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Alley greening: a tool for enhancing community resilience?

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ABSTRACT

In many cities across the world alleys are transitioning from residual spaces to hybrid places providing the foundation for new functions, uses, and identities to take root and coincide through a process of "alley greening". Such manifestations are transforming the relationship between people (local residents) and place (alleyway – local area), most notably during the COVID-19 pandemic when a new urgency for the provision, or repurposing, of safe, social spaces emerged. Yet, the potential of alley greening to affect people-place relationships and engender community resilience has been relatively unexplored. Adopting a mixed-methods approach, including questionnaires, interviews, and case study analyses, this paper critically investigates the experience and perspectives of green alleys from various place-based actors in Belfast, Northern Ireland. The findings reveal that, even in the absence of institutional and policy support, green alley projects have the potential to stimulate positive people-place relationships in various ways and enhance wider community resilience to shocks and stresses. However, barriers prevail, curtailing the reach and purpose of such projects both in Belfast and elsewhere. The paper considers how governance arrangements might best overcome such hurdles and strengthen pro-environmental and pro-social behaviours that are fundamental to community resilience.

Key policy highlights

- Despite their integral form and function in the city, alleyways, nor their potential, are rarely recognised in the policy.
- The COVID-19 pandemic exposed a policy-implementation gap in the provision of locally accessible greenspace. Policy inertia exacerbated this gap preventing the fulfilment of changing community needs. Alley greening emerged as a tactical urban response.
- A lack of place-based approaches within policy has polarised institutions from communities. People-place relationships, essential to resilience-building and green alley longevity, are subsequently inadequately engaged with and fostered.
- An opportunity exists for alley greening to be a place-based policy instrument to stimulate pro-social and pro-environmental behaviours for building community resilience.

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Introduction

Alleys are a ubiquitous spatial feature in many cities' urban forms, historically as linear spaces typically at the rear of adjacent buildings, performing traditional utilitarian purposes such as aiding coal

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deliveries (Moreau 2015) or acting as fire-breakers (Kirjakka 2005). Such spaces have played an important role in the evolution of urban areas and still form essential spaces of temporary and informal use: providing the setting for everyday urban life and place-based identities (Imai 2013). They exhibit divergent anatomies between countries, cities, and intra-city with regards to their form, fabric, and function (for examples see Wolch et al. 2010; Machado-León, del Carmen Girón-Valderrama, and Goodchild 2020; Gibert 2018). Given their broad physical manifestations within urban environments, alleys have become nuanced with multiple interpretations that encompass a host of liminal spaces. This interpretive versatility is illustrated by the plethora of terms used for "alleys". These include international variations such as "laneways" in Canada to "mews" and "ginnels" in the UK, "hutongs" in Beijing, and roji in Japan. For the purposes of this article, the term "alley" is used as an umbrella term.

Despite their prevalence and historical importance, alleys are frequently regarded as "neglected" (Wolch et al. 2010, 2891) and "residual" (Seymour et al. 2010, 380) elements of urban infrastructure (Newell et al. 2013). In addition, they are often places of anti-social behaviour, vandalism, illegal dumping, urban decay, and wider environmental degradation. However, social and environmental stimuli have motivated a shift towards post-utilitarian alley uses; reflecting discursive shifts in public policy-making and academic focus towards "new urbanism "(Newell et al. 2013; Ford 2001), and eco-urbanism (Duvall, Lennon, and Scott 2018). Consequently, many are being repurposed as hybrid spaces to provide for new functions, uses and identities to take root and coincide, and transforming the relationship between people (usually local residents) and place. As a consequence, cities across the globe have embarked on a range of revitalisation projects for their alleys, including "alley greening".

Alley greening, as a form of green infrastructure (GI), has multiple potential benefits including surface water runoff management, enhanced pedestrian movement, and the provision of usable recreational and social spaces. Studies have found that the impetus for alley greening is varied, dynamic, and multi-scale. For example, alley greening may be part of wider neighbourhood or housing regeneration projects led by local authorities or developers (Moreau 2015). Alley programmes in North America have been found to be part of economic revitalisation schemes (i.e. for local commercial and retail development) (Mackinnon 2020). Green alleys are often seen as part of the solution to multiple environmental hazards (Pham, Lachapelle, and Rocheleau 2022). Green alley projects may be instigated due to more bottom up concerns with improving the quality of life for local residents, including providing safe spaces for children to play, and reducing crime (Seymour et al. 2010). Whilst alley greening cannot be regarded as "new", having emerged in various forms since the 1990s (Pham, Lachapelle, and Rocheleau 2022), it has arguably never been more important than during, and post, the COVID-19 pandemic when a new urgency for the provision, or repurposing, of safe, social spaces emerged. At the same time expectations from, use of, and relationships with, our urban environment changed, and there are renewed calls for enhancing resilience to future shocks and stresses. Yet, there is great uncertainty about how the pandemic will inform the creation of more just, healthy, and resilient cities.

Despite increasing academic and policy attention, research into green alleys remains premature, particularly in terms of their potential role in enhancing community resilience. This paper seeks to address this gap. Particular focus is placed on the impact of green alley projects on people-place relationships; a key dimension of community resilience. Belfast, Northern Ireland provides the context for the study. Belfast is a city characterised by an extensive network of alleys, with alley greening and activism becoming increasingly more salient in the city in recent years, as elsewhere. Yet, empirical research on alley greening in Belfast is in its infancy. This paper represents the first detailed academic study of two green alley projects in the city. Findings from a questionnaire and semi-structured interviews provide insights into local perspectives of alley greening, and an exploration of two local cases reveals the benefits and challenges facing community-led greening projects. Conducted during the COVID-19 pandemic

(Spring-Summer 2021), the empirical findings provide valuable insights into the potential role and remit of alley greening projects in enhancing community resilience and illuminate barriers to extending the reach and purpose of such projects both in Belfast and internationally.

Alley greening and community resilience

The concept of resilience has evolved significantly from its ecological origins. Contemporary research has argued for the importance of the social sphere; generating crucial debates regarding the capacity of communities to maintain function, adapt to, and transform in the face of change, and to avail of opportunities presented by such change (Cafer, Green, and Goreham 2019; Faulkner, Brown, and Quinn 2018; McElduff and Ritchie 2018; Berkes and Ross 2013; Magis 2010; Folke 2006). Such debates have centred on the identification of components or "ingredients" regarded as essential to enhancing resilience at the community level. Whilst commonalities can be found across the literature, components of community resilience remain contested, ambiguous, and individually neglected within existing literature (see for example Buikstra et al. 2010; Magis 2010; Ross et al. 2010). Despite the lack of an agreed set of components, inherent human-environment interdependencies within social-ecological systems are widely regarded as integral to community resilience. McElduff and Ritchie (2018) apply a sociological perspective to space to understand these place-based interdependencies, defining them as "people-place relationships." Others adopt a similar approach, defining them as "people-place connections" (Maclean, Cuthill, and Ross 2014; Berkes and Ross 2013; Amundsen 2012; Ross et al. 2010). For the purposes of this article, the term "people-place relationships" is used to capture concern for community issues, feelings of pride and belonging, and a sense of attachment to place.

Altman and Low's (1992) seminal paper situated "place attachment" as comprising the emotional connection individuals and communities assign to places. Since then, many authors (see for example Hidalgo and Hernandez 2001; Hernandez et al. 2007; Raymond, Brown, and Weber 2010; Lewicka 2011; Scannell and Gifford 2010) have identified various social and physical dimensions of place attachment. Yet, as argued by Baldwin, Smith, and Jacobson (2017) the physical process of connection, including the mechanisms that enable place attachment to develop, remains a neglected area of research. The influence of alley-greening projects on people-place relationships has been inferred within existing literature but has rarely been explicitly investigated. For instance, Weber and Schneider (2021) identify an enhanced sense of belonging and civic pride as outcomes of alley-greening projects, but do not focus specifically on people-place relationships, or community resilience more broadly.

To fully consider the capacity of green alley projects to affect people-place relationships, it is first necessary to reflect on what form such relationships or attachments can take. Indeed, research into the more established concept of place attachment has identified several different "types" of attachment (Scannell and Gifford 2010). Affective attachment reflects a deep emotional tie to, or investment in, place. This link can be founded on, for example, ancestral linkage, family tradition, memories, and experiences with friends and family. It might be, or feel like, "home" or enhanced by ownership. Such people-place relationships are often described in sensory, aesthetic, spiritual, or emotive terms (Scannell and Gifford 2010). Green alleys can potentially contribute to this form of attachment by reducing antisocial behaviour and providing safe and welcoming spaces to congregate. In this way they provide opportunities for new traditions to take root, experiences gained and memories made; enhancing or renewing existing affective attachments and building strong people-place relationships for both younger generations and newer residents. Such deep emotional ties to a place are necessary to sustain community-led projects into the future, and therefore require fostering.

Functional attachment is grounded on behavioural interactions through the practice of activities (such as recreation and restoration), which satisfy an important personal need, purpose, or

wellbeing goal. A key driver for the creation of green alleys is a local desire for a more diverse range of activities and functions than the traditional uses of alleys. Green alleys have been promoted as a type of GI, given that they typically involve enhanced vegetation cover. Arnberger and Eder (2012) found that the physical accessibility of greenspace adjacent to people's homes contributes towards enhanced place attachment, thus the presence of contiguous green alleys along urban terraces represents important spatial arenas for deepening local people's relationship to place. However, as Lewicka's (2011) meta-analysis on place attachment identified, both physical and social factors contribute to place attachment, emphasising the need for green alleys to not only create a more desirable "green" space but also to generate opportunities for formal and informal socialising among neighbours. Similar to affective attachment, functional attachment may be enhanced by property ownership and be related to landscape characteristics. It is often expressed as the desire to remain in, or close to, a place, return to a place, or relocate to a similar place (Scannell and Gifford 2010). Critically, as stated by Imai (2013) it is often unclear whom alleys belong to.

Cognitive attachment is based on constructed meaning and intellectualised interpretations of a setting's physical attributes, such as the perceived degree of naturalness or cultural history. It can include knowing and understanding the details of the environment. It is incorporated into self-identity if the type of place matches personal values (Scannell and Gifford 2010) and provides insight into why a place is valued or meaningful (Wynveen, Kyle, and Sutton 2012). It is increasingly acknowledged that, as liminal spaces, alleyways can become vehicles of different intellectual, artistic, cultural, economical, and political discourses (Imai 2013). It follows that green alleys should be cognisance of the culture of the local area and accommodate diverse interests and preferences.

These different "types" of attachment may emerge and coexist within a given area. Irrespective of "type", research has shown that where strong people-place relationships exist, willingness to engage in place protective actions and behaviours is maximised (Stedman 2002). It follows that such relationships foster stewardship and an embeddedness to – and with – a place. However, people-place relationships can become entrenched, restricting adaptability to change and the ability to grasp opportunities presented by such changes (McElduff and Ritchie 2018; Wilson 2014). These dynamics are most evident when "NIMBYism" arises, fuelling place-protective opposition (Devine-Wright 2009). The subjectiveness and complexity of people-place relationships make it difficult to determine when strong connections to place undermine resilience. Moreover, people-place connections can fluctuate over time due to both internal (e.g. population churn) and external (e.g. global pandemic) shocks and stresses.

The COVID-19 pandemic may fundamentally and irreversibly alter relationships between people and place. Restrictions on the use of public space and the introduction of physical/social distancing were key policy measures established to reduce the transmission of COVID-19 and protect public health. As a consequence, many people experienced and utilised their immediate locality in new ways. Indeed, research on "place confinement" has found that it can trigger a new perspective on immediate environments, potentially offering a deepening of place attachment that promotes pro-social and pro-environmental behaviours (Ramkissoon 2020). Residential streets, parking lots, and other public spaces were transformed, albeit often temporarily, into places for active living, play, and sociability. Such uses, even temporal ones, have the potential to transform the relationship between people and place, enriching prospects for promoting social and environmental wellbeing. Emerging research has questioned how we might best capture such innovations and ingenuity to reclaim neighbourhood spaces for public life, and the physical and psychological health of our communities (see for example Honey-Roses et al. 2020). This reflects a growing recognition that planning for our cities post pandemic will be as much a philosophical task as a practical one. Thus, research on the extent to which "people-place relationships" are changing for urban dwellers will be important for planners and social scientists alike. Skerrat and Steiner (2013) found that policies often do not reflect community priorities nor work to understand issues of community resilience, raising

questions regarding the adequacy of current policies and practices, and how more equitable and holistic interventions might be best harnessed. Critically, as with all urban interventions, the benefits of urban greening projects, such as alley greening, tend not to be equally distributed, and concerns surrounding "green gentrification", (also referred to as ecological gentrification or environmental gentrification) have increased significantly in recent years as the long term outcomes of such projects become more apparent. Specifically, it has been found that urban greening can inflate housing costs resulting in the in-migration of higher-income residents and the displacement of original residents (Goossens, Oosterlynck, and Brad 2020). It has also been found to contribute to socio-cultural exclusion through the new uses and norms practiced in such spaces. For example, minority groups may find the environs intimidating because of past experience or memory of discrimination or violence in such spaces (Triguero-Mas et al. 2021). Thus, "green gentrification" can contribute to reduced feelings of place attachment and sense of community due to the changing socio-cultural environment (Oscilowicz et al. 2020). It follows that, rather than contribute to just and resilient communities, alley greening projects may produce social injustices for some and environmental privilege for others. Whilst not considered in detail in this paper, questions regarding power and politics arise, particularly in terms of who determines what is desirable for a local area and whose resilience is prioritised. The few existing studies of green alleys and people-place relationships have found that their design, use, and perception vary between cities and stakeholder groups (Seymour et al. 2010; Seymour and Trindle 2015). The following sections critically explore how alley greening in Belfast can affect the relationship between people and place, and what opportunities and barriers exist for extending the role and value of alley greening in policy and practice to foster community resilience. First, the methodological approach is outlined.

Methodology

To appreciate contemporary interpretations of alleys, and their ability to foster community resilience, a mixed methods research design was selected. An online questionnaire sought to determine attitudes towards alley greening in Belfast and the impact of such projects on their relationship to their local place, particularly within the context of COVID-19. Conducted during summer 2021, purposeful sampling aimed at communities in proximity to alley greening projects and subsequent snowballing were applied to obtain a diverse range of voices. Fifty-five responses were received. These questionnaire findings were supplemented by 11 semi-structured interviews with a range of place-based actors (Table 1), to provide insights into the governance of alleys and greening projects in Belfast. These interviewees included representatives from "9ft in Common": a non-governmental organisation which investigates and advocates for Belfast's alleys.

A case study analysis of alley greening projects in Belfast was conducted to provide further insight into the impacts of alley greening on people-place relationships. Belfast, like many other cities, has a number of green alley projects in operation, as documented by 9ft in Common, however *Rainbow Alley* and *Ardmore-Rossmore Alley* (Figure 1) were selected through the questionnaire process,

Table 1. Classification of anonymised interviewees.

Interviewee code	Background
ELEC1	Locally elected representative
ACT1	9 ft in Common representative
ACT2	9 ft in Common representative
Dfl1	Department for Infrastructure representative
Dfl2	Department for Infrastructure representative
DfC1	Department for Communities representative
DoJ1	Department of Justice representative
COML1	Community leader
RES1	Local resident
RES2	Local resident

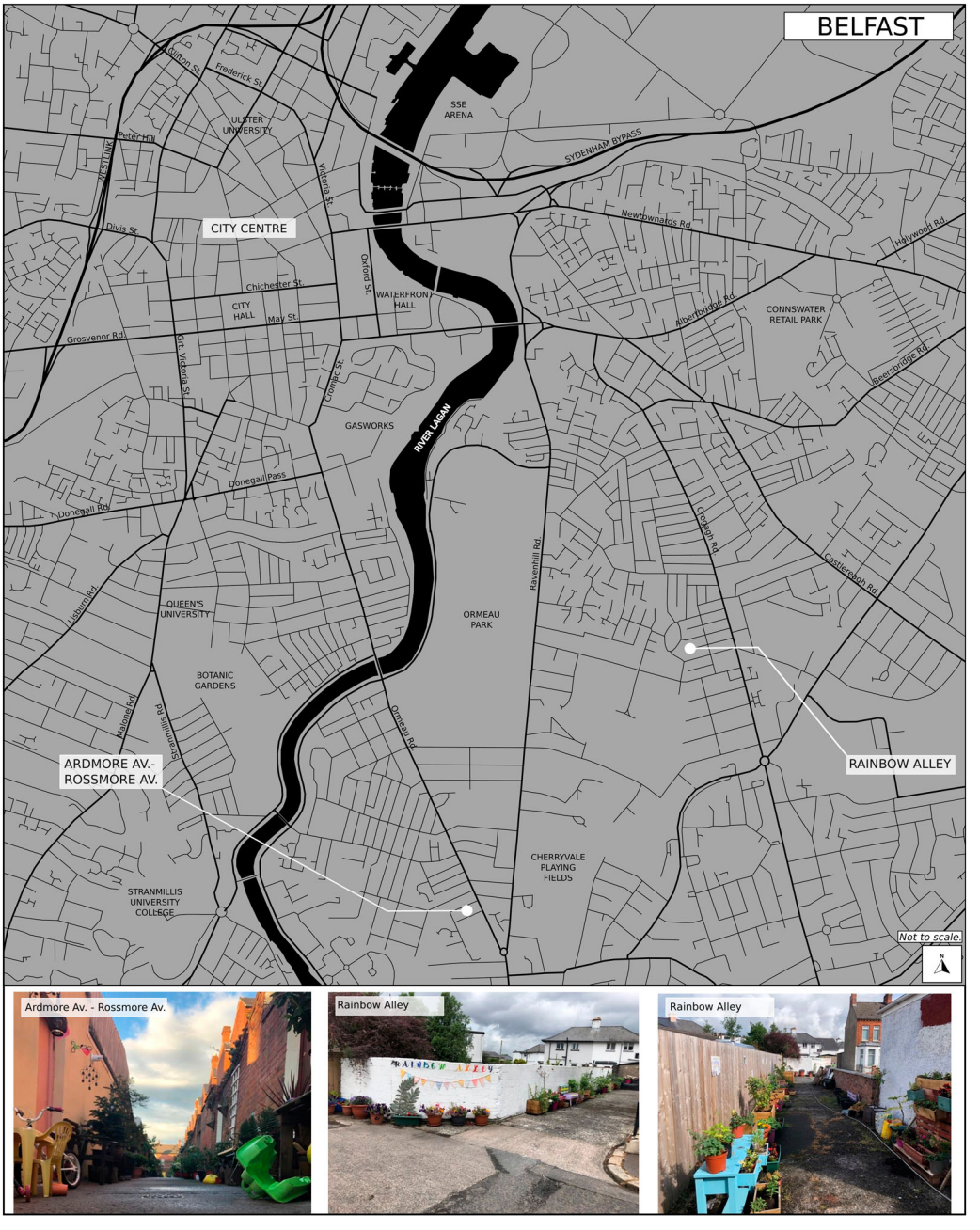

Figure 1. Map illustrating where the two case studies are located within Belfast. Source: Author's Own (2021).

which asked respondents to propose suitable case studies for further investigation. The alleys are suitable case studies for several reasons. Both are located within a residential context comprising high-density terraced housing with minimal or no garden space: representative of many traditional residential areas in Belfast. Adjacent properties have private, direct egresses to the alleys, however, one alley is gated and the other is not: allowing for an exploration of the impact of public access on the projects. Both greening projects are largely community driven and share many of the same objectives in terms of improving the quality of life of local residents. However, the impetus for

action, uses of the space, and ongoing challenges differ, allowing for a more complete understanding of how such projects might affect community resilience to be captured.

Greening alleys in Belfast: towards enhanced community resilience?

Belfast's alleys were crucial to its historical development in the late seventeenth and eighteenth centuries; providing access to the rear of large tenements where pervasive back land development proliferated (Gillespie 2007). They acted as liminal spaces to facilitate social integration between divergent social strata. In the city centre, they also provided an important setting for Belfast's commercial and industrial history given the many merchants and industries operating within them. The social freedoms provided by the alleys' public houses and breweries allowed the debate of opposing ideas, convergence of liberal ideas, and political ideologies to emerge. Today, the alleys proliferate in many residential areas and are the setting of Belfast's oldest public house and the birthplace of the oldest anglophone publication (Boyd and Heatley 1998). Physically, and similar to many international cities, Belfast's alleys may be best characterised as diverse. There is no standard profile to fit them all. Rather, they encompass a range of forms, designs, and sizes as illustrated by the Belfast Alley Map: an interactive map which displays alleys in neighbourhoods across the city (9ft in common 2021). The alleys are more commonly grouped by their status than by their physical characteristics: as either "adopted" or "unadopted", gated or ungated, or by whether they are situated in the city centre (and thus more commonly referred to as "entries") or in residential areas.

Contemporary governance arrangements for alleys are elusive and convoluted, with responsibilities spread across various institutional actors. Alleys can be either "adopted" or "unadopted" by central government, i.e. the Department for Infrastructure (DfI) (2021). Adopted alleys are regarded as part of the road network and are cleared from obstruction by DfI, whilst unadopted alleys lack such upkeep. Funding support for community-led alley greening projects was announced by the DfI Minister in January 2021. Whilst the majority of alleys are not in the ownership of the DfI, the Department can provide funding to local government for such initiatives under Section 29 of the Local Government Finance Act (NI) 2011, or to communities under the power of general competency provided by Section 79 of the Local Government Act (NI) 2014. Proposals for the funding support need to: have buy-in from local residents; include a commitment from local communities to maintain the project; seek to make environmental improvements; and make alleyways more attractive and accessible for walking, cycling, and other activities which will help improve the health and wellbeing of local residents. The aim of the initiative is, thus, to enhance the social and environmental wellbeing of local communities. However, since the time of writing, some 18 months later, no funding has been allocated due to onerous bureaucratic processes between local and regional government, and the acute pressures on Northern Ireland's public finances.

In addition to the allocation of alley greening funds, (Belfast City Council (BCC) 2020) has responsibility for the installation of alley gates. Whilst not specifically related to alley greening per se, the Department for Communities (DfC) and the Department of Justice (DoJ) also provide certain functions. For example, DfC has responsibility for regeneration and is involved in public realm environmental improvement projects which may include alley greening. DoJ provides financial support for Policing and Community Safety Partnerships (PCSPs) which aim to address crime, fear of crime, and anti-social behaviour which are prevalent in alleys. DoJ is also actively involved in addressing urban blight at interface locations, which often comprise alleys, via the application of "meanwhile use" projects, such as the provision of community gardens. Importantly, the above mentioned actions by DfC and DoJ are restricted to public space meaning unadopted alleys are ineligible.

Despite their proliferation, alleys are rarely regarded in policy documents pertaining to the planning and development of Belfast, reflecting their "residual" label. An analysis across key policies and plans for Belfast exposed policy goal convergence supporting greener urban environments. However, whilst "A Bolder Vision for Belfast – Reimagining Our City Centre" recognised alleys as opportunistic spaces for transformation, alley greening is not an identified policy outcome.

This oversight is all the more perplexing given the recent publication of the Green Blue Infrastructure Plan (GBIP) (Belfast City Council 2020) in 2020 during an upsurge in alley greening and its disclosure of small-scale greening intervention examples suitable for neighbourhoods with traditional terraced housing, where alleys are most prevalent.

In the absence of explicit policy focus and institutional support, "tactical", bottom-up responses to alley greening have emerged in various locations across Belfast. Similar experiences can be identified in cities across the world, where such grassroots responses manifest through the informal greening of these unbridled, anarchic (Finn 2014) and overlooked urban elements (Pedrosa et al. 2021) in an ad-hoc, spontaneous manner (Németh and Langhorst 2014). Capturing local perspectives and experiences of such projects as well as their relative benefits and barriers is critical to enhancing and sustaining public and policy debate.

Local perspectives of alley greening projects

Contemporary perspectives of Belfast residents towards alley greening and the impact of the pandemic on people-place relationships were gauged through a questionnaire survey. Whilst all respondents were supportive of alley greening projects, less than half (44%) lived near a green alley. The most frequently reported use of alleys was for bin storage (30.5%): reflecting their traditional utilitarian use. Less common uses were for planting (18.6%), seating (11.9%), walking and/or cycling (10.2%), and playing (6.8%). "Other" reported uses included community events, socialising, dog walking, and rubbish dumping. Moreover, 8.5% of respondents did not use their alley for any purpose, emphasising the underutilised nature of such spaces.

A desire to use adjacent alleys for a wider range of purposes was identified, fuelled by a lack of private garden space (27.3%); a desire to socialise with neighbours (27.3%); somewhere to sit outside (18.2%); more space for children to play (12.1%); and to facilitate easier movement between streets (9.1%). Biodiversity and aesthetic reasons were listed amongst "Other" reasons. Yet, despite this desire for alternate, hybrid uses, the questionnaire identified key barriers to alley greening. These included fear of crime and anti-social behaviour in the alleys (57.6%); a lack of community support (30.3%); cost (27.3%); reduced space for bin storage (24.2%); concerns regarding ongoing maintenance (24.2%); a lack of alley gates (21.2%); sanitary concerns (21.2%); and concerns regarding alley ownership (12.1%).

Respondents were asked to specify the extent to which they agreed or disagreed with several statements regarding green alleys and people-place relationships on a Likert scale (Figure 2).

Most respondents either agreed or strongly agreed that green alleys enhance people-place relationships specifically in terms of increasing a sense of pride (92.7%) and attachment to place (94.6%). The social benefits of green alleys were regarded as providing space to socialise with neighbours (87.3%) and get involved in community initiatives (74.5%); both of which contribute to people-place relationships. Moreover, most respondents either agreed or strongly agreed (74.5%) that green alleys enhanced their well-being during the COVID-19 pandemic. In fact, the majority of respondents believed the need for alley greening had been enhanced by COVID-19. Importantly, within the context of a sustainable recovery from the pandemic, there was overwhelming agreement or strong agreement (85.4.%) that green alleys can enhance community resilience.

Respondents were then asked to indicate the extent to which they agreed or disagreed with several statements regarding the impact of the COVID-19 pandemic on people-place relationships (Figure 3).

Many respondents either agreed (27.8%) or strongly agreed (18.5%) that their relationship with their neighbours had improved since the onset of the COVID-19 pandemic; that COVID-19 has enhanced their sense of belonging within their local area (57.4%); that their appreciation of their local area has increased since the beginning of the pandemic (72.2%) and that they are more aware of local assets like walking routes or green spaces as a consequence (87.0%). Most respondents either agreed (48.1%) or strongly agreed (27.8%) that the pandemic made them want to

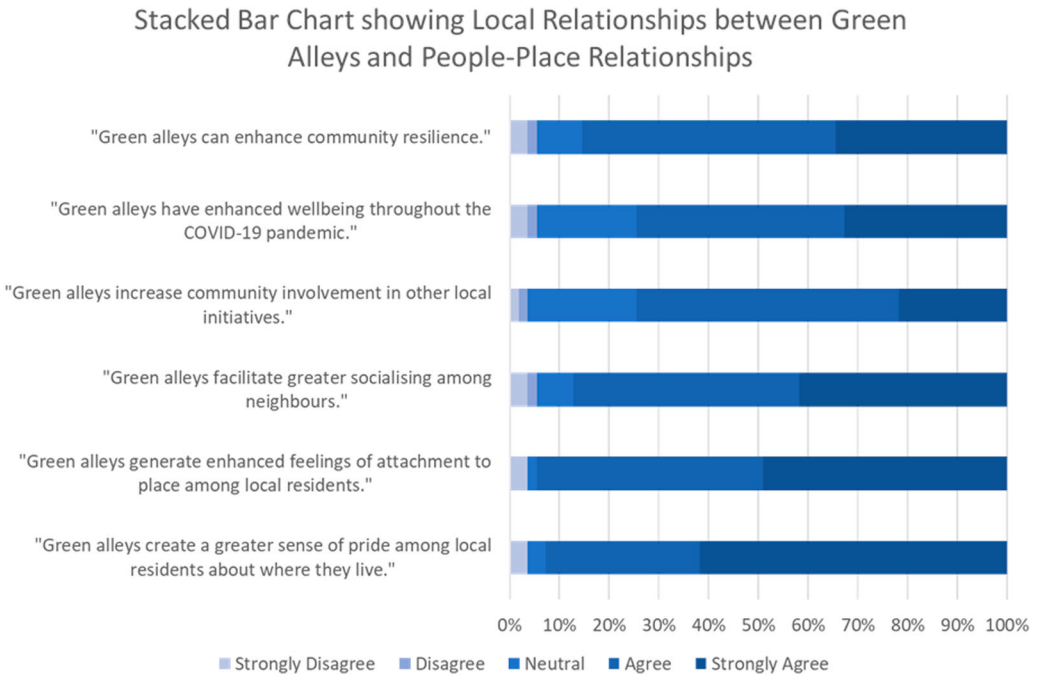

Figure 2. Stacked bar chart showing local relationships between green alleys and people-place relationships.

improve their local area. Such findings indicate a deepening appreciation of the value of place, and prospects to promote pro-social and pro-environmental behaviours.

There was a lack of consensus regarding who should be responsible for the delivery and maintenance of alley greening projects. Most believed local residents or community groups should be responsible for their delivery and maintenance, followed by a partnership approach between local authorities and communities. In all, the survey responses infer a strong desire for such projects to take a "bottom-up" approach, emphasising the importance of fostering strong people-place relationships and subsequently local stewardship to inspire local change and place-based interventions.

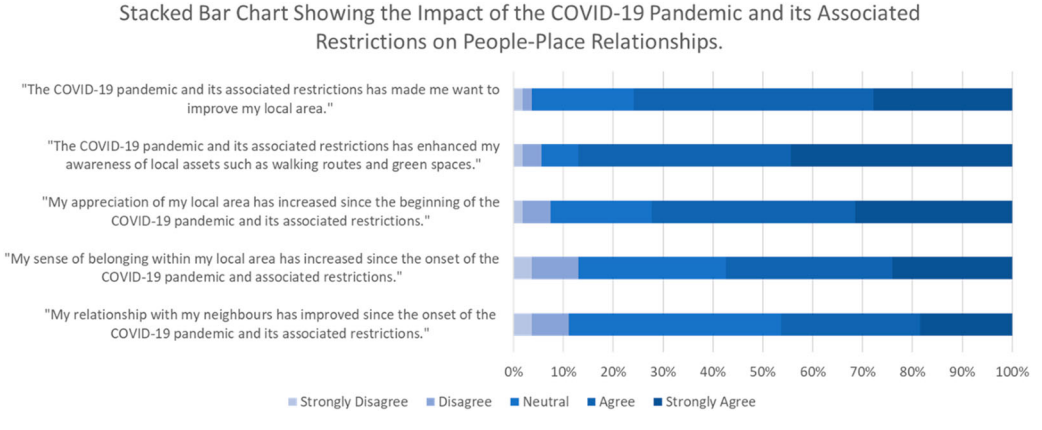

Figure 3. Stacked bar chart showing the impact of the COVID-19 pandemic and its associated restrictions on people-place relationships.

Overall, the questionnaire findings uncovered broad support for alley greening and a desire to repurpose alleys to provide for greater social interaction and environmental purposes. This appears to have been further fuelled by the COVID-19 pandemic as the findings indicate a greater internal focus among residents towards their local neighbourhoods in response to the pandemic with enhanced connection to the physical and social elements of a place. However, the findings revealed a multitude of barriers to alley greening, not least in relation to a fear of crime and anti-social behaviour, as well as the availability of community and monetary resources. Critically, the majority of respondents perceived a direct positive correlation between green alleys and people-place relationships, fuelled in part by the social benefits afforded by their presence, such as a socialising space and opportunities to become involved in local initiatives. The ability to initiate, maintain, and sustain such projects is thus essential. However, a lack of agreement was identified in terms of the governance of green alley projects. It appears that whilst the respondents wished for such projects to be led by local residents for the community, a desire for a partnership approach with, for example, local governments, highlights an appreciation of the limitations of community led projects, particularly in terms of financial resources and support. The lack of "rich leadership" in terms of a place-based policy approach and governance functionality has the potential to undermine community efforts, and thus, community resilience.

Alley greening experiences in Belfast

Drawing on semi-structured qualitative interviews, this section examines two examples of alley greening projects in Belfast. Particular focus is placed on the nature of the alley, initiation and rationale for the project, governance arrangements, challenges encountered, and successes to date.

Rainbow Alley

Rainbow Alley comprises a non-gated network of adopted alleys in East Belfast. Unlike other green alleys, such as Ardmore-Rossmore, Rainbow Alley is not limited to the space between residential buildings but also incorporates the side alley at the bottom of the street (Reid Street) (see Figure 4). It was conceived during the first of Northern Ireland's COVID-19 "lockdowns" by one local resident who, after door-to-door outreach and online meetings with neighbours, gathered local support and

Figure 4. Location and extent of Rainbow Ally in East Belfast.

momentum. Rainbow Alley was subsequently inaugurated in October 2020 and formally "opened" by the Lord mayor of Belfast in June 2021. Prior to greening, Rainbow Alley was a neglected space used for bin storage with occasional fly-tipping (9ft in Common 2021). The alley has now been transformed into a productive garden comprising multiple items including flowerpots, planters for fruit and vegetables, hanging plants on reused wooden pallets, garden furniture, up-cycled furniture, fairy lights, and artwork (Figures 5 and 6).

Multiple stimuli motivated the creation of Rainbow Alley including the desire for greater amenity space to enhance well-being, to address pervasive social isolation during the COVID-19 pandemic, and to acquaint neighbours with the aim of strengthening community bonds (COML1). Although the COVID-19 pandemic exposed these stimuli, it became clear that depletion of place attachment, chiefly affective attachment, has occurred vis-à-vis weak community bonds and underlying socio-economic trends in the local area, including processes of gentrification (RES1, COML1). For example, RES1 stated "*the local area has changed significantly from when I was growing up with young professionals moving in, high property turnover, and people not knowing their neighbours as well as they did in the past*." A key rationale for Rainbow Alley therefore was to enhance people-place relationships. Except for the opposition of one local resident whose rationale remains unknown, the greening of Rainbow Alley received little opposition (COML1).

Over time, an increasing number of residents have got involved in the project from a rudimentary, "*grim*" space (COML1), to an "*oasis of colour within a concrete-dominant area*" (COML1). ELEC1 stated that "*the COVID-19 lockdown definitely helped boost participation numbers*." A virtual and physical community network was established using social media, which facilitated wider engagement and enriched the existing community network using the "Nextdoor" app – a platform that connects people and organisations within a specified local vicinity (COML1). This, in conjunction with

Figure 5. An image of Rainbow Alley illustrating reused wooden pallets and planters.

Figure 6. An image of Rainbow Alley artwork.

various financial and non-financial resources provided by local elected representatives, charitable organisations, businesses, and the broader public, enabled Rainbow Alley to become established beyond its immediate locale. The greening of Rainbow Alley is a continuous process and requires ongoing maintenance which is dependent on the voluntary effort of neighbours and donations, reflecting the significance of emotional and affective bonds required to reinvigorate social networks, deepen place attachment and generate pro-social and pro-environmental behaviours.

Rainbow Alley is ungated and thus accessible; opening it up to new participants and potentially expanding its reach even further. However, this lack of security has also given rise to issues of vandalism, theft, and arson attacks (COML1). The strengthened people-place relationships resultant from the community networks and sense of pride, illustrative of the functional attachment to restore the space established with the growth of the project, meant that following the theft of several apple trees, the outpour of community financial and non-financial donations (e.g. paint, flower pots, etc.) has grown Rainbow Alley much further than where they were prior to the theft (ELEC1 & COML1). This ability to "bounce forward" is illustrative of a resilient community.

Rainbow Alley adopts a socially inclusive agenda seeking community involvement irrespective of their age, ability level, sexuality, or nationality. This ethos is reflected in Rainbow Alley's motto – "*A community that sows together, grows together*" (COML1). Rainbow Alley has therefore sought "*a trans generational approach for all ages and all abilities*" (COML1), through the provision of benches for volunteers, potting tables at variable heights to accommodate children and disabled individuals, and bespoke events for children, the elderly, and LGBT + residents including a bingo night, and a "Pride Party". Rainbow Alley has therefore sought to remove socially constructed barriers and embrace the diversity of all its residents. This inclusive approach to greening has shown "*great community spirit involving the local community and numerous local businesses*" (ELEC1) which has created

an environment conducive to strengthening people-place relationships by facilitating a greater sense of belonging and place for all residents. It is also illustrative of a repurposing of space to stimulate multiple interpretations of place and create new cognitive attachments.

Rainbow Alley has harvested the agency of the local community and empowered them to be intrepid in their greening to accommodate their needs, convey their identity, and restore place attachment, in an attempt to deepen people-place relationships. For instance, a resident originally from Poland returned from a visit home with seeds from a variety of strawberry plants commonly grown in their Polish hometown (COML1). Rainbow Alley provided the space for this strawberry variety to be grown and act as a mnemonic device to this resident, enabling their identity to be conveyed and engendering a greater sense of place. Rainbow Alley has facilitated greater interaction between neighbours and generated a collective sense of place, whilst also being welcoming to new residents, with RES2 stating: "*Having moved back from London, I have been made so welcome by the community*." Although alley greening can be a communal activity, it has also enabled residents to garden alone if they prefer, like one resident who is known as the "*phantom gardener*" by COML1.

The greening of Rainbow Alley has transformed a liminal space into a dynamic experiential space. In addition to the above mentioned, the experience has facilitated cross-generational learning of local history from long-term older residents (COML1). Moreover, Rainbow Alley has engaged with local primary school children who visited the alley, alongside community police officers, to learn skills about pro-environmental behaviours, such as gardening and environmental stewardship. It is hoped that these children will then translate these skills and knowledge to their local alleys, with the help of their parents, and enhance ownership of their local environment.

Ardmore-Rossmore Alley

Ardmore-Rossmore Alley is a gated alley in South Belfast that serves approximately 37 properties (Figure 7). Only the occupants of these properties have access to the alley. The alley gates were requested by residents following a spate of burglaries, frequent littering, and persistent dog fouling. They were installed in early 2020 by Belfast City Council. The security afforded by the alley gates, removal of obstructive wheelie bins, and clean-up of the alley paved the way for the

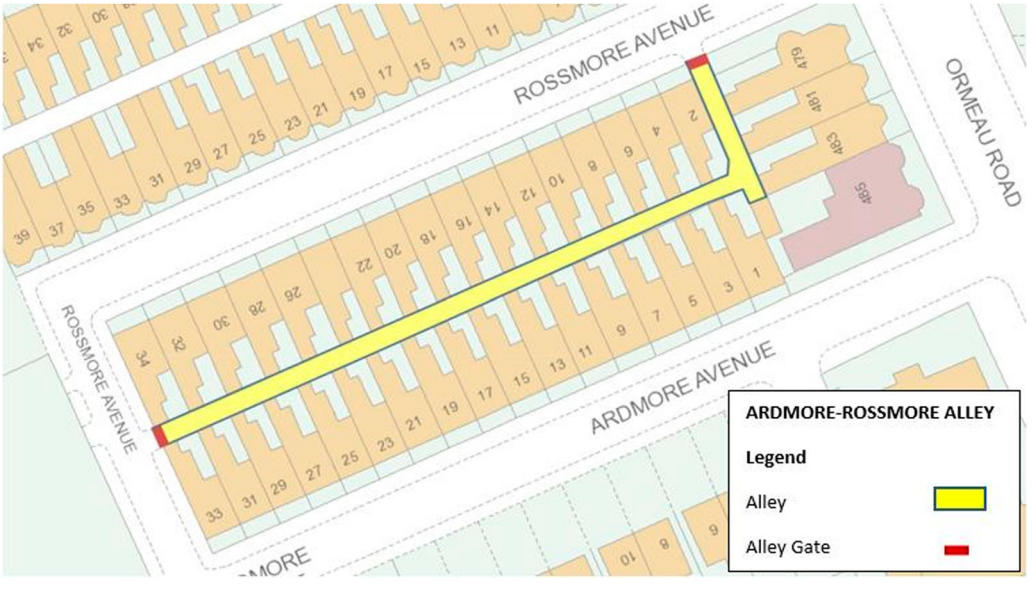

Figure 7. Location and extent of Ardmore-Rossmore Alley.

first audacious “alley greeners”. The Alley now includes planters, containing trees, vegetables and herbs, flowerpots, hanging baskets, fairy lights, garden furniture, ornaments, and wall murals (Figure 8).

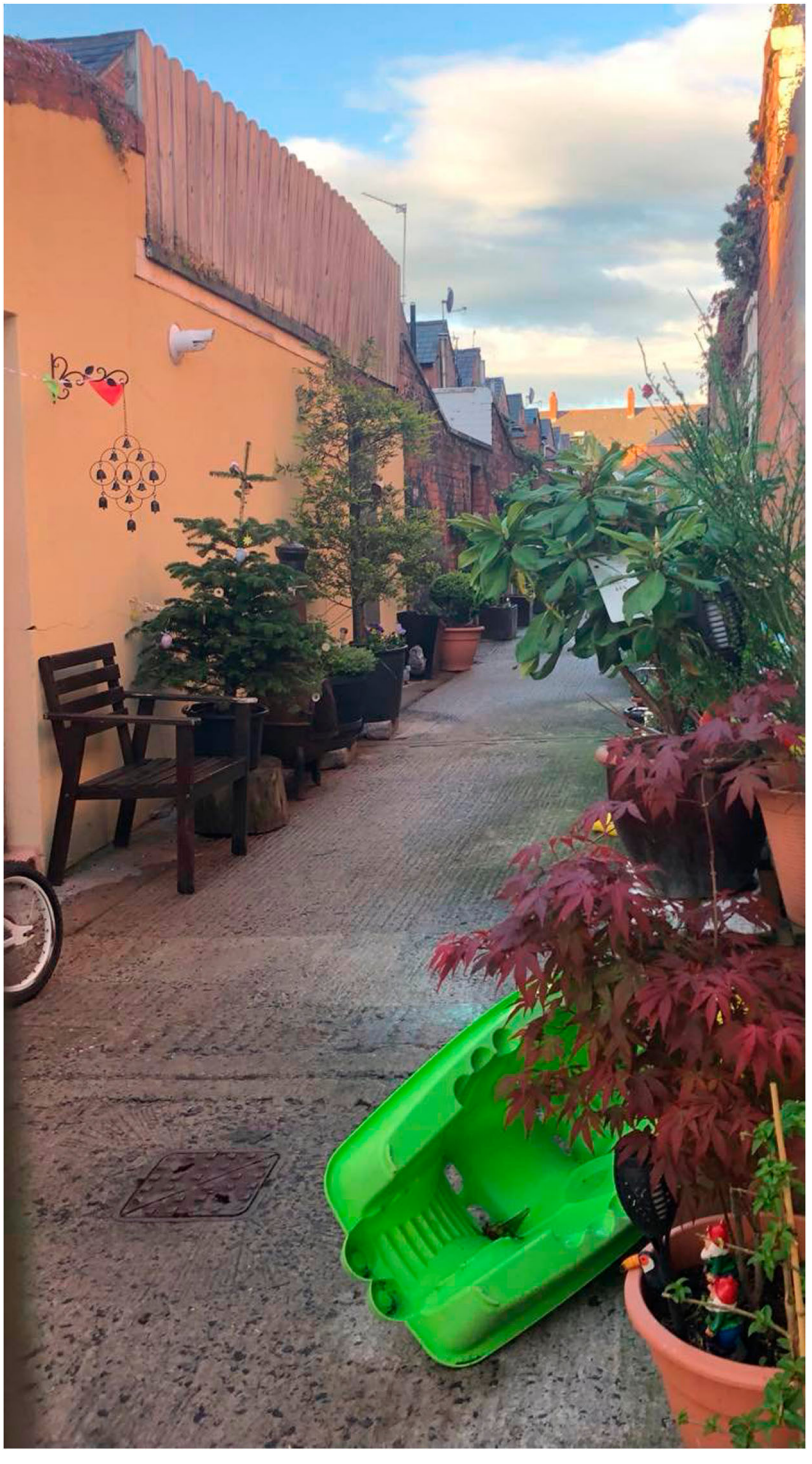

Figure 8. An image of Ardmore-Rossmore Alley.

The greening of the alley was funded wholly by residents who are perceived as broadly middle-class (ELEC1). Placing financial responsibilities exclusively on residents raises longevity and inclusivity concerns, in terms of on-going maintenance and the ability (real or perceived) of those on lower disposable incomes gaining a sense of ownership in the project. Without accessible publicly available funding and voluntary donations like at Rainbow Alley, alley greening risks perpetuating the exclusion of those less fortunate.

As the impacts of the COVID-19 pandemic, and its associated restrictions, manifested, and subsequently persisted, alley greening grew organically as more residents started to green small parts of the alley and install garden furniture. The greened alley subsequently became recognised as an "extra room in people's homes" (McGoran 2021) through the outside space it afforded residents during COVID-19 place confinement. This facilitated interaction among neighbours whilst adhering to social distancing rules, strengthened place-based relationships between residents and created "*a strong community spirit*" (ELEC1). Similar to Rainbow Alley, the Ardmore-Rossmore alley became an informal social space for community events to be held, including birthday parties, music performances, and dinners; building new cognitive appreciations of what was previously redundant urban space. Interviewees felt that residents living alone during the pandemic have benefited from the sense of community created by alley-greening (ELEC1; RES3). The alley is also conducive to solitary gardening which has proved mentally therapeutic (McGoran 2021), whilst also supporting learning between residents, some of whom are gardening novices. As the greening of the alley is organic and informal, the community was able to "*stamp their identity onto the alley*" (RES3). For instance, a bi-lingual mural (in English and Irish) has been created with the slogan "*under the shelter of each other people survive*". Moreover, gnomes and ornaments reflecting the identity of residents are evident instilling "*an immense sense of pride in the alley*" (RES3).

In Autumn 2020, fairy lights were installed to ensure the alley remained attractive and safe for residents to use. With no formal leadership, the informal relationships between neighbours and their initiative helped ensure the upkeep of the green alley and sustain the strong people-place relationships formed during the spring and summer of 2020 through the winter months, with approximately 70% of residents involved in June 2021 (McGoran 2021). However, the greening of the Ardmore-Rossmore alley was not without friction. ACT2 stated that, "*all the bins got relocated to one end to allow the alley to be greened but those people living near this [relocated bins] now lived in a messier part of the alley.*". It follows that people experience the benefits and challenges of projects differently, with "winners" and "losers" often emerging, which may cause local tensions and negatively affect people-place relationships. However, it was felt that these issues could be dealt with at the community level as the alley matures (ACT2). Indeed, Ardmore-Rossmore Alley has been internationally lauded for its success in bringing the community together including by former President of the United States, Bill Clinton. The alley was also featured in a popular gardening show on national television, further helping to legitimise it.

The case studies explored here illustrate the potential use of alleys as spaces for pro-social and pro-environmental actions to take root, and invigorate both existing and stimulate new attachments to place. However, these actions must be socially inclusive to avoid undermining community resilience through the degradation of individual people-place relationships.

Discussion

The findings from both the questionnaire and case study analysis have revealed an explicit link between green alleys and strengthened people-place relationships. The study has highlighted the importance of people-place relationships to initiate community-led projects that advance pro-social and pro-environmental behaviours. For example, at Ardmore-Rossmore, the project emerged out of community concern for enhanced security and a more sanitary environment. In comparison, the COVID-19 pandemic and associated restrictions largely fuelled the growth of Rainbow Alley. Nevertheless, in both cases, the desire to repurpose the alleyways for more than traditional

uses (e.g. bin storage) emerged out of concern for others (people) and for the quality and use of communal spaces (place).

The planning and production of green alleys can foster people-place relationships, and thus help build wider community resilience, in a variety of ways. In terms of enhancing functional attachment, and supporting Lewicka's (2011) thesis, the case study findings reveal that green alleys are being utilised for both formal and informal socialising opportunities among neighbours, and valued for engendering pro-social behaviours. Moreover, green alleys can have a "ripple-effect" with the formation of relationships between neighbours and the wider local community. It follows that green alleys can act as an epicentre for the formation, and subsequent extension, of social relationships which then transcend the physical boundaries of the alley and further contribute to people-place relationships.

The existence of green alleys had a particularly catalysing effect on people-place relationships during the pandemic. The COVID-19 pandemic, and associated restrictions, imposed place confinement measures, curtailing mobility and accessibility, particularly to social spaces. In this context, the rationale for alleys as locally accessible greenspaces emerged, as people "*did have access to the entries and alleys around their houses*" (DfI2). Green alleys therefore became perceived as a panacea to the lack of accessible greenspace, and a remedy to social isolation and unsanitary alley conditions also. Consequently, there was broad acceptance within the case studies regarding COVID-19's exposure of the necessity for greater alley greening: "*outdoor socialising* (in the green alley) … *has become particularly poignant during COVID*" (RES1).

In regard to affective attachment, "*a real sense of collective pride*" (ELEC1) in what residents had achieved was identified at Ardmore-Rossmore Alley, and the inclusive approach adopted at Rainbow Alley traverses the diversity of its residents thus enhancing feelings of belonging. ACT2 reflected on the emotional impact of "*being part of a collective effort … for people who may have been isolated … is profoundly healing*". Such findings, aligning with the survey responses, correspond with Weber and Schneider's (2021) conclusion that green alleys promote greater feelings of belonging and pride.

The cognitive attachment has been enhanced in the case study areas through attempts to capture and celebrate local distinctiveness and identity. The case studies revealed that alley greening utilises the agency of residents, individually and collectively, to personalise alleys to reflect individual and collective culture, history, and identity, creating "*cool little spaces*" (ACT1). The strawberry plants at Rainbow Alley and mural at Ardmore-Rossmore Alley are illustrative of this. This reflects existing literature which argues that the history, landscapes of an area, and the culture of its residents are intrinsic to people-place relationships (see for example, Amundsen 2012).

The above points to the need for and importance of people-place relationships during the lifetime of green alley projects, from their initiation to maturity. The link between green alleys, strong people-place relationships, and community resilience is not necessarily linear, however, and whilst the study has identified a number of enabling factors, several barriers were also identified.

The reliance on local actors and resources, coupled with a lack of support from state institutions, are critical barriers to the sustainability of community-led schemes. Many residents and communities "*are really keen to do something [in their alleys] but don't know where to get support and think they need alley gates, help, money and … are unable to do it themselves*" (ACT1). These barriers coalesce and manifest unevenly across space and time. The lack of financial support, in particular, disproportionately affects the poorest communities which typically proliferate in the inner-city (Sterrett, Hackett, and Hill 2012) where alleys are prevalent. Adaptive capacities within these communities may therefore be hindered thus exacerbating vulnerabilities across the urban system. The existing people-place relationships held within many communities therefore fail to be mobilised. In this regard, a role for "champions" is illuminated who can bring the importance of such projects to wider public and political attention. The launching of Rainbow Alley by the Lord Mayor and the inclusion of Ardmore-Rossmore alley in a national TV documentary represent two means of achieving authentication.

Fear of crime, anti-social behaviour, and sanitary concerns also emerged as key concerns from both the questionnaire and interview respondents. In this regard, it was not only a fear of future events, but also experience of previous issues which resulted in resistant to change:

> There was some anti-social behaviour about 15 years ago with kids drinking and they tried setting fire to their garage … so they had these stories from years ago that no other neighbours knew about. They were still real to this neighbour, and they were happy that there was lots of brambles and nettles … so no one wants to walk through. (ACT1)

This embedded memory acts as a mnemonic device contributing towards this person's relationship to their local place. In contrast, such negative events can also fuel community resilience by bringing people together. This was the case at Rainbow Alley where the burglary of several apple trees prompted widespread community support and resulted in the growth of the alley as opposed to its demise. The ability of Rainbow Alley to "bounce forward" to a more developed stage illustrates the strong people-place relationships formed both immediately adjacent to the alley and within the wider local community.

Potential adverse amenity impacts resultant from alley greening like noise from gathered residents, and the relocation of bins to a designated area, as in Ardmore-Rossmore, may also adversely impact a person's relationship to place (Tabernero et al. 2013) leading to opposition to alley greening projects. It follows that considerable time and effort are required to build community confidence and buy-in before such projects can be successfully introduced: reemphasising the temporal aspect of community resilience-building activities.

Many of the respondents cited a lack of alley gates as a barrier to implementing successful alley greening projects. On the one hand, alley gates can address several pervasive problems associated with alleys, including burglaries, delinquency, and anti-social behaviour, whilst also partly tackling dog-fouling and fly-tipping incidents. Alley gates can therefore engender a greater sense of security, and ownership. This is the case in Ardmore-Rossmore, where the installation of the alley gates was deemed necessary before the greening process could occur. On the other hand, alley gating effectively prohibits certain uses, restricts ease of movement, and excludes people outside the immediate adjacent area, thus hindering the extent to which the benefits of alley greening can be felt by the wider community. For example, as an ungated network of alleys, Rainbow Alley is capable of hosting community events and thus celebrating the culture and identity of the wider community, not just that of adjacent properties. This is regarded as a key strength of the project. It follows that alley gates are not necessarily a precursor to alley greening, and indeed may stifle community resilience in the long term.

As previously noted, being exposed to shocks and stresses can unveil one's previously unappreciated relationship to place (Anton and Lawrence 2014). The findings have highlighted that the COVID-19 pandemic has helped fuel an enhanced appreciation of one's local area. With the easing of infection-control measures (since September 2021), and new perspectives on the value of local spaces that stimulate pro-social and pro-environmental behaviours, an important consideration is how alley greening projects can be sustained into the future to ensure they do not retreat as vogue urban manifestations analogous with the pandemic. At Rainbow Alley, it was felt that "*the relationships formed will help sustain it into the future*," (COML1) suggesting embryonic community resilience building structures. Nevertheless, the return of many workers to their places of work as restrictions ease means the continued upkeep of green alleys is uncertain, and future longitudinal studies will be required to identify the sustainability of such projects. As a critical first step, this pioneering study of alley greening in Belfast offers insight into how such place-based, bottom-up initiatives can enrich and deepen people-place relationships that provide the foundation for propagating community resilience.

Conclusions

Green alleys are multi-functional spaces able to accommodate diverse uses as evident in the Belfast cases. The community resilience practices associated with alley greening were imbued in restorative and protective values that demonstrate the ability of a community to absorb and transform in the

face of change, and to avail of opportunities presented by such change. Such practices and behaviours illustrate more flexible and timely interventions, compared to the traditional state apparatuses of planning and regeneration. Green alleys offer micro-level place-making that produces meaningful spatial change and community resilience building. Arguably, other small-scale interventions, like parklets, can be considered vehicles for deepening people-place relationships. Critically, a lack of recognition and appreciation for alley greening within existing planning policy, as evidenced in Belfast, represents a missed opportunity to stimulate pro-social and pro-environmental behaviours required for community resilience building that prioritises adaptation as society grapples with navigating climate-resilient pathways and enhancing local wellbeing outcomes. Nevertheless, as the cases and commentary illustrate, even with a lack of specific planning policy or strategic leadership, local alley greening represents adaptation practices that can transform liminal, often neglected and transitional spaces, into experiential arenas for activating social networks, building cohesion, and a willingness to engage place enhancement and protective actions.

Although the empirical evidence suggests that alley greening enhances community resilience via strengthened people-place relationships, resilience is fluid and complex comprising multiple components, and is not well integrated into governance arrangements and logics. Nevertheless, fluidity and complexity are part of contemporary governance and planning practices. The opportunities presented by green alleys should also be better recognised by policymakers and incorporated within planning policies and local plan strategies as a vehicle for achieving multiple places and social wellbeing outcomes. In a way, alley greening can become a policy instrument to meet both institutional and community aims, rather than the disconnected dynamics that currently exist.

While this paper has addressed various research gaps – specifically on alley greening's contribution towards people-place relationships; and the lack of understanding of the relationship between alley greening projects and community resilience – to mainstream alley greening ubiquitous and localised barriers need to be addressed. While barriers to alley greening, e.g. fear of crime, anti-social behaviour in the alleys, lack of community support/capacity, and monetary resources, will likely continue to emerge elsewhere, and are legitimate concerns, the positive contribution towards community resilience building greatly outweigh for actively pursuing this practice. The creation of social arenas and place-based transformations associated with alley greening demonstrate the value of this bottom-up approach for removing socially constructed barriers, embracing socio-spatial diversity, and deepening people-place relationships that are crucial to how local places evolve in what is a very challenging and uncertain time, as society emerges from the recent pandemic while navigating climate adaptation.

Reconceptualising urban alleys as a spatial domain for innovation offers a way to energise local people towards a sensitive, place-based approach that is more relatable at the human scale. In many ways, the outworking of "place confinement" pandemic policies provided an impetus for local residents to reconsider their immediate environments, capitalise upon this unique opportunity, and experiment with alley greening initiatives that not only deepened place attachment but encourage more sustainable forms of living. Such experiences provide the context and ingredients for harnessing greater community resilience practices that more effectively deliver the promotion of place-based social and environmental wellbeing outcomes. In doing so, these experiences transform people-place relationships, augmenting the relationship with more pro-social and pro-environmental behaviours that are fundamental to community resilience.

Disclosure statement

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