

# Engaging People with Carbon and Climate Change Using Landscape Scale Conservation and Biodiversity Monitoring

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## 1 Introduction

Mitigation and adaptation measures to meet the challenges of changing climate require the engagement now of decision-makers, developers, land users and the general public. Since anthropogenic climate change emerged into public discourse in the 1980s, scientists have been largely successful in their communications persuading publics and governments that human-driven climate change is a real phenomenon. However, we face real current challenges in communicating messages about the actions needed to mitigate climate change due to carbon emissions and to help society and the natural world adapt (Moser 2010). We must modify our behaviour and the economy to minimise future climate change and to mitigate for the changes we are already committed to.

Communicating messages for climate change action is a challenge because climate change and carbon are to a large extent seen as an abstract issue: particularly in the developed world, publics and policy makers struggle to see the detail beyond global carbon budgets and to identify that there are local analogues to rainforest deforestation and melting ice caps (Moser 2010). The irony of making progress in tackling global carbon budgets, with carbon accounting and offsetting, is that carbon is too often treated as a tradable commodity that the developed world can address through trading carbon credits and offsetting elsewhere (Moolna 2012). The global and abstract elements so well communicated for the climate change phenomenon make the very real

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local impacts and local action possible seem less apparent and difficult to communicate (Leal Filho 2009; Moser 2010). In the United Kingdom, despite the active lead taken by a few cities such as Manchester, climate adaptation has been largely top down with little overall take up by local government (Tompkins et al. 2010).

We need people to act locally and for policy makers to be working to tackle global climate change through action where they live. Communications is vital for winning public support for wider societal action (Ockwell et al. 2009). To make that happen we must persuade the general public, decision-makers and wider society that climate change is not just abstract figures for carbon emissions and those melting polar ice sheets—it is directly affecting local people and local wildlife everywhere.

Tackling climate change is intertwined closely with biodiversity conservation and the two issues dovetail in their need to be dealt with on a cross-sectoral basis and at a landscape scale. Climate change, landscape scale networks, and the need to facilitate the shifts in species and habitat distributions are amongst the main issues for UK biodiversity conservation, for agriculture, and for environmental management more widely (Gray et al. 2013; Howden et al. 2007). Land use is both a local issue and one with global consequences, moreover land use responds to pressures (and needs to be managed) on scales from local through landscape to global (Foley et al. 2005).

Conservation has made tremendous progress towards the mainstreaming and cross-sectoral working that climate change adaptation requires. In line with the Convention on Biodiversity's latest agreed position with an explicit link between biodiversity and ecosystem services (Kull et al. 2015), UK conservation strategy embodies a shift from a paradigm of individual habitat and species action plans to a focus on managing the environment as a whole (JNCC and Defra 2012). There is a lot in ecosystem-based and landscape scale approaches to conservation that is explicitly climate change relevant. These can be brought to bear in driving wider climate change adaptation, a policy field emerging in England over the last decade and converging with the better established policy field of environmental management (Massey and Huitema 2013).

Responsibility for biodiversity conservation delivery in the UK falls under statutory agencies and obligations are met through a network of stakeholders covering state bodies, private business and non-governmental organisations. Cross-sector working and partnerships join up consideration of biodiversity across agriculture, planning and development, ongoing land use, and explicit conservation management itself. Examples include Local Nature Partnerships and River Basin Management Plans, which came out of the Lawton Review (Lawton et al. 2010) and the UK government's subsequent Natural Environment White Paper (HM Government 2011).

Managing biodiversity has impacts for carbon budgets as has been readily communicated with REDD + (reduced emissions from deforestation and forest degradation) from rainforests to mangroves, and with a less high profile with temperate peatlands (Billet et al. 2010; Drew et al. 2013; Grand-Clement et al. 2013). Changing climate impacts biodiversity by changing environmental parameters of temperature, rainfall and more, with effects including altered biome characteristics and shifting distribution of species and habitats. Ecosystem-based adaptation approaches in conservation are about making ecosystems resilient but also provide opportunities for carbon sequestration (as reviewed by Munang et al. 2013).

## ***1.1 This Study***

Exploring examples of how climate change is communicated within conservation projects and partnerships identifies learning that can be reflected upon. There are opportunities within conservation for communicating climate change messages for the benefit of both climate change adaptation and biodiversity conservation itself.

The Lancashire Wildlife Trust is leading on two major landscape scale conservation projects that are effectively engaging a wide audience in the importance of ecosystem resilience to, and societal engagement with, climate change. The Carbon Landscape Project that The Lancashire Wildlife Trust is delivering in a cross-sectoral partnership explicitly ties together carbon and climate change with biodiversity conservation. In the north west of England extensive peatlands present a functional carbon environment and a potential carbon sink. The Lancashire Wildlife Trust's Biodiverse Society Project engages communities with local wildlife and the networks, landscapes, and cross-sectoral approaches that are fundamental to climate-sensitive development and ecosystem adaptation. Increasing public awareness of the local impacts of climate change on local wildlife and the need for ecosystem resilience gives us an important additional voice holding politicians, local government and developers to account for a climate-and wildlife-sensitive present and future.

This paper aims to raise awareness of the interconnectivity of climate change and biodiversity conservation and share the lessons learnt from communications and engagement with various settings and audiences to help inform future work elsewhere. The wider environmental and academic communities have expressed much interest in these projects and there has been active discussion of the challenges, future prospects and lessons that can be shared. The Lancashire Wildlife Trust welcomes future links with academic institutions and this paper highlights that formal assessment of partnership working and communications effectiveness would be very useful in improving this and other programmes in the future.

## **2 Analysis**

### ***2.1 Engaging Policy-Makers, Planners and Publics at the Lancashire Wildlife Trust***

The Lancashire Wildlife Trust is part of the Royal Society of Wildlife Trusts—bringing together 47 regional Trusts, 800,000 members, 40,000 volunteers, and 2000 staff across the UK. One of the Wildlife Trusts' core objectives is to engage with key actors in wider society and the general public to work together in partnerships. Engaging the public with their local environment, The Lancashire Wildlife Trust's impacts during 2016 include 50,000 volunteer hours from 1000

regular volunteers, 200 volunteers trained, 20,000 children engaged in schools and at events, and 40 teachers trained in environmental education.

Mainstreaming climate change adaptation and biodiversity conservation at a local level is seen with the local nature partnerships that bring together local government with other stakeholders and non-governmental organisations. Wildlife Trusts across the country are involved in these partnerships. The Greater Manchester local nature partnership, the Natural Capital Group, is chaired by The Lancashire Wildlife Trust, for example, and brings together the ten Greater Manchester councils, non-governmental organisations, universities, and business representatives. The Natural Capital Group reports directly into the Low Carbon Hub, a high level group within the Greater Manchester Combined Authority, showing how the city is aligning its approaches to the twin themes of climate change and biodiversity conservation.

The Wildlife Trusts, through the Living Landscapes and Living Seas programmes, have pioneered landscape scale approaches along with other third sector groups such as the Royal Society for the Protection of Birds (Clarke 2015). The government's Nature Improvement Areas (NIA) programme, which uses an ecosystem services framework to improve ecological connectivity, and the Heritage Lottery Fund's Landscape Partnership programme have supplemented the third sector push substantially (Adams et al. 2013, 2016; Clarke 2015; Fish et al. 2016).

These programmes are about cross-sectoral working and the substantial progress made in developing landscape scale partnerships for biodiversity conservation provides an appropriate existing framework that climate change mainstreaming can be hitched on to.

## ***2.2 The Carbon Landscape Project***

The Lancashire Wildlife Trust's Carbon Landscape Project is an example of the Living Landscapes approach and also encompasses both a Nature Improvement Area (the Great Manchester Wetlands NIA) and the Heritage Lottery Fund's Landscape Partnership framework (Carbon Landscape Partnership 2016). The Carbon Landscape is a landscape scale initiative with the ambition to make a step change in the restoration of an ancient landscape once devastated by industry. The heritage that this project focuses on is the natural and man-made heritage left behind after the closure of the Lancashire Coalfields and the decline of peat extraction. Engaging people with this tangible heritage of carbon offers a way to make the abstract ideas of globally rising CO<sub>2</sub> and climate change immediately relevant.

Nestled between the two cities of Manchester and Liverpool, the area is the only substantial gap in the coast to uplands Merseyside to Manchester urban belt and a vital corridor for the gradual south to north migration of species as the climate becomes warmer. It covers 107 km<sup>2</sup> within the areas of three local authorities (Salford, Wigan and Warrington). The Industrial Revolution left behind a physically scarred landscape. Historic conservation efforts have led to a somewhat

piecemeal recovery of scattered locations across the landscape and the areas of valuable biodiversity are fragmented. It is only by thinking of the landscape as a whole and on an integrated scale that we can ensure key ecological corridors and stepping stones are created in the right places. In terms of biodiversity, we need to ensure climate change resilience for species to be able to move northward through the only area where this would be possible across the Mersey belt development. This way our landscape can help ensure the impacts of climate change are mitigated.

Why ‘The Carbon Landscape’? The key unifying and distinctive feature of this landscape is that it is based on carbon. Carbon is contained in the area’s mosslands (a local term for these distinctive peat-dominated wetlands) and woodlands and their coal and peat. The importance of carbon in the landscape goes back millions of years to when the coal measures were formed.

This Carbon Landscape, in the very area that fuelled the Industrial Revolution in Manchester and Liverpool, therefore has a powerful story to tell: how fossil carbon fuelled human-driven climate change; how industrial ravages disrupted local landscapes and wildlife; how conservation and climate change mitigation align; and how we need communities and government to work together to build a sustainable future. Communicating this story and understanding carbon in context will shape the buy in of stakeholders and our combined approach to a more sustainable future.

Within this project, The Lancashire Wildlife Trust is using two parallel and complementary approaches to achieve a large size functional ecosystem and climate-resilient landscape whose management is effectively integrated into development planning and local communities’ sense of identity (Aim 1 of the Carbon Landscape Project; see Table 1).

The first approach has been establishing the partnership itself. The funding criteria for the Landscape Partnership programme of the Heritage Lottery Fund have ensured that the Carbon Landscape Project has been explicitly about building cross-sectoral working to reconcile multiple objectives for conservation, agriculture, development and other land uses. Establishing this framework means that institutional and governance concerns, typically the most serious impediments to effective landscape-scale partnerships (Sayer et al. 2013), are addressed from the start. Progress in partner and political engagement has been made through a programme of stakeholder meetings, engagement with the planning system and site visits by senior politicians (Table 2). Over 5 years the partnership will have become firmly established, with partners confident in each other’s abilities, and looking for ways in which they can work jointly on particular schemes. Partners are committed to maintaining landscape improvements and will carry on working together beyond the project to improve the landscape further. Development will continue to threaten but each organisation will be in a stronger position as a partnership to secure compensation funding and to work with developers to incorporate sensitive land management practices into any future developments.

The second approach has been the bottom up engagement of local communities under Aims 2 and 3 of the Carbon Landscape Project (Table 1), again a key aspect of the Landscape Partnership programme (Clarke 2015). The Lancashire Wildlife

**Table 1** Carbon Landscape Project aims and objectives

Aims	Objectives
<p>Aim 1: To restore a derelict landscape, ensuring connectivity and resilience in an area under extreme threats</p>	<ul style="list-style-type: none"> <li>• To improve 5 flagship sites and create 120 ha of high quality priority habitats</li> <li>• To work in partnership with all landowners and managers to improve a further 380 ha of high quality natural habitats</li> <li>• To enhance connectivity with a focus on watercourses and reducing diffuse pollution</li> <li>• To establish ecological baselines to inform decisions leading to the protection of the natural heritage</li> </ul>
<p>Aim 2: To reconnect people with their landscape through improved access, and increased learning and volunteering opportunities</p>	<ul style="list-style-type: none"> <li>• To improve 3 Carbon Landscape gateway sites and improve and promote 20 km of access routes with a focus on the formation of a Carbon Trail and various loops, with signposting, way marking and interpretation</li> <li>• To improve interpretation of the landscape with new facilities at Wigan Flashes and a digital landscape created online</li> <li>• To deliver an events and education programmes that build on Roundview themes that will inspire 2500 adults and 1200 children about their Carbon Landscape</li> <li>• To provide a Volunteer Hub coordinating 500 high quality opportunities and 20 Landscape Champions</li> <li>• Tasks such as monitoring key species will have teams of volunteers and Local Naturalist Groups fully equipped to continue this essential work</li> <li>• Pilot activity will have trialled methodology that we can build on in future years</li> </ul>
<p>Aim 3: To instil pride and engender community ownership in our Carbon Landscape, upskilling local people, groups and beneficiaries to become custodians of our future</p>	<ul style="list-style-type: none"> <li>• To engage communities and groups in the Carbon Landscape through 20 projects involving 6000 local people</li> <li>• To deliver a training programme for 200 people per year, giving at least 50 members the confidence to continue activities long term</li> <li>• To employ 9 Landscape Trainees who will help deliver our landscape vision, engaging local people in activity and supporting key local organisations, groups and businesses</li> <li>• To deliver 4 cultural heritage programmes that will involve 500 people and 10 community groups</li> </ul>

Trust, for example, worked closely with partners at the University of Manchester to use a specialist hands-on toolkit for participant-led workshops that let communities take ownership of their landscape through scaffolded learning about climate change and local ecosystems (the RoundView approach; [www.roundview.org](http://www.roundview.org); Tippet and Connelly 2011). Along with further activities under the Sense of Place and volunteer engagement themes (Table 2), this has informed planning for the second phase delivery of community-focused infrastructure and a 5 year programme of community engagement (Countryside 2015). Infrastructure such as over 20 km of accessible paths includes health walks, a Carbon Trail heritage and education route, a specialised visitor and information centre at The Lancashire Wildlife Trust's Wigan Flashes nature reserve, and three high profile gateway sites. Community engagement is planned to meet the received demand for training (both to get people into work and for volunteers), for conservation and other projects involving local people, and to build a substantial volunteer movement for local ownership of the landscape.

### ***2.3 The Biodiverse Society Project***

The Lancashire Wildlife Trust's Biodiverse Society Project is an example of what can be achieved by engaging people in wildlife recording across the counties of Lancashire and North Merseyside and sensitising them to the impacts of climate change, raising awareness of the changes in wildlife such as shifting ranges and earlier Spring blooms. Bolstering the spread and skills of the biological recording community will ensure we have the best possible data available to planners and politicians for effective evidence-based management of landscape scale biodiversity.

Local Wildlife Sites (LWSs) are by far the most numerous and comprehensively distributed of designated conservation sites, with 1216 LWSs in Lancashire and 286 LWSs in North Merseyside. They are known by various names across the United Kingdom and based on local selection criteria operated and managed often at a county level. For example, whilst termed Local Wildlife Sites (LWSs) in Merseyside, they are known as Sites of Biological Importance (SBIs) in Greater Manchester and Biological Heritage Sites (BHS) in Lancashire. The landscape scale networks of these sites play a fundamental role for climate change resilience and the long term survival of wildlife by acting as buffers, stepping stones and corridors between statutory designated areas like Sites of Special Scientific Interest (SSSIs).

Importantly, Local Wildlife Sites are non-statutory designated conservation sites, meaning that they have no legal protection and are reliant on the goodwill of the landowner to manage the site appropriately to protect their high biodiversity value. At heart, the LWS system draws attention to those sites that are considered to have significant biodiversity value. It can be used in different applications to achieve the protection, conservation and enhancement of the natural environment. Their main purpose is to flag to local authorities and planners that they need special attention paid in land use planning and in the event of any development proposals. However,

**Table 2** Engagement themes for the Carbon Landscape Project and progress made

Themes	Progress
Sense of Place and community engagement	<ul style="list-style-type: none"> <li>• Conducted 5 community workshops to help understand public perceptions of the landscape, producing a report with recommendations</li> <li>• Liaised with the local community and groups to develop ideas in more detail, resulting in an Activity Plan for the Sense of Place theme</li> <li>• RoundView workshops have been used to formulate themes that will inspire and motivate people to get actively involved, change perceptions and change their lifestyles through events, the education programme and interpretation along the Carbon Trail</li> <li>• This has allowed the heritage of the Carbon Landscape Way and each of its three character areas to be reinterpreted in a locally meaningful way</li> <li>• Time was allocated for groups to develop funding applications over an extended period within the development phase, some of which have been successful and are now ready to implement</li> <li>• Community engagement has largely focussed on those groups already keen to be involved: a key challenge is widening the audience and engaging other groups that have limited landscape scale links or awareness</li> </ul>
Volunteer engagement	<ul style="list-style-type: none"> <li>• Reviewed previous community and volunteer engagement activity identifying what has worked and what has not gone so well</li> <li>• Research for the Outdoor Champions looked at how we can make a step change to existing health walk provision to provide walks that help people understand and appreciate their landscape</li> <li>• Trialled a number of training activities to ensure activity meets the needs of local people</li> <li>• Trialled new methods for a Citizen Science project to ensure the appropriate approaches to volunteer wildlife recording are taken forward from the start of the project</li> <li>• Subsequent production of guidance notes for all of indicator species and appropriate survey methodology</li> <li>• Thorough analysis of current and previous trainee and apprenticeship schemes</li> <li>• Preparatory work assessing accreditation options as part of a Carbon Landscape Traineeship training plan</li> <li>• The 'Carbon Landscape Trialled Training Courses' report describes the trialled training courses that will be expanded through the volunteer and staff training programme</li> <li>• Proposed content for the Training Programme was put together based on the results of a survey sent out to all contacts, groups and volunteers</li> <li>• The challenge has been to adapt activities that suit all and to deliver this approach in a time effective way: volunteers have been happy to take part in providing any feedback but are more keen on taking action</li> </ul>

(continued)



**Table 2** (continued)

Themes	Progress
Partner engagement	<ul style="list-style-type: none"> <li>• Stakeholder groups and partner meetings discussed the Carbon Trail report and a number of recreational users helped trial certain routes</li> <li>• Regular meetings have agreed communications, community engagement, and biodiversity outcomes</li> <li>• A number of research projects and mapping activities have been created and taken forward by key partners and local universities</li> <li>• With partners having their own agendas and other pressures on time, it has been a slow process to come up with a scheme that is focussed on what we need to do for a landscape change as well as ensuring all partners feel engaged and empowered with the process</li> <li>• The slow ongoing dialogic process of partnership building, however, has resulted in a very strong partnership thanks to the time taken over reflection and the progressing discussions on how different aspirations can be tied together into a coherent and cohesive programme</li> </ul>
Political engagement	<ul style="list-style-type: none"> <li>• Formal partners (including local government) joined together for the Carbon Landscape Project: City of Trees, Healthy Rivers Trust, Wigan Council, Inspiring Healthy Lifestyles, Salford City Council, Warrington Borough Council, Natural England, Greater Manchester Ecology Unit, Woolston Eyes Conservation Group, University of Manchester</li> <li>• Engagement with the planning system for formal consideration of landscape-scale networks for biodiversity conservation and ecosystem resilience to climate change impacts (e.g. the Greater Manchester Spatial Strategy)</li> <li>• Invited senior politicians and mayoral candidates to a briefing and site visit to one of the flagship sites in the Carbon Landscape to raise the profile of the project and its context in the wider Great Manchester Wetlands Nature Improvement Area</li> <li>• Further progress will require time and resources to ensure that key politicians are aware of the importance of our landscape for climate change resilience, and that politicians can see how our work can hit a number of additional agendas such as health</li> </ul>

the lack of resources, the lack of a substantial wildlife recording community, and the lack of data available to local authorities means these sites are very vulnerable to inappropriate and poorly informed management and development. That threatens the integrity of our ecosystems at a landscape scale, not just on individual sites, and is a major threat to the climate change resilience of our wildlife and landscape.

The Biodiverse Society Project, in partnership with the local records centres at the Lancashire Environmental Recording Network (LERN) and the Merseyside Biobank, has eight aims and targets for delivering wildlife recording, building skills and capacity, and raising awareness across communities (Table 3). The project is surveying over 200 Local Wildlife Sites across Lancashire and North Merseyside and capacity building with 30 Local Naturalist Groups. Targets include engagement of over 500 volunteers, with nearly 1400 training places available on a variety of recording courses from botanical skills to bird identification (Table 3). By the end of October 2016 the project had surveyed 1277 ha and 128 sites, given 49 different

**Table 3** Aims and objectives for The Lancashire Wildlife Trust's Biodiverse Society project

Aims	Objectives
To undertake wildlife surveys and make recommendations to landowners on how Local Wildlife Sites can be managed and improved	200 Local Wildlife Sites surveyed
To increase the number and quality of records submitted to Local Record Centres and better understanding of the wildlife found on Local Wildlife Sites through regular surveys	An increase in records submitted each year
To increase publicly available information about the wildlife that can be found on Local Wildlife Sites through the interpretation materials that will be created	Number of website hits and social media updates recorded
To deliver a trainee placement scheme that gives trainees much needed practical training and experience to address skills shortage in surveying: ensuring that early career conservationists are upskilled and able to gain long term employment in the sector	12 × trainee 12 month placements (4 per year) employed through the project
To deliver a training programme targeting a wide range of audiences to develop new skills and gain confidence in the use of these new skills	1375 training slots provided
To increase awareness within local communities of the wildlife value of Local Wildlife Sites and increase respect for these sites, through an events programme that celebrates wildlife found on Local Wildlife Sites that gives people an enjoyable experience	30 community groups appreciate wildlife that they have recorded on their nearest Local Wildlife Site
To establish and train a team of volunteers to continue supporting surveys on Local Wildlife Sites	500 individuals volunteer on the project
To improve the resilience of Local Naturalist Groups that are currently under threat of demise	30 Local Naturalist Groups become stronger as a result of project support

landowners management advice, submitted over 9000 biological records via project volunteers, provided 905 training places, used 317 individual volunteers, and accumulated over 3000 hours of volunteer time. All four trainees from the first year have gone on to further employment within the sector and three of the four second year trainees, who finished in December 2016, have already done the same.

By creating a supported network of wildlife recorders within local communities we are empowering communities to address the data deficiency. The various engagement events and taster sessions, helped by the trained recorders who are acting as wildlife champions, are kindling bottom-up community action for wildlife. By including climate change messaging, we strengthen the perceived urgency of the need for landscape scale networks—the climate change issue is here a powerful driver for biodiversity conservation.

### 3 Discussion

Climate change is well behind biodiversity conservation in profile as a local issue and in terms of local groups and local action being taken. The impacts of climate change, however, are amongst the main threats to local biodiversity and conservationists are coming to the fore in communicating to publics and policymakers that we need action now to make our wildlife (and wider society) climate resilient. Climate change communication can benefit by coordinating closely with biodiversity conservation, which is increasingly voicing the threats of climate change to drive progress at a landscape scale. Climate adaptation messaging could, for example, piggy back on biodiversity conservation campaigns to a much greater extent—mimicking the existing model in conservation of using flagship species such as tigers to protect wider ecosystems and less appealing wildlife.

The Wildlife Trusts movement has been at the forefront of the move to landscape scale approaches to conservation in the United Kingdom, in a large part explicitly because landscape scale networks are essential to facilitate the survival and shifts of wildlife in the face of a changing climate. The Great Fen project in south-eastern England, for example, is a celebrated 50 year vision for landscape scale connectivity and anticipatory restoration for ecosystem-based adaptation to climate change (Hughes et al. 2011; Adams et al. 2013).

As The Wildlife Trusts' vision for Living Landscapes sets out: “Imagine a country where... wetlands and peatlands rich in wildlife are soaking up flood water and carbon... our farmland and woodland is producing food and timber but also bursting with wildlife... **wildlife can move freely through countryside, towns and cities, as it adapts to climate change.** A Living Landscape is all this and more.” [our emphasis] (The Wildlife Trusts 2010).

The Heritage Lottery Fund's Landscape Partnerships programme has provided a vital driver (and crucially, substantial financial resources) in stepping up the delivery of landscape scale approaches across large swathes of the United Kingdom by stressing the importance of “degree of engagement, commitment and initiative of

local residents and businesses, NGOs and statutory bodies, working in partnership to deliver conservation of the natural and cultural heritage, emphasising public access, education, training and community involvement” (Clarke 2015).

The Lancashire Wildlife Trust has brought together carbon emissions and human-driven climate change with the ecosystem approach to biodiversity conservation in the Carbon Landscape Project. The cross-sectoral partnership approach and bottom-up engagement of communities has been driven by the HLF Landscape Partnership funding criteria and is proving crucial to delivering a climate-sensitive development strategy. Dialogic communication bringing stakeholders together (Moser 2010) has been vital for meaningful buy-in. There remain challenges in ensuring work packages are delivered in full and deadlines met, however, and the need for a dynamic chair and lead partner for overall coordination and to set the pace is probably the most important factor.

Sir John Lawton, lead author of the seminal Lawton Report (Lawton et al. 2010), argues the greatest achievement of the Great Manchester Wetlands Nature Improvement Area (NIA) encompassed by the Carbon Landscape Project is the influence exerted through the planning system (for example, engaging with the Greater Manchester Spatial Strategy), surpassing the impact of projects delivered directly on improving and restoring biodiversity (comment at the Great Manchester Wetlands NIA forum, cited in: Great Manchester Wetlands NIA Partnership 2016).

The emphasis on bottom-up approaches from the Heritage Lottery Fund meant the Carbon Landscape Project from the start explicitly sought to build community engagement. The resultant Sense of Place theme has had major importance for taking people on a journey about the local relevance of human-driven climate change and for people feeling empowered to do something positive for their landscape. The Friends of Low Hall partnership with The Lancashire Wildlife Trust and the Wigan Leisure & Culture Trust, for example, has been a shining success in the public taking ownership of a Local Nature Reserve (see the group’s website [www.friendsoflowhall.co.uk](http://www.friendsoflowhall.co.uk)). Reconnecting local people with their landscape through access and learning opportunities in the Carbon Landscape Project empowers communities to take active management and is building up sustainable volunteer resources for the long term. The community voice is also a vital driver for buy in of developers and planners for climate-sensitive development in the coming years of housing growth.

The Biodiverse Society Project has complemented the bottom-up approach of community engagement in the Carbon Landscape Project substantially: mobilising the public to realise ecosystems and wildlife occur in landscapes, to take ownership of those landscapes and understand the role it plays in climate problems and mitigation, and to realise the ecosystem assets and ecosystem services we need to protect. Importantly, both the Biodiverse Society Project and Carbon Landscape Project bring the more formal discussions and academic papers to a “what you can do in your own backyard and local nature reserve” level, they make members of the public and actors at local authorities realise that local iconic species are part of the bigger picture, and they make both climate change and ecosystem approaches relevant. This is a major part of what makes the two projects effective at truly

mainstreaming landscape scale climate change adaptation and ecosystem approaches to conservation.

### ***3.1 Lessons and Future Prospects***

Firstly, an effective coordinator role is central to the degree of success. Within both projects, the community groups and individuals recognise the importance of linking up as a network but they are clear that they cannot do that without help. People want to share their stories, their knowledge and to learn from best practice by others; but without outside support and coordination will not have the resources or outside drivers necessary for it to happen. Most stakeholders remain focused on their immediate local area or sphere of responsibility and the coordinator role is vital in taking separate local groups and multiplying their impact as part of a coordinated landscape scale network.

Secondly, challenges in coordinating timely and full delivery by project partners can be addressed by modified organisation. As lead partner in the Carbon Landscape Project, The Lancashire Wildlife Trust could address varying contributions from different partners by setting out clearer expectations and requirements at each stage to make it easier for a minimum level to be ensured (and relieve pressure on partners exceeding requirements). Ensuring internal project deadlines are met has been a challenge as every partner has work pressures. Using conditional payments to partners dependent on meeting deadlines is one option but is fraught with the danger of damaging relationships and undermining partnership effectiveness.

Thirdly, resources have been vital. The additional budget brought in (£2.2 m from HLF and £0.8 m in additional grants to partners) has mobilised essential resources. The value of in kind support, other staff time contributed, and input of volunteers (skilled and unskilled) mobilised in parallel has proven difficult to assess but is regarded as something substantial that should be monitored and quantified better in future.

This brings us on to lessons about communicating. On initial engagement with “the Carbon Landscape”, many people found the name puzzling and did not understand what it meant, they questioned whether it was about carbon capture, and perhaps planting trees to trap CO<sub>2</sub>? This could be considered positive in that it opens up a discussion and engages people in finding out more. However, it also appears to have put some people off by not referring to biodiversity or wildlife. This was addressed in development by adding the strapline “Restoring Great Manchester Wetlands to the Community”. It was found that when words such as “science, politics, policies and climate change” are used people in communities tended to switch off, whereas framing in terms of “local and wildlife” allowed engagement on to which those other issues could be added. In communicating project progress and community engagement, with an overwhelming amount of discussion and information, a major challenge was addressing how that could best be captured and

distilled, clarified and communicated. Communication would benefit from better consideration of outputs and messages in planning collection of respondent views. This could perhaps be done in collaboration with appropriate experts or collaborators at universities.

The Biodiverse Society Project finishes in December 2017 and further funding bids are already in the pipeline. Groups are keen to drive forward the agenda but identify the need for external support coordinating groups and their working together. The Wildlife Trust is looking to not only continue the work but to expand by linking with health and young people agendas. The Carbon Landscape Project will finish at the end of December 2021 but it is envisaged that by then the established partnership will be in a position to continue to work together and, further, be looking to explore opportunities in other business areas and geographic locations. Both projects have empowered a highly interested audience, put networks in place, and established landscape scale coordination. It is hoped that the success, and the resources evident, will inspire increased take up elsewhere.

### ***3.2 Limitations and Constraints***

This study has two key limitations. Firstly, the assessment of the projects' effectiveness in communicating climate change is a rapid review and discussion of existing data and from respondent discussions. It is by no means a systematic review of empirical evidence within pre-defined eligibility criteria to answer a specific research question. Secondly, structured consideration of effectiveness in communicating climate change (or for that matter biodiversity conservation) is not an integral part of either project examined. The aim of the Carbon Landscape Project is to enable a landscape scale approach to biodiversity conservation and of the Biodiverse Society Project to engage a network of communities in wildlife recording and awareness. Climate change was a component theme, albeit a major one, employed for primarily conservation objectives. That means this analysis is dependent on large amounts of qualitative data and feedback that is not structured for a specific assessment of the effectiveness of engagement with climate change messaging. Although time and resource constraints meant it was not possible, the study would have benefited greatly from de novo data collection and semi-structured interviews to enable more robust findings.

### ***3.3 Conclusion***

We call on the wider climate adaptation and biodiversity conservation communities to come together and use both angles in a combined landscape scale approach that meaningfully engages local people and convinces local government and planners that we can effectively work together. By engaging communities with their local

carbon landscape and pushing climate change messaging into development planning and biodiversity conservation, we can both bolster local climate action and help build the wider societal support needed for mainstreaming global action.

**Acknowledgements** With thanks to Carbon Landscape partners: City of Trees; Healthy Rivers Trust; Wigan Council; Inspiring Healthy Lifestyles; Salford City Council; Warrington Borough Council; Natural England; Greater Manchester Ecology Unit; Woolston Eyes Conservation Group; University of Manchester.

With thanks to Neil Hewertson for the original planning of the Carbon Landscape Project at The Lancashire Wildlife Trust.

With thanks to Biodiverse Society partners: Lancashire Environment Record Network (LERN); Merseyside BioBank.

The Heritage Lottery Fund supports both the Carbon Landscape Project (Landscape Partnership award) and the Biodiverse Society Project (Heritage Grant). Further financial support was provided through partner core funds and other restricted grant funding.

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