Nature based solutions: delivery of biodiversity conservation and ecosystem based adaptation in urban areas

Sarah Taylor, Senior Specialist Climate Change Adaptation
Natural England

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Context

- The world is becoming increasingly urbanised
- Urban England:
  - 80% of the population
  - 11% of our land use
- Urbanisation fragments, pollutes and degrades our natural environment
- Can be rich in biodiversity and provide nature based services to residents

Global climate change

- Challenge and imperative for changing the way we do things in urban areas
- The vulnerability – of both people and biodiversity – is a driver for change
- Sustainable adaptation for people and wildlife through ecosystem based adaptation
Climate change impacts

• People
  – Flooding
  – Urban heat island
Climate change impacts

- Biodiversity
  - Range shift
  - Phenology and interactions
  - Community composition
Principles of delivery
Urban ecology 101 – social-ecological systems

(adapted from Kowarik, 2005).
How do we put this in to practice?

‘Making Space for Nature’ – also known as The Lawton Review

• Assessment of our ecological network in England
• Principles for climate change adaptation for biodiversity:
  • **Bigger** (areas of habitat)
  • **Better** (designed and managed habitats)
  • **More** (habitat!)
  • **Joined** (up habitats)

Lawton et al 2010
How do we put this in to practice - Scale

- The need for a coherent plan (we don’t have one)

- The scale we need to work at to provide ecosystem services to a large urban population

- To provide solutions to local issues such as flooding and access to greenspace, green travel options

- Small interventions can add up if planned strategically
How do we put this in to practice - Design

- **Location**
  - Where green infrastructure will provide the required adaptation function
- **Features**
  - What green infrastructure will provide the required adaptation function, reinstating natural processes
- **Multifunctionality**
  - Ensure the best combination of functions are provided and maximised where possible/appropriate
- **Partnerships**
  - How we best provide the above
How do we put this in to practice -

**Design**

- Where green infrastructure will provide the required adaptation function
- What green infrastructure will provide the required adaptation function, reinstating natural processes
- Ensure the best combination of functions are provided and maximised where possible/appropriate
- How we best provide the above
How do we put this in to practice - Design

Enable planning for SuDS as an integral part of new development (associated opportunities for biodiversity, landscape and sense of place).

Useable greenspace - opportunities for recreation and play with management needs designed in from the outset.

Greenspace as ‘common ground’ to link parts of a development; also permeability.
Regional case study – Olympic Park
Regional case study – Queen Elizabeth Olympic Park

- Access, health, Olympic and Paralympic legacy
- Biodiversity
- Flood alleviation
Local example – Mayesbrook Park

- Creating the UK’s first climate change park in east London
- Adapting the park and surrounding area to climate change
- Improving flood water management, protecting homes and businesses
- Enhancing biodiversity through habitat creation and improved water quality
- Creating opportunities for people to engage with the natural environment

Key partners for Mayesbrook Park: London Borough of Barking and Dagenham (LBBD), the Environment Agency, Thames River Restoration Trust, Natural England, London Wildlife Trust, and the Mayor of London. Significant funding was also provided by the insurance company RSA Ltd and the SITA Trust.
Site example – Greening for Growth in Victoria Business Improvement District

- A businesses led partnership to enhance the natural environment to underpin economic prosperity

- Green infrastructure audit identified:
  - 25.5 ha of flat roofs with green roof potential
  - 1.25ha of new terrestrial green infrastructure
  - 1.69ha of enhancements to existing GI

- If all of this were delivered it equated to an 80% increase in green cover in Victoria BID

- Example of small interventions adding up – this area could deliver an area of green infrastructure equivalent to St James Park!
Conclusions

- Green infrastructure delivery examples are exciting and inspiring and we have many
- But green infrastructure needs to be applied consistently
- Some question whether green infrastructure needs to be biodiverse to provide ecosystem based adaptation
- Biodiversity confers resilience of services to climate change, monocultures are inherently vulnerable
- Biodiversity also underpins services, providing cultural services and makes people feel good!
- We should make sure green infrastructure is truly multifunctional, including biodiversity
- Reconnecting people with nature is the most important thing we can do
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Sarah.taylor@naturalengland.org.uk
+44 (0)300 060 3922