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Every Tree Tells a Story: The treescape and citizen wellbeing☆

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ABSTRACT

Every Tree Tells a Story (EVERY TREE) is a participatory citizen science project based in Glasgow that explores the deep and multifaceted connections between urban treescapes and citizen wellbeing. Using artist-designed postcards, the project invited individuals of all ages to share personal stories and reflections about trees in their lives. Over 200 participants contributed to a growing archive of narratives, drawings, and memories, revealing multiple dimensions of human-tree interactions. Through qualitative analysis of 178 postcards, four key modes of well-being were identified: emotional (e.g., serenity, joy, grief), relational (e.g., family ties, shared rituals), physical (e.g., play, movement), and spatial (e.g., sense of place, beauty).

Findings highlight the restorative infrastructure provided by treescapes, which serve not only as ecological assets but as vital components of urban health and community identity. This paper outlines how these insights can inform policy, as they did Glasgow's new Forestry and Woodlands Strategy (2024), by emphasizing the social value of trees in promoting holistic urban wellbeing and encouraging inclusive, story-based engagement in environmental planning.

1. Introduction

Examining the relationship between humans and nature has gained prominence in research because of its crucial implications for psychological wellbeing, ecological sustainability, and the resilience of urban environments [1,2]. For the past few decades, scholarly attention has transitioned from merely recognizing the restorative effects of nature to developing integrative frameworks that connect biodiversity, mental health, and social cohesion [3–5]. This shift mirrors the rapid global urbanization of the last few decades along with associated environmental challenges, most notably, the rising tide of mental health disorders that are clearly linked with urban residents' disconnection from nature [2,3]. Since more than half the world's population now resides in urban areas, plugging this public health gap by reconnecting citizens to the natural world has become a key focus of urban public health officials [6].Urban treescapes significantly influence citizen wellbeing by offering psychological, social, ecological, and physical health benefits. The integration of green spaces into urban environments is increasingly recognized as vital for promoting human mental health and enhancing overall quality of life [6,7].

Research on the best practices of programs that promote nature connection and public engagement with nature has emerged as a critical area of inquiry. This is mainly due to the increasing recognition of nature connectedness as a driver of conservation behaviour and human well-being [8,9]. In recent decades, the field has evolved from a focus on environmental education and outdoor experiences and now integrates multidisciplinary approaches. These include nature-based health interventions, citizen science, and the co-creation of nature-based solutions [9–11]. This evolution reflects the adoption of a broader societal interest in reversing biodiversity loss, mental health challenges, and the urbanization-induced disconnection from nature [12,13]. For instance, recent studies show that in urban areas worldwide, daily contact with nature has declined significantly among children and adults [14,15]. These trends highlight the

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importance of securing a human-nature relationship for public ecological and mental health [14,16].

Despite widespread acknowledgement of the importance of some key aspects of nature-based initiatives, there remains a persistent lack of understanding of which aspects of these are genuinely driving nature connection and fostering public engagement [9,17]. Existing literature reveals a knowledge gap regarding the comparative effectiveness of diverse nature activities, the role of social and cultural factors in engagement, and the sustainability of behavioural outcomes [9,12,18]. Controversies arise around the relative impact of direct versus indirect contact with nature, the balance between educational and recreational approaches, and the integration of technology in engagement strategies [15,19,20]. Moreover, the consequences of this gap include missed opportunities for optimising conservation efforts and public health interventions, potentially exacerbating the "extinction of experience" and limiting pro-environmental behaviours [14,21]. Addressing these uncertainties is essential to inform policy and practice to foster sustained nature connections across diverse populations [22,23].

There is a significant literature on storytelling in various green spaces (urban parks, community gardens, natural reserves) and its influence on all aspects of human connection with nature (emotional connections, behavioural changes, educational outcomes) across different cultures and demographics. Many studies emphasise the role of storytelling in fostering emotional bonds, promoting sustainable behaviours, and enhancing environmental education, while also addressing cultural nuances and inclusivity. Whilst space prohibits a detailed analysis at this point, Table 1 summarizes this material, (Table 1).

These studies show in concert how storytelling, particularly when it is participatory and culturally attuned, serves to connect emotions, memory, and place with ecological behaviour. They also emphasise the necessity of creating inclusive frameworks that reflect the lived realities of diverse populations [30].

Apart from narrative techniques, there are several different strategies used to engage the public with nature, and these too have been researched for their effectiveness. Table 2 summarizes the overview of the design features that make these programs effective. It summarizes, across several domains of public engagement with nature, program design features that have been found to be effective. These domains include citizen science, co-creation, co-inquiry, nature-based therapies, environmental education, and others.

These practices promote nature connection and public engagement with nature, encompassing a diverse array of interventions, including educational programs, citizen science, nature-based solutions, and social prescribing initiatives. Key thematic foci include the effectiveness of different nature activities, social and community engagement strategies, inclusivity and accessibility considerations, mental health and wellbeing outcomes, and innovative program design features involving technology and creative arts, (Table 2).

These best practices show that effective engagement with nature demands thoughtful design beyond access to green spaces. This includes safe access to spaces, understandings of the type of access being provided, consideration of the cultural, emotional, and sensory factors that make green spaces such a powerful elemental experience.

It is within this landscape of theory and practice that *Every Tree Tells a Story* (EVERY TREE) emerged. Initiated in Glasgow, a designated Generation Restoration city, EVERY TREE is a citizen-led storytelling initiative designed to explore how people experience urban trees. The primary aim of the EVERY TREE project is to explore how urban treescapes contribute to citizen wellbeing through subjective, creative, and narrative expressions of human-tree relationships. By collecting personal stories via artist-designed postcards, the project investigates the emotional, physical, relational, and spatial wellbeing value that individuals attribute to trees in urban life, particularly in the context of Glasgow, a designated Generation Restoration city.

The study is guided by the following key research questions:

1. How do citizens narrate their experiences with trees in urban environments?
2. What wellbeing insights emerge from these narratives, and how do they inter-relate?
3. How can such narrative expressions of tree-centred wellbeing inform urban forestry and environmental planning policies?

This paper presents EVERY TREE as a case study that bridges creative practice, urban policy, and environmental well-being. The following sections outline the project's participatory methodology, share analytical insights into four key wellbeing domains (physical, relational, emotional, and spatial), and reflect on implications for inclusive urban forestry policy. Ultimately, EVERY TREE offers a replicable model for cities worldwide seeking to reconnect people with trees—and with each other—through the simple yet powerful act of storytelling, and thereby a means to enhance diverse modes of wellbeing.

2. Methods and materials

2.1. Research design

To address these questions, artist-made postcards served as the medium for the public to tell their written and visual stories about trees. This postcard approach allowed participants to contribute at their own pace and in their own voice, encouraging both reflection and creativity.

Table 1
Storytelling studies in green spaces to promote human-nature connections.

Emotional Connection Outcomes	Educational Impact	Behavioural Change Indicators	Cultural Contextualization	Storytelling Methodologies	Reference
Strengthened community bonds and place identity through participatory visual storytelling	Enhanced awareness of territorial identity and social values	Empowerment leading to community-driven regeneration actions	Inclusive of diverse local communities, addressing stereotypes	Participatory visual storytelling with DS Lambertian and SPACE formats	[24]
Historical and natural stories fostered biocentric and anthropocentric place attachment in children	Improved ecological literacy through site-specific storytelling	Indications of increased engagement with natural sites	Cultural relevance through site history and natural heritage	Traditional oral storytelling in natural reserves with children	[25]
Story-sharing and journaling fostered embodied place encounters and emotional connections	Facilitated learning with place and nature connection practices	Encouraged relational understanding with more-than-human world	Applied in Australian outdoor homeschool programs	Traditional storytelling combined with nature connection practices	[26]
Participatory ecological storytelling-built empathy for the Planet among design professionals	Enhanced understanding of nonhuman stakeholder needs in sustainability	Fostered self-reflection and collective sense-making for environmental action	Cross-cultural design and business stakeholder engagement	Participatory storytelling with human and nonhuman personas	[27]
Arts-based interventions in nature enhanced emotional well-being and nature connectedness	Improved environmental awareness and literacy among youth	Led to pro-environmental behaviours and reduced eco-anxiety	Multinational studies including UK, US, Ireland, Australia, Hong Kong	Arts and nature combined storytelling in diverse outdoor settings	[28]
Extended reality eco-narratives fostered immersive emotional connections to nature	Supported environmental consciousness through innovative narratives	Suggested behaviour change via immersive environmental storytelling	Technology-driven narratives with global applicability	Virtual and augmented reality eco-narratives	[29]

Table 2
Good practices that promote nature connection and public engagement with nature.

Activity Effectiveness	Engagement Strategies	Inclusivity & Accessibility	Intervention Outcomes	Program Design Features	References
Group-based activities are more effective for adult nature connection	Use of a structured evaluation tool (ENACT) to assess activities	Focus on participants with a low pre-existing nature connection	Increased nature connection linked to conservation behaviour	Cost-benefit analysis informs activity improvement	[9]
Co-creation of nature-based solutions enhances engagement	Participatory methods tailored to local cultures	Emphasis on citizen involvement in deprived urban areas	Social workers facilitate inclusive participation	Living framework guides co-design and implementation	[31]
Citizen science improves positive emotions, reduces stress	Social interactions and extended duration key	Programs designed for broad public inclusion	Mental health improvements and nature connection	Integration with health promotion frameworks	[11]
Place-responsive practices foster embodied nature learning	Use of journaling, storytelling, solo wander	Focus on primary school children	Cultivates learning and place relationships	Integration of multiple nature connection practices	[26]
Citizen science in Living Labs reveals hidden urban nature	Multi-stakeholder participation and co-creation	Engages youth and local communities	Increases nature awareness and stewardship	Real-life setting with digital toolkits	[32]
Citizen science and nature-noticing boost wellbeing	Randomised controlled trial with multiple activities	Activities accessible in everyday nature settings	Positive effects on happiness and conservation behaviour	A combination of methods enhances connection pathways	[17]
Use of humour to foster an inclusive nature education	Qualitative case study of equity-driven program	Creates emotionally safe spaces for diverse learners	Supports cross-cultural inclusivity	Norm-setting for humour use in outdoor education	[33]
Environmental education improves knowledge and connection	Survey of primary school pupils	Outdoor activities enhance awareness and retention	Prior experience strengthens the connection	Child-centred educational resource development	[34]
Cues to experience nature improve interaction quality	Experimental and survey methods	Psychological closeness enhances positive affect	Induces situational nature-relatedness	Promising for biodiversity and wellbeing goals	[19]
Transdisciplinary research in urban community gardens	Co-creation with gardeners and city actors	Supports biodiversity and human-nature interactions	Gardens as real-world labs for conservation	Links civil society and urban governance	[35]
Community engagement improves urban green space access	Survey in an emerging economy metropolitan region	Participation reduces socio-environmental inequality	Institutional support critical for equity	Calls for longitudinal and qualitative research	[23]
Nature education builds students' emotional connections	Systematic literature review	Enhances empathy and environmental responsibility	Reduces stress and improves mental health	Supports active conservation participation	[36]
Eco social art engages urban spontaneous vegetation	Artistic methods to reduce alienation from plants	Promotes multisensorial, hyperlocal participation	Enhances functional benefits of informal greenspace	Ladder of engagement from neglect to advocacy	[37]
Art Science workshops foster nature connectedness	Participatory, transdisciplinary approach	Integrates cognitive, emotional, and physical engagement	Promotes ecological awareness and atonement	Supports subtle attitude and behaviour changes	[20]

This participatory qualitative research design is rooted in citizen social science and creative methodologies. It blends narrative inquiry with thematic analysis to identify multiple forms of wellbeing associated with trees, as expressed in free-form storytelling. The design was intentionally open, creative, and adaptive. Drawing on insights from the wider literature, discussed above, the project prioritized accessibility, co-creation, and equality in knowledge sharing.

EVERY TREE's distinctive model blends participatory storytelling with policy-relevant analysis, offering a novel approach to evidencing the social and emotional value of urban treescapes. Importantly, EVERY TREE diverges from traditional ecological monitoring or "objective" citizen science by privileging subjective, embodied, and affective knowledge. In doing so, it addresses the call for more pluralistic and grounded methodologies in environmental planning and sustainability research.

2.2. Participants and engagement

Throughout 2022 and 2023, EVERY TREE engaged with nearly 200 participants across 18 engagements. Participants included schoolchildren, teachers, artists, activists, students, families, and members of the public. The project was intentionally designed to reach people of diverse ages, backgrounds, and geographies. Some postcard activities took place during community events, in libraries, schools, and parks; others occurred spontaneously on city streets or public squares. Engagement strategies included:

1. Street-level interactions through pop-up stands and walking interviews
2. Structured workshops in schools and cultural institutions
3. Distribution of blank postcards to community groups and educational partners

The project welcomed not only local narratives from Glasgow but also memories and associations with trees in other regions and countries, allowing for a rich layering of spatial and temporal experiences. In total, 198 completed postcards were submitted. For this analysis, postcards showing only images were excluded (16), as were cards that were spoilt or duplicated (4). The final valid sample was thus 178 postcards included in the final dataset, (Table 3) (Appendix A: Figs. 1, 2 and 3).

2.3. Materials

Participants were invited to fill in custom-designed riso-graphic postcards, each featuring a visually engaging front and an open-format reverse side for storytelling—either through text, drawing, or both.[1] To achieve self-directed contribution, participants were given space to write or draw without pressure, sometimes in solitude, sometimes in dialogue with others. Participants were invited to respond to open-ended prompts such as:

"Do you have a memory of a tree or trees that matter to you?"
"Can you share a story, image, or thought about a tree in your life?"

2.4. Data processing and analysis

Each postcard was:

1. Digitally scanned and geolocated on Google Maps (both location of story submission and, when specified, origin of the tree story / memory described on the postcard)
2. Assigned a unique identification code and archived in a digital database
3. Manually coded using an iterative qualitative analysis framework

[1] The postcard was designed for the 'Every Tree Tells a Story'Project, by Lou Rowland, a local Glasgow designer and illustrator and printed by Wild Press – a local Glasgow print studio, using the eco-friendly Risograph printing method. Risograph printing blends elements of screen printing and photocopying as individual colours are printed layer by layer. It was introduced in the 1980's in Japan by the Riso Kagaku Corporation and was developed to create a new low-cost, high-speed printing process. Risograph printing is one of the most eco-friendly ways to print. It uses soy-based, non- toxic inks and stencils made from natural fibres. The printing machine is energy efficient, free from harmful emissions and has minimal waste.

Table 3
Participants and engagement.

Timeline	Location	Method	Participant Profile	N ~ Postcards
11 August 2022 (1) 12 August 2022 (14) September 2022 (7; 9)	Strathclyde University Gardens, city centre	1 to 1 conversational invitation	Postgraduate and undergraduate students, and staff	31
11 August & 27 September 2022	South Glasgow Parks: Pollok Park (1); Hidden Gardens (22)	1 to 1 conversational invitation	Park-going citizens of all ages	23
18 August 2022	Drumchapel Cycle Hub, Western margins	Invitation to draw	Children visiting the cycle hub open day	11
19 August 2022	Strathclyde University Teaching and Learning Hub	1 to 1 conversational invitation	Postgraduate and undergraduate students, and staff	9
Sept 2022	Holy Cross Primary School	Teacher-led class interaction. Some children told their own stories, some interviewed adults	Primary school children. Staff and teachers interviewed	40
Sept 2022	George Square, City Centre	1 to 1 conversational invitation	Citizens of all ages	10
1 October 2022	GUEST (Glasgow University) Garden Party, West End	Event attendance, with invitational stand	Postgraduate and undergraduate students	14
October 2022	Kelvinway, West End River pathway	Cargo bike mobile stand	Walkers of all ages	11
December 2022	West End Public Indoors Space (Kibbie Palace and Curlers Rest)	1 to 1 conversational invitation	Citizens of all ages	16
January 2023	GUEST workshop at Pearce Institute	Indoor workshop with Glasgow University student society	Postgraduate and undergraduate students	25
March 2022	UoS tree trail, GUEST, Glasgow Goes Green Festival	Tree trail walk followed by group post carding	Postgraduate and undergraduate students	8
			Total	198
			Image Only Cards	16
			Unusable Cards	4
			Total postcards in usable sample	178

2.5. Coding process

- First-order codes were developed through repeated close readings of the postcards (both text and imagery).
- These codes were grouped into thematic clusters based on recurring narrative motifs.
- Finally, codes were synthesised into four conceptual categories or "wellbeing modes":
  - **Emotional Wellbeing** (e.g., calm, joy, grief, awe)
  - **Relational Wellbeing** (e.g., family ties, friendship, shared memory)
  - **Physical Wellbeing** (e.g., play, movement, outdoor activity)
  - **Spatial Wellbeing** (e.g., beauty, place identity, environmental contrast)

A total of 383 individual mentions of well-being were recorded across the 178 postcards. Most postcards (76 %) contained references to multiple modes of well-being.

2.6. Ethical considerations

Although this was a low-risk, informal citizen science project, ethical standards of anonymity, consent, and respectful engagement were followed. No identifying personal data were collected, and participants were informed that their submissions might be used for research, education, and policy engagement purposes.

3. Results

3.1. Overview of wellbeing modes identified

The total number of coded well-being mentions was 383 across all postcards, with many individual cards containing multiple modes of well-being (i.e. co-occurring). Table 4 shows the summaries for the four modes, comprising all initial (first order) themes.

More than three-quarters of cards express several inter-linked forms of wellbeing value associated with trees: "*tree-sources*", perhaps. It is this holistic potential of tree-sources in fostering human urban wellbeing, which is our first finding (Table 5).

Table 4
Data analysis from code clusters to concepts.

First Order Coding Clusters	Wellbeing Mode (First Order Concept)
Activity and adventure; tree-climbing, walking, making dens, playing hide and seek, creating art, going on picnics, nostalgia for childhood games, building treehouses, cooking and provisioning from trees.	Physical Wellbeing
Trees as special ties to home; as context for being (active) with family and friends, (in a family home, a homeland, garden, park, school, wilderness); memories of childhood relationships, kinship with others and with specific trees; the long reach of trees as connectors across place, people and time; echoes of wilderness; learning and sharing knowledge of trees; reciprocal stewardship of trees.	Relational Wellbeing
Calmness, joy, serenity, peace; a sense of escape and shelter; clarity, balance and centring; love, awe, wonder, spirit; grief at the loss of trees; trees as memorials of life and death; the trees' cycle of the seasons as emotionally deepening and strengthening temporality.	Emotional Wellbeing
The treescape's beauty, colour, multi-sensory aesthetic grace, multi-faceted making of 'place'; Trees enacting spirituality, mythology, art, stories and other embedding cultures of place; Givers of life, home and habitat, nourishment, shelter, air, raw materials; Contrasting alternative to modern city; inherent value of green space to society.	Spatial Wellbeing

3.2. Co-occurrence of wellbeing modes

Postcards often expressed more than one type of wellbeing, suggesting that trees hold complex, multidimensional value for participants. Table 6 presents the distribution of co-occurring well-being constructs across the 178 postcards.

Table 5
Frequency of wellbeing modes identified in postcards.

Wellbeing Mode	Mentions (n)	% of Postcards (n = 178)
Emotional Wellbeing	116	65 %
Relational Wellbeing	107	60 %
Spatial Wellbeing	92	52 %
Physical Wellbeing	68	38 %

Among multi-mode responses, the most frequent pairings included:

- **Emotional + Relational Wellbeing** (observed in 48 cards, 27 %)
- **Emotional + Spatial Wellbeing** (42 cards, 24 %)
- **Physical + Relational Wellbeing** (38 cards, 21 %)

This pattern reveals that emotional well-being not only appears most frequently in isolation but also co-occurs most commonly with other well-being types.

3.3. Emotional wellbeing

The mode that was cited most often was emotional well-being, and it appeared on 65 % of all the postcards. Respondents felt emotionally connected to trees and described feelings of peace, joy, awe, nostalgia, and spiritual connectedness. Trees were often framed as:

- Comforting and calming fan-shaped getaways amid urban storm stress.
- Memory, grief, and healing anchors.
- The vessels through which communities regulate their emotions and heal across the seasonal cycle, from springtime hope to autumnal reflection.

One participant wrote:

"I feel like being in forest; I'm home. I can breathe and the sound of the wind in the trees is soothing… I also feel deep sadness when trees are cut down." *(Card 72)*.

Grief was another theme that occurred with some frequency, but it was grief over tree loss which can highlight the emotional cost of urban deforestation.

3.4. Relational wellbeing

Relational wellbeing occurred in 60 % of the postcards, often overlapping emotional and physical wellbeing. Trees were portrayed as:

- Connectors between generations—particularly when planted as memorials or to mark life events.
- Focal points for shared experiences, such as picnics, family walks, or neighbourhood rituals.
- Quasi-family members—especially garden trees nurtured over time.

One story described gifting a niece an apple tree, with annual birthday photos documenting the girl's and the tree's parallel growth:

"She is five now and we love looking at the differences in the photos… My Granny thinks she might start getting apples next year." *(Card 24)*.

Such examples underscore how trees symbolically and practically support intergenerational bonding, (Appendix A: Fig. 4).

3.5. Physical wellbeing

The postcards most frequently illustrated well-being experiences centred on physical engagement with nature. Thirty-eight percent mentioned this mode. In their own words, respondents recalled childhood activities involving trees, such as:

- Tree climbing, den-building, and hide-and-seek as childhood activities.
- Using trees for exercise or rest stops during walks.
- Trees offering natural sustenance, such as apples, berries, or shade.

Table 6
Distribution of co-occurring wellbeing modes.

Number of Modes Referenced	Count	% of Total Cards
Single Mode	42	24 %
Two Modes	74	42 %
Three Modes	55	31 %
All Four Modes	7	4 %

For example:

"I went to a Bush school in South Africa where… playgrounds were the top branches of trees… games were created using seeds." *(Card 15)*.

Although physical wellbeing was the least frequently cited mode, the stories conveyed vivid experiences of place-making through interaction with trees, (Appendix A: Fig. 5).

3.6. Spatial wellbeing

Spatial well-being was a focus of 52 % of the cards, focusing on trees' role in placemaking, aesthetics, and cultural memory. Respondents described trees as:

- Making the urban environment a more beautiful place through colour, smell, and shade. (One respondent noted the tree's "birdlife.")
- Providing a contrast to "the stress and noise of city life."
- Being culturally significant (e.g., a tree's "root system") and linking us to familiar and ancestral landscapes.

Several participants referenced distant geographies—Kazakhstan, Nigeria, the Amazon—showing how tree memories transcend Glasgow. Others connected specific species to myths, heritage, or legends:

"These trees help ground and centre thoughts… reminding us of natural order in a world that feels unstable." *(Card 1)*.

These responses illustrate the treescape's value not only as green infrastructure, but as spatial-cultural infrastructure for identity and belonging, (Appendix A: Fig. 6).

3.7. Summary of key findings

1. Wellbeing is Multidimensional: The overwhelming majority (75 %) of participants expressed multiple modes of wellbeing in their stories, emphasizing the different interconnected ways in which trees contribute to integrated value of trees in urban life.
2. Primacy of Emotional Experience: The most pronounced mode was emotional well-being, specifically emotions like calm, awe, and grief.
3. Patterns of Co-occurrence: The data reveals that emotional wellbeing often co-occurs with relational or spatial wellbeing, which indicates a close connection between emotions, place, and social relationships.
4. External Narratives: Although gathered in Glasgow, numerous accounts addressed trees from the listeners' early homes or ancestral territories. This indicates that the portrayal of trees moves between memory and actual reality.
5. Policy Implications: The evidence derived from the distribution of wellbeing modes strongly supports urban forestry policies that embrace a multi-functional, inclusive approach. Policies should emphasise the need to do more than just provide ecological services; they should also make our communities and people healthier and more memorable to know who they are.

4. Discussion

This study offers a novel, citizen-led account of how urban treescapes shape multiple forms of wellbeing. Using narrative data collected through open-ended, arts-based postcards, we identified four interrelated wellbeing modes—emotional, relational, physical, and spatial—and found that trees serve as profound touchstones for memory, healing, sociality, and place identity. Importantly, these wellbeing constructs rarely appear in isolation. Most participants articulated multi-dimensional experiences, suggesting that trees are not only valuable environmental resources but also serve as deeply embedded, cultural-relational infrastructure.

4.1. Interpreting the prevalence of emotional wellbeing

The most frequently noted mode of wellness was emotional wellness, found on 65 % of all postcards. Participants characterized trees as calming,

grounding, joyful, and awe-inspiring. These findings align with existing literature linking natural environments to stress reduction, emotional regulation, and psychological restoration [3,38,39]. Yet, the strength and consistency of these emotional responses in a citizen science dataset suggest that the emotional attachment of urban dwellers may be under-recognized in tree policy and program discourse. While urban forestry tends to emphasise the importance of biodiversity or air quality, these results call attention to a different aspect of human-trees interactions in cities, ecosystem services related to emotional and mental health [39,40]. Emotional responses to tree loss were not limited to those who had lost a tree in their immediate vicinity [39], but rather, that the citizens in Glasgow were upset about the loss of trees throughout the city.

Another noteworthy pattern was the abundance of grief and loss tales. Citizens not only mourned individual trees cut down but also expressed broader fears about environmental degradation. More than any other story type, grief narratives point to the emotional nature of tree loss, reinforcing the notion that the communities affected are vulnerable not only to the physical effects of tree loss (the reduction of shade, beauty, and wildlife habitat) but also to the psychosocial impacts of treescapes being altered in a way that seems permanent, [8,39].

4.2. Co-occurrence and the complexity of urban nature relationships

This study data shows that 76 % of postcards contained multiple wellbeing modes, with common pairings including emotional + relational and emotional + spatial wellbeing. These overlaps represent not only the entangled human-tree relations this study has illuminated but also a nascent interdisciplinary approach to understanding urban nature. Growing recognition that place-based identity, sensory experience, social memory, and emotional grounding is so inseparably woven into nature relations is prompting a move beyond the silos of ecosystem services. All together, these diverse and interdisciplinary lines of inquiry support a conceptual shift to more holistic frameworks, [39,41].

Relational wellbeing, expressed in 60 % of postcards, often invoked trees as intergenerational connectors, growing with families and holding shared memories. These findings align with research on the relationship between social cohesion and urban green space [49]. These findings reinforce the idea that trees are not just what people see when they look out of the window but are somehow alive and participating in a community's social life. In particular, the postcards described instances where trees in gardens, parks, and schools were positioned as “witnesses” to community members' rites of passage.

4.3. Insights on less represented but vital modes

Though physical wellbeing was the least frequently referenced category (38 %), it included some of the most vivid, embodied memories, especially from childhood. Remembering unstructured, informal, multi-sensory interactions with trees in activities like climbing, den-building, and treehouses reinforced for us the very idea that trees are sites of multi-sensory, unstructured, informal learning and playing [42,43]. The lower frequency of this category may also reflect some collection sites being demographically older or the physical interaction with trees being an undervalued, “invisible” aspect of urban nature in urban planning.

Spatial wellbeing (51 %) was often expressed through appreciation for the trees' aesthetic, acoustic, and sensory contrasts to the urban environment. Participants described trees as “anchors” amidst concrete, and invoked their mythological, cultural, and seasonal roles. This mode included the most global and historical references, linking trees to ancestral lands, and to spiritual practices and folklore. These transposal stories suggest that treescapes evoke not only immediate sensory experiences but also some larger cultural imaginings. This study argues that it supports a reading of urban ecology that is not just unicolonial but is also decolonial. That is, it allows for a version of urban nature that is understood and valued through narratives that are integral to the immigrant, diasporic, and indigenous experience.

4.4. Subjectivity as strength: validity and value in storytelling

Some may question the scientific rigor of a dataset built on unstructured stories and drawings. However, the intentional use of arts-based and citizen-led methods was a critical design choice that prioritized inclusivity and emotional accessibility. Conventional surveys or structured interviews may have missed the nuance and affective depth captured in these postcards. Furthermore, other citizen social science initiatives have validated similar approaches as powerful tools for capturing relational and cultural ecosystem services [44–46].

4.5. Geographic reach and justification for extra-local narratives

A few participants went so far as to write of trees sited well beyond Glasgow, reaching deep into rural Scotland, Europe, South America, Asia, and Africa. While this could be seen as a methodological inconsistency, this study argues vociferously that these global tree stories are not extraneous but are essential to the story we are telling together. They reflect the mnemonic, migratory, and symbolic nature of trees in people's lives, especially in a post-colonial, diasporic city like Glasgow. By including these stories, EVERY TREE captured the full spatial imagination of participants, revealing how treescapes are experienced not only in physical proximity but through memory, family history, and emotional resonance. This supports the idea that urban wellbeing is shaped not only by local ecology but by remembered and imagined landscapes [47].

4.6. Policy implications

4.6.1. From model to policy

This study narrative model presents a fine-grained and original understanding of urban wellbeing through, with, and in the treescape. We see enormous potential in the restorative relational infrastructure offered by the treescape, connecting people to nature, families and friends, childhood and joyous memories, the countryside, and to self [45]. The findings of the EVERY TREE project present a compelling case for embedding trees more deeply into urban policy through a wellbeing lens [48]. The four wellbeing modes identified—emotional, relational, physical, and spatial— highlight the treescape's multifunctional role in urban life, offering a rich opportunity for cross-sectoral policy integration across health, education, planning, and environment.

4.6.2. Multiplying policy impact through wellbeing integration

This study shows that one urban asset—trees—can serve multiple wellbeing [49] objectives simultaneously. Emotional calm, physical activity, relational bonding, and spatial identity were all supported when study participants interacted with a tree. Urban policies targeted these domains of wellbeing in isolation, yet the urban treescape represented a cost-effective [50], almost magical, means of delivering what felt like an integrative set of wellbeing benefits. By recognizing trees not only as ecological resources but as cultural, emotional, and social assets, policymakers can pursue more holistic, place-based strategies for sustainable and inclusive urban development.

4.6.3. Anticipating grief and building trust in tree management

A common theme running through the postcards was grief over the loss or removal of familiar trees. Strong, emotional attachments to specific trees—especially the mature, long-standing ones—can trigger distress, resistance, and a breakdown of trust between authorities and communities. This insight is especially relevant considering the widespread removal of diseased trees across Europe, including ash dieback and Dutch elm disease.

Tree management practices should include clear communication with communities. Co-creating management plans, offering symbolic replacements (e.g., memorial plantings), and publicly acknowledging loss can help mitigate the emotional toll. Transparency and early dialogue may reduce conflict and foster trust.

4.6.4. Prioritising tree access for children's development

Participants consistently emphasized the importance of trees in facilitating childhood play, learning, and autonomy. The experiences of climbing trees, hiding among them, foraging in their presence, and resting beneath their canopies were associated with a sense of freedom, with creative expression, and with emotional safety—qualities increasingly tough to find in many urban environments [28,51]. The pictures made clear that gardens with trees were especially valued as spaces for unstructured play. However, the trees located in parks, and even those found around schools, were seen as important.

Policies should ensure that all children, especially those without backyards, have safe, open access to treescape-rich environments. This could mean increasing the number of trees in schoolyards or designing public play areas around big, old, beautiful trees. Such environments not only foster imaginative play and social interaction but also serve as essential for children's development.

4.6.5. Reviving tree-based food and cultural practices

Although there were fewer mentions related to food, when they did occur, they highlighted profound intergenerational ties that were intimately linked to grandmothers and to the treasured recollections of making jelly, going apple-picking, and gathering other types of fruit during roadside harvests in the fall. These stories are the kinds of not-very-distant-memories that kept the cultural practices associated with trees as food sources alive in the minds of all the generations interviewed. These could support food security, intergenerational learning, and cultural reconnection. This aligns with broader movements in urban agriculture, climate adaptation, and nutrition equity [52].

4.6.6. Supporting nature-based rhythms and temporal awareness

Our participants expressed how much they loved trees—the long, slow, seasonal cycles they live—that stand in stark contrast to the frantic pace of modern life. They seemed to see trees as embodying the kind of continuity, perspective, and organic growth that makes them living symbols of longtermism—metaphors, really—for the deeper timeframes that human lives on this planet almost always seem to conflate with our own biographical cycles.

Policy makers should use trees and woodlands as focal points in long-term place-making and civic storytelling. Trees can gain resonance as civic symbols framing the “policy narrative” around climate change adaptation, urban regeneration, or wellbeing strategies. And citizens can be invited to understand the emotional, everyday meaning of the abstract goals (e.g., net-zero emissions, resilience) that these symbols ground to help make, unmake, and remake places.

4.6.7. Advancing inclusive, story-based policy engagement

The methodology behind EVERY TREE provides lessons for creating participative policies. When citizens were invited to share tree-related stories and experiences, the project used their contributions to construct a collective urban narrative about the meanings of trees in our lives—not just the services they provide, but also the icons they have become.

In urban policies, use narrative and other creative, engaging forms to connect with the public during environmental planning processes. Storytelling, drawing, and memory-sharing can complement more typical engagements with the public.

4.6.8. Toward tree-centred urban futures

This research discloses a complex, deeply held citizen ethic of care for trees, rooted in emotion, memory, and shared experience. It reveals that urban trees are not only green infrastructure, but they also provide human wellbeing, culture, and belonging. They are seen as something much more basic and elemental: a source of physical and psychological wellbeing. As Glasgow and other cities move toward greener futures—via net-zero goals, climate adaptation plans, and equitable public space design—Trees must be positioned not just as tools, but as teachers, companions, and connectors in the urban landscape.

4.7. Limitations

We acknowledge the limitations of this study. As discussed above, this participatory inquiry was open, creative, and adaptive. It was intentionally designed to reach a diverse group of participants of varying ages, backgrounds and geographies, but there was no formal sampling frame at the onset of the study, and demographic data were not systematically collected. However, the narrative richness and widespread co-occurrence of themes suggest a strong qualitative saturation, supporting the internal validity of this study emergent wellbeing typology.

The study is also set in one geographic context, Glasgow. Thus, findings cannot be extrapolated for any statistical generalization beyond this.

5. Conclusion

This research has delved into the complex ties between urban citizens and their local treescapes through the participatory, creative lens of the EVERY TREE project. It has collected and analysed 178 hand-written postcards from diverse participants across the city of Glasgow to uncover four interwoven modes of urban tree wellbeing associated with citizens: emotional, relational, physical, and spatial. Emerging from this grounded narrative data, the categories demonstrate that in the quotidian life of our contemporary cities, trees are far more than background scenery or environmental assets. They are deeply meaningful components of everyday urban existence and serve as sources of calm, memory, play, and identity.

This study's key contribution is the application of citizen storytelling, both as a research tool and a means of inclusive engagement. Using a narrative approach, for this research allowed for expressions of grief, joy, nostalgia, and reverence, which are often absent from standard environmental surveys. The project not only permitted more expressive responses to the questions posed but also valued subjective, affective, and culturally grounded knowledge as essential urban planning, policy, and forestry strategy.

The findings underscore also essential policy implications. Urban trees should be acknowledged not just for their ecological roles but also for their social and emotional infrastructure. The emotional distress attached to losing trees, the foundational role tree-centric play has in childhood development, the intergenerational care of trees that fosters relational bonds, and the faraway landscape memories rooted in our cultural past all speak to the value and importance of urban trees. There is need much more imaginative, sensitive, and expansive governance of urban treescapes.

Moreover, this study demonstrates that integrating wellbeing objectives along the physical, emotional, spatial, and relational dimensions is both essential and achievable through tree-based planning. In an age of ecological unpredictability and urban inequality, trees stand as an immediately recognizable, potent symbol and means of not only restoring ecosystems but also reestablishing human relationships—with places, memories, and one another, (Appendix A, Fig. 7).

Every Tree Tells a Story does more than just gather data—it reminds us that our connection to nature is deeply felt as well as culturally evident. It reminds us that our connection to nature is as much a matter of heart and culture as it is of canopy and carbon. As cities work toward climate adaptation, social cohesion, and equitable public health, centring community narratives in treescape planning will be essential. Future research should continue to develop creative, citizen-led methods for capturing the layered meanings of urban nature, and policymakers should embrace these stories as legitimate, impactful evidence in the shaping of tree-rich, wellbeing-oriented urban futures.

CRediT authorship contribution statement

Sarah Dodd: Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation,

Funding acquisition, Formal analysis, Data curation, Conceptualization. **Juliette Wilson:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Shahrzad Zeinali:** Formal analysis, Writing – review & editing. **Gillian Dick:** Writing – review & editing, Writing – original draft, Validation, Project administration, Investigation, Funding acquisition, Conceptualization. **Etive Currie:** Writing – review & editing, Validation, Methodology, Investigation, Conceptualization. **Michael Pierre Johnson:** Writing – review & editing, Visualization, Validation, Methodology, Investigation, Conceptualization. **James Bonner:** Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Appendix

Fig. 1. The final design of the postcards. Image: Lou Rowland.
The postcard was designed for the 'Every Tree Tells a Story' project, by Lou Rowland, a local Glasgow designer and illustrator and printed by Wild Press – a local Glasgow print studio, using the eco-friendly Risograph printing method. Risograph printing blends elements of screen printing and photocopying as individual colours are printed layer by layer. It was introduced in the 1980's in Japan by the Riso Kagaku Corporation and was developed to create a new low-cost, high-speed printing process. Risograph printing is one of the most eco-friendly ways to print. It uses soy-based, non- toxic inks and stencils made from natural fibres. The printing machine is energy efficient, free from harmful emissions and has minimal waste.

Fig. 2. Individuals were approached by the researchers, left to write their postcards in their own time, and then collected (in specifically designed 'post-boxes' made from recycled wooden floorboards by a local woodworker). Images: James Bonner.

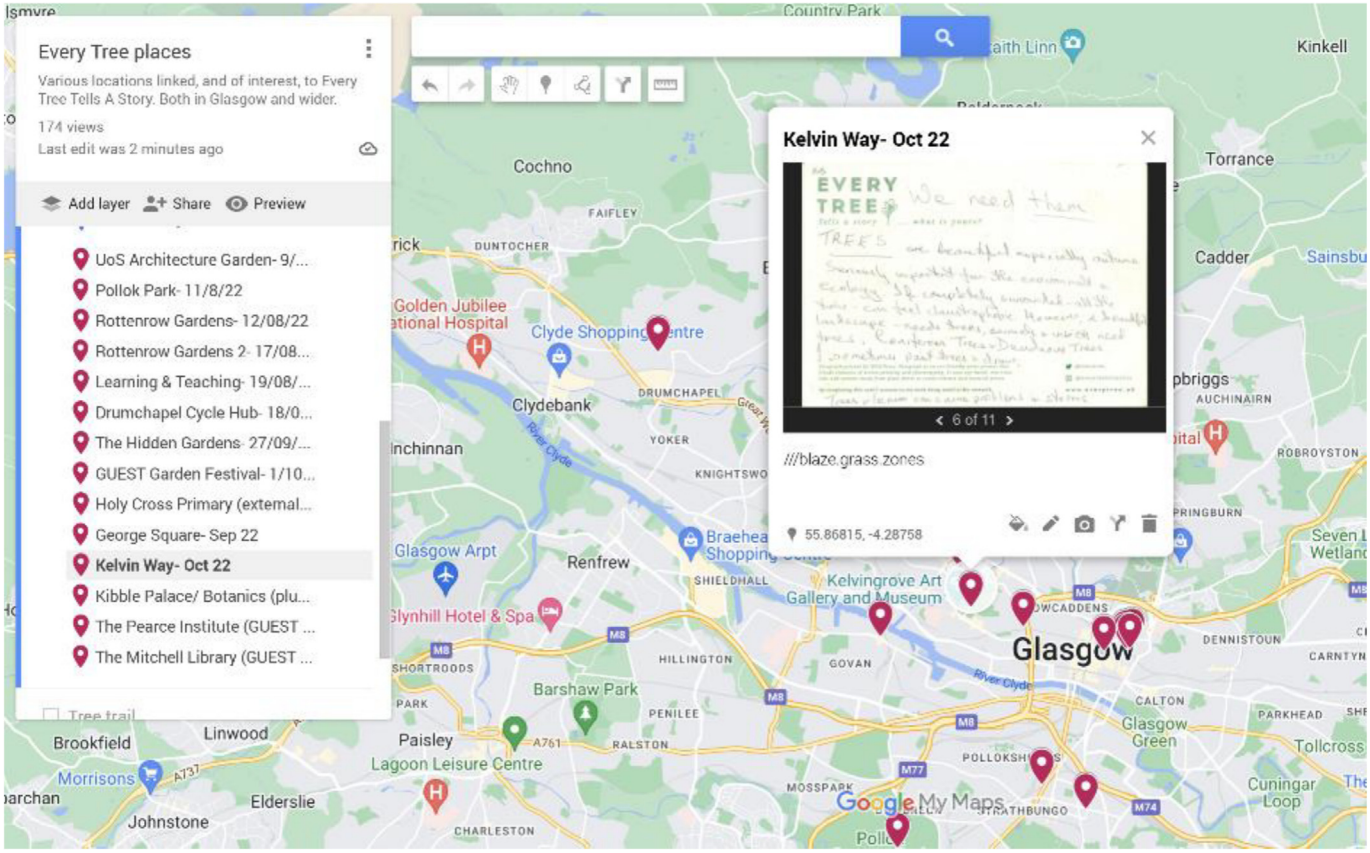

Fig. 3. Postcards were digitally scanned and mapped onto Google Maps, pinpointing locations in which they were collected and when.

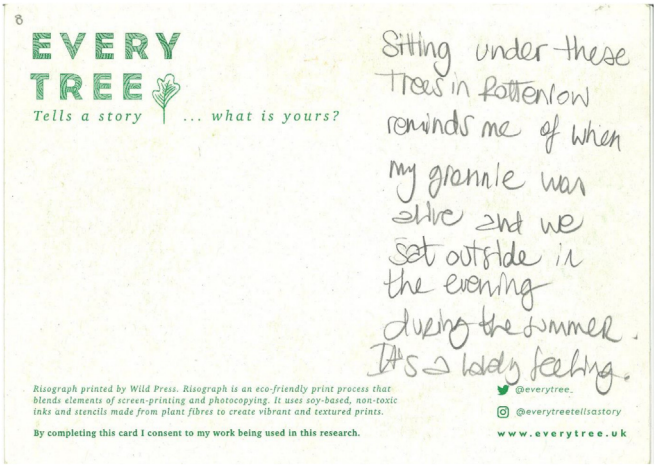

Fig. 4. Postcard associating a tree memory with an individual's 'grannie' (a Scottish term for grandmother).

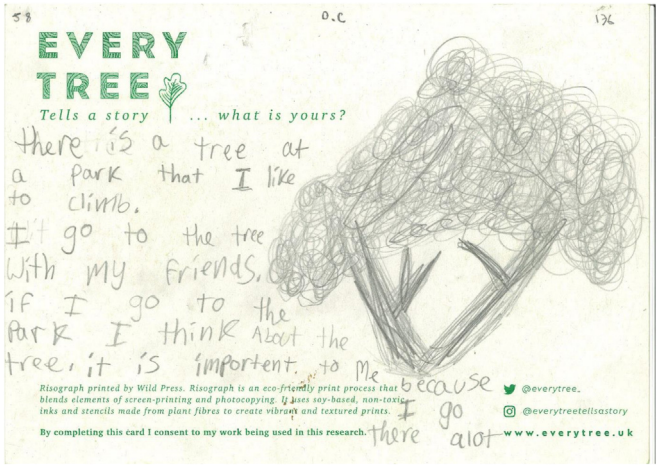

Fig. 5. Postcard from a child, with text and a drawing.

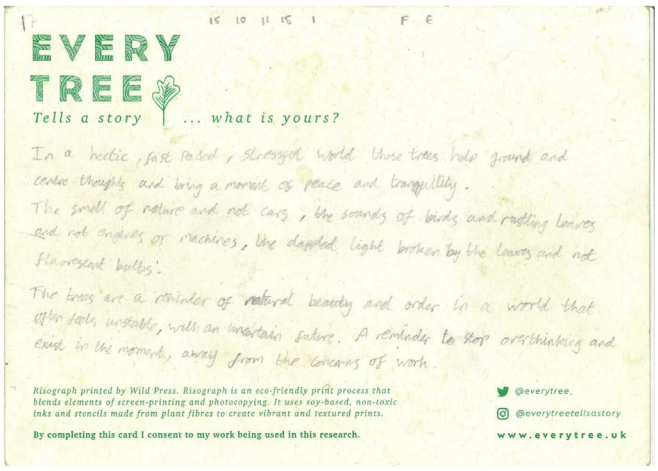

Fig. 6. A descriptive and emotional postcard from an individual.

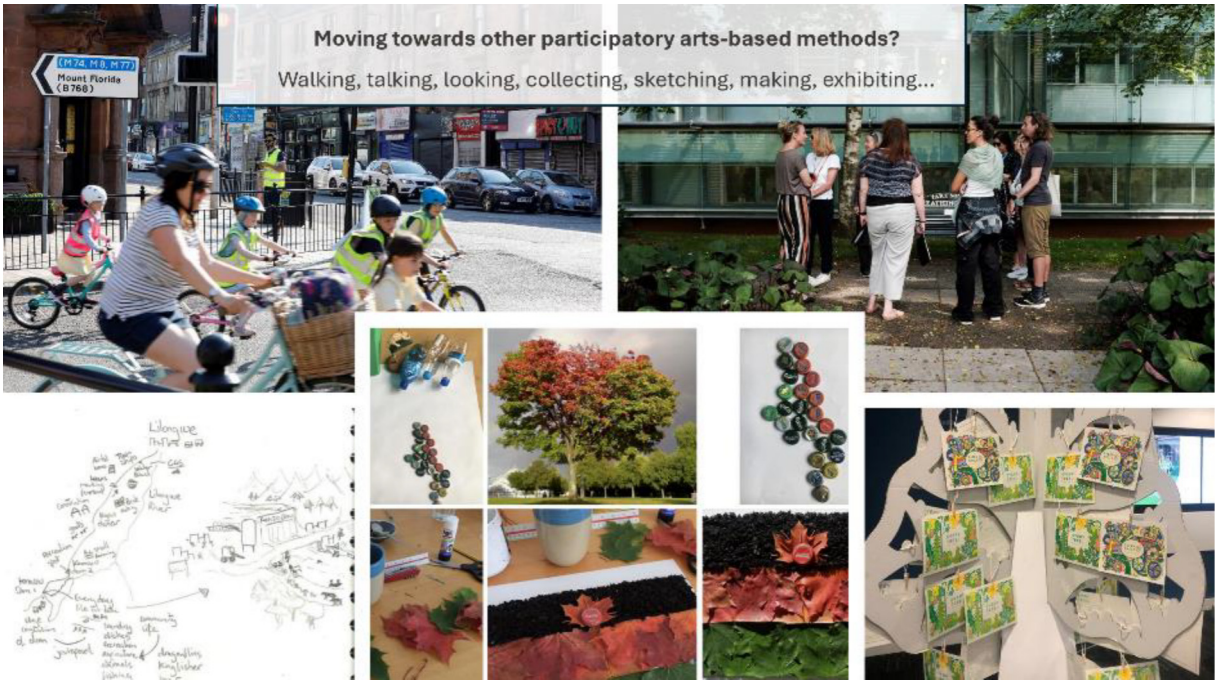

Fig. 7. Opening up other forms of arts and place-based approaches to develop processes, practices and products expressing the value of trees, and other aspects of nature (cultures). Images: James Bonner, Katherine Rose, and Simon Forsythe.

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