



Solihull Hedgehog Improvement Area Pilot Year Project Report 2015-16



**The Hedgehog Improvement Area projects are generously
funded by the British Hedgehog Preservation Society**



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1. Hedgehog Officer's Summary

The vision of the Solihull Hedgehog Improvement Area (HIA) project is to *empower local communities to help their hedgehogs using a mixed method approach of community engagement, citizen science and habitat improvement*. The pilot year of the HIA has had great success in line with that vision; with community groups, organisations, schools and residents being thoroughly engaged and committed to the project and its aims.

Spending the last twelve months working intensely around the borough of Solihull has provided great insight into the variety of challenges facing hedgehogs across the urban – suburban – rural gradient. The variety in housing styles and the structure of garden layouts alone has highlighted concerns local to distinct regions of the borough, some areas being hampered by occasionally large areas of garden space being isolated in the centre of an impenetrable ring of conjoined semi-detached houses. This consideration of housing and garden structure has been essential in allowing the project to gain an local understanding of the landscape of Solihull for hedgehogs. This will be developed further in the next phase of the project in order to quantify and map both barriers and pathways for hedgehogs.

27 of Solihull's primary schools have worked directly with the project during its pilot year. Primary classes, gardening- and Eco-clubs and forest-school groups have all enthusiastically completed footprint surveys, becoming hedgehog detectives to seek out signs of nocturnal visitors. The light-bulb moment when inky footprints, hedgehog or otherwise, have been collected and realisation hits that a playground is so much more than just a place to play football is a privilege to be a part of.

The many hours spent in conversation with the people of Solihull have revealed a widespread and deep-seated fondness for hedgehogs. This feeling seems to be only strengthened by the realisation that hedgehogs are missing from areas where they were once extremely regular visitors. The main aim of the project's development is to convert this widespread fondness into positive conservation action . In spite of the challenges that lie ahead for our hedgehogs, I can only feel hopeful for the future knowing that projects sharing the aims of the HIA are on the verge of launch up and down the country, together we can begin to secure the future for this most enigmatic of species.



Simon Thompson
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2. Project Launch

The HIA project launched officially on March 16th 2015. The launch was a great success with an exceptionally wide range of national, regional and local press responding to the press release (Appendix 1) and picking up the story. Print media highlights included features in the Guardian and Independent newspapers, along with substantial segments from the Daily Mail Online and specialist interest magazines including BBC Wildlife and BBC Good Housekeeping. The project was featured widely on the radio including BBC Radio 2's Breakfast News, Radio 4's Farming Today and local coverage including BBC Radio Coventry and Warwickshire. The HIA also featured on TV broadcast news with a Midlands Today, Children's BBC Newsround and BBC Breakfast including segments.

3. The HIA in the Media

3.1 National Media

The high level of interest in the project from the outset has helped to firmly ground the HIA project in the national perspective. Opportunities to promote hedgehog conservation at the national scale have been taken throughout the year, including appearances on BBC Radio 4's 'The Today Programme', BBC Radio 5 Live, and BBC Radio 2's 'The Jeremy Vine Show'. The project's radio presence has been backed up with a national print feature in 'Gridline' Magazine; the National Grid's quarterly magazine distributed to 34,000 landowners who have transmission pylons or gas pipelines on their land. The project was also fortunate to be selected as a feature project within the British Hedgehog Preservation Society's Christmas Appeal in The Times newspaper, shining a spotlight on the work of the Solihull HIA.

3.2 Local Media

Local media features have been regular throughout the year. These features have ranged from the extremely local, including parish magazines, to borough wide newspapers and publications such as the Solihull Observer and Solihull Metropolitan Borough Council's 'Your Solihull Magazine' which is distributed to all of the borough's residents. These local features have helped to convey the messages of the project to a very wide audience, hopefully raising the local profile of the project and supporting the county wide appeal for hedgehog sightings. External media has been supported by communications via Warwickshire Wildlife Trust's own channels including blogs, member's magazines and e-newsletters.

3.3 Website and Social Media

The information site, helpforhedgehogs.co.uk, was set up during the first weeks of the project. The site has been used in conjunction with Warwickshire Wildlife Trust's website to collect hedgehog sightings data, the two sites combined have received a total of 616 hedgehog sighting submissions through the course of the year. The website has been complimented with regular updates and shares via the @Help4Hedgehogs twitter feed and Facebook pages reaching an audience of 2369. The site has recently installed a

local version of Hedgehog Street's 'Big Hedgehog Map'. The use of this map will be encouraged locally throughout the development of the project to map hedgehogs and 'Hedgehog Highways', providing strong links to Hedgehog Street and an immediate national context and for all users submitting data.

4. Habitat

4.1 Solihull Borough Profile

Solihull is a metropolitan borough in the West Midlands and the Vice-county of Warwickshire. It is situated to the east of Birmingham and the west of Coventry (fig 4.1) and covers an area of 178.3 km². The 2011 census lists 86,100 households within the borough, with 90.4% of the borough's 209,000 population being described as urban (Solihull Observatory, 2015). According to the Office of National Statistics (ONS), 69% of the borough's land is green space with 15.1% being domestic gardens. The percentage cover of gardens in Solihull is comparatively high when considered against a regional coverage of only 4.9% and a national coverage of 4.3% (Office for National Statistics, 2005). The local authority, Solihull Metropolitan Borough Council (SMBC) manage 20 parks (Appendix 3), 12 of which have been awarded Green Flag status. There are 21 areas designated and managed as Local Nature Reserves (Appendix 2).

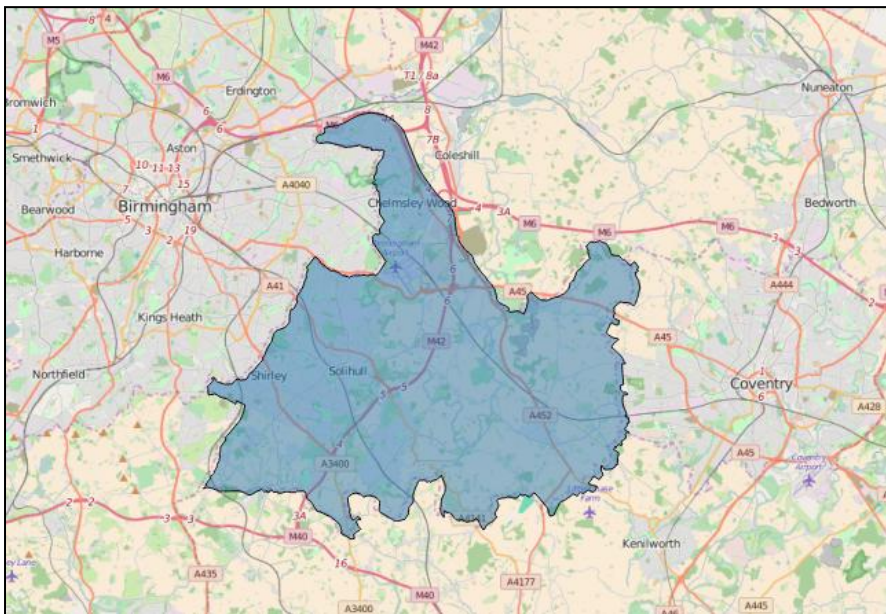






Figure 4.1
Location and extent of Solihull Metropolitan Borough (highlighted in blue) within the wider landscape.

Mapping © 2016
OpenStreetMap
Contributors

4.2 Solihull Habitat Mapping

In order to gain a comprehensive overview of landscape scale habitat structure across the borough results of Phase 1 habitat surveys have been considered. A borough wide data set has been provided by Warwickshire Wildlife Trust's Habitat Biodiversity Audit team. Figure 4.2 is a graphical representation of this data set with distinct dominant habitats being mapped to their geographical extents.

Phase 1 Survey Category Key

	Broadleaved woodland - semi-natural
	Broadleaved woodland - plantation
	Coniferous woodland - semi-natural
	Coniferous woodland - plantation
	Mixed woodland - semi-natural
	Mixed woodland - plantation
	Scrub - dense/continuous
	Scrub - scattered
	Broadleaved Parkland/scattered trees
	Coniferous Parkland/scattered trees
	Mixed Parkland/scattered trees
	Broadleaved woodland - recently felled
	Coniferous woodland - recently felled
	Orchard
	Acid grassland - semi-improved
	Acid grassland - semi-improved
	Neutral grassland - unimproved
	Neutral grassland - semi-improved
	Calcareous grassland - unimproved
	Calcareous grassland - semi-improved
	Improved grassland
	Marsh/marshy grassland
	Poor semi-improved grassland
	Bracken - continuous
	Other tall herb and fern - ruderal
	Other tall herb and fern - non ruderal
	Dry heath/acid grassland
	Flush and spring - acid/neutral flush
	Flush and spring - basic flush
	Fen - valley mire
	Fen - basin mire
	Swamp
	Marginal and inundation - marginal vegetation
	Marginal and inundation - inundation vegetation
	Standing water
	Running water
	Quarry
	Spoil
	Mine
	Refuse-tip
	Cultivated/disturbed land - arable
	Cultivated/disturbed land - amenity grassland
	Cultivated/disturbed land - ephemeral/short perennial
	Introduced shrub
	Buildings
	Bare ground
	Built Landscape

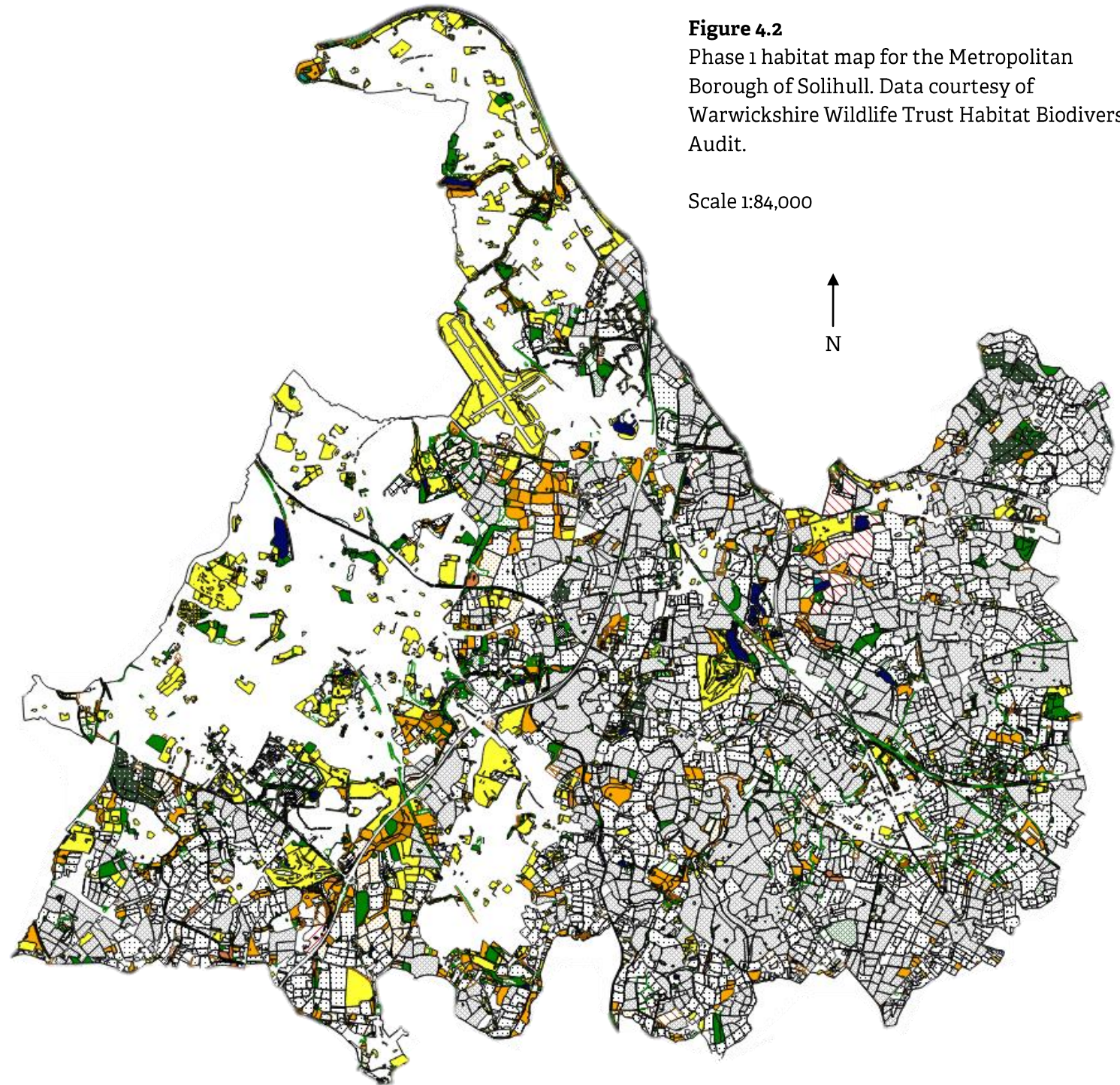


Figure 4.2

Phase 1 habitat map for the Metropolitan Borough of Solihull. Data courtesy of Warwickshire Wildlife Trust Habitat Biodiversity Audit.

Scale 1:84,000








































Habitat Code	Habitat Description	Area (Hectares)	Area %
 A111	Broad-leaved semi-natural woodland	429.90	2.41
 A112	Broad-leaved plantation	421.43	2.36
 A122	Coniferous plantation	158.35	0.89
 A131	Mixed semi-natural woodland	1.41	0.01
 A132	Mixed plantation	124.66	0.70
 A21	Dense/ linear scrub	140.08	0.79
 A22	Scattered scrub	57.87	0.32
 A31	Broad-leaved parkland/scattered trees	17.24	0.10
 A32	Coniferous parkland/scattered trees	1.40	0.01
 A4	Recently felled woodland	0.59	0.00
 A5	Orchard	3.29	0.02
 B11	Unimproved acidic grassland	0.83	0.00
 B12	Semi-improved acidic grassland	10.05	0.06
 B21	Unimproved neutral grassland	50.58	0.28
 B22	Semi-improved neutral grassland	620.28	3.48
 B32	Semi-improved calcareous grassland	0.05	0.00
 B4	Improved grassland	3765.71	21.12
 B5	Marsh/marshy grassland	62.30	0.35
 B6	Poor semi-improved grassland	456.81	2.56
 C11	Continuous bracken	3.89	0.02
 C31	Tall ruderal	104.66	0.59
 D5	Dry heath/acidic grassland mosaic	0.29	0.00
 E11	Sphagnum Bog	0.32	0.00
 E32	Basin Mire	0.09	0.00
 F1	Swamp	8.43	0.05
 F22	Inundation vegetation	1.75	0.01
 G1	Standing water (wet ditches)	146.94	0.82
 G2	Running water	40.99	0.23
 I21	Quarry (active)	105.38	0.59
 I22	Spoil	11.97	0.07
 I24	Refuse tip	0.24	0.00
 J11	Arable	3464.04	19.43
 J112	Allotments	26.93	0.15
 J113	Set-aside (field margins)	69.82	0.39
 J12	Amenity grassland	1404.62	7.88
 J13	Ephemeral/short perennial	15.74	0.09
 J14	Introduced shrub	15.09	0.08
 J4	Bare ground	52.96	0.30
	Built Landscape	6033.02	33.84
Total Area		17830.00	

Table 4.1

Phase 1 habitat survey data table for the Metropolitan Borough of Solihull. Data courtesy of Warwickshire Wildlife Trust Habitat Biodiversity Audit 2015.

The extent of the built landscape across the West and North of the borough is evident in figure 4.4 and Table 4.1. Indicated by white space on the map, the built landscape covers 6033ha (33.84%) of the borough's area. The central and eastern parts of the borough are dominated by the arable landscape which covers 3464ha (19.64%). Within both the urban and rural regions of Solihull the extreme patchiness of woodland (total borough area cover by woodland categories 7.61%) and grassland habitats is also evident (total borough area cover by grassland categories 10.44%).

By mapping Solihull's landscape in this way, it is hoped that a clear demonstration can be made to landowners, local authorities and members of the public of the extent to which Solihull's semi-natural habitats are divided, fragmented and isolated by human development and activity.

With Phase 1 habitat data as a baseline, changes in the structure of habitats will be monitored and mapped in coming years of the project. Any changes to habitat structure as a result of land management associated with the HIA project will be mapped and key areas will be re-surveyed in detail. Furthermore with the ongoing work of Warwickshire Wildlife Trust's Habitat Biodiversity Audit Team, the mapping of the entire borough will be renewed on a five yearly rotation, allowing landscape scale change to be monitored over time.

4.3 Elmdon Ward Profile

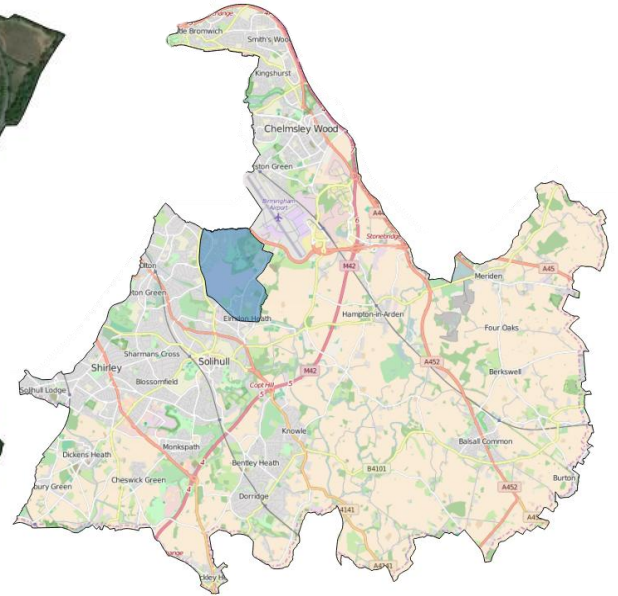
Elmdon is a broadly affluent electoral ward in the west of the borough of Solihull (fig 4.3). According to the 2011 census Elmdon is home to 12,067 residents (Solihull Observatory, 2016) and 79.2% of properties are owner occupied (Solihull Observatory, 2016). Elmdon was highlighted during the development of the HIA project as an area for focus. Preliminary information gathered indicated that there had been hedgehogs recorded in Elmdon. This coupled with the ward containing three large areas of green space; Elmdon Park, Elmdon Heath and Elmdon Coppice (Appendix 3) made it a clear choice for further investigation.

The ward is the location of a large Jaguar Land Rover plant which is situated on Lode Lane (fig 4.3) and spreads through the centre of the ward, splitting it into two distinct housing areas, Elmdon North and Elmdon South. The factory employs in the region of 6,000 workers and dominates the landscape of the ward. Elmdon South is separated into a further two housing zones typified by different housing types as discussed in section 5.5 of this report



Figure 4.3

Satellite imagery of the ward of Elmdon with named residential areas highlighted. Location of Elmdon highlighted in blue within the landscape the borough of Solihull.



Mapping © 2016 OpenStreetMap Contributors

4.4 Elmdon Park Phase 1 Survey

Figure 4.4 and Table 4.1 detail the results of a Phase 1 survey of Elmdon Park undertaken in April 2015. The park, including Warwickshire Wildlife Trust's Elmdon manor Nature Reserve and the adjacent arable land account for 112.11ha of green space in the ward. The park was highlighted in the development of the project as a potential central 'buffer zone' for the suburban population of hedgehogs in Solihull. The park contains a variety of habitat with the majority of grassland habitat being managed for amenity (28.64%). This is however supplemented with edge zones of poor semi-improved grassland (16.28%) and semi-improved grassland (3.03%). The woodland categories cover 28.05% of the park's area and a further 6.87% is dedicated to dense or continuous scrub. There is provision of edge habitat within the park, with edges of many of the park's amenity compartments being managed as wildflower meadow.

This baseline of habitat data will be used to monitor change in the park over time. Solihull Metropolitan Borough Council manage Elmdon Park are currently in the process of updating their management plan into which the project will be submitting management recommendations for hedgehogs.

Figure 4.4

Phase 1 habitat map for Solihull Metropolitan Borough Council's Elmdon Park. Surveyed 7th April 2015. Scale 1:12,500

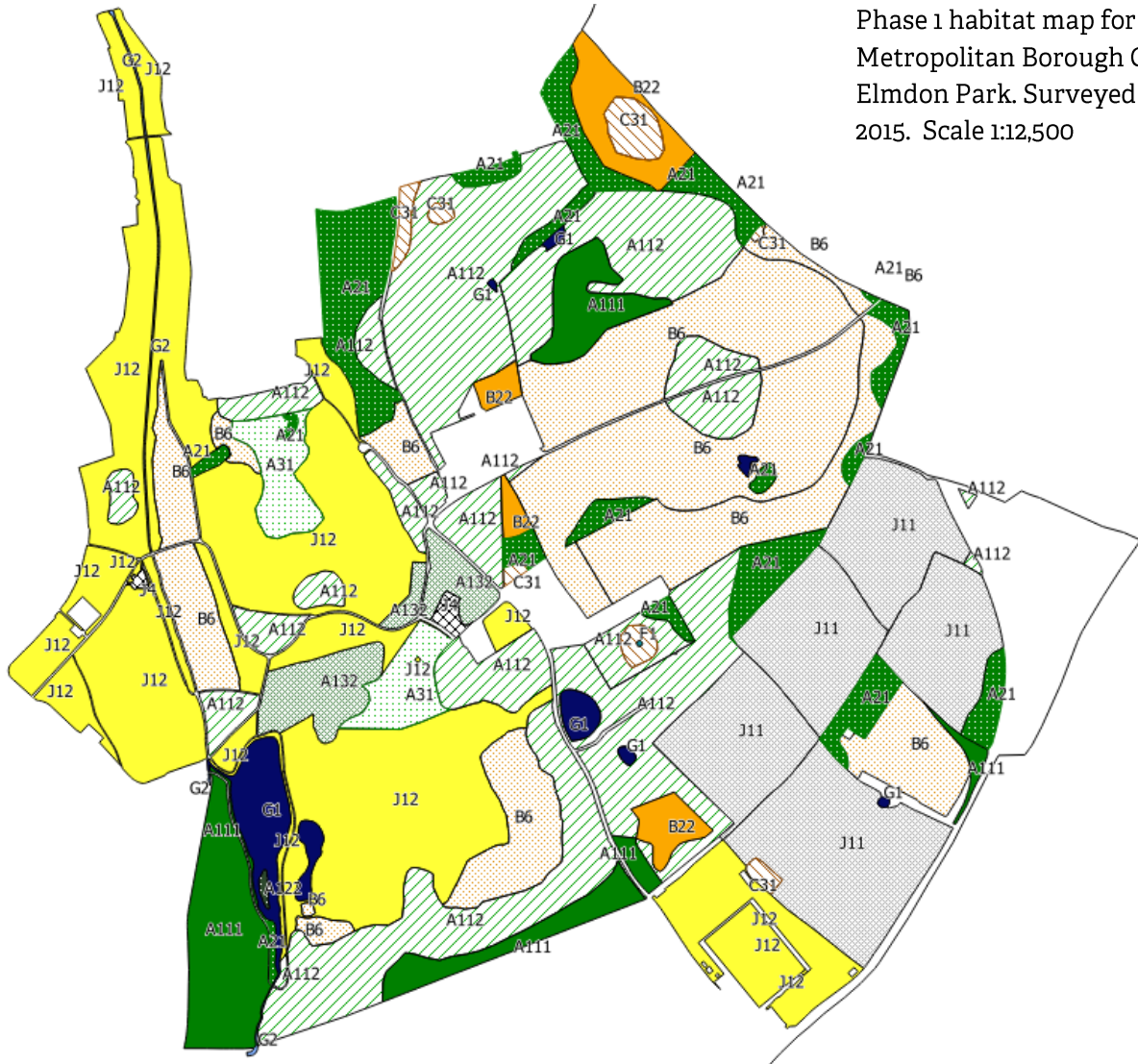


Table 4.2 Key to Phase 1 compartments and Phase 1 Data Table

Habitat Code	Description	Area (Hectares)	% Area Cover
A111	Broad-leaved semi-natural woodland	5.76	5.13
A112	Broad-leaved plantation	23.29	20.77
A122	Coniferous woodland	0.05	0.04
A132	Mixed plantation	2.35	2.10
A21	Dense/linear scrub	7.70	6.87
A31	Parkland/scattered trees	1.07	0.96
B22	Semi-improved grassland	3.39	3.03
B6	Poor semi-improved grassland	18.25	16.28
C31	Tall ruderal	1.20	1.07
F1	Swamp	0.00	0.00
G1	Standing Water	1.67	1.49
G2	Running Water	0.21	0.19
J11	Arable	15.02	13.40
J12	Amenity Grassland	32.15	28.67
Total Area		112.11	

4.5 Elmdon Front Garden Audit

The housing within the ward is distinctive within three areas as described in figure 4.3. The north of the ward is dominated by semi-detached properties (fig 4.5a) which are largely built in long rows and rings. This ring structure of building, exacerbated by the presence of garages and outbuildings between houses, gives rise to large blocks of gardens which can be entirely enclosed by buildings. In terms of green space accessibility this semi-detached housing is more like the terraced housing of highly urbanised areas, with gardens which are entirely inaccessible from the front of the building for the length of the entire block or row.



Figure 4.5

Typical housing types from across the ward of Elmdon from 2012. **a)** North Elmdon. **b)** South East Elmdon **c)** South West Elmdon.

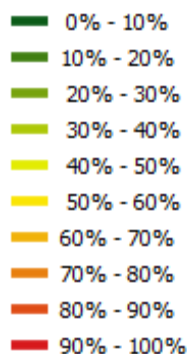
The south-east residential area (fig 4.3) is typified by more modern housing with a mixture of semi-detached and detached residences (fig 4.5b). Streets are shorter in length and housing is less dense (fig 4.11). The south-west residential area (fig 4.3) is more varied with a mixture of short terraces (fig 4.5c), semi-detached and detached housing. Due to this mixed building structure, the resulting housing estate in the south west of the ward seems to have relatively large areas of immediately accessible green space at the front of the houses, enhanced by small public greens between housing blocks.

In order to quantify and visualise this immediately available green space, an audit was carried out of the front gardens (n=3960) within Elmdon. Using Google 'street view' imagery from 2012, all streets (n=96) within the residential areas of Elmdon were surveyed. Those gardens which were not directly visible from the street level imagery were neither counted nor considered. Counts were undertaken based upon each garden's percentage cover of green space. The presence of dedicated space for a vehicle was also scored and streets were measured using satellite imagery to calculate a figure for 'garden density' for each street.

It was found that 28.18% (n=1116) of surveyed front gardens have no green space. The mean number of gardens per street was 41.25, with a mean of 11.63 gardens per street having no green space. Gardens with no green space were characteristically covered entirely with tarmac, gravel or paved. Figure 4.6 graphically represents the percentage of gardens on each street in the ward which have no green space. The darker green streets are those with the lowest percentage of 'no green space' gardens.

Figure 4.6

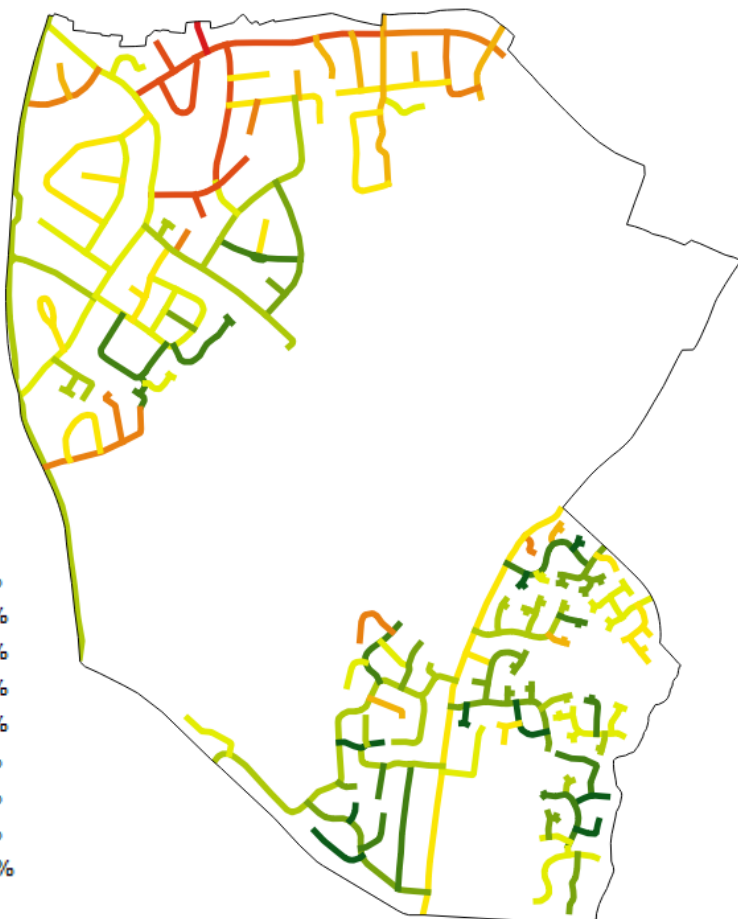
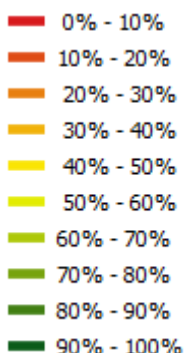
A heat map representation of Elmdon to show the percentage of front gardens on each street that have no green space within their area.



It was found that 50.13% (n=1985) of Elmdon's front gardens had >25% of their area as green space. This represented a mean of 20.67 houses per street. Figure 4.7 graphically represents the percentage of gardens on each street with an area >25% of green space. The red streets have the lowest percentage of '>25% green space' gardens and the dark green streets the highest.

Figure 4.7

A heat map representation of Elmdon to show the percentage of front gardens on each street that have green space covering >25% of their area.

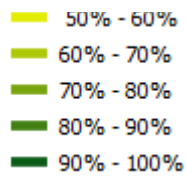


It was found that 7.05% (n=279) of surveyed front gardens had no driveway. These gardens represent a mean number of 2.91 gardens per street.

Figure 4.8 graphically represents the percentage of gardens on each street in the ward which have no space dedicated to the parking of a vehicle. The green streets are those with the highest percentage of 'no driveway' gardens.

Figure 4.8

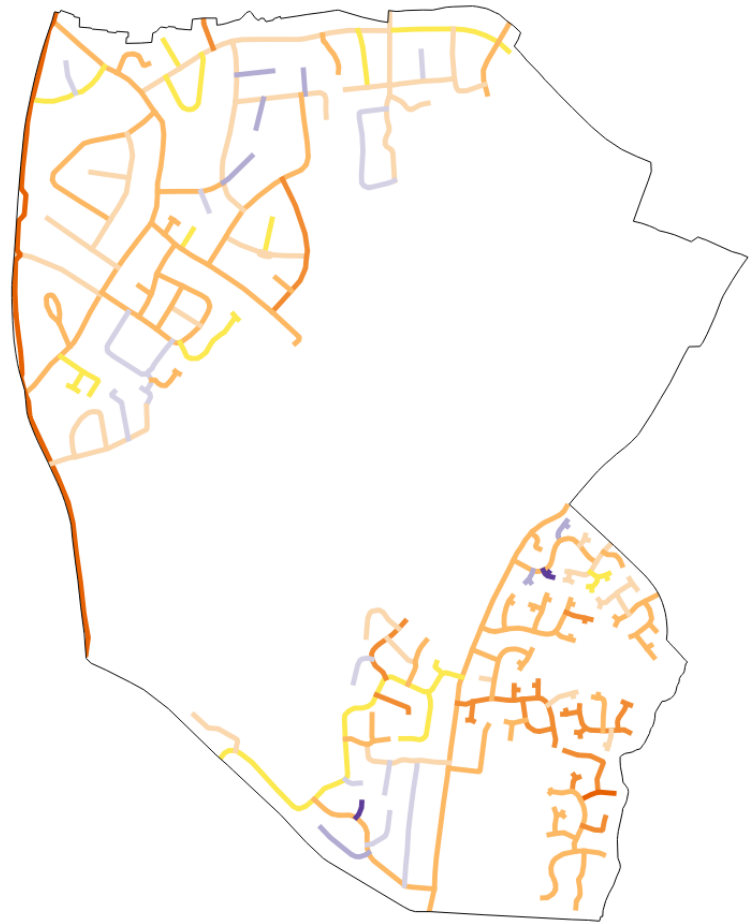
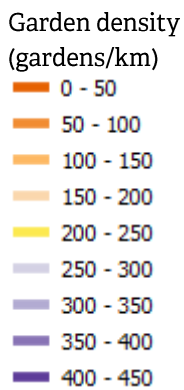
A heat map representation of Elmdon to show the percentage of front gardens on each street that have no driveway, this can be considered as a proxy for gardens with 100% green space.



The 96 streets in Elmdon measure a total of 25.91km in length. The mean street length is 269.88m. The density of gardens on each street was calculated and it was found that across the borough the mean garden density is 167.19 gardens/km. The garden density of each street has been represented graphically in figure 4.9.

Figure 4.9

A heat map representation of Elmdon to show the front garden density of each street within the borough.



The garden audit will be extended in the continuation of the project to consider back garden accessibility. Physical surveys will be undertaken to map accessibility of gardens from the street. Back garden boundaries will be physically surveyed where possible and questionnaires used to map the accessibility of Elmdon's back gardens.

5. Community Engagement

5.1 Events

75 events have been attended by the project during the year, allowing face-to-face engagement with a total of 4546 people. These events have included presentations, talks, walks, fête style events and workshops (fig 5.1). At all of these events the aim of the project has been to provide the end user with information and advice, to raise the profile of hedgehog conservation at a local scale and to gather more information about the state of hedgehogs in Solihull and wider Warwickshire.

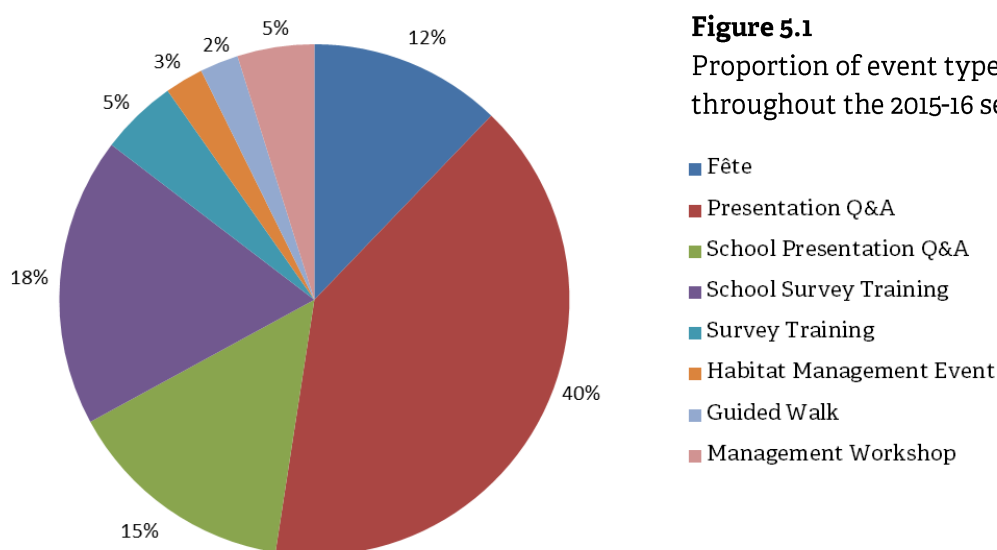


Figure 5.1

Proportion of event types attended throughout the 2015-16 season.

Attending events has allowed completion of the project's aims to engage with a broad demographic and also to gather sightings data. Events have also provided an important opportunity for children and families to be introduced to the hedgehog as a species in decline and to raise awareness of how hedgehogs can be helped at a local level. These face-to-face interactions have been backed up by providing families with Warwickshire Wildlife Trust's Help for Hedgehogs 10 Point Plan and literature provided by the British Hedgehog Preservation Society and Hedgehog Street. fêtes,

5.2 Schools

A total of 2900 children have been engaged with the Solihull HIA in its first year. 27 of Solihull's Primary schools have been visited during the pilot year of the project. All of the schools visited have been given a talk about hedgehog conservation, either as a whole school assembly or as part of a workshop for a smaller group of children. 25 of the schools engaged with have followed up on the initial visit by electing to take part in

footprint tunnel surveys. By undertaking a survey of their school grounds children are encouraged to interact with the project whilst following the curriculum in areas such as *Working Scientifically, Living things and their habitats and Animals including Humans*. These links to the curriculum will be explored further in the development of the Solihull HIA and it is planned that a 'Science Week' program will be developed for primary learners which could be used to engage children with hedgehogs in all areas of their learning.

A pack of resources to be used in schools, including a primary age hedgehog presentation and a survey guidance booklet for teachers is in production and will be made available online for other hedgehog conservation projects or teachers to freely download and use.



Photo © Emma Richmond 2015

Figure 5.3

Photographs taken at education visits throughout 2015-2016

The project has engaged with students from Solihull College during its pilot year, however this is the only group of older learners who were directly involved with the project. The project will aim to target groups of older learners during the second year of the project.

5.3 Community Groups

Community groups have largely been engaged by hosting a hedgehog talk or workshop for their members. These talks have been received extremely well. Any funds generated by their delivery are put directly back into the 'Help for Hedgehogs' campaign to be spent on hedgehog conservation initiatives within the county in future years. Groups engaged with throughout 2015-16 include:

Women's Institutes
 Scouts and Guides
 Parish Councils
 Friends of Groups

Warwickshire County Recorders
 Warwickshire Badger Group
 Teachers Groups
 Wildlife Action Groups

Faith Groups
The Solihull 'Big Green Group'
Gardening Clubs
Environmental Project Groups

Trefoil Guild Groups
Friendship Groups
Sorooptimists International
The Beautiful Burial Grounds Group

5.4 Partnerships

Partnership working has been vital in the work of the project to date. Various organisations and businesses across the borough have worked alongside the project to meet various aims including the promotion of the project, access to land for surveys to be undertaken and the provision of survey volunteers. Partnerships created and maintained throughout 2015-16 include:

Solihull Metropolitan Borough Council
Rugby Borough Council
Castle Bromwich Hall Gardens
Solihull Marie Curie
Earlswood Wildlife Partnership
Sun Rising Natural Burial Ground
Happy Hogs Hedgehog Rescue
Warwickshire Hedgehog Rescue
People's Trust for Endangered Species

The National Exhibition Centre
Warwickshire Badger Group
The Solihull Big Green Group
The Elmdon Park Support Group
Snuffles Hedgehog Rescue
Solihull Lions
Jaguar Land Rover (JLR)
Solihull Eco-Schools
Love Solihull

The relationship with one of Solihull's largest employers, JLR is underdeveloped at present. Channels of communication have been difficult to open. The project delivered a seminar to JLR's 'Environment Champions' however there has been no resulting action. The project will continue to pursue the relationship with contacts made with the aim of surveying for hedgehogs on JLR land in Elmdon and the wider county and making recommendations for the management of their substantial areas of land in the county.

There has been recent interest in the project from other organisations, notably Britvic Soft Drinks who manage sites in both Solihull and Rugby; John Grimes Sawmills Ltd and a local producer of 'Hedgehog Doors' for fences who is keen to be involved with the projects expansion into Rugby.

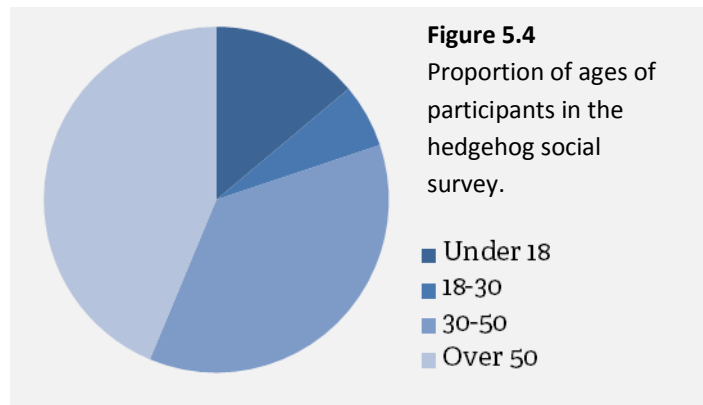
5.5 Social Survey

453 participants were surveyed throughout the pilot year of the project. Questionnaires were issued to participants of hedgehog footprint surveys and were distributed at community events throughout the season. The aim of the survey was to gauge people's understanding of the issues facing hedgehogs and to use the results as a base-line from which to measure change throughout the project's development.

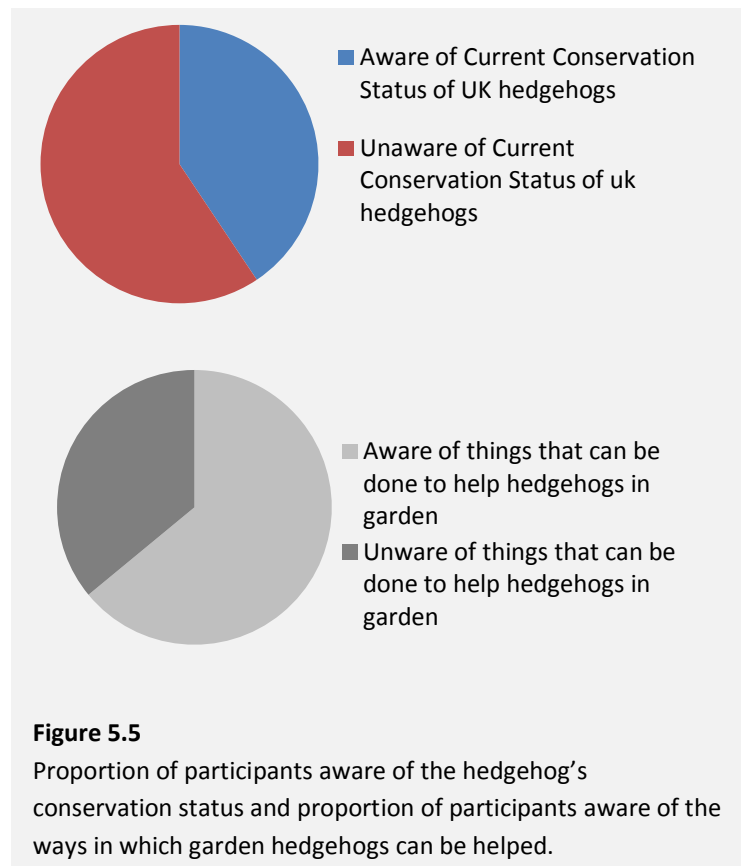
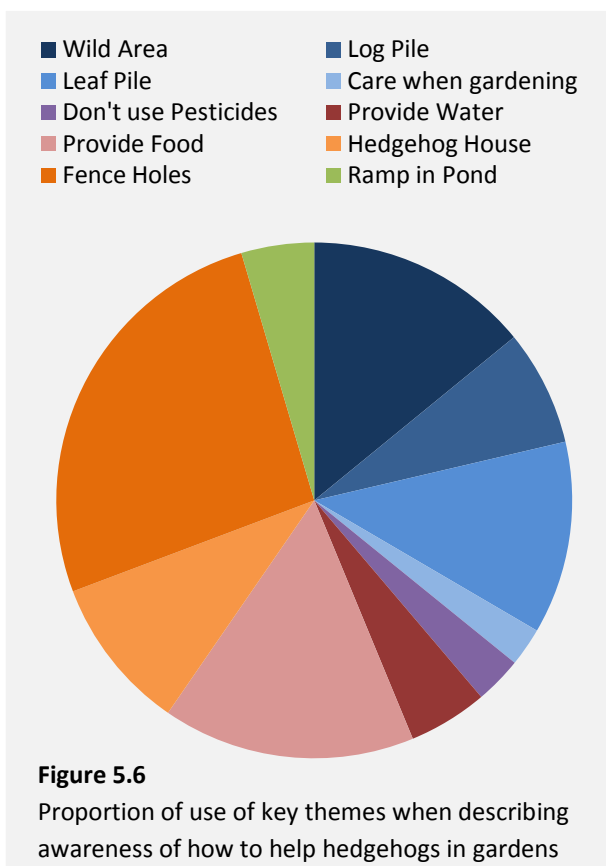
Participants were asked to answer three questions about hedgehog conservation and a further three about their garden and the HIA project (appendix 3). Participants were

asked to provide brief explanations of these answers from which key words and themes could be extracted.

A range of age groups took part in the survey with the over 50s being the most numerous participants (n=198, 43.7%). This is a reflection of the age range of many of the community groups which have been engaged with the project (see figure 5.4).

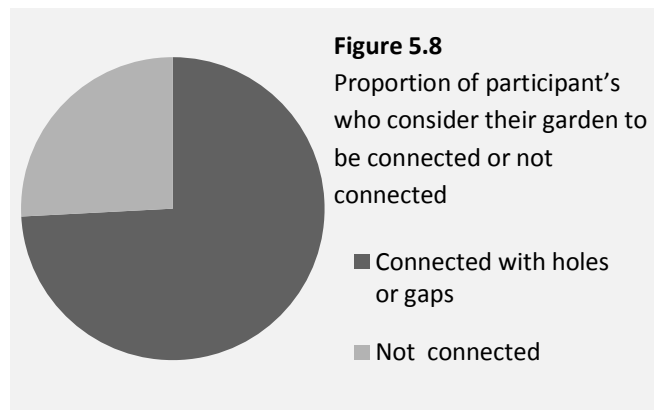
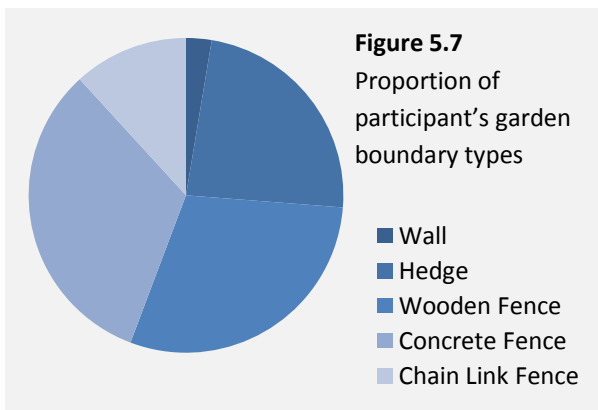


40.61% of those surveyed claimed to be aware of the current conservation status of the hedgehog (see figure 5.5) with 64.02% of participants showing some awareness of ways which hedgehogs can be helped in gardens. Figure 5.6 demonstrates that creating access in the form of fence holes was the theme appearing most frequently in descriptions (n=195, 26.17%) with provision of supplementary food (n=118, 15.84%) and the creation of 'wild areas' within the garden also being frequent in answers (n=105, 14.09%).

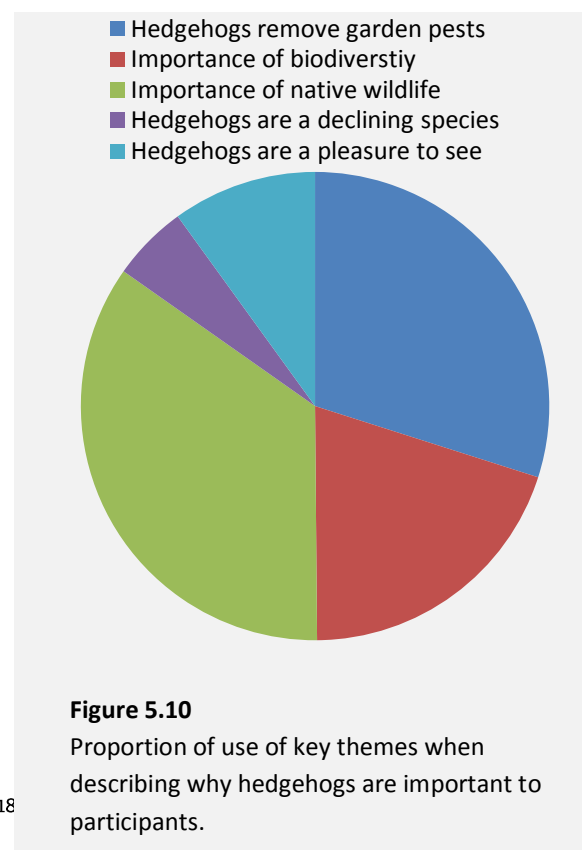
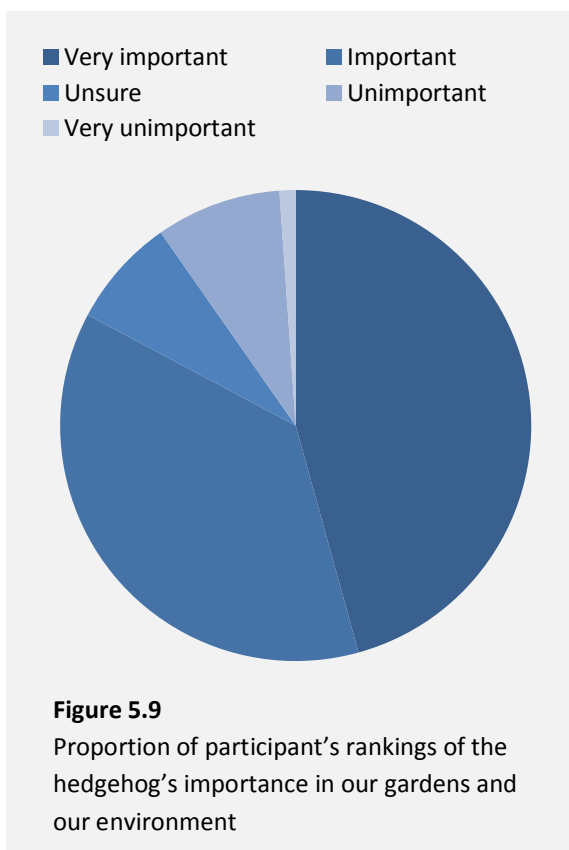


Participants were asked to select the boundary categories which best described their garden as detailed in figure 5.7. Fences were the most frequent category with a combined percentage of 73.77% and within that group concrete based fences (32.46%)

and wooden fences (29.51%) were most frequent. Despite the high frequency of less permeable boundary categories, 74.17% of those surveyed considered their garden to have holes or gaps in the boundary. This will be examined closely in the development of the project with physical surveys of garden boundaries to determine whether this figure is a true reflection of gardens in Solihull.



When ranking the importance that hedgehogs hold as a part of garden wildlife and our environment as a whole, 45.70% of participants deemed hedgehogs to be 'very important' and only 9.71% considered their presence unimportant or very unimportant (see figure 5.9). In describing the reasons for the importance of hedgehogs (figure 5.10), themes relating to the importance of native wildlife were cited most frequently (34.9%), with the idea of the hedgehog being 'the gardeners friend' and removing pest species also appearing often (29.92%). Despite 40% of participants stating an awareness of hedgehog conservation status, the fact that hedgehogs are in decline was only mentioned in 5.26% of responses (figure 5.10).



Participants were asked about their prior awareness of the Solihull Hedgehog Improvement Area project. The majority (55.62%) of those surveyed were unaware of the project. Participants were also asked how they were made aware of the project. A large proportion of those surveyed stated that they had been made aware via articles read on the internet (31.58%) with events (20.39%) and local news coverage (19.73%) also being frequently mentioned.

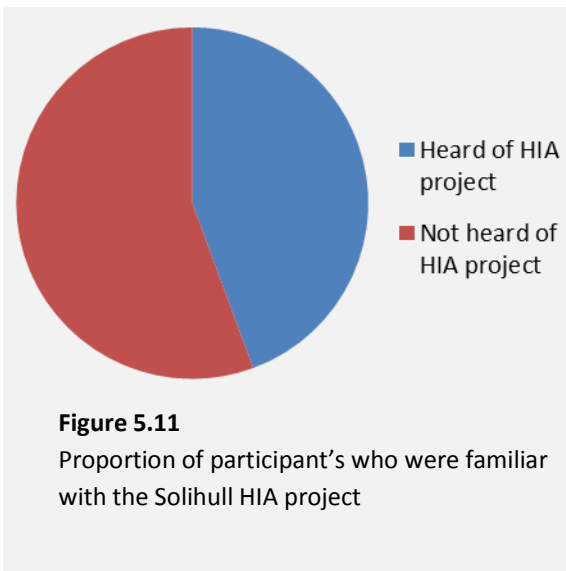


Figure 5.11
Proportion of participant's who were familiar with the Solihull HIA project

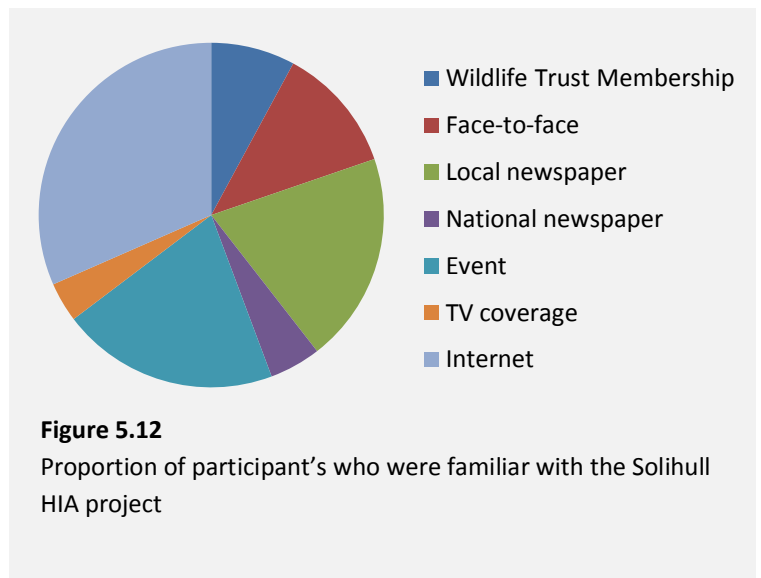


Figure 5.12
Proportion of participant's who were familiar with the Solihull HIA project

The results of this survey will be used as a baseline level of perception from the pilot year of the project. Repeat surveys will be issued throughout the project's development in order to track changes in awareness and people's perception of hedgehog conservation and the project in Solihull.

6. Hedgehogs in the HIA

6.1 Hedgehog sightings

Warwickshire Wildlife Trust began an appeal for hedgehog sightings in 2013. Since then a total of 1,569 records have been submitted from across the county. With the Solihull HIA project being promoted widely across the county, 2015 saw a dramatic increase in the number of hedgehog sightings being submitted. 2014 totalled 261 hedgehog sighting submissions rising to 693 in 2015, representing a 165.5% increase in sightings submitted.

Hedgehog sightings data within Solihull are mapped in figure 6.1. The data reveal that hedgehogs are being recorded widely across the majority of the populated areas of the borough. However there is no density of sightings in any particular area. There is a notable lack of sightings data from Dorridge, a large village to the south-east of Solihull town.

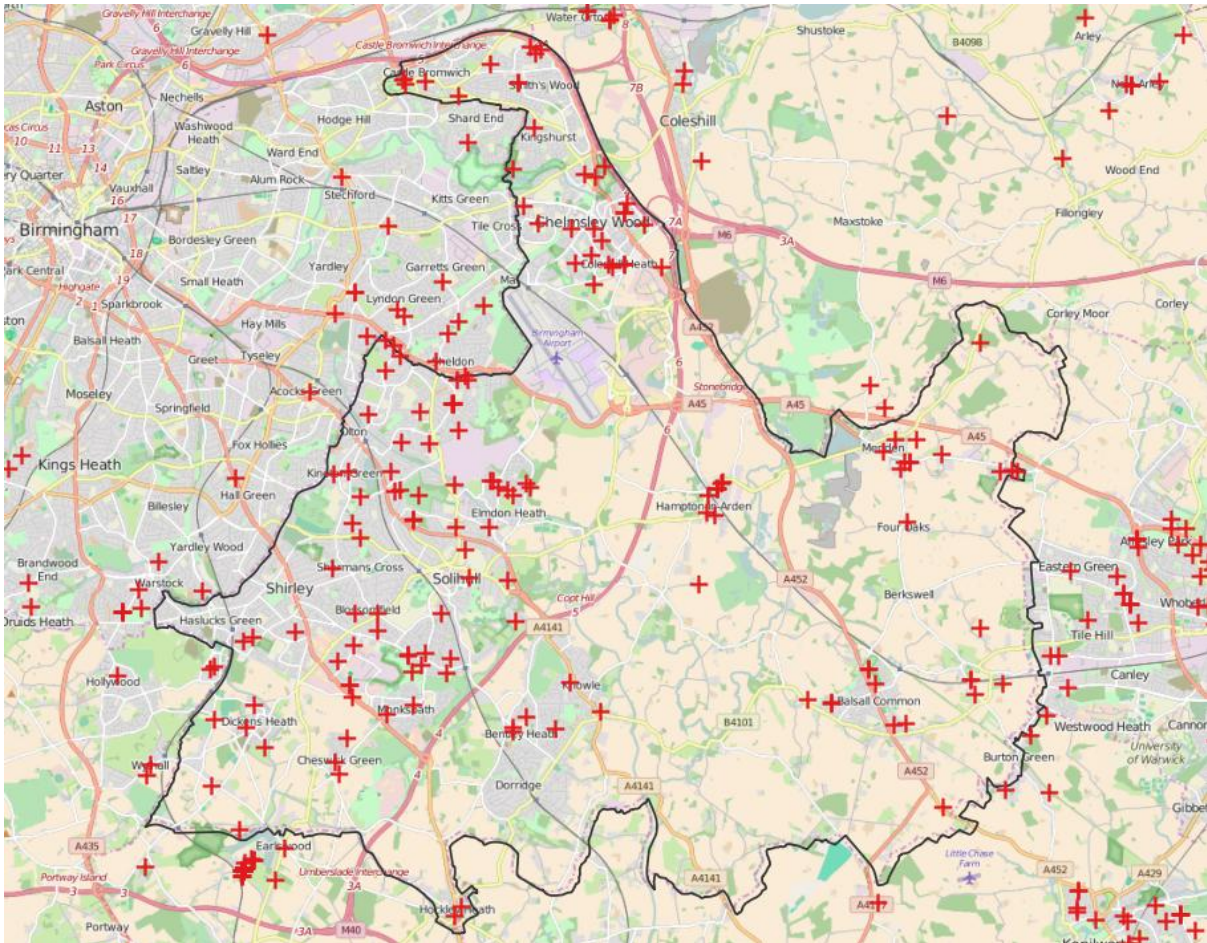


Figure 6.1
Hedgehog sightings within the borough of Solihull data correct to the end of February 2016. Each red cross represents a single hedgehog record. Mapping © 2016 OpenStreetMap Contributors

6.2 Hedgehog presence/absence surveys

Footprint tunnels have been used across the borough to actively survey for hedgehogs in public and private green space. With the help of volunteer surveyors, and following the methodology described by Yarnell et al (2014) hedgehog footprint tunnels were sited in 177 locations and were monitored for periods of 5 consecutive nights between May and September.

Figure 6.2 shows the plotted results of borough wide hedgehog presence/ absence surveys. A very low proportion of footprint tunnels recorded hedgehog presence, 15.81% (n=28). This very low occupancy could be a true reflection of the landscape for hedgehogs in suburban Solihull, pointing to extremely poor accessibility of many gardens simply excluding hedgehogs.

Far more needs to be understood about the connectivity of Solihull's gardens. In some areas each and every garden could act as a barrier to hedgehogs, a single footprint tunnel in a single garden only provides data about that one garden and no information

about the immediate surroundings. This can lead to a very limited picture of hedgehog presence. Both mapping garden connectivity and building upon the support of current survey volunteers will be key in allowing a more detailed understanding to develop.

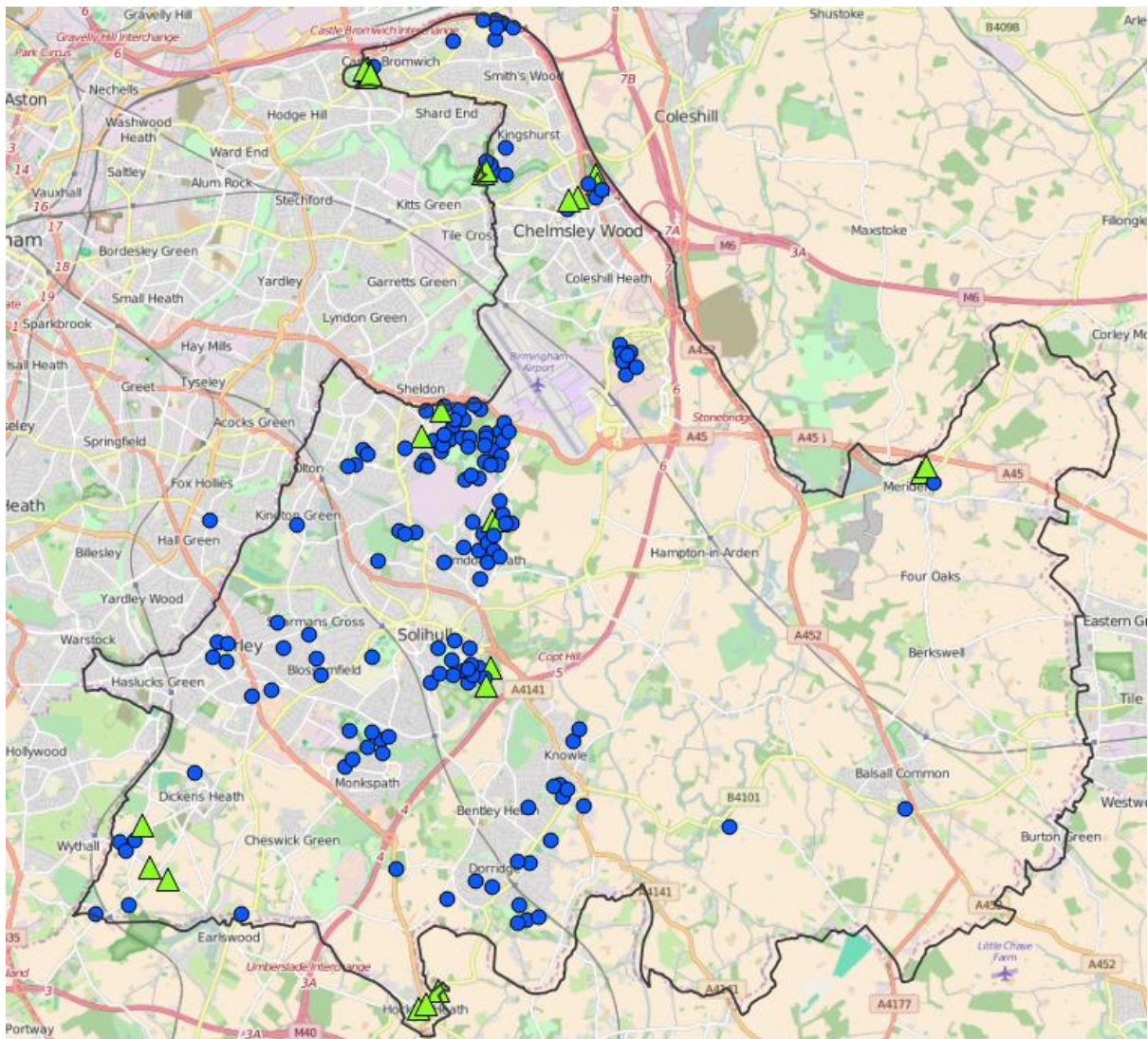


Figure 6.2

Distribution of footprint tunnels across the borough of Solihull detailing tunnels recording hedgehog presence and those not. Mapping © 2016 OpenStreetMap Contributors

- Footprint tunnel recording no hedgehog presence
- ▲ Footprint tunnel recording hedgehog presence

Hedgehog accessibility will be investigated further in the development of the project with a focused presence absence survey being run alongside an audit of garden accessibility, with the aim of mapping gardens which are accessible to hedgehogs against those which are used.

Volunteer surveyors were recruited using a mixture of methods including media communication, leaflet drops and door knocking. It is possible that the recruitment and use of volunteer surveyors leads to bias, with people knowing that they had hedgehogs using their gardens perhaps being less likely to elect to undertake a survey and more likely to simply submit a hedgehog sighting. Future footprint tunnel survey volunteer recruitment will be monitored by measuring participant’s pre-conceived ideas about the presence of hedgehogs in their gardens. In order to quantify any tendency for “hopeful” surveyors who would like hedgehogs but have no reason to believe that they are there.

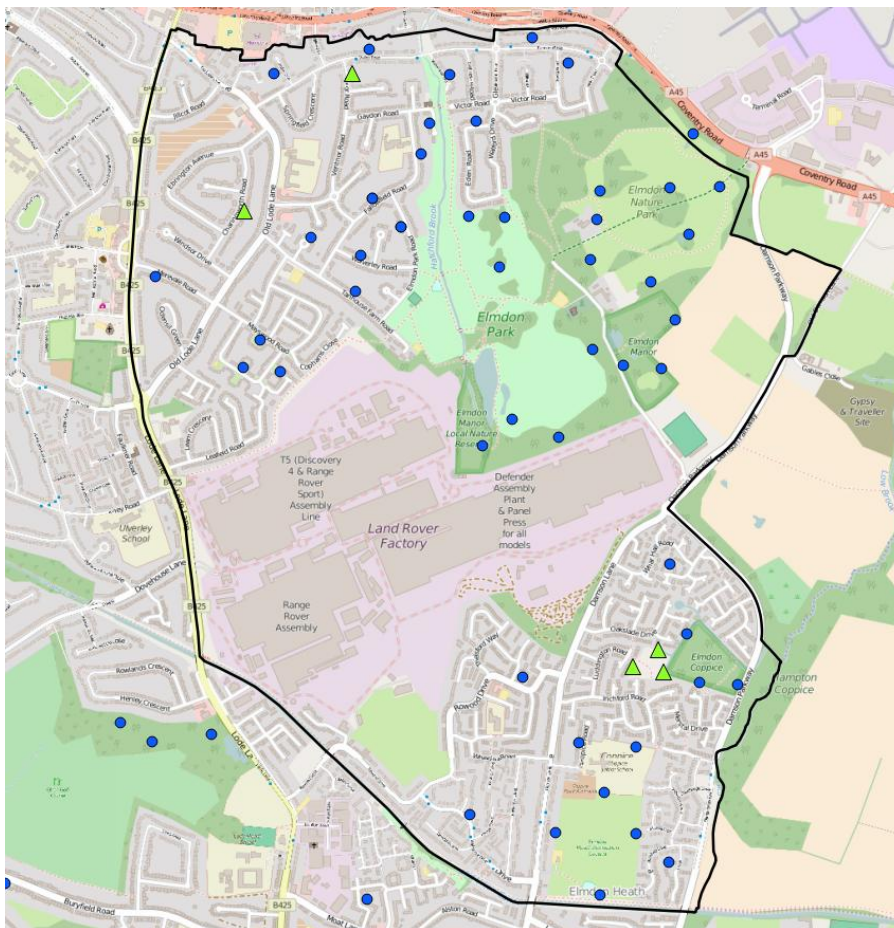


Figure 6.3
Distribution of footprint tunnels across the ward of Elmdon detailing tunnels recording hedgehog presence and those not. Mapping © OpenStreetMap Contributors

- Footprint tunnel recording no hedgehog presence
- ▲ Footprint tunnel recording hedgehog presence

Low occupancy rates were seen too in open green space. Tunnels within only 5 of SMBC’s parks recorded hedgehogs (appendix 3), with notable absences in Elmdon park (fig 6.3) in which no hedgehog activity was recorded across a total of 270 trap nights. Figure 6.4 details the locations of Solihull’s 20 public parks and those 5 in which hedgehog presence was recorded.

Disturbance of tunnels within public green space was observed, particularly by dogs. All of Solihull’s suburban parks are used heavily by dog walkers which may have impacted upon the efficacy of the tunnel methodology in these open public areas. Tunnels were deployed and re-filled in the late afternoon to minimise the amount of time available for disturbance to occur prior to nightfall. In the next phase of the project spotlight

searches of key public green spaces will be undertaken alongside footprint tunnel surveys in order to verify negative results.

6.3 Hedgehog abundance

The need to monitor hedgehog abundance in the Solihull Hedgehog Improvement Area was recognized in the development phase of the pilot project. From the outset Warwickshire Wildlife Trust has worked with Reading University on achieving this objective. Unfortunately, being included under Reading University staff's hedgehog licence as "accredited agents" was not a possibility during the pilot year. As a result the project has been unable to calculate an abundance baseline during the pilot year of the project.

The inability to calculate this baseline figure is a gap in the project's understanding and ability to monitor changes in the hedgehog population over time. There are serious concerns over the risks associated with Warwickshire Wildlife Trust cage trapping in private residential properties and as such the scale and logistics of any resulting abundance studies will be thoroughly assessed to ensure that risk can be mitigated for. A small scale marking scheme within the ward of Elmdon would provide the project with relevant data about the permeability of gardens in the area, it is felt that this would be a greater use of resources, and of more use to the project than to trial large scale capture-mark-recapture studies. With this in mind it is felt that the project may trial small scale potential methodologies to overcome the challenges of calculating a measure of hedgehog abundance in an urban setting however this will not constitute a priority for the coming year.

7. Conclusions and Project Development

The pilot year of the HIA project has been extremely well received in Solihull. Numbers of people seeking to engage with the project have been growing throughout the year and the effort put in to community engagement and education work throughout 2015-16 has developed strong local relationships and positioned the project well to develop successfully over the coming year. After a recently delivered seminar for SMBC, plans are now in place to commence hedgerow planting at Langley Hall Park in the west of the borough in the coming weeks and hedgehog friendly fencing prescriptions have been submitted to SMBC ecology and planning departments. It is hoped that this relationship will be built further over the coming year and more positive action will be undertaken as a result of the project's work throughout its pilot year.

Hedgehog and habitat survey effort will be far more localised throughout the coming year, with the objective of building a truly community owned, repeatable hedgehog survey within Elmdon. Local interest groups including the Elmdon Park Support Group are now engaged and working closely with Elmdon's allotment holders, primary schools, residents and interest groups it is hoped that this survey will be a lasting legacy of the project.

Hedgehog surveys across the borough have yielded low records of hedgehogs. Knowing where hedgehogs have not been recorded is an important part of the project and using this survey baseline, combined with the submitted sightings data it is hoped that improvements in hedgehog distribution will be made. Torchlight transect searches of public green space will be undertaken to validate absence results in key areas, particularly the green space within Elmdon.

Gaps in understanding from the pilot year will be addressed, with a particular focus on investigation and promotion of garden connectivity. The Hedgehog Street 'Big Hedgehog Map' will be a crucial tool in allowing the HIA project's supporters to map their hedgehog friendly access. Ways in which urban connectivity and garden quality can be successfully recorded, mapped and visualised will be discussed with Warwickshire Wildlife Trust's Habitat and Biodiversity Audit team in order to try and improve our understanding of the garden landscape which is so vital to our urban populations of hedgehogs.

Development of the front garden audit within Elmdon will take place to build a detailed picture of habitat availability across the ward including all areas of public green space and crucially the accessibility of privately owned back gardens. This survey will use a mixture of methods including surveys of landscape and social surveys of residents to build a detailed picture of the urban landscape.

Thanks to further funding from the British Hedgehog Preservation Society, development of the project in Solihull will be mirrored by the launch of a second project area in Rugby. This project will be focussed closely on land which is scheduled for development. Undertaking surveys in these areas to establish whether hedgehogs are present pre-development and to try and influence change, green space provision and habitat corridor management in housing developments within the borough to ensure that Rugby's hedgehog population will have suitable, contiguous habitat long into the future.

8. Appendix

Appendix 1. Project Press Release March 2015

10 March 2015

News Release from Warwickshire Wildlife Trust

EMBARGO UNTIL TUESDAY 17TH MARCH 2015

UK's first hedgehog conservation area established in Solihull

A landmark project launched today by Warwickshire Wildlife Trust has selected Solihull as the location for the UK's first dedicated hedgehog conservation area, called the Hedgehog Improvement Area (HIA). Thanks to funding from the British Hedgehog Preservation Society (BHPS) the initiative has been developed in response to an alarming national decline in hedgehog numbers. The HIA aims to bolster the region's hedgehog population, inspiring local people and organisations to take action to help one of the country's most enigmatic and well-loved species.

"We are delighted to be funding such an exciting and important project in Warwickshire that will hopefully benefit many hedgehogs. Simple measures such as ensuring there is a 5" square gap in boundary walls and fences make a massive difference to local hedgehog populations. There are many ways people can assist this declining species and we hope this project will complement our work to highlight the plight of the hedgehog."
Fay Vass, Chief Executive, British Hedgehog Preservation Society.

INTERVIEW AND PHOTO OPPORTUNITY

YOU ARE INVITED to learn more about the HIA project on Thursday 12th March, 1pm, Elmdon Park, Solihull, B92 9EY.

For directions please contact Emma Richmond, Marketing and Communications Officer.

AVAILABLE FOR INTERVIEWS:

Simon Thompson – Hedgehog Officer, Warwickshire Wildlife Trust
Ed Green – CEO, Warwickshire Wildlife Trust
Stephen Trotter – Director for England, Wildlife Trusts
Fay Vass – CEO, British Hedgehog Preservation Society
Cllr R Hulland – Solihull Metropolitan Borough Council

At the heart of the initiative will be a 90 hectare 'Hedgehog Reserve', incorporating Solihull Metropolitan Borough Council's Elmdon Park and Warwickshire Wildlife Trust's Elmdon Manor nature reserve. A group of volunteer 'wildlife guardians' will be recruited to aid in the management of



Warwickshire

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Warwickshire Wildlife Trust
Registered Charity no. 209200

this area of green space, helping to establish a central sanctuary from which the hedgehog population will be able to disperse and inhabit the surrounding area.

Community-based conservation is at the core of the HIA concept which will invite all members and groups within the area to make lasting improvements for hedgehogs. Warwickshire Wildlife Trust will be asking the residents of Elmdon to open up their private gardens to hedgehogs by simply making a 5" hole in their garden fence. Radiating out from the central 'Hedgehog Reserve' the HIA team aims to connect as many gardens in Solihull as possible; making a radical increase in the area of habitat available for hedgehogs within the urban environment.

"Something as basic as linking up a series of small isolated green patches with a hole no bigger than the size of a CD is a remarkably powerful and positive action for hedgehog conservation. Making these connections between our own fenced-in islands of green spaces creates a continuous habitat corridor through which hedgehogs can forage, seek shelter and rendezvous with potential mates."

Simon Thompson, Hedgehog Officer, Warwickshire Wildlife Trust.

Warwickshire Wildlife Trust's Hedgehog Officer, Simon Thompson, will be delivering the project and extending an invitation to Solihull's residents to participate in all elements of the initiative; notably a large scale citizen-science project to map and monitor hedgehog distribution and abundance across the town. Residents will be trained and encouraged to conduct hedgehog surveys in their own gardens using purpose built hedgehog footprint tunnels and remote HD wildlife cameras loaned out by Warwickshire Wildlife Trust. All of the community's hedgehog records will be plotted onto a map so that the project's progress can be easily followed throughout the season.

"I'm really proud to be working on a project which has its feet so firmly grounded in grass-roots conservation. Local people and businesses have the opportunity to be involved with every level of the project. Whether getting hands-on with habitat management or borrowing a remote camera to conduct a survey in a back garden, everyone can get involved, ultimately helping to secure a bright future for hedgehogs in their community."

Simon Thompson, Hedgehog Officer, Warwickshire Wildlife Trust.

Alongside ongoing habitat improvements and survey work Warwickshire Wildlife Trust will be delivering a comprehensive programme of community engagement events, school visits, activities and talks to raise awareness of the issues effecting hedgehogs in both the rural and urban environments. This work will build upon support for Warwickshire Wildlife Trust's ongoing county-wide Help for Hedgehogs campaign and help to put the Solihull HIA on the map as a model for hedgehog conservation in the UK.

The work of the Hedgehog Improvement Area can be followed from all across the UK on Twitter and Facebook, through Warwickshire Wildlife Trust (@WKWT) and the Help For Hedgehogs Campaign (@Help4Hedgehogs).

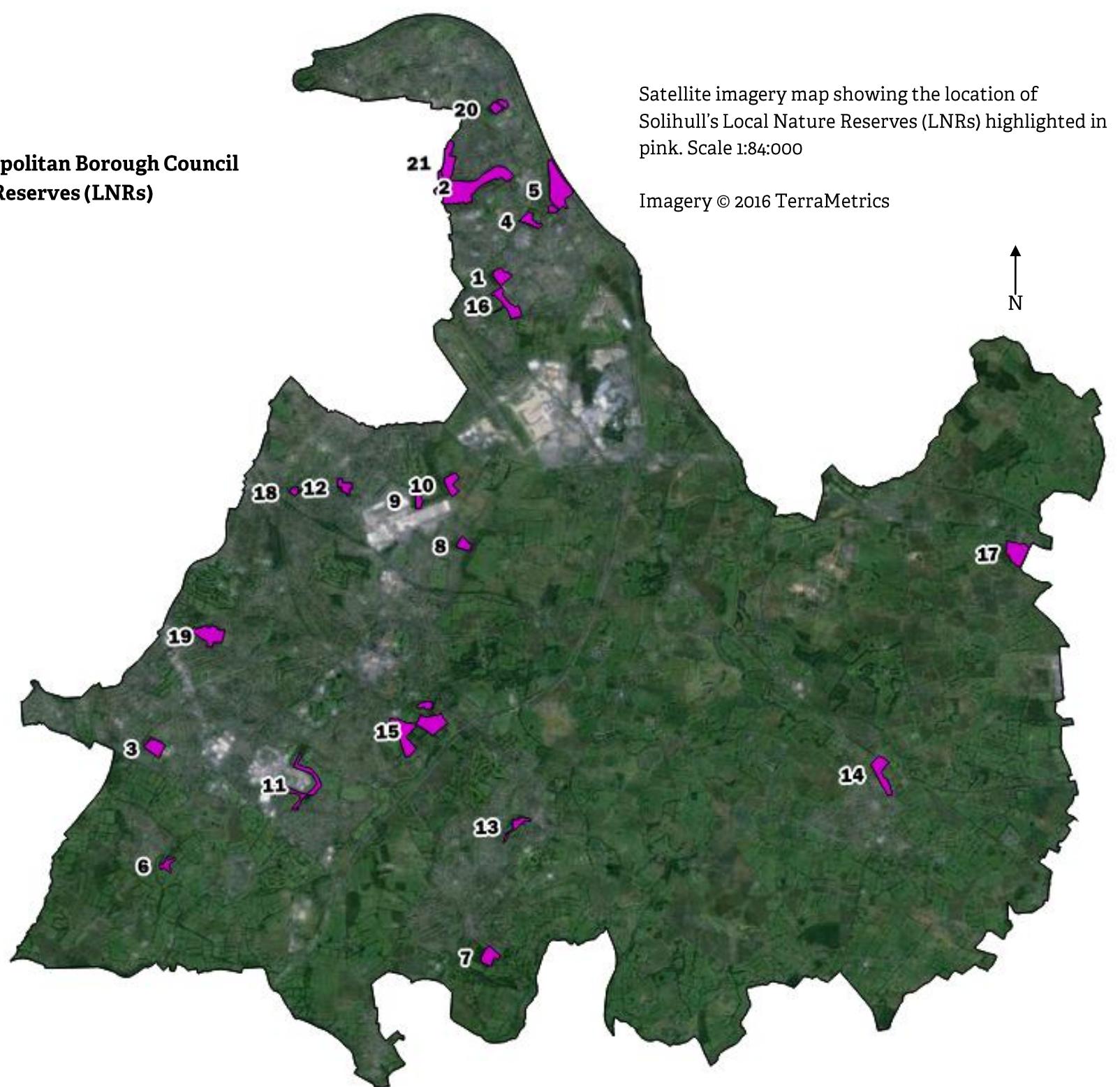
For the opportunity to get involved in the HIA project, whether it be through surveying for hedgehogs in your garden or through participating in hedgehog volunteering opportunities, simply visit: www.helpforhedgehogs.co.uk to register your interest today.

-ENDS-

Appendix 2. Solihull Metropolitan Borough Council Local Nature Reserves (LNRs)

Key to LNRs

1. Alcott Wood
2. Babbs Mill
3. Bills Wood
4. Chelmsley Wood
5. Cole Bank
6. Dickens Heath
7. Dorridge Wood
8. Elmdon Coppice
9. Elmdon Park
10. Elmdon Manor
11. Hillfield
12. Hobbs Moat
13. Jobs Close
14. Lavendar Hall
15. Malvern and Brueton Park
16. Marston Green
17. Millisons Wood
18. Olton Jubilee Wood
19. Palmers Rough
20. Smiths Wood North and South
21. Yorks Wood



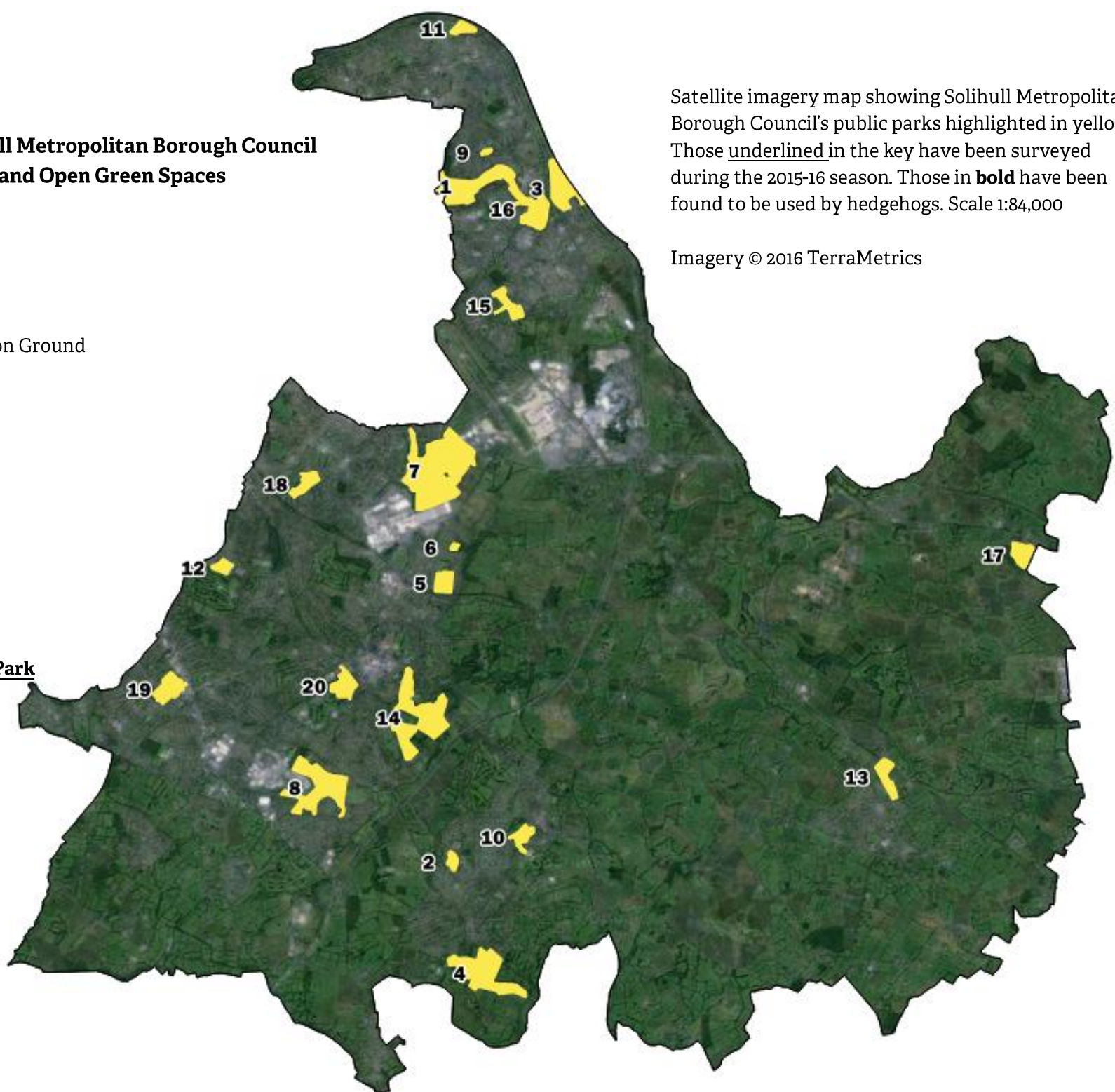
Appendix 3. Solihull Metropolitan Borough Council Parks and Open Green Spaces

Satellite imagery map showing Solihull Metropolitan Borough Council's public parks highlighted in yellow. Those underlined in the key have been surveyed during the 2015-16 season. Those in **bold** have been found to be used by hedgehogs. Scale 1:84,000

Imagery © 2016 TerraMetrics

Key to SMBC Parks

1. **Babbs Mill Park**
2. Bentley Heath Recreation Ground
3. **Cole Bank Park**
4. Dorridge Park
5. Elmdon Heath
6. **Elmdon Coppice**
7. Elmdon Park
8. Hillfield Park
9. Kingshurst Park
10. Knowle Park
11. Lanchester Park
12. Langley Hall Park
13. Lavendar Hall Park
14. **Malvern and Brueton Park**
15. Marston Green Park
16. **Meriden Park**
17. Millisons Wood
18. Olton Jubilee Park
19. Shirley Park
20. Tudor Grange Park



Appendix 4. Hedgehog Questionnaire

About Hedgehogs

Please read the statements below and tick **one** response.

Are you aware of the current conservation status of hedgehogs in Britain?

Yes.

No.

Are you aware of things that you can do to help hedgehogs in your garden?

Yes.

No.

If yes, briefly describe what you could do.

.....

.....

.....

How do you rank the importance of having hedgehogs in your garden and in our environment as a whole?

Very important.

Important.

I don't know

Unimportant.

Very unimportant.

Briefly explain your answer.

.....

.....

.....

About Your Garden

Which **one** best describes your garden boundary?



Wall



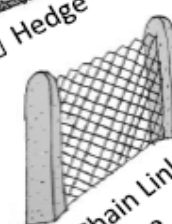
Hedge



Wooden Fence



Concrete Based Fence



Chain Link Fence

Which **one** best describes your garden's boundary?

Connected to other gardens with holes or gaps.

Not connected to other gardens, no holes or gaps.

Had you heard about the Hedgehog Improvement Area before receiving this questionnaire?

Yes.

No.

If yes, briefly describe where.

.....

.....

.....

9. References

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