# MAKING WILD LIVES MATTER:

Exploring the transformative potential of everyday encounters with wild urban nature and their contribution to eco-smart urban living

## ECO-CONNECT

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# Table of Contents

# Introduction

Biodiversity represents the planet's essential life support system, contributing vitally to the production of clean water, fresh air, the regulation of climate (Millennium Ecosystem Assessment, 2005) but equally, biodiversity contributes centrally to the living heritage of communities. A recently installed sculpture by Niamh McCann (2023) entitled Sentinels: flew through the ages in the shape of birds in Carey's Lane, Cork City Centre is of a seagull, a much loved inhabitant of the city, perched high on a wooden beam whose angles point at various historic features of the lane, including the Huguenot graveyard, dating back to the 1700s. McCann's intention here was to highlight how this nature, as a common feature of the city's landscape, is deeply embedded in the history of the city, as much as its human inhabitants. Similarly, the early Gaelic *Hermit's Song* refers to the beauty of the Seagulls and the Herons as familiar features of the traditional Irish landscape and in doing so, calls attention to the ways in which this nature connects intimately with our history, literature, and rituals of storytelling. In its *Cork City Heritage and Biodiversity Plan 2021-26*, Cork City Council acknowledged the importance of this natural heritage beyond what is observed in museums, archives, and libraries. The city's relationship with the River Lee and Cork Harbor, for instance, has always been historically significant, providing the city with a medium for transport, defense, commerce, creativity, food, recreation, health, and wellbeing. Together, the city's green and blue landscapes and their biologically diverse populations have shaped the unique heritage and cultural distinctiveness of its identity as a space of multispecies belonging.

While measures aimed at protecting the City's eco-cultural heritage have increased significantly in recent years due largely to the dedicated work of Cork City Council and nature conservation groups, the city continues to face serious challenges in this regard due to growing competition for land and other essential resources (since 2006, the population of Cork City has grown annually by 1% and currently stands at 223,657), as well as the depletion of essential natural habitats and wild spaces. These developments mirror those occurring more generally across the global stage. With over 55% of the world's human population presently residing in an urban environment (a figure projected to reach 68% by 2050), pressure on eco systems in urban areas is reaching unsustainable levels.

In this context, biodiversity is threatened by several sources but especially by five risks that are thought to accelerate a 'state of crisis' in nature's wellbeing: (1) significant changes in land and sea use, (2) the over-exploitation of natural resources, (3) the impacts of climate change, (4) rising levels of pollution, and (5) invasive alien species (see IPBES (2019); European Environment Agency (2019); United Nations, 2019. World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420).

Over the last four decades, wildlife populations have fallen by 60% across the world as a direct result of human activities (World Wildlife Fund (2018), Living Planet Report - 2018: Aiming Higher). According to 2019 conservation status assessments, 46% of protected habitats and 15 % of protected species within the EU have been in a state of decline for more than 12 years (NPWS, 2019), with freshwater species most at risk (4th National Biodiversity Plan 2023**:** 6). Here in Ireland, one in every three species of bee is threatened with extinction, while stocks of fish common to Irish waters, including the Atlantic salmon and the European eel have suffered dramatic population declines in recent years. So serious is this problem, the National Biodiversity Data Centre (2023) has declared Ireland's current levels of biodiversity loss 'an existential crisis'. Of the ten species most at risk in Ireland (National Biodiversity Data Centre, 2023), several have historically been common to Cork's green and blue spaces, including the Curlew (currently, around 130 breeding pairs, a decline of approximately 97% in the last 20 years), the Atlantic salmon (numbers have declined by 60% over the last 40 years) and the European eel (present numbers of glass eels stand at less than 7% of those in the 1980s, leading the European eel to be classified as one of Ireland's 'critically endangered species').

If these species were to disappear entirely from the local landscape, what impact would their loss have on cultural representations of the city? What relevance would the story of the 'Goldie Salmon' on St Anne's Church have for Cork's communities, or the sculpture of the Grey Heron by Kelleher's Buildings if these species were to disappear from the city's landscapes? If such elements of the city's eco-cultural heritage feature only in myths or legends of times past, what relevance will they have to the lives of future generations? Ecological destruction can wipe out centuries of species co-habitation and culturally rich human-non-human interactions. In this way, loss of biodiversity poses a serious threat to meaningful cultural interactions, as well as the continuity of many aspects of traditional ways of city living.

Future generations will inherit lost features of their city, as well as lost eco-cultural traditions that connect place, species, and practices in unique ways. Biodiversity loss thereby also signals a loss of ways of knowing and engaging with one's city, practices stolen from the future by the choices of present (not to invest in initiatives aimed at nature's long-term conservation). As the IPBES/ Intergovernmental Panel on Climate Change (2021) points out, climate change and biodiversity loss are amongst the most significant intergenerational equity issues of our time. Future generations will bear the brunt of the impacts of poor policy decisions and their outcomes – not only in terms of a heavily polluted world but, also, the loss of eco-cultural heritage. Article 12 of the Council of Europe's Framework Convention on the Value of Cultural Heritage for Society refers to everyone's right to access to heritage, including eco-cultural heritage, especially younger generations, the disabled, marginalized communities, as well as the mobility challenged.

Research for this project sought to investigate these issues in more depth, noting how such losses are perceived and felt by a representative sample of the city's population, those for whom the city's current green and blue spaces provide essential benefits to their health (positive impacts on physical and mental health, cognitive capacities, mood), belonging, social and cultural identity. The research also sought to highlight some of ways in which current sustainable develop policy disconnects environmental protection from that of cultural heritage and propose, by way of a solution, a more context-sensitive, holistic approach that reconnects these in the interests of further advancing the health-biodiversity-heritage nexus of all the city's residents moving forward. As Bennoune (UN Special Rapporteur in the Field of Cultural Rights, 2020) and Keitumetse (2009) observe, there is an urgent need to bring the cultural and social integrative functions of nature back into sustainable development policy in a more reconciled manner (see, also, Secretariat of the UN Committee on Culture of United Cities and Local Governments, Culture 21 Actions Toolkit, 2015).

Environmental degradation and biodiversity loss are further exacerbated by the disappearance of many traditional cultural interactions with nature. More intense flooding, storms, and prolonged heatwaves draw into sharper focus the risks climate change and biodiversity loss pose to the city's health and wellbeing, leading, potentially, to a significant decline in the living components of the city's eco-cultural heritage (disappearing landscapes and local wildlife, leading

to the further erosion of attachments to place and traditions of caring for local nature). Protecting and restoring this heritage requires the 'active involvement' of all partners at local, regional, national, and EU levels (EU Biodiversity Strategy 2020:3) in ways that ensure compliance with the European Pillar of Social Rights (ibid, p. 22), cultural rights to heritage (UN, 2018, Cultural rights and the protection of cultural heritage, Resolution A/HRC/RES/37/17), political rights to equal representation (UN Covenant on Civil and Political Rights, 1966), and human rights to health (International Covenant on Economic, Social and Cultural Rights, 1966). Such a comprehensive approach is necessary to protect local and international eco-cultural heritage. However, this approach also requires 'transformational changes' (EU Urban Greening Platform, 2020; the EU's Biodiversity Strategy, 2020) in the ways that heritage is protected, restored, and its contribution to 'the highest attainable standards of physical and mental health' for all (International Covenant on Economic, Social and Cultural Rights, 1966, Article 12) is maintained.

While climate change has been exhaustively defined and mapped as a human rights concern, the cultural implications of deteriorating environmental conditions and ongoing biodiversity loss, too often, have been overlooked. The negative impacts of biodiversity loss on human-non-human entanglements is a serious concern, particularly given the positive effects such entanglements have traditionally had on the health, wellbeing, identity and socio-cultural integration of the city's diverse communities. Cultural traditions of engaging with nature in the city serve as critical tools in any truly effective response to the biodiversity and climate emergency facing us today. More attention, therefore, needs to be paid to the potentials cultural traditions of engaging with nature in the city create. The city has a rich history of engagement with river, sea, land-based wildlife, as reflected in its rich folklore. Cultural understandings and representations of local nature that could be better used to contextualize the city's need for greater environmental responsibility, behavioral changes, cooperation, and community-wide learning initiatives on sustainability imperatives. In Ireland's 4th National Biodiversity Action Plan (Draft Public Consultation), the Minister of State for Heritage and Electoral Reform, Minister Malcolm Noonan, offers some insight on ways in which biodiversity connects deeply with Ireland's history, from the 'use of the Irish language', its 'history of storytelling and mythology', 'artistic and literary traditions', food heritage, major heritage sites, and various 'local cultural observances' (ibid., p. 3).

While present rates of biodiversity loss and resource depletions generate 'great worry and concern about the natural world', Minister Noonan is also hopeful that 'as a curious and creative species, we possess the tools and empathy to make our planet safe' for the future (4th National Biodiversity Plan, p. 1). How and what tools might be employed effectively to address this crisis and maintain access across species to the city's green and blue spaces, however, requires further investigation.

Ireland's Third National Biodiversity Action Plan (2017-21) highlights how a greater 'awareness and appreciation of biodiversity and ecosystem services' (p. 3) might be nurtured through investments in biodiversity education at primary, secondary, and tertiary level education. Yet, what educational efforts are proposed in the 4th National Biodiversity Action Plan Draft report are either purely science focused (i.e., a new 'Biodiversity Citizen Science Strategy) or centred on the Community Employment or Rural Social Schemes of Gaeltacht areas (e.g., encouraging Udaras na Gaeltachta to increase awareness of biodiversity and the participation of local communities, p. 25). No reference is made to how urban communities might be mobilized on these issues, even though the majority of Ireland's population now lives in cities (World population Review, 2023), or even how urban cultural understandings of and interactions with biodiversity might be utilized as part of wider communication and action campaigns promoting the restorative benefits of nature.

If the government's initiatives are to be truly inclusive and grounded in familiar ways of living and interacting with wild nature, there also needs to be a greater commitment to ensuring that local communities are a central part of change initiatives.

Cork City Council's Heritage and Biodiversity Plan (2021-26) proposes that cultural heritage be employed more centrally as a resource for addressing biodiversity loss (p. 29). It highlights the need to encourage conservation measures through awareness-raising on the value of biodiversity to Cork's distinct heritage (socially, culturally, environmentally and economically). The Council brings the priorities of the City's Heritage and Biodiversity Plan together with those of the GBI study (Green and Blue Infrastructure: Open Space and Biodiversity, Cork City Draft Development Plan, 2022-28, p. 10) to ensure the long-term protection and sustainable development of 'the city's network of parks', 'spaces with tree cover and green travel corridors', 'community gardens and urban farms', as well as rivers and wetlands. What is essential, they add, is 'a whole society approach' to health and wellbeing in the city. However, more needs to be done to actualise such a 'whole society' approach to reversing biodiversity loss and tackling climate change. Arguably, what is needed is a more effective, capabilities approach to realizing these societal goals and maintaining access to nature.

## Adopting a capabilities approach to realizing the eco-smart city's economy of wellbeing

Unlike the currently dominant metrics of wellbeing which measures progress in terms of a growth in GPD per capita to the detriment of other important factors, a capabilities approach offers a more comprehensive approach to assessing communities' wellbeing. Developed originally by economist and philosopher Amartya Sen (1999), a capabilities approach understands biodiversity loss and essential resource depletions as a threat to communities' abilities to live a minimally good life. Only when there is an expansion of all communities' capabilities to 'develop' equitably can the 'economy of wellbeing' be described as truly sustainable. Building on these insights and those further added by the philosopher Martha Nussbaum (2011: 33-4), the following capabilities are seen as central to 'a whole of society' approach to advancing sustainable development, quality of life and the right of all of the city's inhabitants to a safe and sustainable future:

1. The capacity of all city inhabitants to live to the end of their natural life and not die prematurely from a lack of resources, the effects of pollution, or injuries caused by an extreme weather event(s).

2. The capacity of all city inhabitants to enjoy good health, be adequately nourished and in possession of housing, shelter and a functioning habitat.

3. The capacity of all inhabitants to form attachments to animals, plant life, people, and the surrounding world of nature and not have their emotional, cognitive, social and physical development blighted by anxiety or fear of environmental disaster (both real and anticipated environmental destruction).

4. The capacity of all to creatively enjoy the city's green and blue spaces and participate in the production of works of common value.

A capabilities approach highlights the need to maximize the capabilities of all to maintain a degree of access to nature that is conducive to good health and wellbeing and further enriches the city's eco-cultural heritage. That is, capabilities that allow all to maintain agency over their lives and future. Access here includes not only physical access to nature but also mental (the capacity to see and feel the presence of nature in one's life) and cultural access (nature as a key component of the city's history and identity of its residents, past and present) across time (remain intergenerationally relevant). Preserving access to the city's nature may not be so easily 'measured' as fixed sustainable development indicators may suggest (e.g., SDGs). For such reasons, we propose that SDGS indicators be adjusted to accommodate additional, less asymmetric and more context-sensitive factors, including both tangible and non-tangible aspects of communities' eco-cultural interactions, noting their essential contribution to realizing equitable, inclusive, healthy and sustainable worlds.

Where a capabilities approach scores over a purely descriptive indicator-led one (e.g., fulfilling standard quotas on tree planting, cycle lane construction, etc.) is in its emphasis on the essentially plural or diverse nature of embodied experiences of 'wellbeing' and 'development' (Bell et al. 2019). Wellbeing here is not only considered in terms of meeting targets in the provision of essential 'eco services' (e.g., protecting nutrient cycles, water, habitats) but, also, psych-emotional, cognitive, social, and cultural services – needed to maintain healthy cognitive, emotional, creative development (the stimulation of imagination, the creativity, perceptual and sensory skills of communities) and community integration. Whilst some capacities measured by a capabilities approach might be common across communities, others cannot be treated as such, conditioned as they are by the peculiarities of cultural, social, geographic, and historical context, and changing environmental conditions over time. Any viable model of sustainable development and wellbeing for the eco-smart city, therefore, must be able to accommodate an element of variation across context.

With a capabilities approach, such variation can be measured in terms of differences emerging across the capabilities of differing communities within the one city (e.g., differences between the capabilities of the elderly communities to access nature as opposed to those of younger, more mobile generations of residents).

The focus here is not just understandings 'the root causes and drivers of biodiversity loss' but also understanding how access to and responsible engagement with biodiversity (entangled human-non-human communities) affects the capacities of different communities' to protect and engage with nature and, in doing so, derive benefits to their health and wellbeing. Such an approach, we would argue, needs to be built more explicitly and creatively into the city's regulatory frameworks, evaluation procedures and outreach educational programmes to maximize the long-term success of sustainable city development initiatives.

To better engage with the city's potentials to realise sustainable pathways of development, more attention needs to be paid to how publics interact with the city's green and blue spaces and further, how such interaction shapes the identity, wellbeing and historical memory of the city's communities. Engagements with nature, and factors influencing them, offer important insights on how values comes to be invested in this nature by local populations over time. A capabilities approach, focusing on criterion such as that listed above, does not see wellbeing as standard, fixed, or as purely material but, rather, as formed through ongoing interactions with an outside, ever-changing world. By emphasizing the 'relational' qualities of wellbeing and the key role played by the city's nature in enhancing wellbeing (as a 'multi-sensory', physical, social and cultural experience, see Franco et al., 2017), emphasis is placed on using existing resources and capacities more creatively to further advance the social, economic, cultural, and environmental life of the city for all. The issue of intragenerational justice constitutes a central ethical motive for applying a capability approach in this instance, although intergenerational justice has also become an increasingly important component as well, especially as biodiversity loss and the impacts of climate change grow more serious.



**Figure 1:** Components of the 'eco-smart city's economy of wellbeing

While Cork City Council's Draft Development Plans (2022-28) acknowledges the vital contribution of the city's green and blue spaces to the 'people, community, health and wellbeing', it does not offer a detailed description of those benefits. Neither does it account for how, precisely, the needs of the city's wildlife will be protected (i.e., what further measures will be taken to protect the welfare of endangered species of birds, insects, flora, and fauna native to the city). Research for this project sets out to assess how the capabilities of the city to enhance the wellbeing of all its inhabitants is strengthened by traditions of interacting with nature (human and non-human alike) in ways that are mutually beneficial. In doing so, it works with a broad and inclusive definition of wellbeing and sustainable development. As Song et al., (2018) observe, both wellbeing and sustainable development are complex terms, best understood when based on the assessments of individuals in 'live' social settings.

## Phase One of Qualitative Research: Walking interviews

In keeping with this understanding of wellbeing, we sought to assess how a cross section of the population perceive and find meaning in their relationship with the city's parks as prominent, heavily frequented green and blue spaces in the city and, further, how interactions with and immersion in these spaces enhance the wellbeing of residents and potentially that of local wildlife also. Walking interviews were conducted with a representative sample of fifty regular park visitors from a range of social backgrounds, ages (from twenty up to seventy years), nationalities, and gender categories. Respondents were recruited via Facebook and local resident associations. The interview findings were transcribed and subject to a qualitative analysis using SPSS (see a detailed summary of findings data in Appendices on page 23). Anonymised data was analysed and findings organised according to those themes most frequently raised by respondents in various categories (age, gender, nationality, etc.) under review.

The walking 'inter-view' entails an inter-changing of views between people on the move (Kvale 1996; Herzog, 2005). Respondents in this research project were interviewed 'on the move' (Herzog 1995; Rubin and Rubin, 1995) in a city parks of their choosing, including Fitzgerald's Park, the Lough, the Glen Park, the Marina or Ballinlough Park. As Gubrium and Holstein (2002) observe, the choice of interview location is extremely important to the quality of one's research. While in the past, fixed indoor locations were thought to be the ideal setting to conduct interviews, today, the trend increasingly is to conduct empirical research in scenarios where the researcher walks with their subjects and records their responses to questions, as well as the sounds and other sensory stimuli that shape the context of the interview process. Given the growing sophistication of recording technology, research interviews no longer need to be limited to the written word (Back, 2012). The craft of social research is extended to encompass everyday movements, sounds, colours, live scenes and landscapes that shape the context of the research process and enrich its texture, range and quality (Law & Urry, 2004: 403).

In this instance, smart technology helped to facilitate a study of peoples' engagements with city parks in ways that included the sensory and emotional dimensions of the engagement process (e.g., expressions of pleasure, amusement, contentment, nostalgia, worry or, on occasion, sadness in responses to questions exploring noted changes in the city's green and blue spaces). Walking interviews helped to clarify the multi-sensory dimensions of respondents' attentiveness to the city's biodiversity and eco-cultural heritage, noting how insights on the climate crisis and loss of biodiversity in the city are emplaced in everyday, lived experiences of its nature. Discussing such issues with regular park visitors, whilst walking in their world, allowed for a richer exploration of immersive experiences of being in the city's nature, its green and blue spaces, as well as the type of sensory reactions these experiences evoked in memory, imagination and communication. Of particular interest were the meanings park users invested in the city's nature as physical 'entities' (parks and their wildlife) and as 'spaces' where identities are forged, memories are made, imaginations triggered and meanings constructed (Gagnon, Jacob & McCabe, 2015) through daily interactions with this nature.
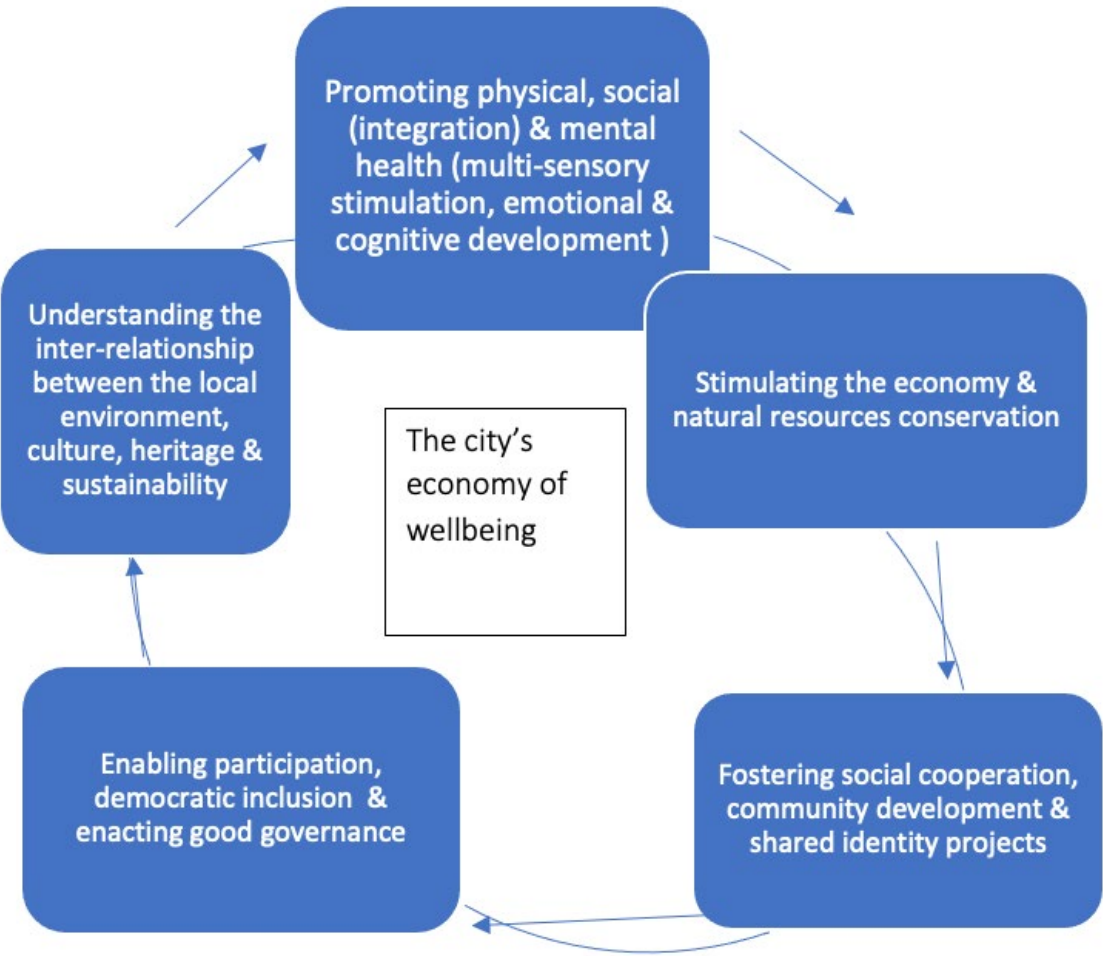
# Memory, imagination and communication

Noted triggers of memory and imagination here included the scent of seasonal flowers, trees, grasses, the sound of familiar bird song or the flow of rivers, the buzzing of bees, children playing, etc. Sensory experiences of the city's parks are both deeply personal and memory laden, whilst also reflective of broader understandings of the significance of this nature to socio-cultural narratives of the city's identity and rituals of belonging to the same (e.g., the creation of new annual events, such as the summer ceili at the Lough, family festivals at Fitzgerald's Park; rowing at the Marina, football matches and poetry readings in the Glen). Such narratives continue to evolve as the demographics of the city change and additional sensory content, insights and experiences are added to shared understandings or 'culturally thick descriptions' of belonging to the city (Matless, 1998; Schama, 1995).

Even allowing for differences amongst respondents in terms of age, gender and background, there was still a high level of consistency across the interview findings with regard to understandings of the value of this nature to mental health, as well as the cultural, social, economic and ecological life of the city's communities. Our aim here was to document the extent to which immersive experiences of park life add to the value of these spaces as both cultural and 'therapeutic landscapes' (Gorman 2017). That is, as spaces whose cultural, social and psychological value extend beyond their physical presence or functionality to include also their positive impacts on memory, cognition, imagination, psycho-emotional, as well as physical wellbeing (Alvarsson et al., 2010). Consistent with the findings of a broad literature, the walking interviews conducted for this project suggest that regular immersion in the nature of the city's parks promotes a broad range of positive impacts, for instance on the subject's cognitive capacities ('a clearing of the head', memory recollection, communication, see also the work of Kaplan, 1995; Berto, 2005), mood enhancement (relief from experiences of depression, loneliness, anxiety), emotional stability (an increase in feelings of happiness, playfulness, contentment with life, see also the research of Hartig et al., 2014) and curiosity in ways that can generate restorative health outcomes (e.g., a feeling of being recharged, mentally refreshed, See also the research of Ulrich et al., 1991) and improve sentiments of belonging to this world.

More generally, research documenting the impacts of regular immersion in urban nature on mental and physical well-being to date has been extensive (e.g., see Franco et al., 2017; Frumkin et al., 2017). For example, Ward Thompson et al. (2012) and Lederbogen et al. (2011) point to its capacity to reduce levels of stress, negative thought processing (see, also, Bratman et al., 2019) and depression (Bratman et al., 2015). Ratcliffe, E., Korpela, K.M., (2016) observe the role of this nature in improving creativity and imagination, while Briki & Majed (2019) have explored its contribution to physical wellbeing (reverse unhealthy heart rates and gait speeds). Similarly, the research findings of this project provide considerable evidence to support those of wider research. For instance, those of Kaplan's (1995) on the contribution of nature to attention restoration. Kaplan highlights the ways in which nature captures our attention in a pleasant and effortless manner, allowing the mind to rest, to drift and wander freely while the capacity for directing attention is replenished (Berto et al., 2008). This gentle capturing of attention is often described in the literature as 'soft' fascination and can be distinguished from episodes of concentrated attention or 'hard fascination' which deplete attentional resources and give rise to mental fatigue. The mechanism of soft fascination at work in green and blue settings was noted by respondents in this research, with several referencing the rich meditative qualities of the city's parks' natural features:

*'You forget the wider world and focus on the nature. Clears the mind. Watching the baby ducklings is pure entertainment. It's an amazing thing – the cycles of nature'* (Respondent 25, Male, 61, Irish born).

'*Honestly, the birds. I love seeing them and their interaction. Especially in springtime when the babies are around. I'm really excited I haven't seen them any yet so I feel like it might be the end of March, early April. Ducks and geese, in particular and, obviously, the black swan. She's fascinating'* (Respondent 29, Female, 25, Irish- born, the Lough).

*'I love ducks. I love birds in general. I don't know it just makes me happy to see them kind of going about their lives. Survival is there only sort of priority I guess obviously. But just wanting to eat and I don't know mate and hang out with each other. A lot simpler than maybe what's going on in my own head. So getting to enjoy watching them it's quite funny'* (Respondent 31, Male, 30, the Lough).

'*Just watching the ducks, there is something liberating about it. I can't fully explain it but when I look at them, it is definitely - it releases some sort of tension. That takes me away from only observing other humans where there are all these preconceptions. There is so many more notions, there is so much more self-reflection involved in looking at people. Whereas with ducks it doesn't force me to consider like who I am or what's not working about me. So I get this raw kind of reflection or exchange from observing wildlife that's hard to get now with humans'* (Respondent 26, Male, 44, Fitzgerald's Park).

'*It [watching the birds in the park] helps me to focus on other things other than what's going on in my own head. Like getting to just enjoy what's right in front of me. It kind of puts me in the moment you know'* (Respondent 31, Male, 30, the Lough).

Similarly, the vivid colours of nature in park settings was noted by many of our interviewees (62%) (see Figure 2) in ways that support the findings of the wider research documenting the social, psychological and behavioural effects of green and blue environments on human health and wellbeing (e.g., Elliot et al., 2007; Briki et al., 2015; Briki and Hue, 2016; Krenn, 2018; Lee et al., 2018; Zhang et al., 2018).

This research notes how nature's colours activate different parts of the brain in ways that can help improve cognitive functioning. However, our research findings also suggest that nature's colours additionally hold powerful symbolic value and influence affective thought on the beauty of the contrasting seasons and their connotations (natural cycles of rebirth, renewal, death). For instance, the positive thought processing generated by sprouting green leaves, grass, trees, seasonal flowers during Spring and Summer months and their association with fresh air, hope and clean living.



**NATURE AS A SENSORY EXPERIENCE**
IN INTERVIEWS, XX% OF RESPONDENTS (N=50) MADE REFERENCES TO:

- BIRDSONG 48%
- QUIETNESS 32%
- OTHER SOUNDS IN... 20%
- SOUND OF WATER 18%
- COLOURS OF NATURE 62%
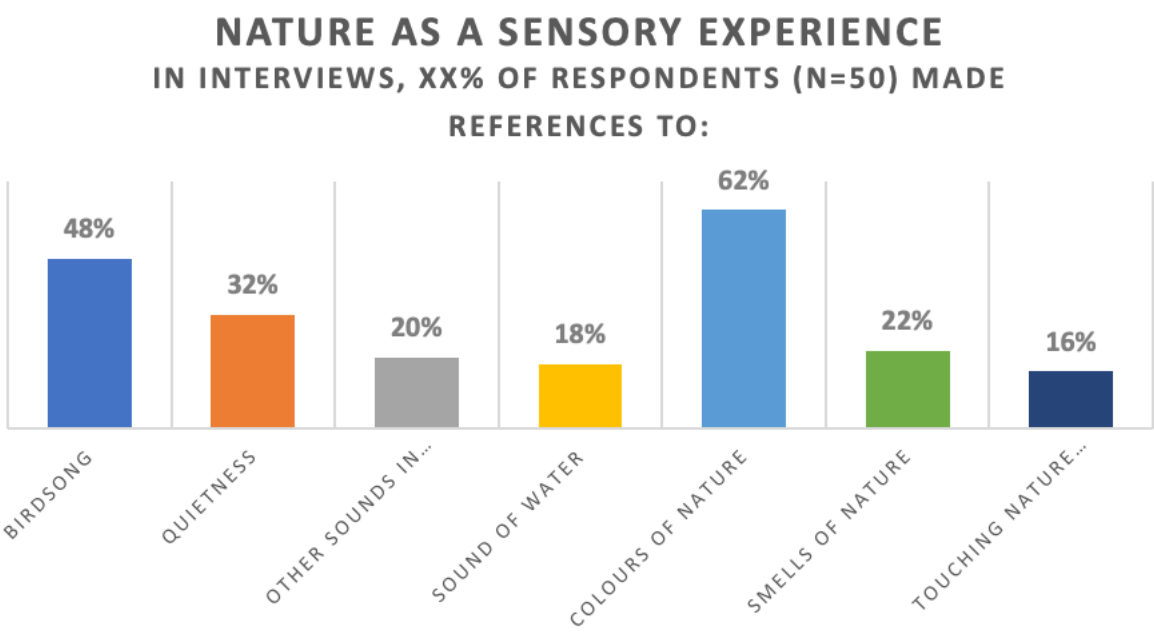- SMELLS OF NATURE 22%
- TOUCHING NATURE... 16%

**Figure 2:** Nature as a sensory experience

Equally, the scent of nature proved important to many of our respondents (22%). The scent of seasonal shrubs, native trees, flowers, and grass enhanced the mood of respondents and stimulated happy memories of times past – time spent with family or friends, pets, courting rituals with partners - in ways that facilitated an embodied transportation to a happy mind space:

'*I love the smell of the trees, the flowers, the grass. It's what I'm used to at home so I just think it's comforting when I go outside. Like, look there's daffodils. You can't but feel better when you look at them*' (Respondent 29, Female, 25, Irish-born, the Lough).

Another noted dimension of nature's therapeutic value is its sounds (18% of respondents referenced nature's acoustics). Similar to the effects of nature's colours, scent and forms, its sounds have the potential to reduce psychological and physiological indices of stress and offer relief from cognitive fatigue (e.g., see Buxton et al., 2021; Ratcliffe, 2021; Conniff and Craig, 2016. Conniff, A., Craig, T., 2016).[1]

The therapeutic value of nature's sounds have been attributed to several mechanisms, most notably, adaptive, evolutionary processes where natural quiet signifies a place suitable to 'rest and digest' (Andringa and Bosch, 2013).[2] Nature's sounds have a tendency to stimulate feelings of 'being away' from the noise and chaos of city life in that, may facilitate the recovery of various attentive capacities. Biodiverse Acoustic stimuli can also evoke memories and associations capable of encouraging psychological recovery from stress or feelings of loneliness (see Gould van Praag et al., 2017).[3]

'*The birdsong is really important to me. When you hear birdsong it takes you to a happy place, just calms you down, doesn't it*?' (Respondent 41, Female, 52, Irish born).

*It [birdsong] does something to me, brings me peace and serenity' (*Respondent 25, male, 61, Irish born).

'*Nature has a therapeutic effect on me. The birdsong is very soothing. I recognize the sound of the thrush, a wood pigeon, magpies, the robin. We learn the different birdsong around us' (Respondent 12, Female, 65, Irish born).*

'*It is nice to see little birds and you hear the birds... It is very relaxing, and you are away from cars. That is also nice that there are no cars at all.* (Respondent 27, Female 31, Marina Park).

'*The park is comforting, you feel less lonely. The sounds of the birds and the running water. Its familiar and reassuring' (Respondent 21, male, 57, German born).*

'*The birdsong is loud here [Ballybrack Woods, Douglas] which I like very much. Because the park is in a valley, you cannot hear the traffic'* (Respondent 10, Female, 41, Polish).

Apart from bird song (mentioned by 48% of respondents), respondents also noted the sounds of running water, the rustle of leaves, or the buzzing of bees as important components of an 'acoustic biodiversity' (Ferraro et al., 2020; Sueur, J., Krause, B., Farina, A., 2021) that actively contributes to their sense of wellbeing in natural settings. Similarly, collaborative research conducted by the BBC Natural History Unit, BBC Radio 4, Exeter University, Bristol University, and the Open University provides further empirical evidence to support the claim that nature's sounds benefit the mental health of city residents. Reporting on the findings of this research, Smalley et al. (2022) explain how during the Covid 19 lockdown when cities fell silent, many people rediscovered the therapeutic value of listening attentively to the sounds of nature in the city to their mental health and willingness to engage in conservation behaviour.

Similarly, the symbolism and positive thought associations generated by being in the presence of mature trees was noted by many of our respondents:

'*I just love trees here in the park. There is something very calming about trees. The just seem to give off a calming vibe' (Respondent 41, male, 52, Irish born).*

'*It gives me security seeing trees still being able to grow. One of my fears is that in the future with climate change maybe the trees that we are planting here won't be able to grow to the same extent because the conditions are no longer the same, or maybe we should plant olive trees. I get security in the sense that I see the trees coming to life every year, right.... and as long as it continues to happen, I feel that security, that there is hope' (Respondent 40, Male, 33, the Marina Park).*

'*Makes me feel like there is life all around. Kind of hopeful, I guess. That's why it's nice to go for walks here because it makes you feel better'* (Respondent 36, Female, 36, Fitzgerald's Park).

Overall, the research findings suggests that cumulatively, the sights, sounds, smells and textures of nature together positively impact wellbeing in ways that are both deeply personal (e.g., personal memories and experiences) and social (evocative of memories of shared activities, winters at the Lough or summers at Fitzgerald's city). Sensory experiences of the city's nature play a key role in evoking sentiments of belonging which, in turn, enhance embodied experiences of the city and further contribute positively to good mental health and wellbeing:

'*The trees and the water are very special for me. I guess they bring back lots of good memories of my youth, being here with friends and the kids over the years. Yes, I do appreciate the seasons and the changing colours of the park' (Respondent 17, 52, Male, Irish born)*

'*Yes, my parents used to bring me here as a child to feed the swans and ducks and ride my bike. Also, over the years I have come where with friends, go to the concerts in the park, the coffee shops and restaurants in recent years' (Respondent 15, Male, 54, Irish born).*

'*We lived here so we observed the birds as children and listened to what sounds they make. I still like to watch wildlife. This park [the Glen Park] is a big part of the constancy of my life. I come here regularly still There is a connection between my youth, my family, and this park .. We played all around this park so it's full of memories for me. I feel very rooted here. Definitely, growing up in this nature definitely has made me more adventurous and self-confident' (Respondent 12, Female, 65, Irish born).*

'*The Glen Park evokes a lot of memories for me. The laughs and the memories of youth. Also, my mother's stories of when she first came to Cork from Waterford in the 1970s. The Glen river, the quarry and the trailers were here. I always have that in my head when I am in the Glen Park – that it is part of my family's history*' (Respondent 6, Female, 35, Irish born, member of the Traveller Community).

'*The trees, especially trees like these because they remind me of the plant landscape back home in Lithuania' (Respondent 37, Male, 61, Fitzgerald's park).*

## Reducing levels of stress and feelings of loneliness

By creating a calming and soothing environment, experiences of multi-sensory stimulation in the city's parks were noted by respondents as having a reassuring or soothing effect, reducing levels of stress and emotional disturbance. A notable 94% of respondents who visit parks on a regular basis admitted they do so to protect their mental health, while 76% said they do so to maintain physical health:

'*Whatever issue is upsetting you, may seem large in your mind, you come into nature and realize that actually it's not so bad. So it's definitely interesting because its like the cycles of nature also kind of remind you that things will end and there will be new beginnings, you know*' (Respondent 41, Male, 52, Irish born)

'*It helps me to calm down. Comin here is uplifting for my mood and sense of security*' (Respondent 10, Female, 41, Polish born).

'My job can be very stressful. I like to go into the Glen Park in the evening and just meditate, switch off. It's like a security blanket. I always feel better afterwards' (Respondent 7, Female, 36, Irish born).

'*It relieves stress, clears the head. Being in nature makes your everyday problems seem more manageable*'(Respondent 21, 57, male, German born).

The constancy of nature's cycles offers reassurance, a sense of stability and stimulates episodes of 'soft fascination' by providing novelty, variety, surprise, amusement, in addition to a range of other health-enhancing benefits:

'*People need a quiet, calm place to go to destress and connect with nature. This is very important to the mental and physical health of the community. In terms of my personal life, I would be devastated by the loss of these spaced. These parks have helped me so much over the last number of years to get myself back to a healthy state again*'...'*I come to the park because the green spaces are very relaxing. I have some medical problems and this helps to keep me healthy. A lack of exposure to green spaces affects my mental health, my anxiety*' (Respondent 10, Female, Polish born, 41).

'*It's a place to destress, to ground yourself and get away from the business of the city, it's like a different pace and that pace I think is based on the nature around that you kind of like get into that rhythm so I think that would be a loss, this place that is good for your mental health, your happiness, a place where you can bring your family and your children and teach them about biodiversity and about nature so that they can experience that as well*' (Respondent 43, Female, 23).

*It's very hard to find nature here and I grew up in rural Ireland, surrounded by the fresh smells of green fields so I definitely miss that living in the city. So I guess coming to this park is one way of kind of just escaping the city's streets and everything'.* (Respondent 32, Female, 26, Lee Fields).



**WHY PEOPLE VISIT THE PARK**
**(UNPROMPTED QUESTION ON REASONS & BENEFITS, N=50 RESPONDENTS)**
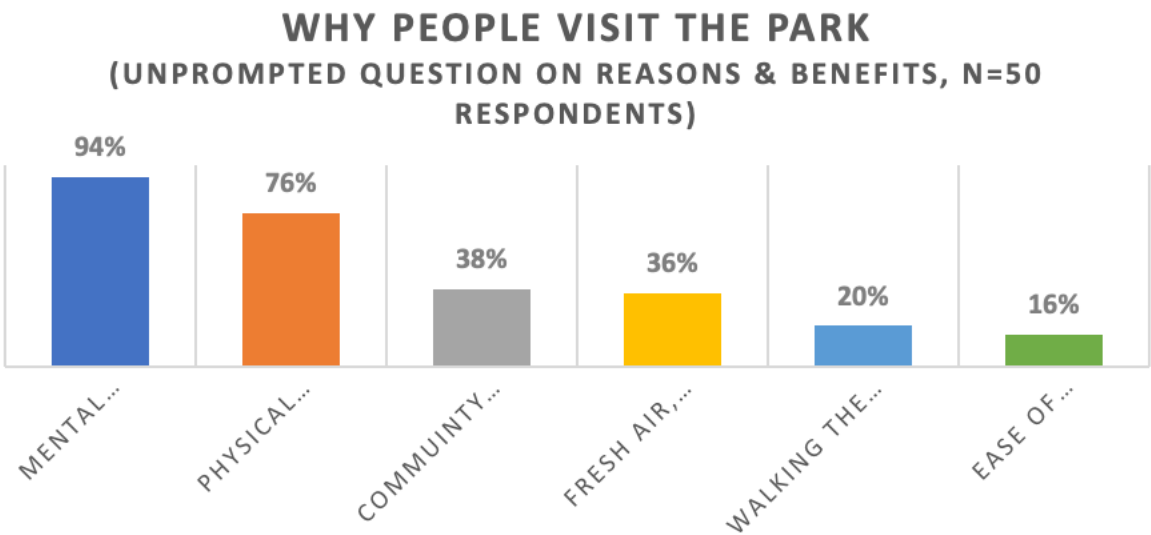
**Figure 3:** Reasons for visiting the city's parks

## The importance of play to mental health

By improving mood, relaxation and cognitive capacity, immersion in the city's nature was noted by respondents as also contributing to greater levels of playfulness, creativity and imagination. Play here is not only initiated by children but equally adults. For many respondents, play remains an important dimension of the park experience:

'*I feel like being in a park, just to put it simply, I feel more free. I think it's, I have always treated parks as somewhat like a playground. So and I'm not talking about the kids playground because that would be weird but the trees and the little structures they have. Just for me, I associate that with play. Even though, I haven't been playing with those things. Like I haven't been climbing trees and all that for a long time. But I guess that's how I would have usually interacted with the environment when I was young*' (Respondent 26, Male, 44, Fitzgerald's Park).

'*It's a playground for us, so the natural aspects are really important for that. And you can see the vines and they lend themselves so easily to kind of being silly and we pick blackberries here and we sometimes use some of the leaves and things to make little ornaments and little animals and things like that to make bits of art. Art is probably a stretch, but you know what I mean. You know we make decorations and things like that. The wildness is really important to us*' (Respondent 47, Female, 45, Beaumont Quarry).

'*I am not from Ireland but I associate the parks with running and being free, at peace with the world. The city parks remind me of my childhood in Spain where I would spend hours with my family in nature, on picnics, etc. These memories are important to me and being exposed to nature form early on has drawn me to my present pursuits including horticulture*' (Respondent 8, Female, 41, Spanish born).

## Promoting sentiments of belonging and social integration

Some of the city's parks have gardening and walking groups, established by local residents (e.g., Glen Community Garden Group). These are described by participants as valuable opportunities to come together to learn about sustainable gardening practices and make new friends. In this way, park spaces are also important mechanisms for fostering community solidarity through a common interest in plant life and an emotionally embedded concern for nature's wellbeing. Universal aspects of the nature are also seen as promoting a sense of belonging amongst respondents and in that, perform crucial functions beyond a functional role:

'*Being outdoors, in nature… It makes me feel I belong to Ireland. The natural features make me feel at home here in Ireland' (Respondent 1, Female, 45, Italian born).*

'*..I just have a lot of really nice memories here, walking around, getting to know Irish people, getting used to the accent, talking to everybody*' (Respondent 28, Female, German born, 27, the Glen Park).

'*Sometimes when I feel overwhelmed, my studies, being away from home, sometimes I feel lonely, but when I come here I just find myself connected with home, you know you feel this place is kind of very natural. You are in an open space, you are breathing natural air and so I think that's why I often come here' (Respondent 45, Male, Nigerian born, Fitzgerald's Park).*

'*Even if I don't talk to anybody, just to kind of see everyone going about their day, you know enjoying… or partaking in a similar moment or at least in the same environment… It does make you feel a sense of community for sure. It makes you feel not so alone, even if you are alone here and not talking to anyone'* (Respondent 31, Male, 30, the Lough).

Another important stimulant of social engagement in parks is dog walking. Respondents noted the ease with which dog walkers bonded and forged friendships across nationalities, age, class, and background in ways that may not happen outside of the park space:

'*You end up interacting with every dog owner because the puppy tackles everyone. So that is nice actually because that adds a social element to it, and you end up knowing all the dogs' names before you know the owner's names you know. So that's lovely'* (Respondent 34, Male, 32).

'*Sometimes we might meet neighbours, other times we might meet people with other dogs, so we usually say hello. There is a big kind of friendship group amongst people with dogs. (*Respondent 47, Female, 45, Beaumont Quarry).

'*I know everybody because I'm constantly outside with the dog so of course you get to know people. And the other people who have dogs. So the park plays a role in that because that is where you go with the dog but yeah, it's easier to integrate, I guess over dogs. First you know the dogs' names and then weeks later maybe you will remember the owners name'* (Respondent 28, Female, German born, 27, the Glen Park).

Equally, city parks become the setting of long-standing friendships and stories of romance, featuring in cherished memories of courtship, family outings and friendships:

'*When we were dating 19 years ago we used to come here for walks too. We walked the same route that we are walking now. So I have many memories with my wife and with my children'* (Respondent 49, Male 54, Fitzgerald's Park & Lee Fields).

'*Very much, we would go on dates in the Glen, have parties, play music , great craic'* (Respondent 7, female, The Glen Park, Irish born).

## Nature as a 'reliable companion'

Cumulatively, these benefits (which tend not to be explored in official accounts of the risks associated with loss of biodiversity in the city, greatly enhance respondents' personal investments in the city's parks. This was reflected repeatedly in tendencies to humanise relationships with the nature of the parks. The latter were often construed by respondents as 'a reliable friend' and granted human-like qualities, suggesting a deep emotional attachment to the same:

'*The wildlife is the soul of the Lough. No one would come here if the presence of the wildlife were to disappear. Its soul would be lost. It would be dead. That would affect the people's health, the local economy (local shops and cafes) and the beauty of the Lough as a special place' (Respondent 23, Female, 62, Irish born).*

'*This park is like a reliable old friend that reassures me all will be fine' (Respondent 15, Male, 54, Irish born).*

'*Nature is a constant in my life, a reliable companion. Something I know will be here when I need it' (Re-*spondent 24, Male, 60, the Lough).

'*The park [Fitzgerald's Park] is the heart and lungs of the city' (Respondent 5, Female, 38, Fitzgerald's Park).*

Trees featured regularly in discussions and, in particular, memories of much loved mature trees that had been cut down. This was particularly upsetting for several respondents who remembered how these old trees marked the landscape of the city's green spaces for many years:

'*The cutting down of trees in the park is very upsetting for me personally. The tree surgeons seem to be very trigger happy in this city and would seem to look for reasons to cut down the older trees. I suggested to our local councilor that trees that were blown down here in the park during storms be replaced but did not come back with any follow up. People develop attachments to a particular set of trees in their local park that have been there for 30 or 40 years. Those who decide to remove those trees do not live in the area and are not aware of people's emotional attachments to those trees' (Respondent 20, Male 47, Irish born).*

'*I want to file a complaint about the decision to knock down a very old tree in front of the coffee shop [in Fitzgerald's Park] and they left a big hole where the tree was. There was no discussion or explanation. It feels like a real loss. Also, there was a big line of old trees outside of Cork's Maternity Hospital and when I returned recently for an appointment, they were gone. They used to give me energy and now they are no more' (Respondent 5, Female, 38, Mexican born).*

Similarly, respondents expressed a feeling of regret and sadness over the loss of swans and diminished numbers of ducks in the Glen Park. Observing less frequent encounters with butterflies or bees than previous years also evoked concern. Eliciting more positive emotional reactions were events such as the outdoor annual ceili at the Lough in late Summer or dawn mass staged open air at the Lough every Easter, where the rising sun in the background and the chorus of birdsong were said to have the effect of enhancing spiritual connections to nature amongst participants (Respondent 25, Male, 61, The Lough).

# Risks to the city's eco-cultural heritage

Being over-exposed to heavily grey, concrete environments was noted by respondents as having a negative impact on their mental health and physical wellbeing.

*'Even if I had a garden, seeing the disappearance of the city's parks would be a huge issue for me. The parks has been very beneficial to my wellbeing, especially with three young kids and living in the inner city without a garden, lots of traffic and areas of concrete'* (Respondent 5, Female, 38, Mexican born).

*'Where I live in the inner city, there is no front garden and nor much greenery. When there is no sun, it's all grey and concrete and it affects my mood'* (Respondent 8, Female, 41, Spanish born).

*'Sustainability is important to me personally. No one wants to go walking in a grey, depressing, polluted area with no proper green spaces'* (Respondent 15, Male, 54, Irish born).

*'We see a lot of sterilisation of public spaces, green spaces mowed to within an inch of their lives, ever widening concrete paths, tiny wilderness pockets. It is a concern that the capacity of the park's ecosystems to thrive is being disrupted by poor planning decisions....There needs to be real commitment to conservation at the planning level and a more coherent green space management plan'* (Respondent 20, Male, 47, Irish born).

*'The ongoing development of the Marina Park in the name of sustainability entails a lot of concrete paths, few trees. Wilderness areas where biodiversity can flourish are being squeezed and will continue to be, especially with plans to build a road behind the Marina Park'* (Respondent 19, Male, 45, Irish born).

*'Well, wilderness areas are very important but are still not very prominent around the inner city other than derelict sites. Yes, there's a few small plots of wilderness around UCC now but it's too small to make a significant difference to the biodiversity of the city. It needs to be built more regularly into the city's planning and development. I see mainly a policy of concreting or paving new areas but is that really helping nature or feeding our desire for convenience, you know?'* (Respondent 17, Male, 52, Irish born).

*'We need to work with what exists already, less concrete. Work with nature, not against it'* (Respondent 4, Female, 60, Irish born).

Many of the respondents in our walking interviews also noted the threat heavier traffic, noise pollution and the further expansion of commercial areas posed to the health of city's parks. For instance, older residents at present in areas around the Lough or the Marina Park described how they depended heavily on these quiet city spaces for social interaction, exercise and enjoyment of nature. Further road developments in these areas were thought to *'seriously affect such peoples' mental and physical health, especially the elderly who need to feel they can walk in safety without worrying about heavy traffic, etc.'* (Respondent 19, Male, 45, Irish born).

Respondents also expressed concern about the contribution of traffic and noise pollution to the changing soundscapes of the city, as well as that of lead lighting to the disappearance of the city's night sky (the visibility of the stars and moons). In particular, the threat these changes pose to the therapeutic power of everyday nature to restore wellbeing (se, also, Smalley, Forest 404; see, also, Bates et al., 2020). Noise pollution, in particular, was noted on several occasions as a growing concern, as the volume of traffic flowing through the city grows more dense, road construction work intensifies, etc. As an anthropogenic source of pollution, noise pollution has been extensively studied as a factor undermining the city experience (e.g., Miller, 2008). If current societal trends continue, a greater sensory disconnection from the natural world is thought to be likely (Hunt et al., 2016), triggering a negative feedback loop between mental and physical wellbeing on the one hand, and reduced acoustic, visual, scent biodiversity in the city (Soga and Gaston, 2018; also see Novotný et al., 2020; Oh et al., 2020) on the other.

Smalley (2022) queries whether it will even be possible to maintain sufficient motivation amongst publics to care about the demise of nature if our senses no longer register its presence in daily life? Smalley points to the importance of memory and routine exposure to the soundscapes, scent and visual displays of rivers, trees, flowers, insects, birds, etc., to publics' motivation to act to protect endangered wildlife in the city. The wider literature on the impact of modern living on the development of empathetic engagement with the world would indeed suggest one cannot learn to empathetically care about the loss of biodiversity, including lost sounds, sights, nature's scent, and other sensory components if one is not exposed to them regularly.

# Disconnection from nature

Several respondents expressed concern over what they see as a growing disconnection from nature due to the influence of smart technologies, leading to a progressive 'extinction of the experience of nature' (Cazalis et al., 2023; Clayton & Myers, 2015). Respondents here make an important distinction between a material loss of nature (the literal disappearance of habitats and the unspoiled green and blue spaces of the city) and a loss of sensory awareness of the value of remaining nature. For example, a loss of what is referred to in the literature as nature's 'acoustic biodiversity' due to dwindling numbers of bird species, bees, tree coverage, etc. Physically, this disconnection is linked to the literal disappearance of habitats and unspoiled green and blue spaces as levels of urbanization and pollution continue to grow. Psychological disconnection from nature, however, is also a growing concern. With less physical contact with wild nature, there is a danger that our situational awareness of the restorative benefits of nature to wellbeing, cognitive capacity and health will also decline.

Add to these concerns increasing societal tendencies towards sedentary lifestyles (desk-based employment, long commutes to work) and smart phone dependency, where viewing and engaging with the modern world occurs increasingly through screens (smart phones, laptops, tablets, iPads, videogames, etc.) where brief periods of engagement with outdoor nature are preferred over extended involvement (see Marty-Dugas, J., Ralph, B. C. W., Oakman, J. M., & Smilek, D. (2018); Carr, (2001); Oswald, Rumbold, Kedzior, Moore, 2020). From a social and health perspective, an over-reliance on technology can displace important protective behaviours crucial to maintaining good mental health, including daily physical activity (Melkevik O, Torsheim T, Iannotti RJ, Wold B., 2010; Sandercock GR, Ogunleye A, Voss C. 2012), healthy sleep patterns (LeBourgeois, Hale, Chang, Akacem, Montgomery-Downs, Buxton, 2017), in-person social interactions (Twenge, Spitzberg, Campbell, 2019), routine exercising of one's perceptual skills, physical contact with nature, exposure to sunlight and fresh air. A reliance on flat screens and dwelling mostly indoors, cumulatively, can encourage a forgetfulness of the socially and biologically diverse nature of our surroundings, as well as the pleasures of being in nature with others. Socialization into sedentary lifestyles from an early age, according to the research of Schutte, Torquati & Beattie (2017) or Schmitz, Lytle, Phillips, Murray, Birnbaum & Kubik (2002), or Gorely,

Marshall & Biddle (2004) also has detrimental effects on the perceptual, emotional and social skills of the individual. Several respondents also raised this issue:

*'We have lost sight of our connection to nature. With phones, we have stopped looking around, observing nature and we need more time to reorganize and make the necessary changes, including learning to slow down and reflect and make the changes needed'* (Respondent 8, Female, 41, Spanish born).

*The common knowledge of the people has less and less connection to nature. They don't like being in nature, being bitten, being cold, wet, etc. If the child does not have the habit of looking at nature from different angles and distances – the top of a hill, the top of a tree - and learn about distance, it affects their visual fields. They don't see the birds on the trees or hear them singing. We are already disconnected from indigenous peoples and their knowledge is far more developed than ours – their sense of smell, humidity, distance, changes in the texture of nature (Respondent 10, Female, Polish born, 41).*

*'I mean I just don't know if I think younger people do know now the importance of trees and like climate change is being taught to them but equally you know maybe they don't see it as a space to enjoy. The alternative is they will stay at home and play the PlayStation or go to the cinema to see the new eco dystopian movie'* (Respondent 40, Male 33, the Marina Park)

*'If the wildlife in this and other parks were to disappear in the years ahead, it would definitely affect younger people's capacities to emotionally connect with environmental issues and understand their seriousness. I mean you have to experience nature to appreciate it. Not just its material value, but its effect on mental and physical wellbeing. If you are in nature regularly, it instils itself in your brain, either consciously or unconsciously it helps your ability to appreciate the value of nature to our lives' (Respondent 16, Male, 20, Irish born).*

Further support for these arguments is provided by researchers at Exeter University who have used data from the British Household Panel Survey to demonstrate how perceptual skills are damaged over time by living in environments with few green spaces. Offering similar findings, the research of Sundquuist & Sundquist, (2004), published in the British Journal of Psychiatry, showed how increasing levels of urbanisation in Sweden paralleled a rise in rates of psychosis and depression. Peoples living in densely populated regions had a 68-77% higher risk of developing psychosis and a 12-20 percent higher risk of developing depression than the reference group.

Contributing factors here included a lack of green spaces to relieve the stress of city life and poor public support structures for social networking. Some respondents in our walking interviews drew attention to the importance of protecting the city's parks as spaces of moral ethical learning, especially for children, learning about the history of the city, its inhabitants, the value of wild nature to health and wellbeing, as well as the duty to respect and nurture nature:

*'if children do place-based learning it fosters a sense of belonging and the more connected that a young person or child feels to nature the more proactive will they be in protecting it when they grow up. So I think it's really important that we have these places that children can learn in and experience being in nature so that it fosters that sense of responsibility and belonging throughout their life. It's really important. And often the impact that kids have cannot be understated because if your kid is telling you, we have to protect the daffodils because bees get their pollen from them and the pollen is really important for the rest of the world and if there's no daffodils, there is no bees and if there is no bees then … if a kid keeps hassling their parents like that, the parents are gonna change their behaviour. It's been proven, there are papers on this. I just think it's important that kids can do that and hassle their parents and get their parents to change their behaviour. But without spaces like this it won't happen in terms of nature'* (Respondent 32, Female, 26, Lee Fields).

More immediate measures to protect the eco-cultural heritage of the city mentioned by respondents included the planting of more trees and the adoption of a more rigorous management system of the city's existing tree population (avoidance of cutting down old trees at all costs and only in consultation with communities):

*'I think in terms of planning, there needs to be for every like square-foot of concrete building or like however much space that company has planned, x amount of tree can be put in a separate site or incorporated into the site. I think the government could have a planted tree scheme where you could go onto a web portal and they will subsidise the cost of a tree or you can plant a tree in your own garden '* (Respondent 40, Male, 33, The Marina, Irish born).

*'We forget that trees are a great defence against flooding. Their roots absorb excess water. When trees are cut down too regularly, excess water after heavy rain or storms has nowhere to go and causes flooding'* (Respondent 4, Female, 60, Irish born).

'There is a need for more careful, holistic planning that prioritises the preservation of existing green assets and earmarks more spaces for nurturing wilderness areas' (Respondent 19, Male, 45, Irish-born).

Other respondents pointed to exhibitions, festivals, history projects, or dramatizations of shared stories of the city's eco-cultural heritage (the ghosts of the Glen, the Lough's haunted castle, etc.) as possible platforms to promote a shared city folklore with nature a central theme and to which, a modern twist could be added (e.g., digitalized story books for schools, celebrations at Halloween, tourist tours). Respondents suggested that the Council look to fund more community-based annual events designed to generate awareness amongst communities' new and younger generations of the history of biodiversity in their neighborhood. Cork City Heritage and Biodiversity Plan 2021-2026 outlines measures pre-dominantly designed to protect the built cultural heritage of the city with few references to plans to protect the needs of the city's fragile eco systems. The city's blue and green heritage does not feature strongly. As respondent 25 comments:

*'We need to change how people think about the value of the Lough as part of Cork City heritage, not just a space of utility. We need to tell the story of the history of the Lough, Sceal King Cork, record and celebrate this history more publicly. It should be more part of the oral history of the city, recorded and celebrated regularly'* (Respondent 25, Male, 61, the Lough).

*'Definitely more parks, more land reclaimed for parks – you know the park in the centre, Bishop Lucy park, that used to be a car park. So that wasn't always a park. So there is a context for taking spaces that are primarily used to house cars and giving them back to the community. There is a large carparking space at the back of grand parade, right onto the river, that could be taken and done something with. All of this costs money so it just depends on how much will there is to do that. But I mean Ireland isn't a poor country but it doesn't manage money well and I don't think because people maybe never had stunning parks they don't know what they're missing. In England, for example, the parks are even better but that's because that was an empire and they invested in beautiful parks. Here we don't really know what exactly a wonderful park should be so the people aren't exactly going out and demanding it from their local authority. So I think if there was better education as well in terms of, yeah the desire needs to be there'* (Respondent 40, Male, 33, The Marina).

Respondents noted the Cork City Harbor Festival as a positive step forward in this regard although an educational campaign centering on local species of marine life should be included here also.

# A summary of the main findings of the walking interviews

Perhaps the most notable finding of this first phase of research for the ECO-CONNECT project is the extent to which the walking interviews revealed the importance of the city's parks and their nature to the mental health and wellbeing of the city's populations. The findings pointed to the benefits derived from regular immersion in the nature of the city's parks, most notably the bonding capacities of nature. Whilst the health benefits of regular immersion in this nature have been widely studied, to date, insufficient attention has been granted to the role of the city's green and blue spaces as a mechanism of socio-cultural integration. The history of the city's parks is a subject of immense public interest yet little of this history is promoted publicly in a curated, coherent publicly disseminated narrative. For example, collected folk tales about the parks' mysterious pasts (the haunted castle of the Lough and the ghosts of the Glen) provoke curiosity and intrigue amongst many participants in the walking interviews yet their knowledge of these histories is incomplete due to a lack of available information. Cork City Council has provided some funding for a local project on the Glen Park, entitled 'Ghleann na Phuca'**.** However, further funding could be provided for a range of cultural activities exploring the history of a range of city parks, as well as their significance to the present.

A third major finding of the walking interviews was the extent of public concern regarding current threats to the city's biodiversity, including a lack of sufficient maintenance of its green and blue spaces (neglect of rivers, river species, native trees and other wildlife). In this regard, respondents drew attention to the fact that threats to the city's biodiversity are not always externally sourced (global climate change). In the Draft Cork City Development Plan 2022-2028, Cork City Council reflects on the city's experiences of flooding and major storms, noting their effects on 'communities, businesses, biodiversity, infrastructure and transport networks'.

'Ireland's climate is changing in line with international trends', it adds, with the result that these problems are likely 'to continue and intensify into the future'. It is interesting to observe here how climate change is framed as a source of destruction imposed upon the city from the outside, rather than as one that could also be internal to the city, in terms of the contribution of planning, resource management and development choices to further biodiversity loss and climate change. Many respondents highlighted a continuous over-reliance on concrete as problematic and not subject to sufficient public debate. Equally, delays in decision-making on the implementation of viable flood prevention measures, a lack of sufficient tree canopy in many parts of the city, poor investment in the protection and promotion of the city's eco-cultural heritage, or the lack of new additional green public spaces with easy access (with appropriate transport links that are inclusive of those unable to cycle or drive) to accommodate the city's expanding populations. A fourth theme raised by many respondents was the under-utilisation of the city's parks as an educational resource documenting the city's rich eco-cultural heritage. As a corrective, several respondents recommended that the parks be made a more central feature of an urban wildlife educational programme for new and younger generations of Corkonians. In this regard, respondents recommended that government provide funding for a range of educational tools, including the staging of a series of multi-sensory installations with visual and auditory recordings of the sounds and images of park native plant species and wildlife and stories of events past (including ghost stories, major historical events and folklore associated with city parks) and linking these to present day events, as well as a digitized repertoire of images and stories of the city's relationship with wildlife and other aspects of its biodiversity as an educational tool for schools. All of the above were recommended by respondents as a means of expanding the capacities of the city to utilise its existing eco-cultural heritage as a rich educational resource and in doing so, further the capacities of the city to be eco-smart.

# Phase Two of the Research: Focus Groups

The first phase of research for this project explored in-depth the social, emotional, psychological, cognitive, and physical benefits of regular immersion in the city's nature, noting how it offered relief from mental stress, fatigue, anxiety and depression, improved cognitive capacity, levels of social interaction and physical well-being. The second phase of the research assessed public's perceptions of ease of access to this nature and the city's eco-cultural heritage more generally. Access here included physical access (geographic proximity to green and blue spaces), mental access (the ability to hear, see, and feel a sensory awareness of nature's presence), cultural access to the city's nature (connecting with a nature that forms a key part of the city's identity & history). Access to nature is thus understood as secured through multiple means. Our research sought to assess how access to nature was facilitated or, indeed, hindered and consider ways in which access could be improved.

For this second phase of research, the primary method of empirical inquiry used was focus groups. Four focus groups lasting between 60 and 90 minutes were organised at various locations across the city with groups of cohorts purposively selected to meet certain criteria, including an equal balance of age categories and gender, in the hope that this would help improve the quality of discussion as well as the range of topics and viewpoints covered (Freitas, Oliveira, Jenkins, & Popjoy, 1998; Thomas et al., (1995). Similar to studies conducted elsewhere (e.g., Harrison, Baker, Twinamatsiko, & Milner-Gulland, 2015; Manwa & Manwa, 2014), the focus groups for this project sought to clarify and expand researchers' understandings of issues raised by respondents during phase one of the research.

Similar to the experience of Krueger (1994, 1998), we found the focus group discussions proved to be instrumental in generating a rich additional body of data on issues relating to the quality of residents' access to nature in the city.

In each focus group, the researcher deliberately took on a peripheral role as a 'facilitator' or 'moderator' of the discussion between participants (Bloor, Frankland, Thomas, & Robson, 2001; Hohenthal, Owidi, Minoia, & Pellikka, 2015). The discussions that ensued were recorded with the full consent of all participants and subsequently transcribed and anonymised before transcribed data was subject to a careful thematic analysis. The results of this thematic analysis were then interpreted according to their relevance to the three primary issues under investigation. That is, access to nature as a component of (1) distributive justice, access to nature as a key element of (2) recognition justice and access to nature as an important component of (3) procedural justice.

So important was this nature to focus group participants, it was regularly defined as a basic pre-requisite for the enjoyment of rights (see, also, Nussbaum 2003; Boyd, 2012). That is, the right to health, to a clean, peaceful and safe environment, the right to cultural heritage, etc. Drawing on Sen and Nussbaum's capabilities framework, we argue on the basis of our research findings that basic social functioning and wellbeing require not only the physical presence of clean and healthy green and blue spaces but, also, the ability to derive benefits from these spaces and enjoy regular access to them. A capabilities approach to nature conservation and wellbeing, therefore, was applied, with primary concern focused on the question of access to the city's wide range of biodiverse assemblages. Furthermore, access to this nature was defined broadly as encompassing physical, mental, spiritual, cultural, and social access (Langhans et al., 2022), allowing subjects (human and non-human alike) to benefit from shared aspects of this nature in a variety of ways.

The general argument put forward by the contemporary literature on nature in cities is that there are consistent trends across industrialised contexts of a wholesale decline in the quality of experiences of nature in larger urban areas. Some even go so far as to describe these developments as giving rise to an 'extinction of experience of nature' (i.e., EoN).[4] According to the research of Pyle (2003) and Miller (2005), the regularity of city dwellers' interactions with natural worlds 'on an emotional, physical, spiritual or intellectual level' is declining steadily (see, also, Gaston & Soga, 2020; Pergams & Zaradic, 2008).

The chief assumption of this literature is that disconnection from nature is largely self-imposed (due to growing trends towards more sedentary lifestyles, smart 'phone addiction', rising levels of obesity, fear linked to a surge in rates of anti-social behaviour, threat to the safety of women and criminal activity more generally in inner cities etc.). Our research would suggest, however, that there are also notable social factors involved in the 'extinction of experiences of nature' in cities which need to be accounted for.

Second, our findings would suggest that the 'extinction of experiences of nature in cities' affects some people more severely than others, depending on age, gender, capacity for mobility, and socio-economic background. Hence, apart from socially-produced and collective experienced factors, such as rising crime rates and heat levels, in addition to greater volumes of traffic, noise and air pollution in large inner cities, there are also less clearly defined social elements that ensure access to nature is socially stratified. These include elements related to age, gender, mobility, class, ethnicity, etc., that can also be shown to negatively shape the experience of nature in the city for some (e.g., the threat of attack). Thirdly, our research challenges the assumption of the prevailing literature that the extinction of experience of nature is a universal process. Instead, we would suggest that EoN is also shaped by cultural and social factors that can produce differences in experience across communities.

As present-day interactions with urban nature are complex and multi-layered, our argument is that research on this topic requires the adoption of more comprehensive range of immersive methodologies designed to capture differences in the experience of nature in the city across peoples. Fourth, our research challenges the implicit assumption of the dominant literature on the 'extinction of experience of nature' that this process is unidirectional (i.e., on a continuous downward spiral of decline). We would argue that this is dependent not only on which cohort is under investigation but, also, how significant events ,such as the Covid 19 pandemic, or a major heatwave, storms, etc., can reshape community responses to the same.

In recognition of the many social dimensions shaping the degree to which immersive engagements with wild nature in cities is diminishing or not, as the case may be, the question of justice also needs to be factored into discussions on these issues. Arguably, this is where our research in phase two of this project potentially makes a valuable contribution to knowledge. The analysis below offers a detailed account of research respondents' views on where dimensions of justice are currently lacking in the management of access to nature in the city. It assesses how these deficiencies might be addressed in the future through a conscious integration of specific principles of justice more firmly into policy planning, development and evaluation. This, we would argue, is an essential step if the negative impacts of inequalities in access to nature in the city are to be addressed effectively. To incorporate justice principles into programmes aimed at delivering equal and sustainable public access to nature in the city effectively, it is helpful to specify which categories of justice are most relevant. The analysis below centres on three primary categories that we argue are central to the realization of an equitable eco-smart city plan for the future that ensures all city inhabitants experience nature's benefits in a fair and equitable manner. These are: (1) distributive justice, (2) recognition justice and (3) procedural justice.

# Defining the distributive justice dimensions of access to nature in the city

A primary issue of concern for focus group participants was a potential lack of sufficient access to nature in the city and the capacity of this deficiency to seriously undermine wellbeing (see, also, Jennings et al. 2012). Key to understanding wellbeing in relation to the distribution of access to the city's nature is Nussbaum's (2003) capabilities approach. According to Nussbaum, wellbeing not only requires sufficient resources are available to achieve basic human functioning but, more importantly, subjects have sufficient capacity to avail of them (i.e., easy access to the city's nature).

In other words, nature must be accessible to all people if they are to experience its benefits (physically, mentally and culturally). However, many of the participants in our focus groups noted a serious shortage of equitable access to nature – a deficient number of large parks in the inner city to accommodate the changing needs of the city, as well the worrying trend of removing large mature trees from local streetscapes:

*'We need more large scale green spaces. The population of the city is expanding but the green spaces are not. Why is this? Is there real commitment to biodiversity recovery in the city? Right now, it doesn't seem so, I have to say. Yes, you see small scale pilot studies. Grass left grow wild in a corner of UCC or the Glen but that's about is. Not enough is being done, not enough at all. What is blocking the thinking process here?'* (Focus Group 2, Participant 2, Male, 40)

*'Its quite incredible. In the heart of the city, you really just have small parks like the Peace Park or medium sized parks like Fitzgerald's Park or the Marina. The Glen is probably the biggest park in the city. But when you think about a city like Sheffield in the UK. It has this wonderful huge park right in the centre of the city, uninhibited, you can walk, cycle and relax and feel removed from the city. We don't have anything like that here in Cork'* (Focus Group 2, Participant Two, Male, 40).

*'I've just come back from Berlin. Berlin is just full of large parks. Wherever you go there are trees and a sense of space I mean it's an old city and its had a lot of investment in it to make it the kind of urban place it is today with its lovely green spaces but just the will to keep it green is really phenomenal and it*

is very dry and it's built on sand, so none of the trees can retain the moisture. But still they actively keep their trees alive with water when its dry and climate change is affecting all of that as well' (Group 4, Participant 1, female, 54).

Focus group participants generally agreed the number of large parks in the city centre is inadequate, given the expanding size of the city's population. As a consequence, efficient and accessible transport links were considered essential. However, the accessibility of many of the city's parks was thought to be disrupted by irregular bus timetables, a problem more pronounced for those dependent on public transport or those facing mobility challenges (e.g., the elderly, younger citizens, the disabled, marginalised communities) (see, also, Wolch et al. 2014). Equity in the distribution of access to the city's green spaces therefore needs to be factored more centrally into decision-making on public transport routes and, indeed, into the design of streetscapes, tree planting, cycle lanes, etc.

*'People can't rely on public transport at the moment. They have no faith in the reliability of the service. When there is no public faith in the transport system, then there's underutilization and the service dies. Use of the public buses in Cork city has got better I'd say. I think Apple demands that there is a regular bus service for its employees -the 202, for instance* (Focus Group One, participant 5, male, 24).

*'Then there is also this idea in Ireland where it's almost frowned upon to use public transport because of classism. I could easily get the bus to College but I choose not to out of convenience and image even though it's not that far for me. A lot of people tend to do things like this. Whereas if you had a rail system or bus system that was more reliable and not expensive, more people would use public transport, I think'* (Focus Group One, Participant 5).

*'We also need green links with subsidized buses for accessing parks'* (Focus Group One, participant 3, male, 44).

*'Also, with regard to prioritizing public transport and helping biodiversity, there are no bus corridors between the parks themselves. They are just creating islands'* (Focus Group One, Participant 3, male, 44).

The issue of class difference in the distribution of green spaces and their maintenance across the city was also raised by several focus group participants as a serious concern:

*'But even the difference in the maintenance of the city's parks. If you look at the Glen Park – that's one of the most beautiful parks in the city and you then look at Ballincollig Regional Park. All the money that goes into that park. That park is so much better maintained, looked after, and even Tramore Valley Park or Carrigaline. There are flowers planted down there on a regular basis. Planted trees and flowers in the Northside are not looked after. They are just left to their own devices'* (Focus Group 3, Participant 1, Male, 34).

*'Compared to facilities, or efforts made to maintain the parks on the Southside, we are very much the poor relation [on the northside]. The south side gets everything. They have more parks, better services. We get new facilities in the parks up here and they are torn apart or burned out. Do you know Murphy's Rock above. All they have to do is put in a new path. You would have a walkway to Kilcully, a walkway that goes down by Northside Glass you know. They have closed off many of the beautiful walkways around the North side'* (Focus 3, Participant Five, Male, 31).

*'Yes, this has been becoming increasingly clear to be honest with you – Northside and Southside differences in facilities. This is what people are saying. There are roughly 75 allotments in Knocknaheeney, for the whole population on the Northside! That's it'* (Group 4, participant 5, female, 45).

*'The general feeling is that the people of the Northside are not looked after. Nature walks are neglected and often claimed as private property by people in power'* (Focus Group 4, participant 4, female, 70 years).

Access to parks was also thought to be hampered by heavy traffic in the city, leading many to argue that journeying to and from city parks and nature trails can be dangerous for more vulnerable members of the public (including elders, those with physical or visual impairments, parents of young children, etc.). Also, issues such as antisocial behaviour, uneven pathways, and park facilities (shelter spaces for when it rains) were raised as a potential deterrent for some. Such factors were said to affect also access for more vulnerable members of the public (the elderly, disabled, youth) in ways that were thought to be unjust. A failure to address these issues appropriately results in a situation where policy regarding blue and green spaces in the city may prove discriminatory for some and contribute to a limitation of their access to nature and its benefits. As some participants pointed out, access to nature is a precondition to the enjoyment of many rights, for instance, to good health. Disruptions to access, therefore, can be considered unjust:

*'I can feel anxious too sometimes when I am walking to town. At certain times, the traffic is dense and it can feel very threatening. I wouldn't have the best balance and suffer from poor hearing on the left side. I guess this affects my confidence in my judgement about when it's safe to cross busy roads. But yes, it does feel sometimes feel like a survival exercise – walking in the city - and I can get quite stressed'* (Focus Group 2, Participant One, Male, 65).

*'In the Lough for instance, the elderly people living in the area don't have cars and but are relying on lifts maybe from relatives basically to get around, and it seems now with the cycle lanes that will be situated on the road outside the door of their terrace houses in the Lough area. There will be nowhere to park to collect elderly residents. These are small residential streets. Many of the elderly residents are in wheelchairs or mobility challenged and it will no longer be possible to drop them to their front door. This is just not acceptable'* (Focus Group One, Participant 2, female, 52).

Focus group participants highlighted the need to ensure opportunities to experience nature are distributed more equally and conscientiously across all relevant groups (Langemeyer & Connolly, 2020; IPBES, 2022). Increased access requires good governance, participatory planning processes and financial investments that speed nature's recovery whilst ensuring that benefits are provided to a wide cohort of people and eco-systems.

Improving access to nature, however, goes far beyond increasing physical contact. It also includes indirect forms of contact and improving commitments to support educational programmes that explore photographic archives, drama, folklore, exhibitions, documentaries and storytelling events (Kellert, 2002; Browning et al, 2020).

Increasing access to nature through these forms of contact must become a more central objective of distributive justice as well.

Justice in the distribution of access to the city's nature can be summarised as follows:

| Definition | Fair allocation of opportunities to experience nature across spatial, social, cultural & temporal scales |
| --- | --- |
| Factors affecting access to procedural justice | Injustice in terms of who is benefitting from existing or planned new facilities and who is not. Demographic characteristics- gender, age, ethnicity, class, disability. Each demographic group has different needs when it comes to access to the city's nature. Historical legacies of discrimination, poor investment in the maintenance of some parks, the need for more largescale parks in the city (expanding population), lack of protection of existing trees in the city (which reduce noise pollution, purify air and cools cities); poor investment in eco-cultural heritage awareness-building. |
| Examples of disruption to access | Failure to address these issues leads to greater intergenerational inequities, as well as North-South side divisions. Also, future generations being left with fewer natural resource reserves and less cultural knowledge of the same due to poor planning policy choices at present, deficient investment in climate change adaptation, biodiversity protection and pollution control with no follow up procedures, eco-cultural heritage awareness education investments, etc. Seniors have particular needs in terms of access to nature that are often not met at present due to heavy traffic, distance from public parks and other green spaces, uneven pathways, crime, poorly positioned cycle lanes on narrow streets, speeding e-bikes, and anti-social behaviour in parks. Those with mobility, visual or auditory impairments also feel their access to nature is restricted by limited opportunities & lack of safety and support measures. |

# Defining the procedural justice dimensions of access to nature in the city

To date, the justice implications of city planning and policy implementation, some of which has been highlighted above, has not been given sufficient attention, according to many focus group participants. In the interests of bridging knowledge perspectives, social and ecological priorities, policy choices and justice imperatives, our aim here is to make a timely contribution to understanding the overlap and mutual value of these different dimensions of justice, as they relate to the city's eco-cultural heritage, civic duties, democratic values and biodiversity recovery plan. In relation to existing consultation procedures, focus group participants noted:

*'The problem is these are once-off talks [public consultations]. They are not linked to people's ability to bring about long-term change or create a more regular space where people can have a say in whether the trees on their street will be protected or are going to be cut down. For me, this lack of voice is a real problem' (Focus Group One, Participant Two, Female, 52).*

*'The Council issues statements on reasons [for cutting down trees in a particular locality] and the reasons are also related to 'health and safety' but there is no consultation process prior to that decision. How do they expect us to feel about that?' (Focus Group One, Participant 6 (female, 40).*

Participants also referred to tendencies for consultation processes to 'juniorise' publics' stakeholder role. Some argued that publics are deliberately kept uninformed or at the receiving end of decisions made else (e.g., plans to give a section of Bishop Lucey public park to the Freemasons):

*'They are funding the kind of debates I went to, I mean that must've cost thousands for that thing to happen in a hotel [public meeting] but we were just spoken down to and left feeling like rubbish really at the end of it. How much money did they spend on that? You know doing this lip service thing where thet are spending all this money but not actually doing anything' (Group 4, Participant 1, female, 54).*

*'There is no proper communication to people about what is going to happen in the next five years to transport or green areas in the city. Because now they talk about cycle lanes but I went to a meeting there, maybe we were there together, when the City Council invited people to come to talk about the environment in Cork City but they were just hopping on about plans that they had made 40 years ago about cycle lanes and reports that are about this thick that still haven't been accomplished because they are too afraid to actually take the bull by its horns and just say 'let's get rid of traffic in Cork City Centre!'. And their parting shot to everybody who was at that meeting was 'go forth into your communities and persuade people.' It was so patronising! And you know it feels like there is a lot of hedging and fudging because nobody has the courage to actually do anything about it. Nobody has the courage' (Group 4, Participant 1, female, 54).*

Focus group participants often expressed anger and frustration with consultation processes that, they argued, misrecognize the value people place on protecting the nature of the city:

*'They must be made talk because people are emotionally invested in protecting local nature. It's essential to our mental health so it's a matter of priorities' (Focus Group 1, Participant 3).*

*'There needs to be more involvement of residents in the planning process' (Focus Group One, Participant 3, 44).*

Focus group participants also regularly raised the issue of trust throughout discussions:

*'A cynical person who works in that area told me that they got a tree officer, and they give him enough work to keep him stuck in an office and distracted while they cut down all the trees. Then you release a statement on the number of new trees they have planted and make it look like you're making an effort (Focus Group One, Participant 6 (female, 40)*

*'There is no feedback mechanism built into consultation sessions. Its a matter of procedural justice really. That is my problem with this arrangement. Why is there no discussion on reinstating Cork's tram system from the north to the south side of the city, for instance, or on measures that will be taken to protect the otters, the bats, the swan, curlew, salmon populations of the city. The public are told nothing! It's all about framing the debate around the commercial needs of the city only. There is a lack of real communication with all perspectives as we discussed earlier in relation to the common good'. (Focus Group 2, Participant one, male, 65).*

*'Agree with you completely on that. Why hasn't the Council nurtured cultural knowledge of the city's natural features and wildlife? It's almost as though they want to keep us ignorant, so we don't notice the disappearance of these inhabitants of the city. There needs to be an active educational programme put in place, a citizen science programme, for example, with publics monitoring the health of the wildlife in the city' (Focus Group 2, Participant two, male, 40).*

*'Apparently, there have been public consultations on the sustainable transport plan for the city in various localities around the city. Whether those concerns have been acted on is another story. People are concerned about contradictory policy aims, such as removing old trees in residential areas which are a home for nesting birds or just add beauty to a street to make way for cycle lanes and more concrete paths. People are upset with the short sightedness of policies, such as adding yet more concrete paving which in years to come, with rising temperatures, will add further to heat retention and flooding problems in the city. Our trees produce oxygen in the city and cool our streets. Why are they tearing them down?' (Focus Group 3, Participant three, Female, 52).*

*'Yeah, you know the sense amongst locals here is that this plan [transport plan] is not at all contextually sensitive, it's not. It's written and designed in Canada, or wherever, by people who do not know what it is like for residents living in the area, the challenges of narrow streets, no front gardens, etc. It's a reflection of the lack of proper consultation with the people who have to live with the changes they are introducing and the problems they are going to create for so many families here' (Focus Group One, Participant 2, female, 52).*

## A 'tick-box' approach to sustainability

Participants also pointed to what several focus group participants referred to as a 'tick box approach' to sustainable development:

*'There is a lot of tree planting right now. That's their big thing right now where trees are planted around the city and it looks great on paper. The Council puts in a figure of 5,000 new trees and especially on the side of motorways but there is no aftercare of these trees. There is no one watering or pruning these trees. It's like they say 'now we can put up a post saying we planted 5,000 trees this year' but they are not committed to maintaining and looking after these trees' .....'about two months ago, I was involved in planting apple trees in a park on the northside of the city.*

They were saying 'we are trying to get a green flag for this'. Because they want to get a green flag, they wanted to have a growing project within the park so they put in a load of beds but I got a picture sent to me yesterday and all the apple trees we planted have been snapped' (Focus Group 3, Participant 4, Female, 60).

'I feel like the City Council is doing this stuff just to tick boxes – putting in growing projects in some parks but then there is no aftercare system to monitor these growing projects, to nurture the trees and plants or whatever and help them to flourish. The support structures to make these growing projects a success is missing….The amount of money that is being put into these projects right now to tick necessary boxes on new green initiatives could be better spent elsewhere on projects that have a better chance of making a long-term difference to biodiversity in the city' (Focus Group 3, Participant 1, Male, 34).

## A lack of accountability

The issue of accountability was also raised by several participants. Again, the welfare of the city's trees was a major focal point of discussion. In particular, the need for new legislation to protect trees on public and private land:

'I was at a public meeting earlier in the year. It was organised by the biodiversity network I think, I'm not sure. People from the City Council were there talking to us about how they are literally counting the trees in the city, and everybody who was there was very concerned asking why was this or that tree cut down, and they were telling us that 90% of the trees in the city are on private land, you know, houses, backyards. And that they have no control over what people decide to do with these trees and, also, that sometimes they are not aware like when something is being cut down you know. We need a committee or whatever dedicated to preserving the city's trees because there is no legislation at present or a set of rules or whatever to protect these trees. This is something that needs to be done urgently' (Group 4, Participant 2, female, 42).

Procedural justice in the management and governance of access to the city's nature can be summarised as follows:

| Definition | Inclusion of all parties who are affected by the outcomes of decision-making processes |
|---|---|
| Factors affecting access to procedural justice | Power dynamics between stakeholders can lead to injustice as to who gets to decide on final decisions regarding interventions advancing access for some and limiting it for others. |
| Examples of disruption to access | Where new frameworks to improve access to nature neglect local expert knowledge, residents' concerns and the peculiarities of context. Failure to ensure pathways to just SD transitions are implemented in a contextually-sensitive and inclusive, open manner  complete with feedback mechanisms that ensure residents' concerns have been satisfactorily addressed. |
| How can equitable access to nature be established | Consultation with feed-back sessions and published reports, city walk-around tours with planners and residents with special needs (visual or physical impairments, etc), and follow-up meetings to account for how public recommendations were addressed. |

# Defining the recognition justice dimensions of access to nature in the city

To maintain a good relationship with the self, preserve a positive identity and feel like a valued member of the community, our goal always is to seek recognition from fellow members of society (Honneth, 1995).  However, our quest for recognition may not always be successful for various reasons, including factors linked to age, class, or gender discrimination. The theme of recognition was raised repeatedly by focus group participants throughout the discussion in relation to a number of key issues. For instance, the continuing dominance of car culture in the city and a related non-recognition of the welfare of those who choose not or, indeed, are unable to travel by car due to limited access, including cyclists, older residents or mobility challenged pedestrians:

'Compared to a city like Copenhagen which has a long, well-established tradition of cycling. You can see here how safe you are there as a cyclist there unlike here where the policy just seems to be to utilize some of the space of existing roads. Just seems to be a limited idea of how to accommodate bicycle transport in this city. I have a young daughter (2 years) and I would not consider bringing her on my bike in this city. I fell it's just too dangerous. The infrastructure just doesn't support it' (Focus Group 2, Participant Two, male, 40).

'It's a really dangerous experience cycling through the city these days. Last Wednesday, I can remember being really anxious to get home because you can just feel the negative energy on the roads. Especially in finer weather, car drivers are rushing to get home to relax, so they are stressing to get to a more relaxed space. There are certainly some days where you feel you can't get off your bike quick enough' (Focus Group 2, Participant Two, Male, 40).

'I cycle too sometimes but I have to say, less so these days for precisely the reasons that [X] mentioned. I also had a bad experience there three weeks ago and have not gone into the city on my bike since. I just don't feel safe a lot of the time. There is a growing hostility towards cyclists in the city centre. A sort of 'get off the road' mentality. I encountered that as a cyclist at least once a week. It's mostly from private cars rather than buses. Its worst on rainy days when there is more cars on the roads' (Focus Group 2, Participant 4).

'Attention is still given to the protecting the private car as the primary mode of transport. What we are really talking about here when we discuss the city's new plan is making appeals at the margins of a dominant car culture in a city, even a country designed to accommodate cars. There is a real deficit of commitment to the common good, including the common good of protecting biodiversity, where the gains to the self of changing personal behaviors and lifestyle for the sake of a wider community may not be so self-evident to many. So much of the city has been reduced to ownership and infrastructure that caters for that ownership to the detriment of wild nature' (Focus Group Two, Participant Four, female, 58).

## The common good

Equally, the absence of a strong, shared ethic of the common good was highlighted by several participants as an issue of non-recognition of the long-term needs of the community:

'Everywhere you go in Ireland, there is no conception of the common good. Its changing a little, I think, but there is still a lot to be done to protect rights of way through private lands, notions of the commons, a respect for and desire to protect the common assets of the city. It is still very hard to go anywhere in the city and find wild nature flourishing. Green spaces in the city are very constrained indeed. This is, I feel, a reflection of the absence of a strong sense of preserving nature for the sake of the community and common good. There has never been a parks movement in Ireland in the same way as there has been in other European countries, where the creation of parks was in the interests of the common community. This has always been a well-established political concern elsewhere. In the UK, for instance, the parks are well established and continue to be maintained by locals (Focus Group 2, Participant Four, female, 58).

'They do have a plan. It is a neoliberal one to limit the experience of nature to that of a service and forget about all other dimensions because they are inconvenient. Even in terms of like, you know, reports, media reports, what I've seen is relatively cursory talk about something like a greenway initiative in Waterford or rewetting the boglands of the midlands or whatever. It doesn't take too long before someone mentions 'this is worth 20 million euros to the local economy'. Like there always has to be an economic justification for environmental projects. And the cost-benefit-analysis that goes with it and the money' (Group 4, Participant 3, male, 43).

'I've lived in Dublin for many years, and it seemed to me, it's quite a while since I left now, but there was definitely a strong sense of the encroachment of private development into formerly public spaces, not necessarily always green spaces, but public spaces in general which had a huge impact on the city. Reclaiming the city through things like graffiti art or putting murals on walls, things like kingfishers you mentioned on Pau Street shopping centre, become hugely important to people. The city becomes a kind of brutalised space for development and little else' (Group 4, male, 43. Participant 3).

'The council isn't promoting eco-cultural heritage. It's putting all public funds into upgrading profit making ventures, in buildings, museums, even, you know, the Cork Harbor Festival because things like that are profitable. However, the things that matter most to people in their everyday lives are green spaces to walk in, having quiet spaces and actually being able to reflect and destress. There is no real money to be made in promoting the benefits of our parks you know' (Focus Group One, Participant 2, female, 52).

'There are just no benefits from it financially' (Focus Group One, Participant 3).

'It's not the number one priority of the government, financially (Participant 6, Focus Group One, female, 40).

'It's festivals that bring in money, the parks don't make them money and there is no real way of measuring their value in monetary terms' (Focus Group One, Participant 2, female, 52).

'Long ago, the Council would come into the estates of the Northside and paint walls, repair gates or doors and maintain flower beds in public areas and the local residents would look after their estates, keep them clean and tidy, you know. Its everyone to their own these days – look after your own piece of turf. In that way, there is a real lack of community spirit now' (Focus Group 3, Participant 2, Female, Irish born, 70).

## Perceived losses

Linked to a sense of a loss of commitment to the common good (beyond the commercial needs of the city) was a sense amongst focus group participants of a loss of quality interaction with wild nature:

'I think about the sky, we are losing the sky' (Group 4, Participant 1, female, English born, 54).

'Up the side of the road of my house they put up bright new lights right. Breaching screeching white

lights. Directly into my eyes. I rang six companies to find out whoever put these lights up and in the end, they reduced the height of the light so that it's out of my eyes, but it's so bright the bats are gone. I used to sit up in the garden in the summer and watch the bats and they are all gone. There will be no night sky in Cork soon. You can't see anything with these lights. They keep putting them in and the plan is to replace every bulb with these screeching white lights' (Focus Group One, Participant One, female, 70).

For some, these developments coincide with a loss of recognition of the importance of direct contact with nature to health and wellbeing:

'One thing is important that you were mentioning, it is building artificial things to satisfy people's need for contact with nature. For example, what Apple is doing. If you go to Apple's offices, they have beautiful seating areas for resting, and they have built a little artificial waterfall and added some greenery here and there. Yes, it's all very manicured and artificial. You can walk from your computer to this fake nature scene, have a cup of coffee and admire it 'oh it is beautiful' and then return to your desk....Yes, 'you want to listen to water, we have here an app for that!' Many people are listening to it lying on their bed, chilling out, listening to the sound of water. I wouldn't think of doing this myself, I would just go to the river to hear the sound of the water' (Group 4, Participant 3, male, 43, Iranian born). (Focus Group 4, Participant 3, male, 43, Iranian born).

## Expressed concerns for younger generations and their relationship to nature

Many participants suggested there was a general decline in levels of connection with nature amongst younger generations, including a decline in levels of familiarity with nature's sounds and visual cues. Some of the reasons noted for this lack of connection included the influence of smart technology and a growing reluctance amongst parents to allow children to play outdoors unaccompanied by an adult.

'A month ago, I bought a new lamp for bedtime for my kids because their old one broke and I found a new one with some sounds of nature and we were just switching through the different sounds one night and there was like a bird sound, a cricket sound and my kids were naming them and there were two sounds of water and I asked them 'what's this?' – 'water' they said and switched to the next sound. 'Yes', I said, 'but what water sound is this?' 'water' they said, but they could not tell which sound was a river and which one

was the sea. They just kept saying 'it's water, it's water' but they were not able to recognise you know the difference and this made me want to cry' (Focus Group 4, participant 2, female, Mexican-born, 42).

'I know what you mean [..]. Even the games we would play as kids - skipping, chasing, slogging apples, fishing for torny, climbing trees or just walking for miles away from home. We had such fun. All that kind of risky play is gone. Kids today don't have that kind of freedom, that spontaneity today and that's a big loss for their development' (Focus Group 3, Participant 3, 52).

'I think people are too afraid to leave their kids out on their own nowadays. But the price we pay for being too careful and safety conscious is that they lose that freedom, the firing of kids' imagination – to find creative ways of entertaining themselves. Our brains are slowly dying. We are becoming too reliant on technology to do everything for us. When you think of all the recent developments with new AI..' (Participant 1, Male, Irish born, 34, Focus Group 3).

'And that's what you are up against, the massive changes new technologies are creating in the way we come to know and communicate about the world around us. I say to the kids, 'we need nature in our lives' and they look at you sometimes like you're mad. They would rather view nature from a screen. I do worry about that' (Participant 5, Male, Irish born, Focus Group 3).

'Yes, younger people, when online, tend to share what they are doing constantly so when you are at the beach you take a snapchat at the beach, put it on Tik Tok or on Instagram story or whatever, you play music, or you get a text when you're there, so it's almost impossible now to actually get away from your phone, because there is this expectation to always be online, to be available to the online world, not be offline an focused only on your natural surroundings' (Focus Group One, Participant 5, male, 24).

'I think it's detrimental to peoples' social and mental skills [the addiction to smart phones] rather than just harmful to cognitive skills. I mean most people now can't just watch television, they have to be on their phones, online as well, the fear of missing out. But also pressurized to stay online It's more people now are all the time on their phone looking at what other people are doing, comparing their lifestyle to others, admiring people on Instagram, Tik Tok, it's like some people's lives are actually just unrealistic and then people get down, they feel inadequate, comparing their life to those they see online. They feel depressed and never good enough.

Mentally, its draining' (Focus Group One, Participant 4, male, 19).

However, other respondents chose to also draw attention to the potentials smart technologies offer to enhance people's interest in and knowledge of nature, if used creatively:

'Look, for me, this technology has positives and negatives. You know, you are feeding the Beast aren't you by kind of buying into it because that's part of the long-term problem, isn't it, just basically viewing the world through screens. Maybe it becomes an excuse not to engage with nature, but look, if it's used constructively it might help get people interested in nature, especially children, then it might have a positive dimension as well. The problem is when it becomes a substitute for real immersion in nature, then it's a problem, isn't it?' (Group 4, Participant 5, female, 45).

'You could have games, like Pokémon Go - your smart phone is like a joystick so you can move your phone and you have like a screen that stays in the park and you can play some games, actually interact with other things within the park, so it's more playful and interesting to the player' (Focus Group One, Participant 6, female, 40).

'That was actually a good idea, that game, Pokémon Go, it used to make people go out and walk around' (Focus Group One, Participant 4, male 24).

'I know that people can actually get apps now with different birdsong and then they go out with the app and try to listen to see if they can hear a particular bird in their local area' (Focus Group One, Participant 5, male, 44).

'Or even things like QR codes in a park, like you can say scan this QR code and it will tell you your journey through Fitzgerald's park. That might help you to engage with it in some respect, even though it's still through your phone' (Group 4, Participant 3, male, 43).

'That's a great idea for children in schools. Shouldn't we kind of be investing in that as a way of encouraging people to connect to the sounds of local nature?' (Focus Group One, Participant 1, female, 70).

'Yeah, that would be good if it was introduced into the education curriculum through schools, freely available to all. Why should we have to pay for such knowledge' (Focus Group One, Participant 3, male).

*'An app you can scan a QR code in a local area on your phone and you don't actually have to download the app to get the information. It's an idea they haven't finished developing yet. so if you use this app in parks we can build a sense of community as well as identifying a the nature in your locality. So the idea is at the moment children especially are very inclined to use social media or their phones rather or play station rather than actually go outside so even like a competition almost where kids can have challenges outdoor while also using their phones, that would work, a combination of nature as well as the social technology like that'* (Focus Group One, Participant 6, female, 40).

*'Well that's not only for schools, all community groups, any community group, any parents group, could benefit from I app like that. Should not just be for children, older people too could benefit from this for cognitive exercises. We always talk about the needs of children in school but if the parents don't go outside neither they can't support it or promote it or enhance it in their children'* (Focus Group One, Participant 6, female, 40).

**Dimensions of recognition justice in debate on access to nature across generations**

| Definition | A recognition of the needs, values and welfare of all city residents, young and old. |
|---|---|
| **Factors affecting access to recognition justice** | The prioritisation of economic interests in new development projects. A non-recognition of the differential needs, values and welfare of different parties (e.g., the elderly, the disabled, disadvantaged communities, younger generations, migrant communities, etc.) |
| **Examples of disruption to access to recognition justice** | Failure to take account of the needs of all to freely avail of the city's green and blue spaces and see their cultural representations of nature reflected in official accounts of the city's identity. |
| **How might recognition justice be enabled** | Evaluate by beta testing interventions to ensure policy outcomes are deemed just by all parties concerned. Iterate until outcomes are considered by all to be fair, reflecting critically throughout on questions of just recognition. |

## Rediscovering the value of the city's wild nature: When positives emerge from negative experiences

Several focus group participants referred to the positive effects of the Covid experience (what Beck (2015) describes as 'the emancipatory side effects' of major disruptive events). As Beck explains, sometimes we encounter situations in global risk society where bad circumstances generate good effects (i.e., bring communities together in solidarity). While Beck's example was Hurricane Katrina (2005), equally Covid 19 could be considered yet another example of how good practices can emerge from a shared negative experience:

'*One of the few positives of the Covid Pandemic was the moment it gave us with the city, emptied out of traffic, crowds, noise. People could see and hear wildlife in the city they had never paid attention to before. You could see the stars in the night sky. People found themselves rediscovering the benefits of green and blue spaces to their wellbeing and mental health* (Focus Group Two, Participant Two, Male, 40).

'*Yes, you could walk around the neighborhood and feel relaxed, not rushing to be somewhere before a certain time. There was a certain freedom in that even when our movement was being restricted to five km radius in our own locality. People gained a greater appreciation for their city then, but, also, maybe an awareness of the lack of big green spaces in the city, I think. That became more obvious to many people'* (Focus Group 2, Participant Three, Female, 52).

## Coming together as a community to protect nature

Apart from rediscovering the value of nature during the Covid 19 pandemic, focus group participants also described how their appreciation for the nature in their locality increased when the Council proposed removing some much-loved old trees. Participants noted how such proposals helped to mobilize residents in their area to form a campaign of opposition to such plans. In doing so, it also triggered a felt appreciation for the power of cooperation and the importance of vigilance to ensure local nature is protected:

'*We formed a residents' association to address our concerns about proposals to establish new bus lanes on Ballyhooley Road. It's a good forum for connecting neighbors who oppose the cutting down of old trees, for instance. It has brought us together more as a community. Out of bad initiatives comes some good. We are now more conscious of the need for vigilance, to protect the wild nature in our locality'* (Focus Group 3, Female, 60, participant 4).

'*There's lots of local volunteers now. We have a forum to articulate our concerns and raise issues with the Council, which is a positive step forward'* (Focus Group One, Participant 3, Male, 44).

## Proposed solutions

Phase two of research for this project highlighted many concerns of local city inhabitants regarding the justice dimensions of nature's sustainable management and long-term protection. Participants made several proposals to address key issues of concern, including:

1. Introduce a new reflexive framework for the evaluation and redesign of existing policy programmes for the city, where the impact (positive and negative) of policy changes on different communities' quality of access to the city's green and blue spaces is assessed more regularly.

2. Begin to plan for the gradual implementation of an extensive eco-cultural heritage revival plan incorporating a series of new initiatives across education, health promotion, cultural heritage, business, social integration programmes.

3. Begin gathering and curating a diverse range of oral histories, photographic and print memories of engagements with the city's nature, including its rivers, parks, walkways, trees, relationship with the sea, etc., to enhance cultural understandings of the city's identity as a steward of nature down through the centuries.

4. Create a series of new and re-develop older nature trails around the city in ways that are more age-friendly, inclusive and sensitive to the needs of disadvantaged, elderly, and disabled communities.

5. Following on from this, launch a series of new heritage public awareness initiatives, both digital and face-to face, displaying film and photographic archives, documenting the city's interactions with nature over the centuries. In particular, its rich wildlife habitats and parklands, thereby creating a more unified curated collective memory project on the city's rich eco-cultural heritage.

6. Launch a schools-wide project on the city's biodiversity as a living, evolving component of the city's identity, encouraging students to photograph local nature, discuss habitat protection and strategies aimed at living well with nature in the city of the future.Also, encourage schools to organize one class a week outdoors listening and observing the nature around them, not-

ing species types and their contribution to air quality, soil health, plant growth, human health, etc., as key elements of a flourishing city.

7. Create a new large wildlife educational park in the inner city populated with native plant species, trees, wildlife and instructors providing publics with training in the care and knowledge of the city's wildlife (e.g., bird, flower and native tree species), how best to cultivate native plants, flowers, trees, grow vegetables and offer guidelines on how best to protect the city's ecological heritage.

To maximise the success of these new measures, we propose a four-step framework for the implementation and continuous enhancement of an eco-cultural heritage plan for the city over time:

### Step 1 - Define:
Whose needs ought to be addressed by a new eco-cultural heritage plan for the city? Which stakeholders need to be engaged and why? What groups are most affected by current patterns of biodiversity loss? Who will plan, implement, and assess this intervention?

### Step 2 - Ideate:
How will relevant dimensions of distributive, recognition and procedural justice be addressed in the design, implementation and evaluation of the city's new eco-cultural heritage plan? What values will be prioritised and why? What will the decision-making process look like? How will the multiple ways of knowing and celebrating the city's eco-cultural heritage (i.e., culturally, socially, economically, emotionally) be taken into consideration? How will the needs and long-term wellbeing of the city's non-human populations and their habitats be protected?

### Step 3 - Devise a Prototype that:
Nurtures the city's biodiversity recovery, one that ensures the priorities of a new eco-cultural heritage plan for the city align with the goals of the EU's smart cities initiative and meets the needs of all stakeholders.
Considers how this prototype for nurturing biodiversity recovery might fail (subject to a risk assessment procedure).

Specifies what plans will be put in place to minimize the likelihood of potential harms to the success of the eco-cultural heritage plan in the short-term, as well as the long-term.

### Step 4 - Post-implementation Evaluation:
Devise a long-term evaluation procedure that will measure the impacts of the city's new eco-cultural heritage plan after its launch.
Ensure that the results of this evaluation process are used to enable further improvements to the City's eco-cultural heritage revival plan. Assess the material and non-material costs and benefits of this plan and consider how these are distributed across different groups and affect different communities (human and non-human).Consider if sufficient opportunities have been provided for stakeholders, especially those representing the most marginalised, to input into the design and evaluation of the new eco-cultural heritage plan for the city. Put in place additional measures to ensure the perspectives and needs of those who did not benefit from the first phase of implementation of new sustainable development initiatives in the city are incorporated into further revisions.

By adopting this four step, reflexive approach to the implementation, evaluation and ongoing development of a new eco-cultural heritage plan for the sustainable city, the aim is to show how policy decisions aimed at meeting EU SD targets are more likely to succeed if they emerge from 'thick cultural' engagements with nature in the city and its residents in ways that are sufficiently inclusive, reflexive, respectful of local experiences, and open to the possibility of revision.

In other words, new SD policy initiatives must aim to nurture positive relations of resonance (Rosa, 2019: 285) with the city's existing eco-cultural heritage, as well as the changing needs of its diverse communities.

Protecting eco-cultural heritage has become a subject of increasing importance in international debate on account of our growing vulnerability to climate change impacts, armed conflict, war, and neglect (see UN Special Rapporteur in the field of Cultural Rights, Karima Bennoune, 2017; See, also, Human Council, 2011). Eco-cultural heritage, therefore, must be considered relevant to heritage conservation strategies. Research for this project pointed to the significance of both tangible (green and blue spaces) and intangible components of the city's eco-cultural heritage (for example, city folklore (the Legend of the Palace on the Lough or the ghosts of the Glen), sculpture (the Salmon of the River Lee and Herons of the Glen), literature, photography, etc.). The Council of Europe's Framework Convention on the Value of Cultural Heritage for Society, reiterates 'everyone, alone or collectively' has a right to benefit from this heritage, including cultural understandings of and interactions with nature, and contribute to their enrichment by taking 'steps to improve access' to this heritage, 'especially among young people and the disadvantaged' (see Article 12 of the Framework Convention on the Value of Cultural Heritage for Society – Access to cultural heritage and democratic participation. See, also, Human Rights Council, A/HRC/17/38, March 2011).

## Phase Three: Mapping the city's eco-cultural heritage

To date, the city has commissioned a number of impressive public art pieces celebrating some aspect of the city's relationships with wild nature. While this art offers important moments of interruption in the dominance of commercial relations with the city, arguably, these now need to be brought together and thematised as components of a more detailed narrative documenting the city's cumulative eco-cultural heritage. Investing in such a project for the city is about consciously creating spaces of remembrance and reflection on the city's multiple relations with wild nature over the centuries, and linking these more explicitly to the city's present and future (multi-directional). Celebrating the city's eco-cultural heritage should, therefore, be both a richly historical and contemporary experience that works towards building futures of hope and ecological renewal in ways that also draw on long established rituals of engagement with nature in the city.

To celebrate the city as a space of deep entanglement with biodiversity is to create a context where cultural meanings, shared histories and interspecies connections can be explored in more depth. Our aim here is to give greater attention to micro contexts of interaction with the city's nature and to voices not typically brought into focus in official narratives of the city's heritage (e.g., older residents, the disabled, migrant community members, city gardeners, etc. recounting memories of encounters with the city's nature) or in

monuments of its past (celebrating male soldiers of war, revolution or those associated with a Catholic identity for the city). In that, the aim of phase three of this research was to improve the city's capacities to address noted deficits in the recognition justice dimensions of access to nature amongst its increasingly diverse communities (noted in phase two).

We sought to begin to open up a space where the city's heritage can be defined in more cosmopolitan terms and the interests of those previously excluded or marginalised from official narratives of the city's cultural heritage can be heard. A new eco-cultural heritage map of the city ought to build inclusivity more explicitly into representations of an eco-smart Cork City in ways that move beyond gender, race, nationality, age, religion, or sexuality differences and finds commonality instead through a series of nature-centred, blind markers of belonging to an environmentally-aware Cork City. What were previously marginalised or deemed 'irrelevant' stories of human-non-human entanglements in the city are recorded here and made available for public listening on the Cork Nature Network website. As the collection of stories and photographs featuring interactions with the city's parks and their wildlife grows, it becomes clear how remembering this nature as a subject of joy, beauty, love and attachment is anything but fixed or given or even, purely human centred but, rather, is always in the process of becoming (Derrida, 1994: 67) more deeply significant for the city's increasingly diverse communities and their collective shaping of sustainable futures.

**See:** https://corknaturenetwork.ie/our-work/projects/eco-connect-project/

## Phase Four: The Online Workshop

On December 12th, 2023, a three hour online workshop was hosted by Cork Nature Network (project partner) with participants from key organisations actively engaging in biodiversity recovery and sustainable development initiatives in the city, including Cork City Council, Cork Healthy Cities, Cork City PPN, Cork Nature Network, residential groups, academic and wider research communities. **Tara O'Donoghue of Cork Nature Network** opened the webinar with a warm welcome to speakers and an introduction to the important work of Cork Nature Network in restoring and protecting semi-natural habitats and species at various sites around the city and helping to foster a deeper public understanding of natural heritage to the collective health and wellbeing of communities. Tara presented an interesting overview of key projects in CNN's biodiversity action plan, including that at Beaumont Quarry as well as Tramore Valley Park, the rewilding project at the Glen Trust Park on Military Hill, otter trails as well as the Valuing Insects (2023) Walks and Talks it continues to organise at various sites in the city and surrounds.

A summary of the main findings of research for the ECO-CONNECT project was presented by **Tracey Skillington** to webinar participants. Tracey noted how research for this project, conducted by **Johanna Kirsch** and herself between February to September 2023, highlighted the deep connections that exist between Cork City's varied wildlife and its rich cultural history, traditions of story-telling, literature, art and sculpture, noting the importance of the overlap between these traditions and wildlife in the city to the social, cultural, physical and mental wellbeing of its residents, both historically and in the contemporary period. The potentials offered by this heritage to the development of a more contextually relevant framework of sustainable development for the city were noted. The tendency of mainstream sustainable development policy initiatives to disconnect questions relating to the environment from those pertaining to cultural heritage was highlighted as a problem due mainly to ways in which their overlap continues to be underplayed. For instance, fulfilling quotas (e.g., tree planting, cycle lanes) to reach SD targets or viewing SDG indicators as largely measurable in quantitative terms was said to be a limited approach when many factors relating to SDG goals (cultural values, human rights) are about capability and awareness-building (less quantifiable). Also, reaching set quotas does not necessarily address the needs of different groups.

Research for this project, for example, found that the needs of elder citizens within the community were not the same as younger cohorts. Indeed, some new sustainable development initiatives proved counter-productive to the needs of older residents. Energy saving street lighting, for instance, that improve visibility on public streets at night and save energy consumption are proving to be too bright for local bat populations that have left residential areas as a consequence, much to the disappointment of local nature enthusiasts. Another example highlighted was that of cycle lanes created outside the terraced houses of older residents in the Lough area of the city where family members now cannot park or where speeding bike and e-scooters prove a major hazard and a deterrent to many older residents venturing outside for a walk (particularly those who are mobility challenged or with hearing or sight difficulties). These and other examples raised by residents in interviews for the ECO-CONNECT project pointed to a need for a more contextually-sensitive approach to implementing and evaluating the effectiveness of new SD initiatives where the right of all residents to form attachments to place, to local biodiversity, and feel safe in their environment and affirmed in their identity is respected. A contextually sensitive approach to SDG realization is essential if the benefits derived by communities from a being in nature are to be protected adequately (i.e., social cultural, psychological, emotional, civic and economic benefits) and current challenges addressed (unequal access to green spaces for the mobility challenged, the elderly but, also, poorer socio-economic communities) and inadequate feed-back procedures are created cooperatively with different cohorts within communities to ensure plans to the redesign of the City and its green transition are both democratic and nature and people friendly.

**Emer O'Callaghan, an Executive Horticulturist and Senior Parks and Landscapes Officer at Cork City Council**, in her presentation drew attention to the fact that Cork City Council currently has approximately 800 hectares of parks and recreation spaces under its remit (including cemeteries, woodlands, allotments, river walks, green ways and parks). Initiatives co-ordinated by Cork City Council to increase biodiversity in the city and nurture its wildlife include ensuring the majority of new plant beds around the city are pollinator-friendly (since 2019). Also, the introduction of more wildflower meadows (particularly since the Covid 19 pandemic), the planting of over 800 Herbaceous Perennials at sites around the city in the last three years, as well as more native trees are all inspired by Cork City Council's biodiversity initiatives.

Emer discussed some of the ways in which the Council continues to engage communities and work closely with groups such as Trees Please, Cork Nature Network, Community Gardens, Green Spaces Cork, the HSE, and Cork Resident Associations. She went on to highlight the multiple social benefits deriving from these engagements both for the Council and communities . Emer also drew attention to the positive work of Community Gardens, noting how these continue to flourish and provide an important social outlet for increasing numbers of city residents. She also drew attention to the efforts of the Council to further intensify tree planting in the city in line with its new tree strategy and climate action commitments. Since 2020, over 10,000 trees have been planted in the city's various parks and open public spaces, a strategy the Council is committed to continuing in the years ahead.

**Dr Annalisa Setti**, **A senior lecturer in Applied Psychology, UCC,** gave the audience a fascinating account of her research on the functioning of the multi-sensory brain, its reactions to being immersed in natural surroundings and the positive benefits thereby derived to our cognitive health, including the fostering of pro-nature conservation behaviours. Annalisa's research points to the importance of sensory stimulation to the healthy development of the child's brain and the essential role that nature plays in the emotional and cognitive development of the child. Sensory memories deriving from regular immersion in nature, its smells, sounds, images and touch are crucial to emotional regulation and the psychological wellbeing of the child.

Equally, however, in later life, as Annalisa pointed out, multisensory stimulation is essential, even if the workings of the brain change somewhat, to maintain good cognitive capacity and mental wellbeing.

**Cork Nature Network's Jo Goodyear**, an ecologist and environmental consultant, drew attention to the importance of focusing also on our perceptions of nature, the crucial importance of protecting wild nature, rich meadows, woodlands and semi-natural habitats, as opposed to just focusing on the nature of city parks which is heavily shaped by human interests. Drawing on a very apt quote from Ralph Waldo Emerson, 'many eyes go through the meadow but few see the flowers in it', Jo noted the need for a more serious commitment to preserving cultural knowledge and understanding of native plants and species around us. There is a real danger of this eco-cultural heritage being lost. Jo spoke about the shifting baselines in our understandings and perceptions of the nature that surrounds us and the phenomenon of 'nature blindness', or a non-recognition of the importance of the nature in our everyday lives. The points raised by Jo reinforce many of those raised by Annalisa on the importance of biodiverse rich natural environment to long-term wellbeing and brain health in addition to some raised in earlier discussions, including those on Tracey and Johanna's findings on the risk of a decline in the quality of sensory, emotional, social and cultural connections with non-human nature. However, as Jo rightly points out, further research is needed on the contribution of wild and semi natural habitats to enriching lives, eco-cultural heritage and collective sustainable futures. Immediate steps must

be taken to ensure the continuation and flourishing of this nature as an important protector of climate futures and a shared heritage. Mitigating against risks posed to the city's biodiversity requires a radically new vision of city planning, the redesign of cities to meet the varied needs of multiple species, including the multi-sensory needs and long-term habitat and food security needs of all of nature (human and non-human).

**Denise Cahill, Coordinator of Cork Healthy Cities,** brought the discussion back to the importance of building a culturally and contextually sensitive approach to sustainable cities. Denise reiterated the importance of looking beyond a quantification of sustainable development goals and highlighted how her work with the Cork Healthy Cities team and Maria Young, Coordinator of Green Spaces for Health, is first and foremost about fostering community-based green initiatives that empower local communities to shape inclusive sustainable futures. Denise spoke about successful local projects, such as the community garden in Clashduv public park, Togher, a local initiative developed in 2022 on a quarter of an acre of public land within a public park in the city. With funding, the community built a polytunnel, 18 raised beds of organic vegetables and planted 360 native trees. Another ongoing project mentioned by Denise in her discussion is Parkowen, a heritage site located on the south side of Douglas Street in the city that has been rewilded as a public space rich in wildflowers, native trees, plant and animal species and Cork heritage. Cork has been a designated Healthy City since 2012 and interacts directly with the WHO/Europe to

further a shared goal across Europe to engage local government and citizens in the promotion of health and sustainability. Denise explained how this programme, in part, is committed to addressing what Jo referred to earlier in her discussion as the shifting baseline syndrome – declining levels of public understanding and cultural appreciation for the nature that surrounds us in our everyday lives.

However, Denise noted how building successful community-based projects in the city is a learning process that takes time to develop and grow residents' enthusiasm to be part of local sustainable development and biodiversity recovery initiatives (e.g., growing fruit and vegetables, herbs, native trees and plants, etc.). Equally, encouraging greater levels of collaboration between people working in different sectors, all addressing common themes (environment, health, sustainability, healthy cities, etc. ) but coming at the issue from differing perspectives or differing levels of appreciation for the importance of nurturing the cultural knowledge and traditional eco-friendly practices of local communities. However, when the connection between self, community, and common global interests are made, levels of commitment to sustainable practices intensify, as Denise observes. Further discussion on these points followed with audience members before Tara concluded the webinar, extending a warm thank you to all speakers and audience members for their time, valuable inputs and presentations.

**See a recording of the webinar at:**
https://youtu.be/npg6aqxJiis

# Conclusion

In light of the recently acknowledged need to bring the cultural dimensions of everyday interactions with nature more firmly into discourse on sustainable development (Secretariat of the UN Committee on Culture of United Cities and Local Governments, Culture 21 Actions Toolkit, 2015), this project set out to explore how routine engagements with the wildlife and the unique green and blue spaces of the city may be viewed as an important 'tool', offering a way of utilizing existing traditions of empathy, care, and attachment to local wildlife and semi-natural landscapes to reinforce and further strength commitments to new sustainable development initiatives. Once contextualized within existing traditions of socio-cultural practice and understanding, new sustainable development initiatives are likely to be viewed and embraced more enthusiastically. This means adopting a SD approach to the city that takes culture seriously and moves beyond a purely descriptive, indicator-led approach to SDG realization, to one that embraces a holistic perspective, seeing nature's contribution to the wellbeing of the city in terms of the provision of essential social, cultural, psycho-emotional, and cognitive, as much as eco-services over the years. In phase one of this research, walking interviews were conducted to assess how these multiple dimensions of wellbeing were reflected in respondents' responsiveness, attachment, and care for the city's nature (in its various public parks). This research highlighted the centrality of this nature to public memory, imagination, cognitive emotional and cultural understandings of belonging to the city, both presently and in the past, as well as the various health benefits of ongoing immersion in this nature to city residents.

The second phase of this research assessed public perceptions of ease of access to this nature and the city's eco-cultural heritage more generally. That is, how social, cultural, and multisensory, mental access to nature and green heritage is facilitated or, indeed, hindered by current city planning. Four focus groups were conducted with respondents from various communities in the city to explore these issues in more depth. Respondents drew attention to the various ways in which risks to the city's biodiversity and wider green and blue heritage are not always externally sourced but also exacerbated by poor planning and decision-making procedures (around transport, flood prevention, the over-use of concrete, inadequate protection and maintenance of local tree population, rivers, habitats, etc.).

These risks were said to give rise to a series of problems in the distribution of access to nature across different communities (e.g., elderly residents, the disabled, the mobility challenged, poorer socio-economic communities), a recognition of the differentiated needs and values of peoples, as well as challenges arising in relation to policymaking and implementation (lack of trust in policy, feedback mechanisms, etc.). All were thought to necessitate a new framework for the evaluation and redesign of existing sustainable development programmes (centred more on the preservation of eco-cultural heritage, as well as a more inclusive and continuous evaluation of sustainable development initiatives for the city).

Phase three of research for this project centred on gathering recorded interviews and photographs of interactions with local biodiversity and semi-natural landscapes of the city to begin the process of creating an eco-cultural heritage map for the city through the eyes and voices of its residents. A small number of respondents from differing backgrounds were recorded recounting personal stories of times spent pleasurably in the city's green and blue spaces and photographs gathered to show both lines of continuity as well as changes in peoples' relationships with the city's semi-natural landscapes and biodiversity. The aim is to continue to develop this heritage map and showcase an initial template on the Cork Nature Network website to attract attention not only to the historical importance of this natural heritage to the personal biographies of city residents but to its ongoing centrality to the wellbeing of the city more generally and to further the potentials this heritage to contribute to the building of a more contextually grounded and historically informed plan for the eco-smart healthy city of the future.

Phase four of the research centered on the organization of an online workshop by Cork Nature Network (the community partner in this project). Here a summary of some of the major findings of the project to date was presented to various stakeholders who offered commentaries on an earlier draft report of the findings of the project and presented a series of valuable recommendations as to where further research on these issues is needed. Representatives of key organizations including Cork City Council, Cork Healthy Cities, Cork Nature Network, UCC, gave an account of important advances being made presently in the form of new community projects that work to connect existing social networks and interests with cultural knowledge of nature and a growing appreciation amongst publics for the value of local biodiversity and grassroots cooperative potentials.

Speakers considered how the benefits of such initiatives might be extended further in the future and developed into a more ambitious eco-cultural recovery project for the city.

Whilst restricted in terms of the time frame and resources allocated to completion of this research, the findings generated by the ECO-CONNECT project, we believe, are innovative in terms of the attention they bring to bear on key issues for the implementation of a successful SD programme for the city moving forward. In particular, why a holistic approach to environment and culture protection is essential, what are the benefits people derive from immersion in the city's nature (to emotional, cognitive, social, cultural and physical health and wellbeing), how a programme of policy reform might be redesigned to enhance the capacities of the city to protect and further enhance these benefits and do so in ways that understand differences in terms of access to nature across the city's various communities (depending on socio-economic conditions, mobility, age, disability, etc.) and finally, a four step reflexive plan for enhancing the democratic potential of the city's sustainability plans for its human and non-human communities.

In its focus on 'engaged research' on protecting biodiversity and nurturing the city's eco-cultural heritage, the ECO-CONNECT project has sought to further collaboration between higher education and society in ways that will further empower local communities to address the challenges posed to health, wellbeing and heritage by ongoing losses of biodiversity and climate change. It has sought to increase capacities to engender more 'equitable, thriving and caring societies' in line with the objectives of the Community Foundation for Ireland (Impact Report, 2022) by assessing how various UN Sustainable Development Goals, including those relating to health & wellbeing, inclusion, reduced inequalities between peoples and species, climate action and partnership, might be further enhanced.

# References

Adger W. N. and others (2013). Cultural dimensions of climate change impacts and adaptation, *Nature Climate Change*, 3: 112-117.

Alvarsson, J.J.; Wiens, S.; Nilsson, M.E. (2010). Stress Recovery during Exposure to Nature Sound and Environmental Noise. *International Journal of Environmental Research and Public Health*, 7: 1036-1046. https://doi.org/10.3390/ijerph7031036).

Andringa, T. & Bosch, K. (2013). Core affect and soundscape assessment: fore- and background design for quality of life. Developmental and Behavioral Disorders in Education and Care: Assessment and Intervention. Faculty of Behavioral and Social Sciences, The Netherlands.

Back, L. (2007) *The Art of Listening.* Oxford: Berg.

Back, L. (2012). Live Sociology: Social Research and its Futures. *The Sociological Review*, 60: 18–39.

Bates, V., Hickman, C. Manchester, H. , Prior, J. & Singer, S. (2020). Beyond landscape's visible realm: Recorded sound, nature and wellbeing, *Health and Place*. 61.

BBC Series 'Forest 404'. Available at: https://www.bbc.co.uk/programmes/p06tqsg3.

Beck, U. (2015). Emancipatory catastrophism: What does it mean to climate change and risk society? *Current Sociology* 63(1): 75-88.

Belaire, J.A. et al., (2015) 'Urban resident perceptions of birds in the neighbourhood: Biodiversity, cultural ecosystem services, and disservices'. *The Condor*, 117, 192-202.

Benfield, J.A., Taff, B.D., Newman, P., Smyth, J., (2014). Natural Sound Facilitates Mood Recovery. *Ecopsychology* 6: 183–188.

Berendt, J.E. (1985) *The Third Ear: On listening to the World*. New York: Henry Holt.

Berto R. (2005). Exposure to restorative environments helps restore attentional capacity. *Journal of Environmental Psychology*, 25, 249–259.

Briki & Majed, (2019). Adaptive Effects of Seeing Green Environment on Psychophysiological Parameters, *Frontiers in Psychology*, February, 10. doi: 10.3389/fpsyg.2019.00252

Bratman GN, Hamilton JP, Hahn KS, Daily GC, Gross JJ. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences of the United States*, 112(28):8567–72. 10.1073/pnas.1510459112

Bratman, G.N., Anderson, C.B., Berman, M.G., Cochran, B., de Vries, S., Flanders, J.,Folke, C., Frumkin, H., Gross, J.J., Hartig, T., Kahn, P.H., Kuo, M., Lawler, J.J., Levin, P.S., Lindahl, T., Meyer-Lindenberg, A., Mitchell, R., Ouyang, Z., Roe, J., Scarlett, L., Smith, J.R., van den Bosch, M., Wheeler, B.W., White, M.P., Zheng, H., Daily, G.C., (2019). Nature and mental health: An ecosystem service perspective. *Science Advances*, 5.

Briki, W. & Majed, L. (2019) Adaptive Effects of Seeing Green Environment on Psychophysiological Parameters When Walking or Running, Frontiers in Psychology, 10. https://doi.org/10.3389/fpsyg.2019.00252

Bloor, M., Frankland, J., Thomas, M., & Robson, K. (2001). *Focus groups in social research*. Thousand Oaks, CA: Sage Publications Inc.

Boyd, D.R. (2012). The constitutional right to a healthy environment, *Environment: Science and Policy for Sustainable Development* , 54, 3-15.

Carr, N. (2011). *The Shallows: What the Internet is doing to our brains*. New York: Norton.

Cazalis, V. Loreau, M. Gladys, B.J..(2023). A global synthesis of trends in human experience of nature, *Frontiers in Ecology and the Environment*, 21(2): 85-93.

Clayton, S. & Myers, G. 2015). *Conservation Psychology: Understanding and Promoting Human Care for Nature.* London: Wiley & Sons.

Cohen, D.A., et al. (2013). 'Physical activity in parks: a randomised controlled trial sing community engagement', *American Journal of Preventative Medicine*. 45(5), 590-597.

Conniff and Craig, 2016. Conniff, A., Craig, T., (2016). A methodological approach to understanding the wellbeing and restorative benefits associated with greenspace. *Urban Forestry and Urban Greening,* 19; 103–109.

Community Foundations Ireland Impact Report (2022). Available at: https://www.communityfoundation.ie/wp-content/uploads/ImpactReport2022Final-1.pdf (accessed January 2, 2024).

Cork City Council (2021) Cork City Heritage and Biodiversity Plan. Available at: https://www.corkcity.ie/en/media-folder/heritage/heritage-biodiversity-plan-2021-2026.pdf.

Council of Europe's Framework Convention on the Value of Cultural Heritage for Society (2005). Brussels. See: https://rm.coe.int/1680083746

Cox, D. T.C. & Gaston, K.J. (2016) 'Urban bird feeding: Connecting people with nature', *PLoS ONE*, 11(7): 1-13.

Derrida, J. (1994) *Spectres of Marx: The State of the Debt, the Work of Mourning and the New History.* London: Routledge.

Eco Eye (2019). Defending Cork (Flood Defences) EP8. Available at: https://www.youtube.com/watch?v=y3_pl-ZLJvRk

Euro Cities (2020). The Green City Accord : A New EU Initiative for Greener , Healthier Cities. Available at: https://eurocities.eu/latest/the-green-city-accord-a-new-eu-initiative-for-greener-healthier-cities/

European Commission (2020). Communication from the Commission to the European Parliament, The Council, the European Economic and Social Committee and the Committee of the Regions. *EU Biodiversity Strategy for 2030*.

European Environment Agency (2019). The European Environment – State and Outlook (2020). Available at: https://www.eea.europa.eu/soer.

Ferraro D.M., Miller, Z.D., Ferguson, L.A., Taff, B.D., Barber, J.R., Newman, P., Francis, C.D. (2020). The phantom chorus: birdsong boosts human well-being in protected areas. *Proceedings of the Royal Society B: Biological Sciences*.

Freitas, H., Oliveira, M., Jenkins, M., & Popjoy, O. (1998). The focus group, a qualitative research method: reviewing the theory, and providing guidelines to its planning. 1–22.

Frumkin, H., Bratman, G.N., Breslow, S.J., Cochran, B., Kahn Jr., P.H., Lawler, J.J., Levin, P.S., Tandon, P.S., Varanasi, U., Wolf, K.L., Wood, S.A., (2017) Nature Contact and Human Health: A Research Agenda. *Environment Health Perspective* 125, 075001.

Gagnon, M., Jacob, J. D. and McCabe, J. (2015). Locating the qualitative interview: reflecting on space and place in nursing research, *Journal of Research in Nursing*, 20(3): 203–215.

Geertz, C. (1973) *The Interpretation of Cultures*. Basic Books.

Gorely T, Marshall SJ, Biddle SJ. (2004). Couch kids: correlates of television viewing among youth. *Int J Behav Med*. 11(3):152–63. 10.1207/s15327558ijbm1103_4.

Gould van Praag, C.D., Garfinkel, S.N., Sparasci, O., Mees, A., Philippides, A.O., Ware, M., Ottaviani, C., Critchley, H.D., (2017). Mind-wandering and alterations to default mode network connectivity when listening to naturalistic versus artificial sounds. *Science Reporter,* 7.

Gubrium, J. & Holstein, J. (2002). *Handbook of Interview Research: Context and Method.* London: Sage.

Haaland C, van den Bosch CK. (2015). Challenges and strategies for urban green-space planning in cities undergoing densification: A review. *Urban Forestry & Urban Greening*, 14(4):760–71.

Hammoud, R. et al., (2022) 'Smartphone based ecological monetary assessment reveals mental health benefits of birdlife', *Scientific Reports*, 12. 17589.

Hartig, T., Mitchell, R., Sjerp de Vries, & Frumkin, H. (2014). Nature and Health, *Annual Review of Public Health,* 35: 207-228.

Herzog, H. (2005). On Home Turf: Interview Location and Its Social Meaning. *Qualitative Sociology*, 28(1): 25–47.

Hohenthal, J., Owidi, E., Minoia, P., & Pellikka, P. (2015). Local assessment of changes in water-related ecosystem services and their management: DPASER conceptual model and its application in Taita Hills, Kenya. International Journal of Biodiversity Science, Ecosystem Services & Management, 11, 225–238.

Honneth, A. (2012.) *Reification: A New Look at an Old Idea*. Oxford: Oxford University Press.

Hunter , R.F . et al. (2019) Environmental health, wellbeing, social and equity effects of urban green space interventions: A meta-narrative evidence synthesis. *Environmental International*, 130.

Jennings, V. et al., (2012) 'Promoting environmental justice through urban green space access: A synopsis', *Environmental Justice*, 5, 10-7.

Kaplan, S. (1995) 'The restorative benefits of nature – towards an integrated framework', *Journal of Environmental Psychology*, 15(3): 169-182.

Kellert, S.R. (2002). Experiencing nature: Affective, cognitive and evaluative development in children. In P. H. Kahn, Jr. & S.R. Kellert (Eds.) *Children and nature: Psychological, Sociocultural and Evolutionary Investigations* (pp. 117-151), MIT Press.

King, D.K. et al. (2015).'The park a tree built': evaluating how a park development project impacted where people play', *Urban Forestry & Urban Green*, 14, 7: 293-99.

Krueger, R. A. (1998). Developing Questions for Focus Groups: Focus Group Kit 3. Newbury Park, London: SAGE Publications.

Langhans, K. et al. (2022). 'Centring justice in conceptualising and improving access to urban nature', *People and Nature*, 5:897-910.

Langenmeyer, J. & Connolly, J.J. T. (2020) 'Weaving notions of justice into urban ecosystem services research and practice. *Environmental Science & Policy*, 109, 1-14.

IPBES-IPCC report (2021). Biodiversity and Climate Change. Available at: https://www.ipbes.net/sites/default/files/2021-06/20210609_workshop_report_embargo_3pm_CEST_10_june_0.pdf.

IPBES. (2022). Summary for policymakers of the methodological assessment report on the diverse values and valuation of nature of the intergovernmental science-policy platform on biodiversity and ecosystem services. (U. Pascual, P. Balvanera, M. Christie, B. Baptiste, D. González-Jiménez, C.B. Anderson, S. Athayde, R. Chaplin-Kramer, S. Jacobs, E. Kelemen, R. Kumar, E. Lazos, A. Martin, T. H. Mwampamba, B. Nakangu, P. O'Farrell, C. M. Raymond, S. M. Subramanian, M. Termansen, A. Vatn, (Eds.). IPBES Secretariat. https://doi.org/10.5281/zenodo.6522392.

Kaplan S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*, 15(3):169–82.

Keitumetse, S.O. (2009). The eco-tourism of cultural heritage management (ECT-CHM): Linking heritage and 'environment' in the Okavango Delta Regions of Botswana. *International Journal of Heritage Studies* , 15, 2-3: 223-244.

Kuale, S. (1996) *InterViews: An Introduction to Qualitative Research Interviewing*. Thousand Oaks, California: Sage.

Law, J. & Urry, J. (2004). Enacting the social, *Economy and Society,* 33: 390-410.

LeBourgeois MK, Hale L, Chang A-M, Akacem LD, Montgomery-Downs HE, Buxton OM. (2017). Digital Media and Sleep in Childhood and Adolescence. *Pediatrics*, 140 (Supplement 2):S92.

Lederbogen, F., Kirsch, P., Haddad, L., Streit, F., Tost, H., Schuch, P., Wust, S., Pruessner, J.C., Rietschel, M., Deuschle, M., Meyer-Lindenberg, A. (2011). City living and urban upbringing affect neural social stress processing in humans. *Nature* 474: 498–501.

Levenhagen, M.J., Miller, Z.D., Petrelli, A.R., Ferguson, L.A., Shr, Y.-H., Gomes, D.G.E.,Taff, B.D., White, C., Fristrup, K., Monz, C., McClure, C.J.W., Newman, P., Francis, C. D., Barber, J.R., (2021). Ecosystem services enhanced through soundscape management link people and wildlife. *People Nature* 3: 176–189.

Louv, R. (2008) *Last Child in the Woods: Saving our Children from Nature Deficit Disorder.* Algonquin Books.

Matless, D. (1998) Landscape and Englishness. London: Reaktion Books.

Marty-Dugas, J., Ralph, B. C. W., Oakman, J. M., & Smilek, D. (2018). The relation between smartphone use and everyday inattention. PSYCHOLOGY OF CONSCIOUSNESS: THEORY, RESEARCH, AND PRACTICE, 5(1), 46–62.

Melkevik O, Torsheim T, Iannotti RJ, Wold B.(2010). Is spending time in screen-based sedentary behaviours associated with less physical activity: a cross national investigation. *International Journal of Behavioural Nutrition and Physical Activity*,7(1):46.

Millennium Ecosystem Assessment, 2005.Ecosystems and Human Well-being: Synthesis. Available at: https://www.millenniumassessment.org/documents/document.356.aspx.pdf

Miller, N.P. (2008). US National Parks and management of park soundscapes: A review. *Applied Acoustics*, 69: 77–92.

Miller JR. (2005). 'Biodiversity conservation and the extinction of experience'. Trends in Ecology & Evolution, 20(8): 430–43. http://dx.doi.org/10.1016/j.tree.2005.05.013. PMID: 16701413.

Novotný, P., Zimov´a, E., Mazouchov´a, A., Sorgo, A., (2020). Are Children Actually Losing Contact with Nature, or Is It That Their Experiences Differ from Those of 120 years Ago?, *Environment and Behaviour,* 53, 931–952.

Nussbaum, M. (2003) Capabilities as fundamental entitlements: Sen and social justice. *Feminist Economics*, 9, 33-59.

Nussbaum, M. (2011). *Creating Capabilities: The Human Development Approach*. Cambridge MA: Harvard University Press.

Oh, R.R.Y., Fielding, K.S., Carrasco, R.L., Fuller, R.A., (2020). No evidence of an extinction of experience or emotional disconnect from nature in urban Singapore. *People and Nature* 2, 1196–1209.

Oswald, T.K., Rumbold, A. Kedzior, S. & Moore, V.(2020). Psychological impacts of screen time and green time for children and adolescents: A systematic scoping review, *PLoS*, Sept. 4, 15(9).

Pyle RM. (1978). 'The extinction of experience'. *Horticulture.*56(1): 64–67.

Ratcliffe, E., Gatersleben, B., Sowden, P.T., (2016). Associations with bird sounds: How do they relate to perceived restorative potential? *Journal of Environmental Psychology*, 47: 136–14

Ratcliffe, E., Korpela, K.M., (2016). Memory and place attachment as predictors of imagined restorative perceptions of favourite places. Journal of Environmental Psychology, 48: 120–130.

Ratcliffe, E., (2021). Sound and Soundscape in Restorative Natural Environments: A Narrative Literature Review, *Frontiers in Psychology*, 1.

Rosa, H. (2015). *Social Acceleration: A New Theory of Modernity*. Columbia: Columbia University Press.

Rosa, H. (2019) *Resonance: A Sociology of Our Relationship to the World*. Cambridge: Polity.

Roslund, M.I. et al., (2020). Biodiversity intervention enhances immune regulation and health associated commensal microbiota among day care children. *Science Advances*, 6, 2578.

Rubin, H.J. & Rubin, I.S. (1995). *Qualitative Interviewing; The Art of Hearing Data.* Sage: Thousand Oaks, California.

Sandercock GR, Ogunleye A, Voss C. (2012). Screen time and physical activity in youth: thief of time or lifestyle choice? *Journal of Physical Activity and Health,* 9(7):977–84.

Schama, S. (1995). *Landscape and Memory*. New York: A. A. Knopft.

Schmitz KH, Lytle LA, Phillips GA, Murray DM, Birnbaum AS, Kubik MY. (2002). Psychosocial Correlates of Physical Activity and Sedentary Leisure Habits in Young Adolescents: The Teens Eating for Energy and Nutrition at School Study. *Preventive Medicine*; 34(2):266–78. 10.1006/pmed.2001.0982

Schutte, AR, Torquati JC, Beattie HL. (2017). Impact of urban nature on executive functioning in early and middle childhood. *Environment and Behaviour*, 49(1):3–30.

Skillington, T. (2019). *Climate Change and Intergenerational Justice*. Oxon: Routledge.

Smalley, AJ, White, MP, Ripley, R, Atack TX, Lomas, E, Sharples, M, Coates, PA, Groom, N, Grand, A, Heneberry, A, Fleming, LE, Depledge, MH. (2022) .'Forest 404: Using a BBC drama series to explore the impact of nature's changing soundscapes on human wellbeing and behaviour. *Global Environmental Change*, 74, May:102497

Soga, M., Gaston, K.J., (2016). Extinction of experience: the loss of human–nature interactions. *Frontiers in Ecology and the Environment,* 14: 94–101.

Song J, Fry, R, Mizen, A, Akbari, A, Wheeler, B, White J, White, M, Lovell, R, Parker, C, Berridge, D, et al (2018). Association between blue and green space availability with mental health and wellbeing. *International Journal for Population Data Science*, 3(4).

Sueur, J., Krause, B., Farina, A., (2021). Acoustic biodiversity. *Current Biology*. 31, R1172–R1173).

Sundquist, K., Frank, G. & Sundquist, Jan (2004). Urbanisation and the incidence of psychosis and depression. *British Journal of Psychiatry,* 184, 293-298.

United Nations Human Rights Council (2011) Report of the Independent Expert in the field of cultural rights, Farida Shaheed. See: https://documents-dds-ny.un.org/doc/UNDOC/GEN/G11/122/04/PDF/G1112204.pdf?OpenElement.

The National Biodiversity Data Centre (2023). https://biodiversityireland.ie/ipbes-irelands-biodiversity-crisis/ (accessed May 22, 2023).

Thomas, L., MacMillan, J., McColl, E., Hale, C., & Bond, S. (1995). Comparison of focus group and individual interview methodology in examining patient satisfaction with nursing care. Social Sciences in Health, 1, 206–219.

Turner, W.R., Nakamura, T., Dinetti, M., (2004). Global Urbanization and the Separation of Humans from Nature. *Bioscience* 54, 585–590.

Twenge JM, Spitzberg BH, Campbell WK. (2019). Less in-person social interaction with peers among U.S. adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships*, 36(6):1892–913.

Uebel, K., Marselle, M., Dean, A.J., Rhodes, J.R., Bonn, A., (2021). Urban green space soundscapes and their perceived restorativeness, *People and Nature* 3: 756–769.

Ulrich, RS, Simons, RF, Losito, BD, Fiorito, E, Miles, MA, Zelson, M. (1991). Stress recovery during exposure to natural and urban environments, *Journal of Environmental Psychology*, 11(3):201–30.

UN's Convention on Biological Diversity (1992). Available at: https://www.cbd.int/convention/ (accessed May 21, 2023).

United Nations (2017) 'Cultural rights and the protection of cultural heritage'. Keynote by Special Rapporteur, Karima Bennoune. Seminar organised by the Office of the High Commissioner for Human Rights See: https://www.ohchr.org/en/economic-social-cultural-rights/cultural-rights-protection-cultural-heritage.

United Nations (2023) A cultural rights approach to heritage. See: https://www.ohchr.org/en/special-procedures/sr-cultural-rights/cultural-rights-approach-heritage.

Ward Thompson C., Roe J., Aspinall P., Mitchell R., Clow A., Miller D. (2012). More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning,* 105:221–229. doi: 10.1016/j.landurbplan.

Ward Thompson, C., et al, (2013). Do changes to the local street environment alter behaviour and quality of life of older adults? The DIY Streets' Intervention. *British Journal of Sports Medicine*, 48(13), 1059-1065.

Wolch, J.R. et al, (2014) 'Urban green space, public health and environmental justice: The challenge of making cities 'just green enough', *Landscape and Urban Planning*, 125, 234-244.

World Bank, Urban Development Overview, (2023). Available at: https://www.worldbank.org/en/topic/urbandevelopment/overview (accessed May 21, 2023).

Yang, W., Kang, J., (2005). Soundscape and Sound Preferences in Urban Squares: A Case Study in Sheffield. J. Urban Design 10: 61–80

# Appendices:

**Details of Walking Interviews**

**Age group * Gender Crosstabulation**

| | | Gender | | |
|---|---|---|---|---|
| | | **Female** | **Male** | **Total** |
| **Age group** | **Age group 20 - 29** | 5 | 5 | 10 |
| | **Age group 30 - 39** | 5 | 5 | 10 |
| | **Age group 40 - 49** | 5 | 5 | 10 |
| | **Age group 50 - 59** | 5 | 5 | 10 |
| | **Age group 60 - 70** | 5 | 5 | 10 |
| **Total** | | 25 | 25 | 50 |

**Case Summaries:**

| | Age | Gender | Nationality | Park respondent frequents the most & feels most connected to | Frequency |
|---|---|---|---|---|---|
| **1** | 45 | Female | Italian | The Marina Park | Daily |
| **2** | 60 | Male | Irish | The Marina Park | 1-2 per week |
| **3** | 62 | Female | Irish | The Glen (River) Park | 1-2 per week |
| **4** | 60 | Female | Irish | The Glen (River) Park | 1-2 per week |
| **5** | 38 | Female | Mexican | Fitzgerald's Park | 1-2 per week |
| **6** | 35 | Female | Irish | The Glen (River) Park | 1-2 per month |
| **7** | 36 | Female | Irish | The Glen (River) Park | 1-2 per week |
| **8** | 41 | Female | Spanish | The Marina Park | 1-2 per week |
| **9** | 53 | Female | Irish | The Glen (River) Park | 1-2 per week |
| **10** | 41 | Female | Polish | Mandala/ Ballybrack woods | 3-5 per week |
| **11** | 42 | Male | Irish | The Glen (River) Park | 3-5 per week |
| **12** | 65 | Female | Irish | The Glen (River) Park | Daily |
| **13** | 48 | Female | British | The Glen (River) Park | Daily |
| **14** | 38 | Male | Irish | Ballinlough Park | Daily |
| **15** | 54 | Male | Irish | The Marina Park | 1-2 per week |
| **16** | 20 | Male | Irish | The Glen (River) Park | 1-2 per month |
| **17** | 52 | Male | Irish | The Marina Park | 1-2 per month |
| **18** | 55 | Female | Irish | Fitzgerald's Park | 1-2 per week |
| **19** | 45 | Male | Irish | The Marina Park | Daily |

| | | | | | |
|---|---|---|---|---|---|
| 20 | 47 | Male | Irish | The Marina Park | Daily |
| 21 | 57 | Male | German | Fitzgerald's Park | 1-2 per month |
| 22 | 70 | Female | Irish | The Lough | 3-5 per week |
| 23 | 62 | Female | Irish | The Lough | 1-2 per week |
| 24 | 60 | Male | Irish | The Marina Park | 1-2 per week |
| 25 | 61 | Male | Irish | The Lough | 1-2 per week |
| 26 | 44 | Male | Irish | Fitzgerald's Park | 1-2 per week |
| 27 | 31 | Female | Mexican | The Marina Park | 1-2 per month |
| 28 | 27 | Female | German | The Glen (River) Park | 3-5 per week |
| 29 | 25 | Female | Irish | The Lough | 3-5 per week |
| 30 | 24 | Male | American | Fitzgerald's Park | Other |
| 31 | 30 | Male | American | The Lough | 1-2 per week |
| 32 | 26 | Female | Irish | Lee Fields | 3-5 per week |
| 33 | 52 | Female | Turkish | Fitzgerald's Park | 1-2 per week |
| 34 | 32 | Male | Irish | Skatepark (opp. UCC Main Gate) | Daily |
| 35 | 28 | Male | Italian | Fitzgerald's Park | 1-2 per month |
| 36 | 36 | Female | Irish | Fitzgerald's Park | 1-2 per month |
| 37 | 61 | Male | Lithuanian | Fitzgerald's Park | 1-2 per week |
| 38 | 67 | Male | German | Fitzgerald's Park | 1-2 per week |
| 39 | 24 | Female | Irish | The Marina Park | 1-2 per month |
| 40 | 33 | Male | Irish | The Marina Park | 1-2 per month |
| 41 | 52 | Male | Irish | The Marina Park | Daily |
| 42 | 28 | Male | British | Fitzgerald's Park | 1-2 per week |
| 43 | 23 | Female | Irish | Fitzgerald's Park | 1-2 per month |
| 44 | 52 | Female | Irish | The Marina Park | Daily |
| 45 | 42 | Male | Nigerian | Fitzgerald's Park | 1-2 per month |
| 46 | 37 | Male | Irish | Fitzgerald's Park | 1-2 per week |
| 47 | 45 | Female | Irish | Beaumont Quarry | 1-2 per week |
| 48 | 25 | Male | Irish | The Lough | 1-2 per week |
| 49 | 54 | Male | Iranian | Fitzgerald's Park | 3-5 per week |
| 50 | 52 | Female | Taiwanese | The Lough | 1-2 per month |
| Total | 50 | 50 | 50 | 50 | 50 |

**Age group * Nationality Crosstabulation**

| Age group | Nationality | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Irish | Italian | German | American | Mexican | Iranian | Taiwanese | Lithuanian | Spanish | Polish | British | Turkish | Nigerian | Total |
| Age group 20 - 29 | 6 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 |
| Age group 30 - 39 | 7 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Age group 40 - 49 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 10 |
| Age group 50 - 59 | 6 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 10 |
| Age group 60 - 70 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 |
| Total | 32 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 50 |

**Nationality * Gender Crosstabulation**

| Nationality | Gender | | |
|---|---|---|---|
| | Female | Male | Total |
| Irish | 16 | 16 | 32 |
| Italian | 1 | 1 | 2 |
| German | 1 | 2 | 3 |
| American | 0 | 2 | 2 |
| Mexican | 2 | 0 | 2 |
| Iranian | 0 | 1 | 1 |
| Taiwanese | 1 | 0 | 1 |
| Lithuanian | 0 | 1 | 1 |
| Spanish | 1 | 0 | 1 |
| Polish | 1 | 0 | 1 |
| British | 1 | 1 | 2 |
| Turkish | 1 | 0 | 1 |
| Nigerian | 0 | 1 | 1 |
| Total | 25 | 25 | 50 |

**Parks where the interviews took place:**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Fitzgerald's Park | 15 | 30 | 30 | 30 |
| | The Glen (River) Park | 10 | 20 | 20 | 50 |
| | The Marina Park | 13 | 26 | 26 | 76 |
| | The Lough | 7 | 14 | 14 | 90 |
| | Lee Fields | 1 | 2 | 2 | 92 |
| | Beaumont Quarry | 1 | 2 | 2 | 94 |
| | Skatepark (opp. UCC Main Gate) | 1 | 2 | 2 | 96 |
| | Mandala/ Ballybrack woods | 1 | 2 | 2 | 98 |
| | Ballinlough Park | 1 | 2 | 2 | 100 |
| | Total | 50 | 100 | 100 | |

**Preference Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| What aspects of this nature do you value most? (Multiple answers possible) | Beauty | 16 | 12 | 32.7 |
| | Wildness | 5 | 3.8 | 10.2 |
| | Regularity of its cycles | 14 | 10.5 | 28.6 |
| | Constancy | 11 | 8.3 | 22.4 |
| | Trees | 23 | 17.3 | 46.9 |
| | Water | 17 | 12.8 | 34.7 |
| | Animals | 23 | 17.3 | 46.9 |
| | Plants & Flowers | 12 | 9 | 24.5 |
| | Other aspects (e.g. peacefulness, sunset, autonomy of the nature, the colours) | 12 | 9 | 24.5 |
| Total | | 133 | 100 | 271.4 |

**Memories Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| Does the park feature in your memories? | Does the park feature in your memories? (Yes or No) | 45 | 31 | 100 |
| | Memories of youth | 17 | 11.7 | 37.8 |
| | Memories of romance | 13 | 9 | 28.9 |
| | Memories of friendship | 23 | 15.9 | 51.1 |
| | Memories of family | 19 | 13.1 | 42.2 |
| | Memories of community | 20 | 13.8 | 44.4 |
| | Memories of sports | 3 | 2.1 | 6.7 |
| | Other memories | 5 | 3.4 | 11.1 |
| Total | | 145 | 100 | 322.2 |

**Amusement Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| Amusement | Observing the wildlife and other animals brings me amusement | 20 | 76.9 | 95.2 |
| | Observing the children playing in the park brings me amusement | 6 | 23.1 | 28.6 |
| Total | | 26 | 100 | 123.8 |

**Concerns Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| Concerns regarding the nature in the city | Littering/lack of bins, waste production in general, topic of recycling | 18 | 12.7 | 36.7 |
| | Air pollution, water pollution | 10 | 7 | 20.4 |
| | Climate change in general, floods, food scarcity, future of next generations | 2 | 1.4 | 4.1 |
| | Need for more education/raising awareness | 21 | 14.8 | 42.9 |
| | Lack of wilderness, too much mowing of grass, etc. | 18 | 12.7 | 36.7 |
| | Trees (lack of trees, trees being cut, more trees should be planted) | 17 | 12 | 34.7 |
| | Wildlife (wildlife is diminishing, suffering, etc.) | 23 | 16.2 | 46.9 |
| | Water is overgrown | 7 | 4.9 | 14.3 |
| | Other concerns | 26 | 18.3 | 53.1 |
| Total | | 142 | 100 | 289.8 |

**a.** Dichotomy group tabulated at value 2.

**Wellbeing Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| Perceived effect parks have on wellbeing | Overall (Community) Wellbeing | 18 | 12.7 | 36.7 |
| | Cultural Wellbeing | 10 | 7 | 20.4 |
| | Economic Wellbeing | 2 | 1.4 | 4.1 |
| | Social Interaction (Social & Cultural Wellbeing) | 21 | 14.8 | 42.9 |
| | Spiritual Wellbeing | 18 | 12.7 | 36.7 |
| | Cultural Heritage | 17 | 12 | 34.7 |
| Total | | 142 | 100 | 289.8 |

**Nature as sensory experience**

**Sounds Frequencies:**

| | | Responses | Percent | Percent of Cases |
|---|---|---|---|---|
| References made to sounds in the park[a] | Reference to birdsong | 24 | 36.9 | 70.6 |
| | Reference to the sound of water | 9 | 13.8 | 26.5 |
| | Reference to quietness | 16 | 24.6 | 47.1 |
| | Reference to traffic | 6 | 9.2 | 17.6 |
| | Reference to other sounds in nature or unspecified sounds | 10 | 15.4 | 29.4 |
| Total | | 65 | 100 | 191.2 |

**Does the respondent refer to colour(s) of nature?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No | 19 | 38 | 38 | 38 |
| | Yes | 31 | 62 | 62 | 100 |
| | Total | 50 | 100 | 100 | |

**Does the respondent refer to nature's aromas?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No | 39 | 78 | 78 | 78 |
| | Yes | 11 | 22 | 22 | 100 |
| | Total | 50 | 100 | 100 | |

**References to touching nature, i.e. touch leaves, walking barefoot on grass, wanting to sit on the grass, climb trees, etc.**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No | 42 | 84 | 84 | 84 |
| | Yes | 8 | 16 | 16 | 100 |
| | Total | 50 | 100 | 100 | |

## Loss

**If the park's wildlife were to be lost in the years ahead, would you perceive that as a loss for the community? (Yes/No):**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No | 1 | 2 | 2 | 2 |
| | Yes | 49 | 98 | 98 | 100 |
| | Total | 50 | 100 | 100 | |

### Loss - Degree of Disquiet or Concern

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Question about loss wasn't asked/answered | 1 | 2 | 2 | 2 |
| | Not that concerned | 2 | 4 | 4 | 6 |
| | Concerned | 17 | 34 | 34 | 40 |
| | Very Concerned/ Disturbed | 30 | 60 | 60 | 100 |
| | Total | 50 | 100 | 100 | |

### Loss - References to Death, Loss of Spirituality, Being Heartbroken, Losing (part of) one's self

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Question about loss wasn't asked/answered | 1 | 2 | 2 | 2 |
| | None made | 44 | 88 | 88 | 90 |
| | Reference made | 5 | 10 | 10 | 100 |
| | Total | 50 | 100 | 100 | |

## Details of Focus Group Participants

### Focus Group 1: Montenotte, Cork City North

| Participant | Gender | Age |
|---|---|---|
| 1 | Female | 70 |
| 2 | Female | 52 |
| 3 | Male | 44 |
| 4 | Male | 19 |
| 5 | Male | 24 |
| 6 | Female | 40 |

### Focus Group 2: The Lough, Cork City South

| Participant | Gender | Age |
|---|---|---|
| 1 | Male | 65 |
| 2 | Male | 40 |
| 3 | Female | 52 |
| 4 | Female | 58 |
| 5 | Female | 27 |

### Focus Group 3: The Glen Resource Centre, Cork City North

| Participant | Gender | Age |
|---|---|---|
| 1 | Male | 34 |
| 2 | Female | 70 |
| 3 | Female | 52 |
| 4 | Female | 60 |
| 5 | Male | 31 |

### Focus Group 4: UCC , Cork City South

| Participant | Gender | Age |
|---|---|---|
| 1 | Female | 54 |
| 2 | Female | 42 |
| 3 | Male | 43 |
| 4 | Female | 70 |
| 5 | Female | 45 |

# Endnotes

**1** Conniff and Craig, 2016; Alvarsson, J.J.; Wiens, S.; Nilsson, M.E. (2010) Stress Recovery during Exposure to Nature Sound and Environmental Noise. Int. J. Environ. Res. Public Health, 7, 1036-1046. https://doi.org/10.3390/ijerph7031036). Levenhagen, M.J., Miller, Z.D., Petrelli, A.R., Ferguson, L.A., Shr, Y.-H., Gomes, D.G.E.,Taff, B.D., White, C., Fristrup, K., Monz, C., McClure, C.J.W., Newman, P., Francis, C. D., Barber, J.R., (2021). Ecosystem services enhanced through soundscape management link people and wildlife. People Nature 3, 176–189); Ratcliffe, E., Gatersleben, B., Sowden, P.T., (2016). Associations with bird sounds: How do they relate to perceived restorative potential? Journal of Environmental Psychology, 47, 136–14.

**2** See Andringa and Bosch (2013).

**3** Ratcliffe, E., Korpela, K.M., (2016). Memory and place attachment as predictors of imagined restorative perceptions of favourite places. Journal of Environmental Psychology, 48, 120–130; Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework, Journal of Environmental Psychology 15, 169–182.

**4** See, for example, Soga & Gaston, KJ. (2016). Extinction of experience: the loss of human-nature interactions', Frontiers in Ecology and the Environment 14: 94-101.

**ECO-CONNECT – Final Report**

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