

# our vision

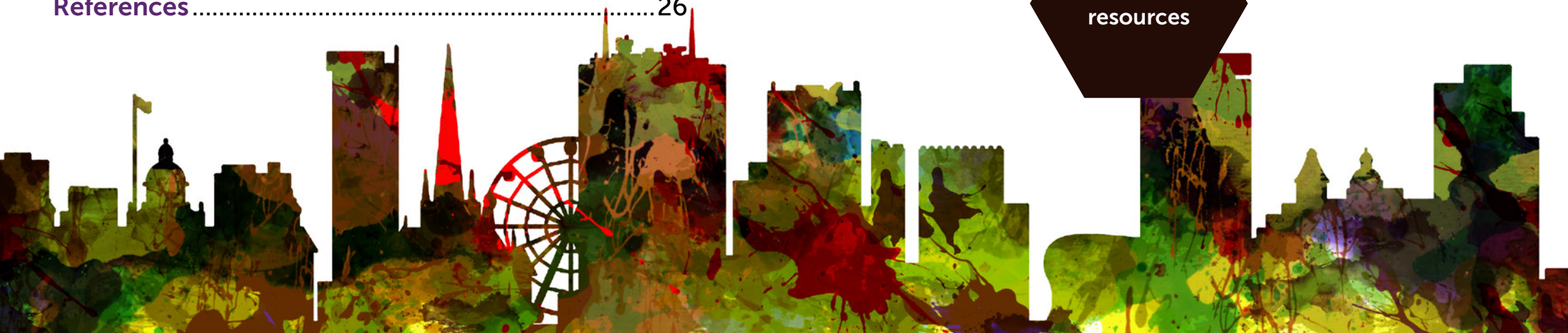
for a resilient

# urban forest



# Contents

	Page
A message from Rory Stewart OBE MP.....	3
Foreword.....	4
Introduction.....	5
Members of the Urban FWAC Network.....	6
Our vision.....	7
Strategic planning and green infrastructure.....	8
Climate change.....	10
Natural environment.....	12
Human health and quality of life.....	14
Planning and development.....	16
Economy and growth.....	18
Value and resources.....	20
Risks and resilience.....	22
In future.....	24
References.....	26



## A message from Rory Stewart OBE MP

Parliamentary Under Secretary of State for Environment and Rural Affairs

I am delighted to support this vision for the urban forest. Britain has long been defined by its parks and its cities by trees. But we are at the beginning of a new era – where we are beginning to fully appreciate and quantify the benefits of these trees. What we once admired for its aesthetic beauty, we now admire for its deeper beauty – encapsulating its contribution to air quality, to carbon capture and to the health and wellbeing of animals, insects and humans. Trees are unique in their ability to reach across generations and cultures. They inspire our imaginations and remind us of our place in the natural world. Planting and caring for trees helps connect people with nature; empowering

people to play a part in managing their environment and creating great towns and cities.

This Vision for the urban forest draws on a wealth of existing research, evidence and good practice from the UK and beyond that explains urban trees’ many benefits and how to secure them.

Many towns and cities are already working to their own visions, from Manchester’s ‘City of Trees’ movement to Birmingham’s biophilic city. Our challenge is to empower more people and business to play their part. To help unleash their drive and energy to create the great places they want. Doing so can be challenging but hugely

rewarding. Already people are creating and managing tree-filled Pocket Parks; schoolchildren are planting a million trees in their grounds or nearby and Forest Schools are providing unique learning opportunities.

My sincere thanks to all those involved in the Urban FWAC Network for taking the initiative. For inspiring and challenging us all to help realise their vision in our own ways. I look forward to playing my part by endorsing this vision, championing the wide-ranging benefits it describes and working with colleagues across Government to make Britain a place famous throughout the world for its urban trees.



# Foreword

## Sir Harry Studholme, Chairman of the Forestry Commission



The majority of England's population live, and have lived for a long time now, in our towns and cities. It is here that most people experience trees.

Trees have a special resonance in an urban setting. In gardens, alongside streets and in parks, the urban forest is a functioning element of the ecosystem of our cities. Trees provide shade and shelter, beauty, and pollution control as well as a natural counterpoint to the built environment and a backdrop for recreation.

The information that the Urban FWAC Network have brought together in this key document will help those involved in planning and managing urban areas in cities and towns to create the opportunities that will deliver the vision (see page 6).

In reflecting on the vision I would like to challenge you all to think about three questions:

- 1 **Do you know the scale and value of your urban forest?** Are you harnessing the power of new tools, big data and volunteer commitment to measure the true value of your trees?
- 2 **How well do you support the care of our existing urban forest?** Are you engaging with the enthusiasm of local communities and businesses for the protection, improvement and expansion of their urban forest?
- 3 **Do you have a target to increase tree and canopy cover in your town or city?** Will you be planting more trees?

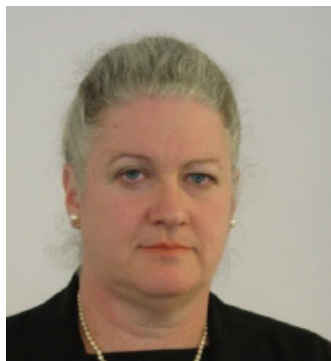
All of us want to see a cleaner, healthier environment. This vision outlines what a resilient urban forest can contribute and how to make it happen.

One of the joys of our urban environment is the diversity of our cities and towns and each place will approach these opportunities in different ways. To be resilient our urban forest needs to celebrate this diversity not only in planting a wide range of tree species, but also in fostering a wide range of locally inspired solutions. There is a huge opportunity in this vision, which is not simply about trees but about making our cities more liveable. I hope it inspires not only those of us who have long been working to build the urban forest but encourages more people and communities to make the vision a reality.

**Sir Harry Studholme**  
Forestry Commission Chairman

# Introduction

## Jane Carlsen, Urban Forestry and Woodlands Advisory Committee (FWAC) Network Chair



The Urban FWAC Network has developed this vision for a resilient urban forest and the many opportunities that will follow from its implementation.

The vision builds on the immense benefits of the trees in our cities and is an important guide for all of us who care for the urban forest.

The Urban FWAC Network was established by the Forestry Commission in 2014 to take forward the case for urban forestry in England's towns and cities and spread good practice. Every FWAC nominated a representative to the network and from the beginning our members felt that it was key for there to be one vision of urban forestry that everyone could sign up to and could be delivered at a local level.

This document sets out that vision. It has been agreed by the chairs of the FWACs and I am delighted that Sir Harry, Forestry Commission Chairman, is supporting the vision. He has set us all a number of challenges. Towns and cities across England have already begun to address these challenges and there is inspiration to be had from further afield in North America, Australia and France.

The Urban FWAC Network will now develop a strategic action plan to take the vision forward.

Everybody who is affected by trees and woodland in our towns and cities will need to sign up to this vision and develop a local action plan. This includes the owners of land with trees – local authorities, utility companies, community groups and individual residents – professionals who work with trees, and all of us who live, work in and will benefit from the resilient urban forest.

The network of FWACs will work to enable and encourage England's urban areas to make the commitment to deliver and spread the benefits of the urban forest.

**Jane Carlsen**  
**Chair, Urban FWAC Network**

# Members of the Urban FWAC Network

- Jane Carlsen  
Urban FWAC Network Chair and  
Chair of London Forestry and Woodlands  
Advisory Committee (FWAC)
- John Meehan  
Environment Team Manager  
Essex County Council  
Representing East of England FWAC
- Bruce Collinson  
Whitehill & Bordon Regeneration Project  
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London Borough of Camden  
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Green Space Business Advisors  
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This document has been published  
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ATLANTIC GATEWAY

**PARKLANDS**



# Our vision for the urban<sup>1</sup> forest in England is...

Where the many benefits of trees are recognised and invested in.

The urban forest is integral to the form and function of all our urban areas.

It helps create healthy and economically successful communities and liveable places for people and wildlife.

## It will...

Be considered as critical infrastructure for urban areas, on a par with utility, transport and the built environment. Infrastructure does not appear by chance; it is planned for, designed, created, managed and maintained. The urban forest is no different.

Be viewed and managed as a whole and not considered as separate trees. Trees in parks, streets, private gardens, public land, highways and urban woodlands will all contribute to the urban forest.

Inspire collaboration and creativity to ensure that the urban forest thrives and expands in a world of increasingly complex institutional, ownership, stakeholder and financial arrangements.

## In more detail...

The urban forest is complex and multi-functional, resisting easy classification. The vision has been split into eight main themes:

- 1 Strategic planning and infrastructure
- 2 Climate change
- 3 Natural environment
- 4 Human health and quality of life
- 5 Planning and development
- 6 Economy and growth
- 7 Value and resources
- 8 Risks and resilience

# Strategic planning and green infrastructure

The urban forest vision will be shared by developers, planning authorities and communities as a critically important element of plans for new investment, infrastructure and retrofit.

Our towns and cities will have robust strategies for planning and management of the urban forest.

It will be a key part of green infrastructure (GI), helping to deliver economically successful, healthy, vibrant and safe places.

## What we know

- The urban forest is recognised as a critically important element of GI which is agreed internationally<sup>2</sup>, nationally<sup>3</sup> and **locally**<sup>4</sup> as a part of urban development that must be planned for and integrated into existing and growing communities.
- Many urban areas have developed GI plans/ strategies as part of their spatial, sustainability, **economic development** or **wellbeing thinking**<sup>5,6</sup>. Local planning authorities in England are required<sup>7</sup> to set out a strategic approach to planning networks of green infrastructure.
- Nature is a key driver. This embraces the direction of **government policy**<sup>8</sup> that acknowledges the essential value of the natural environment and its role in underpinning our economic prosperity, health and **wellbeing**<sup>9</sup>.





# Strategic planning and green infrastructure

## What's already happening

- **Atlantic Gateway's Parklands** – the Landscape for Prosperity<sup>10</sup> builds on the analysis and scenarios of Adapting the Landscape, integrating the requirements of European directives as well as national, city regional and local authority green infrastructure (GI) ambitions. It will help make the Gateway 'investment ready' and liveable.
- **The Trees and Design Action Group (TDAG)** provides inspirational and practical advice<sup>11,12</sup> to professionals and communities to further the role of trees within the built environment.
- **The Mersey Forest Plan** sets out a visionary concept for urban forestry and GI that has wide community, business, public and civil society support – and has resulted in more than nine million trees being planted to date.
- **The London Infrastructure Plan to 2050** recognizes green infrastructure as a key enabler of housing growth as well as supporting the economy<sup>13</sup>. London's Green Infrastructure Task Force is advising the Mayor on how GI can be described and understood in order to accelerate delivery by demonstrating the case for investment.

## 2

# Climate change

The urban forest will help create resilience.

It will help cool the air, reducing energy use.

It will help reduce storm water run-off as part of sustainable drainage systems and store carbon.

The urban forest will be widely recognised as being much simpler and cheaper than heavy engineering in adapting urban areas for the future.

## What we know:

- Trees remove four million tonnes of carbon from the UK atmosphere each year<sup>14</sup>.
- Trees in cities can cool the air by 2°C to 8°C<sup>15</sup>, reducing air conditioning costs<sup>16</sup>.
- Trees help reduce flood risk by intercepting rainfall and using water through transpiration. Their root systems increase soil porosity, allowing water to move into the subsurface<sup>17</sup>.



Pic: © Mark Durk



## 2

# Climate change

## What's already happening

- In **Wrexham**, some 1,339 tonnes of carbon are removed from the atmosphere each year and over 65,000 tonnes are currently stored<sup>18</sup>.
- In Milwaukee USA the urban forest reduces run off flow by 22% and provides more than \$15 million in benefits<sup>19</sup>.
- **Portland, Oregon** reduced the costs of a sustainable drainage scheme from \$144m to \$86m by including trees<sup>20</sup>.

- The RE:LEAF programme is contributing to a target of increasing London's tree cover by 5% in 2025 as part of Mayor of London's **Climate Change Adaptation Strategy**<sup>21</sup>.



## 3

# Natural environment

The urban forest will enhance biodiversity and our contact with nature.

Trees and shrubs will provide more nesting sites and food for birds and other animals.

More people will be able to appreciate experiencing – watching, feeding, photographing and painting – urban wildlife.

The urban forest will help more people maintain their connection with nature; contact that brings a range of benefits for public health and wellbeing.

## What we know

- A mature oak tree may host up to 423 different species of invertebrates<sup>22</sup> that support birds and mammals.
- Street trees provide wildlife corridors through the most urbanised areas, linking habitats together while providing benefits to people.
- The urban forest can make an important contribution to the conservation of particular species or groups, such as bumblebees.
- Biophilia<sup>23</sup> describes how humans are hard-wired to need connection with nature and other forms of life. It is the emotional affiliation of human beings to other living organisms, developed over thousands of years of evolution and human-environment interaction.



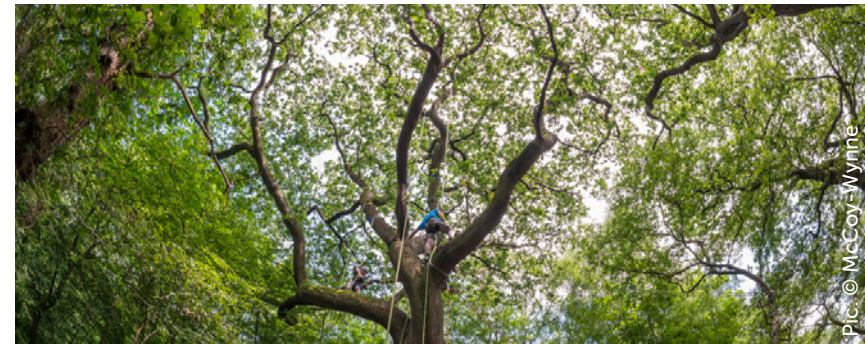
## 3

## Natural environment

### What's already happening

- Birmingham is the UK's first **Biophilic City**<sup>24</sup> and is a leader in making connections between health and nature. Despite the city's reputation as a grey industrial area, it ranks high in biodiversity, especially when the 1,000 hectare Sutton Park National Nature Reserve, is taken into account. Birmingham has declared its intent to be the United Kingdom's first "natural capital city", and is working on a "natural capital metric" that will place a value on the city's urban forest and be used to evaluate future development projects.

- Urban habitats have often been thought of as the poor relation, in terms of biodiversity, to habitats in more rural and natural areas. In reality, however, urban habitats can be extremely rich in birds and other wildlife. London's **Richmond Park**<sup>25</sup> is a National Nature Reserve, SSSI (Site of Specific Scientific Interest) and Special Area of Conservation.



# 4 Human health and quality of life

The urban forest will help address the health and wellbeing of our increasingly urbanized society (82% of people in England live in urban areas).

Both physical and mental health will be improved, through: cleaner air (by removing and intercepting pollutants); reduced summer heating, harmful effects of UV light and noise levels; access to green spaces for physical exercise that reduces stress, anxiety and mental fatigue.

The urban forest will provide extensive opportunities for communities to work and grow together, particularly people from disadvantaged groups.

## What we know

- Heat-related stress accounts for around 1,100 premature deaths per year in the UK. An estimated 8–11 extra deaths occur each day for each degree increase in air temperature during UK summer heatwaves. The occurrence and intensity of extreme heat events is set to increase as climate change progresses. Canopy shading from the urban forest can cool the air by between 2°C and 8°C<sup>26</sup>.
- **Shade from trees can protect against harmful UV radiation from the sun**<sup>27</sup>.
- Natural settings can have a positive impact on mental and physical health<sup>28</sup>.
- Peri-urban woodlands (on the edge of town and countryside) contribute to health and wellbeing by providing opportunities for stress relief and physical activity<sup>29</sup>.
- Green space offers possibilities of: increased social activity; improved community cohesion and local attachment; and reduced crime levels, particularly in deprived communities<sup>30</sup>.
- Tree planting can help build a collective community spirit and pride<sup>31</sup>. It may also generate cost savings and long term stewardship beyond planting.
- Appropriately placed trees in cities can reduce air pollutants including particulates and gases such as nitrogen dioxide and ozone<sup>32</sup>. Trees, shrubs and plants also create pollution and noise barriers<sup>33</sup> between roads and places where people gather.
- In Glasgow, 283 tonnes of atmospheric pollutants are removed each year by trees<sup>34</sup>.
- Attention Restoration Theory<sup>35</sup> asserts that contact with nature within the urban forest will improve cognitive function. Research has demonstrated that educational and business outcomes improve as people concentrate better after spending time in nature, or even looking at scenes of nature.

# Human health and quality of life

## What's already happening

- In Birmingham, green space is mapped alongside the potential years of life lost (against national life expectancy). In areas with the most green space, total potential years of life lost was nearly four times lower than in the area with least green space<sup>36</sup>.
- In England between 2010 and 2014 over 800,000 trees on 3,300 sites, over 70% of which were in urban areas, were planted by local community groups as part of **The Big Tree Plant**<sup>37</sup>.
- Mayor of London's **Breathe Better Together campaign**<sup>38</sup> is raising awareness of the effect of air pollution on health and quality of life.



# 5 Planning and development

Creating and reinforcing the urban forest will go hand in hand with the delivery of new homes, commercial areas and infrastructure, from the street scene to major urban parks and woodlands.

Developers, financiers and communities will ensure that the urban forest is a key component of each new development, linking in to the strategic green infrastructure of urban areas.

Developers and planning authorities will work together from the outset of the planning process to ensure that the urban forest forms an essential part of the site's proposed infrastructure.

## What we know

- Undeveloped land or sites 'land-banked' by their owners can be used for forestry purposes before development commences. The concept of 'meanwhile' and **temporary uses**<sup>39</sup> is also important as the development process can allow and support meanwhile uses to provide benefit to the local community and wildlife.
- Local planning authorities use local plan policies supplementary planning guidance, **tree planting obligations**<sup>40</sup> and mitigation formulae to guide and calculate the requirements for tree planting in relation to new development to support the strategic green infrastructure objectives of the local area.
- At the local level, **town design statements**<sup>41</sup> and arboricultural impact assessments are used to determine the existing value of trees within and adjacent to site boundaries to ensure that development is enhancing the existing provision.



## Planning and development

### What's already happening

- **Atlantic Gateway Parklands** is pioneering a number of new funding instruments to accelerate and encourage environmental investment to stimulate economic growth. One approach is a voluntary contribution of 1% of project costs to a **community environment fund**. The fund has successfully helped to deliver over £1m investment in green infrastructure projects over the last couple of years<sup>42</sup>.



Pic: © Bruce Coulton

- The **Whitehill & Bordon Regeneration Project**<sup>43</sup> in Hampshire is one of the government's Housing Zones and a 'Step Up Town' for the Enterprise M3 Local Enterprise Partnership (LEP). The LEP has supported the delivery of the town's 'Green Vision' to ensure the natural environment is at the heart of the redevelopment proposals for a new town centre, secondary school, leisure centre and 3,350 new homes by 2035. Public sector partners and developers are leading the way to ensure that urban trees and woodlands are used to support the regeneration and economic development of the existing town.
- In London, the Mayor has a number of programmes for **greening London**. The All London Green Grid SPG<sup>44</sup> provides the framework.

## 6

# Economy and growth

The urban forest will contribute to the urban economy.

It will help create urban areas that attract investment, generate products and services that are used locally e.g. wood for energy, and develop a culture of woodland skills and employment.



## What we know

- Developers are willing, on average, to pay at least 3% more for land in close proximity to open space, with some putting the premium as high as 15-20%<sup>45</sup>.
- The estimated willingness to pay for a woodland view for houses on the urban fringe is £269 per annum per household (2002 prices), and a view of woodland while travelling is £227 per annum per household<sup>46</sup>.
- Green infrastructure supports local economic growth through inward investment, visitor spending, environmental cost savings, health improvement, market spend and employment generation<sup>47</sup>.
- The 'green space sector' in 2010 (including public parks departments, nature reserves, botanical/zoological gardens, landscape services and architectural services) employed about 122,000 people in England. This represents around 0.4% of all jobs in the country<sup>48</sup>.
- Research from the **University of Sheffield** has found that people are willing to pay up to £29.91 per month, or around £360.00 per year, for greener urban spaces with greater tree coverage<sup>49</sup>.

## 6

## Economy and growth

### What's already happening

- **The Northwest Forestry Manifesto**<sup>50</sup> includes a clear economic case for investment in urban forestry.
- The creation of Bold Colliery Community Woodland near St Helens has directly enhanced property values by around £15m, and helped secure a further £75m of new investment<sup>51</sup>.



Pic: © Mike Roberts



# Value and resources

The urban forest's value in terms of market and non-market products and services to society will be recognised and stimulate future investment in its protection, improvement and expansion.

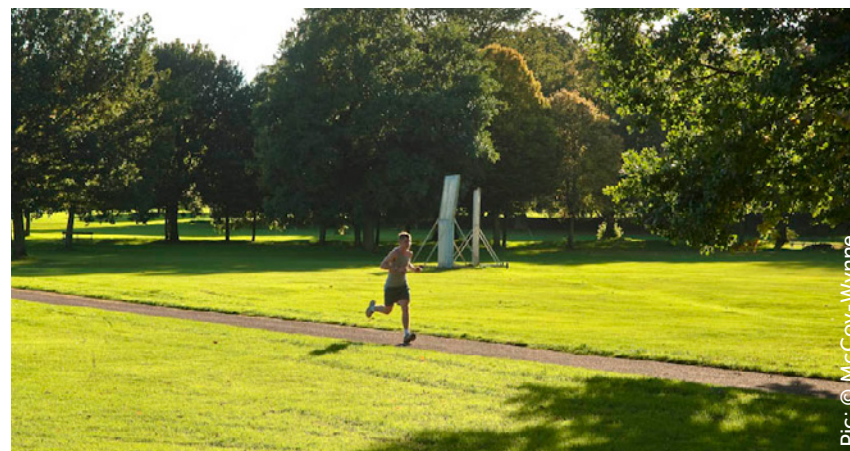
## What we know

- Greater London's trees provide **£133M per year of air pollution reduction**, stormwater attenuation and carbon sequestration benefits<sup>52</sup>.
- In terms of extra deaths due to heat stress averted, London's green spaces are collectively valued at £26.4m–£36.4m<sup>53</sup>.
- For every £1 invested in the Mersey Forest's Objective One programme (£7 million) £10.20 was generated in increased GVA, social cost savings and other non-market wellbeing benefits<sup>54</sup>.
- **Glasgow's trees** intercept 812,000m<sup>3</sup> rainfall per year, equivalent to £1.1m in sewerage charges<sup>55</sup>.

# Value and resources

## What's already happening

- Birmingham City Council is exploring a 'tree bond', financing urban forest management and reducing energy bills through the use of woodfuel.
- Manchester's '**City of Trees**'<sup>56</sup> programme aims to double tree cover within a generation to excite, inspire and transform the city region. It brings together funding from the private sector and political and partner support across Greater Manchester.
- Citizen science projects like **Treezilla**<sup>57</sup> and the national tree map are helping to identify, quantify and value all the trees in England's towns and cities.



## 8

# Risks and resilience

The urban forest will continue to provide a wide range of benefits to people and wildlife and help society become more resilient in the face of climate change.

The urban forest itself will become increasingly resilient to pest, diseases and climate pressures.

The diversity of species, provenance and age will widen; urban forest canopy area will increase with more large stature, large canopy, high leaf-area trees.

The canopy will be more connected.

More people will be actively engaged in monitoring, managing and making the urban forest.

## What we know

- **Pests and diseases** that affect trees appear to be increasing in number and severity of impact. Chalara die back of ash, oak processionary moth and Phytophthora are now widely established<sup>58</sup>.
- In Torbay, European ash (*Fraxinus excelsior*) is the most important tree, making up 20% of the leaf area<sup>59</sup>. Chalara dieback of ash could have serious implications for many urban woods and trees.
- In London's Victoria area, London planes provide 67% of the leaf area<sup>60</sup>. Plane tree wilt and other diseases could devastate the streetscapes and seriously impact upon the range of benefits we get from trees.

## 8

## Risk and resilience

### What's already happening

- The **Right Trees for a Changing Climate**<sup>61</sup> database is helping professionals and tree planters select the most suitable, resilient species to withstand climate change.
- The **Observatree**<sup>62</sup> citizen science project is engaging a wide range of people and communities in identifying and reporting tree pests and diseases to maximise the chances of eradicating or controlling outbreaks.



Pic: © McCoy-Wynne



# In future...

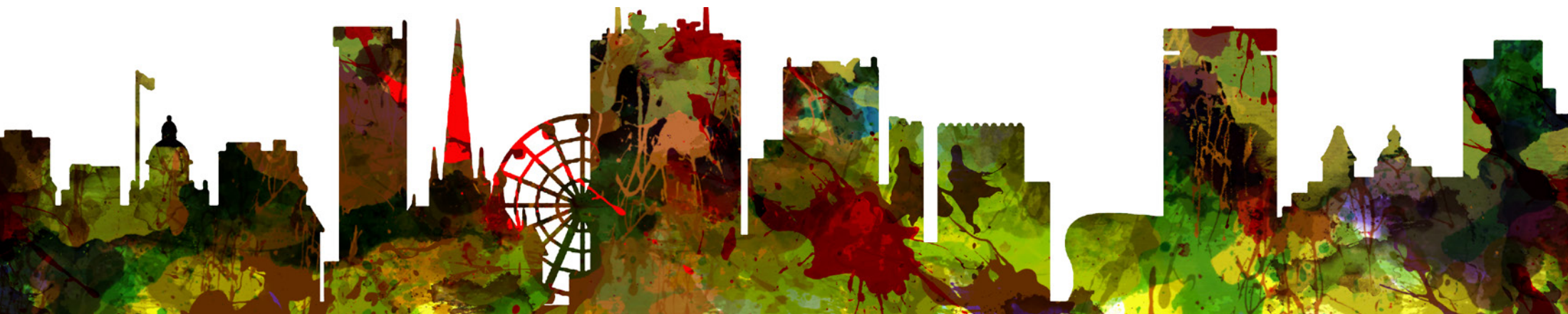
The urban forest is part of the financial, professional and community world-view. As a carefully managed and cared for resource it is integral to how we create and improve the places in which we live and work. A healthy urban forest is recognised as a reflection of the special character of a place and of its wellbeing and prosperity.

People look back at the early 21st century with incredulity – was it only THEN that they began to realise the full role the urban forest plays in civilisation?

A time to plant...



For further enquiries regarding the work of the Urban FWAC Network or this document contact Helen Townsend – [helen.townsend@forestry.gsi.gov.uk](mailto:helen.townsend@forestry.gsi.gov.uk)





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## Please note:

All external links correct at time of production (October 2015). We apologise for any links that may have broken over time.

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