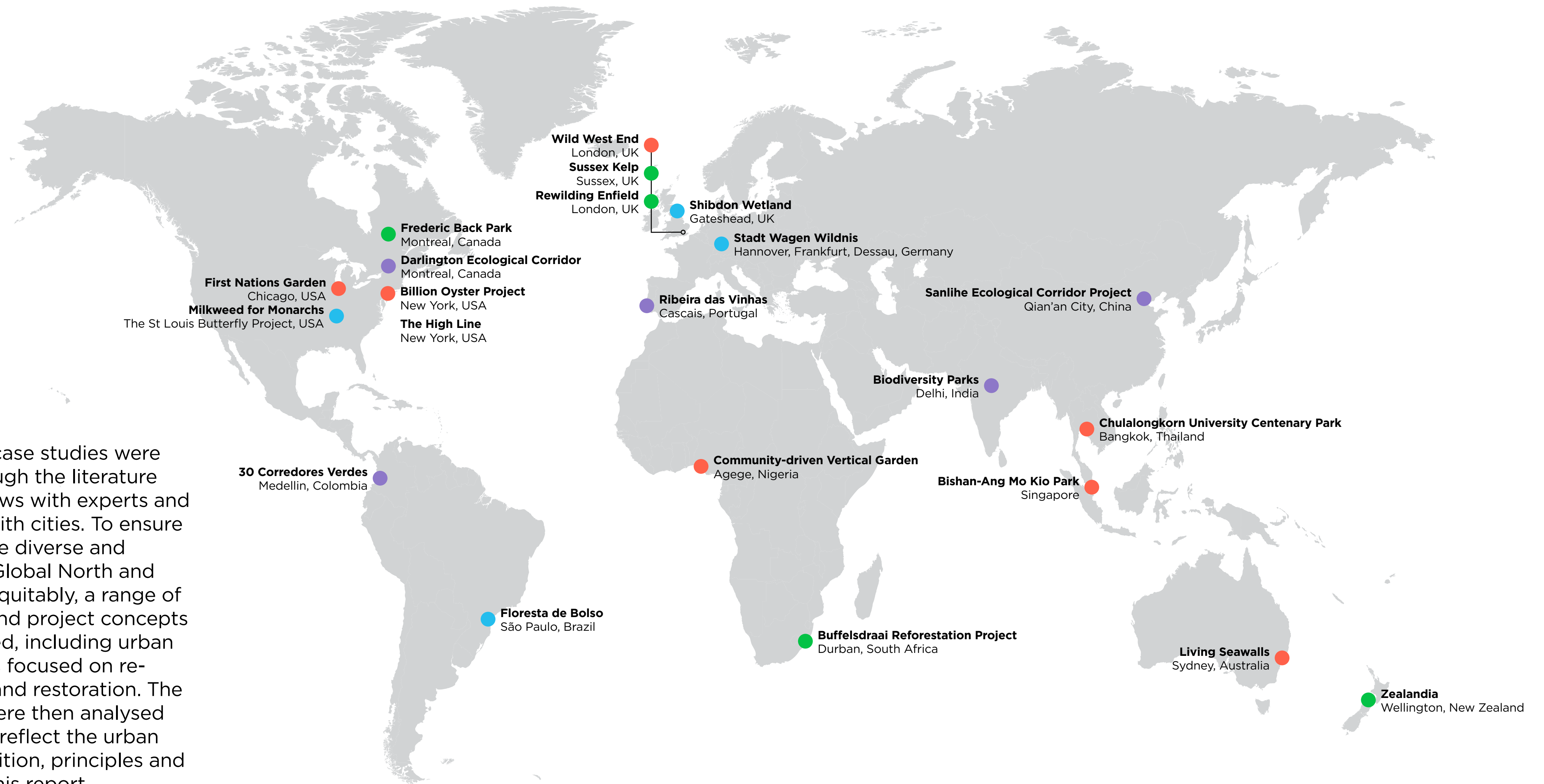
Safeguarding rewilding projects for the future

To maximise the environmental benefits of rewilding projects, they must be designed as self-sustaining habitats with the ability to adapt to changing circumstances and conditions. This means that habitats must be safeguarded indefinitely. For example, ensuring the designated land is protected by government legislation or through existing protections such as conservation covenants in the UK.



Three **Urban rewilding** **case studies**

- Urban Greening
- Small-scale
- Corridor
- Large-scale



The following case studies were identified through the literature review, interviews with experts and engagement with cities. To ensure case studies are diverse and represent the Global North and Global South equitably, a range of search terms and project concepts were researched, including urban nature projects focused on re-naturalisation and restoration. The case studies were then analysed to ensure they reflect the urban rewilding definition, principles and typologies in this report.



3.1 Urban Greening

Globally, cities have begun to reintroduce and re-discover nature in the urban environment, whether through green infrastructure, preserving existing sites, or encouraging residents to engage with their natural surroundings. These interventions are crucial to encouraging biodiversity and natural processes within cities. The following themes and projects represent the first steps cities can take in their journey towards integrating the principles of urban rewilding within their cities.



3.1.1 Community Gardens

Community gardens can be the first step in a city's journey to incorporate urban rewilding. They provide a starting point for the local community to engage with nature. Community gardens should look to use indigenous species that are climate resilient and significantly increase biodiversity. These spaces can then support larger-scale urban rewilding sites, such as pocket forests or existing green spaces within the city. The aim is to develop a mosaic of habitats across a city to counteract the increasing fragmentation of ecosystems in urban areas.

Lagos, Nigeria: vertical garden project

A community-driven vertical garden project in Lagos, Nigeria, is helping to lower temperature levels, increase biodiversity and provide alternative food sources. The project, led by a collaboration between the University of Cardiff and leaders in the Yoruba community, is based in Agege, one of Lagos' most densely populated areas. Climate breakdown is adversely impacting the area, leading to increasing droughts and floods, which affect impoverished communities disproportionately.

The project chose indigenous plants for their biodiversity value and additional benefits. For example, aloe vera offers medicinal properties, and Lantana Camara, a flowering plant, acts as a natural snake repellent. As a result, the project succeeds in increasing biodiversity and providing residents with the additional benefit of medicinal plants.

To move to a small-scale urban rewilding project, the community could look to implement pocket forests in unused spaces; these can become a place for residents to connect with nature and form the starting point for creating a mosaic of habitats to enhance biodiversity.



© Franz Xaver, GFDL, cc-by-sa

3.1.2 Harbours

Harbours can be a significant site for urban rewilding for coastal cities. The rewilding of marine habitats is an emerging area with only a handful of projects underway. Simple measures, such as prohibiting harmful fishing activities or extending marine-protected zones, can allow nature the time and space to recover. In addition, implementing blue infrastructure, such as artificial coral and reefs, can act as a first step for urban rewilding, as such initiatives help create a biodiverse marine habitat.

Sydney, Australia: 3D printed coral

In Sydney Harbour, the placement of 3D-printed coral along the harbour wall is helping to combat rising sea levels and increase biodiversity. This form of eco-engineering mimics the natural structures and textures of coral and marine habitats. The project aims to attract fish, molluscs and aquatic plants. Over a two-year period, site monitoring recorded a 20% increase in biodiversity. In 2022, following the project's success, the Australian government announced an AU\$ 9.1m 'Seabirds to Seascapes project' to further restore the harbour area.

The project has led to significant increases in biodiversity; however, these gains could be amplified to create a fully functional and self-sustaining habitat. In the project's next phase, the focus could be on reinstating natural processes through the restoration of kelp forests and seagrass and the reintroduction of key species.



© Photo by Michal B. on Unsplash

New York, US: Billion Oyster Project

The Billion Oyster Project aims to restore the New York City Harbour ecosystem by reintroducing one billion oysters by 2035. The project focuses on increasing the resilience and biodiversity of the marine habitat through oyster restoration. Oysters were once a primary supply of food to the city. Oyster shells were collected from restaurants and recycled to make artificial reefs installed across 15 sites. Since the project's inception, species such as the Sea Robin, Seahorse, Orange Sheath Tunicate and Red Beard Sponge have been recorded. In addition, the project is helping to build city climate resilience by mitigating extreme weather damage, flooding and the erosion of shorelines. The oyster acts as an ecosystem engineer as it filters the water and improves water quality, resulting in enhanced biodiversity and the return of other species. Over time, the project could consider reintroducing other species and extending marine protection zones to create a network of marine habitats.



© Photo by Stephen McFadden on Unsplash

3.1.3 Elevated Structures

Elevated structures, such as rooftops, planters and balconies, can act as a starting point for increased biodiversity within urban spaces. By planting resilient indigenous species, sites typically require little maintenance while adding to the biodiversity of the city ecosystem. The placement of flowering plants can also encourage pollinators, such as butterflies and birds into urban spaces. These sites can therefore act as the first step in the creation of habitats across a city. They can establish valuable links between green spaces within and outside of the city landscape.

London, UK: Wild West End

The vision for Wild West End is to create spaces for both wildlife and people within central London. Since the project's inception, green roofs, walls, planters and pocket parks have been designed across London to bring back pollinators, birds and bats to urban spaces. Key target species include the Black Redstart and the House Sparrow. The project requires substantial maintenance and monitoring to safeguard the habitats. While the additional areas help create a cooling effect, it has become apparent that in extreme temperatures, they require significant intervention and watering systems to survive. In the future, the square and gardens can be re-designed to incorporate urban rewilding techniques to create an interconnected network of green spaces across the city. For example, ensuring hedgerows are species-rich by planting a diverse vertical structure.



New York, US: the High Line

The High Line in New York was originally an active railroad; however, in the 1980s, it fell into disuse. The High Line soon became taken over by plants and wildlife. This state inspired the local community to form the non-profit organisation 'Friends of the High Line' and to campaign to create a new public space. The High Line was subsequently transformed into a 1.45-mile-long 'greenway' of multiple different plant and tree species to create places for people and wildlife. The gardens were cultivated to mimic the natural processes of plants and trees and to establish spaces for pollinators and birds. The garden requires high levels of maintenance, which prevents the reinstatement of self-sustaining natural processes. To reduce maintenance requirements and increase biodiversity, the community could install wildlife-friendly lighting, plant low-maintenance indigenous species and link the High Line to other green areas through pocket parks.



3.1.4 Landscaped Parks

Landscaped parks can be a starting point for urban rewilding projects as they already provide valuable green space to cities. By incorporating urban rewilding techniques, parks can accelerate the ecological transition within urban areas. Cities can use existing parks as a centre point to build green corridors and small-scale urban rewilding projects to ensure ecosystem connectivity. This approach has the added benefit of creating corridors for humans and wildlife. Moreover, parks already act as places of recreation and education and therefore provide an opportunity to increase a community's understanding and appreciation of nature.

Singapore: Bishan-Ang Mo Kio Park

In 2013, as part of the 'Active, Beautiful, Clean Waters Programme' in Singapore, Bishan-Ang Mo Kio Park was transformed. The intention was to implement natural flood management techniques, including removing a concrete channel added to the Kallang River when the park was originally designed. Other measures included the creation of a river ecosystem and implementing an artificial wetland with rock-filled gabions to create the riverbanks and plants and vegetated bioswales to purify the water. While revitalising the park and river has resulted in a reported 30% increase in biodiversity, the artificial structures require ongoing maintenance. In the future, the park management could look to seed and plant indigenous species, which would increase ecosystem functionality.



© Photo by Mark Stoop on Unsplash

Bangkok, Thailand: Chulalongkorn University Centenary Park

From its inception, Chulalongkorn University Centenary Park in Bangkok integrated biodiversity, increased accessibility to green space and climate resilience. But as the incidence of extreme weather events, such as progressively more heavy monsoon rain, increased in Bangkok, the park's design was adapted to increase Bangkok's climate resilience by mitigating against flood risk. In the second phase of the park's creation, trees were planted along the main road leading out of the park. As a result, the park's design has also succeeded in increasing biodiversity. In the future, biodiversity can be supported and expanded by implementing smaller parks or pocket forests to create a network of connected habitats across the city.



© Uwe Schwarzbach/flickr



3.2 Small-scale



Milkweed for Monarchs: The St. Louis Butterfly Project, Missouri, USA

St. Louis is a midway point in the monarch butterflies' 3000-mile migration; however, their preferred habitats had become degraded. Community-led initiatives established monarch gardens throughout the city to compensate for this loss of habitat. This drive was supported by the development of the St. Louis Butterfly Byway, a stretch of land planted with indigenous species typical of prairie habitat.



© Catherine Werner

Project Objectives

- To promote spaces for humans and wildlife to share, to foster eco-literacy and connect people to the natural environment.
- To boost urban biodiversity and establish pollinators' habitats by creating small-scale butterfly gardens.
- To create habitats specifically for the monarch butterfly to increase numbers and encourage the development of natural processes.
- To increase the number of accessible green spaces in the city and provide education opportunities for communities.

Key Lessons

The project's success resulted from the government's engagement with residents and local communities. Residents were involved in the planning and design of the project through a series of workshops and participated in its implementation through the planting of the Monarch Butterfly Gardens and the St. Louis Monarch Butterfly Byway.

Project Overview

The Milkweed for Monarchs project is part of a wider movement in the United States to create habitats for Monarch Butterflies. Envisioned as a public-private initiative to connect people with nature and create a greener city, the project was led by the St. Louis Mayor and the Sustainability Director. First, a stakeholder workshop with various residents and experts discussed how to foster community engagement, accessibility and the necessary ecosystem for monarch butterflies. Subsequently, the local government asked individuals, businesses, schools, and communities to create gardens with specific plant compositions that were in decline. The list included milkweed, goldenrod, and New England aster.

The project team committed to establishing 50 monarch gardens and encouraged the community to create a further 200. In 2015, the project was further expanded with the creation of 50 monarch butterfly gardens in schools and the larger-scale project of the St. Louis Riverfront Butterfly Byway.

The Milkweed for Monarch project resulted in the creation of urban prairies, self-sustaining monarch butterfly habitats, increased access to nature, improved health and wellbeing of residents, and learning opportunities for schools and communities. The primary interventions included the creation of small-scale monarch butterfly gardens in private homes, community areas, schools and public buildings and designing a pollinator pathway along the Mississippi River.

Implementation Drivers

- **Supporting policies:** The project was included in the City of St. Louis Sustainability Plan and their Urban Vitality & Ecology and Biophilic Cities efforts. However, these policies did not provide the framework needed to maintain the project or the necessary resource to manage the programme.
- **Funding:** The project successfully received grants and donations, such as \$160,000 from the US Conference of Mayors GRO1000 and Greenspaces National Award, \$155,000 from the National Fish and Wildlife Fund, and \$80,000 from the Eastern Tallgrass Prairie and Big Rivers Landscape Conservation Cooperative.
- **Stakeholder engagement:** The Mayor's Office and local government jointly led the project. Residents were included in planning and designing the monarch gardens in community spaces. They were also encouraged to adapt their own gardens and given guidelines and planting kits to facilitate this. Workshops and community events catalysed residents' participation, such as the annual Great MonArch Migration Event facilitated by the City and the National Park Service.
- **Climate resilience:** The project intended to restore key habitats for monarch butterflies to increase the species' climate resilience. The creation of habitats for monarch butterflies has supported St. Louis' broader Biophilic Cities efforts to increase biodiversity. In addition, implementing and protecting green space within the city mitigates the urban heat effect and improves air quality.

Shibdon Meadow Wetland Creation, Gateshead, England

The Shibdon Meadow Wetland Creation project was set up to create a wetland on a former landfill site. The intention was to establish a new wetland for wading and roosting birds to increase the area's biodiversity. Birds included the lapwing, sandpiper, kingfisher and cormorant.



© Photo by Ameer Fairbank-Brown on Unsplash

Project Objectives

- To transform a former landfill site into a biodiverse and resilient wetland.
- To restore natural processes by introducing Exmoor ponies as natural grazers.
- To create an interconnected and resilient ecosystem encompassing the Shibdon Pond and River Tyne.
- To encourage interactions between nature and people by creating observation platforms, walkways and accessible green space.

Key Lessons

The partnership between the Wildfowl and Wetland Trust, the Durham Wildlife Trust and Highways England led to the successful implementation of the project. The entities worked together to plan and design the site.

Project Overview

The Wildfowl and Wetland Trust (WWT) and the Durham Wildlife Trust (DWT) led the project. The site was divided into three areas; two owned by the Durham Wildlife Trust and the remaining area by Highways England. The parties agreed to design and implement a new wetland which would provide feeding and roosting sites for wading birds. The project aimed to increase habitat for wading birds and connect the site back to the River Tyne. The new wetland provided key connectivity between Shibdon Pond and the River Tyne and, subsequently, a wildlife corridor. To promote natural grazing, wild Exmoor ponies were introduced. However, the site is close to the highway, so fencing was erected to protect the Exmoor ponies. As a result, some areas require ongoing maintenance, which DWT volunteers carry out. In addition, an area of the land has been set aside as an emergency access route for Highways England.

Key interventions included altering the land topography, introducing Exmoor ponies as natural grazers, and bursting a water pipe to enhance the wetland.

Implementation Drivers

- **Supporting policies:** The project was supported by national policies for nature recovery and restoration, including the 25 Year Environment Plan and Local Environmental Policy.
- **Funding:** The project was granted £155,000 in funding through the Highways England Environmental Designated Fund.
- **Stakeholder engagement:** The local community was engaged during the site's implementation. Several measures were included to ensure resident participation and inclusion, such as designated walking paths, an educational billboard and an observation platform.
- **Climate resilience:** The creation of this site on a floodplain and its proximity to the River Tyne improved the area's flood resilience. Floodplains act as significant sites for the filtering and storing of water.

Floresta de Bolso | Pocket Forest São Paulo, Brazil

Over the last few years, São Paulo has been endeavouring to reintroduce and restore the ecosystems that existed before the city was built; the ecosystem was originally a mixture of rainforest and savannah habitats. The city's development led to a significant loss of biodiversity and the introduction of invasive species. Community groups worked together with the support of the local government to start developing pocket forests across the city.



© Shutterstock / ESB Professional

Project Objectives

- To create an interconnected ecosystem of pocket forests across the city by creating and restoring urban nature spaces and reintroducing natural processes.
- To encourage interactions between nature and people by creating accessible green spaces.
- To protect the water systems of São Paulo by preserving springs and rivers and creating rain gardens.
- To improve the city's climate resilience through increased green, permeable spaces to filter and store water to mitigate flooding.

Key Lessons

Engagement with and inclusion of residents across São Paulo was pivotal to the project's success. Local communities participated in the design and implementation of the sites. This approach provided new opportunities for people to engage and interact with nature and engendered a deeper appreciation of nature within the urban environment.

Project Overview

The idea of pocket forests was pioneered by the botanist Ricardo Cardim to reintroduce biodiversity and ecosystem connectivity to São Paulo. The project started on private land in 2013. It aimed to create a small-scale biodiverse forest through the vertical planting of indigenous species. Planting indigenous species safeguarded the site from future urban development as these species are protected by law in Brazil. The idea was for the pocket forests to be self-sustaining and require minimal maintenance. The success of the first pocket forest inspired local communities to begin carrying out projects across the city in areas such as parks, squares and abandoned plots of land. The spaces were typically less than 15m². Key interventions included removing concrete, debris and waste, soil detoxification, and planting trees and vegetation.

Implementation Drivers

- **Supporting policies:** The city of São Paulo's biodiversity strategy and action plan facilitated the establishment of urban forests across the city. Furthermore, the protection of indigenous plant species safeguarded the projects for the future.
- **Funding:** The project was primarily supported through private sector and community funding. Many private sector organisations, such as Heineken, sponsored the implementation of the pocket forests. Communities also self-funded projects by purchasing plants and recruiting volunteers for the commission.
- **Stakeholder engagement:** The project had significant stakeholder engagement with local communities through workshops and social media to engage volunteers. Local communities were involved in the identification and creation of the sites. The intention was to reconnect people with nature by planting the pocket forests; therefore, the spaces were resident-led and participatory.
- **Climate resilience:** The project yielded significant climate resilience benefits, such as flood mitigation resulting from the increased capacity of the soil to store water, mitigating the urban heat island effect, increasing the viability of endangered populations and sequestering carbon.



3.3 Corridor



Ribeira das Vinhas, Cascais, Portugal

To increase biodiversity and climate resilience and create a new space for nature and people, the city of Cascais undertook the restoration of the Vinhas River and the surrounding valley. The project established a green corridor from the mountains to the coast to act as a natural barrier to flooding and wildfire. The city was interested in utilising urban rewilding techniques that would work harmoniously with the local geography and topography and require minimal long-term maintenance. The re-naturalisation of the river and valley would restore the ecosystem to a point where it would be self-sustaining. Key interventions included the removal of debris and grey infrastructure, the restoration of the slopes of the valley and the riverbed, trail restoration using compacted sand, and the planting of indigenous tree and plant species.



© Cascais ambiente

Project Objectives

- To increase Cascais' climate resilience by reducing flood risk, creating a natural barrier to wildfires, and reducing the average temperature.
- To improve biodiversity by creating a green corridor from the mountain range to the coast and restoring the river and surrounding valley.
- To improve the health and wellbeing of residents by providing accessible green spaces and promoting walking and cycling.
- To demonstrate the value of nature-based solutions for climate adaptation over the use of grey infrastructure.

Key Lessons

The project diversified and improved Cascais' flooding mitigation programme as it illustrated the effectiveness of nature-based solutions such as urban rewilding. It further demonstrated the benefits of using nature-based solutions compared to traditional grey infrastructure measures. In addition, residents began using the route to commute between uptown and downtown Cascais.

The project's success in delivering multiple benefits at a low cost has led to widespread support. Furthermore, it has influenced the development of additional re-naturalisation plans across the city, such as the greening of roundabouts and alternative techniques for park management.

Project Overview

In 2017, the Municipality of Cascais began implementing a project to re-naturalise the Ribeira das Vinhas. The Municipality was considering new techniques for climate adaptation due to increasingly frequent extreme weather events. A critical part of the Local Climate Adaptation Plan was the re-naturalisation of the Vinhas greenway, stretching from the Sintra-Cascais Mountain Range to the coast. The greenway provides a corridor for wildlife and people across the city.

In addition, the Municipality decided to restore sections of agricultural land within the valley to honour the area's history and the farming community. The restoration of the greenway, including the valley and riverbed, has increased biodiversity in the area. Several measures help safeguard the space for nature, including removing grey infrastructure such as lighting. To encourage residents' understanding of the ecosystem, the Municipality decorated 52 wastewater bin lids with wildlife images. The restored greenway provides a green space for residents and a new commuting route through Cascais, with the added benefit of encouraging more people to walk and cycle.

Implementation Drivers

- **Supporting policies:** The project was supported by developing and implementing the 2017 Local Climate Adaptation Plan, which included bioclimatic architecture legislation.
- **Funding:** The project received an initial €380,000 from the municipality of Cascais and €10,000 from the Portuguese Environmental Fund.
- **Stakeholder engagement:** The Local Action Plan was developed in consultation with residents and businesses from a wide range of service areas such as civil protection, health, coastal management, planning and environmental protection. The Municipality organised hikes and talks to encourage resident engagement.
- **Climate resilience:** The project succeeded in decreasing flooding levels, increasing the capacity of the valley and river to store water, and reducing the urban heat island effect by two degrees Celsius. Two meteorological sensors and a water-flow sensor installed alongside the riverbed provided data to determine the effectiveness of nature-based solutions for flood mitigation. As a result, the project measured a 1-metre reduction in flood levels during rainfall of 65mm in 24 hours.

Darlington Ecological Corridor, Montreal, Canada

Fragmentation of habitats and ecosystems is one of the main challenges to the health and resilience of Montreal's wildlife and plant populations. One of Montreal's ongoing long term projects promoting ecological connectivity throughout the city is the Darlington Ecological Corridor. The Université de Montréal proposed this Corridor to create a green network running from Mount Royal to one of the main boroughs of the city, Côte-des-Neiges-Notre-Dame-de-Grâce.



© Photo by Jeremy Hynes on Unsplash

Project Objectives

- To promote the movement of wildlife (such as the red fox) and people throughout the city by focusing on greening and natural infrastructure.
- To provide opportunities for environmental education and promote citizen understanding of biodiversity and ecosystems.
- To involve university students and the research community to find solutions to the project's challenges in terms of green space connectivity.
- To participate in efforts for climate mitigation and adaptation by promoting active transport and increasing resilience to extreme weather events.

Key Lessons

Up to now, each new phase in the development process has presented challenges. It shows that it is necessary to have a long-term vision, to be able to adapt and to know how to seize the opportunities of redevelopment and potential partnerships that arise. Over the years, the Darling Ecological Corridor has become increasingly recognised and inspiring for other initiatives.

Project Overview

Initiated in 2014, the Darlington Ecological Corridor is a natural infrastructure project that proposes a green network connecting two campuses of the Université de Montréal (including one on Mount Royal) and the Namur-Hippodrome district (an ecological neighbourhood in planning).

Proposed by the Faculty of Sustainable Development, the project is supported by the Université de Montréal in collaboration with the Côte-des-Neiges-Notre-Dame-de-Grâce borough. The corridor will stretch for 7 km. It focuses on the development of an integrated ecological network through landscaping, urban agriculture, stormwater management and other ecological interventions to improve the living environment of residents. The project relies on the insertion of several small-scale ecological projects interrelated according to the development opportunities and needs of the various stakeholders.

Key interventions to date include expansion of woodlands, creation of meadows with pollinator-friendly plants, development of a nourishing forest in a public square and installation of various urban agriculture installations (collectives gardens, large containers, etc.).

Implementation Drivers

- **Supporting policies:** This project is in line with Université de Montréal's Transition Plan for sustainable campuses and Montréal 2030 Strategic Plan.
- **Funding:** The project received mixed public and private funding from the Université de Montréal, the Borough Council and the local community.
- **Stakeholder engagement:** The approach adopted is collaborative, participatory and partnership-based. It proposes interventions for and with the concerned actors (residents, citizens, municipality, institutions, businesses, organisations and experts).
- **Climate resilience:** The project goes beyond the preservation of biodiversity. It also aims to reduce heat islands, develop active transportation, improve stormwater management and promote environmental education and food security.

30 Corredores Verdes | 30 Green Corridors, Medellín, Columbia

Medellín instigated a comprehensive programme to create an interconnected network of green corridors and spaces across the city. The city is in the Aburrá Valley, which is part of the central region of the Andes Mountains. Human activity gradually caused the environment to severely degrade, and green areas across the city became fragmented. In response, the government began a programme to bring nature back to urban spaces and create a more sustainable future. The corridors were designed to mimic a natural forest, which involved choosing tree and plant species carefully to create a diverse vertical structure.



© Image by David Lopez from Pixabay

Project Objectives

- To restore degraded environments and reinstate natural processes to increase biodiversity and carbon sequestration.
- To create an interconnected network of green corridors and spaces to encourage the development of self-sustaining ecosystems.
- To improve the quality of life for residents by increasing access to nature and promoting healthier ways of living through the integration of bike and cycle paths.
- To increase Medellín's climate resilience by combating rising temperatures and poor air quality.

Key Lessons

The installation of the corridors demonstrated the significant impact of nature-based solutions on mitigating and adapting to the climate crisis. In the first three years, the urban heat island effect was reduced by two degrees Celsius. In addition, a bioclimatic study estimated that one corridor has the ability to sequester a minimum of 160,787 tonnes of CO₂ per year.

Project Overview

The 30 Corredores Verdes project has been operational since 2016. The programme was created as part of a broader goal to bring nature back to the city. Medellín had a severely degraded environment and was experiencing increasing impacts from the climate crisis. The first stage of work was to map the existing green spaces across the city and identify deteriorated or impoverished areas with improvement potential. A secondary aim was to upskill residents in these areas.

The green spaces' mapping considered the topography of the city, including existing valleys and river systems. The corridors were installed along artificial and natural routes, consisting of 18 roads and 12 waterways across Medellín. The objective was to create a network of green corridors for people and wildlife across the city. The success of the initial 30 corridors led to a further six being made. In addition, green roofs and green walls were installed, and parks were redesigned. As a result, the corridors have yielded a marked increase in biodiversity; species such as reptiles, birds and squirrels have been sighted. Key interventions included improving soil quality and planting 8,800 trees and plants selected for their resilience and ability to provide the appropriate habitat and food for wildlife.

Implementation Drivers

- **Supporting policies:** The project was supported by the 'Greener Medellín for you Programme'. The three-year programme aimed to increase climate resilience, access to nature and restore ecosystems. Medellín's budget is allocated based on residents' votes, ensuring projects respond to a popular mandate.
- **Funding:** The project was entirely funded by the Government of Medellín and was worth \$16.3 million. Ongoing maintenance and monitoring costs are negligible due to the habitat's self-sustaining nature.
- **Stakeholder engagement:** A key aspect of the programme was to involve residents and alleviate poverty. Seventy-five residents from impoverished backgrounds were upskilled to become garden and planting technicians and were involved in the implementation and maintenance of the corridors. Ongoing engagement with residents is planned through workshops and public events.
- **Climate resilience:** One of the project's key objectives was to mitigate the urban heat island effect, improve air quality and sequester carbon.



3.4 Large-scale



Rewilding Enfield, London, UK

Issues with increased flooding and poor water quality led the London Borough of Enfield to implement urban rewilding techniques for natural flood management. The project plans to rewild 500 hectares through nature restoration, creating new habitat types to form a mosaic of habitats across the borough, and introducing keystone species.



© Enfield Council



© Enfield Council

Project Objectives

- To increase accessible green space within the urban environment for leisure, educational and cultural activities and promote an appreciation and understanding of nature.
- To restore natural processes and ecosystems, reintroduce and encourage the return of wildlife and allow nature to take care of itself.
- To create new opportunities for people and wildlife through regenerative agriculture techniques, food production and sustainable transport links such as walk and cycle paths.
- To increase climate resilience through mitigating flood and drought risk, reduce air and water pollution and sequester carbon.

Key Lessons

The project focused on utilising urban rewilding techniques to mitigate flood risk in the borough. The initiatives engendered a greater appreciation for biodiversity and nature among residents with the project's clear vision, strong partnerships and stakeholder support pivotal to its success. This enabled the project to deliver a wide range of co-benefits to the local community, such as improved air quality and increased climate resilience. Climate resilience proved a crucial driver in garnering support among stakeholder groups.

Project Overview

The Rewilding Enfield project in the London Borough of Enfield consists of urban, peri-urban and green belt land across 31.74 square miles. The disruption of natural flood plains, culvertisation of rivers, grey infrastructure and degradation of the natural environment had left the area prone to flooding. The project's rationale centred on flood mitigation. Enfield Council proposed a Natural Flood Management Plan to the UK Environment Agency based on an analysis of flood maps, river systems and baseline ecological monitoring.

The plan offered a low-cost and effective solution to flooding and enabled the Council to secure funding. As the additional benefits to biodiversity became evident, the Council decided to introduce urban rewilding techniques on a larger-scale. Installing a café, cycle hire scheme and car park generates additional revenue for ongoing maintenance costs. Thanks to the success of the initial phase of the project, the Council has secured additional funding from other local government schemes and funds.

The increasing support and interest in urban rewilding across the UK and Europe garnered political endorsement for the project. Key interventions included river, wetland and woodland establishment and restoration; community-led creation of wildflower meadows and rain gardens; tree planting, and reintroducing large grazers and beavers. In addition, lights on infrared sensors and clearly marked footpaths and signposts help reduce animal-human conflict.

Implementation Drivers

- **Supporting policies:** Rewilding and nature restoration formed part of the Enfield Council Local Plan, the Climate Action Plan and the Green and Blue Strategy. Several central government policies also contributed to the project's success, including the Environmental Land Management Scheme and the Environment Bill.
- **Funding:** The project received public funding from several schemes and grant programmes, including the Green Recovery Challenge Fund, the Landscape Recovery Fund and Environment Agency funding. Funding amounts to over £2m since 2012.
- **Stakeholder engagement:** The Council engaged with key groups across the area, including private landowners, schools, religious groups, environment forums and business owners. The Council also ran a volunteer campaign for tree planting, attracting 2,000 volunteers who contributed to the Council's 100,000 tree target.
- **Climate resilience:** Rewilding Enfield increased the borough's climate resilience by mitigating flood risk and combating the urban heat island effect and urban sprawl.

Frédéric-Back Park, Montréal, Canada

Montréal has undertaken one of the most ambitious environmental rehabilitation projects ever seen in a North American urban setting: a bold transformation of a former limestone quarry that served as a landfill until May 2000 into a vast public park that will ultimately occupy 1.5 km² (150 hectares). This new public park provides re-naturalisation to a densely urbanised area, supporting biodiversity and increasing quality of life for the local population in several ways, including through climate resilience. This initiative is in line with several targets of the Kunming-Montréal Global Biodiversity Framework, most notably target 12 that aims to increase the area and quality of, and access to, green and blue spaces to foster health and well-being for all in cities.



© Ville de Montréal

Project Objectives

- To create a unique and innovative public park, of metropolitan scope, that highlights the site's transformation and particular history and fosters environmental education.
- To restore a vast area of more than 1,5 km² through environmental engineering and by planting a variety of trees, shrubs and herbaceous plants ensuring, long term protection of biodiversity.
- To create a new place of contact with nature in a densely populated area where there is little greenery or trees.
- To contribute to adapting to climate change and boosting health and quality of life in an underprivileged part of the city.

Key Lessons

The far-reaching project is in development and we are still learning from it, but it already shows the importance of natural infrastructure in ensuring a pleasant, healthy and resilient environment for current and future generations, as the ecosystem services it provides contribute to mental and physical health, climate change mitigation and adaptation, and the preservation of native biodiversity, our collective heritage.

Frédéric-Back Park, vast meadow with biogas nozzle protection spheres. These spheres cover biogas capture wells, which collect methane and other landfill biogases and pump them to a power plant to produce electricity. Methane is a major contributor to climate change.

Project Overview

The park is located in an area which is home to a diverse population, including a large number of people that live in poverty, and in a borough significantly affected by the urban heat island effect during the summer season. This neighbourhood is densely built and has a low rate of green areas per inhabitant.

Frédéric-Back Park is one of the most ambitious urban environmental rehabilitation projects to date in North America, that will see the transformation of a limestone quarry and landfill site into 1.5 km² large-scale park. This open-air laboratory is an example of creativity, innovation and know-how in terms of site requalification and rehabilitation. It offers users recreational, sports and cultural activities.

A masterplan for the site was developed to create a vast green and versatile public space that will enhance the quality of life of citizens and improve biodiversity. The park focuses on offering several different habitat-types, woodland and wildflower meadows, and recreation sites such as recreational trails. Nearly 50 per cent of the site's 1.5 km² have been or will be converted into a huge meadow, making it one of the largest pollinator-friendly habitats in the heart of Montréal's urban environment. The rehabilitation of the site is also favourable to birds, reptiles and mammals.

As part of the development of the site, circular economy principles were followed through the re-use of materials from within the site or other projects across the city. Plants species were chosen for their capacity to survive in these particular site-specific conditions with minimal maintenance required, their benefits to biodiversity, and their adaptability to climate change. A lot of development work remains to be done and the work is planned over the next few years.

Implementation Drivers

- **Supporting policies:** The project is in line with Montréal 2030 Strategic Plan, Climate Plan, Nature and Sports Plan and Pollinators Protection Plan.
- **Funding:** The development costs of the park until 2032 are estimated at \$140 million. Further investment will be needed. These costs do not include investments such as site preparation and landfill capping.
- **Stakeholder engagement:** Park management is based on the principles of transparency, inclusion and participation of partners and citizens. Since 2015, the Table de concertation du parc Frédéric-Back has promoted the mobilisation of partners and the emergence of consensus on accessibility, harmonious development and outreach of the park. Environmental education in the park is provided by the TOHU, which is a non profit organisation that is supported by the City.
- **Climate resilience:** The park helps the community adapt to climate change, particularly through reducing urban heat island effect by increased green space.

Buffelsdraai Reforestation Project Durban, South Africa

Durban first implemented the Buffelsdraai Landfill Site Community Reforestation Project in 2008 to increase biodiversity and carbon sequestration and alleviate social inequalities. The project employed local residents to plant over 750,000 indigenous tree species to create a 787-hectare barrier around the Buffelsdraai Landfill Site. In addition, the restoration of existing grasslands, woodlands and wetlands enhanced the border. The project's goal aimed to restore the ecosystems to the point where they could fully function and deliver ecosystem services and climate adaptation benefits.



Douwes, CC BY-SA 4.0, via Wikimedia Commons

Project Objectives

- To create a self-sustaining and fully functioning habitat and increase biodiversity.
- To provide the local community with climate adaptation benefits and ecosystem services, such as flood mitigation and carbon sequestration.
- To create new jobs and education opportunities for local communities, explicitly focusing on the environment and the climate crisis.
- To create a natural barrier between the local community and the landfill site.

Key Lessons

This project demonstrated the opportunities for residents' involvement in urban rewilding. Urban rewilding can create job and skills opportunities for local communities. For example, the Wildlands Conservation Trust's Trees for Life Programme, which supported the project, provided families with additional income through food and education credits.

Project Overview

The project was implemented in 2008 by the eThekweni Municipality's Environmental Planning and Climate Protection Department. The department worked in partnership with the Wildlands Conservation Trust and the eThekweni Municipality's Durban Solid Waste unit to design and realise the rehabilitation of the land to indigenous forest. A crucial aim of the project was offsetting a portion of the carbon emissions from the FIFA World Cup matches held in Durban in 2010. The event's carbon footprint totalled an estimated 307,208 tonnes of CO₂; the reforestation project aimed to offset 42,214 tonnes of CO₂ over 20 years.

The area surrounding the landfill site had become degraded from agricultural, primarily sugarcane production, and livestock usage. The goal was to create a buffer zone around the Buffelsdraai Landfill Site by creating woodland, wetland and riparian habitat. Land preparation included waste and debris removal and extensive planting. In phase one, over 500,000 trees from 61 indigenous species were planted. As the project progressed, the variety of indigenous species increased to 141.

The project restored the ecosystem and wildlife, such as birds and pollinators, returned to the area. Key interventions included removing invasive species, debris and weeds; planting indigenous trees and plant species; excavating firebreaks around all planted areas; and planting wetlands. The United National Framework Convention on Climate Change (UNFCCC) Momentum for Change initiative and the Climate Community and Biodiversity Alliance have both recognised the project for its successful approach to climate adaptation.

Implementation Drivers

- **Supporting policies:** All landfill sites in South Africa are legally required to have a buffer zone. This buffer zone is unsuitable for development or housing and, therefore, presents an opportunity for habitat restoration. In addition, the buffer zone protects local communities from the impact of the landfill. The implementation of the site was further supported by the carbon offsetting programme implemented for the FIFA World Cup.
- **Funding:** The project received funding from the eThekweni Municipality (100m ZAR), the Danish International Development Agency (2.5m ZAR) and the Department of Environmental Affairs (36m ZAR). The Wildlands Conservation Trust also supported the project through volunteers and expert advice.
- **Stakeholder engagement:** The project's core focus was to involve and include local communities. This aim was achieved by implementing the Wildlands Conservation Trust's Trees for Life Programme which gives jobless residents vouchers for food and other services in exchange for planting trees. The residents, known as 'treepreneurs', were tasked with propagating seeds or planting trees across the site. In addition, the project has provided over 500 full-time and part-time jobs for residents, decreasing the poverty level.
- **Climate resilience:** The project had multiple climate resilience benefits; for example, the restoration of the catchment area increased the landscape's ability to filter and store water and helped manage water flow. The catchment area thus acts as a natural method of flood mitigation. Moreover, the project improved air quality and lowered temperatures.

Sussex Kelp Restoration Project, Sussex, England

The Sussex Kelp Restoration Project intends to restore the marine habitat of an area that has historically been one of the UK's busiest shipping and fishing areas. Kelp forests are an important aspect of the marine ecosystem, as they act as both a food source and shelter for many marine species. The implementation of a trawling byelaw was the key action which succeeded in protecting the area from bottom-towed trawling.



© Photo by Isaac Mijangos

Project Objectives

- To restore the kelp forest into a functioning and self-sustaining marine ecosystem and highlight the importance of kelp as an ecosystem engineer.
- To create a research base to explore and demonstrate the social, environment and economic value of a functioning marine ecosystem.
- To improve the Sussex coast's response to the climate crisis by preventing coastal erosion and providing a natural barrier to extreme weather events.
- To restore the kelp bed as a self-sustaining and functioning habitat to create a marine ecosystem.
- To increase the communities' understanding of the value of functioning marine ecosystems and the opportunities for sustainable fishing ecotourism and education.

Key Lessons

One of the key achievements of the project was inspiring and engaging with the public. Activities included the creation of a video narrated by David Attenborough to showcase the importance of kelp, its role as an ecosystem engineer and the benefits to local communities. Moreover, efforts to engage with local communities to illustrate the economic opportunities of restoring the kelp forest increased public support.

Project Overview

Since 1987, over 96% of Sussex's kelp has been destroyed due to unsustainable practices such as bottom trawling. In 2021, a large-scale kelp restoration project began along the UK coast between Brighton and Portsmouth. The built environment along the south coast of England has greatly impacted the ecological integrity and functionality of the marine environment. The project was led by the Sussex Wildlife Trust, Blue Marine Foundation and Sussex Inshore Fisheries and Conservation Authority with support from Adur and Worthing Councils, the Zoological Society of London, the University of Brighton and University College London.

The critical aspect of the project was the approval for and introduction of the Sussex Nearshore Trawling Byelaw. A public consultation was held to gauge public support for introducing the new byelaw. A public campaign, 'Help our Kelp' narrated by David Attenborough, helped raise awareness of the initiative. The new byelaw prohibits destructive activities across a 300 km² area along the Sussex Coast. The zone now represents one of the largest inshore areas where trawling is banned in England. As a result, species such as the European lobster, cuttlefish, bass, seabream, short-snouted seahorse and spider crabs are now flourishing. To monitor the project's success, baited remote underwater video surveys, crab and lobster population studies and engagement with fishermen have taken place.

Implementation Drivers

- **Supporting Policies:** The project was supported by national legislation such as the 25 Year Environment Plan, marine protection laws and the introduction of a new Nearshore Trawling Byelaw to protect the area from bottom-towed trawling.
- **Funding:** The project was primarily funded through the Peoples Postcode Lottery, which is a fund that raises money for charities in England. The project received £2 million in funding.
- **Stakeholder engagement:** Extensive stakeholder engagement helped gain public support for the project. Engagement initiatives included a public consultation for implementing the Nearshore Trawling Byelaw, workshops, and interviews with residents such as fishermen. The Sussex Wildlife Trust also commissioned a film narrated by David Attenborough to raise the profile of the campaign and inspire audiences.
- **Climate resilience:** Kelp has high carbon sequestration potential, improves water quality, reduces coastal erosion and acts as a natural barrier to mitigate the impact of waves.

Zealandia, Wellington, New Zealand

A 225 hectare area was fenced off in order to become an 'ecological island' and allow natural ecosystems to recover. The project has a 500-year restoration vision that aims to restore forest and freshwater ecosystems as closely as possible to their pre-human state. The sanctuary has been hugely successful in increasing biodiversity through both the reintroduction and return of species.



© Photo by Luca Calderone on Unsplash



© Photo by Luca Calderone on Unsplash

Project Objectives

- To restore the forest and freshwater ecosystems and reinstate natural processes to a pre-human state.
- To remove invasive species and reintroduce key species and recover numbers of endangered species endemic to New Zealand.
- To connect people and nature through the creation of a space for educational opportunities for schools, universities and scientists.
- To restore the environment's ability to mitigate the impacts of the climate crisis through increased carbon sequestration and resilience to extreme weather.

Key Lessons

The project was successful in part due to the vision of the well-known conservationist James Lynch and his ability to garner support and funding from both public and private stakeholders.

Project Overview

The environment in and surrounding Wellington was greatly impacted by human presence and in particular the introduction of invasive species. The recovery of nature, in part due to the creation of a protected water catchment area, presented an opportunity to safeguard the space for nature. The project was first developed in the 1990's and the site was established in 1999. In 1993, a feasibility study was conducted to establish the baseline level of biodiversity and to provide advice on whether the site should become a wildlife sanctuary. This area had originally been a mixture of farmed and mined land before a dam was constructed in 1878. The construction of the dam allowed the nature to slowly recover and the area was later identified as an ecological asset. Following the feasibility study, a public consultation was conducted and, in 1995, the site became designated as a Wildlife Sanctuary. The well-known wildlife conservationist, James Lynch, was one of the key advocates of the project and was integral in the development of the Kaori Sanctuary Trust which took on the management of the Sanctuary with support from a number of public and private bodies. In 1995, an 8.6km fence was constructed and all invasive species within the sanctuary were culled. Reintroduction of species followed – which included species such as the Bellbird, the Kākāriki, Spotted Kiwi and Forest Gecko. The project has inspired Wellington to become a green city and has fostered the planting of trees and plants in urban areas.

Implementation Drivers

- **Supporting policies:** The local government at the time was supportive of the creation of the Sanctuary. The implementation of the 'Towards 2040: Smart Capital' Plan with the actions for Wellington to become an eco-city has Zealandia as a core part of its policies.
- **Funding:** In 1992, James Lynch raised \$60,000 in seed funding to carry out the feasibility study. In 1998, the Trust raised 2.5 million for the construction of the predator-proof fence. The project continues to receive a mix of private and public funding.
- **Stakeholder engagement:** When the project was first conceived, extensive stakeholder engagement occurred through a public consultation. The site utilises over 500 volunteers for the management of the Sanctuary including organisation of programmes and events. Education programmes are regularly held for schools, universities and scientists.
- **Climate resilience:** Zealandia has numerous climate benefits including increased carbon sequestration, the mitigation of floods and reducing the heat island effect. It has increased the resilience of wildlife by creating a space for species to recover.




Four Conclusion

Urban rewilding presents cities globally with an opportunity to respond and adapt to both the ecological and climate crises. This report presents best-practice case studies of urban rewilding projects from around the world to inspire cities to plan and incorporate them within their own urban spaces. Every city is unique, whether by design, environment, demographics or access to resources. Nevertheless, there is a mutual need to connect with nature and ensure coexistence between the human and natural worlds.

Key learnings from the literature review, interviews and analysis of case studies include the following:

- **Government policies and strategies** can act as enablers for implementing urban rewilding projects. In particular, existing plans and supporting policies can provide the foundations and rationale for urban rewilding projects and help boost the engagement of local communities. COP15 can be seen as a stimulus for cities to consider implementing targets for nature and biodiversity. Governments and political figures can look to introduce targets and pledges for nature; for example, by becoming a signatory of the C40 Urban Nature Accelerator and signing the Montreal Pledge for Cities to Unite in Action for Biodiversity.
- **Narratives that engage residents** and invite their participation can act as accelerators for the success of a project. Urban rewilding has the potential to underpin a wider movement of reconnecting people with nature. The COVID-19 pandemic has shown how crucial urban nature is for city dwellers, especially for their health and wellbeing. Residents can be invited to design and create urban rewilding projects to ensure these spaces meet the needs of the local community and, at the same time, provide valuable areas for nature to flourish for years to come.
- **Forming partnerships** between cities, private and public bodies, government and community groups provides a valuable pool of resources and expertise for the implementation and maintenance of urban rewilding projects. In addition, these projects can involve local universities to carry out monitoring, partner with charities to access volunteers and call upon local people as citizen scientists to ensure urban rewilding is successful in the long term.
- **Demonstrating the socio-economic value** of the urban rewilding project is critical to accessing available private and public sector funding. Cities are increasingly impacted by extreme weather events such as storms and flooding. Urban rewilding is a low-cost strategy to mitigate future climate impacts. At the start of any rewilding project, research should be done to ascertain whether government grants or funding are available. Secondary funding sources could come from businesses and corporations looking to invest in local community projects. Urban rewilding projects could also consider self-funding streams, such as setting up adjoining sustainable cafés or providing learning resources.



Urban rewilding is fundamentally about letting nature lead. With effective partnerships and proactive input from city dwellers, urban rewilding has the potential to help cities become key interfaces between the human and natural world, where sustainable, resilient futures are imagined and realised.



Appendix **Interviews and** **References**

Interviews

Expert Interviews:

- Ingrid Coetzee | Director: Biodiversity, Nature and Health | ICLEI – Local Governments for Sustainability | Africa Secretariat & Global Cities Biodiversity Center.
- David Maddox | Founder and Editor-in-Chief | The Nature of Cities.
- Russell Galt | Head of Urban Alliance | International Union for Conservation of Nature (IUCN).
- Jennifer Lenhart | Global Lead: WWF Cities | World Wildlife Fund (WWF).
- Ellie Tonks | Programme Lead: Climate Resilience | Climate-KIC (Knowledge and Innovation Community).
- Riyong Kim | Head of Biodiversity and Ecosystems, Natural Capital and Ecosystems | European Environment Agency.

Case Study Interviews:

- Ian Russell | Principal Engineer | Watercourses Team | Redevelopment and Environmental Works | Place Department | London Borough of Enfield.
- Catherine Werner | Senior Sustainability Planner | AECOM (Previous role Sustainability Director | City of St. Louis).
- Marieke Cloutier | Chef de division | Mobilisation | Biodiversité | Résilience | Bureau de la transition écologique et de la résilience | Ville de Montréal.
- Marcela Noreña Restrepo | Secretaría de Medio Ambiente | Alcaldía de Medellín.

References

- Baisero, D. et al. (2021) Where might we find ecologically intact communities? *Frontier for Global Change*. Vol. 4.
- Battle, L. (2022) Rewilding is not just for private landowners. *Financial Times*.
- Beatley, T. (2017) *The Butterfly Effect*. Planning magazine: American Planning Association.
- Billion Oyster Project (2022) *Ecosystem Engineers*.
- Biosphärenpark Wienerwald Management GmbH (2013) *Wienerwald Biosphere Reserve*.
- Blue Marine Foundation (2022) *Sussex Kelp*.
- Brightside St. Louis (2022) *St. Louis Riverfront Butterfly Byway*.
- Burns, B. (2012) The Use and Potential of Pest-Proof Fencing for Ecosystem Restoration and Fauna Conservation in New Zealand. *Fencing for Conservation*
- Caballar, R. (2021) The Nature Reserve with a 500-year plan. *BBC Future* online.
- Chi-Nations (2022) *First Nations Garden*.
- City of St. Louis (2022) *Milkweeds for Monarchs*.
- City of St. Louis (2017) *Urban Monarch Conservation Grant: Final Report to the US. Fish and Wildlife Service*.
- C40 Knowledge Hub (2019) *Cities100: Medellín's interconnected green corridors*.
- Delhi Biodiversity Parks (2022) <http://www.delhibiodiversityparks.org/>.
- Dreiseitl Consulting (2012) *Bishan-Ang Mo Kio Park*.
- Durham Wildlife Trust (2021) *Wildlife Durham: spring 2021*. [Members' magazine available online on issue]
- eThekweni Municipality, Environmental Planning & Climate Protection Department *Buffelsdraai Landfill Site Community Reforestation Project*
- EU Mayors (2021) *What a river restoration in Cascais can do: a greenway to adapt and thrive*.
- European Environment Agency (2022) *Who benefits from nature in cities? Social inequalities in access to green space and blue spaces across Europe*.
- European Council (2021) *G7 2030 Nature Compact*.
- Garden, L. (2022) 'Living seawalls' prove eco-engineering's sea legs are strong. *World Economic Forum*.
- Global Citizen (2021) *What is 'Rewilding' and How can it help restore our planet's biodiversity?*
- Government Architect NSW (2022), *Bishan-Ang Mo Kio Park, Singapore*.
- Heal (2022) *What do we mean by 'Rewilding'?*
- Herouz, M. et al. (2020) *Frederic-Back Park, Montreal, Canada: How 40 Million Tonnes of Solid Waste Support a Public Park*. *Detritus*. Vol. 68-80.
- Hoffman, M. et al. (2022) *The policy consequences of defining rewilding*. *Ambio* 51, 93-102.
- *How to Rewild* (2021) *A detailed guide to practical rewilding*.
- IUCN (2022) *Aquaculture and Nature-based Solutions* (2022).
- IUCN (2021) *The Benefits and Risks of Rewilding*.
- Jepson, P. & Blythe, C. (2020) *Rewilding: The Radical New Science of Ecological Recovery*. Icon Books.
- Jepson, P. et al. (2016) *Making Space for Rewilding: Creating an Enabling Environment*. Oxford/Nijmegen.
- Lawler, K. et al. (2021) *The COVID-19 pandemic is intricately linked to biodiversity loss and ecosystem health*. *The Lancet*.
- Lehmann, S., *Sustainability* (2021) *Growing Biodiverse Urban Futures: Renaturalization and Rewilding as Strategies to Strengthen Urban Resilience*.
- Liu, Y. (2020) 'Study on Urban River Ecological Landscape Design.' *Journal of Physics Conference Series*.

- Living Seawalls (2022) <https://www.livingseawalls.com.au/australia>.
- Lorimer, J. et al. (2015) Rewilding: Science, Practice and Politics. Annual Review of Environment and Resources.
- Montreal Government (2022) The Darlington Ecological Corridor: A Green Link in CDN-NDG.
- Municipal de Cascais (2022) Trilho da Ribeira das Vinhas.
- NatureScot (2022) What are Ecosystem Services?
- Next City (2022) From a vacant, city-owned lot to Chicago's First Indigenous Garden.
- NSW Department of Planning and Environment (2022) Bringing sea horses and kelp forests back to world's most iconic harbour.
- NYC Comprehensive Waterfront Plan (2022) Water Quality and Natural Resources.
- Oceanographic (2022) Trawl fishing banned off Sussex coastline to restore kelp forests.
- Oluwafeyikemi, H. et al. (2018) Building community-driven vertical greening systems for people living on less than £1 a day: A case study in Nigeria. Building and Environment Vol. 131, 277-287.
- Owens, M. et al., (2019), Rewilding. Cambridge University Press.
- Pettorelli (2019) Making rewilding fit for policy.
- Rewilding Britain (2022) <https://www.rewildingbritain.org.uk/>.
- Rewilding Europe (2022) <https://rewildingeurope.com/>.
- Rewilding Institute (2022) What is Rewilding?
- Rongmei, P. (2022) All you need to know about Delhi's Biodiversity Parks. India Times.
- Sampson, X. (2022) Le corridor écologique Darlington. Radio Canada.
- Schaefer, C. (2014), Bishan-Ang Mo Kio Park: From Concrete Canal to Natural Wonderland. Ecological Urbanism.
- The European Nature Trust (2022) <https://theeuropennaturetrust.com/>.
- The London Rewilding Taskforce (2022) Rewilding London: A Discussion Paper for the London Rewilding Taskforce.
- The Nature Conservancy (2016) The Power of Nature in Cities.
- True Nature Foundation (2022) www.truenaturefoundation.org.
- UN Environment Programme (2014) The Relationship between biodiversity, carbon storage and the provision of ecosystem services.
- UN Environment Programme, Convention on Biological Diversity (2021) First Draft of the Post-2020 Global Biodiversity Framework.
- Urban Nature Atlas (2022) Building Community-Driven Vertical Gardens.
- Ville de Montreal (2023) Parc Frederic-Back: A unique Metamorphosis.
- Ville de Montreal (2023) Six Concrete Actions in favour of Biodiversity in Montreal.
- Wellington City Council (2022) Strategy and Plans.
- World Architects (2010) A Mother River Recovered: Qian'an Sanlihe Greenway.
- World Economic Forum (2022) The Global Risks Report 2022: 17th Edition.
- World Economic Forum (2022) BiodiverseCities by 2030: Transforming cities relationships with nature.
- Zoological Society of London (2020) What's next for Rewilding?



Contact:

Amanda Ikert

Head of Climate Resilience
based in New York City

t: +1 347 322 4441

e: aikert@c40.org

120 Park Ave, New York
NY 10017, United States