

Metropolitan matters: An ecosystems approach to our cities

An aerial photograph showing a large industrial facility with several large, light-colored buildings and numerous pipes and chimneys in the foreground. In the background, a cityscape with various residential and commercial buildings is visible under a clear blue sky. The foreground is dominated by a dense forest of trees with green and brown foliage.

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The Ecosystems Knowledge Network is funded by Defra and Scottish Government. It is being developed by an independent partnership involving the NERC Centre for Ecology and Hydrology, the Natural Capital Initiative, the University of Exeter (Centre for Rural Policy Research) and Countryside.

The Network is a resource for anyone wanting to share knowledge or learn about the practical benefits of an ecosystems approach. The Network draws together experience from the UK and elsewhere to assist organisations to understand how an ecosystems approach can help us build sustainable communities. It provides the expertise and experience of a growing UK-wide active community.

Opportunities to get involved

There are lots of ways to participate in the Network, which is free to join.

The best starting point is <http://ecosystemsknowledge.net/about/participate>, where you will find links to:

- register as a Member and tell us what the Network can do for you;
- a form to propose an activity that is aligned with the aims of the Network (limited practical and financial assistance is available to support these activities); and
- contact us with details of a relevant project, tool or scheme that will be of interest to other members.

Cover photo: The suburbs of Birmingham viewed from the Lickey Hills © istockphoto.com/kodachrome25

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Going to where people are

Bruce Howard, Ecosystems Knowledge Network Co-ordinator

If you are reading *Ecosystems News* for the first time, welcome to the Ecosystems Knowledge Network. We also welcome the Scottish Government as a funder of the Network, alongside the continued support of Defra.

In this issue, we focus on how an ecosystems approach is being applied in some of the UK's largest population centres. UK cities and their regions are, in a very real sense, where the people are. These settlements are actively planning for the long term, each striving for prosperity and a place on the national and international stage. As they do so, there is huge potential for demonstrating lasting benefits from a holistic and inclusive approach to looking after the natural environment.

Since its launch in early 2012, the Network has served its members by providing opportunities to share good practice in how land and water environments are managed in accordance with the principles of an ecosystems approach. Many Network members are leaders in the approach. Most crucially, they are providing practical examples of projects that put equal emphasis on the following:

- valuing nature;
- understanding how nature works; and
- involving people.

Some of these leaders and the work they are championing feature in this issue of *Ecosystems News*. See, for example, the pioneering work of Nick Grayson within Birmingham City Council (see article on Page 4).

The Network also exists for those who are *not yet* members. (It even exists for those who will probably never be members.) This claim may sound unusual, so let me explain! It is all too often forgotten that the way landscapes and local environments evolve and are managed is influenced by a myriad of professions and so called 'sectors'. These range from brewers to building technicians, from farmers to fund managers. As representatives of public and private interests, these people form an important part of a systems approach to managing our natural environment. They influence people's relationship with that environment. Many of them are responsible for budgets far larger than those deployed in the name of nature conservation or catchment management.

These people will be an increasingly important focus for the Network. Practical projects can (and do) engage these sectors, as demonstrated by the work of the Mersey Forest (see the articles starting on Page 10). The Network would like to hear your ideas for how an ecosystems approach can be better recognised in the working practices, mindsets and actions of people for whom care for the natural environment is not their primary goal.

Read on to be inspired by what other members are doing, and don't forget to make use of the Network website - <http://ecosystemsknowledge.net> (note the change of domain). As always, the Network team is keen to hear from Members and others with suggestions for activities and resources to share. Do get in touch at info@ecosystemsknowledge.net.



Bruce Howard, Centre for Ecology and Hydrology

Viewpoint: Challenges for our cities and 'metanoia'

Nick Grayson, Climate Change and Sustainability Manager for Birmingham City Council, explains how taking an ecosystems approach can help cities adapt to the challenges of the future.



A new green roof in Birmingham city centre © Birmingham City Council

In just ten years from now, the question coming from every City Leader will be: "Does this decision safeguard our natural capital?" Why? Because the global knowledge base, economic metrics and logistics will have reached such a point that there will be a global acceptance of our environmental limits. There will be a profound transformation in the way that we see our interaction with the world – metanoia.

The major challenge for every city today is to act, now, on this agenda.

If you look at where natural resources are being consumed, where greenhouse gas emissions stem from and where the major health threat of non-communicable diseases are all at their greatest – the answer is cities.

Cities have served us well over the past 200 years as centres of production and growth. The assumption up until now has been that this could continue along an 'infinity model'. However what has changed, just in this twenty-first century, is the global context in which these individual cities operate. Suddenly, with the Stern Report on the Economics of Climate Change, the Millennium Ecosystem Assessment, frequent Intergovernmental Panel on Climate Change reports and global health concerns, the 'infinity model' is seriously challenged.



Birmingham's new library © Birmingham City Council

So, finally, the 'rules' of ecology emerge. There are feedback loops and consequences to our behaviour and we are, as a species, part of the global ecosystem. We are recognising our environmental limits. We see that principle six of an ecosystems approach – "Ecosystems must be managed within the limits of their functioning" – holds true. We therefore need to apply 'systems thinking' to our governance of cities and the re-design of our economy so that like nature, it creates no waste; a circular economy. What this will also start to alter is our collective view that somehow we need to re-understand that we need to 'Live' first and 'Work' second. To create a sustainable lifestyle rather than a lifestyle shaped to fit a range of products and processes for profit. The natural consequence of this way of thinking is that we will need to better inform those future decisions, based on taking an ecosystems approach. This will show us just how dependent we are on them at both the global and the more local scale of cities.

"We see that principle six of an ecosystems approach – that ecosystems must be managed within the limits of their functioning – holds true."

Birmingham has aspirations to become a leading world green city. Its published Green Vision has now been translated into a delivery action plan called the Carbon Road Map (see web link at the end of the article). Since the Stern Report, programmes to reduce dependence on carbon fuels have become well established around the globe. There is a danger, however, that these programmes can neatly fit into the existing linear economies, and too narrowly address carbon. They miss the wider sustainability agenda. So City Leaders might believe they are addressing climate change, but this is to only address one side of that coin, i.e. mitigation. The other side of the climate change coin is adaptation; a far more complex topic, requiring circular and cross-disciplinary solutions.

In Birmingham this was approached 'a nine-piece jigsaw'; drawing together the nine different sectors and disciplines which had a direct role to play in adaptation. The jigsaw part involved reviewing the sets of evidence from each sector, looking for overlaps and synergies and, importantly, gaps in our knowledge. Then reviewing all existing or forthcoming policies, identifying overlaps and gaps again; finally agreeing a joined-up delivery plan, linking not only agendas but, critically, budgets. This process also resulted in the Green Living Spaces Plan for Birmingham (see web link at the end of this article). This document introduces seven key principles across the planning framework. It also led to an ecosystem services based site development tool (again, see web link at the end of this article).

One of our primary gaps was in understanding the City's ecosystem. In response, a comprehensive assessment of Birmingham's green and blue infrastructure was undertaken using the UK National Ecosystem Assessment methodology. A more in-depth assessment then looked at six ecosystem services and how well current provision delivered against population demand. A new GIS map was created for each of these for the city. They were then all combined into a single 'multiple challenge map' for Birmingham. This work represents a global first and has attracted a huge amount of interest.



Eastside City Park © Birmingham City Council

“a comprehensive assessment of the City’s green and blue infrastructure was undertaken using the UK National Ecosystem Assessment methodology”

The City encompasses ten parliamentary constituencies. For each of these districts, the multiple challenge map was overlaid onto a street plan. This provided a very close match to the Public Health Excess Years Life Lost maps for the city. The conclusion is that the most vulnerable people are those least well served by the city’s ecosystem. Using this data in just one district, as a pilot exercise, the local residents were able to draw down £1.5 million pounds of external funding aimed at improving their neighbourhoods.

The European Investment Bank is already designing future funding packages that will require cities to demonstrate their understanding of financial capital, human capital and natural capital in order to qualify for those funds, and to report back on the outcomes. The global investment community is split, with longer-term investors looking to invest in climate-secured investments. Adapted green cities are one market and represent over 20 trillion dollars. I take you back to my opening comments. This is serious stuff. This will happen. So it’s time to change the way we see things and apply ‘metanoia’.

Nick Grayson has been with Birmingham City Council for more than 30 years. He was the author of Birmingham’s Green Living Spaces Plan 2013. Nick is a member of the UK Man and Biosphere Urban Forum and the UK National Ecosystems Assessment Review Group.



Birmingham’s Green Vision: <http://www.birmingham.gov.uk/greencommission>

Birmingham’s Carbon Road Map: <http://birminghamnewsroom.com/2013/11/birminghams-carbon-roadmap-is-launched/>

Birmingham Green Living Spaces tool: <http://www.birmingham.gov.uk/greenlivingspaces>

Ecosystem services based site development tool: <http://www.birmingham.gov.uk/parks>

Practical experiences with payments for ecosystem services

Highlights from a workshop for members held in Manchester last November.



Discussing a PES scheme in a National Character Area © Anita Sedgewick, Ecosystems Knowledge Network

Payments for ecosystem services (PES) is the term used to describe a range of schemes through which the beneficiaries, or users, of ecosystem services provide payment to the stewards, or providers of those services. It represents an outworking of some aspects of an ecosystems approach. For example the fourth principle of an ecosystems approach (as adopted by Parties to the Convention on Biological Diversity) highlights the need to understand and manage the ecosystem in an economic context.

The Ecosystems Knowledge Network held a workshop in Manchester in November 2013 to help share practical experiences with PES. Defra has sponsored ten pilots throughout England to investigate different applications of the approach. These projects shared their experiences with representatives from local authorities, the third sector, consultancies and academia.

Schemes included visitor payback (encouraging voluntary donations from tourists), a reverse auction where farmers bid to provide a particular service, and an assessment of the potential for developing a market for carbon storage and sequestration by peatland.

It was clear from the workshop discussions that building trust between prospective participants in PES schemes is as important as the technical aspects. It takes time to build the relationships and reach agreements. The availability of intermediaries and facilitators to bring together scheme participants can prove crucial. The business case for land owners to participate in schemes needs to be articulated (a view echoed at the Systemic Solutions workshop in February 2014 – see Page 34).

The workshop included a practical exercise in which participants were challenged to identify a PES scheme within a National Character Area. The exercise demonstrated that while it is easy to identify beneficiaries of the ecosystem services in an area, turning them into buyers requires creativity and patience.

In February 2014, Defra announced a call for a third round of payments for ecosystem services pilots for England (closing date 28th March). Information is available at <http://ecosystemsknowledge.net/resources/tools-guidelines/pes>

Presentations from the Manchester event are available at <http://ecosystemsknowledge.net/about/events/past/pes-manchester/>

See the Network website for more information about PES, including links to Defra's Guide on the topic and project descriptions. <http://ecosystemsknowledge.net/resources/tools-guidelines/pes>

Ever increasing circles

The Mersey Forest shows how community forestry can serve as a catalyst for health and prosperity in some of the UK's most densely populated areas. Its Director, Paul Nolan, introduces the following two articles from people who have worked in partnership with this exemplar of an ecosystems approach in action.

In fulfilling its vision to get 'more from trees', the Mersey Forest is putting green infrastructure at the heart of the development of Liverpool and its surrounding area. Trees and woodlands are a critical component in helping to set the scene for new investments and jobs by improving the area's image and quality of life for the people living there; providing opportunities for recreation, leisure and tourism; improving health and wellbeing; tackling poor air quality and pollution; working with schools to improve education and learning opportunities, and protecting biodiversity. Our work to build green infrastructure in partnership with communities demonstrates an ecosystems approach in action.

The Mersey Forest in numbers

Number of trees planted since 1991

9 million

Population of the Mersey Forest area

1.7 million

Number of local authority areas encompassed

Seven

Increase of woodland cover since 1991

75%

(three times the average for England)

Return on investment

£9

of benefits for every

£1

invested

The Mersey Forest team was put in place by a local authority partnership. It receives some core funding, but much of the budget is raised through project management and consultancy. The team delivers the plan, alongside and on behalf of, the partners. We have been able to raise revenue by 'gearing up' the input from local authorities by a factor of eight each year. Every £1 we receive in local authority funding results in a total of £9 spent on coordination and delivery projects and programmes.

Developing and delivering a range of green infrastructure plans and strategies has taken us beyond the realm of trees and woodlands to integrate all land uses and to coordinate activity among a wide range of public sector organisations and environmental initiatives. Our partnership approach extends well beyond the 'environmental' community though: we build relationships with partners whose mission has not, traditionally, been seen as closely related to nature.



Green infrastructure along Blackbrook bypass © St Helen's Council

Our impact could be described as ever increasing circles. For instance, the methodology has been used to develop a range of plans and strategies including the Liverpool Green Infrastructure Strategy. This work was jointly commissioned by the City Council and Primary Care Trust in 2010. This led to the Natural Choices programme, which is benefiting people's health. **Sarah Dewar**, a member of the Liverpool Clinical Commissioning Group, explains more in the following article.

Continuing on the theme of ever increasing circles, we are now helping the Local Nature Partnership in the Mersey region, Nature Connected, to deliver its aims. Nature Connected has just adopted the **Liverpool City Region and Warrington Green Infrastructure Framework**. This has been used to inform the development of the Local Sustainable Transport Fund programme. It is also helping us to shape our arguments and project for the new rounds of European Funding.

Our ever increasing circles have an economic dimension too. As **Richard Mawdsley** from the Peel Group explains in his article on Page 16, the Framework has been used in planning for the regeneration of the region.

The story of many place-based projects that reflect an ecosystems approach is that they reach a stage where they impact on projects and programmes elsewhere. The Mersey Forest's green infrastructure mapping methodology has been published in conjunction with Ordnance Survey and the Royal Town Planning Institute (see web link at the end of this article).

Our approach has been taken up by partners not only locally, but in Europe and beyond. For instance, we are now involved in the Green and Blue Space Adaptation for Urban Areas and Eco-towns (GRaBS); a pan-European network that is integrating adaptation to climate change into regional planning and development. The approach has also recently been used by the University of Manchester to develop green infrastructure plans in seven African cities.

Prior to working for The Mersey Forest, Paul Nolan worked in commercial forest management. He is a member of the Institute of Chartered Foresters and the North-West Regional Advisory Committee for the Forestry Commission. Paul is Chair of the National Community Forest Partnership and the North West Green Infrastructure Think Tank. He assists with two Local Nature Partnerships and sits on the Adapting the Landscape Project Board.



Liverpool Green Infrastructure Strategy: <http://www.greeninfrastructurenw.co.uk/liverpool/>

The Mersey Forest green infrastructure mapping methodology: http://www.merseyforest.org.uk/files/The_Value_of_Mapping_Green_Infrastructure_pdf.pdf

A Natural Choice for Liverpool's health

Sarah Dewar, a member of the Liverpool Clinical Commissioning Group, explains how green infrastructure strategies provide the impetus for improving health and wellbeing in deprived areas, and can help to generate funding for environment-related projects.



A health walk in Calderstone Park, Liverpool © Paul Glendell, Natural England'

Liverpool's Natural Choices for Health and Wellbeing Programme has proved hugely popular. It was based on the principles of the City's 2011 Green Infrastructure Strategy which was jointly commissioned from the Mersey Forest by Liverpool City Council and Liverpool Primary Care Trust. It was the first of its kind in the UK.

The strategy identifies green infrastructure across Liverpool and the potential functions it can serve, including promoting health and wellbeing. It recognises that the sustainable management of the natural environment is critical for the health of Liverpool's population. Evidence of the positive effects of green space for health and wellbeing and tackling health inequalities is hugely compelling and includes the Marmot Review and NICE guidance (see links on the Ecosystems Knowledge Network website).

Given this strong evidence base at national and local level, a pilot scheme to utilise, create and improve community green spaces for health and wellbeing was undertaken in 2012. This was funded by Liverpool Primary Care Trust and run in partnership with the Mersey Forest. It provided £300,000 for projects that use local green space.

The strategy had identified that while Liverpool had a wealth of green space its distribution was unequal, with the most affluent areas having 1% more green infrastructure than deprived areas. A call for small community projects of up to £7,500 went out. Communities were asked to design their own projects, responding to local needs and assets within the broad framework of improving health and wellbeing using local environments. This meant that each application was relevant to, and had been produced by, the communities themselves.

“Communities were asked to design their own projects, responding to local needs and assets within the broad framework of improving health and wellbeing using local environments.”

Groups submitted applications that promoted one or more of the Five Ways to Wellbeing (Connect, Be Active, Take Notice, Keep Learning, Give) and were targeting resources to tackle inequalities, according to the evidence base.

The approach was hugely popular. Thirty-eight projects were funded, ranging from teaching people with learning disabilities to grow fresh fruit and vegetables, to creating community gardens for vulnerable people to enjoy, to protecting and maintaining local woodlands.

Having the green infrastructure strategy in place helped to identify the areas of need and provide an evidence base to ensure that projects were supported where they were needed most. Almost three-quarters of grants went to projects based in the 6% most deprived areas of the UK, where many participants experience significant health inequalities. Participants ranged from young children to the elderly, including a 91 year old. The projects also involved people with learning difficulties, mental or physical disabilities, mental illness, unemployed and homeless people, families seeking asylum and young people with behavioural or emotional difficulties.

These projects were delivered in just 44 weeks. They employed 135 people, 867 volunteers and 100 partners, engaging a total of 3,274 participants. Some 43% of the projects primarily focused on gardening and food growing, with 29% on creating or improving the environment.

The Natural Choices programme demonstrated a range of social, economic and environmental benefits, including an increase in social cohesion, improved health and self-esteem among the participants, improvements to local community environments and cost savings, such as the need to spend less on mental ill health, or redirecting existing spend to get greater returns through innovative projects.

Data collected by researchers at the University of Essex found that there was an 18% increase in wellbeing among participants and more than 80% of projects reported increased physical activity as a key part of their project's achievements.

The project had a very low cost of £2.14 per participant per week which was made possible by the considerable dedication, voluntary effort and passion of the delivery organisations and individuals.



Sefton Green Streets © Monty Rakusen

The Natural Choices programme successfully engaged Liverpool residents from many different walks of life, in urban nature-based interventions, all of which were focused on the development of health and wellbeing in ways relevant to that community. The initiative was funded as a pilot programme and has given projects around the City the capacity to promote a green infrastructure and to develop health and wellbeing in Liverpool residents. The success of the programme across so many different groups, involving different types of interventions, highlights the transferability and adaptability to other populations and settings.

Sarah Dewar leads the NHS Liverpool Clinical Commissioning Group's social value and engagement programmes. Her work involves examining how the NHS can work more closely with community, voluntary, charitable and social enterprise organisations to improve people's health and wellbeing.



Investing in green infrastructure

The Mersey Forest's Green Streets scheme is integral to Wirral Waters, a major urban regeneration programme. Richard Mawdsley, Projects Director from the Peel Group, explains.



An urban landscape in Liverpool © Martin Moss

Wirral Waters, in Birkenhead on Merseyside, is the largest regeneration scheme in the UK (by floor area) totalling 1.5 million square metres of floor space. Over the next three decades, it aims to create 14,000 new homes and more than 20,000 new jobs in an area focused on the neglected Birkenhead Dock system on the banks of the River Mersey overlooking Liverpool City Centre.

This is no ordinary development. Alongside the investment in transport, energy and skills infrastructure will be a network of green infrastructure, turning the harsh and derelict, post-industrial landscape into one that is civilised, welcoming and colourful.

The Mersey Forest's Green Streets programme is bringing an ecosystems approach into the heart of the masterplanning process of Wirral Waters. This 'landscape first' approach, that includes a network of tree-lined 'green streets', will be just as important as the engineered infrastructure of roads and services, helping to radically change the perceptions of the area, which is not currently known for inward investment and for attracting new occupiers. The trees are helping to create the conditions for economic growth. Using underutilised dock infrastructure, a green 'city boulevard' will link the new developments with surrounding neighbourhoods, integrating the other green assets and the transport nodes around the dock estate.

“The Mersey Forest’s Green Streets programme is bringing an ecosystems approach into the heart of the development.”

A total of 35km of green streets and greenways will be created to change the main approaches to, and routes through, Wirral Waters to link it into the wider community. Eyesore sites will be used for temporary woodlands and wildflower meadows; access to Bidston Moss will be improved to encourage its use for leisure activities; and ‘intermediate labour market’ jobs will be created to offer training and work experience to local residents.

In the long term, it’s hoped at least 18 hectares of new permanent green infrastructure will be created helping to improve the range and quality of ecosystem services provided. These could include parks, woodlands, cycleways and allotments. This will link closely with the new developments at Wirral Waters as well as with a tram system, known as the Wirral Streetcar. It will also help to create a place that is more able to withstand the effects of a changing climate and less vulnerable to drought or flooding.

The label ‘green infrastructure’ is not being used as a fanciful way of describing some cosmetic tree-planting. The natural framework for the development is just as important as the engineered infrastructure of roads and services, creating the conditions for economic growth and a better future for Wirral’s poorest neighbourhoods. It aims to create a setting for new occupiers and inward investment; a better environment both for wildlife and people, a more resilient place that is equipped to adapt to a changing climate, and a place that local people feel proud to live in.

“The natural framework for the development is just as important as the engineered infrastructure of roads and services.”

Based on evidence from the Liverpool City Region Green Infrastructure Framework, the programme looks to address not just the visual appeal of the area, but also improve air quality, provide green travel routes, increase the use of the natural environment for health and wellbeing, improve the resilience of the area to projected climate change and provide more opportunities for biodiversity.

A strong investment case

This programme is significant not only for the Wirral but for the UK. As the attention of government in all parts of the UK turns once more to investment in infrastructure, it will test the theory that quality of place is key to attracting investment and that a greener, more sustainable environment is a starting point for economic growth, not an extra to be added at the end of the process. As with all effective green infrastructure programmes, the wider benefits that can be gained have also been factored in to the planning and communication of the Green Streets programme.

The investment in green infrastructure at Wirral Waters will eventually be self-sustaining through the planning permission and the 'Section 106' agreement between the developer and the Local Planning Authority. A green infrastructure tariff has been set up where the developer puts money into a green infrastructure 'pot' upon delivery of projects within Wirral Waters. This is then allocated and spent on further green infrastructure projects in and around the wider area.

"...it will test the theory that quality of place is key to attracting investment."

The costs are expected to be recovered many times over. The initial programme of work, including street trees, the design of new green spaces, temporary uses of derelict sites and improved access to Bidston Moss, is expected to cost £2 million. From that it has been estimated that economic benefits worth nearly £30 million can be achieved through a mix of carbon reduction, rising land values, attracting visitors and creating jobs, and improving local health and wellbeing.

While the greening of Wirral Waters has a strong commercial logic and complements economic and other Governmental initiatives, such as Wirral Waters' designation as an Enterprise Zone which provides tax incentives to new occupiers, the purpose of investing in green infrastructure is also to support local communities. In neighbourhoods where unemployment is high and job opportunities are few, it's important to bolster people's sense of hope and pride in the area. As Sarah Dewar says in her article (Page 13), numerous studies have shown how green spaces have positive effects on physical and mental health and wellbeing.

Richard Mawdsley is a Projects Director at Peel Holdings. He has more than 20 years' experience in property development and regeneration. He is responsible for the direction and delivery of the Wirral Waters regeneration project.



Atlantic Gateway - accelerating sustainable growth

Across the River Mersey corridor, a landscape-scale approach by a private sector-led partnership is helping to support the delivery of projects by Local Nature Partnerships and Local Enterprise Partnerships. Walter Menzies, chair of the Strategic Environment Group of the Atlantic Gateway, explains more.



Port Salford visualisation © Atlantic Gateway

The vision of the Atlantic Gateway is to maximise investment in this landscape with a rich industrial and natural heritage. It is supporting the delivery of projects ranging from local initiatives such as a community garden in Liverpool, through to major infrastructure developments such as improvements to the port and canal network. This landscape-scale vision is putting into action the ecosystem approach principle that ecosystems should be managed in an economic context.

All Atlantic Gateway projects span the three Local Enterprise Partnership areas - Greater Manchester, Cheshire and Warrington and Liverpool City Region - and the four Enterprise Zones contained within them. By 2030, there is the potential for some 250,000 new jobs to be created in the area, involving £14 billion of new investment. Around 140,000 of these jobs are associated with priority projects including the expansion of the port and canal network. The aim is to achieve a level of growth not previously achieved outside London, with sustainability and environment at the heart of its priorities.



Adventure play in Cleveleys Nursery, Salford © Building Design Partnership, Salford City Council and Red Rose Forest

The region was the epicentre of the industrial revolution and has a legacy of serious environmental damage. An exploratory report, *Adapting the Landscape*, was undertaken in 2009 by the North West Regional Development Agency, prior to the establishment of the Atlantic Gateway Partnership Board. This suggested a number of environmental improvements, including enhancing green infrastructure and improving access along the waterfronts of the rivers and canal network. It also highlighted the many opportunities that exist for the landscape to be productive and prosperous, developing farm land and producing energy from natural resources.

With this in mind, the Atlantic Gateway wants to transform the region from 'grey to green'. Creating a high quality environment will be attractive to investors, businesses and local residents. Its environmental prospectus, *Atlantic Gateway Parklands*, sets out a whole systems approach to investing in the Atlantic Gateway landscape for the next 25 years.

"Its environmental prospectus, *Atlantic Gateway Parklands*, sets out a whole systems approach to investing in the Atlantic Gateway landscape for the next 25 years."

The Atlantic Gateway has also been designated by Defra as a national 'Single Voice Pilot', which sees the Environment Agency, Natural England and the Forestry Commission work together to support the partnership and provides a platform on which to explore emerging policy ideas such as carbon offsetting. Active links have been established with the universities, in order to address critical issues such as climate change, flooding and resilience.

A Strategic Environment Group is taking forward this work. It includes representatives from the three Local Enterprise Partnerships, the public and third sector delivery bodies. As well as the development of the Prospectus, this group champions strategic environmental initiatives which exist along the Atlantic Gateway.

One innovative dimension of the Atlantic Gateway approach is its Community Environment Fund. This is a voluntary levy on major capital investment projects in the partnership's business plan which is contributing to environmental projects that are directly linked to priority infrastructure projects, for instance Port Salford Greenways. Developers, the Peel Group, are investing heavily in improvements to the port and canal network and Port Salford will connect traffic along the Manchester Ship Canal with road and rail links.

It will create 3,000 jobs and produce considerable environmental benefits through the modal shift from road to canal. The Greenways project, led by Red Rose Forest and Salford City Council, will create a green, safe and healthy link between this major employment site and nearby residential areas, from which most of its workforce will be drawn. This project is being developed in active and close partnership with the local community to ensure its relevance and sustainability.



Railway underpass - proposed art project © Building Design Partnership, Salford City Council and Red Rose Forest

The success of Atlantic Gateway Parklands is down to the fact it has not presented itself as relating to any one single issue (whether this be green infrastructure, blue infrastructure, or economic development). It is gaining traction and support as it constantly underlines the mantras that - accelerating growth is the aim, sustainable growth is the only option, top-down and bottom-up are sides of the same coin. Through ambitious projects like Port Salford Greenways and others, we can start to see how investing in environmental improvements can make a huge contribution to the economy of an area, as well as making places better to live for local communities.

“The success of Atlantic Gateway Parklands’ success is down to the fact it has not presented itself as relating to any one single issue.”

For more information on the Atlantic Gateway, visit: www.atlanticgateway.co.uk or follow us [@a_gateway](#)

Walter Menzies is a board member of Atlantic Gateway and chairs its Sustainability and Environment Group. He is a Visiting Professor at the University of Liverpool, chair of Manchester and Pennine Waterway Partnership, and a trustee of the Land Trust. He was formerly Chief Executive of the Mersey Basin campaign and a member of the Sustainable Development Commission.

City regions and an ecosystems approach

In Greater Manchester, a Natural Capital Group has been set up to ensure that the environmental economy is put at the heart of decision making. Group Chair, Anne Selby, explains how it is enabling organisations to work together to embed an ecosystems approach into the management of the City region.



Greater Manchester Nature Improvement Area showing relationship to local communities, industry and farming © www.Webbaviation.co.uk

Greater Manchester has a historic and diverse natural environment, from the rural uplands in the Pennines, to the vibrant city centre, down to the Cheshire plains. Managing this so that we achieve a balance between economic success, quality of life and quality of environment is crucial. More than 60% of the City Region is green (or blue) infrastructure. Our green assets support 15,000 jobs and contribute £470 million a year to the City region's economy. The natural environment also underpins our growing tourism economy, attracting 8.8 million visitors annually.

From my perspective, the key to an ecosystems approach is about ensuring that the value of the natural environment (not just monetary) is recognised in decision-making processes. Natural capital underpins our economic prosperity. However, trying to measure and understand the true value of such services can be difficult as natural capital is much more difficult to quantify and evaluate. An aspiration of the Group is to better understand the financial value of the ecosystem services provided within Greater Manchester.

In order to ensure that the value of local environments and ecosystems are recognised in decision making, a Natural Capital Group (NCG) has been established as the Local Nature Partnership for Greater Manchester. This has members from the public, private and voluntary sectors, including United Utilities (the local water company), universities, land owners, the Environment Agency and local authorities. This is allowing Greater Manchester to work in a joined up and strategic way to manage the natural environment so that it produces multiple benefits for people, the economy and the environment. The three priorities for 2014 are to:

- identify our key natural assets;
- quantify the values of these assets; and
- establish a framework to target investment.

“The Natural Capital Group is allowing Greater Manchester to work in a joined up and strategic way to manage the natural environment so that it produces multiple benefits for people, the economy and the environment.”

NCG is embedded into the city region’s Low Carbon Hub’s governance structure, contributing to the delivery of our 2020 Climate Change Strategy. A key part of its vision is highlighting the critical role of natural environment in climate resilience and supporting sustainable economic growth.

The diversity of NCG’s membership means that it has access to a wealth of skills and knowledge both locally and nationally. A key early activity has been to identify and pull together all the information which has been produced over several years by various organisations, including the Greater Manchester Green Infrastructure and Ecological Frameworks, and data from the City Region’s priority biodiversity sites. This evidence has been collated centrally within the Environment Chapter of the Integrated Greater Manchester Assessment (see web link at the end of this article).

This provides a strong evidence base on the natural environment which will help us to determine policies and forward planning, establish need and priorities and provide a platform for developing a viable business case for Green Infrastructure investment within the city region. This is also providing opportunities to better integrate the delivery of ecosystem services around flood risk, biodiversity and water quality objectives through partnership work.

By having a strategic oversight of spatial scale and access to a number of networks, the group can focus and deliver on priorities across administrative boundaries. There have already been significant environmental improvements in recent years which have delivered health, wellbeing and economic benefits. This has included programmes such as aeration of the docks in Salford Quays, which has supported significant regeneration and investment, and the re-naturalisation and access to stretches of several water bodies including the River Medlock in East Manchester.

NCG has recently commissioned a project with Red Rose Forest, funded by Natural England, looking at identifying specific ecosystem service pinch points across Greater Manchester. This will help us identify those locations which provide the greatest ecosystem services or those areas where key pinch points exist, such as carbon sequestration, flood risk and food production.

This will enable us to understand what interventions are required to support investment for growth and redevelopment or where investment might be targeted to deliver maximum outcomes across a range of ecosystem services. Local Authorities are also required to have due regard to this evidence through their Duty to Co-operate process when consulting on their Local Plans. The project has identified key spatial priorities in Greater Manchester such as areas for protection for carbon sequestration, maximising the flood management function of green spaces and spatial pinch points which affect ecological networks.

NCG is also looking at catchment scale approaches for managing ecosystem services. For instance, the United Utilities Sustainable Catchment Management Programme (SCaMP) addresses upland catchment management issues to secure multiple benefits at a landscape scale. Developing integrated approaches to catchment management has helped to deliver government targets for Sites of Special Scientific Interest, enhanced biodiversity, ensured a sustainable future for United Utilities' agricultural tenants and protected and improved water quality downstream. New Catchment Management Partnerships are now looking to take the catchment approach forward, focused on urban catchments and the specific water quality and ecological issues faced by water bodies in these areas.

The designation of a local Nature Improvement Area (NIA), extending across Wigan, Salford, Trafford and beyond, led by Lancashire Wildlife Trust on behalf of Greater Manchester partners, is evolving to demonstrate that the natural environment plays a far more significant role than 'mitigation' and is playing a significant role in growing Greater Manchester's economy through adapting to future climate risks. Green infrastructure is critical for managing flood risk and water quality improvements, peatland provides carbon sequestration, natural assets provide green tourism and jobs, and natural assets such as parks and street trees provide a cooling effect in warmer summers, food provision and air quality.

The protection and enhancement of Greater Manchester's biodiversity assets is also a significant factor in the region's NIA. This will help ensure that its natural assets provide multiple ecosystem service benefits as restoration will turn this area into a functioning carbon sink as well as providing wider open space and public amenity assets for the local population.

Anne Selby is the current Chief Executive of The Wildlife Trust for Lancashire, Manchester and North Merseyside. She has more than 25 years' experience of formulating alliances, representation, advocacy and high-level leadership. In addition to chairing the Natural Capital Group, Greater Manchester's Local Nature Partnership, Anne is also a board member of the Greater Manchester Low Carbon Hub and two neighbouring Local Nature Partnerships.



Integrated Manchester Assessment: http://neweconomymanchester.com/stories/1774-integrated_greater_manchester_assessment_igma

A critical component

Integrating green infrastructure in and around Glasgow

Many believe that resilient infrastructure is crucial to growth in our urban centres. Should talk of infrastructure simply be about road, rail and rapid internet connections? Max Hislop, Programme Manager for Glasgow Clyde Valley Green Network Partnership, and a member of the Ecosystems Knowledge Network, explains the logic of an ecosystem-based view of infrastructure and the power of a partnership to deliver this.



Multi-functional greenspace © GCV Green Network Partnership

The Glasgow city region is home to about 1.8 million people and faces significant urban expansion and regeneration over the coming decades. The regional development plan indicates that 108,000 new homes will be needed by 2025.

The Partnership was formed in 2007 to champion and facilitate the delivery of a large functional 'Green Network' which would help the region to meet these challenges in a sustainable way. It is comprised of eight local authorities, Forestry Commission Scotland, Scottish Natural Heritage, Glasgow Centre for Population Health, Scottish Enterprise and Scottish Environment Protection Agency (SEPA). The Partnership Board is chaired by the manager of the regional strategic development planning authority.

The Partnership believes that green infrastructure - the jigsaw of semi-natural features such as parks, open spaces, woodlands, wetlands and private gardens - is a critical component in the region's development. It is of equal importance to the 'grey' infrastructure of roads, paths, buildings and hard engineered drainage.

It sees green infrastructure as one of five crucial infrastructures. Greater integration of green infrastructure will lead to more cost effective water management, flood management, pollution control, resilience to climate change impacts, and improved quality of urban living. Following this 'integrated green infrastructure' (IGI) approach, the natural environment is not a 'pillar' of sustainable development (sitting awkwardly alongside the economy), but rather a foundation for all development (including the economy).



Green infrastructure's role in successful placemaking

“Following this approach, the natural environment is not a ‘pillar’ of sustainable development (alongside the economy), but rather the foundation for development (including the economy).”

When planning for the Green Network, there are many opportunities and options to weigh up. The Partnership maps opportunities for delivery of the region's green infrastructure by matching ecosystem service provision with the needs of communities now and in the future. This involves access to an array of information and tools, and the Partnership has blazed a trail by developing innovative tools that support the IGI approach. Greenspace Mapping, Integrated Habitat Networks and Networks for People are all innovative GIS analyses that were developed and piloted by the Partnership. The Greenspace Map of Scotland (itself billed as a world first) is being used to ensure that green space meets the need of current and new communities (see web link at the end of this article).



Volunteers installing dams at a peatland site in the Seven Lochs Wetland Park © GCV Green network Partnership

Using the datasets from these analyses has allowed Green Network thinking to become embedded in the region's Strategic Development Plan and Local Development Plans. Current work on a Green Network Indicator will allow monitoring of progress by local authorities against Community Plan targets for health and the local economy.

Opportunity mapping is not about single issues such as recreation. The approach being taken by the Partnership addresses crucial questions about how to manage the runoff of water from the land. Integrated Habitat Network modelling, a method developed by Forest Research, is being used to identify where wetland, woodland and grassland within a development would be most beneficial and can be aligned with surface water management (see the end of this article for a web link).

As new natural channels for water are created, the banks and margins often provide effective and attractive access routes, separated from roads, for walkers and cyclists. A tool called the 'Networks for People model' is being used to identify which parts of a development are poorly connected to the network of features in the natural environment, as connections encourage active lifestyles and greater wellbeing. This is helping to meet the targets in Scotland's national physical strategy, "Let's Make Scotland More Active", which recommends that adults should accumulate 30 minutes of moderate activity each day, and children one hour.

This work is not about integration of green infrastructure at some point in the development process. When it comes to an ecosystems approach in urban areas, timing is everything. Green infrastructure must be considered at the master plan stage: the point in planning urban development when strategic decisions about an area are taken.

Example Project

A major project where the partnership is applying its integrated green infrastructure approach is the Seven Lochs Wetland Park. This aims to create Scotland's largest urban nature park, with more than 20 km² of lochs, wetlands and woodlands on the boundary between Glasgow City and North Lanarkshire. A key component of the new park is to integrate plans for 4500 new homes and a heritage visitor attraction of national significance. Multi-functional green infrastructure will be linked to a wider green network which delivers a range of ecosystem services. In the first half of 2014, an EcoServ GIS project in partnership with Scottish Wildlife Trust and the SEPA will map and assess ecosystem services across the Seven Lochs area, to identify where services can be protected and enhanced (see web link below). Ongoing community consultation and engagement will inform the planning, development and future management of the network.

Max Hislop has been the Programme Manager for the GCV Green Network Partnership since its launch in 2007. Previously he worked for the Forestry Commission in various roles including as a forester in the Scottish Highlands, as one of the UK's first 'community foresters' based in East London, as a researcher studying agroforestry, short-rotation forestry and reclamation of post-industrial sites; and most recently as a social scientist studying the social dimension of forestry with a particular focus on public involvement in decision making.



Glasgow Clyde Valley Green Network Partnership: <http://www.gcvgreennetwork.gov.uk/>

Scotland's Green Space Map: <http://www.greenspacescotland.org.uk/1scotlands-greenspace-map.aspx>

Forest Research Habitat Network modelling: <http://www.forestry.gov.uk/fr/INFD-7S9ARR>

Forestry Commission work on Green Networks and people: <http://www.forestry.gov.uk/website/forestresearch.nsf/ByUnique/INFD-7YCHCS>

EcoServ GIS: <http://www.durhamwt.co.uk/what-we-do/current-projects/ecoserv-project/>

Bristol: European Green Capital 2015

Martin Bigg from the Bristol Green Capital Partnership explains Bristol's endeavour to become a leading European green capital. This highlights the partnership and perseverance required to embed an ecosystems approach in UK cities.



Bristol's Big Green Week © Martin Bigg

While the relationship between our cities and nature evolves slowly, there are moments of enlightenment. There are times when an ecosystems approach is understood and acted upon.

There are many milestones in Bristol's journey in applying the various aspects of an ecosystems approach. One could be 1970 when plans to fill in part of the floating harbour in the centre of the city caused people to rally around to protect it. Another key date could be 2000 when the City Council piloted the way for other UK cities with the Bristol Climate Protection and Sustainable Energy Strategy. 2008 was also an important year when Bristol became England's first Cycling City (despite the hills).

I suggest that the pivotal year was 2007 when the Bristol Green Capital Partnership initiative was launched. This free membership organisation aims to make Bristol a low carbon city with a high quality of life for everyone. It covers most aspects of city life; leadership, education and responsibility, community wellbeing, transport, economy, food, buildings, energy, Bristol's position in the world, and the natural environment which underpins all of this.

The Green Capital initiative has more than 300 member organisations including businesses, community and wildlife groups, colleges and universities. It also has links with groups across the city, such as Ujima, the local radio station for black and minority ethnic communities. The initiative has been supported with funds from the City Council.

Members are expected to play their part in contributing to Bristol's ambition of becoming a leading European green capital. Meetings take place regularly and action groups focus on areas such as engagement, land use and planning and transport. Recent major projects have included a report for the West of England Local Enterprise Partnership on the Pathway to Prosperity, defining a sustainable

economy in 2030. One aspect is supporting local businesses and local supply chains which are helped through the use of the local currency, the Bristol Pound.

Bristol Green Capital's theme is inspiring change and building on the green achievements of the people of Bristol. It is also about challenging, planning, and changing the way we live in our city to make it more sustainable. We are keen to encourage more partnership working between our different communities, more eco-innovation and learning, being more creative and having fun. We can see these principles in practice in Bristol's Big Green Week which happens each June. Fifty thousand visitors enjoy two weekends of free family entertainment and nine days of inspiring talks, workshops, art, music, poetry, comedy and films with our streets turned into a playground and market.

Inspiring change has also been the theme behind Bristol's three applications to become the European Green Capital. The award is given to the city that has a consistent record of achieving high environmental standards, is committed to ongoing and ambitious goals for further environmental improvement and sustainable development, and can act as a role model to promote best practice to other European cities.

Bristol applied for the award in 2008 and again in 2010. While we were assessed as strong on our commitment to addressing climate change and environmental management we were marked down on waste, water and eco-innovation, areas where there was major investment across the city but the benefits had yet to be delivered. In 2010 we got through to the final but lost out to Copenhagen.

We then faced a dilemma. Did we walk away saying that we did not deserve the title, build up a programme to make the changes so that we could win in a few years' time, or did we apply again with the experience fresh in our minds? We decided to go again immediately and apply for the 2015 title. We focused on the strengths of our partnership city such as successful nature conservation, significant improvements in water and waste management, while recognising that our challenges such as traffic and air quality were issues we could share with cities across Europe. We are already trying out new ideas such as planting trees down the centre of some of our major roads and supporting green community initiatives. We are linked in with cities across the UK and Europe, but we want to do more. We want to experiment, try out new ideas, so we promoted the city as a laboratory for change. This time we won, and will be European Green Capital 2015.

Bristol Green Capital is an effective partnership which embraces the city and provides the platform for embedding an ecosystems approach. Together we are helping each other to tackle the serious environmental issues we are facing and working to make Bristol a leading European green capital.

Martin Bigg is Professor of Environmental Technology at the University of the West of England, Bristol. As Chair of the Bristol Green Capital Partnership he steered the growth of the partnership and the winning of the European Green Capital 2015 title. He has just stepped down to devote more time to delivering the vision for 2015 and leading the Environmental iNet, a University programme to help innovation by small environmental businesses in the South West.

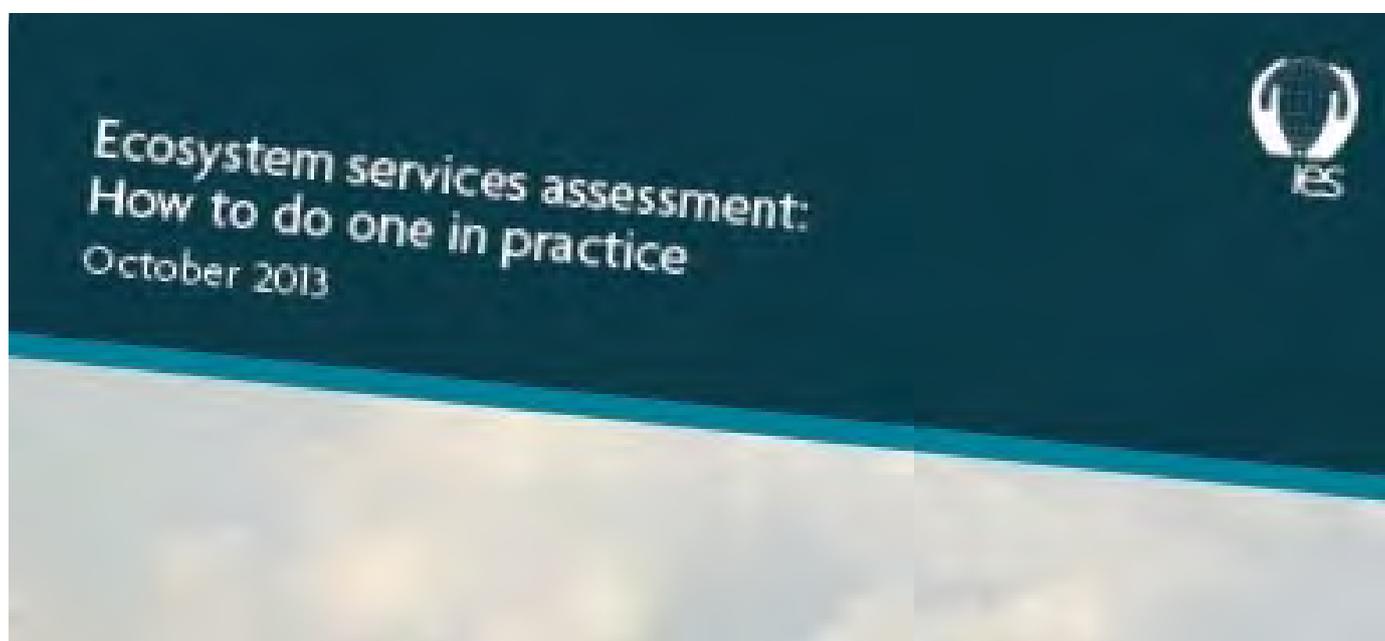


Doing the job of ecosystem service assessment

A practical guide on how to undertake an ecosystem service assessment for a land area is now available. The recommendations in the guide are a useful starting point for those seeking to apply an ecosystems approach at the local level.

Ecosystem services assessment: how to do one in practice has been produced by the Institution of Environmental Sciences and involves several Network members as authors. It includes help with defining a study area, suggestions for how to go about engaging people in the process, advice on how to derive values for ecosystem services and how the findings may affect decision making. The guide draws on learning from a series of published ecosystem services case studies and provides references to further guidance and sources of information.

Access the guide at <http://www.ies-uk.org.uk/resources/ecosystem-services-assessment>



Local communities and valuation of ecosystem services



Participants at a L&OVe workshop making lots of connections about what they value © Chris Richards

Valuing nature's services and involving people are two important components of an ecosystems approach. The challenge of putting these two components together within local communities is only just beginning to be recognised. As reported in Issue 4 of *Ecosystems News*, one project that is making good progress in this area is the Lewes and Ouse Valley eco-nomics (L&OVe) project in East Sussex.

The Ecosystems Knowledge Network is working with Network member Colin Tingle to organise a field trip to L&OVe. This will provide Network Members with an opportunity to learn about how local communities can be involved in the valuation of ecosystem services, as well as to share their own experiences in this area.

The field trip will take place on Thursday 5th June 2014. See <http://ecosystemsknowledge.net/about/events/future>

Systemic solutions

'Systemic solutions at the landscape-water interface': workshop held at Bristol Aquarium in February.

'Systemic solutions' is the term used by those with interests in managing land and water to refer to ways of working that make the most of natural processes and opportunities for partnership. While the logic behind systemic solutions might be attractive, there are challenges for farmers, growers and others in implementing them 'on the ground'. These challenges were the topic of a workshop in Bristol on 10th February.

The event began with an overview of the 'state of the art' in wetland-based solutions to address water quality by wetland consultant Rob McInnes. Wessex Water, The Rivers Trust and the Environment Agency were among the other contributors. Much of the workshop focused on the practical uptake of payments for ecosystem services, picking up on challenges identified at the Ecosystems Knowledge Network's workshop in Manchester (see Page 8). In his presentation, Charles Cowap, an advisor on rural property and its valuation, pointed out that so-called 'systemic solutions' must fit with farm or estate business plans, inheritance and succession, as well as land tenure and security of income, and they should offer a solid business opportunity.

The programme for the event and links to presentation slides are available at <http://tinyurl.com/systemic-solutions-workshop>. A follow-up field based workshop is planned for the early summer (check the Ecosystems Knowledge Network website for information). The workshop was organised by the Environmental Sustainability Knowledge Transfer Network in conjunction with the University of West England and the Royal Agricultural University. The event was sponsored by Landbridge, a network for professions involved in managing the rural environment.

Making the most of ecological networks in Wales



Brecon Beacons National Park © Sean McHugh

In September 2013, a two-day conference entitled ‘Developing Ecological Networks –Planning, Integration and Delivery for Wales’ took place. The event was organised by the Welsh Biodiversity Partnership and sponsored by Welsh Government and Natural Resources Wales.

The conference focused on the best ways to develop ecological networks in Wales in accordance with an ecosystems approach. (Ecological networks are arrangements of features in the landscape, such as woodland and waterways, that work together to create resilience and support ecosystem service provision.)

The event included much discussion of how we can improve our knowledge of how different places are connected. Participants learned about progress on habitat network modelling (computer simulations of how patchworks of habitats interact) and how these could be applied, within the context of an ecosystems approach. Projects such as Pont Bren – featured on the Ecosystems Knowledge Network website – were presented. Participants also heard about the importance of volunteer surveys of features in the environment when engaging people in an ecosystems approach.

The conference report, which includes helpful summaries of question and answer sessions, is available at <http://www.biodiversitywales.org.uk/en-GB/Wales-Biodiversity-Partnership-Conference>