ENERGY GARDEN
Biodiversity Report

2023

Foreword

I am excited and proud to present our first ever Biodiversity Report. At Energy Garden, we have spent the last 11 years working with local communities to create gardens across London by repurposing neglected land at train stations on the Overground and Underground. Whilst our gardens and the community groups that support them are different, we are united in our efforts to create vibrant green spaces that support and improve biodiversity in urban environments.

Over the past 12 months, we have significantly increased our focus and commitment around biodiversity. In October 2022, we were delighted to have Ellen Bidulka join Energy Garden as a dedicated biodiversity lead and she has made great progress in implementing a citizen science approach to quantify the biodiversity changes occurring in our gardens. Working closely with our engagement team, Ellen has broadened the scope of our volunteer and community group sessions to include more educational content on biodiversity as well as provide new surveying skills and training. With support from the whole team and many of our volunteers, Ellen has completed a comprehensive survey of all our community gardens, with each garden assessed in accordance with Natural England's Biodiversity Metric 4.0 (Small Sites Version).

This report presents the results of these surveys along with insights into volunteer activities at each garden. We will use this information to guide our planning and ensure we find innovative ways to prioritise biodiversity improvement and education.

Agamemnon Otero MBE
Founder and Chief Executive

About the author

Ellen Bidulka is the Biodiversity Lead at Energy Garden. Ellen's primary focus at Energy Garden has been developing a participatory method of quantifying the biodiversity changes occurring in the gardens. This was first done last summer as part of Ellen's thesis project for Imperial College London's MSc Environmental Technology programme in collaboration with Energy Garden and under the supervision of Dr C. M. (Tilly) Collins. Prior to her time in London, Ellen completed a BSc at McGill University in biology with a specialisation in biodiversity and systematics. Between her studies, she spent a summer living at McGill University's Gault Nature Reserve working as a research intern completing fieldwork and trail maintenance projects. She then held various position with WWF-Canada in donor relations and fundraising.

Contents

Energy Garden

Energy Garden HQ, 43 Ebury Bridge Rd, London SW1W 8DX

info@energygarden.org.uk

Registered Community Benefit Society #7368

Executive summary

This was Energy Garden's first year collecting data on the biodiversity within the rail adjacent gardens we manage with local communities in London.

Our headline results were:

17 *Gardens*

5,500 m² *Total green space*

0.5 *Mean Biodiversity Score with a range of 0.078 to 1.93**

539 *Plant species*

12 *Habitat Types**

2121 *Total volunteer hours in the gardens*

*Calculated and categorised using Natural England's Biodiversity Metric 4.0 (Small Sites Metric). For more information see pages 8 to 9 of the methods and results section of this report.

This year's results will act as a baseline for comparisons of future years. They will also inform our future management plans. Based on our findings we have created a list of general recommendations for future years:

- Increase the size of existing gardens
- Select larger spaces for future gardens
- Improve the quality of the habitat types based on Natural England's Biodiversity Metric 4.0 categories
- Add native-species rich hedgerows
- Maintain and incorporate existing trees into garden plans
- Plant more trees
- Increase plant species diversity
- Add additional biodiversity-friendly infrastructure to support animals
- Increase biodiversity focused engagement

Introduction

Biodiversity describes the variety of life within a particular setting. There is a global biodiversity loss crisis occurring driven by factors such as land-use change and climate change and without concerted efforts this is projected to continue. In urban environments, maintaining and improving green and blue spaces is important to help mitigate this.

To track Energy Garden's efforts to cultivate community growing spaces that are rich in biodiversity, we have designed a method to conduct annual biodiversity surveys of our gardens with our volunteers. We have chosen to use a habitat and plant species-based approach to do so. We are also reporting the volunteer hours recorded in each garden since we are interacting with and learning about biodiversity through the garden sessions.

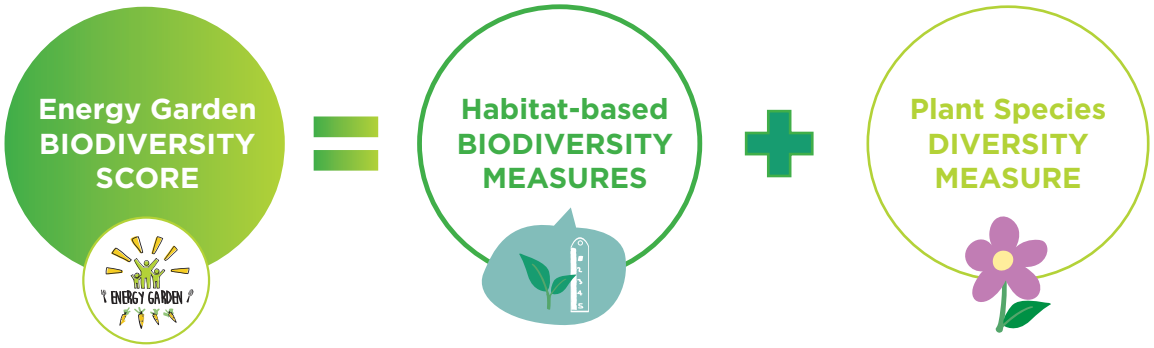
In this report, you will find an executive summary that will provide an overview of the results and main findings from these surveys. The methods are also detailed with the results following, detailing the area of each garden, the collective area of each habitat type, the biodiversity scores for each garden, the number of plant species recorded in each, and the number of volunteer hours this year. We also highlight the variety of other biodiversity-related activities done this year. The appendix lists the results for each garden and a bibliography and suggested reading list will detail the resources used to develop the survey methodology and inform our understanding of biodiversity in our gardens.

Thank you to the volunteers for their participation in the biodiversity-focused events this year. We look forward to more fun in our gardens and new office space in the years to come.

Methods

Energy Garden has developed a volunteer-friendly protocol to complete annual biodiversity surveys to quantify the biodiversity changes in the gardens. Natural England's Biodiversity Metric 4.0 (Small Sites Version) (NEBM4.0 SSM) works as a framework for classifying and scoring the distinct habitat types in the gardens. As it is primarily designed to calculate biodiversity net gain requirements for larger development projects, it is not perfectly suited to participatory urban gardening contexts. Therefore, it has been supplemented with a measure of plant species diversity. To quantify our biodiversity impacts from a social perspective, we have also included as a separate measure the estimated volunteer hours spent in each garden.

THE ENERGY GARDEN BIODIVERSITY SCORE



Together, these measures have been combined to create a final summary score per garden. To ensure proper weighting for each category, the plant species per m2 was divided by ten.

NATURAL ENGLAND'S BIODIVERSITY METRIC 4.0 (SMALL SITES VERSION)

Energy Garden created a training guide to ensure that completing these biodiversity surveys was suitable for volunteers with varying biological surveying experience. During the survey, the volunteers, and Energy Garden's Biodiversity Lead, Ellen, worked together to classify and measure the distinct habitat types within each garden. Following the survey, Ellen entered the data into the Small Sites Metric Calculation Tool to determine the Habitat Unit and Hedgerow Unit scores for each garden. For more information on this, please see the Biodiversity Survey Training Guide.

PLANT SPECIES SURVEY

Resources like plant species identification guides and apps like iNaturalist and Seek by iNaturalist were used to help us identify as many plant species as we could in each garden. Plant order and seed pack lists were used to help verify our results. For iNaturalist observations, all plant species observations in a garden recorded between 1 January and 31 December 2023 were included in this report. In the end, only species that we could confidently identify to at least the genus level is included in the results.

For an interactive look at the biodiversity recorded in our gardens on iNaturalist, check out the Energy Garden Biodiversity Project 2023.

VOLUNTEER ENGAGEMENT HOURS

Energy Garden's Engagement Team records the type of sessions, the duration, and the number of volunteers in attendance for each garden throughout the year. This data was used to estimate the approximate number of volunteer hours in each garden. For this report, data has been used from 1 January until 31 December 2023.

SCALE OF MEASURE (m^2)

The gardens vary in size (13 to 2,500 m2) which shapes the possible numbers of habitat types and plant species, as well as the time required to manage it. Therefore, we report these values in their totality but also as a per m2 measure so we can more accurately compare gardens.

SCHEDULE

In the United Kingdom, it is recommended that biodiversity surveys are completed between April and September to ensure an adequate number of identifiable plant species are present. We, therefore, scheduled our surveys from the end of May to the middle of August. In most cases, both the habitat survey and plant species surveys were conducted during the same session but there were a few instances where additional plant surveying sessions were necessary in the larger gardens.

Results

TOTAL GARDEN AREAS

We measured about 5,500 m2 of green space across Energy Garden's 17 gardens. The gardens ranged from 13 to 2,473 m2 in size. They varied in location, as some are exclusively on London Overground or Underground station platforms, some are located outside of the stations, and some are a mixture of both (Figure 1). New to our network is Ladbroke Grove, which is now our largest garden, creating great potential for biodiversity maintenance and improvements as well as high levels of community engagement. Our planter only gardens are our smallest spaces and are mostly focused on the ornamental value they can provide for commuters in London.

Relative areas of Energy Gardens

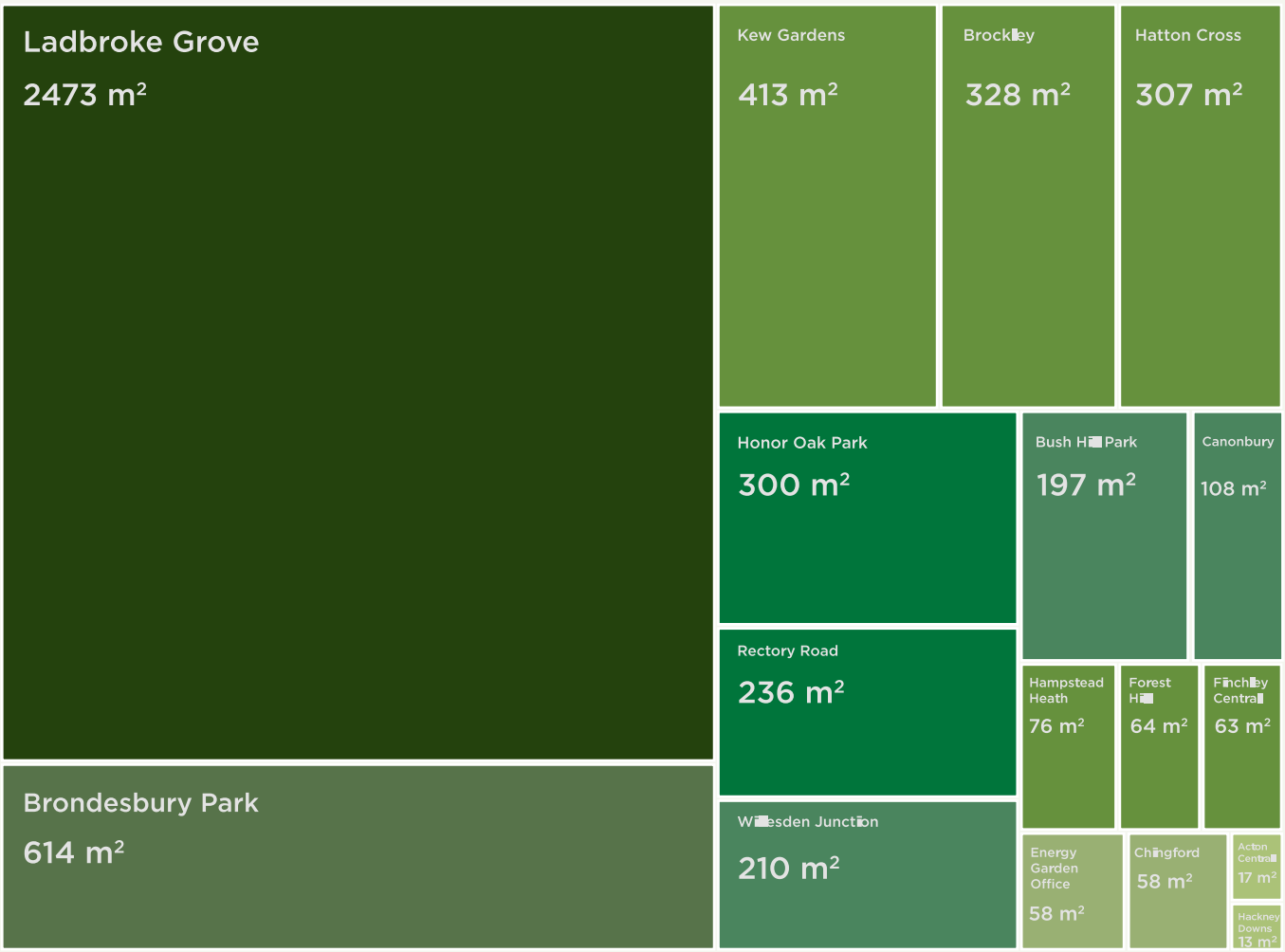


Figure 1: The size of the 17 gardens in Energy Garden's network.

GARDEN HABITAT TYPES

The UK Habitat Classification definitions for NEBM4.0 SSM were used to categorise areas of the gardens into distinct habitat types which were then measured (area for habitats, length for hedgerows). The areas and lengths are multiplied by the correlating distinctiveness and condition multipliers to produce the habitat and hedgerow unit scores. On Figure 2: the habitat types have been grouped based on the multipliers, starting with low distinctiveness and poor condition to medium distinctiveness and moderate condition. For more detailed information on distinctiveness and condition, please see the Biodiversity Survey Training Guide.

Besides planter only gardens, all the gardens had a mixture of these habitat types (Figure 2 and Table 1). In total we recorded 12 habitat types. With eight different types, Brondesbury Park had the highest diversity of habitats. As we add more green space to our network and work to improve it, the total area for each type will change. When deciding how we will manage the gardens, we can now prioritise higher quality habitat types; for example, a species-rich wildflower and grass meadow to increase the amount of other neutral grassland habitat.

Habitat Types in Energy Gardens

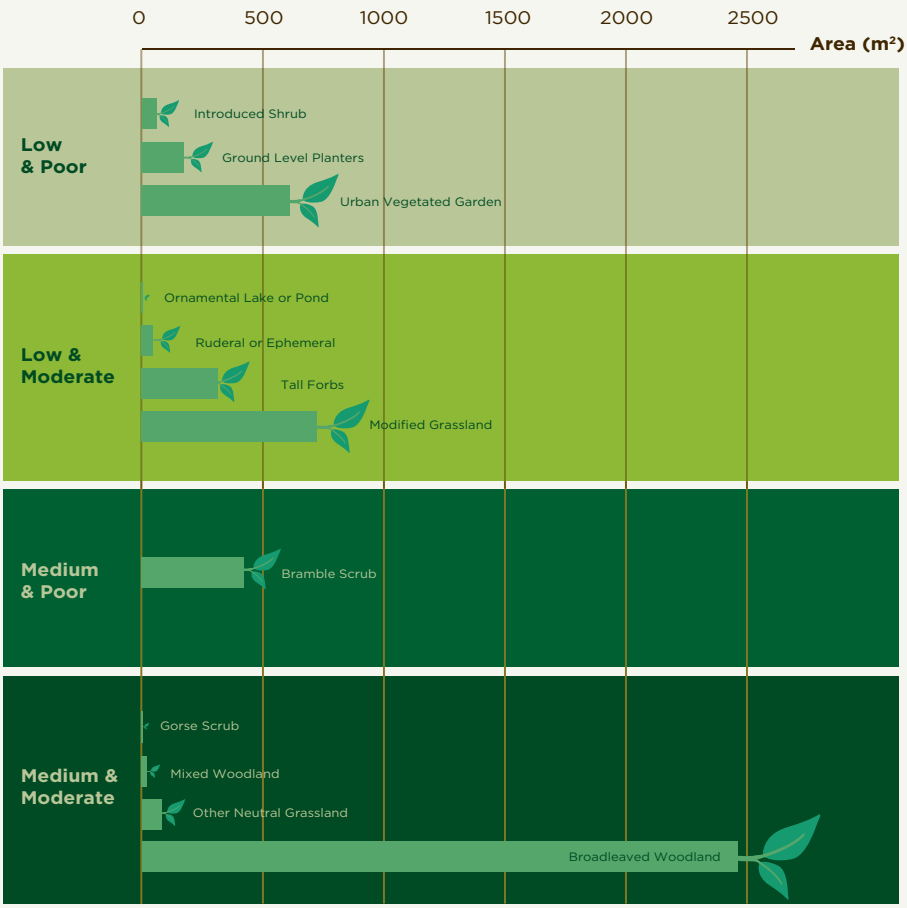


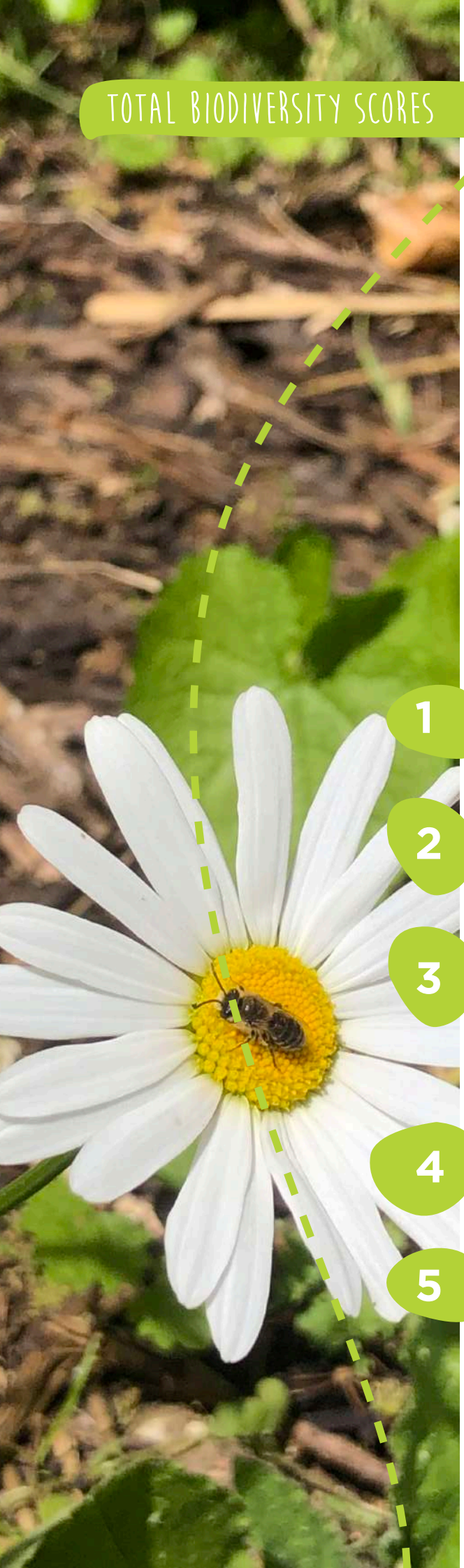
Figure 2: The total area of each habitat type across Energy Gardens.

The NEBM4.0 SSM requires hedgerows to be measured by length (m), so they are not included here. The habitat types are grouped based on their area multiplier classifications used to calculate the habitat unit scores in the metric. For more information, see the Biodiversity Survey Training Guide.

Habitat Matrix

Table 1: A habitat type matrix for each garden.

		Ornamental Non-Native Hedgerow	Ground Level Planters	Vegetated Garden	Introduced Shrub	Ornamental Lake or Pond	Ruderal or Ephemeral	Tall Forbs	Modified Grassland	Bramble Scrub	Gorse Scrub	Native Hedgerow	Mixed Woodland	Other Neutral Grassland	Broadleaved Woodland	
	DISTINCTIVENESS AND CONDITION	VERY LOW & POOR		LOW & POOR			LOW & MODERATE			MODERATE & POOR		MODERATE & MEDIUM				**Habitat types**
PLANTER ONLY	**Acton Central**		✓													**1**
	Hackney Downs		✓													**1**
PLANTER MOSTLY	**Chingford**		✓		✓											**2**
	Forest Hill		✓	✓											✓	**3**
PLANNING PHASE	**Hatton Cross**			✓	✓			✓								**3**
	Honor Oak Park		✓	✓						✓						**3**
	Ladbroke Grove		✓	✓	✓		✓			✓					✓	**6**
	EG Office		✓													**1**
ENHANCING	**Brockley**		✓	✓					✓						✓	**4**
	Canonbury		✓	✓	✓				✓							**4**
	Willesden Junction		✓	✓	✓				✓					✓	✓	**6**
ESTABLISHED	**Brondesbury Park**			✓	✓		✓	✓	✓	✓	✓			✓		**8**
	Bush Hill Park			✓	✓				✓			✓	✓	✓	✓	**7**
	Finchley Central		✓	✓	✓										✓	**4**
	Hampstead Heath		✓	✓	✓	✓	✓	✓								**6**
	Kew Gardens	✓	✓		✓				✓						✓	**5**
	Rectory Road	✓	✓	✓	✓											**4**
	NUMBER OF GARDENS WITH THIS HABITAT TYPE	**2**	**14**	**12**	**11**	**1**	**3**	**3**	**6**	**3**	**1**	**1**	**1**	**3**	**7**	



TOTAL BIODIVERSITY SCORES

Background Information

Each garden has a final biodiversity score based on the sum of the habitat units, hedgerow units, and plant species diversity measure. These are all influenced by the size of the garden and the ecological context it sits in. For example, some have existing woodlands with closed canopies, some back onto residential properties where the shared fence allows for plants to spread on either side, and some are fully paved surfaces so only planters are possible.

Garden Groupings

We have decided to group the gardens into five categories. Factors like garden composition and length of time Energy Garden has been working on the space will influence the scores and future management suggestions.

1. **Planter Only:** gardens which are exclusively planters on station platforms.

2. **Planter Mostly:** gardens that are a mixture of platform planters and large beds outside of the station.

3. **Planning Phase:** new to Energy Garden this year where we are currently working on design plans with the community. Some work may have begun but large projects have not been started.

4. **Enhancing:** some large projects have begun but are still becoming established.

5. **Established:** many years of management with established groups and are predominantly focused on maintaining the gardens with some smaller projects undertaken each year.

Garden Scores

Overall, the **mean biodiversity score is 0.5** with a range of 0.078 to 1.93 (Figure 3). Kew Gardens, followed closely by Ladbroke Grove are the highest scoring gardens in our network. Both are large gardens with a mix of higher scoring habitat types like broadleaf woodlands, and lower scoring ones such as vegetated garden. Since vegetated garden habitats receive a low score in the metric, it is an area to be considered for improvement among a lot of gardens as space dedicated to growing food or ornamental plants contributes less to the habitat unit scores compared to others like grasslands, scrub, or woodlands. Where it makes sense to keep these lower scoring habitat types, high levels of plant diversity are needed for positive contributions to biodiversity.

Habitat Units

The **mean habitat unit score for a garden was 0.50** with a range of 0.0025 to 1.8. Kew Gardens and Ladbroke Grove were the largest gardens with many trees and high scoring habitat types, so they had the highest scores. As Acton Central and Hackney Downs only have platform planters, they scored the lowest.

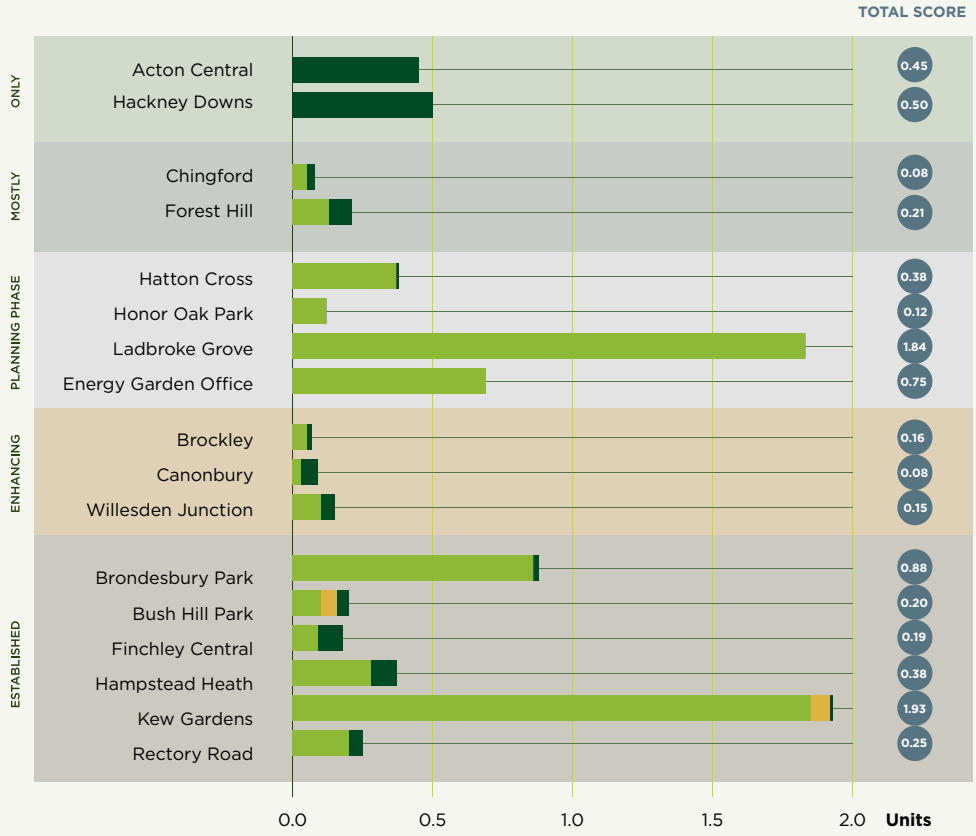
Hedgerow Units

Only three gardens had hedgerows that fit the NEBM4.0 SSM definitions. The **mean score was 0.0083 hedgerow units** with a range of 0 to 0.068. Bush Hill Park has recently planted a native-species rich hedgerow which will provide valuable shelter and foraging opportunities in the garden and has resulted in a 0.059 hedgerow unit score. There were lower scoring introduced hedgerows at Kew Gardens and Hampstead Heath. The Kew Gardens hedgerow was long, so it still scored higher with 0.068 hedgerow units. Hampstead Heath's hedgerow was shorter and scored 0.014 hedgerow units. Adding native species rich hedgerows is a great opportunity to diversify the habitat types in the gardens and improve biodiversity scores.

Plant Species Diversity

In total, we recorded **539 plant species**. The mean number of species per garden was 66 with a range of 7 to 144 (Figure 4). Overall, the larger gardens had more species observed but when considering the density, the planter only gardens scored highest. The **mean was 0.92 plant species per m²** with a range of 0.023 to 5.0 plant species per m².

Energy Garden Biodiversity Scores



Plant species (per m² divided by 10)

Natural England BM4.0 SSM Score (Habitat Units)

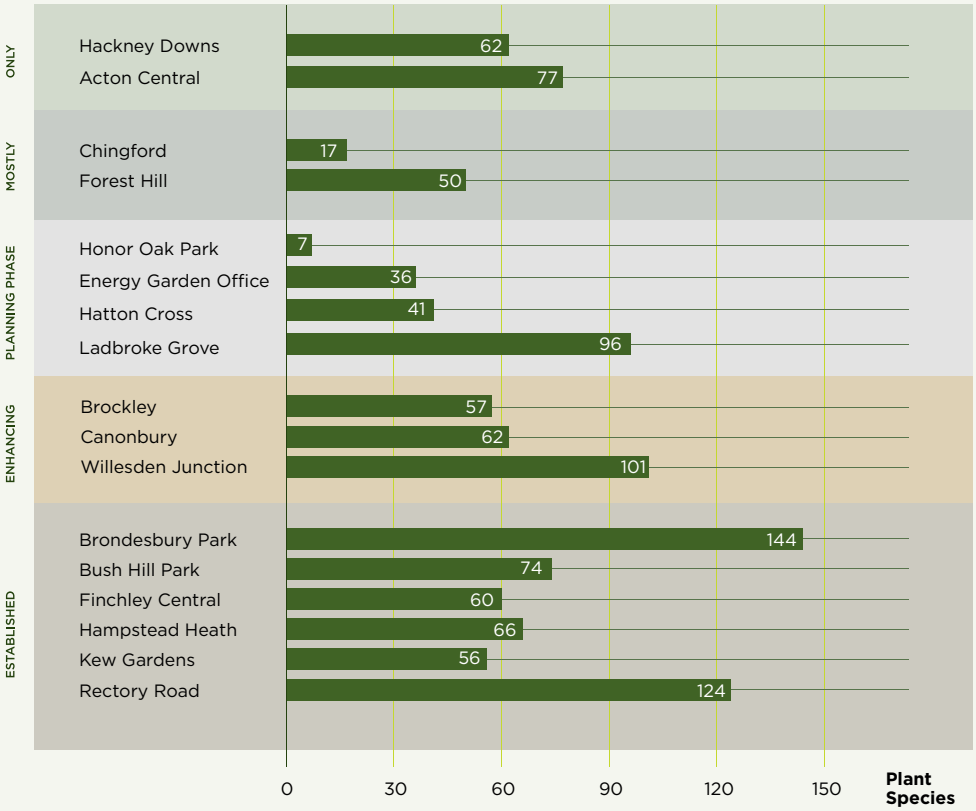
Natural England BM4.0 SSM Score (Hedgerow Units)

66 plant species on average per garden

0.92 plant species on average per m²

Figure 3: The total biodiversity scores for each garden grouped based on Energy Garden's five garden types

Plant Species Tally



Total: 539 species

Figure 4: The total number of plants identified to at least genus level in each garden.

TOTAL VOLUNTEER ENGAGEMENT HOURS

Energy Garden logged an impressive **2121.5 volunteer hours** so far in 2023. More established gardens have had more time to build committed groups of volunteers often resulting in more regularly well attended sessions. In some gardens, Energy Garden has partnered with other community groups where they might have some sessions without Energy Garden's direct involvement. These might be missed in our tracking of hours in the gardens.

The mean hours spent in one garden is **133 hours** with a range of 0 to 504.25 hours.

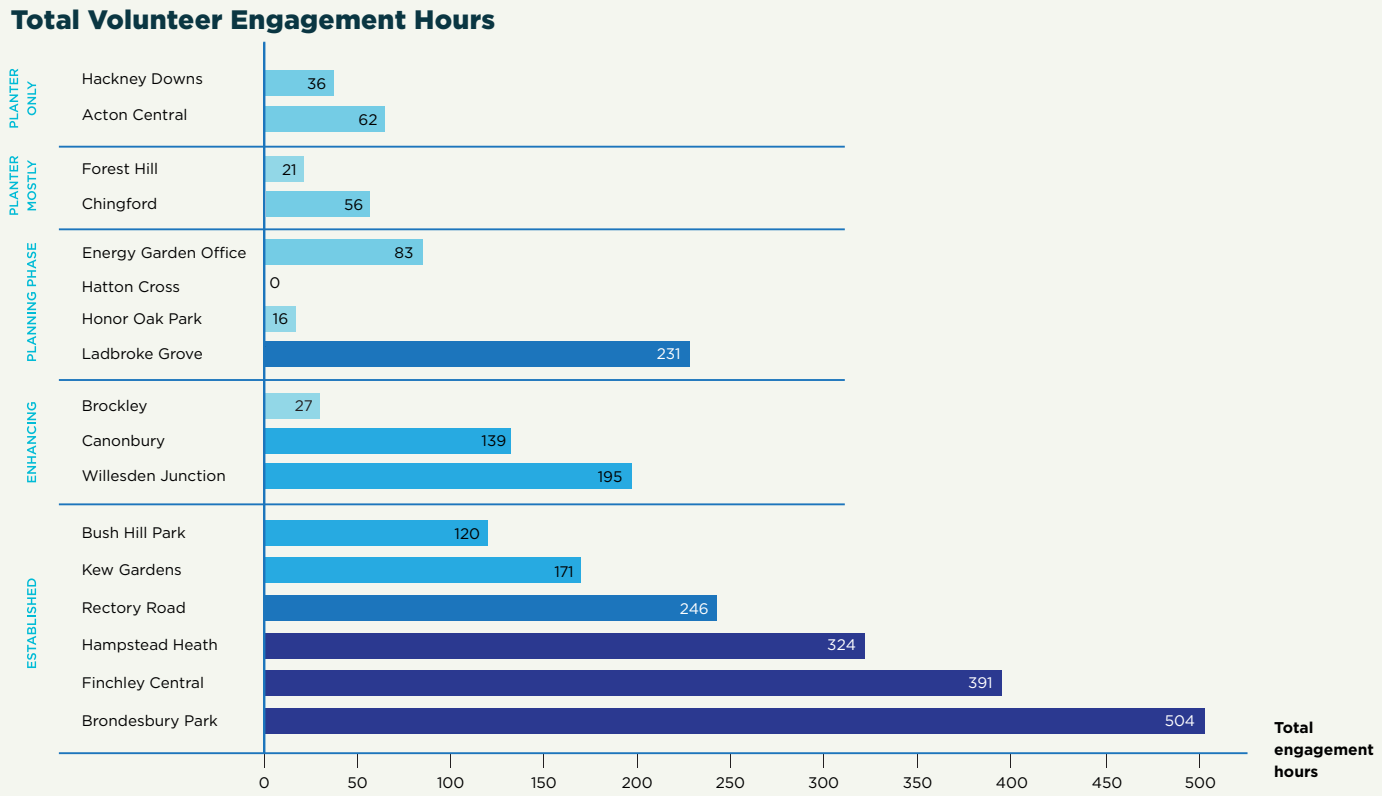
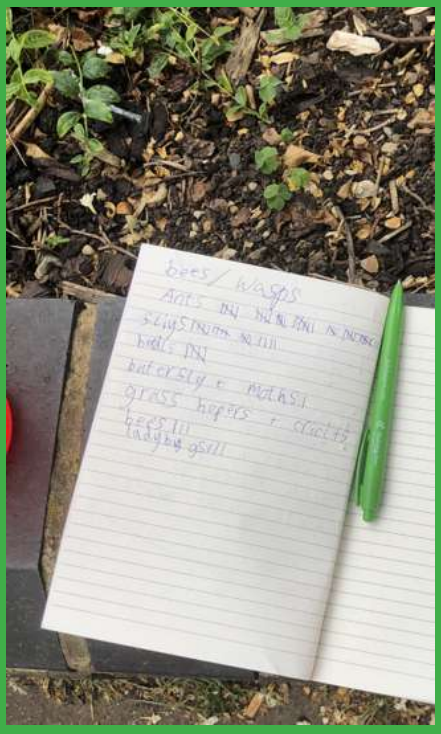


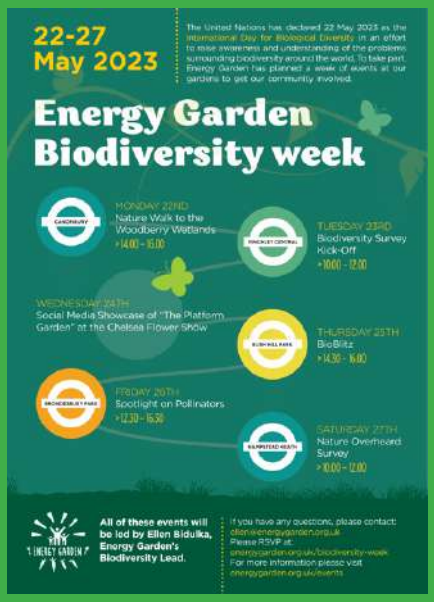
Figure 5: The total volunteer hours recorded in each garden from 1 January to 31 December 2023.

BIODIVERSITY-FOCUSED ACTIVITIES

Biodiversity Week

To celebrate the International Day for Biological Diversity, Energy Garden planned a week of events from 22 to 27 May. These included a nature walk, our first habitat and plant species survey, and some other citizen science and garden exploration focused events. This was a great opportunity to introduce this new type of programming and we hope to continue this for years to come.



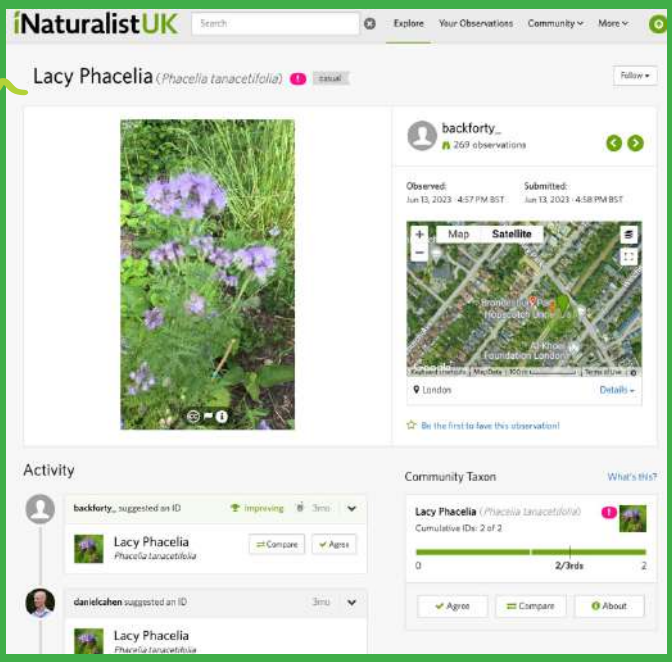


Citizen Science Schemes

Energy Garden has participated in a few citizen science projects this year including the City Nature Challenge and Nature Overheard. These are engaging ways to introduce volunteers to citizen science, develop different surveying skills, and generate useful data for researchers. We will continue to participate in these and seek out more opportunities in future years.

iNaturalist

This year, Energy Garden encouraged the use of the citizen science app iNaturalist. It was used to document and learn more about what plants, animals and fungi we encountered. We used a community project page to track these observations and to be able to use it to inform our understanding of the gardens. The observations are also available for other researchers to use in different research projects. The wider iNaturalist community also helped us verify our observation through comments and suggestions. We have enjoyed using iNaturalist and benefitted from the information it has provided us so we will be continuing to use it next year in the gardens.



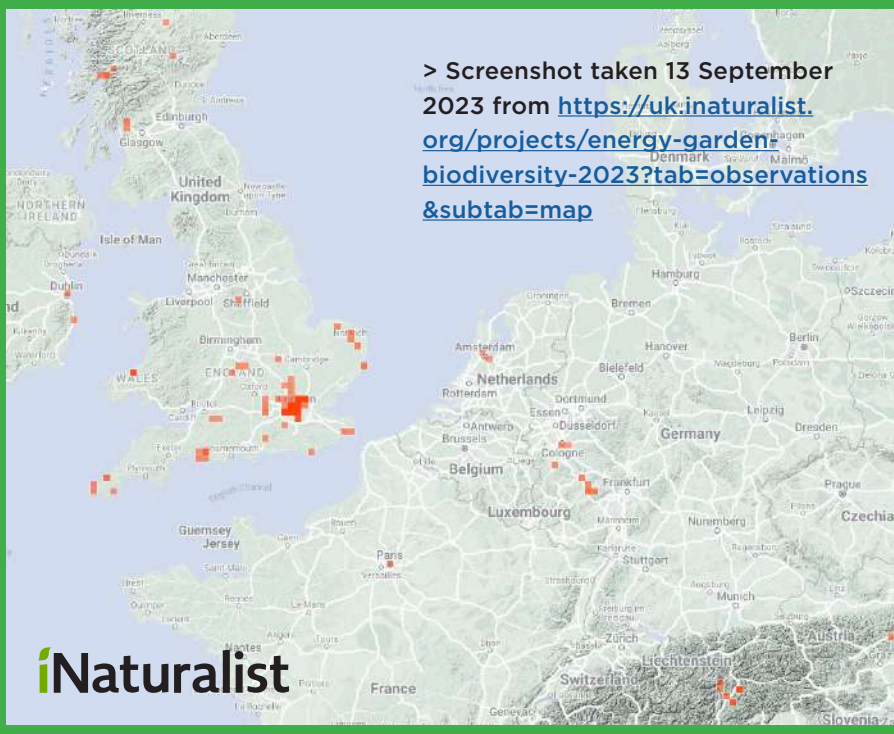
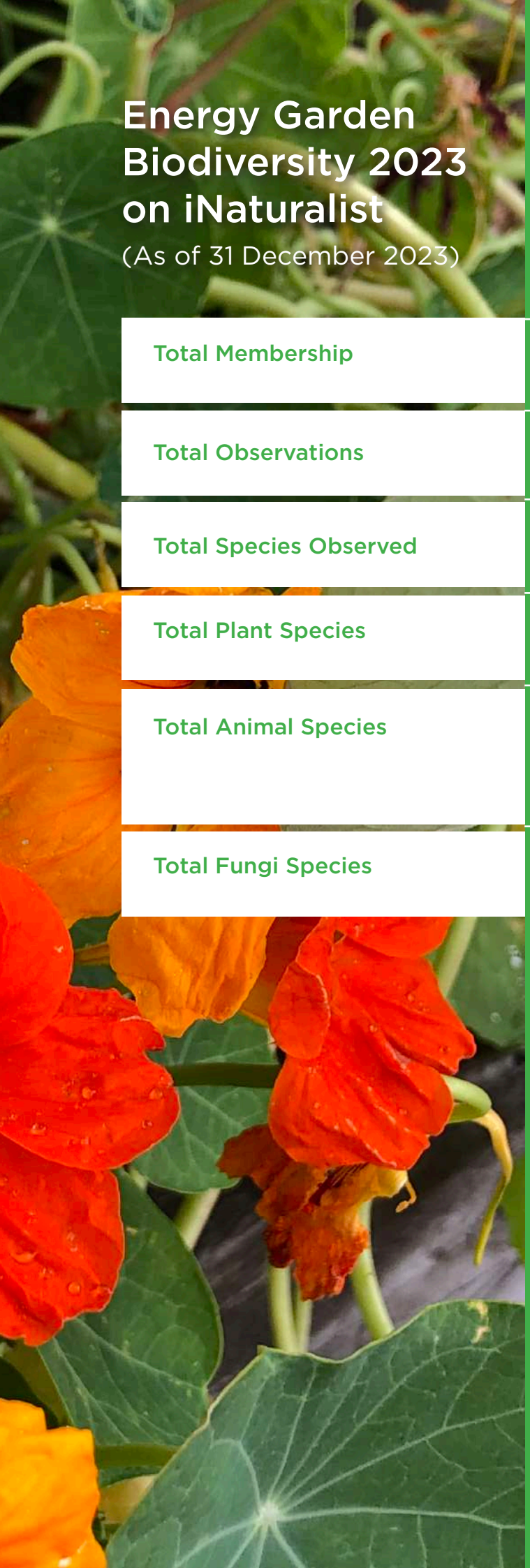


Figure 6: The distribution of observations made on the iNaturalist project. It demonstrates continued engagement with biodiversity by the Energy Garden Community beyond the gardens.



Energy Garden Biodiversity 2023 on iNaturalist

(As of 31 December 2023)

		Comments
Total Membership	48	This includes staff, volunteers and other event attendees.
Total Observations	2799	Not just in our gardens, but wherever our volunteers are observing biodiversity. See figure 6.
Total Species Observed	901	
Total Plant Species	674	We recorded 539 plant species in Energy Gardens and the rest were spotted elsewhere.
Total Animal Species	194	Most were insects (117 species) followed by birds (34), arachnids (16), mollusks (11), mammals (5), among a few in other groups (11).
Total Fungi Species	31	

BioBlitz session where we inspected what insects were in this decaying piece of wood.

Microscope

Event attendees were able to examine plants, animals, and fungi from a new perspective. Up close, we could observe things like pollen stuck to pollinators. We were also able to capture photos and videos from the microscope that will be shared on our online platforms to engage with an even wider audience following these sessions. See the video Ellen made of some of the observations on our website.

Willesden Junction Bug Hotel

Often in traditionally managed greenspaces, messy areas which create great shelter for animals are removed for a tidy and orderly aesthetic. In a lot of the gardens, we are bringing back some messiness and some built structures like bug hotels and bird boxes to provide more habitat for animals. A great example of this is the new bug hotel at Willesden Junction where our Engagement Officer Callum and some dedicated volunteers have been working week by week to create a structure made of reclaimed pallets filled with logs, glass bottles, dried leaves, among other materials to create cosy homes for insects. They are even adding a sedum roof to add more life to the structure and have sown wildflower seeds around it to provide foraging opportunities. This is a great example of ingenuity and collaboration to work towards improving biodiversity in our gardens.

Conclusions

General Guidance to Improve Biodiversity

Overall, Energy Garden's network of rail-side community gardens supports biodiverse greenspace that encourages interaction with and appreciation of the biodiversity existing there. Each garden is unique both in terms of the land available, the habitat types that are possible in the space, and the goals and interests of the community group. Therefore, there was a great deal of variation in the results of our biodiversity surveys reflecting this diversity. It is also important to remember that these scores are most valuable to compare one garden year over year and to gleam insights from others as we work to improve our community gardening hubs.

As we make management plans for the upcoming year, the key take aways for our gardens are:

Size

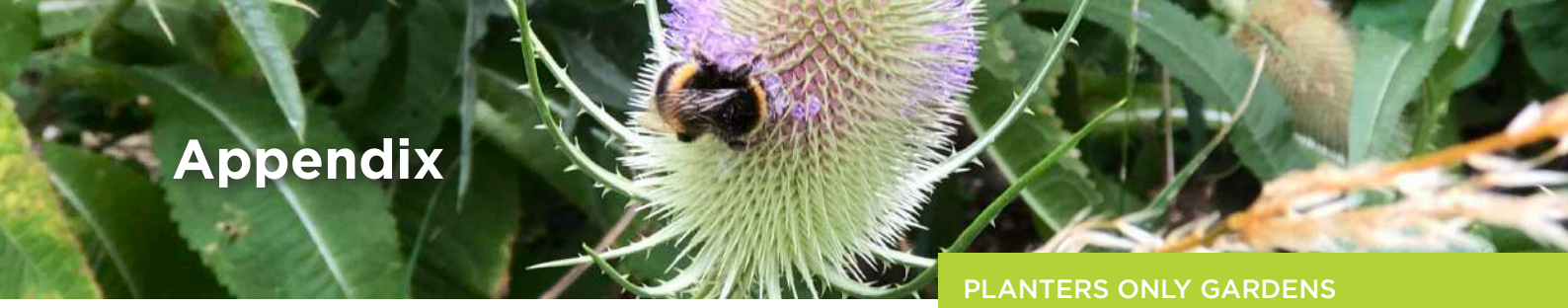
- Increase garden size where it is appropriate (I.e., ensure sufficient water access, consider if the space will actually be improved through active management, will volunteers be able to take on more area, etc.)
- Select larger areas for future gardens

Composition

- Keep existing trees and incorporate them into the design plan where possible
- Plant more trees where possible
- Work to improve plant species diversity, particularly where it will help to convert a lower scoring habitat type to a higher scoring habitat type (ex. modified grassland to other neutral grassland)
- Incorporate native-species were possible
- Add native-species rich hedgerows where possible
- Incorporate additional animal habitats (I.e., Bug hotels, bird boxes, shallow drinking features, deadwood piles etc.) and ensure they are properly maintained
- Optimize habitat composition to find correct balance of spaces (I.e., dedicated to food growing vs. animal foraging or native plant patches)

Engagement

- Add more varied sessions focused on exploring and documenting the biodiversity in the garden to help Energy Garden better understand our spaces and contribute to citizen science biodiversity research



Appendix

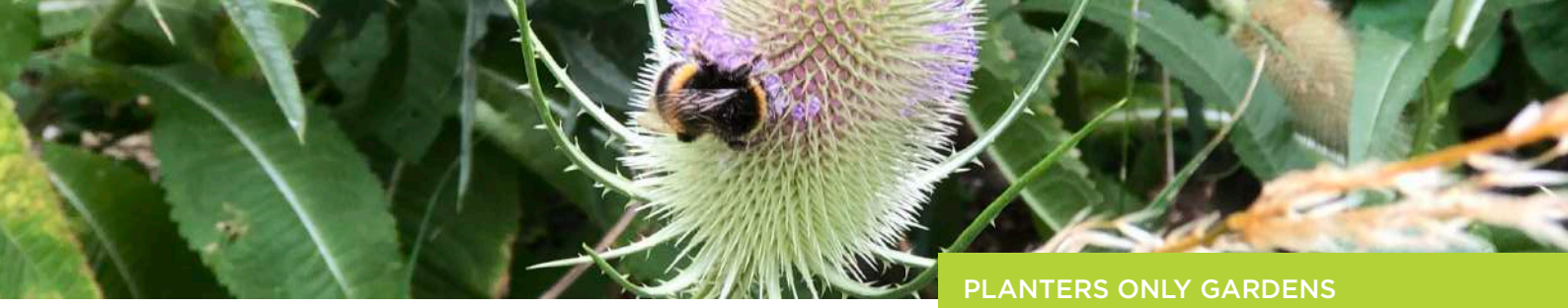
PLANTERS ONLY GARDENS

Acton Central

		Comments
Area	17m²	51 planters of varying sizes.
Total Energy Garden Biodiversity Score	0.45	Predominantly made up of the plant species diversity measure. Rank 6/17.
NEBM4.0 SSM Habitat Unit Score	0.0034	This is a low score as it is a planter only garden which receives low scores in the metric.
NEBM4.0 SSM Hedgerow Unit Score	0	No hedgerows.
Plant Species per m²	4.5	77 plant species recorded. Planters for ornamental value so high concentration of diversity.
Volunteer Hours per m²	3.6	62 hours of volunteer engagement in the garden recorded. Difficult to host sessions other than maintenance as there is no separation from busy station platforms.
Number of Individual Trees	0	No trees.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Could be an area for improvement.

GALLERY

To get involved, contact: Callum@energygarden.org.uk

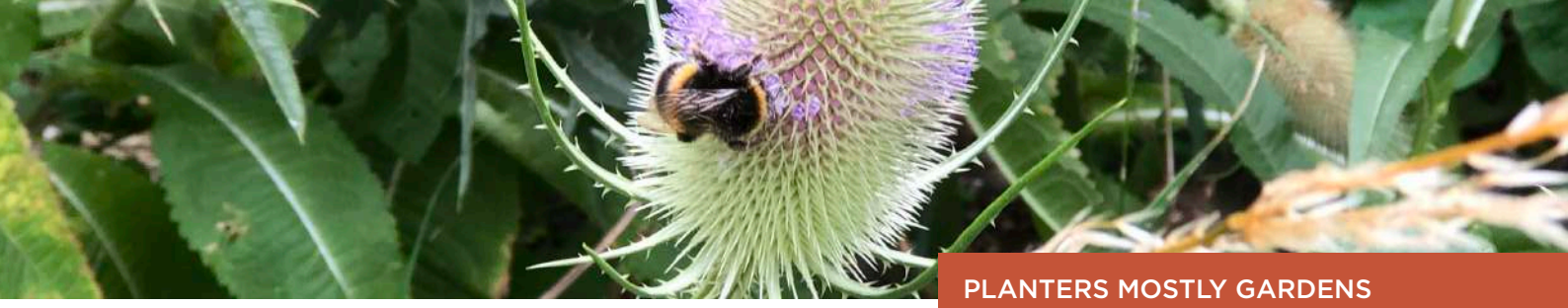


Hackney Downs

		Comments
Area	13 m²	22 planters of varying sizes.
Total Energy Garden Biodiversity Score	0.50	Predominantly made up of the plant species diversity measure. Rank 5/17.
NEBM4.0 SSM Habitat Unit Score	0.0025	This is a low score as it is a planter only garden which receives low scores in the metric.
NEBM4.0 SSM Hedgerow Unit Score	0	No hedgerows.
Plant Species per m²	5.0	67 plant species recorded. Planters for ornamental value so high concentration of diversity.
Volunteer Hours per m²	2.0	36.5 hours of volunteer engagement in the garden recorded. Difficult to host sessions other than maintenance as there is no separation from busy station platforms.
Number of Individual Trees	0	No trees.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Could be an area for improvement.

GALLERY

To get involved, contact: Morwenna@energygarden.org.uk

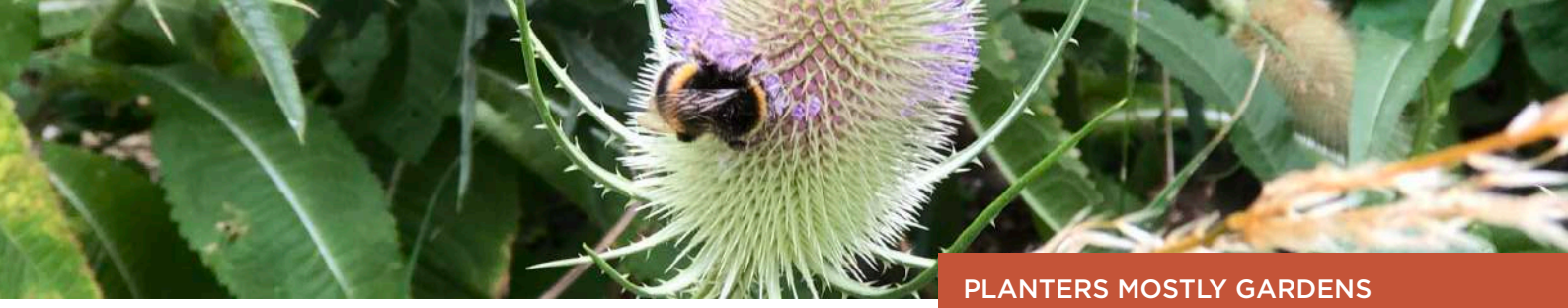


Chingford

		Comments
Area	58 m²	15 planters of varying sizes and two beds outside the station that are primarily introduced shrub species.
Total Energy Garden Biodiversity Score	0.078	This is the lowest score in the network. Ranks 17/17.
NEBM4.0 SSM Habitat Unit Score	0.049	This is a low score as it is a garden made up of planters and introduced shrubs which are habitat types that receive low scores in the metric.
NEBM4.0 SSM Hedgerow Unit Score	0	No hedgerows.
Plant Species per m²	0.30	There were 17 plant species recorded, focusing on drought and pollution tolerant plants.
Volunteer Hours per m²	0.98	56.5 hours of volunteer engagement in the garden recorded. This garden is a partnership between Energy Garden and Love North Chingford so there could be some instances where Energy Garden did not record sessions.
Number of Individual Trees	1	
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Could be an area for improvement.

GALLERY

To get involved, contact: Morwenna@energygarden.org.uk

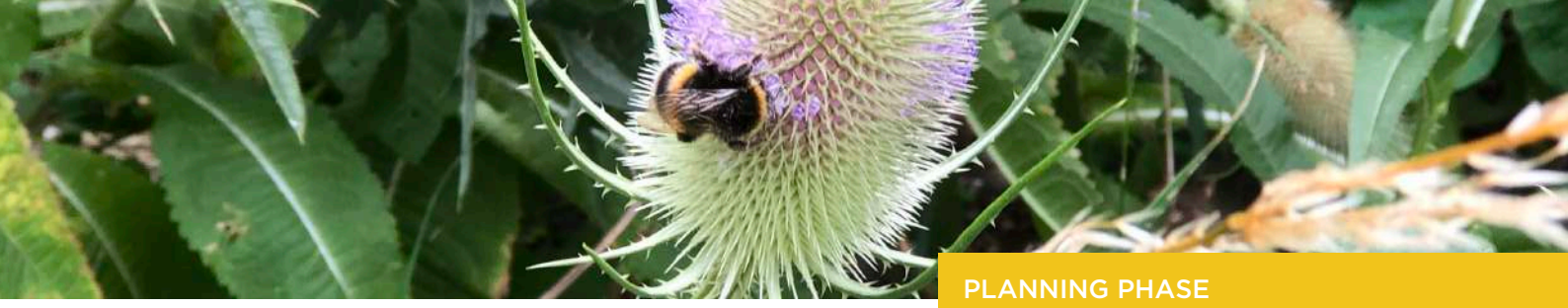


Forest Hill

		Comments
Area	64 m²	25 planters of varying sizes and a large permanent bed in the car park outside the station.
Total Energy Garden Biodiversity Score	0.21	Ranks 10/17.
NEBM4.0 SSM Habitat Unit Score	0.13	This garden features a broadleaved woodland habitat which is a higher scoring category along with some individual trees. There are also two lower scoring habitats of vegetated garden and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	No hedgerows.
Plant Species per m²	0.77	There were 50 plant species recorded, focusing on drought tolerant plants.
Volunteer Hours per m²	0.33	21 hours of volunteer engagement in the garden recorded. This garden is a partnership between Energy Garden and the Forest Hill Society so there could be some instances where Energy Garden did not record sessions.where Energy Garden did not record sessions.
Number of Individual Trees	3	
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Could be an area for improvement.

GALLERY

To get involved, contact: Anna@energygarden.org.uk



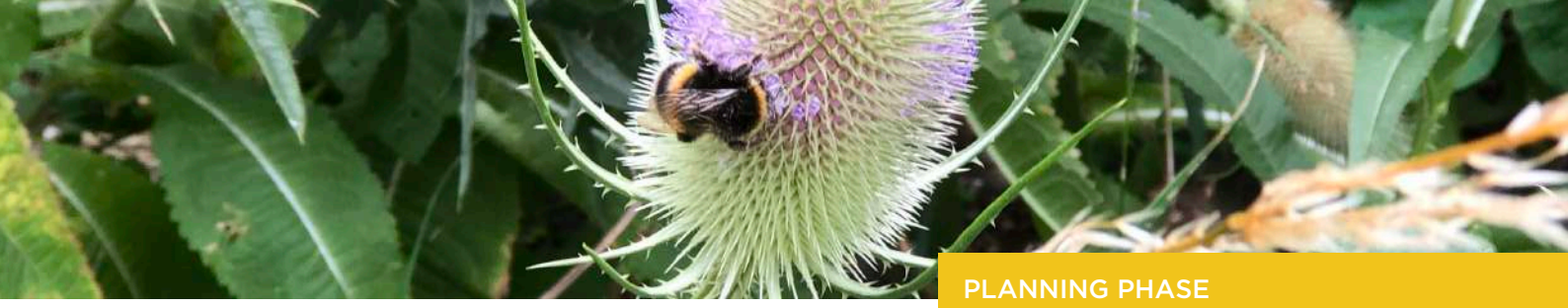
PLANNING PHASE

Hatton Cross

		Comments
Area	307 m²	4 raised beds which vary in size and species composition.
Total Energy Garden Biodiversity Score	0.38	Ranks 7/10.
NEBM4.0 SSM Habitat Unit Score	0.37	Currently made up of lower scoring habitat types including vegetated garden, tall forbs, and introduced shrub.
NEBM4.0 SSM Hedgerow Unit Score	0	No hedgerows.
Plant Species per m²	0.13	There were 41 plant species recorded. Most are naturally occurring weedy species.
Volunteer Hours per m²	0	This is a new garden that has not had any regular volunteer involvement.
Number of Individual Trees	7	Many of them are surrounded by scrub.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Could be an area for improvement.

GALLERY

To get involved, contact: Callum@energygarden.org.uk



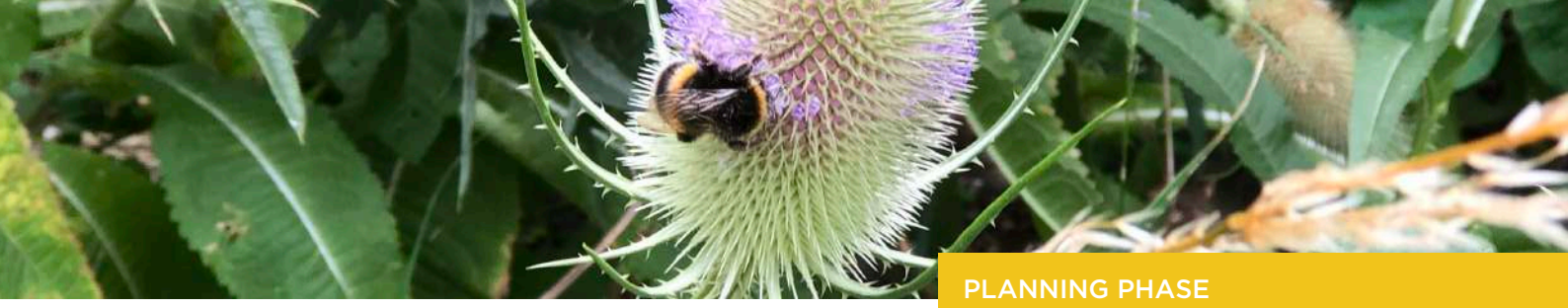
PLANNING PHASE

Honor Oak Park

		Comments
Area	300 m²	This is an estimation of the area we will begin managing along with three existing planters.
Total Energy Garden Biodiversity Score	0.12	Ranks 15/17.
NEBM4.0 SSM Habitat Unit Score	0.12	This garden is currently made up mostly of dense bramble scrub which is a mid-range scoring habitat along with lower scoring habitat types including vegetated gardens and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no accessible hedgerows that we could measure in the garden at this time.
Plant Species per m²	0.023	There were 7 plant species recorded. It was difficult to access most of the garden to survey as it is currently predominantly dense bramble scrub.
Volunteer Hours per m²	0.055	This is a new garden that has not had any regular volunteer involvement but has had 16.5 hours devoted to planning the garden.
Number of Individual Trees	0	The survey area was difficult to access so none of the trees could be measured or included in the metric.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	This is an area that could be considered for improvement.

GALLERY

To get involved, contact: Anna@energygarden.org.uk



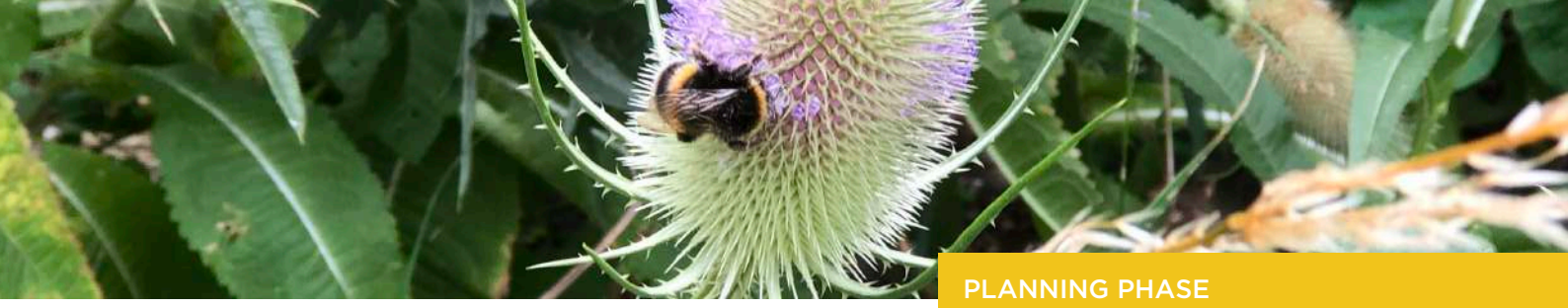
PLANNING PHASE

Ladbroke Grove

		Comments
Area	2473 m²	The largest garden as it is the entire fenced in greenspace behind the station.
Total Energy Garden Biodiversity Score	1.8	Ranks 2/17.
NEBM4.0 SSM Habitat Unit Score	1.8	This garden contains a variety of habitat types including a large broadleaved woodland, bramble scrub, introduced shrub, vegetated garden, ruderal or ephemeral, and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.039	There were 96 plant species recorded. Mixture of managed spaces and currently unmanaged areas with lots of ivy, bramble, and weedy naturally occurring species.
Volunteer Hours per m²	0.093	This garden has had 231 recorded volunteer hours.
Number of Individual Trees	0	The trees in the garden all fall in the broadleaf woodland habitat and are therefore not recorded individually.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	2	There is currently a dead hedge and a small bug hotel in the garden. There is an opportunity to add more biodiversity features.

GALLERY

To get involved, contact: Kyle@energygarden.org.uk



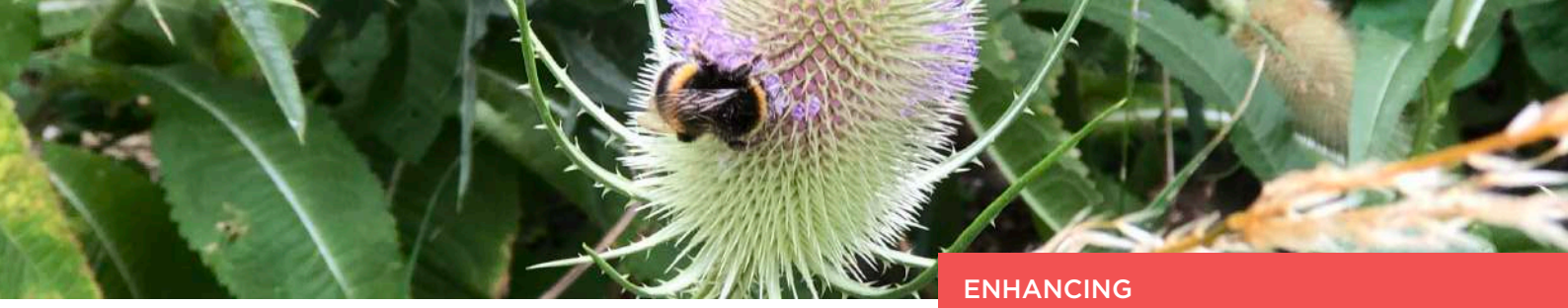
PLANNING PHASE

Energy Garden Office

		Comments
Area	58 m²	44 planters of varying sizes.
Total Energy Garden Biodiversity Score	0.75	Ranks 4/17.
NEBM4.0 SSM Habitat Unit Score	0.68	This garden is made up of planters which are a low-scoring habitat, but two medium-sized trees boost the score.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.62	There were 36 plant species recorded. Most are naturally occurring weedy species.
Volunteer Hours per m²	1.45	This garden has had 83.5 recorded volunteer hours.
Number of Individual Trees	2	
Other biodiversity habitats (bug hotels, bird boxes, etc.)	2	Two bird boxes.

GALLERY

To get involved, contact: Beatrice@energygarden.org.uk



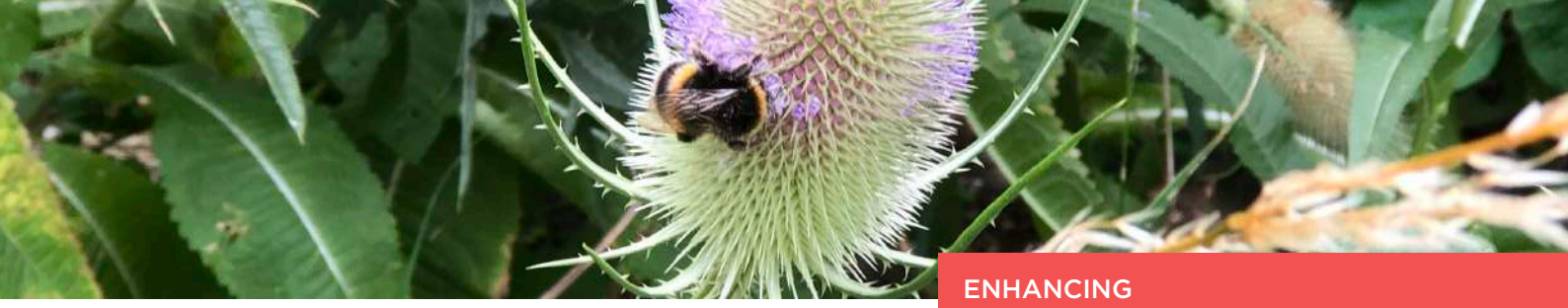
ENHANCING

Brockley

		Comments
Area	329 m²	On both platforms and is a mixture of planters and sloped rail side land.
Total Energy Garden Biodiversity Score	0.75	Ranks 13/17.
NEBM4.0 SSM Habitat Unit Score	0.14	This garden is made up of a mixture of habitat types with a moderate scoring broadleaved woodland and modified grassland as well as lower scoring habitats including vegetated garden, and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows. Along the wall by the wildflower meadow, there is great potential for a native-species rich hedgerow.
Plant Species per m²	0.17	There were 57 plant species recorded. There is great variety between ornamental planters, woodland understory plants, and some wildflowers establishing themselves in the new meadow.
Volunteer Hours per m²	0.082	In total there were 27 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	0	The trees in the garden all fall in the broadleaf woodland habitat and are therefore not recorded individually.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	1	Dead hedge.

GALLERY

To get involved, contact: Morwenna@energygarden.org.uk



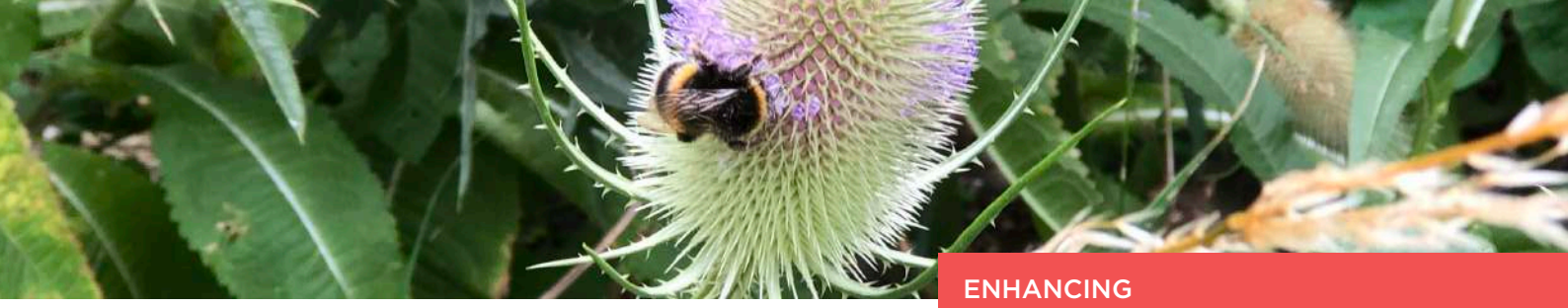
ENHANCING

Canonbury

		Comments
Area	108 m²	3 planters and 3 raised beds.
Total Energy Garden Biodiversity Score	0.084	Ranks 16/17.
NEBM4.0 SSM Habitat Unit Score	0.026	This garden is made up of a mixture of habitat types with a moderate scoring modified grassland habitat and lower scoring habitats including vegetated garden, introduced shrubs, and planters. Work will be done to hopefully convert the modified grassland to a neutral grassland.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.57	There were 62 plant species recorded, special focus on drought tolerant, ornamental, and pollinator-friendly plants.
Volunteer Hours per m²	1.29	In total there were 139.25 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	0	There are no trees in this garden.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	This is an area that could be considered for improvement.

GALLERY

To get involved, contact: Beatrice@energygarden.org.uk



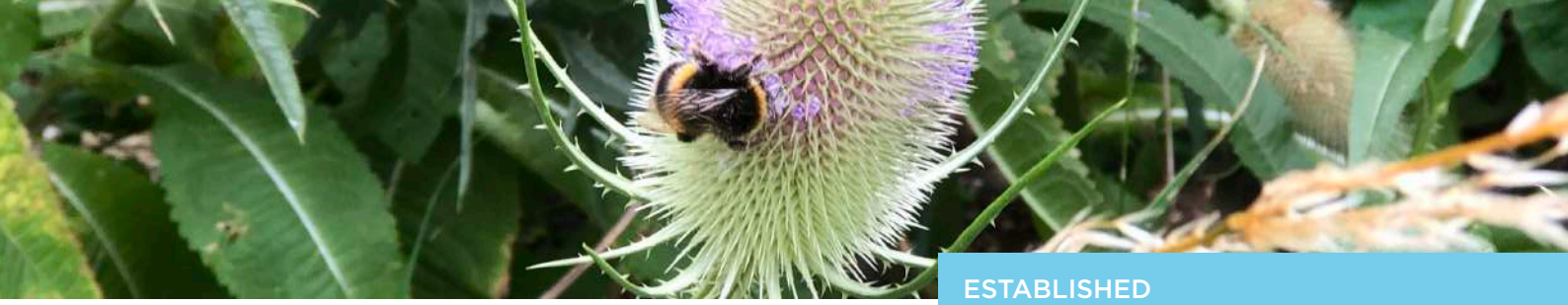
ENHANCING

Willesden Junction

		Comments
Area	210 m²	A mixture of planters and a large area outside the station.
Total Energy Garden Biodiversity Score	0.15	Ranks 14/17.
NEBM4.0 SSM Habitat Unit Score	0.10	This garden is made up of a mixture of habitat types with moderate scoring grassland habitats (neutral and modified) and broadleaved woodland, as well as lower scoring habitats including vegetated garden, introduced shrub, and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	There is a newly planted hedgerow however it was deemed too small and not connected enough to be considered a distinctive hedgerow this year.
Plant Species per m²	0.57	There were 101 plant species recorded.
Volunteer Hours per m²	1.29	In total there were 195.5 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	0	The trees in the garden all fall in the broadleaf woodland habitat and are therefore not recorded individually. There are also some small fruit trees that are not tall enough to be included.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	There is a great bug hotel in this garden.

GALLERY

To get involved, contact: Callum@energygarden.org.uk



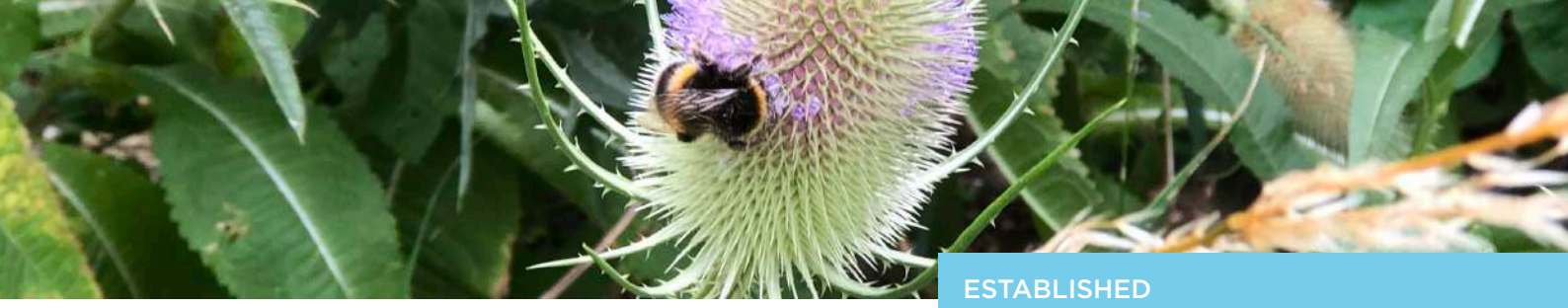
ESTABLISHED

Brondesbury Park

		Comments
Area	614 m²	Both platforms with two raised beds and the long sloping land adjacent to the rail.
Total Energy Garden Biodiversity Score	0.88	Ranks 3/17.
NEBM4.0 SSM Habitat Unit Score	0.86	This garden is made up of a mixture of habitat types with high scoring neutral grassland and gorse scrub. There were moderate habitats like modified grasslands, tall forbs, ruderal or ephemeral, and bramble scrub. Lower scoring habitats include vegetated garden and introduced shrub.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.23	There were 144 plant species recorded, the most in any of the gardens. The focus is on food growing, ornamental value, pollinator friendly plants.
Volunteer Hours per m²	0.82	In total there were 504.25 hours of volunteer engagement in the garden recorded, the most of any garden.
Number of Individual Trees	17	This is the most individual trees recorded in any garden.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	This could be an area for improvement.

GALLERY

To get involved, contact: Beatrice@energygarden.org.uk



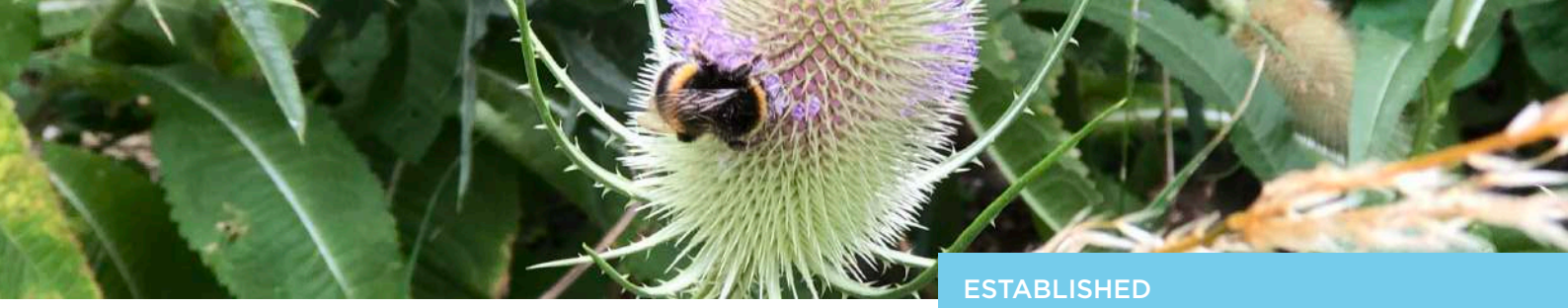
ESTABLISHED

Bush Hill Park

		Comments
Area	197 m²	Spread over one platform on the long sloping land adjacent to the rail and a raised bed.
Total Energy Garden Biodiversity Score	0.20	Ranks 11/17.
NEBM4.0 SSM Habitat Unit Score	0.10	This garden is made up of a mixture of habitat types with high scoring neutral grassland and broadleaved and mixed woodlands. There was modified grasslands which have a moderate score. There were also lower scoring habitats including vegetated garden and introduced shrub.
NEBM4.0 SSM Hedgerow Unit Score	0.059	There is a native species hedgerow along a portion of the fence.
Plant Species per m²	0.23	There were 74 plant species recorded.
Volunteer Hours per m²	0.82	In total there were 120 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	17	The trees in the garden all fall in the broadleaf or mixed woodland habitat and are therefore not recorded individually.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	Dead wood pile.

GALLERY

To get involved, contact: Morwenna@energygarden.org.uk



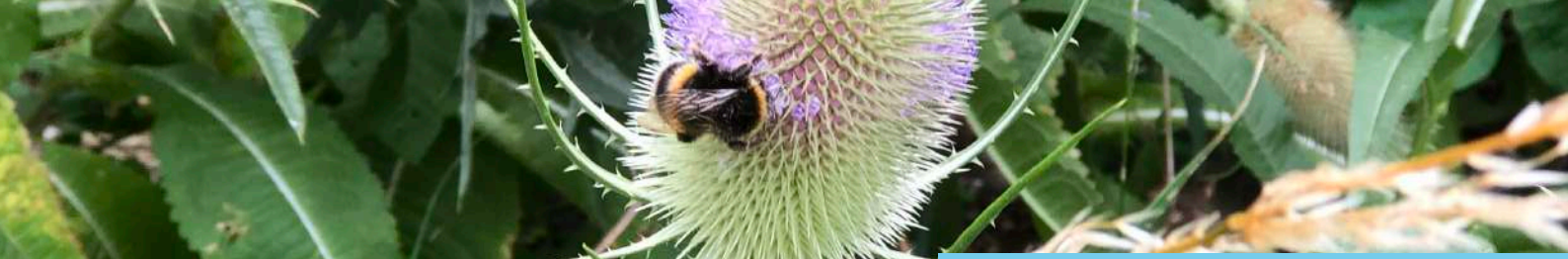
ESTABLISHED

Finchley Central

		Comments
Area	63 m²	One platform on the long flat land adjacent to the rail and a raised bed.
Total Energy Garden Biodiversity Score	0.19	Ranks 12/17.
NEBM4.0 SSM Habitat Unit Score	0.094	This garden is made up of a mixture of habitat types with high scoring broadleaved woodland and low scoring habitat types like vegetated garden, introduced shrub, and planters.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.95	There were 60 plant species recorded focused on food growing, ornamental value, and pollinator friendly plants.
Volunteer Hours per m²	6.18	In total there were 391.5 hours of volunteer engagement in the garden recorded. This was the highest per m2 measure of volunteer engagement.
Number of Individual Trees	2	There were 2 trees outside the broadleaved woodland habitat.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	2	Bug hotel, bird bath

GALLERY

To get involved, contact: Anna@energygarden.org.uk



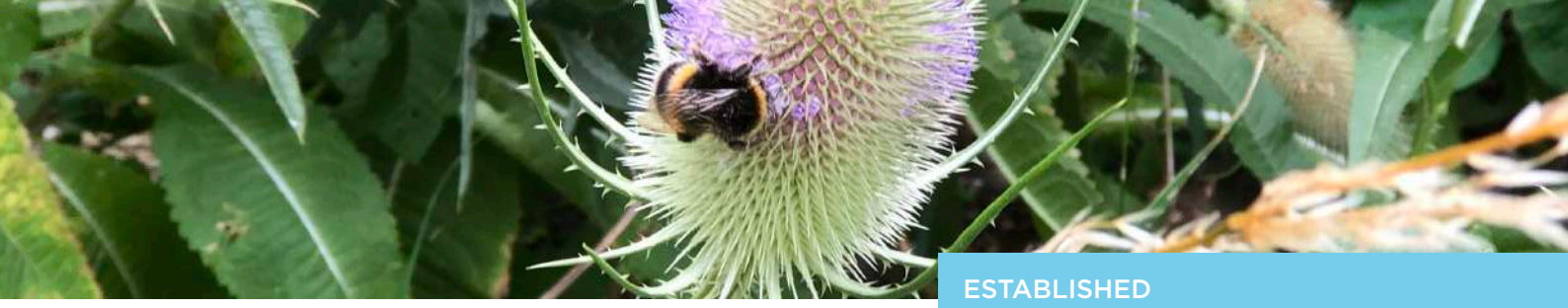
ESTABLISHED

Hampstead Heath

		Comments
Area	76 m²	On both platforms with a mixture of raised beds and the long flat land adjacent to the rail.
Total Energy Garden Biodiversity Score	0.38	Ranks 8/17.
NEBM4.0 SSM Habitat Unit Score	0.28	This garden is made up of a mixture of habitat types with moderate scoring ornamental pond, tall forbs, and ruderal or ephemeral habitats. There are also low scoring habitat types like vegetated garden, introduced shrub, and planters.
NEBM4.0 SSM Hedgerow Unit Score	0.014	There was a non-native ornamental hedgerow along a portion of the back wall in the main garden.
Plant Species per m²	0.86	There were 66 plant species recorded.
Volunteer Hours per m²	4.24	In total there were 324 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	7	There were 7 trees outside the broadleaved woodland habitat.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	2	Hedgehog house, bug hotel.

GALLERY

To get involved, contact: Anna@energygarden.org.uk



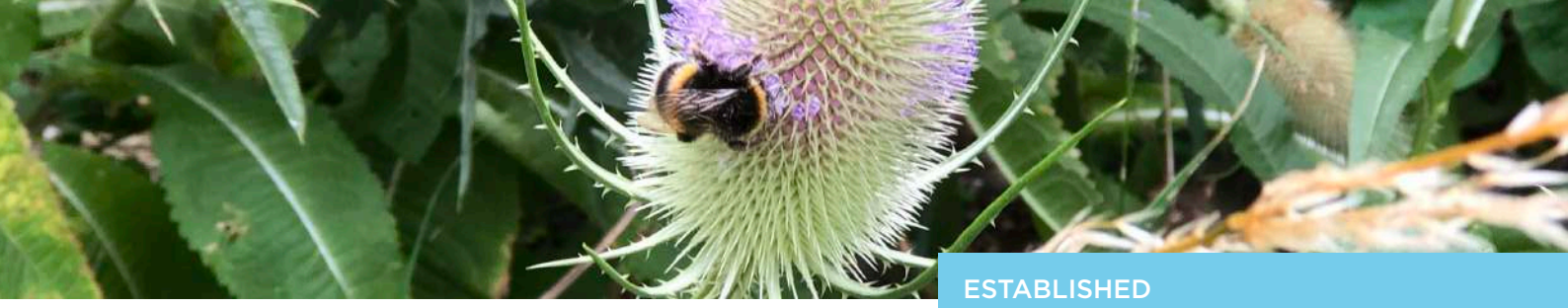
ESTABLISHED

Kew Gardens

		Comments
Area	413 m²	On both platforms on flat patches of land adjacent to the railway.
Total Energy Garden Biodiversity Score	1.9	Ranks 1/17. Primarily due to the size of the garden and the large number of trees.
NEBM4.0 SSM Habitat Unit Score	1.8	This garden is made up of a mixture of habitat types with high scoring broadleaved woodland moderate scoring modified grassland and low scoring habitat types like vegetated garden, introduced shrub, and planters. There were also a high number of individual trees. This was the highest habitat unit score for a garden.
NEBM4.0 SSM Hedgerow Unit Score	0.068	There was a non-native ornamental hedgerow along a fence.
Plant Species per m²	0.14	There were 56 plant species recorded.
Volunteer Hours per m²	0.41	In total there were 171 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	13	There were 7 trees outside the broadleaved woodland habitat.
Other biodiversity habitats (bug hotels, bird boxes, etc.)	0	

GALLERY

To get involved, contact: Anna@energygarden.org.uk



ESTABLISHED

Rectory Road

		Comments
Area	236 m²	On a sloping patch of land adjacent to the railway. There is also a raised bed outside the station.
Total Energy Garden Biodiversity Score	0.25	Ranks 1/17. Primarily due to the size of the garden and the large number of trees.
NEBM4.0 SSM Habitat Unit Score	0.20	This garden is made up of a mixture of low scoring habitat types like vegetated garden, introduced shrub, and planters. There were also a high number of individual trees.
NEBM4.0 SSM Hedgerow Unit Score	0	There were no hedgerows.
Plant Species per m²	0.52	There were 124 plant species recorded. This garden features a lot of rescued plants from the local community which has positively contributed to the high number of species in the garden. There is a focus on drought tolerant and pollinator friendly species.
Volunteer Hours per m²	1.04	246 hours of volunteer engagement in the garden recorded.
Number of Individual Trees	4	
Other biodiversity habitats (bug hotels, bird boxes, etc.)	1	A section of the garden is left for burrowing ivy bees.

GALLERY

To get involved, contact: Kyle@energygarden.org.uk

Bibliography and Suggested Reading

The Biodiversity Metric 4.0 https://publications.naturalengland.org.uk/publication/6047259574927360

CBD. (2006) Convention Text. Article 2. Use of Terms. Convention on Biological Diversity. online. November 2006 ,2, Montreal, CBD.https://www.cbd.int/convention/articles/default.shtml?a=cbd02-.

C. G. Threlfall ,L. Mata, J. A. Mackie et al, Increasing biodiversity in urban green spaces through simple vegetation interventions, Journal of Applied Ecology, 2017

Dearborn, D.C. and Kark, S., 2010. Motivations for conserving urban biodiversity. Conservation biology, 2)24), pp.440-432.

DEFRA's Biodiversity Segmentation Scoping Study 2020 -2011 http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=18411

Fleishman, E., Thomson, J.R., Mac Nally, R., Murphy, D.D. and Fay, J.P., 2005. Using indicator species to predict species richness of multiple taxonomic groups. Conservation biology, 4)19), pp.1137-1125.

IPBES. (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. New York, Wiley Subscription Services, Inc.

Li, E., Parker, S.S., Pauly, G.B., Randall, J.M., Brown, B.V. and Cohen, B.S., 2019. An urban biodiversity assessment framework that combines an urban habitat classification scheme and citizen science data. Frontiers in Ecology and Evolution, 7, p.277.

London Plan Guidance, Urban Greening Factor https://www.london.gov.uk/sites/default/files/urban_greening_factor_lpg_pre-consultation_draft.pdf 2021

Millennium Ecosystem Assessment. (2005) Ecosystems and Human Well-being: Biodiversity Synthesis. Washington, DC, World Resources Institute.

https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100321470;jsessionid=761BE606DB2B6955273B64AC184D5D36

http://randd.defra.gov.uk/Document.aspx?Document=11265_Engagingpeopleinbiodiversityissues-FinalReport.pdf

Uchida, K., Blakey, R.V., Burger, J.R., Cooper, D.S., Niesner, C.A. and Blumstein, D.T., 2021. Urban biodiversity and the importance of scale. Trends in Ecology & Evolution, 2)36), pp.131-123.

UK Biodiversity Indicators, 2021 https://hub.jncc.gov.uk/assets/111f1e711-51a46-c-3a64a-3bd1de2d4c4d

UK's National Biodiversity Strategy 2020, DEFRA https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb-13583biodiversity-strategy111111-2020-.pdf

WWF. (2020) Living Planet Report 2020: Bending the Curve of Biodiversity Loss. Gland, Switzerland, WWF.

For more information on this report,

please contact info@energygarden.org.uk

or ellen@energygarden.org.uk.