UNIVERSITY OF LIVERPOOL | Heseltine Institute for Public Policy, Practice and Place

Situating climate change: Understanding the importance of climate, place and community

Project report

June 2022

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ABSTRACT

The paper considers walking as an inclusive method to engage local communities and to gather evidence and insight on the things that matter on environmental sustainability. We have made use of walking methodologies with local communities to explore understanding of climate change in neighbourhoods, including the local issues faced by residents, and to assist public sector officials to work with residents to inform future climate change communication and engagement policies. Specifically, we explore: i) community engagement with place as a means of better understanding the relationship between local weather in place and global climate change and ii) how local understanding might be used to inform planning around place-specific climate change communication and engagement.

1. INTRODUCTION TO CLIMATE, WEATHER AND PLACE

Despite long standing recognition that it is important to evaluate both scientific and cultural discourses of climate change (Nerlich et al. 2010:98. Hulme 2009; Moser 2010; Tuana, 2007), work still needs to be done to understand how individuals and communities comprehend and respond to climate change based on local values, cultures and understanding (Barnett 2010; Hulme 2008; O'Neill and Nicholson-Cole 2009). A key goal is to identify what is meaningful to different publics about climate and climate change and, as Livingstone (2012) highlights, we need to comprehend "the significance of understanding very particular temporal moments in very specific venues if we are to grasp how communities form their impressions of climatic realities" (Livingstone, 2012:91-92).

The most recent IPCC report, published in April 2022, has highlighted how a range of publics, communities and state and non-state actors are beginning to be more actively involved in addressing climate change (IPCC, 2022), but there remain challenges between global and local understanding of- and action on climate change. Discussion about climate change tends to be pitched at the global or planetary scale, which can obscure local experiences and constrain public engagement with this most vitally important subject. This challenge becomes especially problematic amid concerns that, as has happened in recent years, the public can become more sceptical and uncertain about climate change (Spence et al., 2012: 958; Smith and Leiserowitz, 2012; Capstick et al., 2014: 695) which can in turn result in less compulsion or will towards action and personal commitment with respect to climate change (Lejano et al., 2013).

To some extent this potential for disengagement is a function of two key parameters: a "legitimate uncertainty about the exact impacts of climate change" (Patt and Dessai, 2005, in Poortinga et al., 2011: 1021) and the fact that climate change is often perceived to be a "psychologically distant" issue both spatially and temporally (Spence et al., 2012: 957). To reduce this "distance" it has been argued that we need to make climate change "more real, local relevant and immediate" in order to engage and promote action (Spence et al., 20120: 957). Climate change, in short, needs to be situated (Brace and Geoghegan, 2010: 292), for as Simmons has noted, a "global perspective is indifferent to place and context, while the local perspective is deeply engaged" (Simmons, 2016: 25). Yet this type of downscaling of a global challenge demands a "new way of thinking about and understanding the hybrid phenomenon of climate change" (Hulme, 2008: 6).

Developing a new way of thinking about climate change

One of the key challenges with respect to public engagement with climate change is that climate change itself is not directly observable, but refers to average climate conditions over a long period of time (Spence et al., 2011: 46; Goebbert et al., 2012: 132). Weather, in contrast, is experienced directly and "in terms of everyday human experience, climate and long term climate change takes expression through specific local weather patterns" (Eliza de Vet, 2013: 198). A growing body of literature over the past three decades (e.g. Hulme 2009, 2013; Jankovic and Barboza 2009; Endfield 2011; Geoghegan and Leyshon 2012; de Vet 2013; Endfield and Veale, 2017) has made the case that the discourses of climate change need to be "reinvented" as "discourses about local weather and about the relationships between weather and local physical objects and cultural practices" (Hulme, 2008: 6) and that climate, and climate change need to be considered as relational phenomena, as situated and local (Brace and Geoghegan, 2010). As Spence et al (2011: 46) have noted, "highlighting links between local weather events and climate change is… likely to be a useful strategy for increasing concern and action" and may encourage more people to engage with the issue. In practical terms, this means thinking and talking about local weather in places that matter to people.

Indeed, "evidence has accumulated that people draw inferences about changes taking place in the broader climate from perceived changes in their own local weather patterns" (Goebbert et al., 2012: 132). The situated nature of climate experienced through local weather is also increasingly being recognised as fundamental to understanding how the public responds to, and adapts to future climate changes (Lorenzoni and Pidgeon, 2006). Adger et al (2013: 112) have noted, "place attachment is…emerging as an important factor for climate adaptation in regions where existing livelihoods are unlikely to be maintained as the impacts of climate change are increasingly manifest." Experience and memory of everyday weather in place, therefore, is thought to have an influence on popular understanding of both local and global climatic change.

Connectedness to place is also important to climate change attitudes and behaviours because it can engender place-protective intentions (Scannell and Gifford, 2013). After all, "by placing weather, we can better understand how particular groups of people in distinct places deal in unique ways with specific weather conditions and events both

indoor and outdoor" (Vannini and Austin, 2020: 142). Framing climate change in terms of perceptions and experiences of local weather and changes therein could not only result in greater emotional and cognitive engagement with future climate change, but could be central to the development of comprehensible and appropriate future climate change communication strategies (Howarth and Black, 2015). Moreover, in as much as local weather in place can be a way of engaging publics in climate change debates, there is a growing recognition of the importance of including local knowledge and observations of changes in the weather and its implications as a "place-based tool" to support and 'ground truth' or provide local evidence of the way in which climate change may be playing out (Reyes-Garcia et al., 2015).

For all these reasons, recent work has begun to focus on the relationship of place and weather and on establishing the importance of local, place-specific experiences and memories of weather in understanding people's perception of their local their climate and how it may be changing (de Vet 2013; Endfield and Naylor,2015; Leyshon and Geoghegan, 2012; Hall and Endfield, 2015; Endfield and Veale, 2017; Endfield, 2020).

This paper focuses on local community understandings of climate change as played out through perceptions of changes in local weather and how to use this understanding to inform place-specific future policy with respect to climate change engagement and communication. Capturing information about local experiences of weather and its cultural inscription demands "engagement with the public in new and different ways" (Lejano et al., 2013: 62). To address this challenge, we have marshalled a place-based, walking-based 'walkshop' interview approach, to encourage a rethinking or reimagining of places through the weather that shapes those places, but also to use walking through places that matter to people as a means of triggering thoughts, memories and ideas. Our objective has been to explore the relationship between climate, weather, and place and placemaking with a view to informing climate change risk communication though a local lens.

Weather places, lived in spaces: exploring the relationship between weather, place and memory

Local places become familiar through and over time through every day encounters. "This intertwining of the relationships between people and place is not only core to geographical enquiry but it also involves people reflecting on memories of place too" (Dengen, 2016, in Drozdzewki and Webster, 2021:7). Place-based belonging is often associated with the past and present experiences and memories and future ties connected to a place which grow with time (Fenster 2005: 243 in Drozdzewki and Webster, 2021: 5). Indeed, "as people pull past experiences into their present-day expressions of place attachment, time spent in neighbourhoods becomes much more than the actual number of years of residence there" (Preece, 2020: 6 and 7). Time spent in a place therefore takes on "emotive and reflective qualities because it is also imbued with experiences" (Casakin et al., 2021: 3; in Drozdzewski and Webster, 2021: 7).

As Vannini et al. (2012: 371) have argued, the weather, in particular, "has a special relationship with place. At its most elementary level the weather is itself a feature of place". Weather physically shapes the landscape, moulding, modifying, damaging and transforming the landscape directly. Weather also shapes landscapes indirectly via interventions, adaptations, and changes to the built environment to cope with unusual or damaging weather. Weather plays a central role in the way in which people, individually and collectively, define a sense of place and are rooted to a place. As both weather and place are dynamic, however, so too are weather places being constantly made and remade. Experiences of weather are reflexive and contribute to the idea of dwelling where dwelling means repeated encounters with places which that serve to build up memories, affection, and perhaps nostalgia for those places, "rendering those places deepened by time and qualified by memory" (Cloke and Jones, 2001: 651). We can then rethink weather as part of "an ensemble of memories tied to experiences that have unfolded within a place" (Vannini et al., 2012: 373). As we shall see, place and weather, particularly where that weather has been unusual or extreme, come to define memories in place.

Weather can thus contribute to the culture of a particular place, "providing affordances for the human engagement of place and with place" (Vannini et al., 2012: 264). Weather is, as a result, often part of everyday conversation about a place and is recounted. Weather talk, and weather writing, are ubiquitous, and there is a tremendous amount of information available through personal accounts and stories of past weather events, composite stories of events that become part of the shared memory and cultural tradition and help collectively build up a sense of place. Unusual weather events in particular can claim priority in people's memories, while at the same time providing "anchors for personal memory" (Hulme, 2008: 102). As we shall show, there is a tendency to "benchmark" particular events, such that they are associated with or define place or time. In other scenarios, however, weather places are made so through repeat events. The events help make place through a palimpsest of weather memories contributing to the making of place.

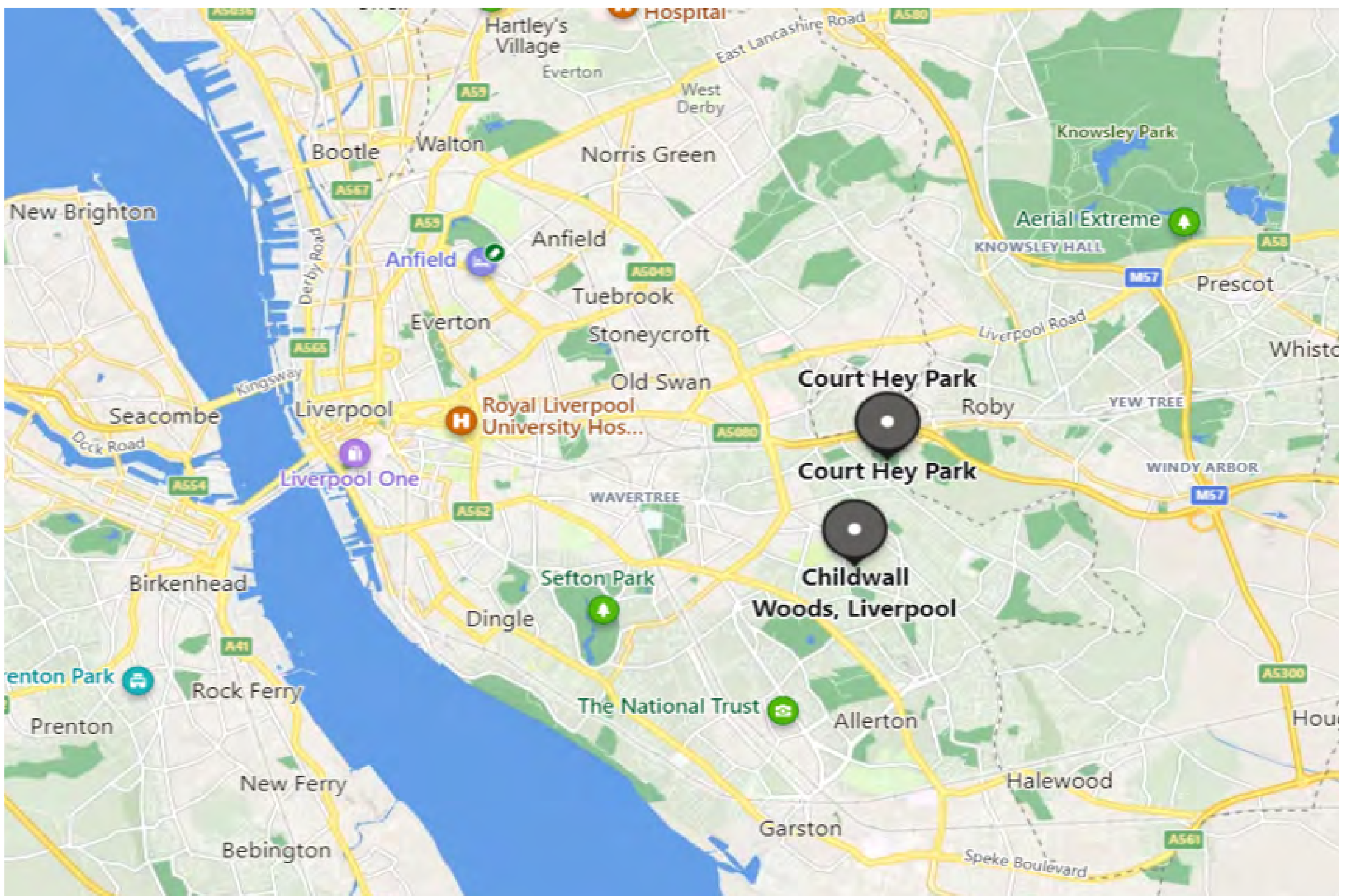
Exploring the links between local places, individual and collective, cultural memory should be seen as imperative if we are to better understand popular perspectives on climate change and to make use of this information in order to better engage the public in the climate change challenge. In our research, we have been tapping into weather memories in two case study places as a pilot. We wish to draw on local, placed-based weather knowledge in order to inform and shape more effective climate change risk communication and engagement strategies. Our premise is that "personal experience is thought to be a key driver of risk perceptions and the perceived

likelihood of a risk is found to increase if it has recently been experienced or can readily be imagined (Spence et al., 2011: 46).

Both our case studies are within Liverpool City Region, comprising the local authority areas of Halton, Knowsley, Liverpool, St Helens, Sefton and Wirral. Recent research by Liverpool City Region Combined Authority (LCRCA, 2022a) showed a high level of agreement among residents that climate change is real and that action is needed. However, around half of respondents did not feel they had the information they needed to make the necessary changes, and a similar number did not accept the urgency and severity of the situation. We have therefore sought to shed some light on the possible reasons for and solutions to this disparity, with a view to informing the development and communication of local climate policy, discussed later.

Figure 1

The two case study locations



Source: Google Maps

2. METHODS AND APPROACHES

Walking and walkshops

Practices that enable us to understand weather and place are often those associated with mobility (Vannini and Austin, 2020: 138). Our approach in this study has been to engage with representatives of local communities while walking through local places that matter to those communities. More specifically, we have held community-engaged 'weather walkshops' in two case study areas in the Liverpool City Region, where a walkshop "can be thought of as a workshop conducted through walking" (Wickson et al, 2015: 243).

There has been an expansion in the number of geographical studies which seek to explore more active sensory, self-reflective and embodied methodologies. This research has sought to bring mobility and interaction into the research process (Sheller and Urry, 2006), and particularly in terms of the investigation of everyday life practices and lifeworlds (Hein et al., 2008). There has, for example, been increasing interest in the role that walking plays in everyday lives (Solnit, 2001; Ingold, 2004) and there are various geographical accounts of walking as a means of exploring how landscape and subjectivity intersect and the relationships between place, landscape and identity (Wylie, 2006) and to investigate the role of walking in specific geographical practices including fieldwork and hill walking (Lorimer and Lund, 2003). Walking has long been recognised as a particularly intimate way to engage with landscape and as a means of offering privileged insights into both place and self (Solnit, 2001, cited in Evans and Jones 2011: 850). Walking is also increasingly being considered a strategy for developing innovative approaches to knowledge production and representation (Pink et al., 2010; Myers, 2010; Myers, 2011). Furthermore, as practice-based work, talking while walking can afford opportunities for creating and revealing a more nuanced, embodied, multi-sensory experience of place. Walking interviews have been demonstrated as a highly productive way of accessing a local community's connections to its surrounding environment (Evans and Jones 2011: 857). It has been argued that such an approach generates a richer set of responses because "interviewees are prompted by meanings and connections to the surrounding environment and are less likely to try and give the right answer", as well as offering the capacity to "access people's attitudes and knowledge about their surrounding environment" (Evans and Jones, 2011: 849-50). The walkshop method thus facilitates the sharing of views and reflections that are in effect "grounded in the lived experiences of participants" (Finlay et al., 2015: 98). Yet the role of walking and listening as a means of helping to improve public understanding and appreciation of past climate and weather and its cultural inscription remains to be explored.

Our proposal was to conduct weather walkshops with members of local communities. Our goal was to retain "the characteristic of gathering a group of people together to analyse and reflect upon a shared topic of concern", in this case local weather and its link to climate change, while ensuring that "the majority of the discussion takes place outdoors, as the group moves through a landscape" (Wickson et al, 2015: 243). The walkshops can be considered embodied experiences of data collection (van Zeeland: 2021). As a form of public engagement, this kind of approach can help to "make people's values and local histories count more" (Evans and Jones, 2011: 857) and our approach was intended to open up the senses to allow the re-calling of incidents, feelings and experiences that were constitutive of that individual's understanding of the life world" (Anderson, 2004: 258).

We ran two weather walkshops in two public green spaces – one a municipal park and one a woodland area in the Liverpool City Region. We outline the process of identification of these spaces below but both locations are and have been affected and moulded by weather over time and by recent extreme and unusual weather events, and both places represent valued local green places with rich cultural histories and appeal for a variety of local communities and visitors. While we recognise that there are multiple meanings of green space, and that those meanings are contested and are contingent upon local socio economic context (McNaughten and Urry, 1998), there is increasing emphasis on the role of parks and open spaces, areas of wetland and urban green space and networks, in reducing flood risk and the urban heat island effect. Such spaces play a key role in addressing the challenges of climate change (IPCC, 2022). Our focus was to use these spaces as conversational backdrops but also stimuli and triggers to enable us to tap into local weather knowledge while capturing the distinctive characteristics of the places through which we walked, in order "to spark new ideas to address problems in public space" more generally (van Zeeland et all., 2021:4)

Case studies and community engagement

Community engagement with local-scale communities of place is a valuable method for public policy makers to gather insights and local knowledge on complex policy challenges and potential solutions (Head, 2007; Eversole, 2011). Community participation can take various forms, and is

perhaps best illustrated by Arnstein's conceptualisation of the 'ladder' of citizen participation which ranges from tokenistic participation through to stronger forms of co-production, delegation and citizen control (Arnstein, 1969). Over the years, this spectrum of participatory forms has influenced both scholarly literature and practitioner based approaches to resolving social and environmental policy issues.

The utilisation of participatory processes is also dependent on the individual and organsiational capacity of specific communities to become involved (Head, 2007). The community sector is not homogenous and as such there exists a spectrum of individual and community level interest and capacity to engage which policy makers need to be aware of. For example, the upsurge of community empowerment that emerged during the Covid-19 pandemic as public services and community groups came together to support each other and communities with less voice is now at risk of slipping away as we return to 'business as usual' (Kaye and Morgan, 2021).

As discussed earlier our approach in this study has been to engage with representatives of local communities on issues of environmental sustainability while walking through local places that matter to that community. By adopting a community-based approach our intention was to gain access to the perspective and experience of marginalised communities as well as the mainstream to explore environmental policy issues. In support of this, the researchers identified a number of key stakeholders who helped to secure the involvement of diverse voices, including individuals from disadvantaged communities that may have been unavailable using more direct engagement methods.

In order to engage with our communities, we first established a steering committee, members of which would in turn act as local gatekeepers for our planned work with local communities. The steering committee comprised the three members of the research team plus representatives from the local authority and a community engagement specialist, dedicated to working with disadvantaged communities by providing access to the arts through his company ArtsGroupie CIC. This steering committee helped us to identify and make connections with local community groups and, importantly, the leads of those groups. Contact with community leads was then made via email with follow up Zoom meetings to discuss the overall 'weather walk' initiative. Working with these contacts, we co-identified potential areas and routes for the walkshops with a view to focusing those walkshops in specific places that were relevant to the goals of the research project and also linked to key communication liaison groups. In conjunction with the steering committee, the research team then coordinated community engagement workshops, recognising that time spent together with the community organisations could help build trust with those organisations and the communities they represent (Wickson et al., 2015: 246). Our two case studies were Court Hey Park and Childwall Woods and Fields (see Figure 1). Details of each site and the processes followed to engage with local communities are outlined below.

Figure 2

Drainage pipes under walkways in Court Hey Park

Court Hey Park

Court Hey Park is a 14-hectare public park in a suburban area about 7km east of Liverpool city centre. The park site borders Liverpool but is within the borough of Knowsley, part of the Liverpool City Region. Both Knowsley and Liverpool are in the five most deprived local authority areas in England by each of the summary measures in the English Indices of Deprivation (UK Government, 2019). While the neighbourhoods that form the immediate surrounds of the park are middle ranking on most indices, the wider area of Huyton contains neighbourhoods with high levels of deprivation.

Knowsley Council (2018) provides the following headline information in a profile of Huyton:

- It has a higher proportion of residents in the 50–59 age group, compared with England;
- It has a much lower proportion of Black and Minority Ethnic residents (2.4%), compared with England (14.6%);
- The majority of housing stock is semi-detached (44.2%) and terraced (35.4%);
- The majority of residents own their own homes (62.2%), either outright or with a mortgage;
- It has a much higher proportion of residents claiming Employment and Support Allowance (11.2%), compared with England (5.6%);
- It has higher prevalence of health conditions including COPD, hypertension, obesity, diabetes and depression, compared with England;
- GCSE achievement is lower, compared with England.

The park site has a rich cultural and social history. It was part of the Earl of Derby's estate before being acquired by the Gladstone family. It then became a base for animal feed company Bibby, and was used as a quarantine station in the Second World War (Knowsley Council, 2017). From 2001 to 2017, it was home to the National Wildflower Centre , and it remains the location for Merseyside BioBank, the Local Environmental Records Centre for North Merseyside (Merseyside BioBank, 2022). Plans are now in place for the renovation of the courtyard and surrounding buildings to provide facilities, including a café (One Knowsley, 2022).

The park still contains a number of specimen trees that formed part of the Gladstone collection, as well as a diversity of native species. Part of the park is a designated Local Wildlife Site, recognised for its importance to local biodiversity. Recent tree losses as a result of damaging storm events emerged as a key feature of discussions during our walkshop, while waterlogging of flood prone areas has led to the installation of drainage pipes under some of the pathways; see Figure 2.

In terms of recreational facilities. the park contains open space, mature trees, play areas, bowling-green and a cricket ground. A range of themed community walks takes place throughout the year, led by Knowsley Council park rangers, and there are a number of community groups associated with the park, including the Friends of Court Hey Park and Incredible Edible Knowsley, with whom we liaised on the development and publicity of the walkshop.

Incredible Edible Knowsley is part of a national network of community projects seeking to encourage people to come together to grow their own fruit and vegetables, eat more healthily, learn new skills and socialise, with the longer term aim of eradicating food poverty (Incredible Edible Network, 2022). Friends of Court Hey Park are a close community group of local residents whose aim is to promote, conserve and help develop the park (Friends of Court Hey Park, 2022). Also on site is the Men in Sheds group, coordinated by Age UK to support older men to get together, share and learn new skills (Age UK, 2021). The project team worked with these groups via a gatekeeper, John Maguire, whose community interest company ArtsGroupie has delivered several community arts projects in the area (ArtsGroupie, 2022).

The research team and John hosted an engagement event on 11 February 2022 at a Community Open Day in the park, coordinated by Incredible Edible Knowsley. The team had a stall at the event and were able to recruit a cross section of participants for the walkshop, which was scheduled for 11.00am on 11 March 2022. John was able to advise on the route of the walk, given his knowledge of the park and his experience designing and leading historical walking tours in Liverpool.

Childwall Woods and Fields

Childwall Woods and Fields is a 12-hectare Local Nature Reserve in a relatively affluent area of south Liverpool, about 6km from the city centre. While Liverpool is one of the most deprived local authority areas in England, the neighbourhood in which the nature reserve is situated is the least deprived in the city and is among the 10% least deprived in England (UK Government, 2019).

Liverpool City Council (2021) provides the following information in a profile of Childwall ward:

- It has a higher proportion of residents in the 65+ age group, compared with England;
- A large majority (83.7%) of residents are owner occupiers;
- Average house prices are around 60% higher, compared with Liverpool;
- Unemployed benefit claimants as a percentage of working age population is much lower (3.9%), compared with England (>8%);
- Life expectancy is higher, compared with England;
- GCSE achievement is higher, compared with England.

Like Court Hey Park, the nature reserve site has a rich cultural and social history. The woods were originally planted in the 1700s in the grounds of Childwall Hall, which had a long list of owners including the Earl of Derby and was demolished and rebuilt before being demolished again in 1949. A college was later built on the site and fenced off from Childwall Woods, which were opened to the public in 1966. Today, the college site is owned by television production company Lime Pictures and its former sports ground, Childwall Fields, has been planted with native deciduous trees (FCWF, 2021).

Childwall Woods and Fields are home to a wide range of flora and fauna, including veteran trees. They offer superb views on a clear day, looking out past the city and river to the Lancashire and Cheshire plains. They are owned by Liverpool City Council but are part of the Mersey Forest and managed in partnership with Lancashire Wildlife Trust, Liverpool City Council and Friends of Childwall Woods and Fields (hereafter, the Friends) (The Mersey Forest, 2022).

The Friends are a particularly proactive community-led group with a formal governance structure. They play an active role in the stewardship of the site, having secured funding from Liverpool City Council and Veolia Environmental Trust for improvements to pathways and they recently led on the development of a wetland habitat in the woodland area.

Following Zoom meetings with the Chair and Secretary, the research team met with 15 members of the Friends in a function room of the Childwall Abbey Hotel, which is just outside the nature reserve. The researchers presented the outline of the project and invited input to the design of the walkshop. The Friends shared some useful methodological considerations for the overall project and forwarded a proposed route for the walk, which took place on 18 March 2022 and was led by the Chair of the Friends.

Figure 5

Debriefing session after the Childwall walkshop

Figure 3

Briefing at the start of the Childwall walkshop

Figure 4

Getting the walk underway, Childwall Woods and Fields

The walks, briefings and interview process

Following the community engagement event and workshop and the identification of the routes for each walk, efforts were made to connect with the local community networks to encourage participation. The research team produced a poster which was circulated with the help of the steering committee in paper format and also via Twitter and the Facebook pages of Incredible Edible Knowsley and Friends of Childwall Woods and Fields. Principal investigator, Endfield, was also interviewed on BBC Radio Merseyside Drive Time show on 28th February, to promote both walks. The different recruitment strategies resulted in 24 participants for the Court Hey Park walk and 15 for the Childwall Woods and Fields walk.

The walks themselves were designed to cover a range of cultural, historical and environmental points of interest to stimulate conversation. Both walks lasted about an hour and covered around 2km and the routes were designed to allow for a range of mobilities. This scale and scope of the walks also allowed us to attend to the micro-geographies of the different places in which the interviews were held (Anderson, 2004), with the groups being able to focus on and discuss particular features in both places.

Participants were asked to congregate at particular, familiar points ahead of the start of each walk, where briefings were presented and project information sheets circulated. The researchers also used this briefing session to ask participants to read and consent to be interviewed and photographed on the walks. Each member of the team was equipped with simple sound recorder and a set of agreed themed questions. These questions focused on a range of interconnecting themes designed to elicit responses to people's understanding of and engagement with climate change through their experiences of weather in place and their local weather memories, but also offered an opportunity to discuss environmental and place-based issues more broadly. (Copies of information sheets, consent forms and questions can be found in Appendix A).

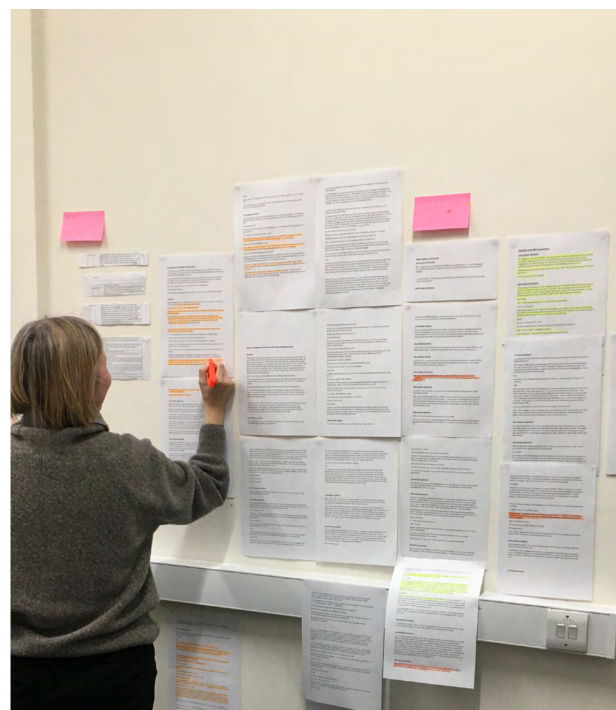
Our gatekeepers were also invited to assist with the interview process and we were fortunate to be joined, upon the suggestion of our steering committee, by two local Community Engagement Officers from the Liverpool City Region Combined Authority on each of our walks. By including local authority representatives on the walk and in the discussions, we were firmly "putting decision-makers' feet on the ground next to the citizens' feet" and working on the basis that "experiencing the environment in which the problems occur and discussing with people who have a diversity of perspectives on the issues…can spark ideas and new solutions" (van Zeeland, 2021: 3). Furthermore, the conversational, dialogue-based approach to our walkshops also meant that local, experiential knowledge could be collected in the hope of showing the potential of factoring this into decision making processes (van Zeeland, 2021: 3). To further develop this level of connectivity between community and decision makers, we ensured that the questions for the walk were co-designed with our steering committee and, in terms of follow up actions for the community groups involved, included a question specifically focused on the Community Environment Fund – the Liverpool City Region Combined Authority initiative which was launched shortly after the walks took place (LCR Community Environment Fund 2022 Final (researchfeedback.net) mentioned in Section 1.2.).

Each of the walks were conducted at the same time of day – 11am – and on a Friday. It is recognised that the timing of the walks may have led to the recruitment of a particular demographic – people who were able to join a walk on a weekday – but we were nevertheless able to recruit to each walk a diverse group of people in different age ranges, with different backgrounds. See Table 1 in Appendix B for details of participants.

At the close of each walk, all members of the research team were able to reflect further with participants in a short debriefing session over refreshments (see Figure 5). All recorded walkshop interviews were downloaded and transcribed ready for coding and analysis (for a sample transcript, see Appendix C). The coding was conducted as collaborative effort by the three researchers (see Figure 6).

Figure 6

Researcher coding walkshop transcripts



Weather memory postcards

In parallel to, and to complement the community engagement workshops and walkshops with a broader range of perspectives from beyond the immediate groups in question, we were keen to foster more geographically diverse community engagement through a weather memory postcard initiative. For this we developed an approach that built upon a previous weather-related study by Hall and Endfield (2015). The researchers designed a postcard which invited respondents to consider how weather affected their day to day activities, to consider any changes respondents may have noticed in the weather, and to record a situated memory of weather – that is to say to record a weather memory and reflect on the place where this memory was based. The terminology on the postcard was left deliberately open to allow respondents to express whatever subjective reflections, experiences and memories and experiences they wished to share, in whatever way they wished to share this.

Postcards were shared as part of the community engagement workshops to encourage community representatives to begin dialogue with the researchers ahead of the walkshops. Batches of blank postcards were left in the café at Incredible Edible Knowsley and with the Friends of Childwall Woods and Fields, and were also left in the key foci of the walkshops and in local cafes in Childwall. Members of the Friends also shared some postcards with members of other cognate groups, such as a local rambling group in South Liverpool. Based on suggestions made at the community engagement workshops, and capitalising on community-established and local authority links, batches of postcards were also left in other key green spaces, including the Palm House in Sefton Park, one of the city region's largest and most visited parks (Figure 7).

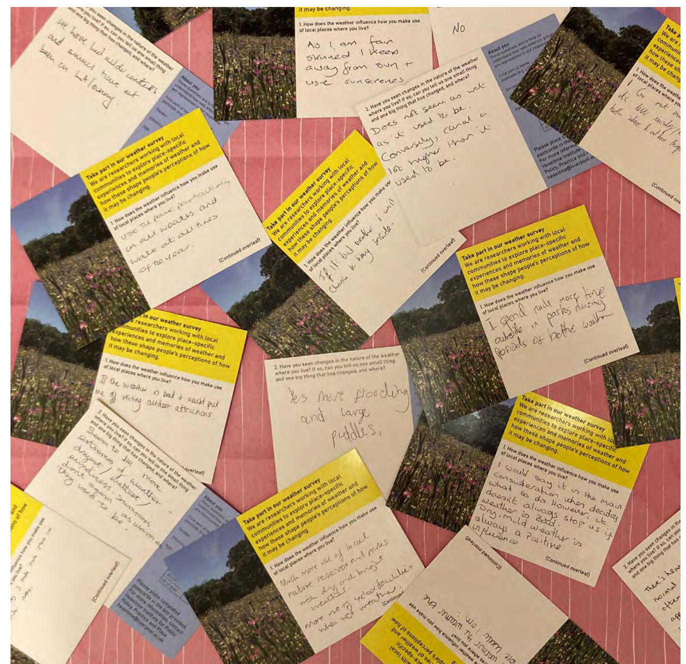
This approach with the postcards enabled the collection of information on weather and place from a more geographically dispersed constituency, including people visiting from different parts of the country or indeed overseas. Comments submitted via the postcards related to events that the respondents considered extreme, or simply weather and weather events which have assumed prominence in their memory for different reasons, not least because of a link to a particular place-specific context, life events, or experiences, not always associated with the place in which the memory was written or shared. To maximise response rates we produced informal post boxes at each site for returned, completed postcards, these being regularly checked over a period of four weeks. A total of 117 completed postcards were returned at the end of the period of field work (see Figure 8).

Figure 7

Weather Walks postcards and post box in Liverpool's Sefton Park Palm House

Figure 8

Selection of completed postcards



3. EMERGING THEMES

"I think people are waking up more to the fact that, you know, climate change does exist": place-based weather observations

Weather tends to be woven into human experiences and has also been inscribed into the social memory and the cultural fabric of communities through oral histories and everyday conversation (Strauss and Orlove, 2003: 6) and through *"memory, behaviour, text, and identity"* (Hulme, 2008: 7). These different mechanisms represent vital media through which information about weather events and long-term climate change is shared across generations. Our participants in both walkshops and our respondents through the postcard initiative shared nostalgic views on past weather and weather events, and on the ways in which weather had changed over their lifetime, including very many comments about observable seasonal changes over the long term. There were several common themes that emerged: a nostalgia for past weather, specifically snowy winters, for events that act as key benchmarks in people's life histories, often acting as an anchor to a particular point or place in their lives; the recurrence of extreme and unusual events, specifically storm events, which claim priority in people's memories and appear to be a key influence in shaping perspectives on climate change; and finally, observations around shifts in seasonal norms.

Nostalgia for weather of the past

One of the most frequently referred to perceived weather changes among our participants on the walks and the respondents in the postcard initiative was a trend towards warmer, less severe and less snowy winters. These recollections are frequently associated with childhood 'memory' from years and often decades gone by. For example, this participant in the Childwall walkshop confidently asserted that: *"Well, you could guarantee snow. You never see snow now"*, (CHP 10), while another noted that *"the environment's warming up and we're getting more rain or less snow, which is what we're saying, less cold winters"* (CWF 3–6). This nostalgia for snowy winters was in fact a common theme that emerged in multiple conversations, as this participant noted:

"I don't think we get snow as much. Years ago, I remember, it snowed every winter, or it seemed to. I don't know, the enjoyment of being a child playing in the snow and sledging on Camp Hill. But then, we don't seem to get those days as often now. In fact, we didn't have any snow this year" (CWF 3–6).

This participant's acknowledgment that *"it seemed to"* snow every year reveals a possible understanding that this may be a received memory, one that has become embedded as the truth though in reality may link to may be one or two snowy years experienced by this individual or indeed received wisdom as a result of a shared, collective memory. Respondents repeatedly referred, for example, to a number of recognised severe winters that affected the whole of the United Kingdom, including, notably, 1962/63, one of the most meteorologically severe winters in the United Kingdom during the twentieth century . This event is one recalled by a number of our postcard respondents: *"Winters usually involved some significant snowfalls 40/50 years ago. I can remember 12 inches of snow to play in when young: and the 1962/3 big freeze! Also we used to have a coal fire for 8 months of the year"* (Childwall, M, 65+).

The ideas that winters were colder, more severe and characterised by snow in the past, and that we no longer witness such weather, were frequently considered in terms of negative change, and even loss, by many of our respondents – *"We rarely see snow"* noted one female postcard compiler *"such a shame"* (Postcard, F, 65+) – though some of those people who shared such reminiscences will of course have been young children at the time – snow will have presented opportunities for play, which in turn will have coloured the positive perspectives. While this is to some extent to be expected, the detail provided by our participants enables us to gain insight into the locally specific implications of these events, and also reveals how people place their own personal memories within the framework of national narratives (Hall and Endfield, 2016).

Nostalgic recollections tend to be anchored in place. Our participants often recalled where they were and how that influenced their weather memory, as this female participant on the Childwall walk revealed:

"I remember the winter of 1963...I was twelve. It was three months of solid snow. I lived in the city centre, in a Georgian property. And it was like, one coal fire to heat the place. And burst pipes every winter with that. That was the winter of discontent...My mother used to ask me to go and get buckets of water from my friend's house. And by the time I got home with all the ice, you were skidding on all the ice. There was hardly anything left in the bucket, you know? (Laughter) You have to go back again. (Laughter) It was so cold" (CWF 3–6).

Heatwaves and drought events were also remembered. One woman in her late 50s noted: *"'76, where we had that glorious...which we all remember...It was scorching hot. And I don't think I've remembered a year as hot. Although, we've had the occasional, you know, heat waves"* (CWF 3–6), while a retired man who participated in the Childwall weather walk noted that:

"...if I really go back in time. I can remember the fog...Yeah, the smog, I remember it. My wife literally used to walk in front of the car and guide me with the car, and most of the cars then had a windscreen that we could wind and it opened up like that, so you could see more easily through the fog" (CWF 1).

Interestingly, this participant, like others, also recalled the snowy year of 1962/3 but faced particular challenges having recently returned home from Nigeria, highlighting the place based contrasts: *"Yeah. I worked at Nigeria for a couple of years and I came back basically into that winter which is '62, '63...Yeah, yeah. Oh, from one extreme to other for sure"* (CWF 1).

Extreme, storms and the recency effect

In as much there is a long term inscribed cultural memory of key benchmark events, weather memory also tends to be distorted with respect to more recent extreme weather events, according to what Harley (2003) refers to as the 'recency effect'. Indeed, as Eden (2008: 4) has suggested, with the exception of the most extreme or unusual events which provide, as noted above, key benchmarks in people's life stories, *"once a weather phenomenon has reached two years old it seems to fall out of the human memory bank"*. Our walkshop interviews took place just a couple of months after a series of particularly devastating storm events which affected large parts of the UK. Between November 2021 and February 2022, storms Arwen, Dudley, Eunice and Franklin all made landfall, causing considerable damage (see Figure 10) and it is these events that appear to claim primacy in the way in which, and the place in which, changes in weather are understood, not least because of the very visible place-based impacts these storms had in both areas.

Many people made statements such as this, from a participant on the Childwall walkshop: *"But the worst storm I've ever seen is the one happened just before Christmas....we had three in a row, didn't we?"* (CWF 1). A participant in the Court Hey workshop similarly felt that there was far more *"freak weather"* (CHP 9), a sentiment echoed in one of our postcards from Court Hey compiled in Feb 2022, which states *"the extremes of weather are much more extreme and quicker changing"* (Postcard, L7 F, 18-29), while others *"noticed an increasing wind power, we get more storms"* (CWF 1). In terms of the two green spaces that formed the setting for our walks, nearly all participants commented on tree damage and losses as a result of such extreme events, often with some anxiety. This member of the Friends, for example, noted that *"every time there's a storm now, because the woods is very precious to me as well, every time there's a storm I'm like, "I hope the veteran trees are okay"* (laughs)" (CWF 10) (see Figure 9).

The trees represent, for some, silent witnesses of changing seasons as well as extremes, as this participant observed in Childwall Woods, again reflecting on the recent storm events:

"The storms that we had in the last six months, it's become noticeable that the woods anywhere that you go are thin because so many of these ancient woodland trees have been damaged or come down. And that then changes the view, doesn't it? And particularly during the winter time with no leaves on the trees, you can see things that you didn't know were there. And then in the summer time, all the leaves come back and it hides whatever is behind it and you forget that, don't you?" (CWF 15).

In some cases, participants demonstrated a very detailed knowledge about the scale of tree loss and considered the damage caused to be indicative evidence of a "different type" of weather event:

"We had three storms recently that affected the site and we've had a total of 27 mature trees, beech trees, oak trees, et cetera, and what's interesting is that...we see the evidence of that by the complete root ball of the tree being up-ended and unearthed, and it's indicative of a different type of strong wind affecting the site" (CWF 12).

Participants considered these events to be local weather "signals" of broader climate changes (Goebbert et al., 2012: 132), with this understanding clearly being informed by place based experience. The same Childwall resident who noted the 'different' type of wind, also added: that:

"I've been a local resident for 24, 25 years, I've never known the amounts of tree damage as a barometer of wind and if wind is a [inaudible 00:01:36] barometer of increased air temperature as a result of global warming, I've never seen so much tree damage as I have of late with the amount of storms that we've been having" (CWF 12).

At Court Hey too, the guided walk involved discussion of the losses of two major trees to recent freak storms and lightning strikes, events which were clearly inscribed into the recent memory of those regular visitors to the Park. Links were drawn between such very localised and extreme storm events and broader climate change, and one participant at Childwall felt that more people were being convinced of the actuality of climate change as a result of an increased frequency and intensity of such events:

“I have actually, I’ve noticed more wind, much more wind. It’s not been as much snow lately, in the last few years I’ve noticed. But, yeah, there’s definitely changes and I think people are waking up more to the fact that, you know, climate change does exist” (CWF 10).

Similarly, postcard respondents commented on this raised awareness, but that this in turn was leading to greater levels of engagement and possible behaviour changes to address the challenge: *“I value nature, need exercise and weather extremes make me aware/willing to make whatever changes to address global warming”* (Postcard F, 30-64).

Research has suggested that local people do tend to evaluate global climate change mostly in terms of extreme weather events such as those storms over winter 2021/22 (Reyes-Garcia et al., 2015; Myers et al., 2013; Krosnick et al., 2006), rather than longer term climate trends (Howe et al., 2013). The evidence collected as part of this project, however, also suggests that such events may even be complicating public understanding of climate change for some members of the public at the local level (McMichael et al., 2006; Fischer and Knuttu, 2015). This elderly participant noted, for example, that *“a lot more trees have fallen down in the woods in general… Certainly a very large number of trees have gone down in the last two years or more”* (CWF 14), and the storm events were clearly at the forefront of this participant’s mind. Yet when asked about whether he had any concerns about climate change, he noted, *“I can't understand how it affects us very locally”* (CWF 14), while others couldn’t point to any specific evidence of changes in weather that could be a manifestation of broader climate changes: *“We have weather. Weather can be anything, it can be cold or raining, snow, whatever. Climate, obviously, is what matters. That’s what’s changing. That’s my analysis, anyway”* (CHP 7).

Such statements perhaps point to the potential for a psychological distancing of climate change from observable changes in weather per se and speak to the challenges of engaging the public in climate change discourses as *“the impacts are often perceived to be uncertain, in the distant future, and not personally relevant”* (Scannell and Gifford, 2013: 61). Local weather and global climate change are often perceived to occupy very different domains, to be distinctive, disconnected and separate phenomena, a tendency which makes it *“particularly difficult for communications or the public to link actual, local place based experiences with the more abstract notions or risk derived from climate science”* (Spence et al., 2011: 46). Nevertheless, it is clear that many of the people engaged in the weather walks do indicate some awareness of changing weather through their lifetime, to progressive change over time manifest in shifts in seasonal norms, and do equate some of the most recent storms, or more specifically the damage they caused, as indicative of a greater frequency and intensity of extreme events linked to climate change. Tapping into this awareness based on local, place-based observations could be key to developing more effective climate change risk communication strategies. Messaging, therefore, needs to demonstrate local impacts, capturing local materialisation of climate change, and in as much should highlight localised, personal relevance (Scannell and Gifford, 2013).

Place based observations of seasonal shifts

There is a growing understanding that people tend to be good *“natural observers of their local environment, which is situated in cultural and ecological contexts”* (Crona et al., 2013: 520). While specific memories are often linked to places, with particular locations featuring as framing devices for the weather memory, the places that formed the locations for the weather walkshops also provided a backdrop for – and also evidence of – more observable and situated changes over time. Many of our participants were regular visitors to Court Hey Park and Childwall Woods and Fields, taking daily walks or visiting frequently for recreational purposes, dog walking, or for community-based voluntary work, assisting in conservation, litter picking or maintenance efforts. Whatever the reason for the visit, repeated experiences in these green spaces seem to have afforded a unique insight and appreciation of the way in which these familiar places change over time, over years and with seasons. For some, these observations were linked to phenological changes, as this participant in the Court Hey Park walkshop revealed:

“…the flowers are coming up in autumn, and the trees – you know, like the leaves start dropping off the trees. But everything’s, like, started earlier. So our spring comes earlier. Autumn’s coming earlier, but autumn seems to be lasting longer than usual…we don’t seem to be having as long a winter as what we usually did” (CHP 17).

Observations of shifting seasons were also noted by this participant in Childwall – a function of his interest in plants and gardening:

“I mean, yeah, like I’m dead into plants. So, I noticed the season change in every year, and it’s like, so unpredictable now. It’s not just…obviously, it’s when stuff comes out, but that’s influenced by the weather. Like last year we had a dead hot April and rainy May, and it was like, that’s backwards. Like big, stark differences, I think, are getting more noticeable. I always used to feel like, if it’s hot in August, then that was it. Nowadays, it kind of…I don’t know, yeah it never really. Now the baseline’s odd, isn’t it? I mean, you have a rose-tinted view from when you were a kid, wouldn’t remember. But, I guess, maybe the last five, six years since I’ve started focusing on it more, it seems every year’s different” (CWF 8).

In this case, the observed unpredictability of seasons provided an indication of changing climatic conditions, a trend echoed in many of our postcard entries which suggest that *“seasons are changing”*(Postcard Runcorn/Widnes, F, 30-64); that autumns are now *“too wet for children to play in the*

garden even if it isn't actually raining" (Postcard, Childwall, 65+); that winters are warmer, *"flowering earlier or later than usual"* (Postcard, L16, F, 30-64) or *"flowers coming too early"*; and that the *"seasons seem to be blending – no definite difference as not as cold in winter – more blustery, high winds and heavier rain with flooding"* (Postcard, Liverpool, F, 65+). This *"blending"* of seasons was also noted by this female resident of Liverpool 15 who recorded on her postcard: *"I don't think we have seasons anymore, just weather, which I miss. Noticeable in the garden early flowering plants, daffodils in January"* (Postcard, Childwall, F, 65+).

Observations were not just linked to plant based phenological change but insect and animal behaviours too. Being a repeat visitor to Court Hey Park allowed this particular participant to take note of animal and avian behaviours which they noticed had changed in recent years:

"I notice all the animals and the insects and the trees and all the plants and everything like that coming out because I come and sit in here and everything like that, so yeah...So I have noticed a difference. Last year was different from the year before and I've noticed how the birds have acted different last year to the year before as well...But the birds were more loud last year, but like screeching. It was like there was something upsetting them last year as well. So yeah. And I also saw that" (CHP 17).

Postcard entries also reveal noticeable shifts in the presence and longevity of certain insects: *"White fly on the allotment stays alive throughout the year"* notes one woman from Liverpool on her postcard, adding that she had also noticed *"fewer bees – they warm up earlier, when there is less to eat"* (Postcard, Liverpool F 30-64). Another respondent shared that she had joined the RSPB's Big Garden Birdwatch and had noticed key changes she felt must be linked to climate changes: *"No sparrows in the city – only few numbers"* (Liverpool 18, F, 58).

While this study is very localised and only limited generalisations can or should be made based on limited empirical material, observations such as these are clearly based on engagement with familiar places over time and reveal subtle shifts noticeable as a result of those engagements. This kind of local knowledge, if scaled up via multiple similar studies, perhaps through citizen science based approaches, could represent an important form of ground truthing, or place-based perspective, on the way in which global scale changes in climate may be playing out at a very local level. Finding ways to incorporate such knowledge into communication and decision making processes, however, remains a key challenge.

Figure 9

Discussion at one of the veteran trees in Childwall Woods and Fields

Figure 10

Uprooted trees in Childwall Woods – damage caused by recent storm events

“This is like Narnia, isn’t it?”: green space, community and environmental knowing

Green spaces have long been recognised as providing important ecosystem and cultural services for urban residents (Dennis and James, 2016; Edwards et al., 2022). In line with recent Public Health England reports (see, for example, Improving Access to Greenspace: a New Review for 2020), the two case study sites that formed the focus of our work represent examples of natural capital – spaces of provision in terms of ecosystem services and key assets in terms of supporting the health and wellbeing for individuals and communities. As parks, woodlands and fields, they also afford opportunities for environmental and climate action and our research sought to gain a better understanding of the degree to which local people perceived their engagements with the green spaces in these ways. Information collected as part of the walkshops and through the postcard exercise revealed a number of key themes: engagement with and perceived benefits of green spaces for different purposes, considering their role as cultural and ecosystem assets and as providing localised and quite specific biotic evidence of climate change; and the health and wellbeing and therapeutic benefits of being in nature – something that has become more vital as a result of the last two years of the pandemic.

Green spaces and the particularities of weather awareness

Changes in local weather were certainly felt to influence the use of green space. Several interviewers and most of the respondents in the postcard exercise commented on the fact that they do change activities and behaviours according to the weather. Somewhat inevitably, fine weather encouraged greater use of green space for most of our respondents, though it was rain and wet weather rather than temperature that tended to influence the use of parks, woodlands and green spaces generally. This participant in the Childwall walkshop, however, notes how weather awareness per se did influence their decision to engage in particular activities:

“So, what we’re doing by being more weather aware, what we’re doing is we are changing our activity. So, I might say, do you want to meet for a walk to a friend or do you want to meet for a coffee and sit it out. And then you might look at the weather and you might go, “Oh, well, it's raining in the morning so let’s meet in the afternoon.” Or you might look and see, *“Oh, it's going to be sunny tomorrow so let’s do something.”* Even today, Brenda said, *“Oh, it's going to be a lovely day. Will you come? So, it's the thing. So, the weather influences our decision making, doesn’t it?.. We want to make decisions based on as much information as we can get, don't we?”* (CWF 15).

Our walkshop interviews clearly revealed recognition and understanding of the green spaces as key natural assets, but also pointed to a broader range of community benefits associated with access to – and engagement in the conservation and management of – those spaces. Participants on the Childwall walk, for example, pointed to the cultural and historical value of the woods and fields, with trees again featuring as key witnesses of change in places over time. This respondent, a member of the Friends, noted of Childwall Woods and Fields, for example, that:

“…it’s just an interesting place to walk round. And I think, everywhere you go, you know, you find things and there’s bits of things that, you know, that link up with the history of Childwall, it’s interesting. I think, it’s quite cool to think that some of these trees, planted hundreds of years ago, the odds are, some members of my family, some members of our family in the past were here, walked along, saw that tree in an earlier stage in its life” (CWF 9).

Woodlands in particular appear to be among the most valued natural assets within local green spaces, not least because of their key role in supporting wellbeing as well as their critical ecosystemic role, as this visitor to Childwall woods noted:

“Well, I value the woods in Woolton and the fields and Camp Hill that you use. I value being able to have woodland and fields on my doorstep which is so important for people’s mental health and wellbeing…" (CWF 10).

A number of our postcard respondents recognised the importance of key interventions in green spaces to address climate change. *“Plant more trees”*, one visitor to Sefton Park implores, ”the Woodland Trust offer trees to communities”. (Postcard, Childwall, F, 65+).

Engagements with the two green spaces that form the focus of this work, and again particularly with the woodlands, also seem to have fostered a greater awareness of the subtle signs of and risks associated with climate change. Micro features of the green spaces, features associated with the particularities of place, were pointed out by a number of participants while on the walks. One member of the Friends, for instance, noted local biotic indicators of climate change – something they could have only identified through familiarity with the woodlands:

“…what I understand from climate change is that these woods I've learned things that have made me say, “Oh, that’s climate change.” I've learned that the small leafed lime trees don't produce seed anymore because it's too warm for them. They’ve lost their habitat. And I found a very hairy caterpillar which turned out to be sycamore moth caterpillar. And they don't come this far north but they do now” (CWF 11).

Postcard entries from people visiting Childwall Woods commented with similar levels of particularity and specificity about the presence of particular species of plants, insect and animal life as indicators of climate change. One postcard submission, for example, commented on the presence of

“marsh orchids – now are around earlier...invertebrates not usually found here have been seen here...some rare tree beetles” (Postcard, Childwall, M, 65+). In Court Hey Park too, participants noted concerns over potential shifts in species composition in the parks associated with climate change. This 59-year-old participant from the Court Hey walkshop, a regular visit to the park and a member of the Men in Sheds community group, for example, noted his concerns over biodiversity and replacement of native by non-native species:

“Yeah. Well, I think the native plants will get pushed out and it means we got lots of problems with the...rhododendrons across the country...which is no good for our animals, and then we got that Chinese...Japanese knotweed, that’s it, yeah” (CHP 4).

This form of local ground truthing, that is to say local observations of potential biotic indicators of climate change, could render local communities as important allies in better understanding of climate change and its impacts (Reyes-Garcia et al., 2015).

Therapeutic landscapes: Nature, community and engaged local action

While many of our participants in the walkshops discussed green spaces as at once providing evidence of environmental and climate change, it was striking that most participants were much more attuned to the broader health and wellbeing benefits and opportunities afforded on an individual basis by being able to access such places. Indeed, although not always expressed in these terms, it was clear that there were multiple non-material, cultural ecosystem services that the green spaces provided for the local communities in terms of recreation, relaxation, inspiration and the general value that people placed on the experiences in and with nature (Edwards et al., 2022). While the weather played a key role in being outdoors, and *“seeing the sunshine brings a big smile to your face, you go, get out”* (CWF 15), something echoed in most of the postcards we received, just being outdoors in an otherwise urban environment was particularly valued, as this participant noted:

“Well, I just love the outdoors. I’m a person who has been, I was brought up by parents who have lived in Childwall all their lives and they're very outdoorsy people so we had caravans when we were children and just holiday is like priority for our family, you know, the outdoors, seeing views” (CWF 15).

The connection with nature was linked to seasonal opportunities too. *“Just walk around here now”*, noted one participant on the Childwall walkshop, *“where the blackberries are, I mean, that’s the reason in August, coming here, just to pick blackberries because you feel you’re in touch with Nature, and then making something with it at home. It’s lovely”* (CWF 3–6). There was also a very clear sense of the visceral opportunities and benefits that green spaces could provide for the health and wellbeing of the next generation, as this participant noted, with a degree of nostalgia perhaps that such experiences were no longer the norm: *“I want to go out. I want to get muddy. And I want to see the kids falling and have a laugh and a joke and you know jump in the muddy puddles like we’re walking past now you know. That’s what I want”* (CWF 15).

The sense of wellbeing by dint of being in nature and feeling closer to nature seems to be inter-mingled with the specificities of life’s backstories and contexts. Participants talked about the importance of *“the friendliness of the place... the opportunities to meet people and the diversity of the, of everything around you know”* (CWF 11). Below, we draw on two particular accounts that were shared with us which shed light on the potentially interlinked, multiple benefits associated with access to and engagements with our two green spaces. The first comes from one of the local residents volunteers in Childwall Woods. Her story begins with her being made redundant in 2016 when she began coming to the woods:

“I’m just saying this is medicine. Yeah. Because when I was feeling down after losing my job and my friend was saying, “Oh, yeah,” she was a GP, she said, *“you need to go on antidepressants”*, and I was like, *“no, I don’t, I was a drug rep, I don’t want to go on drugs, I know the side effects”*, I wasn’t going to go down that route, I came here, I didn’t need – I didn’t need any medication. I was having a bad time. And I think that’s the problem, some people resort to going to the doctors, get a quick fix , take a tablet, and that’s going to make it better. But actually, if you’ve got issues and problems, you’re reacting to it, once – you’ve got to work with that...Yeah. And this was just – it [the woods] helped me, that’s it” (CWF 3–6).

Her engagement with the woods ramped up when she joined a local litter picking group referred to as ‘Rubbish Friends’ and she felt the benefits of being part of a community while simultaneously contributing to the upkeep pf the woods: *“... to be honest with you”*, she noted, *“it’s therapeutic. You do actually get quite a lot of pleasure. The satisfaction of seeing – coming in here now and seeing there’s no litter...”* (CWF 3–6). This participant also expressed a very clear sense of belonging, identity and community cohesion that came from being part of this a group linked to the Childwall Woods and Fields, something she felt could benefit others like her. She continues:

“It’s a knock-on effect I think. One thing I’ve learned is it’s all about joining in, community, if you can get involved in environmental things that are going on, like litter pickers or, you know, if the local community park is doing something, like the wildlife centre, we’ve got volunteers there, we’ve got the volunteers here. If you can join in, you meet people. It’s social interaction. It’s healthy because you’re out...It’s so uplifting – and being in nature. And it’s just nice to be involved. And there’s a lot of people out there that are on their own and

lonely, and they could get involved. If they just make the effort. Or if it's advertised…"(CWF 3–6).

The coupled benefits of the sense of community facilitated through groups engaged with green space is echoed in our second example, a retired professional and carer who is a regular visitor to Childwall Woods and Fields. The woods, and engagements with a community interested in their preservation, have been key to her own wellbeing but also that of her children:

"My two girls…One of them has had some significant mental health problems. Mental health support is non-existent anywhere. But things like this help and being in a community helps…community matters. You don't maybe think it does, but…I think of the, you know, being discarded, feeling part of the community again is important. As a carer, it's important because it's given me a kick in the bum, to not be, just be in the house. Not just be focusing on those things, maybe to try and get out a little bit more, interact a little bit more" (CWF 9).

The woodlands offer at once a sense of identity, community and belonging and, in this case, support. Indeed, it is clear that there are multiple benefits for this particular individual that speaks to an escapism and sense of being in another world. She continues: *"Saying that, this is like Narnia, isn't it? You just sort of…it's not here. And then you walk through the gates, and it just like…it's like magic, isn't it?…It opens up in front of you. It makes you feel calmer…"* (CWF 9).

Arguably, over, over the past two years during the COVID pandemic, all the aforementioned benefits offered by parks, woodlands and green spaces, such as those that feature in this study, have gained a new-found importance, becoming vital for (at times restricted) daily exercise, relaxation, and reflection. Their importance has in some ways been re-evaluated. Covid 19 has meant an intense refocus on local places where we live (Drozdewski and Webster, 2021: 3), but it has also *"elevated the power of place in our consciousness, reminding us that we live in an emplaced existence"* (Devine-Wright, 2020: 2). This re-valuing is clear from another of our walkshop participants who noted:

"I've rediscovered this from lockdown. The first lockdown, when you couldn't go very far, and I live very close to Calderstones Park. So, I had to find the green areas because it was so busy in Calderstones. So, I found this again, the second time, and very impressed with all the efforts and work that's come into, kind of, controlling parts of it and planting month per month that's gone on" (CWF 3–6).

The attraction of the green spaces among those who participated in the walks, therefore, was myriad. While participants did draw some links between the green spaces, environmental benefits and specifically the importance of the provision of woodlands for both identifying and addressing climate change, by far the majority of participants spoke more about the emotional, mental and physical wellbeing that comes from being in the woods and parks, the sense of identity and belonging that come from being part of a community focused on the care of local green spaces and the social benefits that accrue as a result. These are therapeutic landscapes in as much as they offer opportunities for improving physical, mental and social wellbeing (Finlay et al., 2015).

In closing this section, it is important to highlight how engagement with the management and protection of the green spaces is helping to enhance their perceived value as complex assets. Such spaces can play a key role in promoting community identity *"when they offer opportunities to the residents to learn about, get involved in activities in and to improve their local landscape"* (Tzoulas and James, 2010: 122), while also improving people's place-specific environmental knowledge. Indeed, as the Chair of Friends of Childwall Woods and Fields noted, such spaces were not only *"absolutely fantastic"*, but added that truly understanding their value was key to reaping the benefits they offered: *"it's only when you understand the assets…you can start to really exploit the value of it; the social value, the ecological value, all those different things"* (CWF 2).

Talking the talk while walking the walk: climate change behaviours, responsibility and communication

As has already been noted in the previous sections, our participants in the workshops and also those who responded to the postcard initiative noted changes in seasons and extreme weather which could act as important indicators of climate change. That said, the participants and respondents themselves, do not always recognise these changes in this way, pointing to possible challenges around communication and awareness raising. This section considers how people on our walkshops and through the postcard initiative addressed questions of behaviours, responsibility and action to address climate change at a range of scales – individual, collective/community and local authority. The responses highlight the importance that participants placed on the need to improve the knowledge, education and awareness, and communication around climate change for the public but also for decision makers.

Individual action and local authority responsibility

Provision of weather information clearly influences individual behaviours, judging by the majority of our postcard entries, with fine weather inevitably encouraging more outdoor activities. Yet a small number of participants acknowledged that it was individual behaviours that may be influencing climate change. One participant in the Childwall walk, for instance, noted that *"it's [climate change] being accelerated by our behaviour"* (CWF 13). Nevertheless, there was a wide range of views in terms of questions of responsibility to

address climate change and the challenges it poses. For some of our participants, responsibility, and in fact blame, lay with an ineffective national government *"…in my opinion our government will talk the talk all day long but what that translates to in terms of real concrete actions I believe is debatable. It needs holding to account"* (CHP 7); but this respondent also noted that local authorities had a core role to play, as well as individuals, in holding them to account:

"Yeah, it is, certainly at local level. The ward that my wife and I live in, Swanside ward, Knowsley Borough Council, Liverpool City Region, in all of those structures, at least in word, they attempt to tackle climate change in whatever way, attempt to protect our environment. Trying to make sure that they are doing that, in the best possible way. I don't know what the best possible way is, but prompting them to make sure that they know, if that makes sense" (CHP 7).

For others, however, the challenge was one of scale, requiring real change at the macro scale, and by *"companies and organisations"* not individuals:

"Yeah, yeah, yeah. I think like…it, it's not up to the individual, but it's up to companies and organisations how they emit gas into the air. I think it's, it's, it's more prominent now than let's say a hundred years ago. Because the type of gases that we release are more damaging to the ozone layer" (CHP 9).

Reflecting perhaps an awareness, however, that *"climate change effects and susceptibilities to them will most likely be regionally and locally uneven"* (Walther et al., 2002 in Crona et al., 2013), one participant also noted the need for place-specific approaches, recognising the importance of context, local contingency and place specificity in the way in which climate change impacts play out. The respondent from Childwall, for example, noted that local authorities should:

"…do an assessment of the impacts on the various communities within the area, within Manchester, within Liverpool, within – we'd have to sort of have to do our own proper study of what they are and that would be obviously a time-based forecast as the…across a number of different scenarios, dependent on the degree of warming, depending on the degree of impact, and depending on the locality it'd be part, time-based forecast in terms of the geography and, I mean, across a number of different scenarios as to how [inaudible 00:03:36] and then plan for those potentialities" (CWF 12).

Interventions at the city scale, by local authorities, was considered to be limited for some of our more environmentally proactive participants, as this male member of the Friends noted:

"I mean, I guess, from like a smaller point of view, the way they manage their environment is pretty terrible. They mow through the summer, and we don't have a very resilient environment. You know? We don't have many wild spaces that would be resilient to any changes in the future. They have done stuff like the Urban Greenup on The Strand [near the waterfront in Liverpool city centre]…where they've planted lots of trees, which is supposed to cool down the city by, like, one degree. But It's all very minimal and manicured, it's all pretty much concrete with tiny tree pits, no plants around them, and things like that. I feel like it's all very token, a lot of the stuff they do… So, maybe, I guess the action on the…an action on some of the net zero stuff that they're trying to promote as an actual target. I don't know if anyone's anywhere near" (CWF 8).

Most of our participants were taking some form of local individual or collective action even if they didn't always recognise those actions as making much of a difference to the climate change challenge. This included recycling (CWF 3–6), *"having more paper bags and stuff instead of plastic, because plastic is horrible for the environment"* (CHP 8) or encouraging the use of public transport more, rather than their own cars (CWF 13). Interestingly, however, it was clear that, as noted above, there was something of a disconnect between individual action and the purpose of that individual action, particularly in terms of recycling activities. It was recognised, for example, that there needed to be clearer and more comprehensible advice from local authorities, local councils, particularly with respect to environmental actions that have been normalised, explaining the context and importance of those actions. This was illustrated very clearly by one of the participants in the Childwall walk who noted the following:

"…what can the local authorities do? I think it's probably not being, not ever being satisfied. So, I know that when you go to the tip, they say we are recycling 67% of our waste. They've always got targets, haven't they? I don't know what all those targets are. I don't know whether they meet their targets. I have to say I've not paid that much interest. But you know it's to never be satisfied, because the one thing that I've noticed is that Wirral give you a list of things that they recycle and the things that they don't. And so, I look at a yoghurt pot and I know Wirral don't recycle it. I look at a milk bottle and I know what I have to do. I have to wash it out and throw it away without the lid. There's very specific things that they ask of you. It doesn't appear to me that Liverpool have that so Mum is always, my Mum and Dad are in their eighties and they recycle. But half the time, Mum doesn't know whether or not to put in the recycling or not. She's very confused by it all" (CWF 15).

Clearly there is a need for greater clarity and context behind the actions we as responsible citizens take to explain the purpose of those actions and the collective difference they can make. This call for more effective communication, however, brings with it a challenge of its own. As this respondent at Childwall noted, communicating on environmental and climate change issues is far from straightforward:

"It is like super complex, and I guess, things like this, talking about it, it's hard to wrap your head around and people often don't have time to really grapple with those issues. So, like you got to have concise information…I guess it could be science-informed. I think that everything that the authority does should be science-led, information-led. But I don't know, I just feel like that…That goes for the…I guess, the government in general and that's the world, isn't it? It's not like, the position, they're political and money based. I think that's…I think actually the money-based stuff is the barrier to us making any real change in terms of climate, isn't it? Or short-term political aspirations… people aren't thinking that far ahead, are they? Unfortunately… Yeah. Probably people need to understand how like…people need to be really scared…" (CWF 8).

As this participant eloquently suggested, there are many challenges to engaging the public effectively with climate change based around complexity of the information, the fact that political and financial issues tend to take precedence over environmental action and that people are not relating to climate change as something that is affecting them locally. For people to take action, *"people need to be really scared"* suggests this participant, though literature suggests that using fearful representations of climate change may be counterproductive (O'neill and Nicholson-Cole, 2009). Nonetheless, making the threat more proximal and reducing the distance between global climate change and local experiences could be fundamental to better engagement; and evidence of on-the-ground changes to valued local places and the features of those places needs to be considered as part of climate change communication strategies.

Community proactivity and local environmental knowledge

The frustration reflected in some of these perspectives stands in marked contrast to the very high levels of proactivity and environmental knowledge that is demonstrated by the community groups with whom we engaged on this project. Many of the participants in the Childwall walkshop spoke of the important work being conducted in terms of tree and grass seed planting:

"…well, recently, we planted…we did some grass seed, with the idea of stabilising the ground and put some foxgloves in. And I've got lots of foxglove in my own garden. I'm going to bring some more and plant them…Well, the bees…bees love them. So, that…yeah. We got them" (CWF 13).

The Friends had also made significant investment in improvements to enhance biodiversity and the social and cultural benefits associated with the woods and fields, including the development of a new wetland, based on voluntary endeavour with a small amount of local authority investment, as the Chair of the Friends group noted:

"So, we've got a number of scrapes, and a number of what could be called ponds, technically it's not a pond because it hasn't got a water source…because they are – from an ecological perspective, having water on any site is great as it keeps [inaudible 00:06:12] invertebrates because it feeds the bats, it feeds the birds, it feeds everything else, it can start everything else…it increases biodiversity tenfold. Some of these are holding water and some of them aren't but this first one will have a wheelchair accessible dipping platform, have some fencing around, and that's designed for social interaction. And the idea is that people interact with the nearest ones to the path and the others are left alone for nature to do what nature does best, and from a risk perspective and a strategic perspective, that's the approach" (CWF 1).

A number of the representatives of the Friends, however, also highlighted that there needed to be more effective communication around environmental issues and an important aspect of this was the need to bring in expertise and know-how. For some this meant incorporating professional or expert knowledge into environmental interventions:

"Well, the whole of the planning system needs to be uprooted and changed and in my view, it should be a round table approach with experts in different fields of knowledge such as university professors who understand climate change, experts in archaeology, experts in architecture, all these things matter because our cultural heritage is being destroyed by a council who do not fully understand" (CWF 10).

Inclusion of scientific expertise may well be one solution to better local environmental management but it was also clear to the researchers on this project that the community groups with whom we engaged possessed an irreplaceable local environmental knowledge that has developed from being engaged directly in voluntary community work in parks, woods and fields, as this long-standing volunteer in the Friends group revealed during a discussion of recent damage to a tree:

"Do you know what, one that's just really, really worried me at the moment, a veteran tree, talking about that – in fact I think this is an ancient tree not just a veteran, it's actually one above that, it's an ancient tree. It's been recorded on the Woodland Trust website, and sadly, a couple of weeks ago, one of the main branches that was leaning slightly into the road broke off. It either broken off or it was taken down by the council, possibly because of it being quite dangerous and it's left now a big hollow in the tree and I'm worried now whether the rest of the trees are going to be taken down by the council.

"…I don't mean this as any disrespect to the council but they kind of don't know what they're doing sometimes…For years I've been campaigning to save trees and, you know, if the people making the decisions sit on a planning committee, then I'm sorry they need to be educated in these matters" (CWF 10).

Similar concerns were expressed through the postcard responses, with one female respondent based in Liverpool 25

noting that in terms of observed changes, in addition to her fears around tree loss and damage due to storms *"The big thing for me is LOSING VETERAN AND ANCIENT TREES DUE TO COUNCIL NEGLIGENCE AND BAD PLANNING DECISIONS"* (upper case as in original).

In terms of this final empirical section, therefore, several key themes emerge linked to education and communication. While a number of respondents acknowledged that they were changing behaviours on the basis of increased knowledge or awareness of changing weather, and most of our respondents were taking some form of local, individual action, there was a recognition that much more could be done by local authorities to raise awareness, share information about the importance of individual behaviours, and break down the barriers to engaging with climate change through more effective communication. Yet interaction with our environmental proactive community groups also reveals the need to ensure that local environmental know how, based on experience of living and working in green spaces and engaging in their stewardship, needs to be brought to bear more effectively in planning and management interventions and decisions.

4. DISCUSSION

The British Academy's 'Where we Live Now project' makes a case for place-based policy. Their report highlights how having a focus on place provides a mechanism for reconnecting people who may feel disconnected from those who make decisions and can lead to more sensitive policy making and better outcomes for individuals. Similarly, through collaborative place-based public engagement, this pilot project has gathered evidence and insight on the things that matter to local communities on climate change and environmental sustainability.

Exploring links between localised, place specific weather and individual and collective or community memory should be seen as imperative if we are to better understand popular perspectives on climate change and place and people-sensitive climate change engagement and communication strategies. The approach adopted in this study – conversations held whilst walking through a place coupled with the local postcard initiative – have enabled us to generate "a collage of collaborative knowledge" (Anderson, 2004: 254) to begin to understand and address this challenge. The walkshops were "purposefully more fluid and flexible than a standard workshop, with conversation encouraged to flow on, around and beyond the set topic of concern in an organic and dynamic manner" (Wickson et al, 2015: 243).

Talking whilst walking enabled the harnessing of place as an active trigger to prompt knowledge recollection and production, specifically with respect to weather memories and sharing of experiences even if those memories and experiences related to other, different places in some instances. The texture offered by being able to point to, discuss or relate a story about a feature of a particular place in situ, enabled far richer conversations than would be elicited through traditional face to face interview methods. Involving several interviewers on each walk also meant that multiple one-to-one conversations could be conducted in parallel, yielding a rich set of responses but with each set of responses being independent of others, minimising group think (see Figure 11). Adopting the same semi-structured approach to the walkshop interviews, using the same themes, however, also allowed a degree of consistency of approach while at once enabling the sharing of individual stories and responses.

The postcard initiative provided a means of engaging contributions from a more geographically diverse set of respondents in thinking through the interrelationships of weather and place and, in this initiative, provided information that could be used to support the walkshop outcomes. While it is recognised that the material emerging from the two walks and the postcards represents a small sample size, and one must be wary of over generalising on the basis of this relatively limited evidential base, several recurrent themes have emerged from the walks which are discussed below, illustrating how both local culture and local ecology matter a great deal in influencing the way in which people conceptualise and understand climate change (Crona et al., 2013: 520).

Figure 11

Hosting several conversations at the same time – multiple interviewers in action at Court Hey Park

Local weather versus global climate change

Gaining a better understanding of citizens' awareness of and attitudes towards climate change is thought to be central to more effective climate change risk communication strategies and increased public participation and action around climate change issues (Scannell and Gifford, 2013). Our weather walks were conducted to address these challenge.

Our walkshop conversations revealed that participants in this project were keen to discuss their own weather memories, particularly where those memories were related to weather during formative experiences, life events and/or extreme or unusual weather from the past. Particular episodes of extreme weather including the winter of 1962/3 and the summer heat and droughts of 1976, but also the fogs and smogs of the 1950s and the winter 'white outs' of 2009/10, represent key benchmarks in people's memories, often providing an anchoring device in people's life histories. There were a variety of stories and descriptions that were both vivid and personal but also shared or indeed vicarious in some instances.

Globally, and in Britain, increasing attention is being paid to associative extreme weather (Hulme, 2014) and the extent of change in the frequency, intensity and location of extreme weather events due to climate change (McMichael, 2003; Fischer and Knutti, 2015). Extreme events can have the greatest and most immediate socio-economic, ecological and health impacts of all climate changes (Kirch, Menne and Bertollini, 2005), but these are also the events that claim priority in people's memories in line with the recency effect (Harley, 1993). Perhaps not surprisingly, the succession of destructive wind and storm events which had affected the UK, and which had caused very visible damage to both case study areas, was a common feature of most of our conversations, with participants highlighting, and on occasion pointing out, the damage that these events had wrought. For some of our participants, based on our conversations, the damage was considered to be one of the clearest localised signals that global climate may be changing.

Many of the participants, however, also commented on observable seasonal shifts and phenological changes, often providing detailed evidence based on long-term experience. Nevertheless, it was also clear that there was a degree of uncertainty and a lack of clarity in drawing links between long-term, seasonal, extreme weather-related changes observed at the local level and any broader global shifts in climate. In effect, there is a rich store of local information and observations on the ground that demonstrates the way in which climate change may be playing out for local places and local citizens, yet these observations are not always directly associated by those citizens with broader scale global climate changes.

This raises important questions with respect to popular understanding of and engagement with climate change. While key climate change reports, such as the IPCC reports, afford critical insight into the global picture, questions relating to the local picture tend to be obscured. As Jasanoff (e.g. 2004) has demonstrated, the reception and interpretation of knowledge (and hence climate knowledge) is very much contingent upon context (and different spatial, cultural, political settings). Spatially contingent views of climate knowledge are vital in informing contemporary climate change debates (Pettenger, 2007). There is a need for "ensuring local meanings of climate retain their integrity and are more faithfully indexed to the physical dimensions of weather: "situating [climate change] within a relational context that may include the places people live, their histories, daily lives, cultures or values" (Slocum, 2004: 416 in Hulme, 2008). An understanding of experiential or vicarious knowledges and memories of local weather and seasonal shifts therein but also key weather events, and the disruption and damage such events may cause, could in fact be central to the development of more comprehensible and appropriate climate change risk communication strategies. Factoring local information into local messaging and framing climate change messages may improve receptiveness to the information (Scannell and Gifford, 2013: 76).

It should also be noted, however, that as the engagements with the green spaces in this project have demonstrated, there are often links between location, shared cultural values and sense of community identity. For the most effective communication, therefore, and for most effective traction, it may be that communication efforts should not only focus on and engage with local personal, individual experiences, but should think about engagements that are rooted in shared cultural values and beliefs, and are geared towards communities and their links to particular places and locations (Groulx et al., 2017: 49; Schweizer et al., 2013).

Green spaces, weather and wellbeing

There is a very significant body of academic and policy literature acknowledging the ecosystem and cultural services and purposes provided by green spaces (Millennium Ecosystem Assessment, 2005; Tzoulas et al., 2007). Both Court Hey Park and Childwall Woods and Fields can be considered urban green spaces, though located in predominantly residential areas, which are understood to have a particular value because of the multiple ecosystem and cultural services they provide (Edwards et al., 2022). Our participants in the walkshops and respondents in the postcard initiative offered a wide range of views in terms of the multiple and diverse benefits that accrued for them personally and/ or collectively. Conducting the walkshop conversations on site, however, helped to elicit on-the -ground experiences and narrative accounts, providing personal and collective texture to evidence these benefits.

Our conversations revealed many different motives for and benefits of engaging in the park and woodland. For most of our participants, there was a clear link between being in those green spaces and a sense of being connected in some way to the environment and nature. The provision of, access to these spaces yields multiple benefits with respect to quality of life (van den Berg et al., 2015; National Audit Office, 2006) can be considered therapeutic landscapes (Finlay et al., 2015). Trees in particular appear to be key features of the two local green spaces that provide a sense of wellbeing. Yet our conversations revealed the trees also seem to provide the clearest visible indication for many of our participants of extreme weather and shifts in seasonal norms. The damage and loss of trees linked to the most recent storms at the time of the walkshops was very clear in people's minds but also sparked a sense that *"climate change does exist"* (CWF 10) and that the damage was a result of a *"different type"* of weather event (CWF 12). Many of our participants, however, also pointed out potential biotic indicators of shifting seasonal norms, particular to the local green spaces.

As witnesses or observers of the way in which weather plays out in local green spaces, ordinary citizens could in this way provide a potentially vital component in identifying and addressing anticipated climate changes and problems, particularly in scenarios where local citizen knowledge can be used to augment the research of "professional experts". Local people as providers of local knowledge, including local knowledge of environmental and climate change, often "reflect a depth of experience that, due to place attachment and time continuity, makes them suitable to detect changes in climate over long periods of time" (Reyes-Garcia et al., 2015: 117). The walks enabled the sharing of a great deal of potential local evidence of the impacts of climate changes in situ. The scientific and political communities could increasingly incorporate such perspectives in their assessments of and communications about global environmental change generally (Kloprogge and Van der Sluijs, 2006).

As Edwards et al. (2022: 8) point out, however, "nature does not have to be the focal point of outdoor recreation to contribute to wellbeing" and to some extent, participants who took part in the walks at both Court Hey and Childwall revealed a keen awareness of a much wider range of benefits to be derived from engaging with these spaces. Members of the Friends, for example, considered Childwall Woods and Fields as distinctive historical, cultural and social as well as environmental 'assets' per se. The same is true of Court Hey Park too, where our guided walk not only considered the environmental dimensions of the green space but the rich social history associated with the space. A common theme that emerged on our walks, however, linked to other, additional, perhaps more intangible and non-material benefits linked to community. Indeed, many of our participants referred to the benefits to be derived from being part of a community organisation, engaging in a shared community endeavour, and the sense of cohesion, identity and wellbeing that resulted from these activities.

The green spaces which formed the focus of the current project, therefore, are very much cherished spaces from which people derive benefit in myriad ways. These places have arguably become even more important over the period of the pandemic. Indeed, Covid 19 has meant an intense refocus on home and the places where we live (Drozdzewski and Webster, 2021: 3) and "has elevated the power of place in our consciousness, reminding us that we live in an emplaced existence" (Devine-Wright, 2020: 2). Local green spaces, such as those considered in this study, have as a result of restrictions on travel been rediscovered and re-valued by many.

Linking some of the emerging themes back to place, it is worth positioning green spaces, and community engagement in these spaces, in the context of the Levelling Up agenda, and particularly in terms of the contribution they are making to the key goals of:

- restoring a sense of community, local pride and belonging, especially in those places where they have been lost;
- empowering local leaders and communities, especially in those places lacking local agency.

As detailed in the Levelling Up White Paper, "The UK Government plans to empower local leaders and communities to reimagine their urban green space and improve access for communities who lack it" (UK Government, 2022: 3). Groups like the Friends of Childwall Woods and Fields and Incredible Edibles Knowsley could be key groups in this context, providing vital connectivity to natural assets, local history and culture, while also affording a sense of identity and community,. Furthermore, there is potential for such community groups to be more embedded into local decision-making processes. Indeed, as Evans and Jones (2011: 857) have highlighted "decision-making, particularly in the public sphere, must take account of local histories and the preferences of local populations if it is to be fair and sustainable, linking the past to the future in a sensitive way". Indeed this has been acknowledged in recent English policy with 'sense of place' (however vaguely defined) being seen as a key component in creating sustainable communities and lifetime neighbourhoods". These groups could play a key role in effectively democratising stewardship and management of our green spaces, especially in a context where public participation in environmental stewardship and "collective management of urban green commons by urban residents has been posited as one social-ecological measure" which may be "key in the building of more resilient cities in light of the major challenges they face" (Dennis and James, 2016; 268), including the challenges of climate change. The UK's new £30million parks fund could play an important role in enabling and supporting such groups to continue to invest in and, moreover, have more of a stake in local green spaces, yielding a wide range of social, cultural economic and of course environmental benefits.

It is also important to situate our work in the local city region climate change agenda. In 2019, Liverpool City Region Combined Authority became the first in the country to declare a Climate Emergency, committing to become net zero carbon by 2040 (LCRCA, 2019). Having published its Year One Climate Action Plan (LCRCA, 2021) and following consultation with local residents, it has developed a Pathway to Net Zero setting out its strategic vision for meeting this goal. The Pathway highlights the role of local areas, stating that "neighbourhoods play a crucial role in achieving our net zero carbon future" and proposing actions around increasing green space and improving its management, restoring biodiversity, supporting local food growing and helping people to connect with natural environments (LCRCA, 2022b). In line with this, the Combined Authority has introduced a Community Environment Fund, a programme of small grants for high impact community environmental projects throughout the city region. The Fund supported 58 schemes in 2021, including composting, habitat restoration and climate education, and is running again in 2022 (LCRCA, 2022c). As with the Parks Fund, such schemes could be pivotal for proactive environmental community groups such as those engaged in this pilot study, heralding opportunities for more place specific approaches to tackling the challenges of climate change.

Meanwhile, the local authorities within the city region are developing their own climate policies and plans; however, these are not nested within those of the combined authority and may differ in their priorities and approaches. Our two case studies, for example, are within the adjacent local authority areas of Knowsley and Liverpool. In 2020, Knowsley Council published an action plan with the aim of achieving net zero carbon emissions from its estate and services by 2040 (Knowsley Council, 2020). However, progress in implementing the plan has been hampered by staff shortages, and the proposed additional plan for borough-wide actions is not yet available. Also in development is a Climate Emergency Engagement strategy, with the aim of supporting communities to be actively involved in reducing carbon emissions (Knowsley Council, 2021).

Liverpool City Council has recently approved an action plan for achieving its goal of becoming a net zero city in 2030. (Liverpool City Council, 2022). It sets out actions to reduce emissions in relation to buildings and heat, power supply, transport and waste, while recognising the concurrent need to improve the city's resilience to the expected impacts of climate change, such as flooding. Green infrastructure is treated as a cross-cutting theme, recognising its wide range of potential benefits and promoting creation and better use of assets from private gardens and street trees to regional initiatives such as the Mersey Forest. The plan focuses on actions that the Council can lead, but notes they cannot be achieved without city-wide engagement. Our approach in this pilot, though small scale, offers insight into the potential of a possible community engagement strategy that connects people and places, and specifically green spaces, in order to better understand the parameters of the climate change challenge at the local level.

5. RECOMMENDATIONS

Recommendations for communication about climate change

A1 Draw on understanding of what matters locally to bridge the gap between global messaging and local meaning, e.g. incorporating local weather experiences into climate change risk communication.

A2 Acknowledge and celebrate what individuals and communities are already doing to help tackle climate change, and provide clear advice and support for those who want to do more.

A3 Explain climate goals such as net zero, and communicate regularly and transparently about progress towards measurable short-term actions to meet the long-term ambition.

Recommendations for local policy making

B1 Ensure the full extent of green space benefits are considered, e.g. by using tools such as natural capital assessment.

B2 Provide opportunities to enable people to shape environmental policy by sharing their knowledge and experience of local places.

B3 Support people to experience and interact with local green spaces, e.g. by funding community environmental projects.

Recommendations for research and engagement

C1 Utilise walkshops as an effective way to engage people in the development of place-based policy and strategy, adapting them if necessary to encourage participation by specific groups.

C2 Identify and expand existing networks of community groups, which can act as platforms for the development of community- and place-based policy and strategy.

C3 Develop collaboration between local and regional policy makers and researchers studying place-based agendas to help ensure civic interventions remain relevant to local communities.

6. REFLECTIONS

The work conducted as part of this project was necessarily conducted as a pilot, with the weather walkshop methodology being tested out in just two local green spaces in Liverpool City Region. There is significant potential to expand the study and scale up the level of engagement in order to develop a more robust approach and to begin to expand the evidential base. The researchers have begun a dialogue with various stakeholders including members of the project's steering committee, in order to consider these next steps. There are a number of points to consider, however, in scaling up our work.

i. The researchers recognise this pilot study engaged a broad range of participants from different parts of the region, not just those from local communities in the vicinity of the parks and green spaces in question. While we adopted a wholly inclusive approach to recruiting to the walks, and there was a diversity of participation, the timing of the walks did encourage a particular bias in the demographic to those who were retired or who were not in work for other reasons We have as a result not been able to actively interrogate cross-cultural patterns in how people conceptualise and understand the situated nature of weather and its links to climate change. There was no BAME representation on the walks though participants did include those with other protected characteristics.

ii. Our work so far has not disentangled the way in which gender may influence how people perceive climate change risk though, based on other work in this arena (see for example, Savage, 1993; O'Connor et al., 1999; Agho et al., 2010), this could be a productive next step in our work. Future work should also focus on eliciting the views and thoughts of children and young people as the inheritors of valued green spaces and the generation that will really begin to feel the effects of climate change.

iii. The researchers conducted the postcard experiment as a supplementary activity to gain a broader set of views on the key questions being raised as part of the walkshops. The return of hundreds of postcards suggests this may be a useful methodology going forward, perhaps for a longitudinal, repeat study year on year. The inclusive nature of the postcard experiment also means that it can be used to elicit views from a much broader constituency.

iv. Serendipitous benefits emerged from the work. Members of our steering committee have begun to engage with each other on a range of initiatives and connections and links were also made between those people, including community connectors and engagement officers, with the local groups with whom we worked.

"Retracing our steps": feedback walkshops

A key goal of our community engaged, place-based work is feedback and sharing of our findings. We are thus proposing to run two feedback walks as part of follow up work. "Retracing our steps" will make use of a small underspend on the project to enable us to share our outcomes with our participants, including our steering group members, and to consider thoughts around potential future avenues of research and engagement. We anticipate coordinating these events for late May/early June. The research team will also produce a short one-page outline and outcomes poster for sharing at each case study site.

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