An Action Plan to increase green space and enhance wildlife in domestic gardens across Manchester
The city of Manchester has a population of 514,000 people. The city forms the administrative, commercial, financial, transport and cultural centre of Greater Manchester.

Manchester City Council aspires to create a liveable, clean, safe and attractive city. The many and varied green spaces in Manchester play an essential role in delivering this aspiration. Green spaces in Manchester include:

- one hundred and sixty public parks
- forty two allotment sites
- five river valleys (Irwell, Irk, Medlock, Mersey and Bolin)
- three canals (Bridgewater, Rochdale, Ashton)
THE BENEFITS OF GREEN SPACES

Urban green spaces comprise physical components such as trees, grasses, and water bodies. The composition and arrangement of these physical components determine the important natural processes that take place in green spaces, which can:

- cool the air
- improve air and water quality
- absorb rainfall
- support wildlife
- provide a setting for recreational activities

These natural processes that occur in green spaces can provide many benefits to people, which include:

- fewer incidents of heat stroke during heat waves
- fewer incidents of respiratory problems during smog events
- reduced flood risk
- increased contact with nature
- using water bodies for fishing and green spaces for physical exercise

By measuring the physical components of green spaces it is possible to estimate the natural processes taking place in them. Consequently, it is possible to estimate the benefits that they provide to people and to the city as a whole.
Individually a domestic garden may appear insignificant. Collectively domestic gardens make up a significant proportion of the green space within a city.

In Manchester, one fifth of the land area is domestic gardens, which could contribute around one third of the city’s green space. Previously, it was not known whether each domestic garden is entirely covered by green space, or whether it is fully or partly paved. So, the actual amount of green space that domestic gardens contribute to the city’s overall green space remains unclear.

The information used in Manchester Green and Blue Infrastructure Strategy assumes that all domestic gardens are wholly green space. This assumption over-estimates the amount of green space in gardens because some gardens are at least partly paved.

Over-estimating the amount of green space in gardens has implications for the future planning of the city. For example, over-estimating the amount of green space may lead to:

- inaccurate simulations about the city’s ability to cope with extreme weather
- misidentification of areas that need public green spaces
- misguided action on the ground
- residents undervaluing their domestic gardens
My Back Yard was a two year project that took place between 2016 and 2017. The project developed a new understanding of the benefits that domestic gardens provide to residents in Manchester. There were four consecutive stages in the project approach.

The first stage involved an online survey to gather information from Manchester residents on how much green space exists in their gardens. Information on how people value their gardens was also collected. Over 1,000 people took part in the survey.

During the second stage, the information gathered from the online survey was validated against detailed aerial images. Furthermore, aerial images were used to extend and complement the survey information. This process resulted in a robust estimate of the amount of green space in gardens.

In the third stage, the amount of green spaces in gardens was used in models that estimate the natural processes that take place within gardens. The natural processes investigated were cooling the city, and absorbing rainfall. These estimates indicated benefits relating to reduced risks from heat waves and flooding.

The final stage of the project involved incorporating this new information into an action plan to improve the benefits provided by gardens. Four project partners took part in three rounds of discussions, negotiations, and consensus building. These resulted in a co-developed action plan.
**EVIDENCE ON THE AMOUNT OF GREEN SPACE IN GARDENS**

Domestic gardens can cover a significant proportion of the total area of each ward. Highlight findings on the proportion of domestic gardens to total ward area include:

- The maximum proportion of domestic gardens to total ward area is 47%
- The minimum proportion of domestic gardens to total ward area is 0.5%
- The average proportion of domestic gardens to total ward area is between 22% and 26%

The actual green space within domestic gardens is less than expected:

- The total area of domestic gardens in Manchester is 24 square kilometres
- The total area of domestic garden green space in Manchester is 12 square kilometres

The findings of the My Back Yard project demonstrate that gardens are not completely green space. This affects the total estimate of green and blue space cover across Manchester:

- Green and blue spaces cover 49% of the area of Manchester
- It was previously estimated that Manchester’s green and blue spaces covered 58% of the city

Less green space in domestic gardens means that the potential benefits they provide to people are reduced. The key findings indicate that:

- Due to less green space in Manchester than previously estimated, surface temperatures in some wards during the hottest days of the year could be up to 4°C hotter
- Due to less green space in Manchester than previously estimated, the amount of rainfall absorbed during the wettest days of the year may be up to 6% less
Percentage of ward that is green and blue space

<table>
<thead>
<tr>
<th>Percentage of Ward</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14%—39%</td>
<td>Low</td>
</tr>
<tr>
<td>40%—47%</td>
<td>Below average</td>
</tr>
<tr>
<td>48%—50%</td>
<td>Average</td>
</tr>
<tr>
<td>51%—56%</td>
<td>Above average</td>
</tr>
<tr>
<td>57%—73%</td>
<td>High</td>
</tr>
</tbody>
</table>

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Evidence on how people value their gardens

Over 1,000 people from across Manchester responded to the survey. People value their gardens highly and for many different reasons. Some key findings from the My Back Yard survey include:

- 97% of respondents said they value their garden.
- The more green space there is in a garden, the more residents value that garden.
- Gardens with around 60% green space are valued the most.
- Older age groups value their garden more than younger age groups.
- Older age groups tend to have more green space in their gardens than younger age groups.
- Domestic gardens of detached houses are 80% green space on average.
- Domestic gardens of terraced houses are 40% green space on average.
- The garden was a key factor in the decision to rent or buy property for 66% of the respondents.
- Tenants in the private rented sector said the garden was not a key factor in their decision to rent.

How much Manchester residents value their gardens

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Very Highly</th>
<th>Highly</th>
<th>Somewhat</th>
<th>A Little</th>
<th>Not at All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>57%</td>
<td>49%</td>
<td>40%</td>
<td>34%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Average green space in garden (%)
PLEDGES TO IMPROVE GREEN SPACE AND WILDLIFE IN GARDENS

Increasing the amount of green space and wildlife in gardens could increase the benefits that gardens provide to people. Respondents to the My Back Yard survey pledged their support for actions to improve green space and wildlife in their gardens. The key pledges are:

- 252 respondents pledged to plant a variety of plant types in their garden to improve wildlife.
- 228 respondents pledged to use drought resistant plants in their garden and to collect water.
- 150 respondents pledged to plant trees for shade and to improve air quality.
- 119 respondents pledged to replace the hard surfaces in their garden with green space.
The action plan that follows has been co-developed between four partners. Each project partner has an interest in gardens. The project partners can also influence planning policy and practical projects in green spaces across Manchester. The project partners and co-owners of the action plan are:

→ **Manchester City Council**
Manchester City Council is the local authority for the city of Manchester. Key priorities of the City Council include economic growth and creating attractive, safe and clean neighbourhoods. These priorities are pursued through a range of strategies, public services, and through the work of the Manchester (local enterprise) Partnership and other stakeholders.

→ **Lancashire Wildlife Trust**
The Wildlife Trust for Lancashire, Manchester and North Merseyside (Lancashire Wildlife Trust) is a registered charity and a non-profit company. Key priorities of the Lancashire Wildlife Trust include protecting and enhancing wildlife and engaging people with it. These priorities are pursued through a range of nature conservation projects and public engagement campaigns.

→ **Manchester City of Trees**
City of Trees is a growing movement initiated by the Community Forest Trust and the Oglesby Charitable Trust. The ambitious charity aims to: plant three million trees, bring back 2,000 hectares of woodland back into use for the community, and connect people to nature — within a generation. [www.cityoftrees.org.uk](http://www.cityoftrees.org.uk)

→ **Southway Housing Trust**
Southway Housing Trust (Manchester) Limited is a registered charitable housing association and a registered non-profit company. The purpose of the Southway Housing Trust is to provide affordable, decent and secure homes, and desirable, attractive and safe neighbourhoods. The Trust pursues this purpose through engaging with tenants and other stakeholders in providing high quality housing.
This action plan has been co-developed by the four project partners. It brings together and complements existing activities that the project partners undertake to improve green space in gardens. The action plan also creates the groundwork for future garden projects.

The aim of this action plan is to encourage a cultural change in the way that people appreciate the benefits of their gardens. This aim will be achieved by (a) working in partnership; (b) pooling delivery mechanisms; and, (c) delivering the actions for improving green space and wildlife in gardens.

The actions for improving green space and wildlife in gardens, and related delivery mechanisms agreed by the partners, were classified under the following categories:

→ Actions for improving green space and wildlife in gardens:

1. Promote actions that increase green space and wildlife in gardens
2. Undertake on the ground garden related projects
3. Engage in garden related policy development
4. Undertake research on gardens
5. Provide training and practical skills relating to gardens
6. Promote the value of garden

→ Delivery mechanisms:

A. Citizen science
B. Data collection
C. Events
D. Information packs
E. Lobbying
F. Meetings
G. On the ground new and existing projects
H. Public promotion
## Manchester City Council

### Actions to Improve Green Space and Wildlife in Gardens

<table>
<thead>
<tr>
<th>Wards</th>
<th>Actions to improve gardens</th>
<th>Delivery mechanism</th>
<th>Partners</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>All wards</td>
<td>Promote actions to improve wildlife in gardens</td>
<td>Britain in Bloom campaign</td>
<td>MCC, RHS</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote best practice relating to gardens</td>
<td>Britain in Bloom awards, Grow Wild awards</td>
<td>MCR GI Group</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of gardens</td>
<td>Greening Grey Britain and Britain in Bloom campaigns, Grow Wild and My Wild City projects, Cultural Gardener, FGs, ASs</td>
<td>MCC, RPs, NT, RHS, LWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of gardens</td>
<td>Commitment to plant 1,500 trees per year</td>
<td>MCC, RPs, residents</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards, Wythenshawe</td>
<td>Promote the value of gardens</td>
<td>Community Greening projects, Food Growing project, Real Food Wythenshawe project</td>
<td>MCC, HCGC, NT, RPs</td>
<td>2017–2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote MBY project outputs and outcomes</td>
<td>Internal and external meetings and lobbying</td>
<td>MCR GI Group, MMU</td>
<td>2018–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Protect, conserve, remediate existing and void gardens</td>
<td>Establish RPs green infrastructure group</td>
<td>MCC, RPs</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Protect, conserve, remediate existing and void gardens</td>
<td>External meetings and lobbying RPs</td>
<td>MCC, RPs</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Create appropriate new gardens in new developments</td>
<td>External meetings and lobbying RPs</td>
<td>MCC, RPs</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards, Gorton</td>
<td>Create appropriate new gardens in new developments</td>
<td>Master planning, Northern Gateway Framework, Eastlands Framework, Grow Green Gorton project</td>
<td>MCC, RPs, developers</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Research on multiple values of garden</td>
<td>Ongoing collaborative green infrastructure research</td>
<td>Universities, MCR GI Group</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards, Hulme</td>
<td>Influence policy on gardens</td>
<td>Include garden activities in ward plans, Hulme ESS project</td>
<td>Councillors, local groups</td>
<td>2017–2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Influence policy on gardens</td>
<td>Update GI strategy in light of garden data</td>
<td>MCC</td>
<td>2017–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Influence policy on gardens</td>
<td>Add garden section in updated GI strategy</td>
<td>MCC</td>
<td>2017–2020</td>
</tr>
</tbody>
</table>

**MBY:** My Back Yard; **RPs:** Registered Housing Providers; **MCC:** Manchester City Council; **RHS:** Royal Horticultural Society; **MCR GI Group:** Manchester Green Infrastructure Group; **NT:** National Trust; **LWT:** Lancashire Wildlife Trust; **HCGC:** Hulme Community Garden Centre; **MMU:** Manchester Metropolitan University; **FGs:** Friends of Groups; **ASs:** Allotment Societies
# Lancashire Wildlife Trust

## Actions to Improve Green Space and Wildlife in Gardens

<table>
<thead>
<tr>
<th>Wards</th>
<th>Actions to improve gardens</th>
<th>Delivery mechanism</th>
<th>Partners</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>All wards</td>
<td>Promote actions to improve wildlife in gardens</td>
<td>LWT website, social media, promotion materials</td>
<td>LWT</td>
<td>2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote actions to improve wildlife in gardens</td>
<td>Guidance, info &amp; resource pack (hard pack)</td>
<td>LWT</td>
<td>2017–2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote actions to improve wildlife in gardens</td>
<td>Guidance, info &amp; resource pack (online pack)</td>
<td>LWT</td>
<td>2017</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of indicator species in gardens</td>
<td>Species recording campaign</td>
<td>LWT</td>
<td>2017</td>
</tr>
<tr>
<td>City Centre</td>
<td>Promote the value of biodiversity and gardens in particular</td>
<td>Festival on gardens and biodiversity organisation</td>
<td>LWT, MCC</td>
<td>2018</td>
</tr>
<tr>
<td>City Centre</td>
<td>Promote actions to improve wildlife in gardens</td>
<td>Festival on gardens and biodiversity workshops</td>
<td>LWT, MCC</td>
<td>2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Citizen science mapping of actions to improve wildlife in gardens</td>
<td>LWT website new interactive map tool</td>
<td>LWT</td>
<td>2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Training wildlife identification and recording in gardens</td>
<td>Species recording campaign</td>
<td>LWT</td>
<td>2018</td>
</tr>
<tr>
<td>Targeted wards</td>
<td>Research on spatial mapping of the connectivity of garden corridors</td>
<td>GIS analysis to identify garden corridors</td>
<td>LWT, students, universities</td>
<td>2018</td>
</tr>
<tr>
<td>Targeted wards</td>
<td>Research on wildlife and other values of garden corridors</td>
<td>Student projects, partner projects</td>
<td>LWT, students, universities</td>
<td>2017</td>
</tr>
</tbody>
</table>

**LWT**: Lancashire Wildlife Trust; **MCC**: Manchester City Council
## CITY OF TREES
### ACTIONS TO IMPROVE GREEN SPACE AND WILDLIFE IN GARDENS

<table>
<thead>
<tr>
<th>Wards</th>
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<th>Partners</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>All wards</td>
<td>Promote the multiple values of garden trees</td>
<td>COT website and social media</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of heritage trees in gardens</td>
<td>GM Tree heritage project</td>
<td>COT</td>
<td>2015–2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of trees in school grounds</td>
<td>Trees for learning project</td>
<td>COT</td>
<td>2016–2020</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of garden trees in RP housing estates</td>
<td>Guidance and info pack collaboratively with RPs</td>
<td>COT, SWT</td>
<td>2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of garden trees to households</td>
<td>Ad hoc projects and COT website</td>
<td>COT, SWT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>All wards</td>
<td>Promote the value of green infrastructure and gardens in particular</td>
<td>Conference with SWT</td>
<td>COT</td>
<td>2018</td>
</tr>
<tr>
<td>All wards</td>
<td>Training on planting skills relating to garden trees</td>
<td>Woodland planting</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Wythenshawe</td>
<td>Training on management skills relating to garden trees</td>
<td>Woodland management</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>City Centre</td>
<td>Training on practical skills relating to garden trees</td>
<td>Green streets project, potential partnership with other charities</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>City Centre</td>
<td>Develop ecological links between garden trees and street trees</td>
<td>Green streets project</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>City Centre</td>
<td>Develop ecological links corporate garden trees and street trees</td>
<td>Corporate green projects</td>
<td>COT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>All wards</td>
<td>Influence policy on garden trees</td>
<td>GM Tree and woodland strategy</td>
<td>COT</td>
<td>2018–2019</td>
</tr>
</tbody>
</table>

**COT**: City of Trees; **SWT**: Southway Housing Trust; **GM**: Greater Manchester; **RPs**: Registered Housing Providers
<table>
<thead>
<tr>
<th>Wards</th>
<th>Actions to improve gardens</th>
<th>Delivery mechanism</th>
<th>Partners</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Promote the value of gardens</td>
<td>Wild City project social media, facebook, twitter</td>
<td>SWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Promote the value of gardens</td>
<td>Wild City project, Southway Stories, Newsletter</td>
<td>SWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Promote the value of gardens</td>
<td>Wild City project, internal communications to staff</td>
<td>SWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Promote the value of gardens</td>
<td>Link to garden competition entries (if applicable)</td>
<td>SWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>GM</td>
<td>Promote MBY project outputs and outcomes to RPs</td>
<td>Internal and external meetings</td>
<td>SWT, MMU</td>
<td>2018</td>
</tr>
<tr>
<td>GM</td>
<td>Promote the value of wildlife in gardens</td>
<td>Internal and external meetings</td>
<td>SWT, LWT</td>
<td>2018</td>
</tr>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Protect, conserve, remediate existing and void gardens</td>
<td>Internal meetings and processes</td>
<td>SWT</td>
<td>2017–2020</td>
</tr>
<tr>
<td>GM, CHS</td>
<td>Create appropriate new gardens in new developments</td>
<td>Internal meetings and processes</td>
<td>SWT</td>
<td>Ongoing</td>
</tr>
<tr>
<td>BR, CP, DE, DW, MB, WT, FL</td>
<td>Review tree stock in gardens and link to Wild City Project</td>
<td>Internal and external meetings</td>
<td>SWT, COT</td>
<td>2017–2020</td>
</tr>
</tbody>
</table>

**BR:** Burnage; **CP:** Chorlton Park; **DE:** Didsbury East; **DW:** Didsbury West; **MB:** Mersey Bank; **WT:** Withington; **FL:** Fallowfield; **GM:** Greater Manchester; **CHS:** Cheshire; **MBY:** My Back Yard; **SWT:** Southway Housing Trust; **MMU:** Manchester Metropolitan University; **LWT:** Lancashire Wildlife Trust; **COT:** City of Trees
In Manchester there is no specific planning policy for domestic gardens. However, domestic gardens are included in the Manchester Green and Blue Infrastructure Strategy. The My Back Yard action plan contributes directly to this Strategy.

The Manchester Green and Blue Infrastructure Strategy in turn is a complementing strategic objective for the Manchester Strategy and for the Climate Change Strategy. So, the My Back Yard action plan also contributes to these two strategic policies:

→ **Manchester Core Strategy**

The Core Strategy is the key policy within Manchester City Council’s spatial development framework. The Core Strategy includes a spatial policy on green infrastructure, which identifies and supports its multifunctional contributions to the city. Private gardens are acknowledged within the strategy as parts of green infrastructure. However, the Core Strategy lacks a specific policy on private gardens.

→ **Our Manchester**

Our Manchester, also known as the Manchester Strategy, is the city’s framework for economic, social and environmental development. Within the Manchester Strategy the multiple contributions of green spaces to the liveability of the city and the well-being of its residents are recognised. The Green and Blue Infrastructure Strategy is listed as a complementing strategic objective.
Manchester Climate Change Strategy

The Manchester Climate Change Strategy focuses on delivering Manchester City Council’s climate commitments. The roles of green spaces in helping the city to adapt to climate change, but also to reduce the city’s emissions, are acknowledged. This strategy does not cover domestic gardens, but it makes explicit reference to the Manchester Green and Blue Infrastructure Strategy as a complementing strategic objective.

Manchester Green and Blue Infrastructure Strategy

The purpose of the Manchester Green and Blue Infrastructure Strategy is to provide a framework for making green spaces and water bodies integral parts of the city’s future growth. Protecting and enhancing existing domestic gardens is a specific headline action within the strategy. Creating domestic gardens by embedding green space as part of new residential developments is also a key action.
The My Back Yard action plan will be delivered through the Manchester Green Infrastructure Strategy Group. This group is an informal partnership of public, private, and charitable sector stakeholders in delivering the Manchester Green and Blue Infrastructure Strategy. All four project partners are members of this group.

The Manchester Green Infrastructure Strategy Group meets four times in a year. During these meetings, the group review progress in the delivery of the Manchester Green and Blue Infrastructure Strategy. Group members also update each other on planned activities and identify opportunities for collaboration.

The My Back Yard action plan will become a permanent item on the agenda of the meetings of the Manchester Green Infrastructure Strategy Group. At these meetings the project partners will review and report progress on delivering the actions for improving green space in gardens. Opportunities to collaborate with additional stakeholders in gardens will also be identified during these meetings.

Resources for delivering the action plan will be sought collaboratively and individually by project partners. As appropriate funding opportunities arise, project partners may engage additional stakeholders in bid development. The project partners may seek resources from:

- Heritage Lottery Fund
- Department for Environment Food and Rural Affairs (Defra)
- Private sector
- Section 106 agreements
- Project partners’ operational resources
- Staff or volunteer time
FINAL MESSAGES

Private gardens are an important component of Manchester, making up around one fifth of the total area of the city.

There is less green space in domestic gardens than previously estimated. As a result, gardens provide fewer benefits to people and to the city than assumed in the past.

Local policy on domestic gardens needs to take into account the new estimate of the amount of green space in wards. This new and refined estimate needs incorporating in local planning policy.

Increasing the green space and wildlife in gardens increases the potential benefits that gardens can provide. The action plan provides a framework for improving green space and wildlife in gardens.

Private rented tenants do not consider gardens as important as owner-occupiers or social rented tenants. Also, older age groups value their gardens more than younger age groups.

There is a need to engage private rented tenants and younger age groups with their gardens. Public campaigns to encourage engagement with the benefits of gardens are needed.

This action plan contributes to publicising the outcomes of the project. However, additional sharing of the findings and lobbying decision makers is needed to have a measurable impact on gardens.

Finally, additional resources are needed to support actions for improving green space and wildlife in gardens. Innovative pooling of resources from private, public and charitable sources is necessary.
INFORMATION FOR DECISION MAKERS

The information gathered by the project was developed into map datasets. The following map datasets are available to decision makers:

- Percentage of ward that is gardens
- Percentage of ward that is garden green space (vegetation and water)
- Percentage of ward that is non-green space (buildings, bare soil, paved and impervious surfaces)
- Average garden size
- Amount of green space in an average garden (vegetation and water)
- Amount of non-green space in an average garden (buildings, bare soil, paved and impervious surfaces)
- Land surface composition of an average garden
- Percentage of green space cover in Manchester
- Cooling potential of green space in Manchester (plus simulations)
- Rainfall absorption of green space in Manchester (plus simulations)
Percentage of ward that is garden green and blue space

- 0%–5% : Low
- 6%–10% : Below average
- 11%–14% : Average
- 15%–16% : Above average
- 17%–27% : High

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PROJECT TEAM

Dr Gina Cavan is Senior Lecturer in GIS and Climate, in the School of Science and the Environment at Manchester Metropolitan University. Her research focuses on urban ecosystem services of green infrastructure and climate resilience.

Dr Claire Smith is Honorary Research Fellow in Climate Change Adaptation in the Department of Geography at the University of Leicester, where she is a member of the Centre for Landscape and Climate Research. She has significant expertise in urban meteorology and climatology.

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Fraser Baker is a postgraduate researcher in the School of Science and the Environment at Manchester Metropolitan University. His research interests focus upon applying remote sensing and GIS for urban ecosystem services assessment.

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