



greenminds

greenminds insight paper

Pathways to Nature Connectedness



Green Minds Model summary

The Green Minds Model aims to summarise the structure of the GM approach, to aid its transfer and replication to other urban areas and authorities.

Green Minds piloted new ways of implementing nature-based solutions within an urban environment. The project's central aim was to collaborate with stakeholders to recognise how humans, as part of nature, interact with nature in a complex system and to identify ways in which *systemic* change is brought about.

The model is presented as an integrated approach, where various nested elements are shown working together as a system. It reflects the particular challenges and scales of focus in urban areas - from individuals, to communities and neighbourhoods and at a citywide level. It focuses on particular leverage points for change (best practices) with regard to nature in cities, and is guided at its core by a set of underlying principles to inform practice.

At the centre of the model sits the system goal - *Urban Wilding. A set of guiding Principles have been created to inform the practice of Urban Wilding. These principles have emerged from our experiences designing and implementing Urban Wilding in Plymouth.

The eight Principles that have emerged from our programme of testing and development represent key leverage points to effect system change and to successfully integrate nature within urban place shaping. This includes exploring deeply held beliefs and values around our relationship to nature and to others, the creation of new organisational and digital infrastructures which empower citizens, and the development of new policy, planning and financial frameworks to support this.

Complex systems can behave differently at differing scales and so these are reflected too in the model to recognise the importance of understanding *who* needs to be engaged and *how*. This takes into account the need for multiple perspectives and the importance of equity (who participates), through an

inclusive process of engagement from individuals to groups and organisations, and at neighbourhood and citywide scales.

Finally, the model acknowledges the importance of an ongoing and iterative co-design process. This process recognises that resilience requires the ability to adapt as solutions emerge within a complex and constantly changing environment. It is delivered through a cyclical, action learning approach in which lessons learned influence the next cycle of implementation to ensure a progressive approach.

The model is brought to life through our suite of Insight Papers, Guides and Case Studies which aim to illustrate how the model was implemented and what we learnt.

Green Minds Urban Wilding Principles

The quality and quantity of nature has declined significantly in recent decades. Across the UK and Europe, nature recovery and restoration, rather than just preserving or conserving what remains, has become a high priority, as we have become more aware of society's dependence on nature[1].

We know that spaces that are more biodiverse can deliver multiple health and wellbeing benefits as well as other nature-based solutions such as improvements in water drainage, increased carbon sequestration, removal of air pollutants and increased pollination for food security[2]. 'Rewilding' has gained prominence as one approach to achieving such improvements in biodiversity, with a growing research body assessing its impact.

Urban (re)wilding, however, is still a new concept. We define Urban Wilding as 'any initiative, both human-aided and natural colonization, that aims to encourage biodiversity, ecosystem function and native species in urban settings'[3].

Urban Wilding is fundamentally different from wilding/rewilding/renaturing elsewhere. Cities and towns are dominated by human infrastructure and activity. Consequently, many natural ecosystem processes are significantly modified or constrained in urban areas. We rely upon ecosystem services for our health and wellbeing. Urban ecologies, which deliver these ecosystem services, are complex and poorly understood. However, we know that more biodiverse systems deliver more or better ecosystem services. We also know that we can mimic, or engineer, some specific ecosystem services such as storm water management. Whilst we don't know enough to design urban ecosystems to deliver all the services we need, we do know that more nature is good for people and urban living and that arranging it in certain ways can deliver certain specific benefits. We can't achieve this by doing nothing - positive interventions are required, which in turn demand enabling policy, community action and practical delivery mechanisms.

The Green Minds understanding of Urban Wilding recognises the need to shift from nature conservation to nature recovery - to focus on restoring much of what is rare or has gone and a recognition that we need to bring high quality Nature into places where people live.[4]

The Urban Wilding Principles below are designed as a set of prompts to help guide initiatives for nature to thrive in cities: to survive and reproduce, to expand, and to function as a system and so deliver more and better services to support urban environmental health, our economy, and human wellbeing.

*We have chosen to use the term 'wilding' instead of 'rewilding', as it better reflects the reality of nature in urban areas - to rewild implies a return to nature before urbanisation, which is not possible.

[1] Nature Recovery for Our Survival, Prosperity and Wellbeing: A Joint Statement by the Statutory Nature Conservation Bodies of the UK. jncc.gov.uk/our-role/the-uk/nature-recovery-joint-statement

[2] Dasgupta, P. (2021). The Economics of Biodiversity: the Dasgupta Review. London (HM Treasury); Maller, C. (2018) Healthy Urban Environments. Routledge

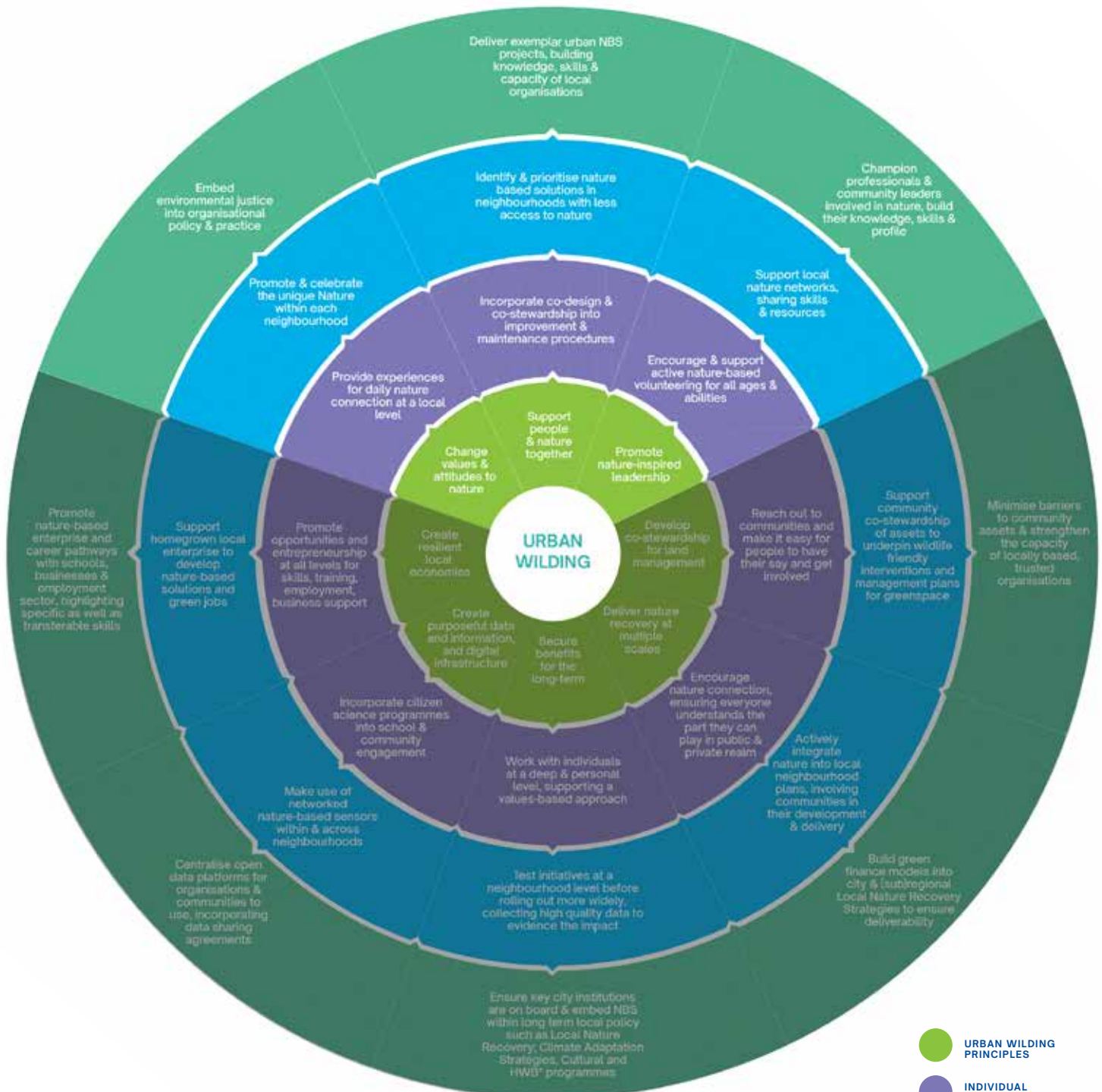
[3] Maller, C., Mumaw, L., & Cooke, B. (2019). Health and social benefits of living with 'wild' nature. Ch 9 in Rewilding. Pettorelli, N., Durant, S., and du Toit, J. (eds). Cambridge University Press

[4] Juniper, T. (2022) Tony Juniper: Green Paper - an opportunity for an integrated approach to Nature recovery - Natural England

greenmindsmodel

The model illustrates the three system levels at which the Urban Wilding principles are applied to drive action: the individual, with neighbourhoods, and within organisations.

Permeability, both within and between segments, reflects the need for adaptability through local learning gained through an action learning approach, in which lessons learned influence the next cycle of implementation.



Urban Wilding Principles



Support people and nature together

Promote a just transition to wilder cities through equitable access to nature, socially just policy and involvement in the co-creation and co-stewardship of nature-based solutions that are adapted to climate change, biodiverse and support nature connection.



Promote nature-inspired leadership

At all levels of management (individual, community/neighbourhood, city administration, business, etc) enable nature positive actions to enhance urban liveability through education, training, and policy.



Develop co-stewardship for land management

Democratise land management and ownership through the development of co-stewardship solutions with user communities, introducing inclusive and empowering processes for engagement, creating community assets, and utilising diverse governance structures.



Deliver nature recovery at multiple scales

Make the most of the local built environment and its scale, acknowledging that no space is too small to be valuable whilst at the same time recognizing that larger green spaces and high degrees of connectivity are key for nature recovery.



Secure benefits for the long-term

Develop integrated policy instruments that embed urban wilding in development practice, led by communities and advised and supported by public administrations to create resilient cities and a population connected to nature.



Create purposeful data and information supported by digital infrastructure

Develop new digital infrastructures to generate community-owned and insightful knowledge of urban nature to support nature connection, and nature-positive policy and practice.



Create resilient local economies

Promote and empower nature-related careers, cooperatives and social enterprise across all sectors, to create new jobs and new value in green and blue infrastructure.



Change values and attitudes to nature

Promote nature connection amongst citizens, to enhance individual and community wellbeing and to foster nature-positive choices.



Introduction

Green Minds is an ambitious, pioneering, 4 year programme (2019-2023) which aims to test new ways of thinking and acting for nature within the city of Plymouth by focusing on 3 themes – urban rewilding, a systems approach to land management, and creating ‘Green Mindsets’.

Having a Green Mindset is about recognising one is part of nature and giving high priority to the relationship between humans and the rest of nature. This leads to pro-environmental behaviours in decision-making such as the restoration and enhancement of habitats, for example for biodiversity net gain and habitat banking, delivering health and wellbeing and biodiversity benefits.

We have adopted ‘Nature Connectedness’, a concept that captures the relationship between people and the rest of nature, as the key, measurable determinant for a Green Mindset. An approach recognised by academics at the University of Derby Nature Connectedness Research Group¹.

Nature Connection can be used as a tool to engage communities in support of wider nature-based solutions, leading them to adopt pro-environmental behaviours.

Green Minds has used the University of Derby’s Nature Connectedness Framework² to inform and evaluate our interventions to support both individual and societal-scale shifts in the human-nature relationship.

This paper gives some examples of how we have applied the framework, the impact and what we have learnt.

Image: tree planting with local residents

¹Nature Connectedness Research Group derby.ac.uk/research/centres-groups/nature-connectedness-research-group/

²Applying the pathways to nature connectedness at a societal scale: a leverage points perspective [tandfonline.com/doi/full/10.1080/26395916.2020.1844296](https://doi.org/10.1080/26395916.2020.1844296)



Pathways to Nature Connectedness

The Pathways to Nature Connectedness serve as a typology of activities that can be used to design policy or physical interventions, from school curricula to public parks to urban centres, aiming to improve human-nature relationships at a range of scales.

From individual change...

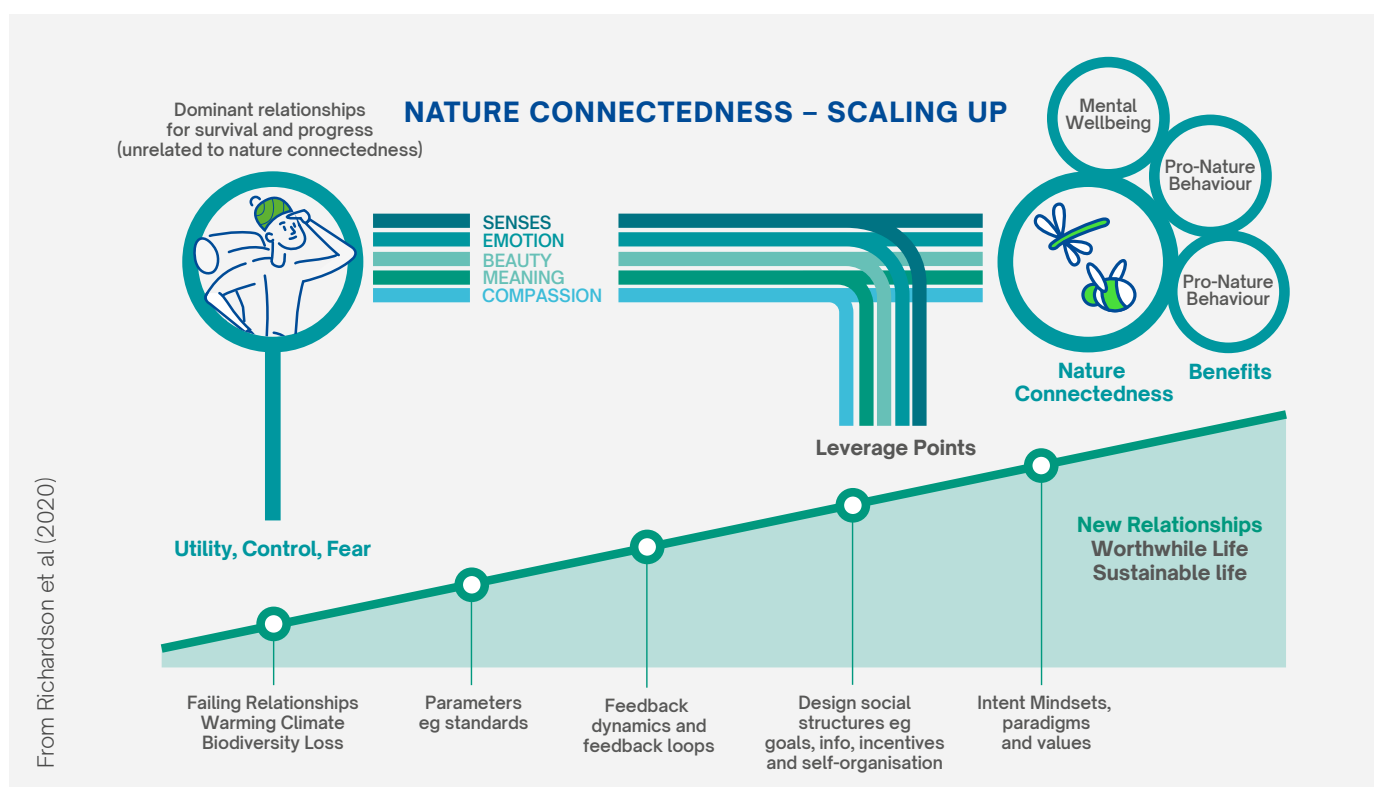
This new relationship with nature can move beyond use and control of nature, and beyond knowledge and identification. A new closer, healthier and more sustainable relationship with nature comes through noticing, feeling, beauty, celebration and care. The pathways are:

SENSES	tuning in to nature through the senses
EMOTION	feeling alive through the emotions and feelings nature brings
BEAUTY	noticing nature's beauty
MEANING	nature bringing meaning to our lives
COMPASSION	caring and taking action for nature

...to societal impact...

Scaling up the pathways can encourage new policy design and standards, social structures and systems that recognise nature as an asset and which deliver ecological, social and economic value. This can lead to increased investment and a new sustainable land management system that - as illustrated in the figure below - leads to valuable societal outcomes.

‘89% of people participating in Green Minds activities strongly agreed with the statement ‘I felt closer to nature’



Applying pathways to nature in practice – Green Minds, Plymouth

Research shows that there are a range of barriers which prevent people from connecting to nature. The Green Minds approach is to reach out to new communities and professionals and empower them to engage with the natural world in ways that are meaningful to them.

Using the Green Minds Theory of Change, we identified key areas in which to apply the

five Pathways to Nature Connectedness at individual and societal scale. This enabled us to better link our actions with our desired outcomes and to make the most of key leverage points in the system to increase positive attitudes to nature.

The table below illustrates how we implemented the Nature Connection pathways, in the form of practical actions.

Adopting the pathways to Nature Connectedness as the Green Mindsets activity framework:

Examples of Green Minds interventions under each pathway

1. Contact	2. Beauty	3. Meaning	4. Emotion	5. Compassion
The act of engaging with nature through the senses for pleasure e.g. listening to birdsong, smelling wildflowers and watching the sunset	Engagement with the aesthetic qualities of nature, e.g. appreciating natural scenery or engaging with nature through the arts	Using nature or natural symbolism (e.g. language and metaphors) to represent an idea, thinking about the meaning of nature and signs e.g. the first swallow of summer.	An emotional bond with, and love for nature e.g. talking about, and reflecting on your feelings about nature.	Extending the self to include nature, leading to a moral and ethical concern for nature e.g. developing pro-environmental behaviours and nature stewardship
Green Minds Interventions • Access improvements such as all access paths with resting points and improved seating • Delivering outreach activities to non-users of parks and greenspaces, supporting nature connection • Traditional and digital signage raising awareness of particular species in an area • Building in nature connection into all our activities - including group, guided and self-led, responding to different audience needs	Green Minds Interventions • Facilitating student art projects to raise awareness of nature • Installing camera points to develop a public led photographic collection of landscape changes • Bringing nature into citywide arts programmes such as Illuminate Light Festival and Immersive Nature Films • Commissioning 8 citywide arts/ cultural projects	Green Minds Interventions • Online and digital communications that talk about nature in creative and engaging ways, bringing to life the non-human. • Working with school children to create nature inspired poetry and walking trails • Creation of a citizen nature dictionary	Green Minds Interventions • Facilitating student art projects to raise awareness of nature • Installing camera points to develop a public led photographic collection of landscape changes • Bringing nature into citywide arts programmes such as Illuminate Light Festival and Immersive Nature Films • Commissioning 8 citywide arts/ cultural projects	Green Minds Interventions • Support nature based enterprise to steward local natural spaces and provide facilities that help engage a wider audience • Providing webinars and online toolkits to enable local communities to take action for wildlife in their local area • Developing a volunteer programme at each Green Minds site • Building a rewilding network to build local capacity for action

Societal Scale – Implications for placemaking

Psychological Nature Connectedness has now become, for Plymouth, a key factor in place-making.

Evidence shows that physical access to green space and health are linked, with lower life expectancy in areas of the city that also have less green space. This understanding lies at the heart of our efforts to ‘level-up’ access to nature across the city, designing interventions to green the poorer neighbourhoods where green space is in short supply, aiming to create happy, healthy places to live and work.

Through our systems approach, we have also used the Nature Connectedness Pathways at scale to identify system leverage points where we can target activities to have a wider societal impact. Leverage points range from shallow (easy to implement but less impactful) to deep (difficult but transformational). We have set out some examples of our use of deeper leverage point, which follow.

Leverage Points

A Influencing values and goals through citywide campaigns

Research shows that arts based approaches and nature engagement campaigns are a key tool to support changing the values and goals of a city.

Green Minds set out to test this by taking an innovative approach to engage residents, stakeholders and staff in changes to our grassland management across the city to support nature recovery.

Our partnership with environmental and social charities, education and the cultural sectors, enabled us to co-design and deliver creative digital technology interventions with communities to support attitude and behaviour change.

Using the ‘See, Think, Do, Care’ digital marketing framework⁴, the interventions aimed to move people on a journey from seeing/noticing social media and online content, to understanding more about the natural world and our land management, through to taking action for wildlife and caring for local parks and greenspaces.

This has led to significant citywide support for urban meadow creation, enabled 40% of our land to be managed for wildlife, has increased the environmental quality of spaces, has increased connection to nature and volunteering, and has reduced grass cutting in 1310 sites, leading to a 33% reduction in fuel use.



Societal Scale – Implications for placemaking

Campaign examples

- Online information and engagement – changing our website to support public understanding of our changed approach. This has changed from a ‘report an issue/complaint’ approach to proactively providing information on grass cutting schedules and how we are supporting urban wildlife.
- Social media campaign – 30 Days Wild (June 2022), including our Urban Meadows films, featuring the Council’s Grass Cutting Team Leader describing the wildflowers you can find in our local spaces. See an example here [Wildflowers in Plymouth: Common Sorrel in Whiteleigh](#) – YouTube
- Digital, online co-design workshops with Arts University Plymouth (Fab Lab5) and residents/community groups to design playful meadow signs to install on site to promote understanding of parks management. Local creatives use digital design skills to protect Plymouth’s wildflower meadows.
- Workshops with local secondary school pupils and University of Plymouth to pilot digital interventions to make nature more visible in our largest urban park. This involved installing a LOWARAN mobile network across the park with environmental sensors and trialling a chatbot installed on the park café wall, enabling people to ask the park questions.
- Augmented reality creative commission. ‘Ashnihilation’ reaches new audiences through digital technology, promoting engagement and learning around insect and wider wildlife habitat
- Large scale public arts events – including a ‘Rewilded’ building installation at our 2021 Illuminate festival to engage people in the concept of nature recovery. This also included a community co-created ‘rewilding immersive experience’ in Europe’s only immersive dome, where participants were surrounded from all angles by Plymouth nature sights and sounds
- Language of Rewilding creative projects, including partnering with the Boat Poets to fund two young Plymouth poets to explore the language of rewilding. Also included the creation of two nature inspired children’s writing anthologies, alongside University of Plymouth MA Publishing students and school children across Plymouth.



Societal Scale – Implications for placemaking

B Embedding Nature Connection within institutional and social structures

The city's institutions and social structures have an important leadership role in promoting Nature Connection in a way that is equitable, addressing lack of access to nature associated with particular geographic areas and demographic groups. The Green Minds partnership includes large city educational, cultural, and political institutions and an important part of our Theory of

Change is to use the Green Minds programme to influence from within.

Key insights during the programme have been:

- The value of including Environmental Justice within organisational principles as a driver for implementing Nature Connection within strategies and delivery. Two of the Green Minds partners have now adopted Environmental Justice as a core theme of their work: Arts University Plymouth and Real Ideas Organisation.
- Recognising the value of social and community enterprises to encourage Nature Connection in a way that responds to local need and is financially sustainable. Bringing these organisations together to share best practice and collaborate has enabled them to raise their profile and attract increased investment and support.
- Maximising policy links between health and wellbeing and Nature Connection, including embedding Nature Connection within the city's health strategy 'Active to Thrive' has enabled us to raise the profile of access to nature for health and bring in new forms of investment.
- Celebrating diversity - sharing positive and personal stories that demonstrate how Nature Connection is relevant to a broad range of people, geographies and sectors is inspiring a broader range of interest and involvement.



Societal Scale – Implications for placemaking

C Creating reinforcing loops: rewilded areas and experiences where people can connect to wilder nature, which support community stewardship

It is important to recognise that there are areas of the city where residents have less access to nature, leading to a poverty of experience. Targeting these areas is critical to supporting equitable opportunities for Nature Connection.

We have found that working within these communities to identify areas for wilder nature that don't detract from other amenity and recreation needs, ensures support and sustained opportunities for Nature Connection. This requires time to engage with different groups, co-design initiatives together, and negotiate co-stewardship frameworks alongside land managers.

Creating examples of what works has been critical – testing interventions at a small scale and organising site visits, delivering presentations and films have proved critical to enable community and policymaker buy-in for scaling up.

D Embedding Nature Connection within local and national strategies, standards and policies across sectors

Small scale tweaks to existing land management

As one of the largest landowners in the city, encouraging the Local Authority to trial smaller scale nature-positive land management has been critical to gaining buy-in for larger scale change. This has included a reduction in grass cutting and increase in wildflower meadows, the success of which is building the support for wider initiatives that will come with the implementation of the UK Environment Act.

UK Local Nature Recovery Strategies

As a result of the UK Environment Act 2021, Local Authorities have statutory obligations to develop strategies for nature recovery. This provides an opportunity to use the development of Local Nature Recovery Strategies as a leverage tool to provide more opportunities and funding streams for Nature Connection within the placemaking agenda. In urban environments this necessitates the design and re-design of public spaces to provide space for and nurture biodiversity, as well as providing additional social value. Nature Connection provides a framework for these design processes.

Developing a set of standards for urban wilding

Recognising that wilding in an urban area requires a different approach, we have worked with partners and local communities to come up with a set of urban wilding principles to adopt as a city. These will support understanding and ensure interventions are guided by a consistent set of standards.

Encouraging cross-sector nature inspired leadership

Green Minds developed an action-orientated programme aimed at managers of teams and projects across different sectors to develop their strengths as leaders for nature recovery, and to enable positive action on some of society's biggest challenges such as inequality, climate change, and loss of biodiversity. Using a competitive application process and reaching out beyond the usual suspects, to construction, education, health and community enterprise sectors, this has enabled us to create a citywide network of cross-sector professionals, collaborating and supporting one another as sustainability change agents.

How will we know if we have succeeded?

BELOW: 'Ashnihilation' creative commission by Tom Milnes- an augmented reality wilding experience



Measuring Nature Connectedness

In line with a national survey led by Natural England, we have embedded 3 Nature Connectedness Index questions within our Green Minds activity evaluations.

Using a Likert Scale, the questions ask people to rate:

- (A) I feel part of nature
- (B) Being in nature makes me very happy
- (C) I am taking more time to notice and engage with everyday nature (e.g. listening to birdsong, noticing butterflies)

We have also provided a short guide alongside a suite of tools to enable other Local Authority led projects to use these questions to ensure consistency and comparability across their environmental programmes.

To understand Nature Connectedness at a citywide scale, we have embedded the same questions within our City Survey. This goes out bi-annually to over 4000 residents and will enable us to collect data over time.

The first survey was carried out in 2022. Results were collated and analysed alongside demographic and geographic data to give us a snapshot of the Nature Connectedness of the city as a whole. Data will also help to inform where and how we target future interventions.

“Green Minds is a great example of taking and adapting research-based approaches to fit the needs and circumstances of a particular situation. Then communicating the new approaches to a diverse audience.”

CASE STUDY

Park-based Green Social Prescribing

Green Minds supported a multi-disciplinary approach to improving mental and physical health through the provision of a social prescribing project in one of the city's largest parks.

"I love things like this- it just makes nature so much more accessible. I've even started to notice more bird songs on my walks"

GREEN MINDS EVENT PARTICIPANT

The project brought together sports, arts, wildlife, and health partners to offer a varied programme of activities for health and wellbeing through connection with nature, using the park's new Community Hub as a base.

How are participants referred?

Link workers: Through a visit to their local GP, patients are referred to a social prescribing link worker who identifies opportunities in the local area that meet the patient's needs and preferences. Green Minds provided the link worker with a programme of activities in the park that the patient could get involved in.

Outreach groups: We took a proportionate universalism approach³ by working through community leaders and community groups to enable access for people who may not use healthcare services.

What happened?

Over the year, the project engaged 502 participants in Nature Connection activities: health walks, sports, and theatre in the park. This included older people who have been recently bereaved; veterans; children from low-income families and disabled adults/ young people.

As a result, we are now looking to embed wider use of park and park buildings to support more Nature Connection for health and wellbeing, active travel, and social prescribing initiatives across the city.

³Proportionate universalism is the resourcing and delivering of universal services at a scale and intensity proportionate to the degree of need. Services are therefore universally available, not only for the most disadvantaged, and are able to respond to the level of presenting need

CASE STUDY

Park-based Green Social Prescribing

What did we learn?

Park-based social prescribing provides more opportunity for Nature Connection

Basing social prescribing within a park environment enabled us to embed the pathways to Nature Connection within a wider range of activities. For example, we used traditional approaches such as nature identification to lead into activating the pathways, e.g. within walking for health sessions for the over 55s, encouraging conversations about the beauty of nature to support the beauty pathway. We also provided practical conservation activities within the park as part of a physical activity session to support the care and compassion pathway.

Working with the Council, who manage the park, we have also been able to offer ongoing stewardship opportunities to support the compassion pathway beyond the life of the project.

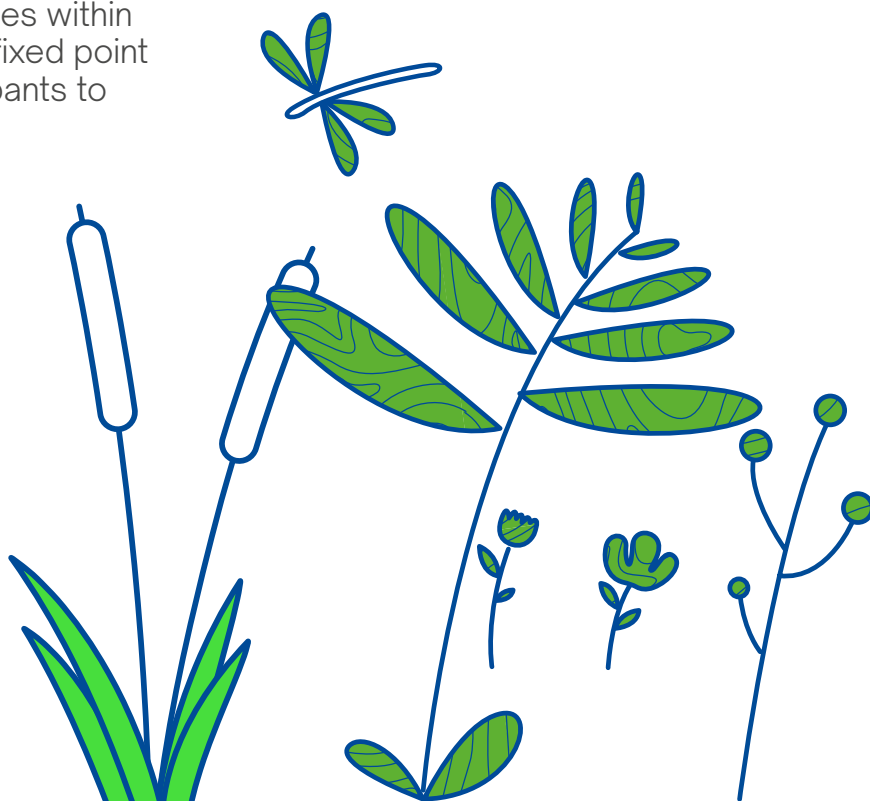
The work has also helped inform the development of self-guided activities within the park, such as digital trails and fixed point photography to encourage participants to return independently.

Attitudinal and practical barriers can prevent participation

The project showed a clear gap between being referred from the social prescribing link worker and actually attending a session in the park. This was down to both attitudinal and practical barriers. In line with national evidence, we noticed a variability in patient and referrer perceptions as to the benefits of green social prescribing and the benefits of Nature Connection.

As a result of our learning, we are looking to:

- provide link worker training and information on park-based social prescribing
- identify staff and/or volunteers that can 'buddy up' with a new participant to support them to attend their first session
- develop a broader range of marketing and communication materials to present Nature Connection activities in accessible, appealing and non-stigmatising ways





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